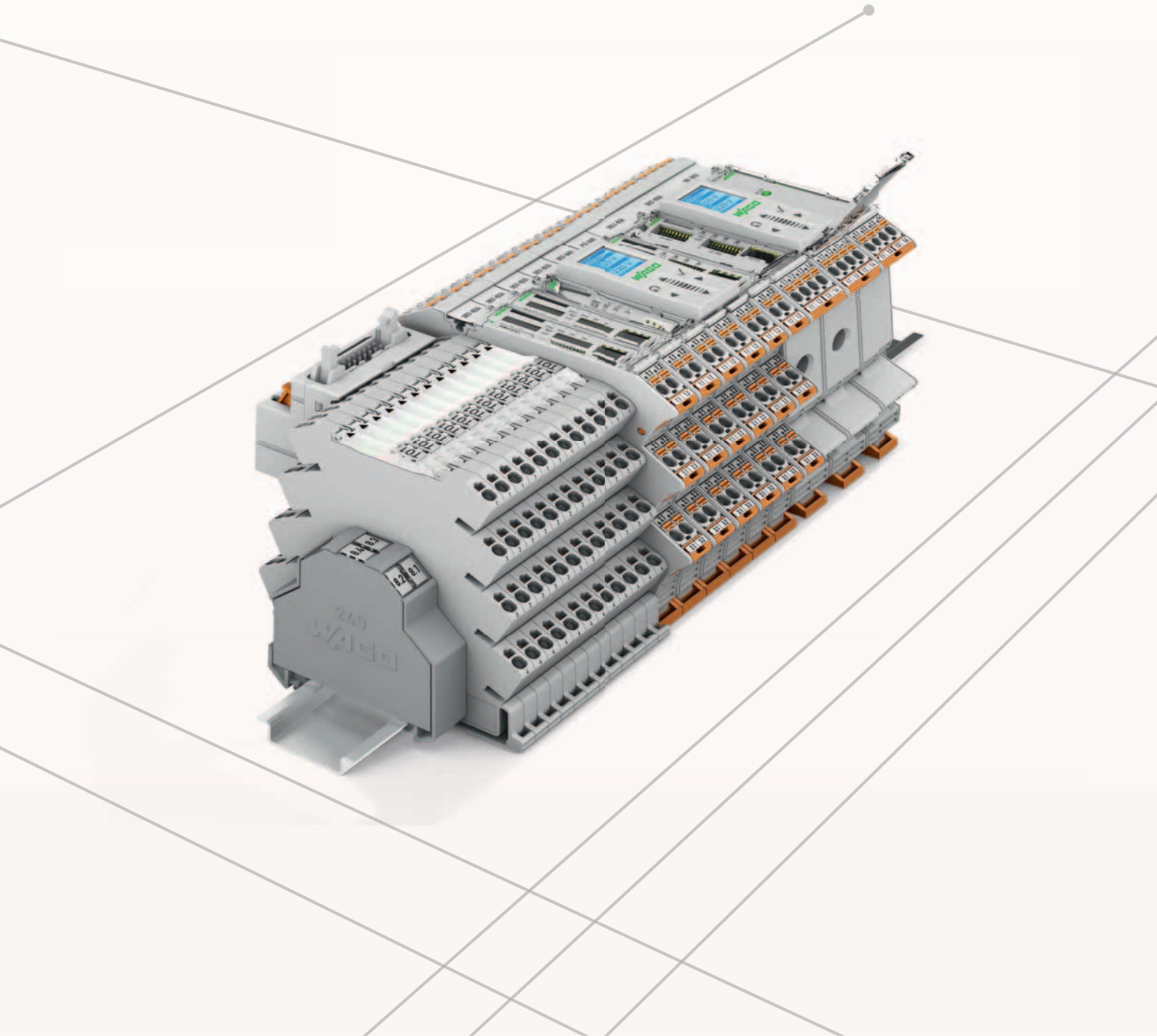
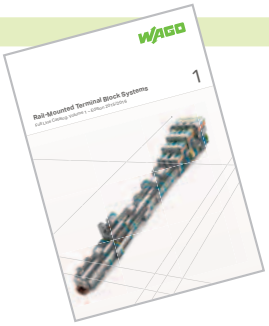
Interface Electronic

Full Line Catalog, Volume 4 – Edition 2015/2016

4



WAGO Full Line Catalogs



Volume 1, Rail-Mounted Terminal Block Systems

- Rail-Mounted Terminal Blocks
- Rail-Mounted Terminal Blocks with Pluggable Connector (X-COM®-SYSTEM and X-COM®S-SYSTEM)
- Patchboard Systems
- Terminal Strips
- PUSH WIRE® Connectors for Junction Boxes
- Lighting Connectors
- Shield Connecting System

Volume 2, PCB Terminal Blocks and Connectors

- PCB Terminal Blocks
- SMD PCB Terminal Blocks
- *MULTI CONNECTION SYSTEM (MCS)*
- Pluggable PCB Terminal Blocks
- Feedthrough Terminal Blocks
- Specialty Connectors
- Empty Housings

Volume 3, Automation Technology

- Software
- Operating & Monitoring – *PERSPECTO®*
- Controllers
- Modular I/O-SYSTEM, IP20/IP67
- Industrial Switches
- Radio Technology, *TO-PASS®* Telecontrol Technology
- IP67 Sensor/Actuator Boxes, IP67 Cables and Connectors

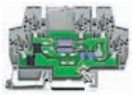
Volume 4, Interface Electronic

- Relay and Optocoupler Modules
- *JUMPFLEX®* Signal Conditioners and Isolation Amplifiers
- Current and Energy Measurement Technology
- *EPSITRON®* Power Supply System
- Interface Modules and System Wiring
- Overvoltage Protection
- Interface Modules with Specialty Functions
- Empty Housings

Volume 5, WINSTA® – The Pluggable Connection System

- *WINSTA®* MINI – Pluggable Connectors
- *WINSTA®* MINI special – Pluggable Connectors
- *WINSTA®* MIDI – Pluggable Connectors
- *WINSTA®* MIDI special – Pluggable Connectors
- *WINSTA®* MAXI – Pluggable Connectors
- *WINSTA®* RD – Cable Assemblies
- *WINSTA®* KNX – Pluggable Connectors
- *WINSTA®* IDC – Flat Cable Systems
- *WINSTA®* – Distribution Boxes

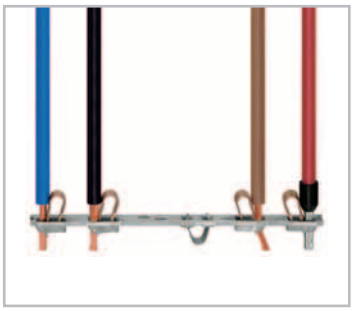
Volume 4, Interface Electronic

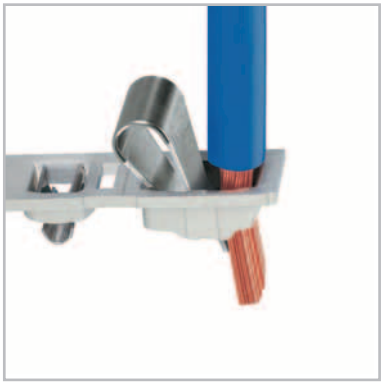
		Page
	Relay Modules	25
	Solid State Relay and Optocoupler Modules	117
	JUMPFLEX® Isolation Amplifiers and Signal Conditioners	169
	Current and Energy Measurement Technology	239
	EPSITRON® Power Supply System	269
	Interface Modules	363
	System Wiring	387
	Interface Modules with Specialty Functions	417
	Empty Housings	449
	Overvoltage Protection	467
	Accessories	483
	Technical Section	551
	Index and Addresses	569

Operating WAGO Connection Technologies

Please follow the applicable product-specific termination instructions:

PUSH-IN CAGE CLAMP®





Push-in CAGE CLAMP® terminates the following copper conductors:
solid

stranded

fine-stranded, also with tinned single strands

fine-stranded, tip-bonded

fine-stranded, with ferrule (gastight crimped)

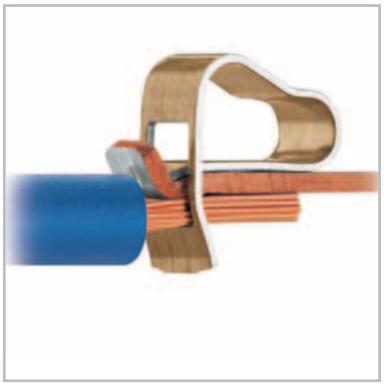
fine-stranded, with pin terminal (gastight crimped)

The universal connection with an additional advantage: Push-in connection

Terminate solid and stranded, as well as ferruled conductors, by simply pushing them in – no operating tool needed.

Easily terminate all conductor types:
- Open the clamping unit
- Insert conductor
- Release the clamp – done!

CAGE CLAMP®



CAGE CLAMP® terminates the following copper conductors:
solid

stranded

fine-stranded, also with tinned single strands

fine-stranded, tip-bonded

fine-stranded, with ferrule (gastight crimped)

fine-stranded, with pin terminal (gastight crimped)

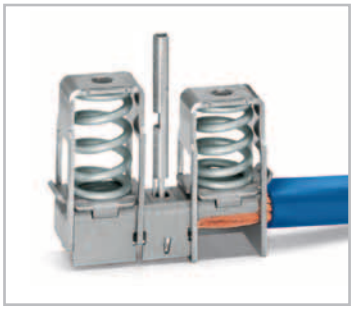
The universal connection for solid, stranded and fine-stranded conductors

To use:
- Open the clamping unit
- Insert conductor
- Release the clamp – done!

Operating WAGO Connection Technologies

Please follow the applicable product-specific termination instructions:

POWER CAGE CLAMP®



POWER CAGE CLAMP terminates the following copper conductors:
solid

stranded

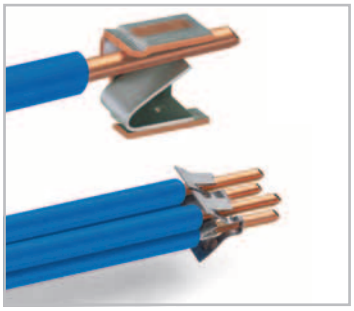
fine-stranded, also with tinned single strands

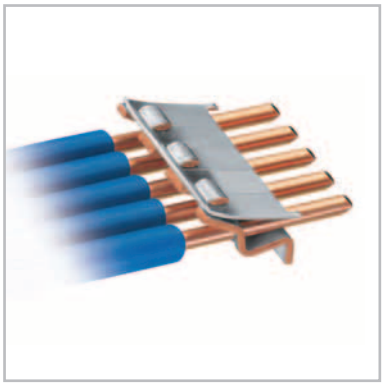
fine-stranded, with ferrule (gastight crimped)

The universal connection for conductors larger than 2 AWG (35 mm²)

To use:
- Open clamp by turning an Allen wrench counter-clockwise.
- Press the integrated latch to open clamping unit for hands-free wiring.
- Insert conductor.
- A small counter-clockwise rotation closes the clamp, securing conductor.

PUSH WIRE®





PUSH WIRE® terminates the following copper conductors:
solid

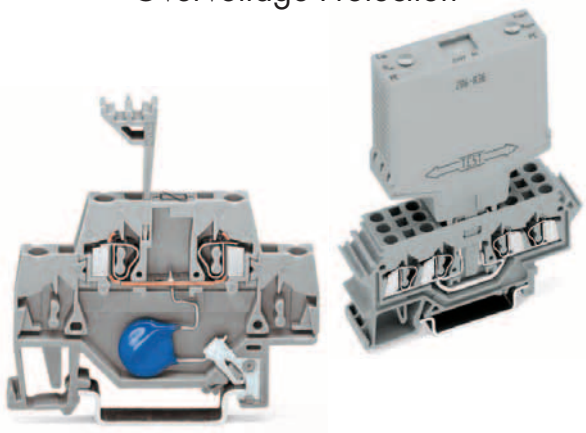
PUSH WIRE® connection for solid and stranded conductors (depending on the model used)

Easy to use:
Tool-free, twist-free terminations for solid and rigid stranded conductors – simply push into unit.

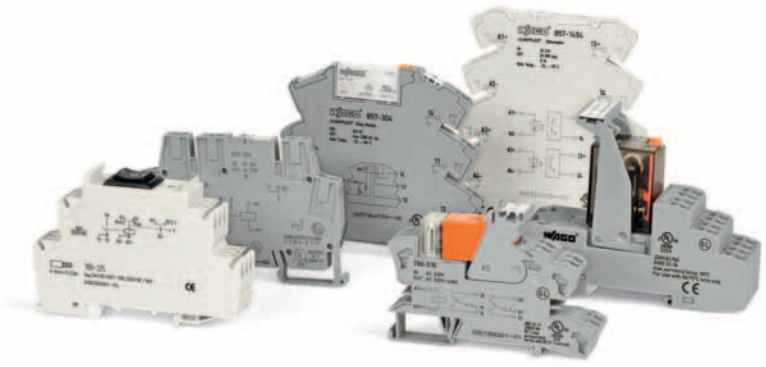
An Interface Solution for

EPSITRON® Power Supply System

Overvoltage Protection

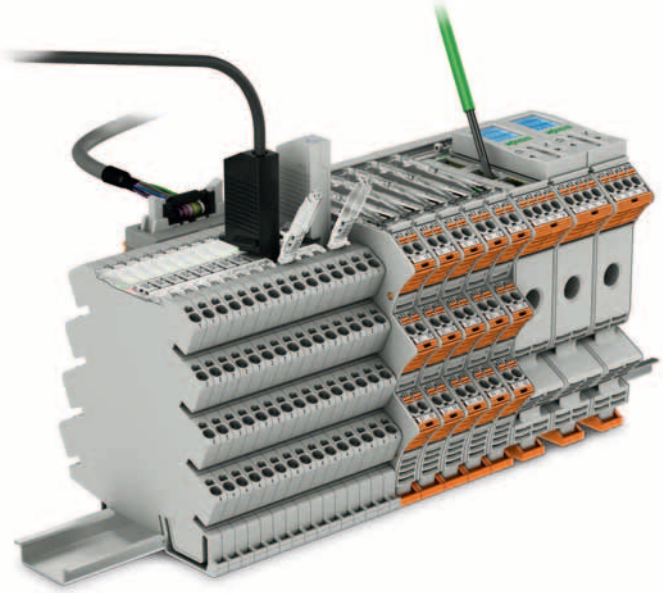


Relay and Optocoupler Modules

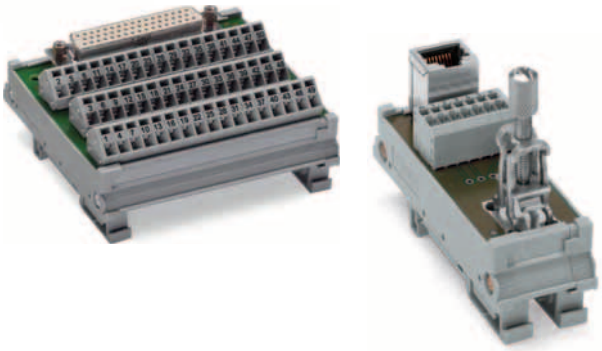


All Applications

JUMPFLEX® Signal Conditioners



Interface Modules



Current and Energy Measurement Technology

WAGO Interface Modules

Housings and Shapes

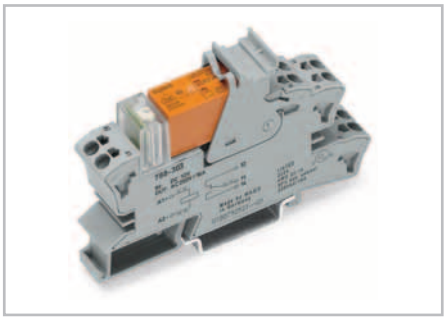
Nowadays when equipment is designed many scenarios need to be considered. Some of which are user and maintenance friendly, limited budgets, safety, availability, space requirements and simplicity in design and usage.

WAGO *AUTOMATION* offers interface modules in various shapes and sizes to overcome any of the restraints posed by space requirements.

This enables any demands and needs to be fulfilled using these different designs, such as pluggable function and interface modules, relay and optocoupler modules, etc.

788 Series Relay Sockets with Pluggable Miniature Switching Relay

The WAGO Series 788 relay socket forms an excellent basis for switching applications using pluggable miniature switching relays (1 or 2 changeover contacts) in industrial and process automation.



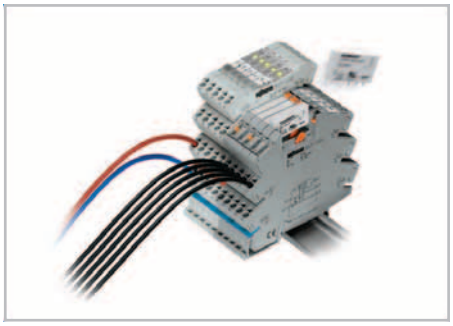
Relay socket with pluggable miniature switching relay

In addition to its compact design 15x53x86mm (W x H x D), the relay socket also stands out thanks to a number of user-oriented features, with the associated benefits for the user.

The lever facilitates relay replacement even when the relay sockets are placed close to each other.

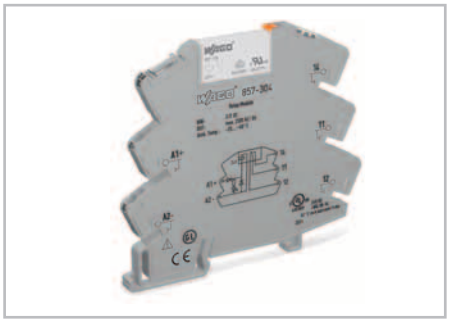
The sockets can be ordered as complete components including relay and status indication or as a single component.

857 Series Signal Conditioners and Relay Modules



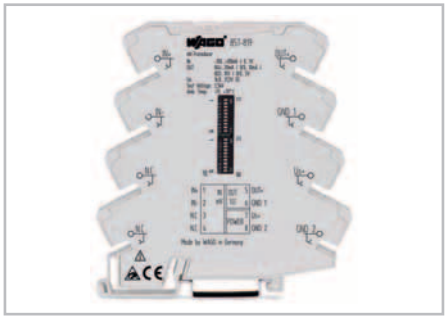
Signal Conditioners/Relay modules and Optocoupler module

The new 6mm-wide WAGO isolation amplifiers and transducers not only share a common profile, but in addition one in line jumper can be used to connect the supply voltages, etc, to all modules, doing away with the need to wire each connection. The smaller relay modules also fit perfectly in this scenario. The pluggable relays can simply be replaced from the top.



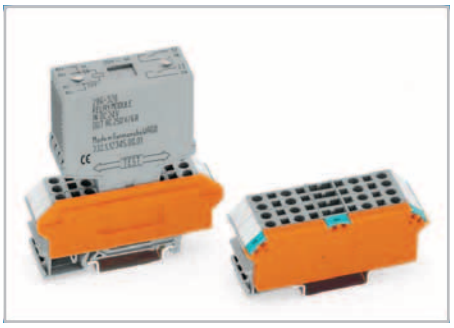
Relay module with pluggable miniature switching relay

In order to cover all application areas with one product family, it is intended to offer five different groups for the transducers alone: these include fixed and configurable isolating amplifiers, passive isolators, power supply isolators (also for HART applications), signal duplicators and temperature transducers for Pt100 and thermocouples.



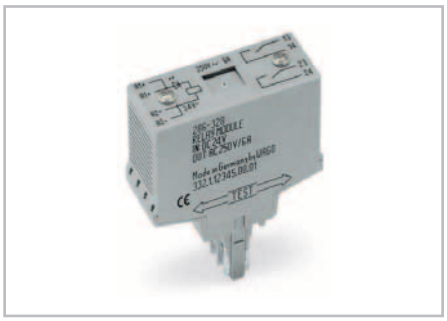
Signal Conditioner

286 Series Pluggable Function Modules



Pluggable function modules

The terminal blocks for pluggable modules offer the greatest degree of flexibility and maintenance-friendly service.
The terminal block for pluggable modules is mounted on the carrier rail and wired like a normal terminal block.
If service is required, this element can be replaced in one step, without having to deal with the system wiring. This saves space and additional wiring effort.

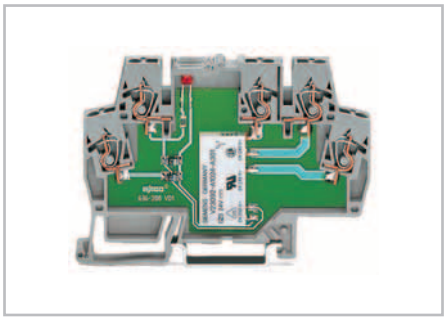


Pluggable function modules

The optocoupler and relay modules are ideal additions to a comprehensive function module program, allowing any required functions to be implemented in a control cabinet by means of a pluggable module system.

859 Series Relay Modules and Optocoupler Modules

The Series 859 is a complete product series that is ideal for the interface level in any industrial application, thanks to the wide range of relays and optocouplers.



Relay module

These units excel in tight spaces, thanks to their narrow 6mm design. Simple commoning at the control and load side enables quick and easy looping through of common input and output potential.

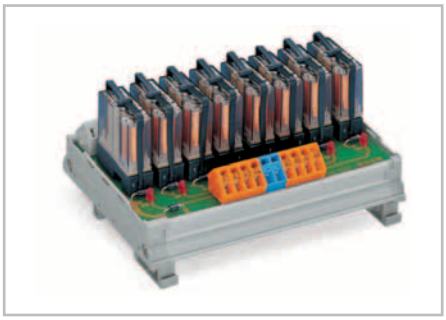
858 Series Sockets with Industrial Relays

Socket with Industrial Relay

Its robust design and the shock-proof CAGE-CLAMP® connecting technology used ensures continuous and uninterrupted operation of any kind of system.

288 Series DIN-Rail-Mountable Modules - Relay Modules and Sockets

The relay and PLC interface modules in the mounting socket that can be fitted on carrier rails ensure quick and easy linking of signals from periphery devices. The fully wired modules, with up to 16 high-performance relay outputs, provide for direct switching of actuators and other coupling elements in the field.

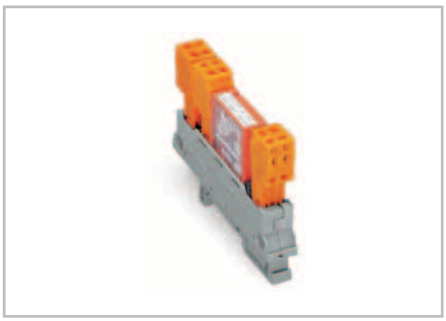


DIN-rail-mountable modules - relay modules

The requisite free-wheeling and reverse voltage protection diodes are also integrated to ensure a long service life of the products.

Other interface modules available as:

Multiple modules with plugged relays that are easy to replace, without affecting existing wiring.

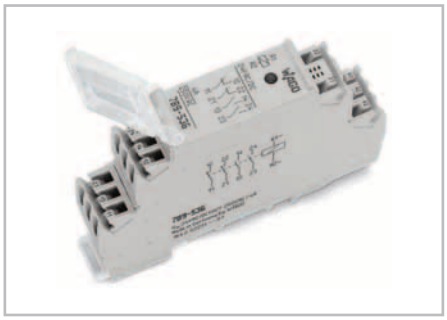


DIN-rail-mountable modules - relay modules

789 Series Relay Modules in DIN-Rail-Mountable Enclosure

The range of uses for the WAGO latching relays and switching relays of Series 789 spans from simple lighting controls in building services, such as in construction of apartments, hotels, office buildings or parking garages, etc., up to installations in industrial control cabinets.

The 17.5mm-wide design in series bay enclosures is particularly well-suited for installation in distribution boards and meter mounting boards.

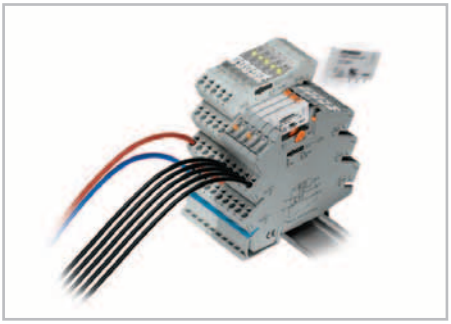


Relay modules in DIN-rail-mountable enclosure

The series bay enclosures are used for installation of other electronics devices having a large scope of functions and higher switching capacities; these come in sizes of
2 module spaces (35mm) and
4 module spaces (70mm).

WAGO Signal Conditioners and Relay Modules

***JUMPLFEX®* , 857 Series**



The perfect match of housing and electronics is the key to a highly successful device. This is exactly what has been achieved by WAGO with the transducers and relay modules of the 857 Series.

Analog systems technology – Basics

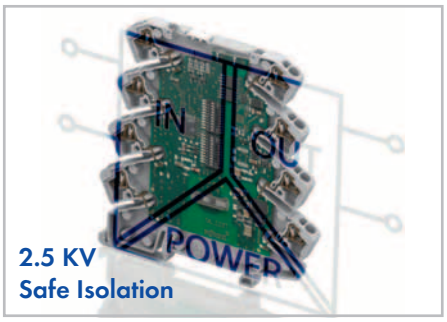
Problems can arise in signal processing in industrial systems of analog standard signals (such as 0 ... 10V or 0 ... 20mA) which can have an adverse effect on overall fault-free signal processing. Problems such as potential differentials arising from interlinked measuring circuits can be efficiently prevented using WAGO transducers, with their associated electrical isolation.

Decoupling (Isolation) methods

A basic distinction is made between active and passive isolation.

Active isolation

Depending on the design and model in use, devices are available that incorporate electrical 3-way isolation. 4-way isolation is provided in a signal duplicator. This means that all inputs, outputs and supply circuits are electrically isolated from one another with a 2.5 kV proof voltage.



This ensures that the greatest possible safety and reliability is achieved for the system and any devices connected to the system. For 3-way isolation provides for electrical isolation between the transducers and the control system and between the control system and the control elements.

At the input side the devices required active signals, i.e., the sensor signal is generated by a dedicated supply voltage.

These devices provide a filtered and amplified signal at the output side.

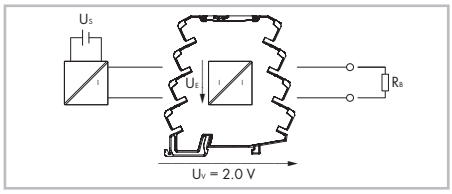
Passive isolation

A passive isolator draws power for signal transmission from the input circuit. In this case, the sensor must supply a power level adequate for the device and must also drive the working resistance.

As a result, it must be ensured that the current-driving power of the sensor is sufficient to drive the maximum current of 20mA via the passive isolator (with the device-specific voltage drop), as well as the working resistance.

This can be calculated using the following equation:

$U_S \geq U_E = U_V + 20\ mA \times R_B$



Typical equation for a passive isolator (857-451) for a 20mA signal.

$U_S \geq U_E = 2.0\ V + 20\ mA \times 600\ \Omega$

$U_S \geq U_E = 14\ V$

Temperature measuring techniques

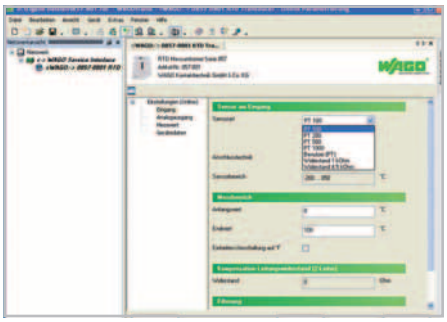
Resistance thermometers, such as Pt100 sensors, alter their resistance level as a function of temperature. For example, a rise in temperature will result in an increase in the resistance level. This reistance level is registered by the *JUMPFLEX®* devices (for example 857-800) and transformed into an analog output signal and simultaneously electrically isolated using a 2.5kV proof voltage.

The analog standard signal can be a current signal in the 0 ... 20 mA, 4 ... 20 mA, 0 ... 10 mA or 2 ... 10 mA range, or a voltage signal in the 0 ... 10 V, 2 ... 10 V, 0 ... 5 V or 1 ... 5 V range.

Parameterization, commissioning and diagnostics using WAGO-frame

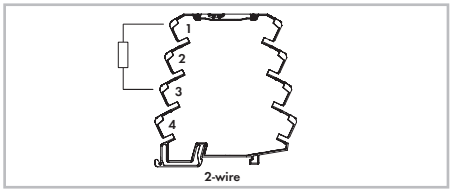
A portion of the *JUMPFLEX®* transducer can be configured for parameterization, commissioning and diagnostics of field devices using WAGOframe, a software based on the FDT/DTM standard.

The WAGOframe FDT frame application provides a wizard, which simplifies the operation of components, such as WAGO *JUMPFLEX®* DTMs. This wizard guides the user through the different operating modes of DTM device drivers.



3 different connecting techniques are employed for acquisition of resistance thermometers:

2-wire connecting technique



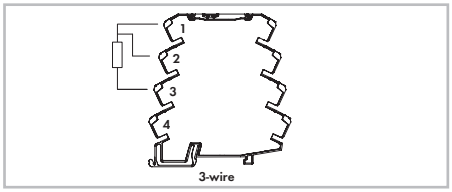
The resistance thermometer is connected to the *JUMPFLEX®* transducer via a two-wire conductor. As the feed-in resistance can directly affect results, which would invalidate them, it must be ensured that the distance between the measuring point and the device is kept as small as possible. This distance should not exceed 10m in this case. If this distance can not be ensured, the 857-801 unit can be used provide compensation for the incoming resistance using the configuration software.

Compensation for line resistance (2-wire)

A resistance value can be input into this field for compensation of the line resistance for 2-wire sensors within a range of 0 ... 50 Ω .

Adjusting the values for resistance compensation is only possible by setting the sensor wire connection to 2-wire. Otherwise the field is displayed in gray and no values can be entered. Using 3- and 4-wire sensors, the input cable resistance is compensated via the connection technology and does not enter into the measuring results.

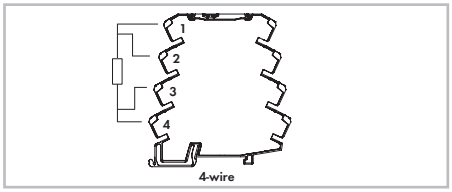
3-wire connecting technique



The 3-wire connecting technique minimizes the effect of line resistance. The resistance thermometer is gauged via two measuring circuits implemented in the *JUMPFLEX*® transducer. One measuring circuit serves as the reference circuit. Line resistance can be compensated for in this manner.

The measuring results can, however, nevertheless be affected by different line lengths or by different ambient temperatures. No further line adjustment is usually necessary, as the same line lengths and the same ambient temperatures exist in most cases.

4-wire connecting technique



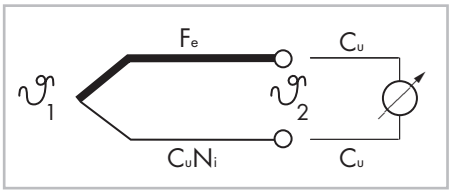
The most accurate measuring method employs the 4-wire connecting technique. This involves feeding in a low supply current via two fully isolated measuring circuits via two lines and measuring the voltage drop across the resistance thermometer via the other two lines. This method offers the advantage not being influenced by line resistance or temperature-induced fluctuations, as the voltage drop for the incoming and outgoing lines can be measured separately and compensation provided for as required. Again, no line adjustment is required here.

Thermocouples

In contrast to resistance thermometers, thermocouples are active sources that generate output in the microvolts range.

Thermocouples have very low resistance and are therefore noise-free. Preferred applications include tasks in environments with high temperatures, such as in ovens or machines in the plastics industry.

The joining of two different materials at the thermocouple results in different energy of formation of the metal atom electrons, yielding a thermoelectric voltage. The level of this thermoelectric voltage is a function of the material and of temperature.



If the temperature at measuring point ϑ_1 is the same as the temperature at reference point ϑ_2, no current will flow, as the two component voltages cancel one another out.

However, if the temperatures at the measuring point and at the reference point are different, differing voltage levels are produced which do not completely cancel one another out, resulting in a flow of current.

To summarize then, a thermocouple only measures a difference in temperature. This is yielded from the difference between the thermoelectric voltage levels at the measuring point and at the reference point. The voltage fluctuation produced by the thermoelectric effect is very low and is generally only a few microvolts per Kelvin. Therefore, only the difference between the thermoelectric voltages of the materials used is of significance, for example, thermocouple type J, iron (Fe) and constantan (CuNi).

Also of some significance in the connection point temperature. This temperature must be known in order to derive the ambient temperature from the thermoelectric voltage level. This is why the temperature at the connection point is measured by *JUMPFLEX*® transducers. This value, also referred to as the reference or cold junction, can then be compensated for. (cold junction compensation)

Cold-junction compensation can be activated and de-activated just by a click using the configuration software (default setting: ON (activated)).

Table for Thermocouples

Type of sensor	Thermocouple materials	Measuring range
J *)	Fe-CuNi	-210 °C ... +1200 °C
K *)	NiCr-Ni	-200 °C ... +1372 °C
E *)	NiCr-CuNi	-200 °C ... +1000 °C
N *)	NiCrSi-NiSi	-200 °C ... +1300 °C
R *)	Pt13Rh-Pt	+250 °C ... +1768 °C
S *)	Pt10Rh-Pt	-50 °C ... +1664 °C
T *)	Cu-CuNi	-200 °C ... +400 °C
B *)	Pt30Rh-Pt6Rh	+250 °C ... +1820 °C
C		0 °C ... +2320 °C
*) Thermocouples based on IEC 584 / EN 60584 Other thermocouples available upon request.		

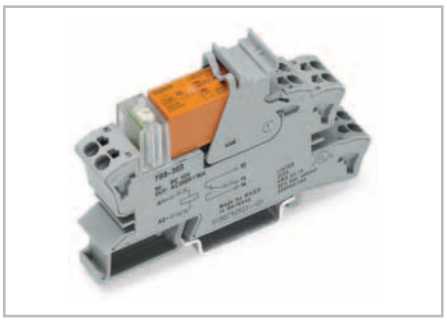
Relay modules with mounted miniature switching relays

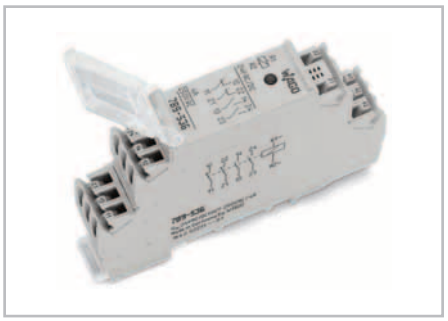
The *JUMPFLEX*® product family is rounded out by the relay modules that fit perfectly with the transducers.

A logical enclosure concept with options for linking all levels offers a variety of synergy and cost-savings potential. This allows for efficient optimization of installation efforts.

The pluggable relays can be replaced quickly and easily when required.

WAGO Relay Modules





WAGO Relay Modules. The professional interface between electronics and peripheral equipment.

Even in modern automation systems, electromechanical relays guarantee a safe connection between process control systems and process and signalling systems. They provide:

- a high isolation level between input and output circuit
- ability to match different signal levels
- signal amplification and/or signal multiplication, especially for different potentials in the input and output circuits.

Modernized relays also offer the following advantages:

- unaffected by electromagnetic fields and surges
- high short-term overload capacity for the input and output sides
- small switching power losses
- a module for switching of AC or DC

WAGO *AUTOMATION* offers a complete range of relay modules that provide these functions for a wide range of applications.

Depending on the function and operating conditions, the relay modules are available with different contacts, contact materials, housings and shapes.

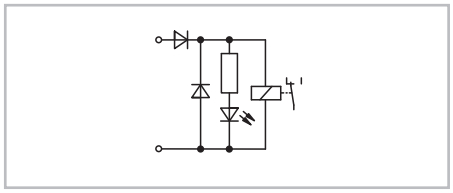
The following relay types are also available: bistable switching relays, time-delay relays, current pulse switching and safety relays with force-guided contacts.

Definitions of several important technical terms

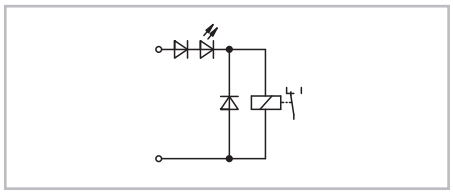
Coil-side information

The relays can be used within the stated temperature range with nominal voltage plus tolerance at 100% contin uous duty rating.

According to the type and application, the relays are triggered with DC or AC signal.
The DC versions (residual ripple ≤6%) are, unless otherwise stated, equipped with LED function indicators, a recovery diode and a reverse voltage protection diode.



For a nominal voltage of ≤12VDC,
the LED is connected in parallel to the coil.



For a nominal voltage ≥24VDC,
the LED isconnected in series with the coil.

AC versions of select relays equipped with series connected rectifiers (refer to the wiring diagrams) can be triggered with AC and DC at the stated nominal voltage.

The free-wheel function is in this case actuated by the rectifier.
In order to guarantee a safe operation it has to be observed that “residual voltages” due to cable capacitance in case of long connecting lines or leakage currents of semi-conductor switches and their protection circuits are lower than the release voltage of the relay.

For DC relays, the release voltage is specified with a value of ≤5% of the nominal voltage;
for AC relays it is 15% of the nominal voltage (acc. to VDE 0435).

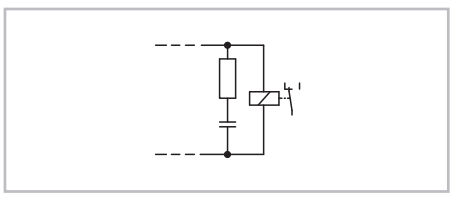
If a high residual voltage exists, it is possible that the relay will not reset.

Addition of a parallel connection of an RC element of:

R = 100 ... 220Ω

C = 220 ... 470nF

could remedy this situation.



Alternatively, the 286-904 relay module is available.
This specially developed module features a defined release point at 110VAC ± 10% at an operating voltage (coil volt age) of 230 VAC.

Contact material

To ensure a long service life and low contact resistance, various materials may be used for relay contacts (depending on the load type, switching current, voltage and duty cycle).
Possible mate rials, their properties and advantages are shown in the table.

Contact material	Properties and use	Range of values
Ag Ni 0.15 + 5 µ Au	High corrosion resistance, low and constant contact resistance at small power ratings, for dry circuits	µV . . . 30 V µA . . . 0.2 A
Ag Ni plated with Au Ag + Au	Same properties as a 5 µ gold contact, however with five times greater resistance to wear, for all circuits from the µW range up to 100 W/1 kVA	100 mV/10 µA
Ag Cd 0 + 1 µ Au	Low tendency to contact weld, high resistance to contact burn-out at higher power rating, also suitable for lower power ratings	≥ 5 V ≥ 10 mA
Ag Cd 0, with gold flash	Low tendency to contact weld, high resistance to contact burn-out at higher power rating, with gold flash for additional protection during storage	≥ 12 V ≥ 100 mA
Ag Ni 0.15 + HV	High mechanical strength, low tendency to contact weld and low contact resistance, universal application at medium loads	≥ 12 V 5 mA – 10 A
Ag Sn 0_2	Small tendency to contact weld, high resistance to contact burn-out at higher power rating, small migration of material, for circuits with high input and output ratings, DC circuits	≥ 5 V/100 mA ≥ 10 V/10 mA ≥ 24 V/1 mA
Ag alloy, with gold flash	High mechanical strength, small tendency to contact weld, wide scope of application for low to medium ratings	10^{-3} W

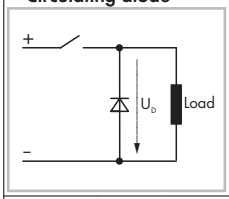
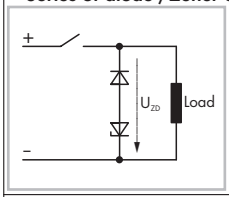
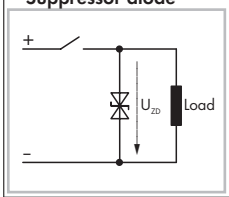
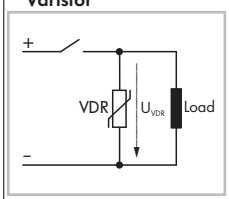
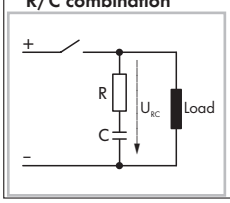
Contact switching protection

When switching inductive loads (e.g., for contractors or solenoid valves) transients with peak voltages up to thousands of volts will arise.

Suppression is necessary as these transients frequently exceed admissible EMC limits.

Moreover, they cause electric arcs at the switching contact that destroy the contact and significantly reduce the relay's service life and functional safety.

In practical use the following switching protections, which are connected directly at the source in parallel to the load, have proved to be efficient:

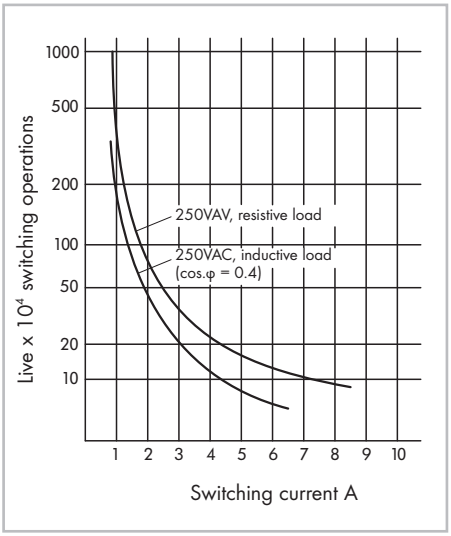
Switching of load	Additional off-delay	Defined limitation of inductive voltage	Attenuation when used with bipolar circuits	Advantages / disadvantages
Circulating diode 	large	yes (V_D)	no	**Advantages:** • simple device • cost-effective, reliable • sizing not critical • small inductive voltages **Disadvantages:** • limit only via load resistance • longer turn-off time
Series of diode / Zener diode 	medium to small	yes (V_{ZD})	no	**Advantages:** • sizing not critical **Disadvantages:** • limits only above V_{ZD}
Suppressor diode 	medium to small	yes (V_{ZD})	yes	**Advantages:** • cost-effective • sizing not critical • limitation of positive peaks • suitable for alternating voltages **Disadvantages:** • attenuation only above V_{ZD}
Varistor 	medium to small	yes (V_{VDR})	yes	**Advantages:** • high energy absorption • sizing not critical • suitable for AC voltages **Disadvantages:** • attenuation only above V_{VDR}
R/C combination 	medium to small	no	yes	**Advantages:** • limiting by energy storage • suitable for alternating voltages • limiting independent of level **Disadvantages:** • exact component values • high turn-on current pulse

WAGO Relay Modules

Service life

The difference between mechanical life and electrical life must be distinguished. Mechanical life consists the amount of switching operations without contact load; electrical life at maximum load refers to the amount of switching operations with maximum switching capacity and resistive load.

Smaller switching capacities increase the operation at maximum load. The following illustration shows the typical course between switching current and relay's operational life.

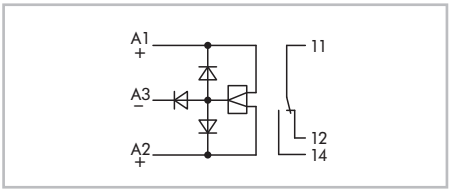


More details upon request.

Description of select relays

Bistable switching relays

Bistable switching relays have 3 coil contacts. According to the wiring scheme, the relay is switched into "working condition" (contacts 11–14 closed) by the common connection A 3 and the connection A 1 and into "rest position" (contacts 11–14 opened) by the connection A 2.



After removing the control signal, the relay returns to its respective position and can only be switched over by a control signal circuit. The bistable switching relays are only available for direct voltage with positive or negative triggering.

Current pulse switching relay

One current pulse is needed to change the relay from the rest position to the working position and vice versa.

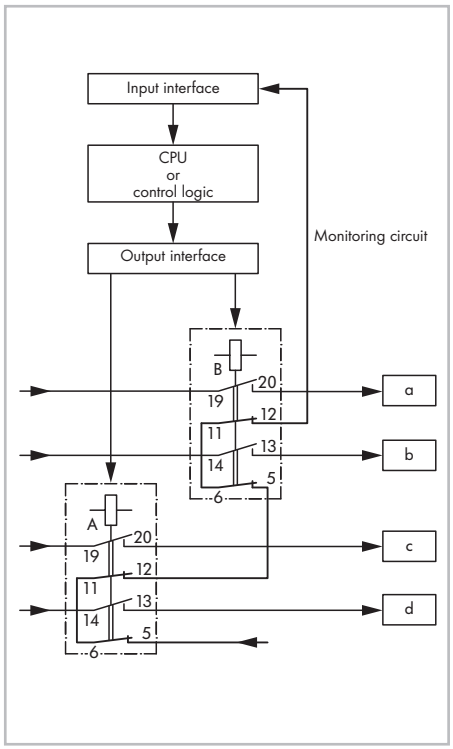
During the triggering process, one of two status indicators displays the actual contact position. The current pulse switching relay is available for direct and alternating voltage.

Safety relay

Force-guided safety relays, have become increasingly recommended and specified for self-regulated systems as they provide protection for personnel, machines and installations. Relays with force-guided contacts are an essentially safety component for these circuits, particularly when defects occur. WAGO offers these functions in special relay modules with force-guided contacts as based on to ZH1/457

(Specification of the employer's liability insurance association).

Example of circuit configuration:



Control of different peripheral equipment (a, b, c, d) with monitoring

As shown in the fig. "Example of Circuit Configuration," two SF relays are controlled by one output interface. The NO contacts 13–14/19–20 of relay A and B switch over the peripheral equipment. After switching off equipment a ... d the control circuit (NC contacts 5–6/11–12) verifies that all main circuits are interrupted.

When the control circuit is closed, the next operation cycle will be executed by the CPU or by the control logic. Depending on the safety requirements, an open control circuit prevents operation of either the entire machine or specified components.

If a partial or complete standstill is required in the event of a failure (for ex. in medical technology or chemical processes) each control contact can be polled and evaluated.

Independent of a single or complete control for the NO contact, the SF relay operates in such a way that the other equipment is switched off even if a NO contact is welded. The failure is recognized by the control contact while the other contacts are still able to open to interrupt circuits.

Time delay relays

WAGO time delay relay modules are electromechanical time relays with an integrated time response, e.g., acc. to VDE 0435, part 201/5.83.
The time ranges can be adjusted via potentiometer for either continuously variable or linear operation. A status LED indicates the switching condition of the relay.

WAGO optocouplers: the modern and efficient alternative

As the connecting element between process interface and electronic control and signalling systems, the optocoupler modules offer the following advantages compared with mechanical relays:

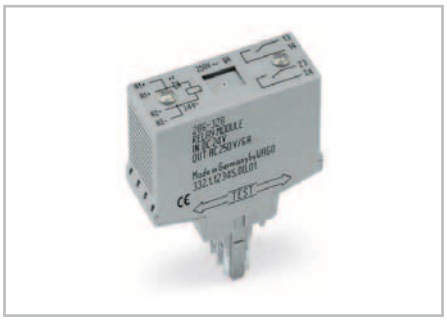
- long service life, because there is no mechanical wear
- high switching frequency because of fast switching times
- unaffected by vibrationn
- no contacts
- "noiseless" switching
- low driving capacity.

For all interfaces between control and load circuits that rely on these advantages, WAGO *AUTOMATION* offers a complete optocoupler range for the following functions:

- electrical isolation between input and output circuit
- adaptation to different signal levels
- signal amplification.

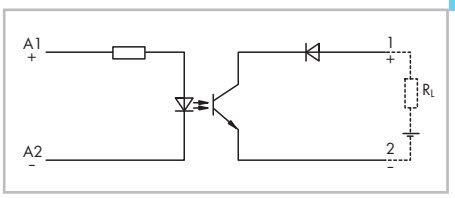
The optocoupler modules are available in WAGO's component plug technology that is designed to plug directly into rail-mounted carrier terminal blocks.
The terminal blocks are fitted to the carrier rail and offer all advantages of CAGE CLAMP® technology, which provides safe and maintenance-free connection of the signal wires for cross sections ranging from 0.08 mm² ... 2.5 mm²/ 28 ... 12 AWG.

In addition to optimizing space through the combination of terminal points and the "function module," maximum flexibility and ease of service are also achieved.

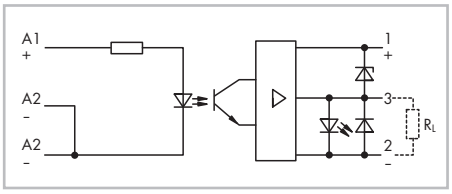


Input circuit

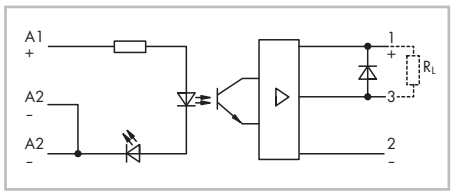
According to the type, triggering the optocoupler modules is performed via direct voltage (residual ripple RR <6%) or AC voltage (50 ... 60 Hz).
In the DC type, a reverse voltage protection diode is always provided; in the AC type optocoupler element, a rectifier is included.
The optocoupler modules are equipped with a LED function indication at either the input side or at the load side, as shown in the wiring diagram.



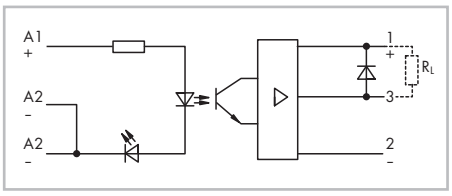
2-wire output



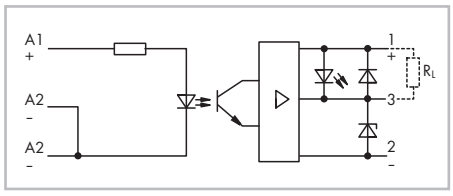
3-wire output positive switching



DC triggering with LED function indication in the triggering circuit

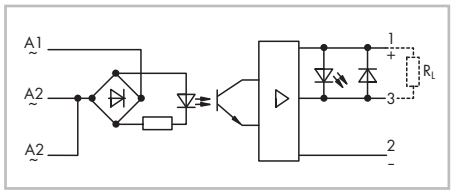


3-wire output negative switching



DC triggering with LED function indication in the load circuit

In addition to these different functional outputs, the output voltage range an the maximum switching current must be observed. Also note the correct polarity. In order to protect the output transis tors, inductive loads must always be equipped with a protective circuit, e.g., a recovery diode. For other types of protective measures, the cut-off voltage peaks must be lower than the indicated cut-off voltage of the output transistors. For the AC outputs a Triac is used as the switching element.



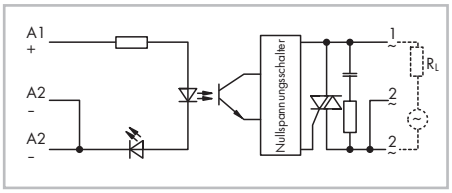
AC triggering with LED function indication in the load circuit

Due to the low threshold voltages, care must be taken to ensure malfunctions are not caused by the capacitance of long signal lines or the residual off-current of semiconductor devices.

Output circuit

Depending on the application, an optocoupler module for the AC or DC supply may be chosen. In the case of DC outputs, they can be:

- 2-wire output
- 3-wire output positive switching
- 3-wire output negative switching.



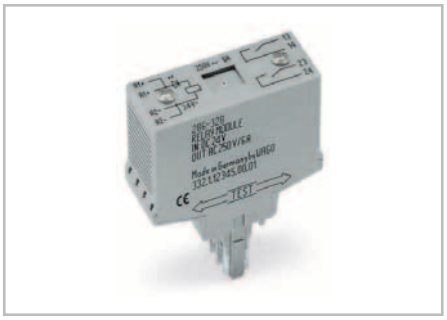
In order to avoid high turn-on currents, the AC output is equipped with a zero-voltage switch which turns on the load at the zero-voltage point. In the current zero-crossing, the Triac will cut off the load, in case inductive loads do not exceed the maximum switching voltage and the maximum switching current.

WAGO Analog Signal Conditioning Modules

Signal Conditioners for measurement technology

The Recording and processing of numbers of physical values, such as temperature, pressure, speed, humidity, etc., form the basis for modern process control. Special sensors supply these values as analog signals, which must be transmitted as standard analog signals to the processing instruments. These analog signals may be transmitted over long or short distances between sensors and controlling mechanisms, for example PLCs and computers, or in less sophisticated systems directly to relays or actuators. Various standards are used. Normally recognized signals are 0 ... 10 V, 0 ... 20 mA and 4 ... 20 mA.

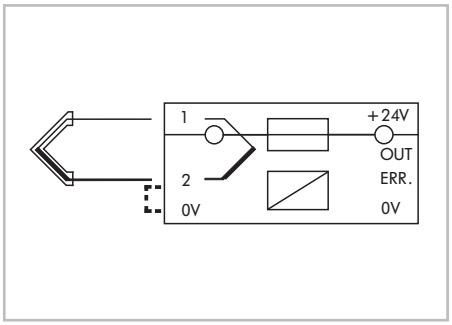
The transducer/transmitter may also linea rize non-linear signals internally, before transmission. In order to prevent these relatively low power signals from dis tortion, WAGO *AUTOMATION* offers a complete range of modules for measurement and transmission of these signals, both with and without isolation between the module's input/output and the supply voltage (if necessary). Apart from the converters for various standardized signals, WAGO offers a complete selection of analog/digital and digital/analog converters with a resolution of 10 bits.



The electronics are protectect by an enclosure which can be snapped on a DIN 35 rail. The CAGE CLAMP® connection ensures a secure, maintenance-free connection for conductors sized from 0.08 mm² ... 2.5 mm²/28 ... 12 AWG.

Temperature Signal Conditioners

Temperature sensing in the process industry is traditionally performed via "Thermocouple" or "RTD" (Platinum Resistance) elements. A popular RTD is the Pt100 element. Having a nominal resistance of 100 ohm at 0°C, and a typical operating temperature range of –200°C ... + 650°C, its non-linear characteristics are compensated by the WAGO signal conditioning module, as the Pt100 element typically meets the IEC 60571 specification.
The WAGO Pt100 signal conditioning module is suitable for 2- or 3-wire RTD, with 3-wire RTDs offering greater accuracy over longer distances. Thermocouples consist of two different metals that are connected at the measuring point and utilize of the "Dissimilar Metal (EMF) effect", which can be measured at the open ends of an element.



- When using insulated thermocouples, terminal "2" has to be connected to 0 V.
- In the case of grounded (earthed) thermocouples, the design is such that terminal 2 is alread connected to 0 V inside the thermocouple element. Therefore, it is not necessary to jumper 2 → 0 V.
- For commoning 2 → 0 V, 4-wire base terminals are recommended.

WAGO analog signal conditioning modules are designed to work with common types of "J" (Iron/Constantan) and "K" (Chromel/Alumel) thermocouples, which comply with IEC standard 60584 Pt. 1, with cold junction compen sation. WAGO temperature transducers are available with industry standard output signals of 0 ... 10 V, 0 ... 20 mA or 4 ... 20 mA.

Additionally, they have an integral wire break/short circuit detection. Visual LED fault indication is standard, but the WAGO modules also include an error output signal that may be used to initiate a safe shutdown before serious damage occurs in the event of a wire break or short circuit of the measuring sensor.

For this purpose, a transistor switches the output as soon as the operating voltage is correct and no error is present in the measuring circuit on V_S–2V. The transistor blocks the output in the case of an error.

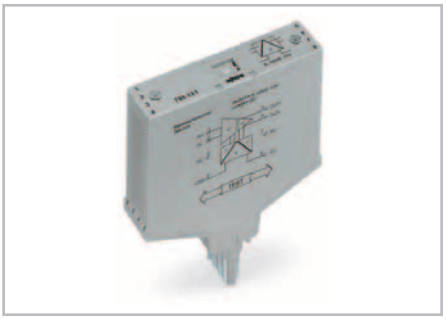
WAGO temperature transducers are available as follows:

- The "wire break" and "short circuit" error output is available on the Pt100 module.
- The "wire break" function is available- on the J and K Thermocouple modules.

In the event of wire break, the outputs switch to the following values:

Output	Value
0(4) ... 20mA	≥20.5mA
0 ... 10V	≥14V

With Pt100 modules, and in case of short circuit, the outputs switch to 0V or 0mA, respectively.



The mechanical assemble of pluggable modules for rail-mounted terminal blocks on DIN 35 rails offers all the advantages of CAGE CLAMP® connectivity. Additionally, the separation of wiring and function levels offer maximum flexibility and ease of service.

WAGO Interface Modules

Interface modules connect electronic to electromechanical functions at the control level.
They connect:

- signal transmission, control system ↔ field
- signal distribution, control system ↔ field.

They allow prefabricated plugs to interface to discrete field wiring.

WAGO *AUTOMATION* offers a wide range of interface modules for commonly used connector types. The use of these interface modules offers the following advantages in the system wiring:

- easy and time-saving planning and calculations
- rapid wiring, starting and fault elimination by clearly arranged wiring and clear pole marking, reduction of wiring faults
- safe and maintenance-free connection of the signal lines with the CAGE CLAMP® terminal strips
- high packing density creates space-saving modules

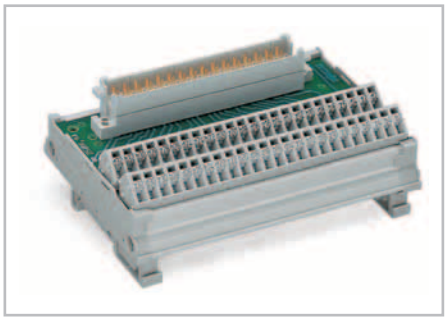
The interface modules are standard in a universal mounting carrier for DIN 35 carrier rails with the following connectors:

Subminiature-D connectors acc. to DIN 41 652 or MIL-C-24308

Interface modules for male and female connectors are available with 9, 15, 25, 37 or 50 contacts. Compared with the standard solder connection, the mating connector with IDC connection offers additional advantages.

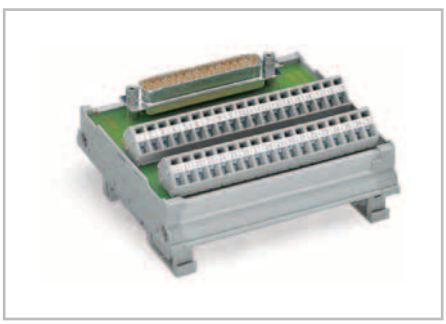
Connectors acc. to IEC 60603/DIN 41 612, types C, E and F

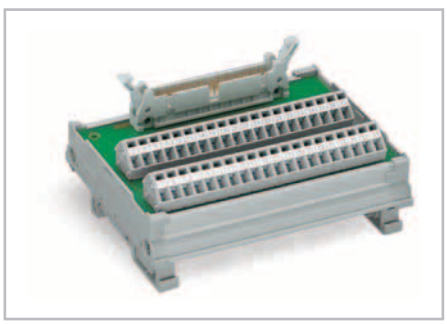
These connectors are frequently used for compact input and output component groups and are available for 32-, 48- and 64-pole pin and socket connectors, as well as for mating connectors with solder and IDC contacts.



Connectors acc. to IEC 60603-1 / DIN 41 651 or MIL-C-83503

Interface modules with 10-, 14-, 16-, 20-, 26-, 34-, 40-, 50- and 64-pole connectors are available for ribbon cable connectors.





WAGO *EPSITRON*® – 787 Series

High-Performance and Efficient Advanced Power Supplies

PRO Power Supplies

Slimline, 1- and 3-phase, primary switch mode power supplies feature a wide input voltage range, stabilized, adjustable 24VDC output voltage and up to 93% high efficiency. An integrated PowerBoost (up to 200 % output power for 4 seconds) allows reliable starting of heavy loads with high inrush currents, eliminating expensive oversizing of the switch mode power supply. The TopBoost function, which provides a much higher output current of up to 60A for 50ms, permits use of standard circuit breakers for protection on the secondary side. This enables safe tripping within the time limits required by the EN 60204 standard.

Select devices utilize the LineMonitor feature for current and voltage monitoring, fault memory and parameterization options via LCD display, on-unit function keys, or free monitoring software and available RS-232 interface from a PC and PLC. This allows the power supply to replace additional devices, such as phase failure and phase sequence monitoring devices or operational hour meters.

Additionally, the single-phase power supplies have a stand-by mode to switch off the device output via remote input, while minimizing power consumption. CAGE CLAMP® pluggable terminations permit efficient pre-wiring.

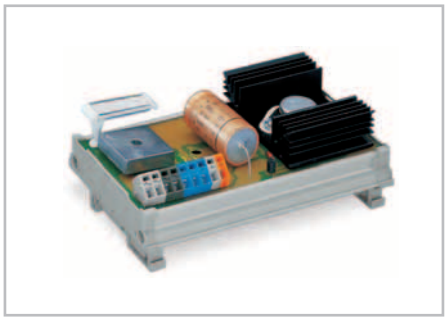
CLASSIC Power Supplies

Single-phase, primary switch mode, industrial power supplies provide a with wide input voltage range and robust metal housings. The CLASSIC Power Supplies have a stabilized, adjustable output voltage and provide short-circuit and overload protection. The devices achieve high efficiency and the integrated LED status indicator conveniently provides operational status at a glance. CAGE CLAMP® pluggable terminations permit efficient pre-wiring.

The CLASSIC Power Supplies are available in four nominal output voltages: 12VDC, 24VDC or 48VDC, as well as 30.5VDC for AS-Interface networks.

Rail-Mounted Modules – Constant Voltage Sources

Constant voltage sources provide stabilized 24VDC voltage via integrated longitudinal voltage regulator.
CAGE CLAMP® provides fast, vibration-proof and maintenance-free terminations. The modules are DIN-rail mountable.



ECO Power Supplies

Single-phase, primary switch mode power supplies in sturdy metal housing offer a wide input voltage range from 90 to 264VAC, without manual switching. The stabilized, front-panel adjustable 24VDC output voltage is protected against open and short circuits, and constant current operation is provided in the overload range. LEDs quickly provide operational status at a glance. CAGE CLAMP® provides fast, vibration-proof and maintenance-free terminations.

Rail-Mounted Modules – Power Supplies

Conventional transformer power supply with bridge rectifier, smoothing capacitors and stabilized output voltage via longitudinal voltage regulator. This power supply is ideal for supplying small loads with nominal output voltages of 24VDC, 12VDC, ± 12 VDC and ± 15 VDC. The low residual ripple makes the units well suited to applications using analog technology.
CAGE CLAMP® provides fast, vibration-proof and maintenance-free terminations. The modules are DIN-rail mountable.

Electronic Circuit Breakers

Configurable protection via 4-channel electronic circuit breakers, for shutting down faulty 24VDC current paths. Offering adjustable trip times, the Electronic Circuit Breakers can respond to short circuits/overloads quicker than traditional circuit breakers or melting fuses, or when unintended start-ups must be prevent in the event of a ground fault (see EN 60204). This is particularly advantageous when using long cables between a power supply and load where loop resistance may be very high. Integrated current and voltage monitoring, as well as parameter setting via display and on-unit function keys, or via free software from a PC or PLC, provides easy operation and diagnosis. Electronic circuit breakers with active current limitation (maximum 1.5 times rated current) are also available as an option. These advanced features enable the Electronic Circuit Breakers to reliably prevent voltage drops in the event of a short circuit.

DC/DC Converters

DC/DC converters available in 6.2mm-wide terminal block housing or DIN-rail mount carrier. These converters are ideal for applications where it is not necessary to use a separate power supply with special voltage due to low power requirements (e.g., when supplying sensors, actuators or DALI bus devices).

Uninterruptible Power Supplies (UPS)

The Uninterruptible Power Supply (UPS) provides reliable power applications impacted by long-term power outages. The UPS consists of a charger, controller and a connected battery (capacities ranging from 3.2 ... 12 Ah are available). In battery operation, 24VDC can be provided for several hours depending on the load current and battery capacity. The charger and controller are supplied with 24VDC from an external power supply – capacity must be matched to the load. Operation, configuration and diagnosis are simplified by an integrated LCD with keypad, or free software using an RS-232 interface (for connection to a PC or PLC). The battery modules have a temperature sensor NTC 164 (4k7 Ω), allowing for temperature-controlled charging via charger and controller, which may extend the battery's service life.

Redundancy Module

The redundancy module has two integrated power diodes (2 x 20A) for parallel connection of power supplies, while improving power supply availability or increasing the total current (max. 40A) for the 24VDC loads.
A signal contact reports the failure of one or both input voltages, which is also displayed via LED.

Capacitive Buffer Modules

Capacitive buffer modules ensure smooth operation and protect data during shorter 24VDC power interruptions. Depending on the output current and buffer capacity, buffer times up to several seconds can be achieved. Control units are particularly sensitive to short power interruptions. This is why an integrated signal contact reports buffer operation, offering the control unit sufficient time for preventive measures (e.g., saving valuable production data or program parameters).

Communication Cable

The communication cable connects the RS-232 interface for power supplies with integrated LineMonitor (787-85x) and electronic circuit breakers (787-86x), as well as UPS charger and controller units (787-87x) to the RS-232 interface of a PC or PLC. When combined with free software, the cable provides easy parameterization and diagnostics for these WAGO power supply solutions.

WAGO Overvoltage Protection

WAGO overvoltage protection for increased safety and longer on-line operation

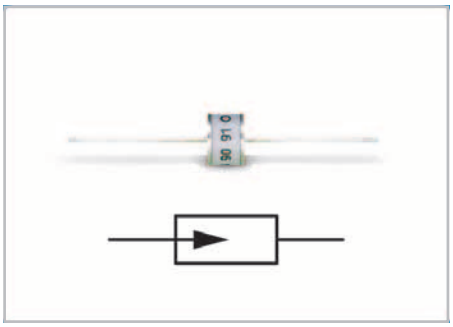
On-the-line overvoltages cause most operating failures for measuring, control, data and power lines. Failure of electronic and semiconductor components due to surges can cause operating interruptions. The overvoltage (also called transients) can be generated by switching electrical equipment on or off or by lighting discharges. Devices designed to protect electrical equipment from these voltages are called SPDs (Surge Protection Devices). SPDs may consist of either a single component or a combination of them. Various components may be subdivided in use by the protection type offered:

- Coarse protection
- Medium protection
- Fine protection.

The boundaries between these levels of protection may not be sharply defined, leading the devices chosen to vary accordingly. The following components have proven performance in these applications:

Gas-filled surge arresters and spark gaps

The gas filled surge arrester is comprised of two electrodes in a ceramic or glass tube filled with a pressurized inert gas. A spark gap is simply two electrodes in air, spaced a predetermined distance apart.

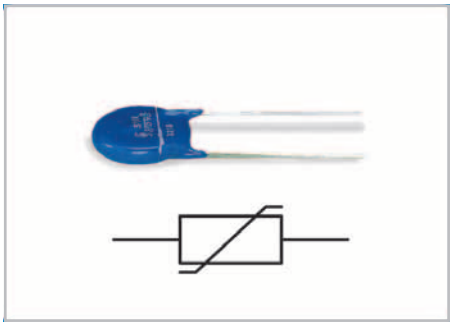


Once the ignition voltage is reached, resistance drops due to ionization and current begins to flow. The resistance of the device drops from high to low as it conducts. The voltage across the device after the arc is struck is typically 10 V ... 30 V. Therefore, the current will continue to flow until the voltage drops below this level. As this is not a guaranteed occurrence in typical power situations, a fuse must precede the device to ensure disconnection from the supply.
The advantage of a gas-filled arrester:
high current carrying capacity for its size.
However, the key disadvantages:
slow response speed and in AC applications, the crowbar action across the supply.

Varistor

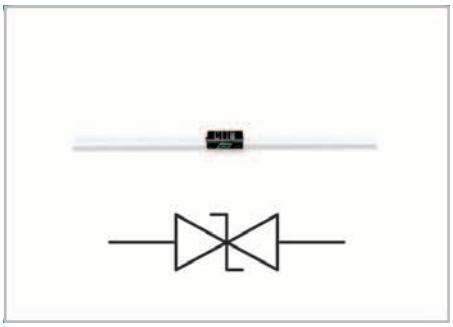
A varistor is a voltage-dependent resistor. A common type of varistor is referred to as an MOV (Metal Oxide Varistor) due to its method of construction.

Varistors have a very high resistance until their threshold voltage is exceeded. Then they drop to a low resistance and are capable of carrying high currents for a short period of time. They have a fast response time, and have a current carrying capacity dependent on the surface area of metal oxide material.
MOVs can be sized to handle currents exceeding of 100 kA.
Undersized varistors can age with continued



surge conduction, resulting in lower impedance and higher leakage.
When subjected to continuous (AC or DC) voltages in excess to the device rating, MOVs can overheat, and even explode, in certain circumstances. This is why a quality surge protection device is important, it will incorporate protective measures to disconnect faulty components before safety is compromised.

Suppression diode (or silicon avalanche diode)

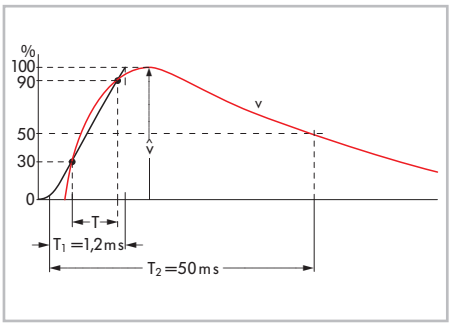


These devices have electrical characteristics similar to Zener diodes, but are rated for surge currents.

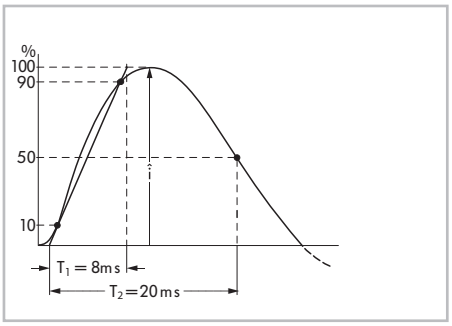
Once the rated breakdown voltage is exceeded (in the non-conductive direction), the diode becomes a conductor. The suppressor diode differs from a Zener in its higher current carrying capability and faster response time (in the picosecond range).

Test impulse

Surge arresters are subject to standardized test pulses in order to classify capabilities; the effectiveness of protection measures with reference to dissipation capacity and voltage arresting. The form and level of the test pulses are defined by IEC 60060-1/
DIN VDE 0432, part 2. Preference is given to voltage pulses of 1.2/50 and current pulses of 8/20.



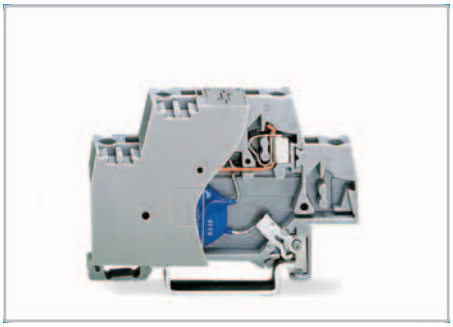
Voltage pulses 1.2/50
per IEC 60060-1 /DIN VDE 0432 P. 2



Current pulses 8/20
per IEC 60060-1 /DIN VDE 0432 P. 2

Application recommendations

The advantages of gas-filled surge arresters lie in their high current carrying capacity, making them ideal for coarse protection. One disadvantage, particularly in the medium protection range, is the relatively long response time, as well as the power follow current. Varistors have a considerably shorter response time; however they also have lower leakage currents. This makes them more suitable for medium protection, as they offer limited applications for coarse protection.
If the connection lines of electronic equipment are already “fine” protected, general coarse and medium protection measures are sufficient. If this is not the case, suppressor diodes with very short response time may be employed as fine protection.
WAGO *AUTOMATION* offers a complete range of modular terminal blocks with integrated surge arresters for coarse, medium and fine protection.
Depending on the application, one can choose the appropriate type from the previously mentioned surge arresters. These are electrically connected in the modular terminal blocks between the connection point and the mounting rail. Snapping the terminal block onto the grounded (earthed) mounting rail automatically ensures the required overvoltage protection.



Double-deck terminal block with varistor, direct connection to the DIN 35 rail

Frequently, only one surge arrester is fitted for cost reasons. However, due to the fact that one surge arrester alone cannot optimally ensure several protection functions, combinations are recommended. Care must be taken to ensure that the single-stage protection devices are decoupled sufficiently by inductors or resistors.

In addition to single-stage surge arresters, WAGO *AUTOMATION* also offers multi-stage surge arresters, combining components for different applications. These pluggable modules are snapped into "carrier" terminal blocks. These are DIN rail-mounted and offer secure and maintenance-free CAGE CLAMP® terminations for conductors 0.08mm²/28 AWG to 2.5mm²/14 AWG.

Pluggable surge suppression modules with on-unit warnings

Addition of interference suppression to surge suppression devices.
In addition to overvoltage protection, a high frequency interference filter can be added to the circuitry. This filter cannot only protect the equipment from high frequency energy transmitted by connecting wires, but also prevents a transmission of disturbances to the supply lines. The main component of a filter is an LC network, which produces a mismatch between the filter impedance and the impedance of the disturbance path. This reflects any disturbance back to its source.

Definition of several important technical terms

Nominal operating voltage (V_{BN})

The nominal operating voltage corresponds to the voltage which may be permanently connected to the appropriate connection terminals of the overvoltage protection module. Alternating voltages are quoted as effective values.

Max. operating voltage (V_{Bmax})

The maximum operating voltage corresponds to the voltage which may be permanently connected to the appropriate connection terminals without the operating properties changing or activating the individual module's protection elements.

Nominal current (I_N)

The nominal current corresponds to the current which may permanently flow through the connection terminals of the overvoltage protection device.

Nominal discharge current (I_{SN})

The nominal discharge current is the maximum value of a current having the 8/20 µs waveform
(DIN VDE 0432/10.78 part 3), which can flow through the surge arrester five times within a time period of 30 seconds (VDE) without destroying it.

Max. surge current (I_{Smax})

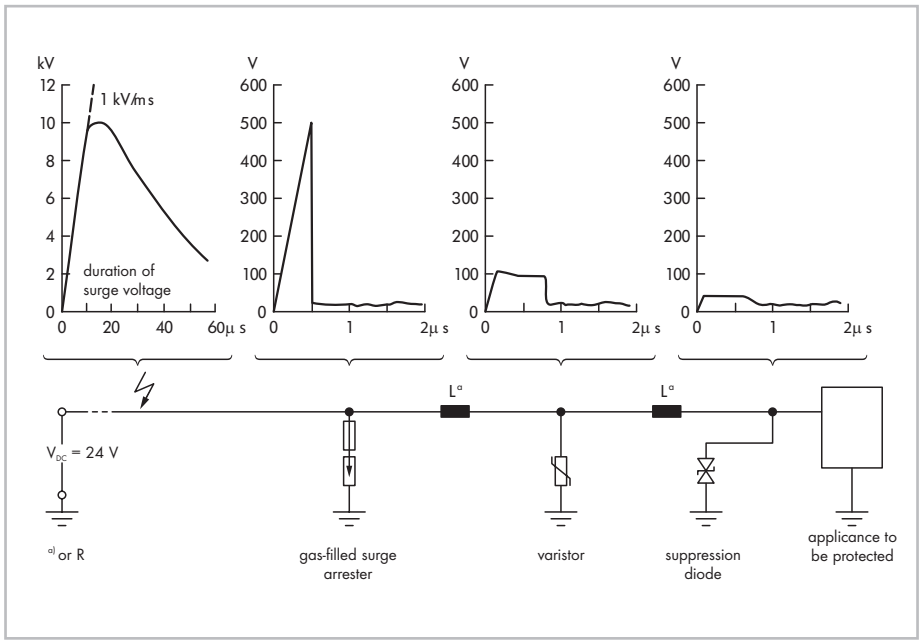
The maximum surge current I_{Smax} defines the maximum value of a current having the 8/20µs waveform, which can flow through the surge arrester once without destroying it.

Protection level

The protection level is the value of the residual voltage occurring on the "protected" side of the surge arrester when applying the rated discharge current.

Response time (t_{an})

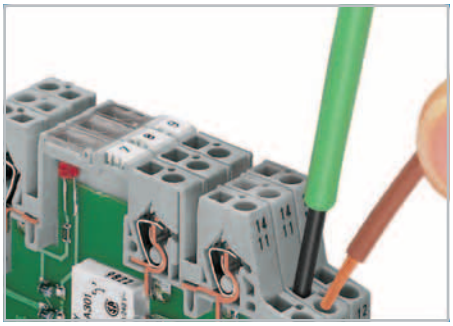
The response time is primarily based on the physical properties of the surge arresters and is dependent upon the wave front duration of the surge voltage. WAGO's data refers to a voltage rise of 1kV/µs.



Function diagram of a multi-stage surge voltage protection module

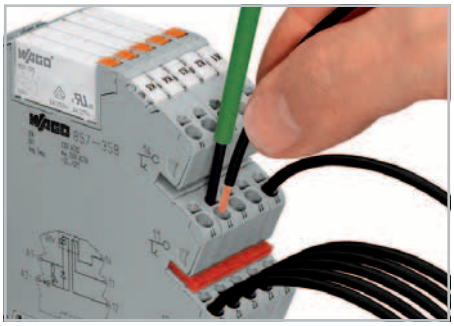
Installation Notes

859 Series
Relay Modules and
Optocoupler Modules



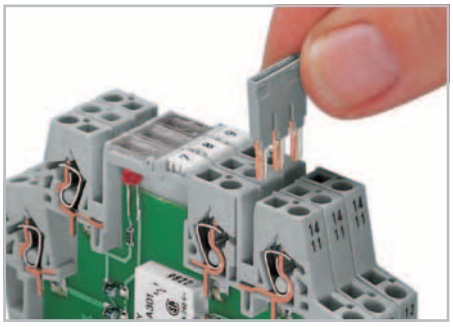
Connection of conductor

857 Series
JUMPFLEX®– Signal Conditioners/
Relay and Optocoupler Modules

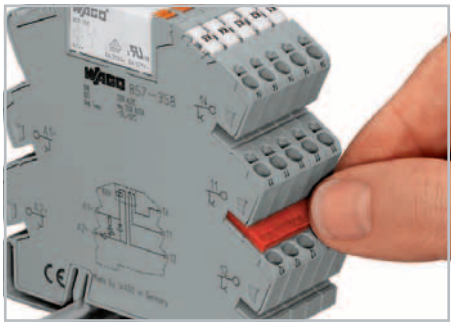


Connection of conductor

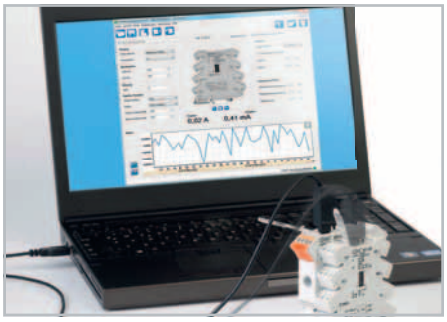
Operation of the relay ejector



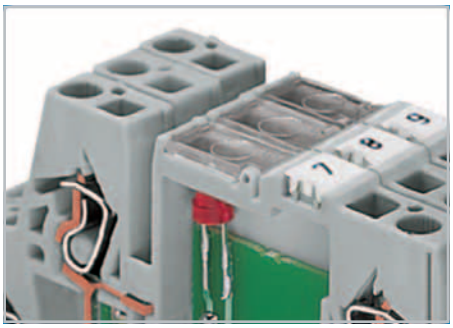
Easy commoning using
adjacent jumpers



Easy commoning using
adjacent jumpers



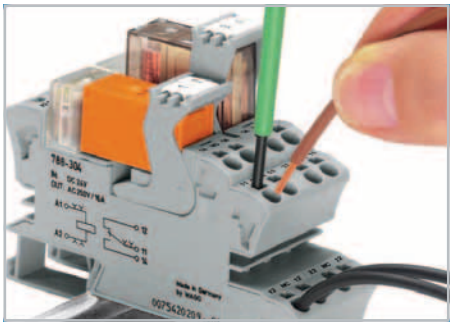
Configuration of the Transducers with
WAGO-USB-Service-Cable 750-923



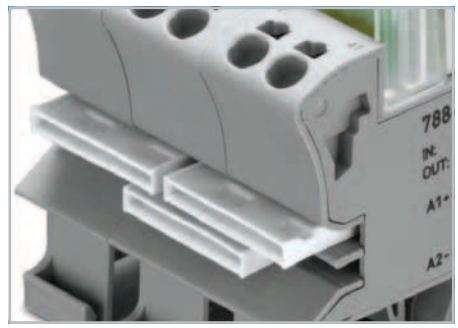
Marking using Miniature quick
marking card

Marking using WMB Multi markers

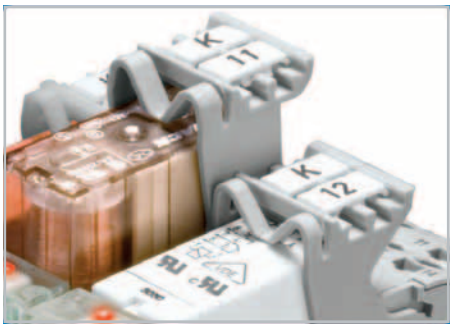
788 Series
Sockets for Miniature Switching Relay/ Optocoupler



Connection of conductor

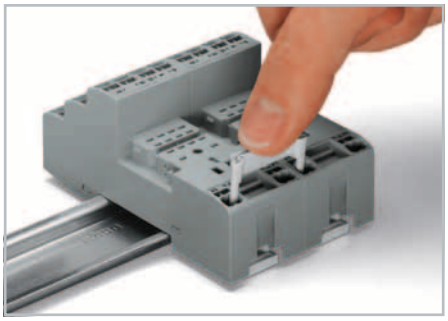


Easy commoning using adjacent jumpers

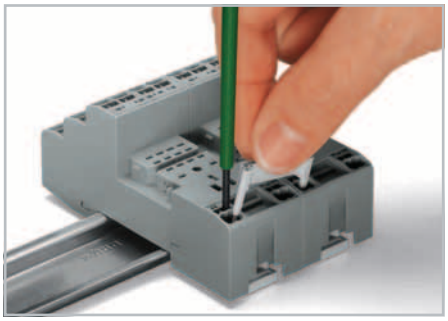


Marking using WMB Multi markers and group marker carriers

858 Series
Sockets with Industrial Relay



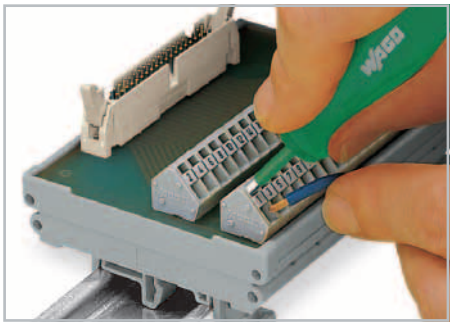
Easy commoning using adjacent jumpers



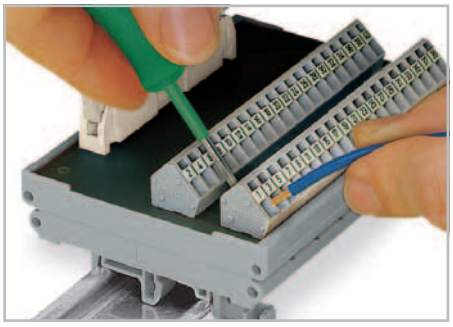
Remove jumper with screwdriver

Installation Notes

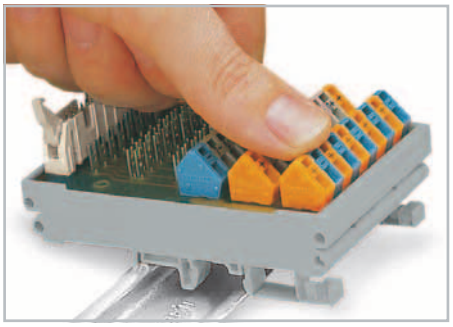
288 Series Mounting Carriers with Miniature Switching Relay



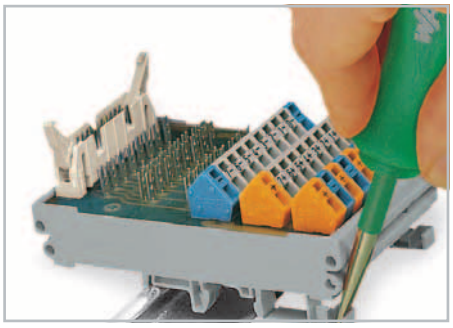
Connection of conductor "front-entry"



Connection of conductor "side-entry"

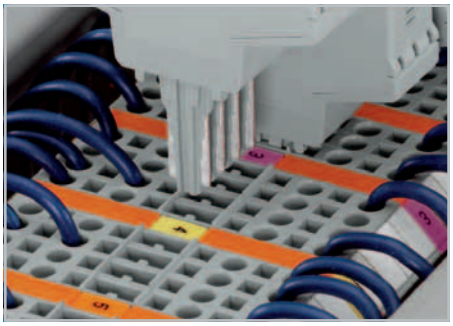


Assembly of a module on the carrier rail

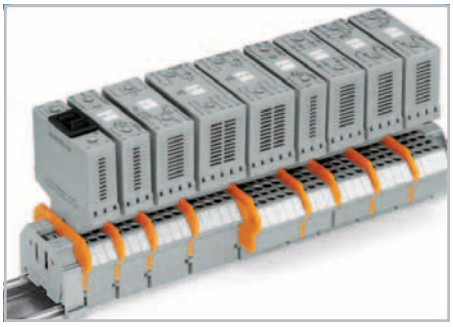


Removal of a module from the carrier rail

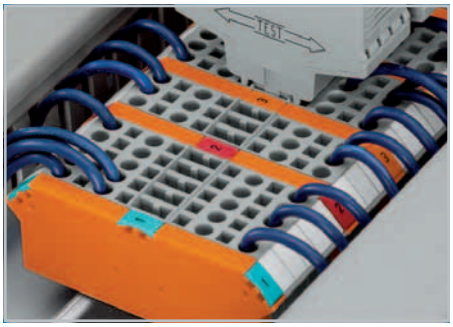
286 Series Pluggable Function Modules



Coding ensures correct polarity



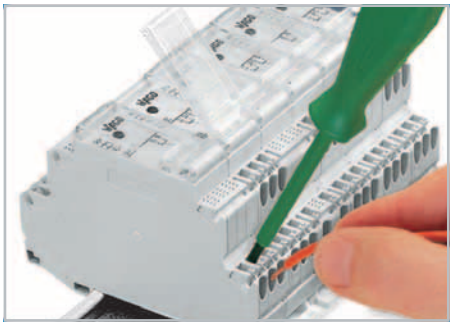
Pluggable electronic modules, for application on 2- or 4-conductor carrier terminal blocks



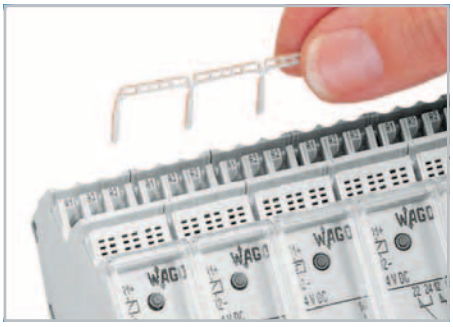
Marking using WMB Multi markers

Easy testing at touchproof contacts

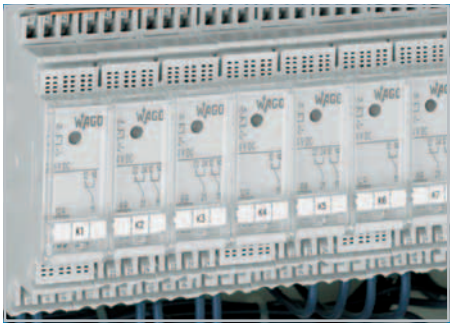
789 Series Relay Modules in DIN-Rail Mounted Enclosure



Connection of conductor

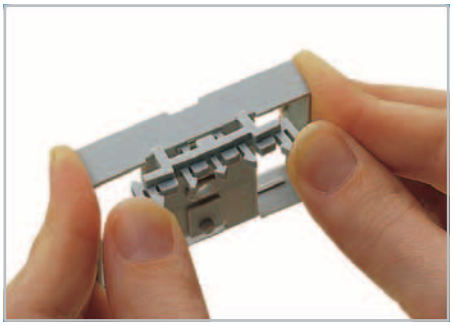


Easy commoning using adjacent jumpers

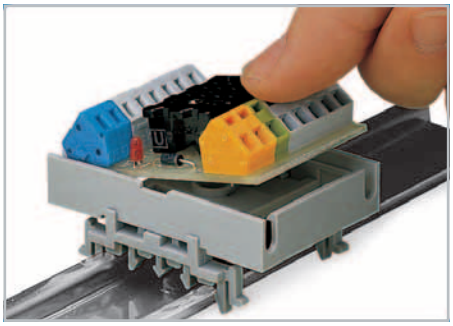


Marking using Miniature quick marking card

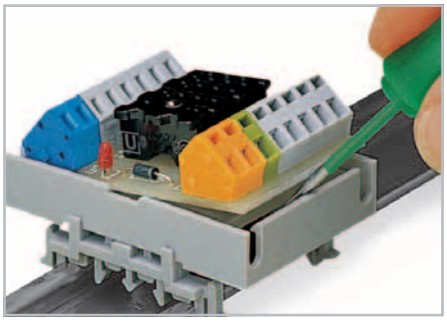
289 Series Interface Modules



Mounting carrier, gray, snap-fit mounting of universal mounting feet

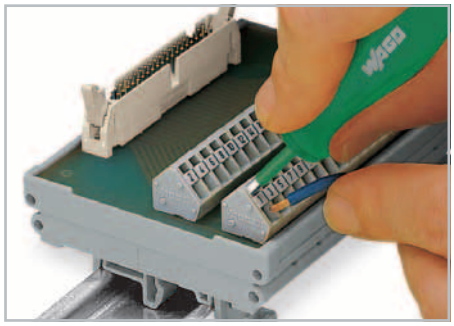


Fitting of an individual module to the mounting carrier

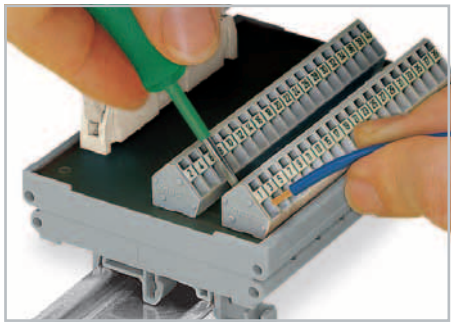


Removal of an individual module from the mounting carrier

289 Series Interface Modules

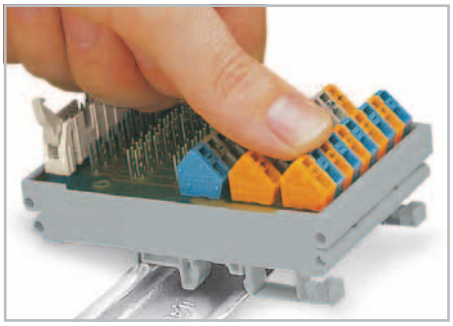


Connection of conductor "front-entry"

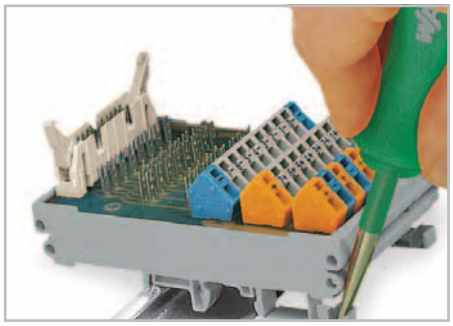


Connection of conductor "side-entry"

289 Series Interface Modules



Assembly of a module on the carrier rail



Removal of a module from the carrier rail

Lighting
1st Floor
2nd Floor
3th
Right
HF115FP
21VDC
HF115FP
24VDC
A1
A2
788-508
IN: AC 230V
OUT: AC 250V/16A
A1~
A2~

Relay Modules

Relay Sockets with Miniature Switching Relay, 857 Series

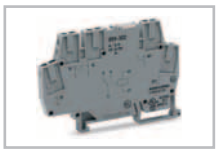
	Page
Relay Sockets with Miniature Switching Relay	26
Multifunction Time Relays	30
Accessories, 857 Series	33

Relay Sockets with Miniature Switching Relay, 788 Series

Relay Sockets with Miniature Switching Relay	36
Accessories, 788 Series	50

Relay Sockets with Industrial Relay, 858 Series

Relay Sockets with Industrial Relay	56
Accessories, 858 Series	61



Rail-Mounted Terminal Blocks with Miniature Switching Relay, 859 Series

Rail-Mounted Terminal Blocks with Miniature Switching Relay	66
Rail-Mounted Terminal Blocks with Miniature Switching Relay, with an Extended Input Voltage and Operating Temperature Range	71
Accessories, 859 Series	72

Mounting Carriers with Miniature Switching Relay, 288 Series

Mounting Carriers with Miniature Switching Relay	74

Pluggable Modules – Relays , 286 Series

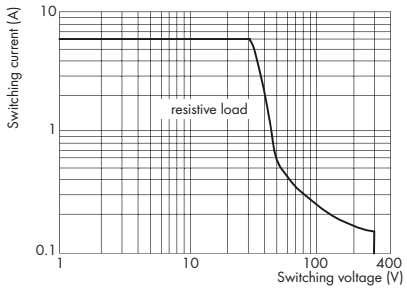
Pluggable Modules – Relays	82
Pluggable Modules – Relays with an Extended Input Voltage and Operating Temperature Range	92
Pluggable Modules – Latching Relays	94
Pluggable Modules – Time Relays	98
Accessories, 286 Series	99

Relay Modules in DIN-Rail Mounted Enclosure, 789 Series

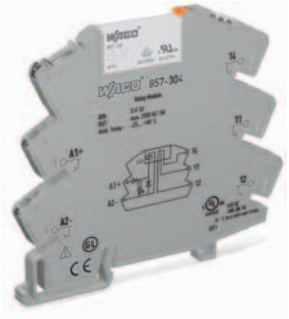
Relay Modules in DIN-Rail Mounted Enclosure	101
Latching Relay Modules in DIN-Rail Mounted Enclosure	114
Accessories, 789 Series	115

Relay Sockets with Miniature Switching Relay

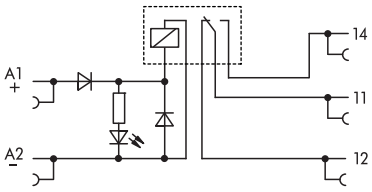
	Relay with 1 changeover contact (1u) for normal switching power Nominal input voltage V_N 12 V, 24 V, 48 V, 60 V DC	Relay with 1 changeover contact (1u) for normal switching power Nominal input voltage V_N 24 V, 115 V, 230 V AC/DC

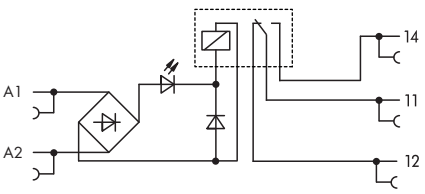


DC load limit curve



Note: Inductive loads have to be attenuated by an appropriate protective circuit in order to protect relay coils and contacts.

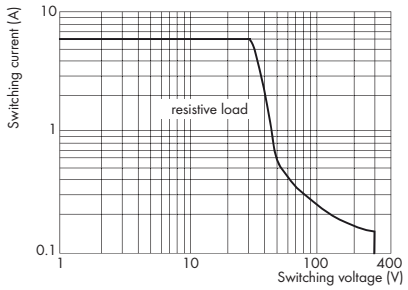




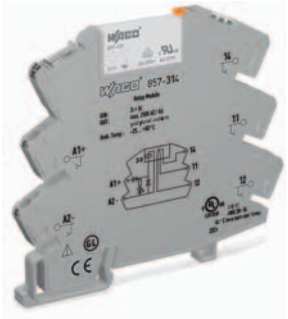
Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Relay socket with miniature switching relay, for DIN-rail	12 VDC	17 mA	**857-303**	25 (1)	24 V AC/DC	8.5 mA	**857-354**	25 (1)
	24 VDC	10 mA	**857-304**	25 (1)	115 V AC/DC	4 mA	**857-357**	25 (1)
	48 VDC	6.5 mA	**857-305**	25 (1)	230 V AC/DC	3.5 mA	**857-358**	25 (1)
	60 VDC	5.2 mA	**857-306**	25 (1)				

Technical Data	Accessories see page 33	Accessories see page 33
Coil:		
Input voltage range	V_N -15 % ... +20 %	V_N -15 % ... +20 % (857-354; 857-357)
		V_N -20 % ... +10 % (857-358)
Contacts:		
Contact material	AgNi	AgNi
Max. continuous current	6 A	6 A
Max. switching voltage	250 VAC	250 VAC
Max. switching power (resistive)	1500 VA AC; DC see load limit curve	1500 VA AC; DC see load limit curve
Recommended minimum load	10 VDC / 10 mA, 24 VDC / 1 mA	10 VDC / 10 mA, 24 VDC / 1 mA
Pull-in/drop-out/bounce time typ.	8ms / 4ms / -	8ms / 4ms / -
Mechanical life	5 x 10^6 switching operations	5 x 10^6 switching operations
General specifications:		
Nominal voltage to EN 60664-1	250 V / 4 kV / 2	250 V / 4 kV / 2
Dielectric strength, contact-coil (AC, 1 min)	4 kV_{rms}	4 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}	1 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	-	-
Ambient operating temperature at V_N	-40 °C ... +60 °C	-40 °C ... +60 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 81 x 94	6 x 81 x 94
	Height from upper-edge of DIN-rail	Height from upper-edge of DIN-rail
Wire connection	Push-in CAGE CLAMP®	Push-in CAGE CLAMP®
Cross sections	0.34 ... 2.5 mm² / 22 ... 14 AWG	0.34 ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1; EN 61810-1; UL 508	EN 60664-1; EN 61810-1; UL 508
	(857-304: GL)	(857-358: GL)

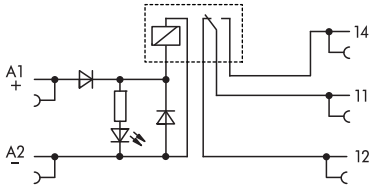
	Relay with 1 changeover contact (1u) (gold contacts) for normal switching power Nominal input voltage V_N 24 VDC	Relay with 1 changeover contact (1u) (gold contacts) for normal switching power Nominal input voltage V_N 24 V, 115 V, 230 V AC/DC

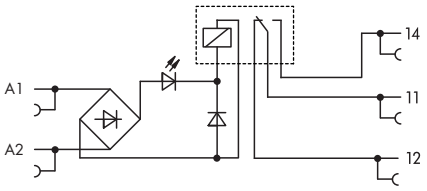


DC load limit curve



* In order to prevent the gold layer from being damaged, 30 VDC switching voltages and 50 mA currents shall not be exceeded.
Higher switching power leads to evaporation of the gold layer. The resulting deposits in the housing may reduce the service life.



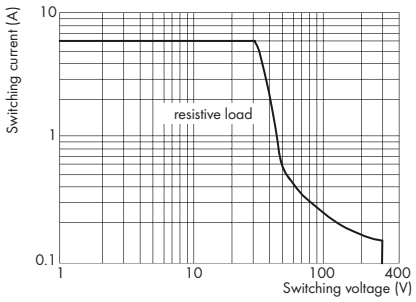


Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Relay socket with miniature switching relay, for DIN-rail	24 VDC	10 mA	**857-314**	25 (1)	24 V AC/DC	8.5 mA	**857-364**	25 (1)
					115 V AC/DC	4 mA	**857-367**	25 (1)
					230 V AC/DC	3.5 mA	**857-368**	25 (1)

Technical Data	Accessories see page 33	Accessories see page 33
Coil:		
Input voltage range	V_N -15 % ... +20 %	V_N -15 % ... +20 % (857-364; 857-367)
		V_N -20 % ... +10 % (857-368)
Contacts:		
Contact material	AgNi + Au	AgNi + Au
Max. continuous current	6 A *	6 A *
Max. switching voltage	250 VAC *	250 VAC *
Max. switching power (resistive)	1500 VA AC; DC see load limit curve	1500 VA AC; DC see load limit curve *
Recommended minimum load	1 VDC / 1 mA / 1 mW	1 VDC / 1 mA / 1 mW
Pull-in/drop-out/bounce time typ.	8ms / 4ms / -	8ms / 4ms / -
Mechanical life	5 x 10^6 switching operations	5 x 10^6 switching operations
General specifications:		
Nominal voltage to EN 60664-1	250 V / 4 kV / 2	250 V / 4 kV / 2
Dielectric strength, contact-coil (AC, 1 min)	4 kV_{rms}	4 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}	1 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	-	-
Ambient operating temperature at V_N	-40 °C ... +60 °C	-40 °C ... +60 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 81 x 94	6 x 81 x 94
	Height from upper-edge of DIN-rail	Height from upper-edge of DIN-rail
Wire connection	Push-in CAGE CLAMP®	Push-in CAGE CLAMP®
Cross sections	0.34 ... 2.5 mm² / 22 ... 14 AWG	0.34 ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1; EN 61810-1; UL 508; GL	EN 60664-1; EN 61810-1; UL 508
		(857-368: GL)

Relay Sockets with Miniature Switching Relay

	Relay with 1 changeover contact (1 u), with integrated base load module, nominal input voltage V_N 230 VAC	Relay with 1 changeover contact (1 u), with integrated base load module and gold contacts, nominal input voltage V_N 230 VAC



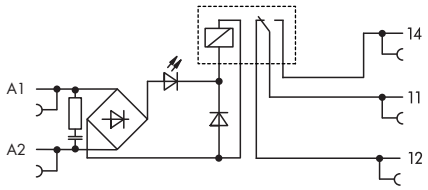
DC load limit curve

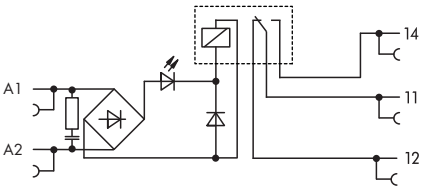
* In order to prevent the gold layer from being damaged, 30 VDC switching voltages and 50 mA currents shall not be exceeded.
Higher switching power leads to evaporation of the gold layer. The resulting deposits in the enclosure may cause sparkovers between the coil and the contact.

Note: Inductive loads have to be attenuated by an appropriate protective circuit in order to protect relay coils and contacts.

Similiar to picture

Similiar to picture

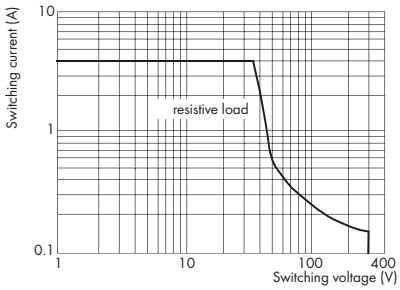




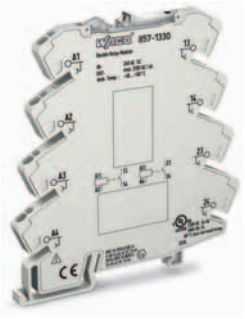
Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Relay socket with miniature switching relay, for DIN-rail	230 VAC	16 mA	**857-358/006-000**	25 (1)	230 VAC	16 mA	**857-368/006-000**	25 (1)

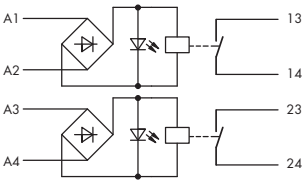
Technical Data	Accessories see page 33	Accessories see page 33
Coil:		
Input voltage range	V_N -15 % ... +10 %	V_N -15 % ... +10 %
Contacts:		
Contact material	AgNi	AgNi + Au
Max. continuous current	6 A	6 A *
Max. switching voltage	250 VAC	250 VAC *
Max. switching power (resistive)	1500 VA AC; DC see load limit curve	1500 VA AC; DC see load limit curve *
Recommended minimum load	10 VDC / 10 mA, 24 VDC / 1 mA	1 VDC / 1 mA / 1 mW
Pull-in/drop-out/bounce time typ.	8ms / 4ms / -	8ms / 4ms / -
Mechanical life	5 x 10^6 switching operations	5 x 10^6 switching operations
General specifications:		
Nominal voltage to EN 60664-1	250 V / 4 kV / 2	250 V / 4 kV / 2
Dielectric strength, contact-coil (AC, 1 min)	4 kV_{rms}	4 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}	1 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	-	–
Ambient operating temperature at V_N	-40 °C ... +50 °C	-40 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 81 x 94	6 x 81 x 94
	Height from upper-edge of DIN-rail	Height from upper-edge of DIN-rail
Wire connection	Push-in CAGE CLAMP®	Push-in CAGE CLAMP®
Cross sections	0.34 ... 2.5 mm² / 22 ... 14 AWG	0.34 ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1; EN 61810-1	EN 60664-1; EN 61810-1
Max. line capacitance	170 nF	170 nF
Max. line length	> 350 m for a line capacitance of 330 nF/km	> 350 m for a line capacitance of 330 nF/km

2 relays with 1 make contact (1 a)
for normal switching power
Nominal input voltage V_N
24 V AC/DC



DC load limit curve





Note: Inductive loads have to be attenuated by an appropriate protective circuit in order to protect relay coils and contacts.

Description	V_N	I_N	Item No.	Pack. Unit
Relay socket with miniature switching relay, for DIN-rail	24 V AC/DC	10 mA	**857-1330**	25 (1)

Technical Data

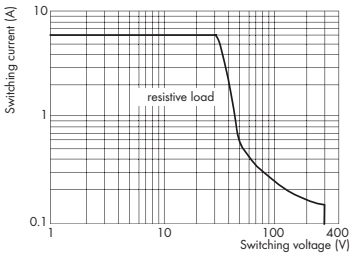
Accessories see page 33

Coil:	
Input voltage range	V_N -15 % ... +20 %
Contacts:	
Contact material	AgNi
Max. continuous current	4 A
Max. switching voltage	250 VAC
Max. switching power (resistive)	1000 VA AC; DC see load limit curve
Recommended minimum load	10 VDC / 10 mA, 24 VDC / 1 mA
Pull-in/drop-out/bounce time typ.	8ms / 4ms / -
Mechanical life	5 x 10^6 switching operations
General specifications:	
Nominal voltage to EN 60664-1	250 V / 4 kV / 2
Dielectric strength, contact-coil (AC, 1 min)	4 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	
Ambient operating temperature at V_N	-40 °C ... +60 °C
Storage temperature	-40 °C ... +85 °C
Dimensions (mm) W x H x L	6 x 96 x 94
	Height from upper-edge of DIN-rail
Wire connection	Push-in CAGE CLAMP®
Cross sections	0.34 ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1; EN 61810-1; UL 508

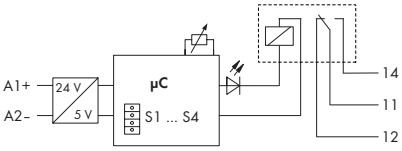
Multifunction Time Relays

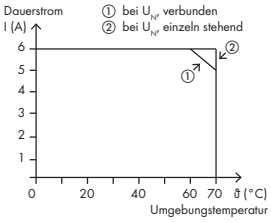
Multifunction time relay with 1 changeover contact (1u)
4 time ranges, 4 functions
Temperature range: -25 °C ... +70 °C
For railway applications

- 4 functions:
  - On-delay
  - Single-shot leading edge
  - On-delay and single-shot leading edge (1 s fixed)
  - Blinking
- Function and time range adjustable via DIP switch



DC load limit curve





Derating

Description	V_N	I_N	Item No.	Pack. Unit
Multifunction time relay, for DIN-rail	24 VDC	17.5 mA	**857-604**	1

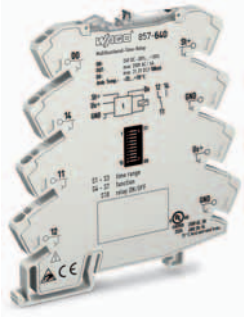
Technical Data

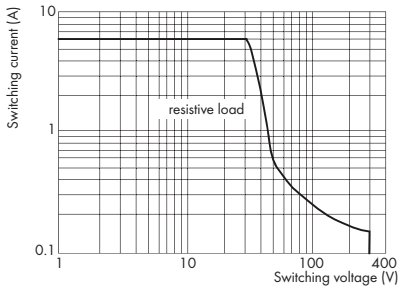
Accessories see page 33

Coil:	
Input voltage range	V_N -30 % ... +30 %
Power consumption at V<subscript>N</subscript>	17.5 mA (active) / 2.3 mA (passive)
Contacts:	
Contact material	AgNi
Max. continuous current	6 A
Max. switching voltage	250 VAC
Max. switching power (resistive)	1500 VA AC, DC see load curve
Recommended minimum load	10 VDC / 10 mA, 24 VDC / 1 mA
Pull-in/drop-out/bounce time typ.	8ms / 4ms / -
Mechanical life	5 x 10^6 switching operations
General specifications:	
Time range	adjustable:
	0.1 ... 10 s; 3 ... 300 s; 0.3 ... 30 min; 3 ... 300 min
Reset time	50 ms
Repeat accuracy	±1 %
Nominal voltage to EN 60664-1	250 V / 2.5 kV / 2
Dielectric strength, contact-coil (AC, 1 min)	2.5 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 81 x 94
	Height from upper-edge of DIN-rail
Wire connection	Push-in CAGE CLAMP®
Cross sections	0.34 ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1; EN 61812-1;
	EN 61373; EN50121-3-2
Approvals	CE

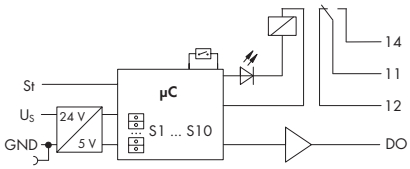
Multifunction time relay with 1 changeover contact (1u)
8 time ranges, 14 functions
Temperature range: -25 °C ... +70 °C
For railway applications

- 14 functions:
  - On-delay
  - On-delay with control input
  - Off-delay with control input
  - On- and off-delay with control input
  - Single-shot leading edge
  - Single-shot leading edge with control input
  - Single-shot trailing edge with control input
  - Single-shot leading and trailing edge with control input
  - On-delay and single-shot leading edge
  - On-delay and single-shot leading edge with control input
  - Step switching
  - Blinking, pulse start
  - Blinking, interval start
  - Relay switching
- Function and time range adjustable via DIP switch
- Digital output (DO): max. 31.2 VDC, 100 mA
- Control input: max. 31.2 VDC, min. pulse length 10 ms





DC load limit curve



Description	V_N	I_N	Item No.	Pack. Unit	
Multifunction time relay, for DIN-rail	24 VDC	18 mA	**857-640**	1	

Technical Data

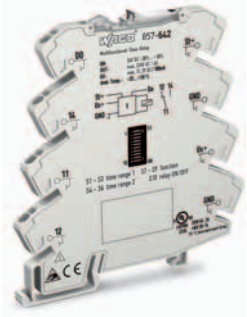
Accessories see page 33

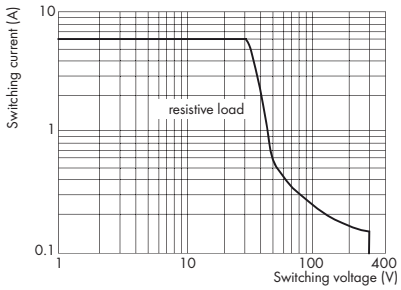
Coil:	
Input voltage range	V_N -30 % ... +30 %
Power consumption at V_N	18 mA (active) / 4.5 mA (passive)
Contacts:	
Contact material	AgNi
Max. continuous current	6 A (up to 60 °C)
	2 A (60 °C ... 70 °C)
Max. switching voltage	250 VAC
Max. switching power (resistive)	1500 VA AC, DC see load curve
Recommended minimum load	10 VDC / 10 mA, 24 VDC / 1 mA
Pull-in/drop-out/bounce time typ.	8ms / 4ms / -
Mechanical life	5 x 10^6 switching operations
General specifications:	
Time range	adjustable:
	0.01 ... 0.1 s; 0.1 ... 1 s; 1 ... 10 s; 10 ... 100 s;
	1 ... 10 min; 10 ... 100 min; 1 ... 10 h; 10 ... 100 h
Reset time	50 ms
Nominal voltage to EN 60664-1	250 V / 2.5 kV / 2
Dielectric strength, contact-coil (AC, 1 min)	2.5 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 96 x 94
	Height from upper-edge of DIN-rail
Wire connection	Push-in CAGE CLAMP®
Cross sections	0.34 ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1; EN 61812-1;
	EN 61373; EN50121-3-2
Approvals	CE

Multifunction Time Relay

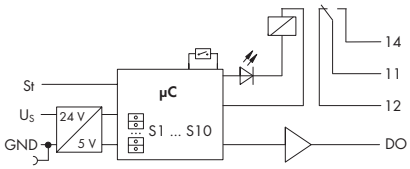
Multifunction time relay with 1 changeover contact (1u)
8 time ranges, 7 functions
2 adjustable time ranges
Temperature range: -25 °C ... +70 °C
For railway applications

- 7 functions:
  - On- and off-delay with control input
  - On-delay and single-shot leading edge
  - On-delay and single-shot leading edge with control input
  - Single-shot leading and trailing edge with control input
  - Pulse sequence evaluation with control input
  - Repeat cycle timer, pulse start
  - Repeat cycle timer, interval start, control input
- 2 separately adjustable time ranges
- Function and time range adjustable via DIP switch
- Digital output (DO): max. 31.2 VDC, 100 mA
- Control input: max. 31.2 VDC, min. pulse length 10 ms





DC load limit curve



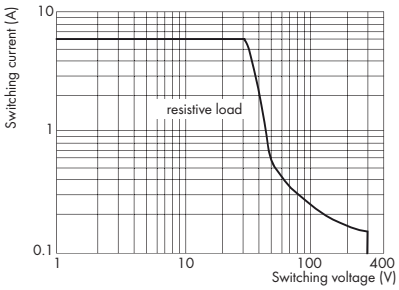
Description	V_N	I_N	Item No.	Pack. Unit	
Multifunction time relay, for DIN-rail	24 VDC	18 mA	**857-642**	1	

Technical Data

Accessories see page 33

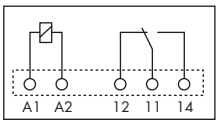
Coil:	
Input voltage range	V_N -30 % ... +30 %
Power consumption at V_N	18 mA (active) / 4.5 mA (passive)
Contacts:	
Contact material	AgNi
Max. continuous current	6 A (up to 60 °C)
	2 A (60 °C ... 70 °C)
Max. switching voltage	250 VAC
Max. switching power (resistive)	1500 VA AC, DC see load curve
Recommended minimum load	10 VDC / 10 mA, 24 VDC / 1 mA
Pull-in/drop-out/bounce time typ.	8ms / 4ms / -
Mechanical life	5 x 10^6 switching operations
General specifications:	
Time range	adjustable:
	0.01 ... 0.1 s; 0.1 ... 1 s; 1 ... 10 s; 10 ... 100 s;
	1 ... 10 min; 10 ... 100 min; 1 ... 10 h; 10 ... 100 h
Reset time	50 ms
Nominal voltage to EN 60664-1	250 V / 2.5 kV / 2
Dielectric strength, contact-coil (AC, 1 min)	2.5 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 96 x 94
	Height from upper-edge of DIN-rail
Wire connection	Push-in CAGE CLAMP®
Cross sections	0.34 ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1; EN 61812-1;
	EN 61373; EN50121-3-2
Approvals	CE

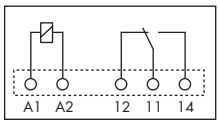
	Pluggable miniature switching relays 1 changeover contact	Pluggable miniature switching relays 1 changeover contact (gold contacts)



DC load limit curve

* In order to prevent the gold layer from being damaged, 30 VDC switching voltages and 50 mA currents shall not be exceeded.
Higher switching power leads to evaporation of the gold layer. The resulting deposits in the enclosure may cause sparkovers between the coil and the contact.





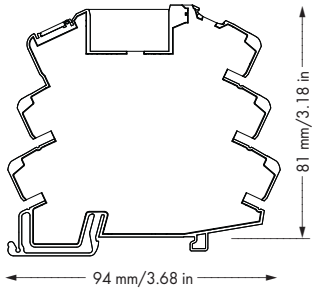
Description	V_N	Item No.	Pack. Unit	V_N	Item No.	Pack. Unit
Pluggable miniature switching relays	12 VDC	**857-150**	20			
	24 VDC	**857-152**	20	24 VDC	**857-153**	20
	48 VDC	**857-154**	20			
The 60 VDC replacement relays must be used with	60 VDC	**857-155**	20	60 VDC	**857-157**	20
60 VDC, 110 VDC, 220 VDC and 115 V AC/DC,						
230 V AC/DC relay modules.						

Technical Data

Contacts:		
Contact material	AgNi	AgNi + Au
Max. continuous current	6 A	6 A *
Max. switching voltage	250 VAC	250 VAC *
Max. switching power (resistive)	1500 VA AC; DC see load limit curve	1500 VA AC; DC see load limit curve *
Recommended minimum load	10 VDC / 10 mA, 24 VDC / 1 mA	1 VDC / 1 mA / 1 mW
Pull-in/drop-out/bounce time typ.	8ms / 4ms / -	8ms / 4ms / -
Mechanical life	5 x 10^6 switching operations	5 x 10^6 switching operations
General specifications:		
Dielectric strength, contact-coil (AC, 1 min)	4 kV_{rms}	4 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}	1 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	-	-
Ambient operating temperature at V_N	-40 °C ... +85 °C	-40 °C ... +85 °C
Storage temperature	-40 °C ... +85 °C	-40 °C ... +85 °C
Relative humidity	5 % ... 85 %	5 % ... 85 %
Dimensions (mm) W x H x L	5 x 15 x 28	5 x 15 x 28

Accessories, 857 Series

	Sockets for miniature switching relay and SSR	



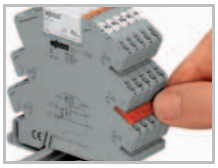
Description	Item No.	Pack. Unit	
Socket for miniature switching relay and SSR, 24 V AC/DC for DIN-rail	**857-104**	25 (1)	
Socket for miniature switching relay and SSR, 110 V AC/DC for DIN-rail	**857-107**	25 (1)	
Socket for miniature switching relay and SSR, 230 V AC/DC for DIN-rail	**857-108**	25 (1)	

Technical Data

Status indication	LED yellow	
Operating temperature	-40 °C ... +70 °C	
Storage temperature	-40 °C ... +70 °C	
Dimensions (mm) W x H x L	6 x 81 x 94	
	Height from upper-edge of DIN-rail	
Wire connection	Push-in CAGE CLAMP®	
Cross sections	0.34 ... 2.5 mm² / 22 ... 14 AWG	
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.	
Standards/specifications	EN 60664-1	
Approvals	UL 508	

Push-in type jumper bar

Commoning



Description		Item No.	Pack. Unit
Push-in type jumper bars, light gray, insulated, 18 A	**2-way**	**859-402**	200 (8x25)
	3-way	**859-403**	200 (8x25)
	4-way	**859-404**	200 (8x25)
	5-way	**859-405**	200 (8x25)
	6-way	**859-406**	100 (4x25)
	7-way	**859-407**	100 (4x25)
	8-way	**859-408**	100 (4x25)
	9-way	**859-409**	100 (4x25)
	10-way	**859-410**	100 (4x25)
Item no. suffix for colored push-in type jumper bars	**yellow**	**... /000-029**	
	red	**... /000-005**	
	blue	**... /000-006**	
Comb-style jumper bar, insulated	**2-way**	**281-482**	100

WMB Multi marking system

Marking

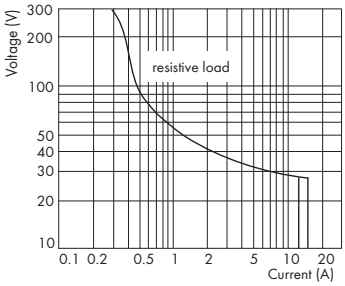
Description		Item No.	Pack. Unit
WMB Multi marking system	**plain**	**793-501**	5 cards
Marking software and printer/plotter see Section 11			
Marking	**1 ... 10 (10x)**	**793-502**	5 cards
	11 ... 20 (10x)	**793-503**	5 cards
	21 ... 30 (10x)	**793-504**	5 cards
	31 ... 40 (10x)	**793-505**	5 cards
	41 ... 50 (10x)	**793-506**	5 cards
	1 ... 50 (2x)	**793-566**	5 cards
10 strips with 10 markers, white with black printing			

Operating tool

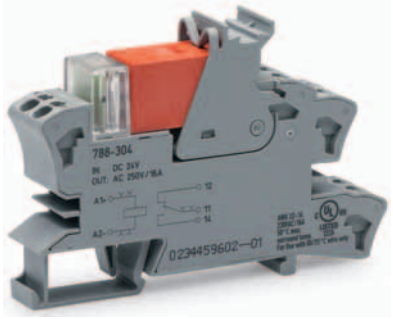
Description		Item No.	Pack. Unit
Operating tool, with partially insulated shaft	Type 2, blade (3.5 x 0.5) mm	**210-720**	1

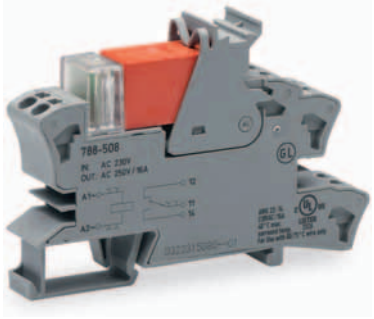
Relay Sockets with Miniature Switching Relay

	Relay with 1 changeover contact and status indication (Relay height: 15 mm) Nominal input voltage V_N 12 V, 24 V, 48 V, 60 V, 110 V DC	Relay with 1 changeover contact and status indication (Relay height: 15 mm) Nominal input voltage V_N 24 V, 115 V, 230 V AC

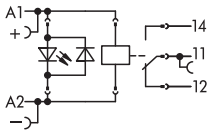


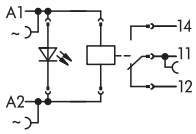
DC load limit curve





Notes:
- Reinforced insulation between coil and contacts
- A separator plate (e.g., 209-191) must be used for voltages greater than 250 V between adjacent relay modules and for compliance with the reinforced insulation requirements.
- To protect the relay coils and contacts, inductive loads must be dampened with an effective protection circuit.

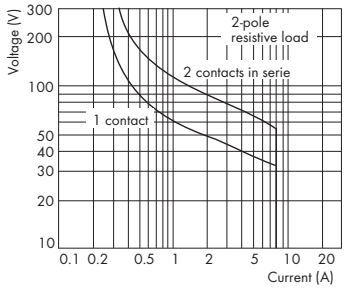




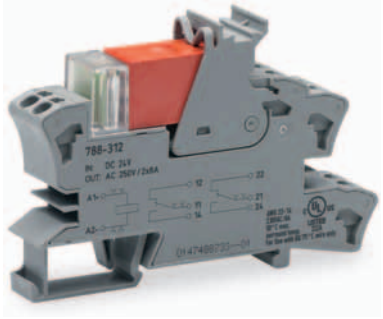
Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Relay socket with miniature switching relay, for DIN-rail	12 VDC	36 mA	**788-303**	20 (1)	24 VAC	34 mA	**788-506**	20 (1)
	24 VDC	19.1 mA	**788-304**	20 (1)	115 VAC	8 mA	**788-507**	20 (1)
	48 VDC	11 mA	**788-305**	20 (1)	230 VAC	3.5 mA	**788-508**	20 (1)
	60 VDC	10.5 mA	**788-306**	20 (1)				
	110 VDC	6 mA	**788-307**	20 (1)				

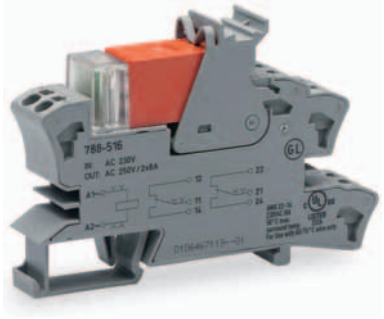
Technical Data	Accessories see page 50	Accessories see page 50
Coil		
Input voltage range	V_N ± 10 %	V_N ± 10 %
Contacts		
Contact material	AgNi 90/10	AgNi 90/10
Max. continuous current	16 A	16 A
Max. make current	4 s 30 A (AC)	4 s 30 A (AC)
Max. switching voltage	250 VAC	250 VAC
Max. switching power (resistive)	4 kVA AC, DC see load limit curve	4 kVA AC, DC see load limit curve
Recommended minimum load	12 VDC / 10 mA	12 VDC / 10 mA
Pull-in/drop-out/bounce time typ.	8 ms / 6 ms / 6 ms	8 ms / 6 ms / 6 ms
Mechanical life	30 x 10^6 switching operations	10 x 10^6 switching operations
General specifications:		
Nominal voltage to EN 60664-1	250 V / 4 kV / 3	250 V / 4 kV / 3
Dielectric strength, contact-coil (AC, 1 min)	5 kV_{rms}	5 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}	1 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	-	-
Ambient operating temperature at V_N	-25 °C ... +50 °C	-25 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	15 x 54 x 86	15 x 54 x 86
	Height from upper-edge of DIN-rail	Height from upper-edge of DIN-rail
Wire connection	Push-in CAGE CLAMP®	Push-in CAGE CLAMP®
Cross sections	0.34 ... 2.5 mm² / 22 ... 14 AWG	0.34 ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1; EN 61810-1; UL 508 (max. 10 A)	EN 60664-1; GL; UL 508
	(788-307: UL 508, max. 40 °C/10 A)	(788-507, 788-508: UL 508, max. 40 °C/10 A)

	Relay with 2 changeover contact and status indication (Relay height: 15 mm) Nominal input voltage V_N 12 V, 24 V, 48 V, 60 V, 110 V DC	Relay with 2 changeover contact and status indication (Relay height: 15 mm) Nominal input voltage V_N 24 V, 115 V, 230 V AC

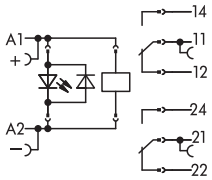


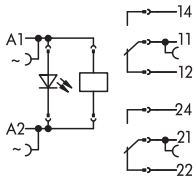
DC load limit curve





Notes:
- Reinforced insulation between coil and contacts
- A separator plate (e.g., 209-191) must be used for voltages greater than 250 V between adjacent relay modules and for compliance with the reinforced insulation requirements.
- To protect the relay coils and contacts, inductive loads must be dampened with an effective protection circuit.



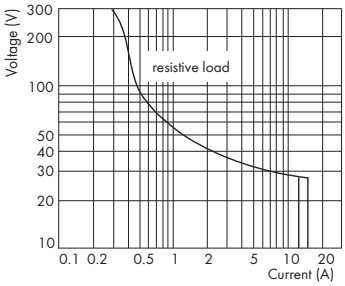


Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Relay socket with miniature switching relay, for DIN-rail	12 VDC	36 mA	**788-311**	20 (1)	24 VAC	34 mA	**788-512**	20 (1)
	24 VDC	19.1 mA	**788-312**	20 (1)	115 VAC	8 mA	**788-515**	20 (1)
	48 VDC	11 mA	**788-313**	20 (1)	230 VAC	3.5 mA	**788-516**	20 (1)
	60 VDC	10.5 mA	**788-314**	20 (1)				
	110 VDC	6 mA	**788-315**	20 (1)				

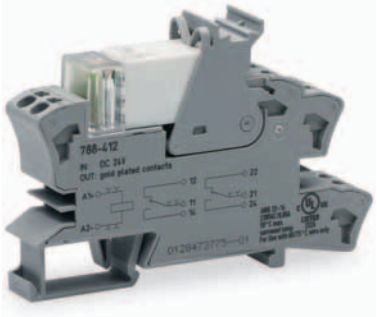
Technical Data	Accessories see page 50	Accessories see page 50
Coil		
Input voltage range	V_N ± 10 %	V_N ± 10 %
Contacts		
Contact material	AgNi 90/10	AgNi 90/10
Max. continuous current	2 x 8 A	2 x 8 A
Max. make current	4 s 15 A (AC)	4 s 15 A (AC)
Max. switching voltage	250 VAC	250 VAC
Max. switching power (resistive)	2 x 2 kVA AC, DC see load limit curve	2 x 2 kVA AC, DC see load limit curve
Recommended minimum load	12 VDC / 10 mA	12 VDC / 10 mA
Pull-in/drop-out/bounce time typ.	8 ms / 6 ms / 10 ms	8 ms / 6 ms / 10 ms
Mechanical life	30 x 10^6 switching operations	5 x 10^6 switching operations
General specifications:		
Nominal voltage to EN 60664-1	250 V / 4 kV / 3	250 V / 4 kV / 3
Dielectric strength, contact-coil (AC, 1 min)	5 kV_{rms}	5 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}	1 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	2.5 kV_{rms}	2.5 kV_{rms}
Ambient operating temperature at V_N	-25 °C ... +50 °C	-25 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	15 x 54 x 86	15 x 54 x 86
	Height from upper-edge of DIN-rail	Height from upper-edge of DIN-rail
Wire connection	Push-in CAGE CLAMP®	Push-in CAGE CLAMP®
Cross sections	0.34 ... 2.5 mm² / 22 ... 14 AWG	0.34 ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1; UL 508	EN 60664-1; GL; UL 508
	(788-315: UL 508, max. 40 °C)	

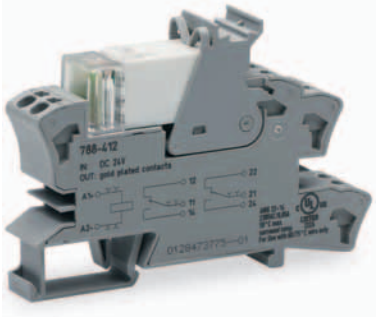
Relay Sockets with Miniature Switching Relay

	Relay with 1 changeover contact with gold contacts and and status indication (Relay height: 15 mm) Nominal input voltage V_N 24 VDC	**Relay with 1 changeover contact with gold contacts and and status indication (Relay height: 15 mm) Nominal input voltage V_N 115 V, 230 V AC**



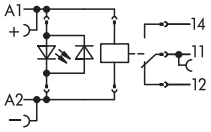
DC load limit curve

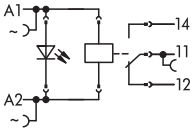




Notes:
- Reinforced insulation between coil and contacts
- A separator plate (e.g., 209-191) must be used for voltages greater than 250 V between adjacent relay modules and for compliance with the reinforced insulation requirements.

*To prevent the gold layer from being damaged, 30 VDC switching voltages and 50 mA currents shall not be exceeded. Higher switching power eventually evaporates the gold layer. The resulting deposits in the housing may reduce the service life.

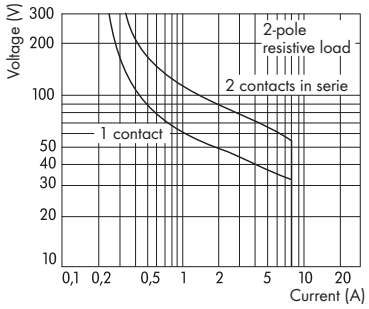




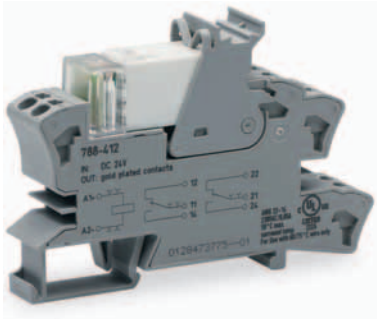
Description	**V_N**	**I_N**	**Item No.**	**Pack. Unit**	**V_N**	**I_N**	**Item No.**	**Pack. Unit**
Relay socket with miniature switching relay, for DIN-rail	24 VDC	19 mA	**788-404**	20 (1)	115 VAC	8.2 mA	**788-607**	20 (1)
					230 VAC	5 mA	**788-608**	20 (1)

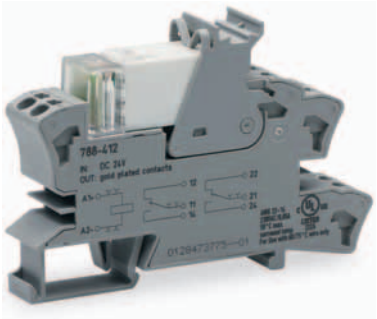
Technical Data	Accessories see page 50	Accessories see page 50
Coil		
Input voltage range	V_N ± 10 %	V_N ± 10 %
Contacts		
Contact material	AgNi + Au	AgNi + Au
Max. continuous current	16 A *	16 A *
Max. switching voltage	250 VAC *	250 VAC *
Max. switching power (resistive)	4 kVA AC, DC see load limit curve *	4 kVA AC, DC see load limit curve *
Recommended minimum load	5 V / 2 mA / 50 mW	5 V / 2 mA / 50 mW
Pull-in/drop-out/bounce time typ.	7 ms / 3 ms / -	7 ms / 3 ms / -
Mechanical life	3 x 10^7 switching operations	3 x 10^7 switching operations
General specifications:		
Nominal voltage to EN 60664-1	250 V / 4 kV / 3	250 V / 4 kV / 3
Dielectric strength, contact-coil (AC, 1 min)	5 kV_{rms}	5 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}	1 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	-	2.5 kV_{rms}
Ambient operating temperature at V_N	-25 °C ... +50 °C	-25 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	15 x 54 x 86	15 x 54 x 86
	Height from upper-edge of DIN-rail	Height from upper-edge of DIN-rail
Wire connection	Push-in CAGE CLAMP®	Push-in CAGE CLAMP®
Cross sections	0.34 ... 2.5 mm² / 22 ... 14 AWG	0.34 ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1; UL 508	EN 60664-1; UL 508

	Relay with 2 changeover contact with gold contacts and and status indication (Relay height: 15 mm) Nominal input voltage V_N 24 VDC	Relay with 2 changeover contact with gold contacts and and status indication (Relay height: 15 mm) Nominal input voltage V_N 115 V, 230 V AC



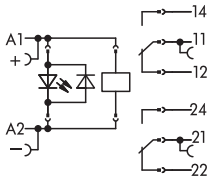
DC load limit curve

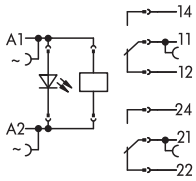




Notes:
- Reinforced insulation between coil and contacts
- A separator plate (e.g., 209-191) must be used for voltages greater than 250 V between adjacent relay modules and for compliance with the reinforced insulation requirements.

*To prevent the gold layer from being damaged, 30 VDC switching voltages and 50 mA currents shall not be exceeded. Higher switching power eventually evaporates the gold layer. The resulting deposits in the housing may reduce the service life.



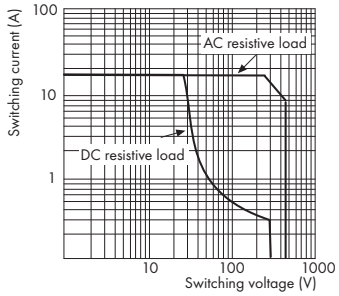


Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Relay socket with miniature switching relay,	24 VDC	17 mA	**788-412**	20 (1)	115 VAC	8.2 mA	**788-615**	20 (1)
for DIN-rail					230 VAC	5 mA	**788-616**	20 (1)

Technical Data	Accessories see page 50	Accessories see page 50
Coil		
Input voltage range	V_N ± 10 %	V_N ± 10 %
Contacts		
Contact material	AgNi + Au	AgNi + Au
Max. continuous current	2 x 8 A *	2 x 8 A *
Max. switching voltage	250 VAC *	250 VAC *
Max. switching power (resistive)	2 x 2 kVA AC, DC see load limit curve *	2 x 2 kVA AC, DC see load limit curve *
Recommended minimum load	5 V / 2 mA / 50 mW	5 V / 2 mA / 50 mW
Pull-in/drop-out/bounce time typ.	7 ms / 3 ms / -	7 ms / 3 ms / -
Mechanical life	3 x 10^7 switching operations	3 x 10^7 switching operations
General specifications:		
Nominal voltage to EN 60664-1	250 V / 4 kV / 3	250 V / 4 kV / 3
Dielectric strength, contact-coil (AC, 1 min)	5 kV_{rms}	5 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}	1 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	2.5 kV_{rms}	2.5 kV_{rms}
Ambient operating temperature at V_N	-25 °C ... +50 °C	-25 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	15 x 54 x 86	15 x 54 x 86
	Height from upper-edge of DIN-rail	Height from upper-edge of DIN-rail
Wire connection	Push-in CAGE CLAMP®	Push-in CAGE CLAMP®
Cross sections	0.34 ... 2.5 mm² / 22 ... 14 AWG	0.34 ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1; UL 508	EN 60664-1; UL 508

Relay Sockets with Miniature Switching Relay

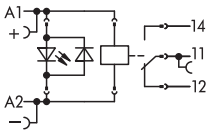
Relay with 1 changeover contact and status indication (15 mm high)
Nominal input voltage V_N
12 V, 24 V DC



Load limit curve

Contact life, type of load	Capability	Electrical life
Incandescent lamp	2200 W	20,000
Halogen lamp 230 VAC	1400 W	50,000
Halogen trafo	120 VA	20,000
Fluorescent lamp not comp., CCG ①, cos φ 0.406	20 x 58 W	25,000
Fluorescent lamp comp., CCG ①, C parallel	9 x 58 W	25,000
Fluorescent lamp comp., CCG ①, Duo-circuit	600 W	20,000
Fluorescent lamp with ECG ②	12 x 58 W	25,000
Energy saving lamp 15 W	25 pcs	20,000
Energy saving lamp 13 W	30 pcs	20,000
Energy saving lamp 9 W	38 pcs	20,000
Gas discharge lamp	1000 W	20,000

Notes:
- Reinforced insulation between coil and contacts
- A separator plate (e.g., 209-191) must be used for voltages greater than 250 V between adjacent relay modules and for compliance with the reinforced insulation requirements.
- To protect the relay coils and contacts, inductive loads must be dampened with an effective protection circuit.



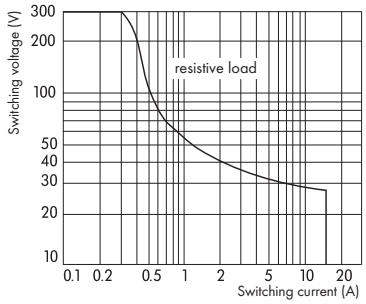
Description	V_N	I_N	Item No.	Pack. Unit
Relay socket with miniature switching relay, for DIN 35 rail	12 VDC	35 mA	**788-353**	20 (1)
	24 VDC	19 mA	**788-354**	20 (1)

Technical Data

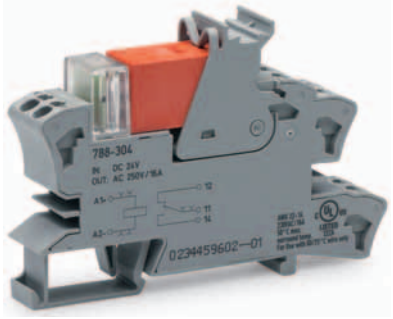
Accessories see page 50

Coil:	
Input voltage range	V_N -15 % ... +20 %
Contacts:	
Contact material	Ag alloy
Max. continuous current	16 A
Max. make current	120 A / 50 ms
Max. switching voltage	250 VAC
Max. switching power (resistive)	4 kVA AC, DC see load curve
Recommended minimum load	> 100 mA / 12 V AC/DC
Pull-in/drop-out/bounce time typ.	15ms / 5ms / -
Mechanical life	10 x 10^6 switching operations
General specifications:	
Nominal voltage to EN 60664-1	250 V / 4 kV / 3
Dielectric strength, contact-coil (AC, 1 min)	5 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	-
Ambient operating temperature at V_N	-25 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C
Dimensions (mm) W x H x L	15 x 54 x 86
	Height from upper-edge of DIN 35 rail
Wire connection	Push-in CAGE CLAMP®
Cross sections	0.34 mm² ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1; UL 508 (max. 10 A)

Relay with 1 make contact and status indication (15 mm high) Nominal input voltage V_N 24 VDC for lamp loads



DC load limit curve

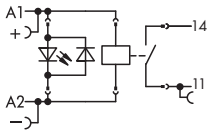


Similiar to picture

Contact life, type of load	Electrical life
1000 W, incandescent lamp	80,000
16 A, 240 VAC, UL 508	50,000
21/3.5 A, 230 VAC, Compressor, cos φ = 0.5	230,000

Notes:

- Reinforced insulation between coil and contacts
- A separator plate (e.g., 209-191) must be used for voltages greater than 250 V between adjacent relay modules and for compliance with the reinforced insulation requirements.
- To protect the relay coils and contacts, inductive loads must be dampened with an effective protection circuit.



Description	V_N	I_N	Item No.	Pack. Unit
Relay socket with miniature switching relay, for DIN 35 rail	24 VDC	19 mA	**788-356**	20 (1)

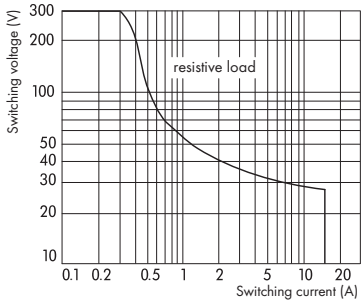
Technical Data

Accessories see page 50

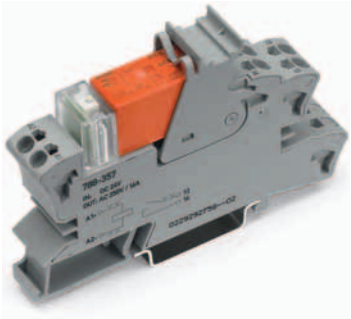
Coil:	
Input voltage range	V_N -15 % ... +20 %
Contacts:	
Contact material	$AgSnO_2$
Max. continuous current	16 A
Max. make current	30 A / 4 s (AC); 80 A / 20 ms (AC)
Max. switching voltage	250 VAC
Max. switching power (resistive)	4 kVA AC, DC see load curve
Recommended minimum load	≥ 100 mA / 12 V AC/DC
Pull-in/drop-out/bounce time typ.	8ms / 3ms / -
Mechanical life	30 x 10^6 switching operations
General specifications:	
Nominal voltage to EN 60664-1	250 V / 4 kV / 3
Dielectric strength, contact-coil (AC, 1 min)	5 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	-
Ambient operating temperature at V_N	-25 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C
Dimensions (mm) W x H x L	15 x 53 x 86
	Height from upper-edge of DIN 35 rail
Wire connection	Push-in CAGE CLAMP®
Cross sections	0.34 mm² ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1; EN 61810-1; UL 508 (max. 10 A)

Relay Sockets with Miniature Switching Relay

Relay with 1 make contact and status indication (15 mm high)
Nominal input voltage V_N 24 VDC
for lamp loads



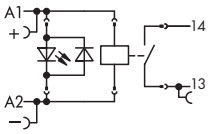
DC load limit curve



Contact life, type of load	Electrical life
3000 W, incandescent lamp, 230 VAC, OT 8.3 % ①, 5 min^{-1}	12,000
620 W, gas discharge lamp, CCG ②, 120/277 VAC, UL 508, 50 °C	6,000
1200 W, tungsten lamp, 120/277 VAC, UL 508, 50 °C	6,000
16 A, 250 VAC, cos φ = 1, 85 °C, IEC 61810	5,000

① OT= On-Time
② CCG = Conventional Control Gear

Notes:
- Reinforced insulation between coil and contacts
- A separator plate (e.g., 209-191) must be used for voltages greater than 250 V between adjacent relay modules and for compliance with the reinforced insulation requirements.
- To protect the relay coils and contacts, inductive loads must be dampened with an effective protection circuit.



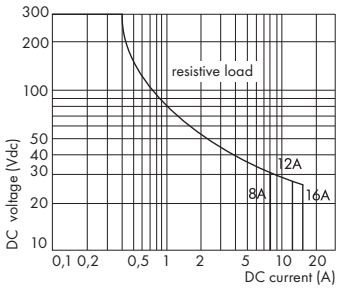
Description	V_N	I_N	Item No.	Pack. Unit
Relay socket with miniature switching relay, for DIN 35 rail	24 VDC	17 mA	**788-357**	20 (1)

Technical Data

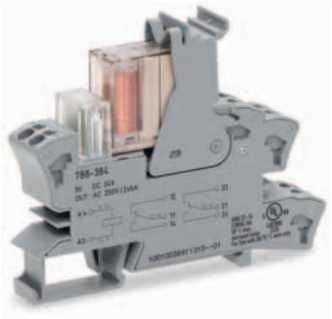
Accessories see page 50

Coil:	
Input voltage range	V_N -10 % ... +20 %
Contacts:	
Contact material	$AgSnO_2$, W pre-make contact
Max. continuous current	16 A
Max. make current	165 A / 20 ms (AC)
Max. switching voltage	250 VAC
Max. switching power (resistive)	4 kVA AC, DC see load curve
Recommended minimum load	-
Pull-in/drop-out/bounce time typ.	10ms / 5ms / 4 ms
Mechanical life	5 x 10^6 switching operations
General specifications:	
Nominal voltage to EN 60664-1	250 V / 4 kV / 3
Dielectric strength, contact-coil (AC, 1 min)	4 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1.25 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	-
Ambient operating temperature at V_N	-25 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C
Dimensions (mm) W x H x L	15 x 53 x 86
	Height from upper-edge of DIN 35 rail
Wire connection	Push-in CAGE CLAMP®
Cross sections	0.34 mm² ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1; EN 61810-1

Relay with 1 make contact and status indication (Relay height: 25 mm) Nominal input voltage V_N 24 VDC



DC load limit curve



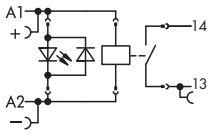
Similiar to picture

Contact life at different lamp loads

Load	Switching operations
12 A, 250 V AC, cos φ = 1	3×10^5
TV 8 acc. to UL 508	25×10^3
2500 W, 230 V AC Halogen lamp	$> 10^4$
1000 W, 250 V AC Incandesent lamp	2.3×10^5
3000 W, 250 V AC Incandesent lamp	3.6×10^4
1500 VA, Fluorescent lamp 163 µF	10^4

Notes:

- Reinforced insulation between coil and contacts
- A separator plate (e.g., 209-191) must be used for voltages greater than 250 V between adjacent relay modules and for compliance with the reinforced insulation requirements.
- To protect the relay coils and contacts, inductive loads must be dampened with an effective protection circuit.



Description	V_N	I_N	Item No.	Pack. Unit
Relay socket with miniature switching relay, for DIN 35 rail	24 VDC	21.8 mA	**788-355**	15 (1)

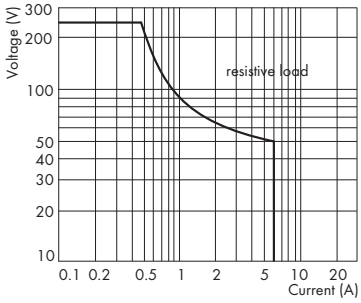
Technical Data

Accessories see page 50

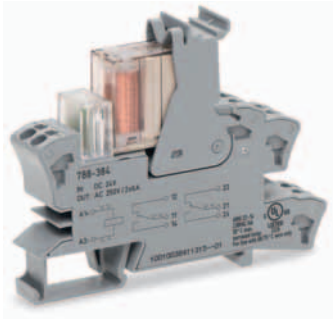
Coil:	
Input voltage range	V_N -15 % ... +20 %
Contacts:	
Contact material	$AgSnO_2$
Max. continuous current	16 A
Max. make current	4 s (AC) 25 A / 20 ms 120 A
Max. switching voltage	250 V AC
Max. switching power (resistive)	4 kVA AC, DC see load limit curve
Recommended minimum load	> 100 mA / 12 V AC/DC
Pull-in/drop-out/bounce time typ.	8ms / 2ms / 2 ms
Mechanical life	30×10^6 switching operations
General specifications:	
Nominal voltage to EN 60664-1	250 V / 4 kV / 3
Dielectric strength, contact-coil (AC, 1 min)	4 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	-
Ambient operating temperature at V_N	-25 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C
Dimensions (mm) W x H x L	15 x 64 x 86
	Height from upper-edge of DIN 35 rail
Wire connection	Push-in CAGE CLAMP®
Cross sections	0.34 mm² ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1; UL 508 (max. 10 A)

Relay Sockets with Miniature Switching Relay

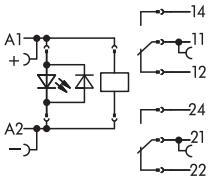
Safety relay SR2M (2 changeover contacts) with forced guided contacts (Type A) and status indication
(Relay height: 25 mm)
Nominal input voltage V_N
24 VDC



DC load limit curve



Notes:
- In accordance with EN 50205, it is only permitted to use 1 make contact / 1 break contact for safety circuits (11-14 and 22-21 or 12-11 and 21-24).
- Reinforced insulation between coil and contacts
- A separator plate (e.g., 209-191) must be used for voltages greater than 250 V between adjacent relay modules and for compliance with the reinforced insulation requirements.
- To protect the relay coils and contacts, inductive loads must be dampened with an effective protection circuit.



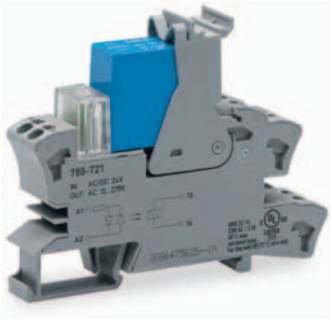
Description	V_N	I_N	Item No.	Pack. Unit
Relay socket with miniature switching relay, for DIN 35 rail	24 VDC	31 mA	**788-384**	15 (1)

Technical Data

Accessories see page 50

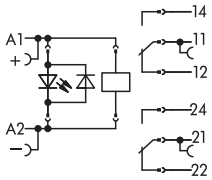
Coil:	
Input voltage range	V_N -15 % ... +10 %
Contacts:	
Contact material	AgNi
Max. continuous current	6 A
Max. make current	4 s 14 A (AC)
Max. switching voltage	250 VAC
Max. switching power (resistive)	AC 1500 VA; DC see load limit curve
Recommended minimum load	5 V / 10 mA / 50 mW
Pull-in/drop-out/bounce time typ.	10ms / 4ms / -
Mechanical life	10 x 10^6 switching operations
General specifications:	
Nominal voltage to EN 60664-1	250 V / 4 kV / 3
Dielectric strength, contact-coil (AC, 1 min)	4 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1.5 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	3 kV_{rms}
Ambient operating temperature at V_N	-25 °C ... +55 °C
Storage temperature	-40 °C ... +70 °C
Dimensions (mm) W x H x L	15 x 64 x 86
	Height from upper-edge of DIN 35 rail
Wire connection	Push-in CAGE CLAMP®
Cross sections	0.34 mm² ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1, EN 50205; UL 508

Safety relay (2 changeover contacts) with force-guided gold contacts (Type A) and status indication
Nominal input voltage V_N
24 VDC



Similiar to picture

Notes:
- Reinforced insulation between coil and contacts
- A separator plate (e.g., 209-191) must be used for voltages greater than 250 V between adjacent relay modules and for compliance with the reinforced insulation requirements.
- To protect the relay coils and contacts, inductive loads must be dampened with an effective protection circuit.



Description	V_N	I_N	Item No.	Pack. Unit
Relay socket with miniature switching relay, for DIN 35 rail	24 VDC	30 mA	**788-906**	15 (1)

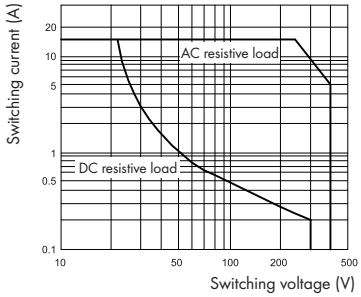
Technical Data

Accessories see page 50

Coil:	
Input voltage range	V_N -15 % ... +10 %
Contacts:	
Contact material	AgNi10 + Au
Max. continuous current	0.3 A
Max. switching voltage	60 V
Recommended minimum load	0.1 V / 1 mA / 1 mW
Pull-in/drop-out/bounce time typ.	15ms / 12ms / -
Mechanical life	50 x 10^6 switching operations
General specifications:	
Nominal voltage to EN 60664-1	250 V / 4 kV / 2
Dielectric strength, contact-coil (AC, 1 min)	4 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	2.5 kV_{rms}
Ambient operating temperature at V_N	-25 °C ... +55 °C
Storage temperature	-40 °C ... +70 °C
Dimensions (mm) W x H x L	15 x 54 x 86
	Height from upper-edge of DIN 35 rail
Wire connection	Push-in CAGE CLAMP®
Cross sections	0.34 ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in
Standards/specifications	EN 60664-1, EN 50205, UL 508 (max. 40 °C)

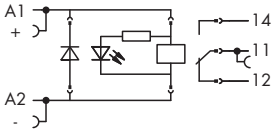
Relay Sockets with Miniature Switching Relay

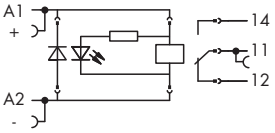
	Relay with 1 changeover contact Electrical and mechanical status indication Manual operation (Relay height: 25 mm) Nominal input voltage V_N 24 V, 48 V, 110 V DC	Relay with 1 changeover contact Electrical and mechanical status indication (Relay height: 25 mm) Nominal input voltage V_N 24 VDC Railway applications



Load limit curve

Notes:
- Reinforced insulation between coil and contacts
- A separator plate (e.g., 209-191) must be used for voltages greater than 250 V between adjacent relay modules and for compliance with the reinforced insulation requirements.
- To protect the relay coils and contacts, inductive loads must be dampened with an effective protection circuit.

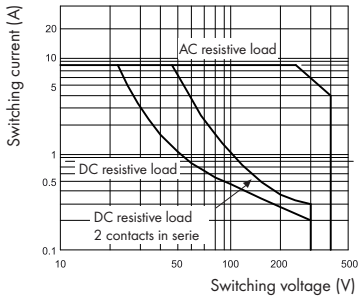




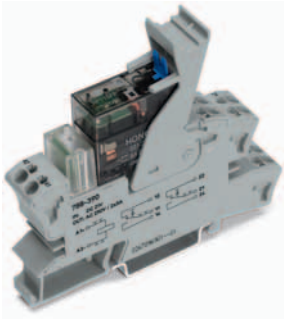
Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Relay socket with miniature switching relay, for DIN-rail	24 VDC	16.7 mA	**788-341**	15 (1)	24 VDC	19.1 mA	**788-391**	15 (1)
	48 VDC	8.3 mA	**788-342**	15 (1)				
	110 VDC	3.6 mA	**788-344**	15 (1)				

Technical Data	Accessories see page 50	Accessories see page 50
Coil		
Input voltage range	V_N ± 10 %	V_N -30 % ... +25 %
Contacts		
Contact material	AgNi	AgNi
Max. continuous current	16 A	3 A (single socket)
Max. make current	24 A	24 A
Max. switching voltage	250 VAC	250 VAC
Max. switching power (resistive)	4 kVA AC	750 VA AC
Recommended minimum load	12 V AC/DC / 10 mA	12 V AC/DC / 10 mA
Pull-in/drop-out/bounce time typ.	15 ms / 8 ms / 6 ms	15 ms / 8 ms / 6 ms
Mechanical life	5 x 10^6 switching operations	5 x 10^6 switching operations
General specifications:		
Nominal voltage to EN 60664-1	250 V / 4 kV / 3	250 V / 4 kV / 3
Dielectric strength, contact-coil (AC, 1 min)	5 kV_{rms}	5 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}	1 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	-	-
Ambient operating temperature at V_N	-25 °C ... +50 °C	-25 °C ... +70 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	15 x 73 x 86	15 x 73 x 86
	Height from upper-edge of DIN-rail	Height from upper-edge of DIN-rail
Wire connection	Push-in CAGE CLAMP®	Push-in CAGE CLAMP®
Cross sections	0.34 ... 2.5 mm² / 22 ... 14 AWG	0.34 ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1; UL 508 (max. 10 A)	EN 60664-1; EN 61810-1

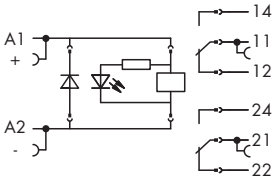
	Relay with 2 changeover contact Electrical and mechanical status indication Manual operation (Relay height: 25 mm) Nominal input voltage V_N 24 V, 48 V, 110 V DC	Relay with 2 changeover contact Electrical and mechanical status indication (Relay height: 25 mm) Nominal input voltage V_N 24 VDC Railway applications

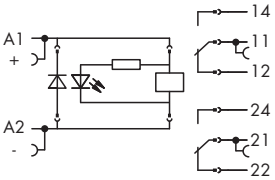


Load limit curve



Notes:
- Reinforced insulation between coil and contacts
- A separator plate (e.g., 209-191) must be used for voltages greater than 250 V between adjacent relay modules and for compliance with the reinforced insulation requirements.
- To protect the relay coils and contacts, inductive loads must be dampened with an effective protection circuit.



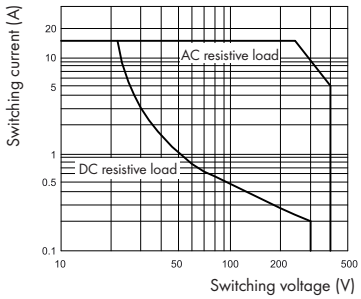


Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Relay socket with miniature switching relay, for DIN-rail	24 VDC	16.7 mA	**788-346**	15 (1)	24 VDC	19.1 mA	**788-390**	15 (1)
	48 VDC	8.3 mA	**788-347**	15 (1)				
	110 VDC	3.6 mA	**788-349**	15 (1)				

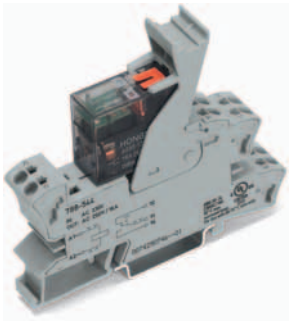
Technical Data	Accessories see page 50	Accessories see page 50
Coil		
Input voltage range	V_N ± 10 %	V_N -30 % ... +25 %
Contacts		
Contact material	AgNi	AgNi
Max. continuous current	2 x 8A	2 x 3 A (single socket)
Max. make current	2 x 12 A	2 x 12 A
Max. switching voltage	250 VAC	250 VAC
Max. switching power (resistive)	2 x 2 kVA AC	2 x 750 VA AC
Recommended minimum load	12 V AC/DC / 10 mA	12 V AC/DC / 10 mA
Pull-in/drop-out/bounce time typ.	15 ms / 8 ms / 7 ms	15 ms / 8 ms / 7 ms
Mechanical life	5 x 10^6 switching operations	5 x 10^6 switching operations
General specifications:		
Nominal voltage to EN 60664-1	250 V / 4 kV / 3	250 V / 4 kV / 3
Dielectric strength, contact-coil (AC, 1 min)	5 kV_{rms}	5 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}	1 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	2.5 kV_{rms}	2.5 kV_{rms}
Ambient operating temperature at V_N	-25 °C ... +50 °C	-25 °C ... +70 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	15 x 73 x 86	15 x 73 x 86
	Height from upper-edge of DIN-rail	Height from upper-edge of DIN-rail
Wire connection	Push-in CAGE CLAMP®	Push-in CAGE CLAMP®
Cross sections	0.34 ... 2.5 mm² / 22 ... 14 AWG	0.34 ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1; UL 508	EN 60664-1; EN 61810-1

Relay Sockets with Miniature Switching Relay

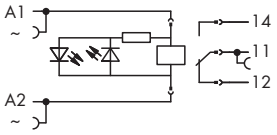
Relay with 1 changeover contact
Electrical and mechanical status indication
Manual operation
(Relay height: 25 mm)
Nominal input voltage V_N:
24 V, 115 V, 230 V AC



Load limit curve for 788-541, -543, -544



Notes:
- Reinforced insulation between coil and contacts
- A separator plate (e.g., 209-191) must be used for voltages greater than 250 V between adjacent relay modules and for compliance with the reinforced insulation requirements.
- To protect the relay coils and contacts, inductive loads must be dampened with an effective protection circuit.



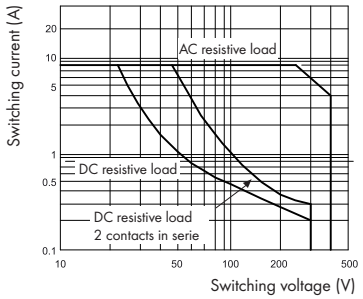
Description	V_N	I_N	Item No.	Pack. Unit
Relay socket with miniature switching relay,	24 VAC	31.6 mA	**788-541**	15 (1)
for DIN-rail	115 VAC	6.6 mA	**788-543**	15 (1)
	230 VAC	3.2 mA	**788-544**	15 (1)

Technical Data

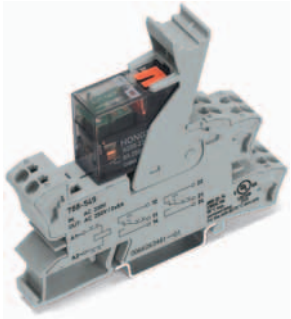
Accessories see page 50

Coil	
Input voltage range	V_N ± 10 %
Contacts	
Contact material	AgNi
Max. continuous current	16A
Max. make current	24 A
Max. switching voltage	250 VAC
Max. switching power (resistive)	4 kVA AC
Recommended minimum load	12 V AC/DC / 10 mA
Pull-in/drop-out/bounce time typ.	15 ms / 8 ms / 6 ms
Mechanical life	5 x 10^6 switching operations
General specifications:	
Nominal voltage to EN 60664-1	250 V / 4 kV / 3
Dielectric strength, contact-coil (AC, 1 min)	5 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	-
Ambient operating temperature at V_N	-25 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C
Dimensions (mm) W x H x L	15 x 73 x 86
	Height from upper-edge of DIN-rail
Wire connection	Push-in CAGE CLAMP®
Cross sections	0.34 ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1; UL 508 (max. 10 A)

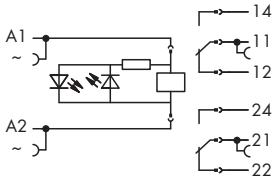
	Relay with 2 changeover contact **Electrical and mechanical status indication** **Manual operation** **(Relay height: 25 mm)** **Nominal input voltage V_N** **24 V, 115 V, 230 V AC**	



Load limit curve for 788-546, -548, -549



Notes:
- Reinforced insulation between coil and contacts
- A separator plate (e.g., 209-191) must be used for voltages greater than 250 V between adjacent relay modules and for compliance with the reinforced insulation requirements.
- To protect the relay coils and contacts, inductive loads must be dampened with an effective protection circuit.



Description	V_N	I_N	Item No.	Pack. Unit	
Relay socket with miniature switching relay, for DIN-rail	24 VAC	31.6 mA	**788-546**	15 (1)	
	115 VAC	6.6 mA	**788-548**	15 (1)	
	230 VAC	3.2 mA	**788-549**	15 (1)	

Technical Data

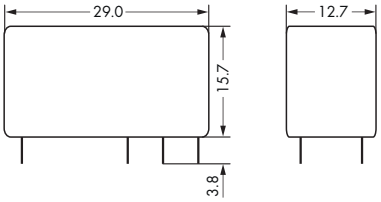
Accessories see page 50

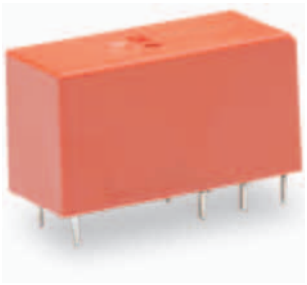
Coil	
Input voltage range	V_N ± 10 %
Contacts	
Contact material	AgNi
Max. continuous current	2 x 8A
Max. make current	2 x 12 A
Max. switching voltage	250 VAC
Max. switching power (resistive)	2 x 2 kVA AC
Recommended minimum load	12 V AC/DC / 10 mA
Pull-in/drop-out/bounce time typ.	15 ms / 8 ms / 7 ms
Mechanical life	5 x 10^6 switching operations
General specifications:	
Nominal voltage to EN 60664-1	250 V / 4 kV / 3
Dielectric strength, contact-coil (AC, 1 min)	5 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	2.5 kV_{rms}
Ambient operating temperature at V_N	-25 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C
Dimensions (mm) W x H x L	15 x 73 x 86
	Height from upper-edge of DIN-rail
Wire connection	Push-in CAGE CLAMP®
Cross sections	0.34 ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1; UL 508

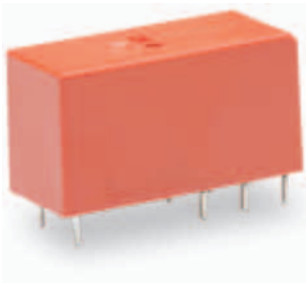
Accessories, 788 Series

	Pluggable miniature switching relays (Relay height: 15 mm) 1 changeover contact	Pluggable miniature switching relays (Relay height: 15 mm) 2 changeover contact

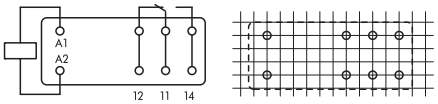
Relay height 15 mm



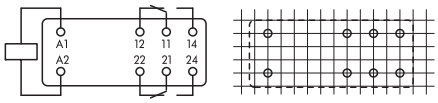




Pinning 5 mm



Pinning 5 mm



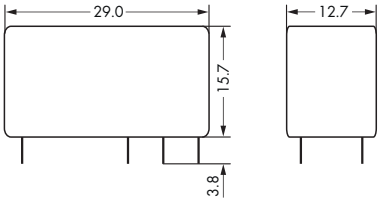
Description	V_N	Item No.	Pack. Unit	V_N	Item No.	Pack. Unit
Pluggable miniature switching relays	12 VDC	**788-150**	20	12 VDC	**788-152**	20
	24 VDC	**788-154**	20	24 VDC	**788-156**	20
	48 VDC	**788-158**	20	48 VDC	**788-160**	20
	60 VDC	**788-162**	20	60 VDC	**788-164**	20
	110 VDC	**788-166**	20	110 VDC	**788-168**	20
	24 VAC	**788-170**	20	24 VAC	**788-172**	0
	115 VAC	**788-174**	20	115 VAC	**788-176**	20
	230 VAC	**788-178**	20	230 VAC	**788-180**	20

Technical Data

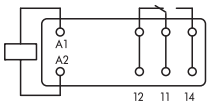
Contacts		
Contact material	AgNi 90/10	AgNi 90/10
Max. continuous current	16 A	2 x 8 A
Max. make current	30 A (4 s)	15 A (4 s)
Max. switching voltage	250 VAC	250 VAC
Max. switching power (resistive)	4 kVA AC	2 x 2 kVA AC
Recommended minimum load	12 VDC / 10 mA	12 VDC / 10 mA
Pull-in/drop-out/bounce time typ.	8 ms / 6 ms / 6 ms	8 ms / 6 ms / 10 ms
Mechanical life	> 30 x 10^6 switching operations	> 30 x 10^6 switching operations
General specifications:		
Dielectric strength, contact-coil (AC, 1 min)	5 kV_{rms}	5 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}	1 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	-	2.5 kV_{rms}
Ambient operating temperature at V_N	-40 °C ... +85 °C	-40 °C ... +85 °C
Dimensions (mm) W x H x L	12.7 x x 29	12.7 x x 29

	Pluggable miniature switching relays (Relay height: 15 mm) 1 changeover contact (gold contacts)	Pluggable miniature switching relays (Relay height: 15 mm) 2 changeover contact (gold contacts)

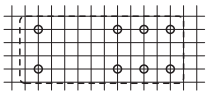
Relay height 15 mm

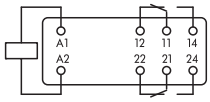


* In order to prevent the gold layer from being damaged, 30 VDC switching voltages and 50 mA currents shall not be exceeded. Higher switching power leads to evaporation of the gold layer. The resulting deposits in the housing may reduce the service life.

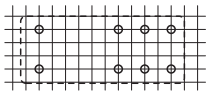


Pinning 5 mm





Pinning 5 mm



Description	V_N	Item No.	Pack. Unit	V_N	Item No.	Pack. Unit
Pluggable miniature switching relays	24 VDC	**788-155**	20	24 VDC	**788-157**	20
	115 VAC	**788-175**	20	115 VAC	**788-177**	20
	230 VAC	**788-179**	20	230 VAC	**788-181**	20

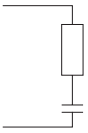
Technical Data

Contacts		
Contact material	AgNi + Au	AgNi + Au
Max. continuous current	16 A *	2 x 8 A *
Max. switching voltage	250 VAC *	250 VAC *
Max. switching power (resistive)	4 kVA AC *	2 x 2 kVA AC *
Recommended minimum load	5 V / 2 mA / 50 mW	5 V / 2 mA / 50 mW
Pull-in/drop-out/bounce time typ.	7 ms / 3 ms / -	7 ms / 3 ms / -
Mechanical life	> 3 x 10^7 switching operations	> 3 x 10^7 switching operations
General specifications:		
Dielectric strength, contact-coil (AC, 1 min)	5 kV_{rms}	5 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}	1 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	-	2.5 kV_{rms}
Ambient operating temperature at V_N	-40 °C ... +85 °C	-40 °C ... +85 °C
Dimensions (mm) W x H x L	12.7 x x 29	12.7 x x 29

Accessories, 788 Series

**Suppressor module,
pluggable,
for 788 and 858 Series Relay Sockets**

Note: To guarantee safe operation, residual voltages (due to the cable capacitance of long connection lines or leakage currents of semi-conductor switches and their protective circuits) must be lower than the release voltage of the relays.
For DC relays, the release voltage is specified with ≤ 5 % of the nominal voltage; for AC relays, it is 15 % of the nominal voltage (acc. to VDE 0435).
The relay may not reset if a high residual voltage exists. Depending on the reason for the residual voltage, changing the cable routing or a parallel connection of an RC element could remedy this situation.



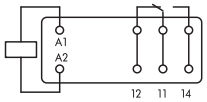
Description	Item No.	Pack. Unit
Suppressor module for miniature switching relay	**788-148**	50

Technical Data

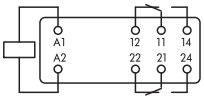
Operating data:	
Operating voltage	max. 230 VAC, 50 ... 60 Hz
Operating current	3.6 mA at 115 VAC, 50 Hz
	7.2 mA at 230 VAC, 50 Hz
Module's characteristics:	
Resistor	470 Ω
Capacity	100 nF
General specifications:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +70 °C
Dimensions (mm) W x H x L	15 x 15 x 10
Standards/specifications	EN 60664-1

Sockets for miniature switching relay
1 changeover contact / 2 changeover contact

1 changeover contact

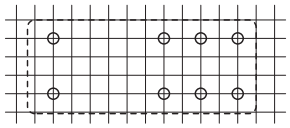


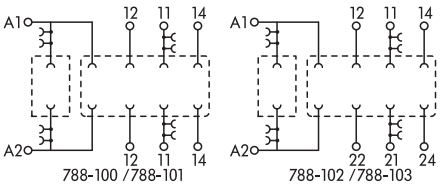
2 changeover contacts



View on pins

Pinning





Description	Item No.	Pack. Unit
Socket without relay, for DIN-rail		
Relay height 15 mm, 1 changeover contact	**788-100**	20 (1)
Relay height 15 mm, 2 changeover contacts	**788-102**	20 (1)
Relay height 25 mm, 1 changeover contact	**788-101**	15 (1)
Relay height 25 mm, 2 changeover contacts	**788-103**	15 (1)

Technical Data

Contacts:	
Max. continuous current	16 A / 2 x 8 A
Max. switching voltage	250 VAC
Max. switching power (resistive)	4 kVA / 2 x 2 kVA AC
General specifications:	
Nominal input voltage (V_N)	depending on relay; max. 250 VAC
Nominal voltage to EN 60664-1	250 V / 4 kV / 3
Dielectric strength	5 kV_{rms} (depending on relay)
Storage temperature	-40 °C ... +80 °C
Ambient operating temperature	-25 °C ... +70 °C (depending on relay)
Wire connection	Push-in CAGE CLAMP®
Cross sections	0.34 ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in..
Standards/specifications	EN 60664-1

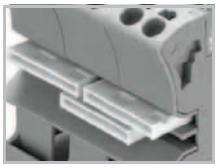
Accessories, 788 Series

Status indication

Description	Power consumption at V_N	Item No.	Pack. Unit
Status indication with recovery diode, 24 VDC (12 V ... 24 V)	2.4 mA	**788-120**	50 (2x25)
Status indication with recovery diode, 48 VDC (48 V ... 60 V)	1.9 mA	**788-121**	50 (2x25)
Status indication 110 VDC	1.9 mA	**788-122**	50 (2x25)
Status indication 24 VAC	2.1 mA	**788-123**	50 (2x25)
Status indication 115 VAC	1.7 mA	**788-124**	50 (2x25)
Status indication 230 VAC	1.6 mA	**788-125**	50 (2x25)

Push-in type jumper bar
788-113

Commoning



Push-in type jumper bar

Description			Item No.	Pack. Unit
Push-in type jumper bar, I max. 18 A	**2-way**	(module/module)	**788-113**	200 (8x25)
	3-way		**788-114**	100 (4x25)
	4-way		**788-115**	100 (4x25)
	6-way		**788-116**	100 (4x25)
	8-way		**788-117**	100 (4x25)
Push-in type jumper bars, light gray, insulated, 18 A	**2-way**	(internal)	**859-402**	200 (8x25)

WMB Multi marking system

Marking

Group marker carrier

Description		Item No.	Pack. Unit
WMB Multi marking system	**plain**	**793-501**	5 cards
Marking software and printer/plotter see Section 11			
Marking	**1 ... 10 (10x)**	**793-502**	5 cards
	11 ... 20 (10x)	**793-503**	5 cards
	21 ... 30 (10x)	**793-504**	5 cards
	31 ... 40 (10x)	**793-505**	5 cards
	41 ... 50 (10x)	**793-506**	5 cards
	1 ... 50 (2x)	**793-566**	5 cards
10 strips with 10 markers, white with black printing			
Group marker carrier		**209-145**	100 (50)

Operating tool

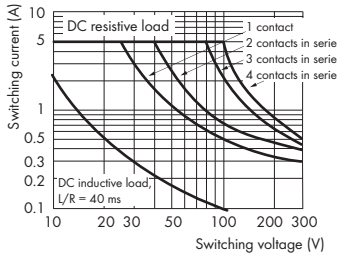
Description		Item No.	Pack. Unit
Operating tool, with partially insulated shaft	Type 2, blade (3.5 x 0.5) mm	**210-720**	1

Ferrule

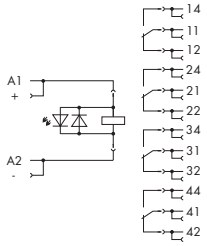
Description	Sleeve for mm² / AWG	Item No.	Pack. Unit
Ferrule, red insulated, 12 mm	2 x 1 mm² / 2 x 18	**216-542**	500

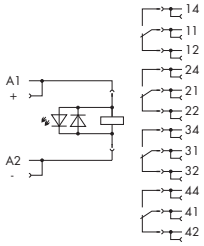
Sockets with Industrial Relay

	Socket with industrial relay **Coil voltage:** **24 V, 48 V, 110 V, 220 V DC** **4 changeover contacts**	**Socket with industrial relay** **Coil voltage:** **24 VDC** **4 changeover contacts (gold contacts)**



DC load limit curve



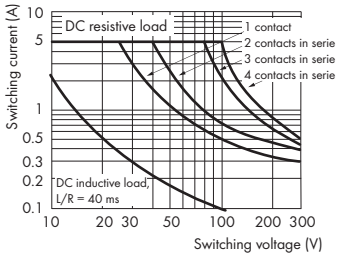


* In order to prevent the gold layer from being damaged, 30 VDC switching voltages and 50 mA currents shall not be exceeded.
Higher switching power leads to evaporation of the gold layer. The resulting deposits in the enclosure may cause sparkovers between the coil and the contact.

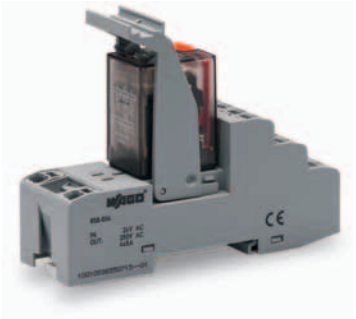
Description	V_N	I_N	**Item No.**	**Pack. Unit**	V_N	I_N	**Item No.**	**Pack. Unit**
Socket with industrial relay,	24 VDC	36.9 mA	**858-304**	8 (1)	24 VDC	36.9 mA	**858-314**	8 (1)
for DIN-rail	48 VDC	18.5 mA	**858-305**	8 (1)				
	110 VDC	10 mA	**858-307**	8 (1)				
	220 VDC	4.1 mA	**858-308**	8 (1)				

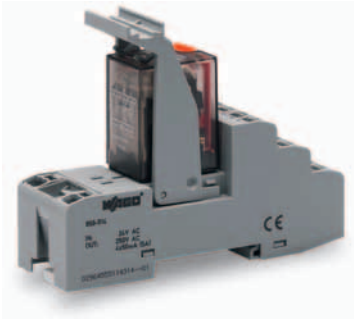
Technical Data	Accessories see page 61	Accessories see page 61
Coil:		
Input voltage range	V_N -20 % ... +10 %	V_N -20 % ... +10 %
Contacts:		
Contact material	AgCe	AgCe + Au
Max. continuous current	5 A	5 A *
Max. make current	15 A (4 s)	15 A (4 s)
Max. switching voltage	250 VAC	250 VAC *
Max. switching power (resistive)	1250 VA AC, DC see load limit curve	1250 VA AC, DC see load limit curve *
Recommended minimum load	100 mA / 12 V AC/DC	1 mA / 5 VDC / 50 mW
Pull-in/drop-out/bounce time typ.	25ms / 25ms / 4 ms	25ms / 25ms / 4 ms
Mechanical life	20 x 10^6 switching operations	20 x 10^6 switching operations
General specifications:		
Nominal voltage to EN 60664-1	250 V / 2.5 kV / 2	250 V / 2.5 kV / 2
Dielectric strength, contact-coil (AC, 1 min)	1.5 kV_{rms}	1.5 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}	1 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	1.5 kV_{eff}	1.5 kV_{eff}
Ambient operating temperature at V_N	-25 °C ... +70 °C	-25 °C ... +70 °C
Storage temperature	-40 °C ... +80 °C	-40 °C ... +80 °C
Dimensions (mm) W x H x L	31 x 73 x 97	31 x 73 x 97
	Height from upper-edge of DIN-rail	Height from upper-edge of DIN-rail
Wire connection	Push-in CAGE CLAMP®	Push-in CAGE CLAMP®
Cross sections	2 x 0.34 ... 2 x 1.5 mm² /	2 x 0.34 ... 2 x 1.5 mm² /
	1 x 2.5 mm² /	1 x 2.5 mm² /
	2 x 22 ... 2 x 16 AWG	2 x 22 ... 2 x 16 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1, EN 61810-1;	EN 60664-1, EN 61810-1;
	(858-304: GL; UL 508, max. 50 °C)	GL; UL 508 (max. 50 °C)

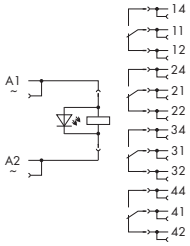
	Relay sockets with industrial relay Coil voltage: 24 V, 115 V, 230 V AC 4 changeover contacts	Relay sockets with industrial relay Coil voltage: 24 V, 115 V, 230 V AC 4 changeover contacts (gold plating)

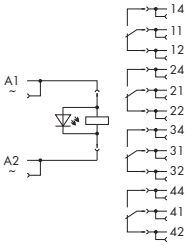


DC load limit curve









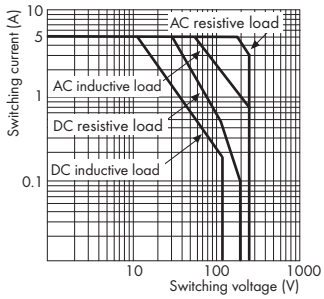
* In order to prevent the gold layer from being damaged, 30 VDC switching voltages and 50 mA currents shall not be exceeded.
Higher switching power leads to evaporation of the gold layer. The resulting deposits in the enclosure may cause sparkovers between the coil and the contact.

Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Socket with industrial relay,	24 VAC	50 mA	**858-504**	8 (1)	24 VAC	50 mA	**858-514**	8 (1)
for DIN-rail	115 VAC	10 mA	**858-507**	8 (1)	115 VAC	10 mA	**858-517**	8 (1)
	230 VAC	8.3 mA	**858-508**	8 (1)	230 VAC	8.3 mA	**858-518**	8 (1)

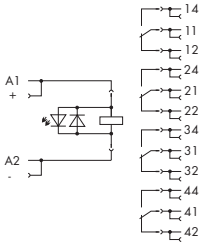
Technical Data	Accessories see page 61	Accessories see page 61
Coil:		
Input voltage range	V_N -20 % ... +10 %	V_N -20 % ... +10 %
Contacts:		
Contact material	AgCe	AgCe + Au
Max. continuous current	5 A	5 A *
Max. make current	15 A (4 s)	15 A (4 s)
Max. switching voltage	250 VAC	250 VAC *
Max. switching power (resistive)	1250 VA AC, DC see load limit curve	1250 VA AC, DC see load limit curve *
Recommended minimum load	100 mA / 12 V AC/DC	1 mA / 5 VDC / 50 mW
Pull-in/drop-out/bounce time typ.	25ms / 25ms / 4 ms	25ms / 25ms / 4 ms
Mechanical life	20 x 10^6 switching operations	20 x 10^6 switching operations
General specifications:		
Nominal voltage to EN 60664-1	250 V / 2.5 kV / 2	250 V / 2.5 kV / 2
Dielectric strength, contact-coil (AC, 1 min)	1.5 kV_{rms}	1.5 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}	1 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	1.5 kV_{eff}	1.5 kV_{eff}
Ambient operating temperature at V_N	-25 °C ... +70 °C	-25 °C ... +70 °C
Storage temperature	-40 °C ... +80 °C	-40 °C ... +80 °C
Dimensions (mm) W x H x L	31 x 73 x 97	31 x 73 x 97
	Height from upper-edge of DIN-rail	Height from upper-edge of DIN-rail
Wire connection	Push-in CAGE CLAMP®	Push-in CAGE CLAMP®
Cross sections	2 x 0.34 ... 2 x 1.5 mm² /	2 x 0.34 ... 2 x 1.5 mm² /
	1 x 2.5 mm² /	1 x 2.5 mm² /
	2 x 22 ... 2 x 16 AWG	2 x 22 ... 2 x 16 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1, EN 61810-1;	EN 60664-1, EN 61810-1;
	(858-508: GL; UL 508, max. 50 °C)	(858-518: GL; UL 508, max. 50 °C)
	-	-

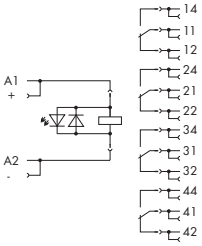
Sockets with Industrial Relay

	Relay socket with industrial relay Coil voltage: 24 VDC 4 changeover contacts Railway applications	Relay socket with industrial relay Coil voltage: 24 VDC 4 changeover contacts (gold plating) Railway applications



Load limit curve



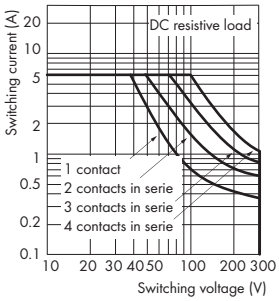


* In order to prevent the gold layer from being damaged, 30 VDC switching voltages and 50 mA currents shall not be exceeded.
Higher switching power leads to evaporation of the gold layer. The resulting deposits in the enclosure may cause sparkovers between the coil and the contact.

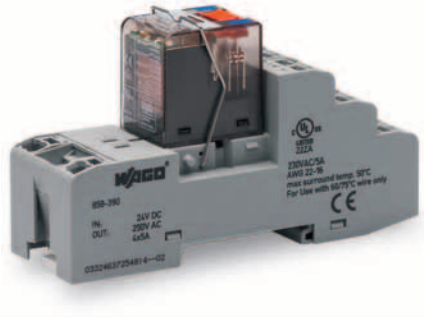
Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Socket with industrial relay, for DIN-rail	24 VDC	42 mA	**858-354**	8 (1)	24 VDC	42 mA	**858-355**	8 (1)

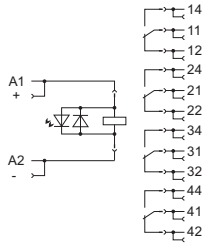
Technical Data	Accessories see page 61	Accessories see page 61
Coil:		
Input voltage range	V_N -30 % ... +25 %	V_N -30 % ... +25 %
Contacts:		
Contact material	AgCe	AgCe + Au
Max. continuous current	5 A	5 A *
Max. make current	15 A (4 s)	15 A (4 s)
Max. switching voltage	250 VAC	250 VAC *
Max. switching power (resistive)	1 kVA AC, DC see load limit curve	1 kVA AC, DC see load limit curve *
Recommended minimum load	100 mA / 12 V AC/DC	1 mA / 5 VDC / 50 mW
Pull-in/drop-out/bounce time typ.	25ms / 25ms / 4 ms	25ms / 25ms / 4 ms
Mechanical life	20 x 10^6 switching operations	20 x 10^6 switching operations
General specifications:		
Nominal voltage to EN 60664-1	250 V / 2.5 kV / 2	250 V / 2.5 kV / 2
Dielectric strength, contact-coil (AC, 1 min)	1.5 kV_{rms}	1.5 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}	1 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	1.5 kV_{eff}	1.5 kV_{eff}
Ambient operating temperature at V_N	-25 °C ... +70 °C	-25 °C ... +70 °C
Storage temperature	-40 °C ... +80 °C	-40 °C ... +80 °C
Dimensions (mm) W x H x L	31 x 72 x 96	31 x 72 x 96
	Height from upper-edge of DIN-rail	Height from upper-edge of DIN-rail
Wire connection	Push-in CAGE CLAMP®	Push-in CAGE CLAMP®
Cross sections	2 x 0.34 ... 2 x 1.5 mm² /	2 x 0.34 ... 2 x 1.5 mm² /
	1 x 2.5 mm² /	1 x 2.5 mm² /
	2 x 22 ... 2 x 16 AWG	2 x 22 ... 2 x 16 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1, EN 61810-1	EN 60664-1, EN 61810-1

Relay sockets with industrial relay
Coil voltage:
24 V, 110 V, 220 V DC
4 changeover contacts



DC load limit curve





Description	V_N	I_N	Item No.	Pack. Unit
Socket with industrial relay,	24 VDC	31.5 mA	**858-390**	8 (1)
for DIN-rail	110 VDC	7.7 mA	**858-392**	8 (1)
	220 VDC	4.3 mA	**858-391**	8 (1)

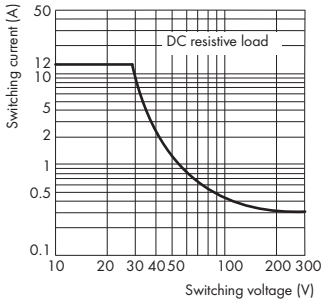
Technical Data

Accessories see page 61

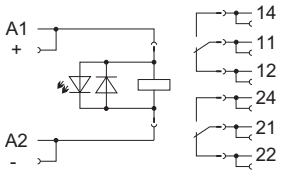
Coil:	
Input voltage range	V_N -10 % ... +30 %
Contacts:	
Contact material	AgNi 90/10
Max. continuous current	4 x 6 A
Max. make current	12 A (20 ms)
Max. switching voltage	250 VAC
Max. switching power (resistive)	4 AC x 1500 VA, DC see load limit curve
Recommended minimum load	10 mA / 12 V AC/DC
Pull-in/drop-out/bounce time typ.	15ms / 18ms / 8 ms
Mechanical life	30 x 10^6 switching operations
General specifications:	
Nominal voltage to EN 60664-1	250 V / 2.5 kV / 2
Dielectric strength, contact-coil (AC, 1 min)	2.5 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1.2 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	2 kV_{eff}
Ambient operating temperature at V_N	-40 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Dimensions (mm) W x H x L	31 x 55 x 97
	Height from upper-edge of DIN-rail
Wire connection	Push-in CAGE CLAMP®
Cross sections	2 x 0.34 ... 2 x 1.5 mm² /
	1 x 2.5 mm² /
	2 x 22 ... 2 x 16 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1, EN 61810-1;
	(858-390, 858-391: UL 508, max. 50 °C)

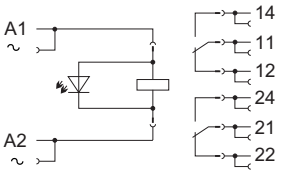
Sockets with Industrial Relay

	Relay sockets with industrial relay Coil voltage: 24 V, 48 V, 110 V, 220 V DC 2 changeover contacts	Relay socket with industrial relay Coil voltage: 230 VAC 2 changeover contacts



DC load limit curve



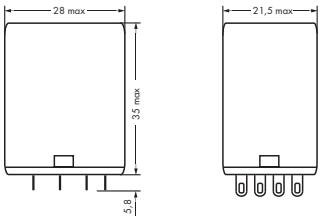


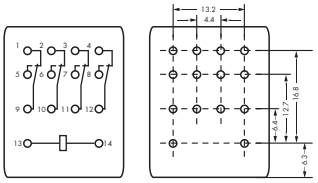
Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Socket with industrial relay,	24 VDC	37.5 mA	**858-324**	8 (1)	230 VAC	11 mA	**858-528**	8 (1)
for DIN-rail	48 VDC	18.5 mA	**858-325**	8 (1)				
	110 VDC	8.1 mA	**858-327**	8 (1)				
	220 VDC	4.1 mA	**858-328**	8 (1)				

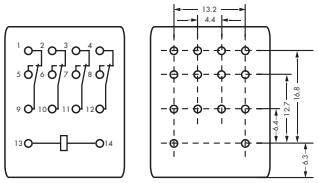
Technical Data	Accessories see page 61	Accessories see page 61
Coil:		
Input voltage range	V_N -20 % ... +10 %	V_N -20 % ... +10 %
Contacts:		
Contact material	AgNi	AgNi
Max. continuous current	2 x 12 A	2 x 12 A
Max. make current	24 A (4 s)	24 A (4 s)
Max. switching voltage	250 VAC	250 VAC
Max. switching power (resistive)	2 AC x 3000 VA, DC see load limit curve	2 AC x 3000 VA, DC see load limit curve
Recommended minimum load	5 V / 5 mA / 0.3 W	5 V / 5 mA / 0.3 W
Pull-in/drop-out/bounce time typ.	13ms / 3ms / -	10ms / 8ms / -
Mechanical life	2 x 10^7 switching operations	2 x 10^7 switching operations
General specifications:		
Nominal voltage to EN 60664-1	250 V / 2.5 kV / 2	250 V / 2.5 kV / 2
Dielectric strength, contact-coil (AC, 1 min)	2.5 kV_{rms}	2.5 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1.5 kV_{rms}	1.5 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	2.5 kV_{eff}	2.5 kV_{eff}
Ambient operating temperature at V_N	-40 °C ... +70 °C	-40 °C ... +70 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	31 x 73 x 97	31 x 73 x 97
	Height from upper-edge of DIN-rail	Height from upper-edge of DIN-rail
Wire connection	Push-in CAGE CLAMP®	Push-in CAGE CLAMP®
Cross sections	2 x 0.34 ... 2 x 1.5 mm² /	2 x 0.34 ... 2 x 1.5 mm² /
	1 x 2.5 mm² /	1 x 2.5 mm² /
	2 x 22 ... 2 x 16 AWG	2 x 22 ... 2 x 16 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1, EN 61810-1	EN 60664-1, EN 61810-1

Accessories, 858 Series

	Pluggable industrial relays, 4 changeover contacts, with integrated LED and recovery diode and manual operation, Nominal input voltage V_N 24 VDC	Pluggable industrial relays, 4 changeover contacts, with integrated LED and recovery diode and manual operation, Nominal input voltage V_N 24 V, 230 V AC







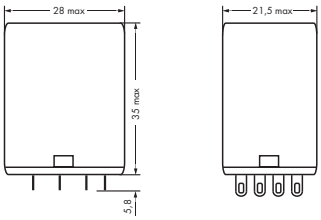
Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Pluggable industrial relay	24 VDC	36.9 mA	**858-150**	40 (1)	24 VAC	50 mA	**858-154**	40 (1)
					230 VAC	8.3 mA	**858-151**	40 (1)

Technical Data

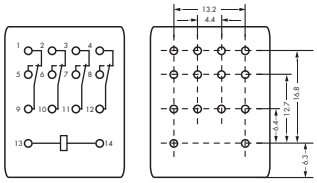
Coil:		
Input voltage range	V_N -20 % ... +10 %	V_N -20 % ... +10 %
Contacts:		
Contact material	AgCe	AgCe
Max. continuous current	5 A	5 A
Max. switching voltage	250 VAC	250 VAC
Max. switching power (resistive)	1250 VA AC	1250 VA AC
Recommended minimum load	100 mA / 12 V AC/DC	100 mA / 12 V AC/DC
Pull-in/drop-out/bounce time typ.	25ms / 25ms / 4 ms	25ms / 25ms / 4 ms
Mechanical life	20 x 10^6 switching operations	20 x 10^6 switching operations
General specifications:		
Nominal voltage to EN 60664-1	250 V / 2.5 kV / 2	250 V / 2.5 kV / 2
Dielectric strength, contact-coil (AC, 1 min)	1.5 kV_{rms}	1.5 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}	1 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	1.5 kV_{eff}	1.5 kV_{eff}
Ambient operating temperature at V_N	-25 °C ... +70 °C	-25 °C ... +70 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	21.5 x 35 x 28	21.5 x 35 x 28

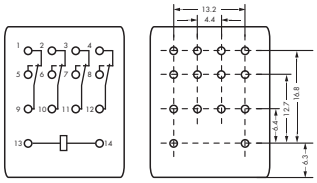
Accessories, 858 Series

	Pluggable industrial relays, 4 changeover contacts with gold contacts, integrated LED and manual operation, Nominal input voltage V_N 24 VDC	Pluggable industrial relays, 4 changeover contacts with gold contacts, integrated LED and manual operation, Nominal input voltage V_N 230 VAC



* In order to prevent the gold layer from being damaged, 30 VDC switching voltages and 50 mA currents shall not be exceeded.
Higher switching power leads to evaporation of the gold layer. The resulting deposits in the enclosure may cause sparkovers between the coil and the contact.





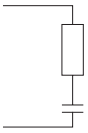
Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Pluggable industrial relay	24 VDC	36.9 mA	**858-152**	40 (1)	230 VAC	8.3 mA	**858-153**	40 (1)

Technical Data

Coil:		
Input voltage range	V_N -20 % ... +10 %	V_N -20 % ... +10 %
Contacts:		
Contact material	AgCe + Au	AgCe + Au
Max. continuous current	5 A *	5 A *
Max. switching voltage	250 VAC *	250 VAC *
Max. switching power (resistive)	1250 VA AC *	1250 VA AC *
Recommended minimum load	12 V / 100 mA	1 mA / 5 VDC / 50 mW
Pull-in/drop-out/bounce time typ.	25ms / 25ms / 4 ms	25ms / 25ms / 4 ms
Mechanical life	20 x 10^6 switching operations	20 x 10^6 switching operations
General specifications:		
Nominal voltage to EN 60664-1	250 V / 2.5 kV / 2	250 V / 2.5 kV / 2
Dielectric strength, contact-coil (AC, 1 min)	1.5 kV_{rms}	1.5 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}	1 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	1.5 kV_{eff}	1.5 kV_{eff}
Ambient operating temperature at V_N	-25 °C ... +70 °C	-25 °C ... +70 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	21.5 x 35 x 28	21.5 x 35 x 28

	Suppressor module, pluggable, for 788 and 858 Series Relay Sockets	

Note: To guarantee safe operation, residual voltages (due to the cable capacitance of long connection lines or leakage currents of semi-conductor switches and their protective circuits) must be lower than the release voltage of the relays.
For DC relays, the release voltage is specified with ≤ 5 % of the nominal voltage; for AC relays, it is 15 % of the nominal voltage (acc. to VDE 0435).
The relay may not reset if a high residual voltage exists. Depending on the reason for the residual voltage, changing the cable routing or a parallel connection of an RC element could remedy this situation.



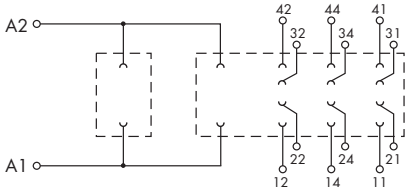
Description	Item No.	Pack. Unit	
Suppressor module for miniature switching relay	**788-148**	50	

Technical Data

Operating data:		
Operating voltage	max. 230 VAC, 50 ... 60 Hz	
Operating current	3.6 mA at 115 VAC, 50 Hz	
	7.2 mA at 230 VAC, 50 Hz	
Module's characteristics:		
Resistor	470 Ω	
Capacity	100 nF	
General specifications:		
Ambient operating temperature	-25 °C ... +70 °C	
Storage temperature	-40 °C ... +70 °C	
Dimensions (mm) W x H x L	15 x 15 x 10	
Standards/specifications	EN 60664-1	

Accessories, 858 Series

Socket for industrial relays
2 and 4 changeover contacts



Description	Item No.	Pack. Unit
Relay socket with industrial relay, for DIN-rail	**858-100**	8 (1)

Technical Data

Contacts:	
Max. switching voltage	250 VAC
Max. continuous current	4 x 6 A (4 changeover contacts);
	2 x 12 A (2 changeover contacts)
General specifications:	
Nominal input voltage (V_N)	depending on Relay; max. 250 VAC
Nominal voltage to EN 60664-1	250 V / 4 kV / 2
Dielectric strength	4 kV (depending on relay)
Storage temperature	-40 °C ... +80 °C
Ambient operating temperature	-25 °C ... +70 °C (depending on relay)
Dimensions (mm) W x H x L	31 x 39 x 97
	Height from upper-edge of DIN-rail
Wire connection	Push-in CAGE CLAMP®
Cross sections	2 x 0.34 ... 2 x 1.5 mm² /
	1 x 2.5 mm² /
	2 x 22 ... 2 x 16 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1

Holding bracket

Description	Item No.	Pack. Unit
Holding bracket for industrial relays (height 33.5 mm ... 35.5 mm)	**858-110**	8 (1)

Push-in type jumper bar

Description	Item No.	Pack. Unit
Push-in type jumper bar	**858-402**	200

Status indication

Description	Power consumption at V_N	Item No.	Pack. Unit
Status indication with recovery diode, 24 VDC (12 V ... 24 V)	2.4 mA	**788-120**	50 (2x25)
Status indication with recovery diode, 48 VDC (48 V ... 60 V)	1.9 mA	**788-121**	50 (2x25)
Status indication 110 VDC	1.9 mA	**788-122**	50 (2x25)
Status indication 24 VAC	2.1 mA	**788-123**	50 (2x25)
Status indication 115 VAC	1.7 mA	**788-124**	50 (2x25)
Status indication 230 VAC	1.6 mA	**788-125**	50 (2x25)

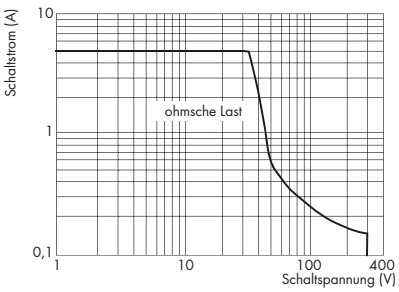
Note:
Only required when using relays without integrated operating indicator!

Operating tool

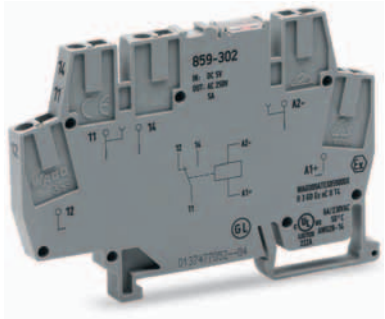
Description		Item No.	Pack. Unit
Operating tool, with partially insulated shaft	Type 2, blade (3.5 x 0.5) mm	**210-720**	1

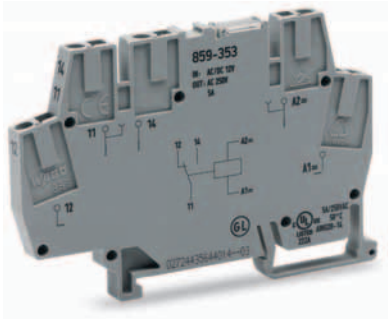
Rail-Mounted Terminal Blocks with Miniature Switching Relay

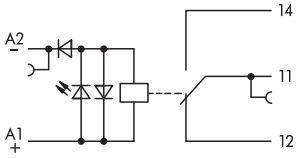
	Relay with 1 changeover contact (1u) for normal switching power Nominal input voltage V_N 5 V ... 220 V DC	Relay with 1 changeover contact (1u) for normal switching power Nominal input voltage V_N 12 V, 24 V, 48 V, 115 V, 230 V AC/DC

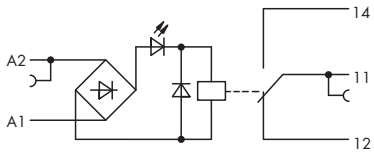


DC load limit curve







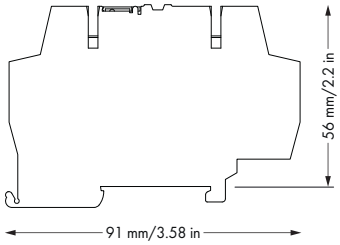


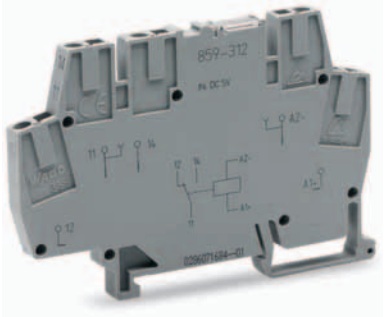
Note: Inductive loads have to be attenuated by an appropriate protective circuit in order to protect relay coils and contacts.

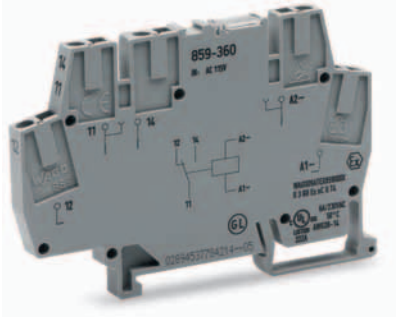
Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Rail-mounted terminal block with miniature switching relay, for DIN-rail	5 VDC	31 mA	**859-302**	25 (1)	12 V AC/DC	15 mA	**859-353**	25 (1)
	12 VDC	17 mA	**859-303**	25 (1)	24 V AC/DC	8 mA	**859-354**	25 (1)
	24 VDC	10 mA	**859-304**	25 (1)	48 V AC/DC	5.3 mA	**859-355**	25 (1)
	48 VDC	6.5 mA	**859-305**	25 (1)	60 VAC/DC	4.1 mA	**859-356**	25 (1)
	60 VDC	5.2 mA	**859-306**	25 (1)	115 V AC/DC	3.5 mA	**859-357**	25 (1)
	120 VDC	3.5 mA	**859-307**	25 (1)	230 V AC/DC	3.5 mA	**859-358**	25 (1)
	220 VDC	3.2 mA	**859-308**	25 (1)				

Technical Data	Accessories see page 72	Accessories see page 72
Coil:		
Input voltage range	V_N -15 % ... +20 %	V_N -15 % ... +20 %
Contacts:		
Contact material	AgNi	AgNi
Max. continuous current	5 A	5 A
Max. make current	4s (AC), 10A	4s (AC) 10A
Max. switching voltage	250 VAC	250 VAC
Max. switching power (resistive)	1250 VA AC ; DC see load limit curve	1250 VA AC ; DC see load limit curve
Recommended minimum load	10 VDC / 10 mA, 24 VDC / 1 mA	10 VDC / 10 mA, 24 VDC / 1 mA
Pull-in/drop-out/bounce time typ.	5ms / 6ms / 5 ms	5ms / 6ms / 5 ms
Mechanical life	5 x 10^6 switching operations	5 x 10^6 switching operations
General specifications:		
Nominal voltage to EN 60664-1	250 V / 4 kV / 2	250 V / 4 kV / 2
Dielectric strength, contact-coil (AC, 1 min)	4 kV_{rms}	4 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}	1 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	-	-
Ambient operating temperature at V_N	-25 °C ... +50 °C	-25 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
	Height from upper-edge of DIN-rail	Height from upper-edge of DIN-rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 ... 2.5 mm² / 28 ... 14 AWG	0.08 ... 2.5 mm² / 28 ... 14 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	5 ... 6 mm / 0.2 ... 0.24 in.
Standards/specifications	EN 60664-1; GL; UL 508; EEx nC II T4	EN 60664-1; GL; UL 508; EEx nC II T4

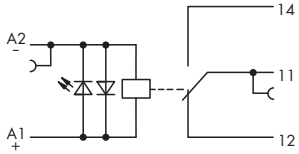
	Relay with 1 changeover contact (1 u) Gold-plated contacts for normal switching power Nominal input voltage V_N 5 V, 24 V, 220 V DC	Relay with 1 changeover contact (1u) Gold-plated contacts for normal switching power Nominal input voltage V_N 115 V, 230 V AC

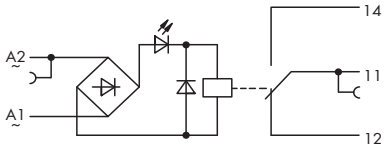






* In order to prevent the gold layer from being damaged, 30 VDC switching voltages and 50 mA currents shall not be exceeded.
Higher switching power leads to evaporation of the gold layer. The resulting deposits in the housing may reduce the service life.



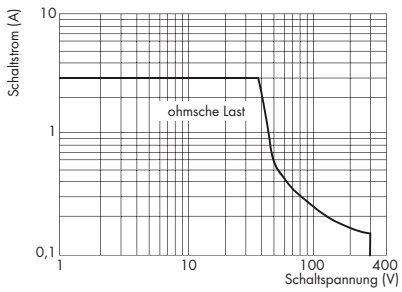


Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Rail-mounted terminal block with miniature	5 VDC	31 mA	**859-312**	25 (1)	115 VAC	3.1 mA	**859-360**	25 (1)
switching relay, for DIN-rail	24 VDC	10 mA	**859-314**	25 (1)	230 VAC	3.5 mA	**859-359**	25 (1)
	220 VDC	3.2 mA	**859-318**	25 (1)				

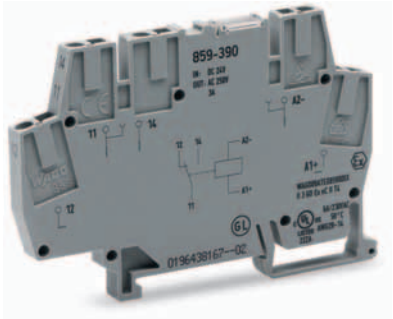
Technical Data	Accessories see page 72	Accessories see page 72
Coil:		
Input voltage range	V_N -15 % ... +20 %	V_N -15 % ... +20 %
Contacts:		
Contact material	AgNi + Au	AgNi + Au
Max. continuous current	5 A *	5 A *
Max. switching voltage	250 VAC *	250 VAC *
Max. switching power (resistive)	1250 VA AC; DC see load limit curve *	1250 VA AC ; DC see load limit curve *
Recommended minimum load	1 VDC / 1 mA / 1 mW	1 VDC / 1 mA / 1 mW
Pull-in/drop-out/bounce time typ.	5ms / 6ms / 5 ms	5ms / 6ms / 5 ms
Mechanical life	5 x 10^6 switching operations	5 x 10^6 switching operations
General specifications:		
Nominal voltage to EN 60664-1	250 V / 4 kV / 2	250 V / 4 kV / 2
Dielectric strength, contact-coil (AC, 1 min)	4 kV_{rms}	4 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}	1 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	-	-
Ambient operating temperature at V_N	-25 °C ... +50 °C	-25 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
	Height from upper-edge of DIN-rail	Height from upper-edge of DIN-rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 ... 2.5 mm² / 28 ... 14 AWG	0.08 ... 2.5 mm² / 28 ... 14 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	5 ... 6 mm / 0.2 ... 0.24 in.
Standards/specifications	EN 60664-1; GL; UL 508;	EN 60664-1; GL; UL 508; EEx nC II T4
	(859-314, 859-318: EEx nC II T4)	

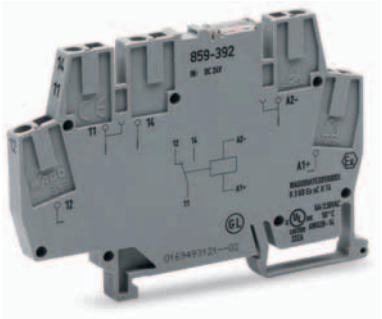
Rail-Mounted Terminal Blocks with Miniature Switching Relay

	Relay with 1 changeover contact (1 u) Extended input voltage range: V_N -30 % ... +25 %; Operating temperature range: -25 °C ... +70 °C for normal switching power Railway applications Nominal input voltage V_N 24 VDC	Relay with 1 changeover contact (1 u) Gold-plated contacts Extended input voltage range: V_N -30 % ... +25 %; Operating temperature range: -25 °C ... +70 °C for normal switching power Railway applications Nominal input voltage V_N 24 V ... 110 V DC

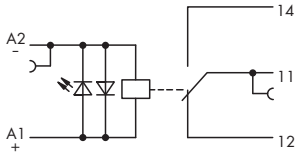


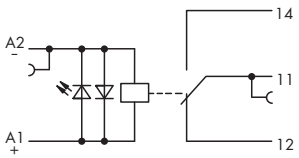
DC load limit curve





* In order to prevent the gold layer from being damaged, 30 VDC switching voltages and 50 mA currents shall not be exceeded.
Higher switching power leads to evaporation of the gold layer. The resulting deposits in the housing may reduce the service life.

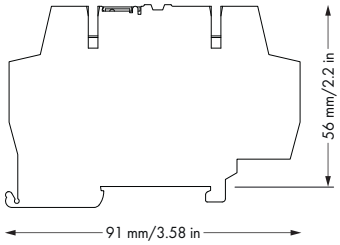


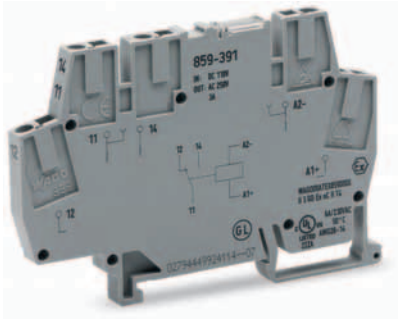


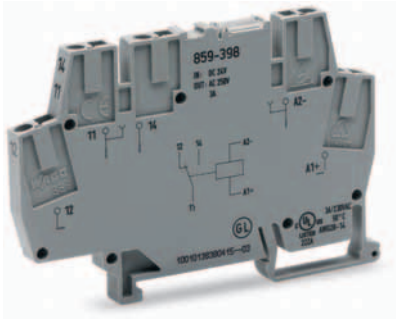
Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Rail-mounted terminal block with miniature switching relay, for DIN-rail	24 VDC	12 mA	**859-390**	25 (1)	24 VDC	10 mA	**859-392**	25 (1)
					36 VDC	10.1 mA	**859-386**	25 (1)
					48 VDC	7.9 mA	**859-384**	25 (1)
					110 VDC	3.1 mA	**859-317**	25 (1)

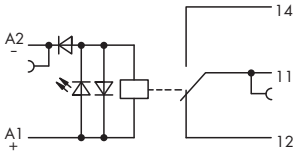
Technical Data	Accessories see page 72	Accessories see page 72
Coil:		
Input voltage range	V_N -30 % ... +25 %	V_N -30 % ... +25 %
Contacts:		
Contact material	AgNi	AgNi + Au
Max. continuous current	3 A	3 A *
Max. switching voltage	250 VAC	250 VAC *
Max. switching power (resistive)	750 VA AC ; DC see load limit curve	750 VA AC; DC see load limit curve *
Recommended minimum load	10 VDC / 10 mA, 24 VDC / 1 mA	1 VDC / 1 mA / 1 mW
Pull-in/drop-out/bounce time typ.	5ms / 6ms / 5 ms	5ms / 6ms / 5 ms
Mechanical life	5 x 10^6 switching operations	5 x 10^6 switching operations
General specifications:		
Nominal voltage to EN 60664-1	250 V / 4 kV / 2	250 V / 4 kV / 2
Dielectric strength, contact-coil (AC, 1 min)	4 kV_{rms}	4 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}	1 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	-	-
Ambient operating temperature at V_N	-25 °C ... +70 °C	-25 °C ... +70 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
	Height from upper-edge of DIN-rail	Height from upper-edge of DIN-rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 ... 2.5 mm² / 28 ... 14 AWG	0.08 ... 2.5 mm² / 28 ... 14 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	5 ... 6 mm / 0.2 ... 0.24 in.
Standards/specifications	EN 60664-1; GL; UL 508; EEx nC II T4	EN 60664-1; (859-392: GL; UL 508); (859-317: GL; UL 508; EEx nC II T4)

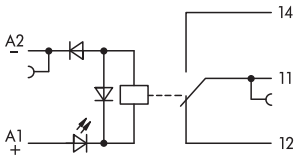
	Relay with 1 changeover contact (1u) with an extended Input voltage range: V_N ±30 % Operating temperature range: -25 °C ... +70 °C for normal switching power Railway applications Nominal input voltage V_N 110 VDC	Relay with 1 changeover contact (1u) with an extended Input voltage range: V_N ±40 % Operating temperature range: -25 °C ... +70 °C for normal switching power Railway applications Nominal input voltage V_N 24 V, 48 V, 110 V DC











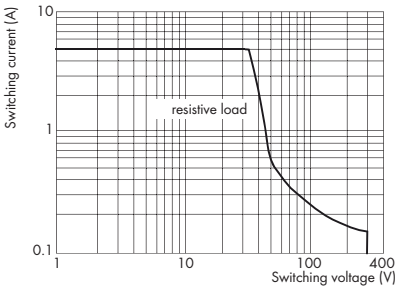
Note: Inductive loads have to be attenuated by an appropriate protective circuit in order to protect relay coils and contacts.

Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Rail-mounted terminal block with miniature switching relay, for DIN-rail	110 VDC	2.7 mA	**859-391**	25 (1)	24 VDC	14.4 mA	**859-398**	25 (1)
					48 VDC	7.9 mA	**859-397**	25 (1)
					110 VDC	3.1 mA	**859-399**	25 (1)

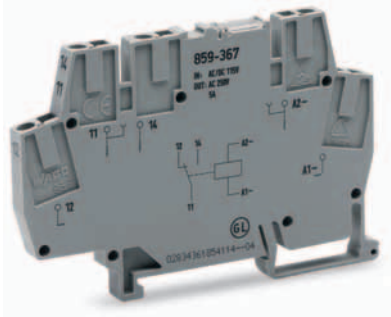
Technical Data	Accessories see page 72	Accessories see page 72
Coil:		
Input voltage range	V_N ± 30 %	V_N ± 40 %
Contacts:		
Contact material	AgNi	AgNi
Max. continuous current	3 A	3 A
Max. switching voltage	250 VAC	250 VAC
Max. switching power (resistive)	750 VA AC ; DC see load limit curve	750 VA AC ; DC see load limit curve
Recommended minimum load	10 VDC / 10 mA, 24 VDC / 1 mA	10 VDC / 10 mA, 24 VDC / 1 mA
Pull-in/drop-out/bounce time typ.	5ms / 6ms / 5 ms	5ms / 6ms / 5 ms
Mechanical life	5 x 10^6 switching operations	5 x 10^6 switching operations
General specifications:		
Nominal voltage to EN 60664-1	250 V / 4 kV / 2	250 V / 4 kV / 2
Dielectric strength, contact-coil (AC, 1 min)	4 kV_{rms}	4 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}	1 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	-	-
Ambient operating temperature at V_N	-25 °C ... +70 °C	-25 °C ... +70 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
	Height from upper-edge of DIN-rail	Height from upper-edge of DIN-rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 ... 2.5 mm² / 28 ... 14 AWG	0.08 ... 2.5 mm² / 28 ... 14 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	5 ... 6 mm / 0.2 ... 0.24 in.
Standards/specifications	EN 60664-1; GL; UL 508; EEx nC II T4	EN 60664-1; GL

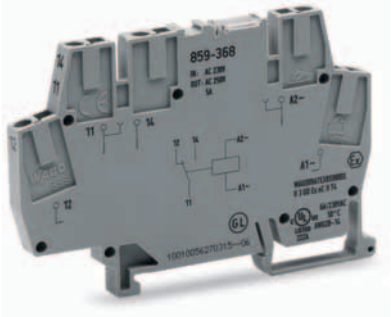
Rail-Mounted Terminal Blocks with Miniature Switching Relay

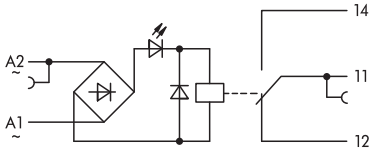
	Relay with 1 changeover contact (1u) defined turn-on/turn-off threshold for normal switching power Nominal input voltage V_N 115 VAC	Relay with 1 changeover contact (1u) defined turn-on/turn-off threshold for normal switching power Nominal input voltage V_N 230 VAC

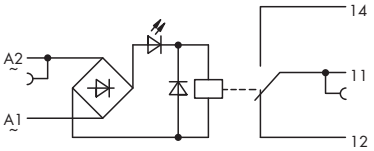


DC load limit curve









Note: Inductive loads have to be attenuated by an appropriate protective circuit in order to protect relay coils and contacts.

Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Rail-mounted terminal block with miniature switching relay, for DIN-rail	115 VAC	4.2 mA	**859-367**	25 (1)	230 VAC	4.2 mA	**859-368**	25 (1)

Technical Data

Accessories see page 72

Accessories see page 72

Coil:		
Input voltage range	V_N ± 10 %	V_N ± 10 %
Turn-on threshold relay/LED	95 VAC / 80 VAC	190 VAC / 165 VAC
Turn-off threshold relay/LED	60 VAC / 60 VAC	140 VAC / 150 VAC
Contacts:		
Contact material	AgNi	AgNi
Max. continuous current	5 A	5 A
Max. switching voltage	250 VAC	250 VAC
Max. switching power (resistive)	1250 VA AC ; DC see load limit curve	1250 VA AC ; DC see load limit curve
Recommended minimum load	10 VDC / 10 mA, 24 VDC / 1 mA	10 VDC / 10 mA, 24 VDC / 1 mA
Pull-in/drop-out/bounce time typ.	5ms / 6ms / 5 ms	5ms / 6ms / 5 ms
Mechanical life	5 x 10^6 switching operations	5 x 10^6 switching operations
General specifications:		
Nominal voltage to EN 60664-1	250 V / 4 kV / 2	250 V / 4 kV / 2
Dielectric strength, contact-coil (AC, 1 min)	4 kV_{rms}	4 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}	1 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	-	-
Ambient operating temperature at V_N	-25 °C ... +50 °C	-25 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
	Height from upper-edge of DIN-rail	Height from upper-edge of DIN-rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 ... 2.5 mm² / 28 ... 14 AWG	0.08 ... 2.5 mm² / 28 ... 14 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	5 ... 6 mm / 0.2 ... 0.24 in.
Standards/specifications	EN 60664-1; GL; UL 508	EN 60664-1; GL; UL 508; EEx nC II T4

Rail-Mounted Terminal Blocks with Miniature Switching Relay

with an extended input voltage and operating temperature range, for railway applications

Description	Nominal input voltage (V_N)	Input voltage range	Max. switching capacity	Ambient operating temperature at V_N	Item No.	Pack. Unit
Relay with 1 changeover contact (1u)	110 VDC	V_N -30 % ... +25 %	(Gold-plated contacts)	-25 °C ... +70 °C	**859-317**	25 (1)
Relay with 1 changeover contact (1u)	48 VDC	V_N -30 % ... +25 %	(Gold-plated contacts)	-25°C ... +70°C	**859-384**	25 (1)
Relay with 1 changeover contact (1u)	36 VDC	V_N -30 % ... +25 %	(Gold-plated contacts)	-25°C ... +70°C	**859-386**	25 (1)
Relay with 1 changeover contact (1u)	24 VDC	V_N -30 % ... +25 %	250 VAC / 3 A	-25 °C ... +70 °C	**859-390**	25 (1)
Relay with 1 changeover contact (1u)	110 VDC	V_N ± 30 %	250 VAC / 3 A	-25 °C ... +70 °C	**859-391**	25 (1)
Relay with 1 changeover contact (1u)	24 VDC	V_N -30 % ... +25 %	(Gold-plated contacts)	-25 °C ... +70 °C	**859-392**	25 (1)
Relay with 1 changeover contact (1u)	72 VDC	V_N -30 % ... +25 %	250 VAC / 3 A	-25°C ... +70°C	**859-393**	25 (1)
Relay with 1 changeover contact (1u)	36 VDC	V_N -30 % ... +25 %	250 VAC / 3 A	-25 °C ... +70 °C	**859-394**	25 (1)
Relay with 1 changeover contact (1u)	48 VDC	V_N ± 40 %	250 VAC / 3 A	-25 °C ... +70 °C	**859-397**	25 (1)
Relay with 1 changeover contact (1u)	24 VDC	V_N ± 40 %	250 VAC / 3 A	-25 °C ... +70 °C	**859-398**	25 (1)
Relay with 1 changeover contact (1u)	110 VDC	V_N ± 40 %	250 VAC / 3 A	-25°C ... +70°C	**859-399**	25 (1)

For additional technical data see: www.wago.com

Accessories, 859 Series

Operating tool

Marking pen with fiber tip

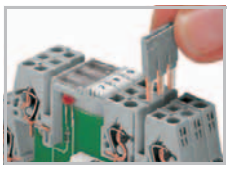
Test pin

End and intermediate plate

Description		Item No.	Pack. Unit
End and intermediate plate; 1 mm / 0.039 in. thick, gray		859-525	100 (4x25)
Test pin; Ø 1 mm / 0.039 in.; test wire for sold. onto test		859-500	1
Marking pen	for permanent marking	210-110	1
Operating tool, with partially insulated shaft	Type 2, blade (3.5 x 0.5) mm	210-720	1

Push-in type jumper bar

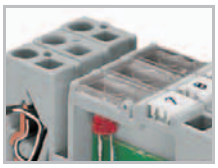
Commoning



Description		Item No.	Pack. Unit
Push-in type jumper bars, light gray, insulated, 18 A	2-way	859-402	200 (8x25)
	3-way	859-403	200 (8x25)
	4-way	859-404	200 (8x25)
	5-way	859-405	200 (8x25)
	6-way	859-406	100 (4x25)
	7-way	859-407	100 (4x25)
	8-way	859-408	100 (4x25)
	9-way	859-409	100 (4x25)
	10-way	859-410	100 (4x25)
Item no. suffix for colored push-in type jumper bars	yellow	... /000-029	
	red	... /000-005	
	blue	... /000-006	

Miniature quick marking card

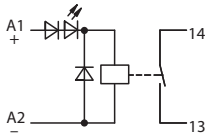
Marking

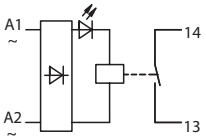


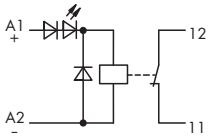
Description		Item No.	Pack. Unit
Miniature WSB Quick marking system	plain	248-501	5 cards
Marking software and printer/plotter see Section 11			
Marking	1 ...10 (10 x)	248-502	5 cards
	11 ... 20 (10x)	248-503	5 cards
	21 ... 30 (10x)	248-504	5 cards
	31 ... 40 (10x)	248-505	5 cards
	41 ... 50 (10 x)	248-506	5 cards
	1 ... 50 (2 x)	248-566	5 cards
	K 1 ... K 10 (10 x)	248-450	5 cards
	K 11 ... K 20 (10 x)	248-451	5 cards
	K 100 (10 x)	248-452	5 cards
	U 1 ... U 10 (10 x)	248-453	5 cards
	U 11 ... U 20 (10 x)	248-454	5 cards
	U 100 (10 x)	248-455	5 cards
10 strips with 10 markers, white with black printing			

Rail Mounted Relay Modules

	Relay with 1 make contact Relay direct soldered with universal mounting carrier	Relay with 1 break contact Relay direct soldered with universal mounting carrier





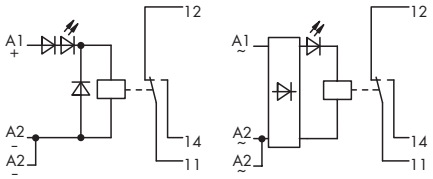


Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Switching relay module	24 VDC	16 mA	**288-364**	1	24 VDC	16 mA	**288-368**	1
	24 VAC/DC	16 mA	**288-564**	1				
	115 VAC/DC	4.4 mA	**288-567**	1				

Technical Data

Contact material	AgNi 0,15	AgNi 0,15
Max. switching voltage	250 VDC / 250 VAC	250 VDC / 250 VAC
Max. make / break current	4 s 16 A / 8 A	4 s 16 A / 8 A
Max. continuous current	5 A	5 A
Max. switching power (resistive)	100 W/ 1500 VA	100 W/ 1500 VA
Pull-in / operating power	240 mW / 500 mW	240 mW / 500 mW
Pull-in/drop-out/bounce time typ.	4 ms / 6 ms / 2 ms	4 ms / 6 ms / 2 ms
Dielectric strength contact-coil (AC, 1 min)	–	–
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250V / 4kV / 2	250V / 4kV / 2
IEC 60664-1		
Mechanical life	30 x 10^6 switching operations	30 x 10^6 switching operations
Mechanical life at max. load (resistance)	2 x 10^5 switching operations	2 x 10^5 switching operations
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C
Dimensions (mm) L x W x H	13 x 47 x 85	13 x 47 x 85
incl. mounting carrier and relay		
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 ... 2.5 mm² / 28 ... 12 AWG	0.08 ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	5 ... 6 mm / 0.2 ... 0.24 in.
Accessories		
WMB Multi marking system for mounting carrier	see page 506	see page 506
Marker strips for mounting carrier	white 709-198 / transparent 709-197	white 709-198 / transparent 709-197

	Relay with 1 changeover contact Relay direct soldered with universal mounting carrier	



Description	V_N	I_N	Item No.	Pack. Unit	
Switching relay module	24 VDC	21.8	**288-304**	1	
	24 V AC/DC	21.8	**288-504**	1	
	230 VAC	6.1 mA	**288-508**	1	

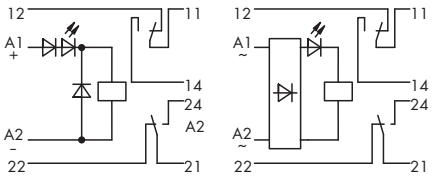
Technical Data

Contact material	AgNi 0,15	
Max. switching voltage	300 VDC / 250 VAC	
Max. make / break current	4 s 20 A / 8 A	
Max. continuous current	6 A	
Max. switching power (resistive)	192 W/ 1750 VA	
Pull-in / operating power	261 mW / 533 mW	
Pull-in/drop-out/bounce time typ.	9 ms / 3 ms / 2 ms	
Dielectric strength contact-coil (AC, 1 min)	4 kV	
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250 V / 4 kV / 2	
IEC 60664-1		
Mechanical life	30 x 10^6 switching operations	
Mechanical life at max. load (resistance)	1 x 10^5 switching operations	
Ambient operating temperature	-25 °C ... +40 °C	
Dimensions (mm) L x W x H	20.5 x 48 x 85	
incl. mounting carrier and relay		
	Height from upper-edge of DIN 35 rail	
Wire connection	CAGE CLAMP®	
Cross sections	0.08 ... 2.5 mm² / 28 ... 12 AWG	
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	

Accessories		
WMB Multi marking system for mounting carrier	see page 506	
Marker strips for mounting carrier	white 709-198 / transparent 709-197	

Rail Mounted Relay Modules

	Relay with 2 changeover contacts Relay direct soldered with universal mounting carrier	



Description	V_N	I_N	**Item No.**	**Pack. Unit**	
Switching relay module	24 VDC	21.8	**288-312**	1	
	24 VAC/DC	21.8	**288-512**	1	

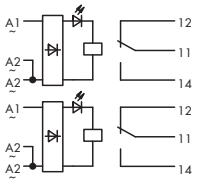
Technical Data

Contact material	AgNi 0.15
Max. switching voltage	250 VAC
Max. make current	4 s 14 A
Max. continuous current	6 A
Max. switching power (resistive)	1500 VA
Pull-in/drop-out/bounce time typ.	8 ms / 3 ms / 2 ms
Dielectric strength, contact-coil (AC, 1 min)	2 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	1.5 kV_{rms}
Nominal voltage to EN 60664-1	250 V / 2.5 kV / 2
Mechanical life	20 x 10^6 switching operations
Mechanical life at max. load (resistance)	1 x 10^5 switching operations
Ambient operating temperature	-25 °C ... +40 °C
Storage temperature	-40 °C ... +80 °C
Dimensions (mm) L x W x H	
incl. mounting carrier and relay	22.5 x 48 x 85
	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®
Cross sections	0.08 ... 2.5 mm^2 / 28 ... 12 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.

Accessories

WMB Multi marking system for mounting carrier	see page 506
Marker strips for mounting carrier	white 709-198 / transparent 709-197

	2 relays, 1 changeover contact each Relay direct soldered with universal mounting carrier	



Description	V_N	I_N	Item No.	Pack. Unit	
Switching relay module	24 V AC/DC	21.8	**288-758**	1	

Technical Data

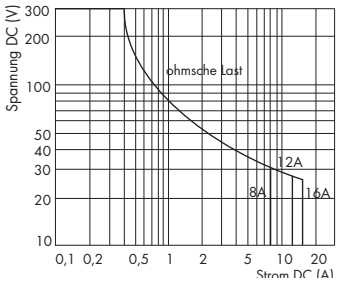
Contact material	AgNi 0.15	
Max. switching voltage	250 VAC	
Max. make current	16 A	
Max. continuous current	6 A	
Max. switching power (resistive)	1500 VA	
Pull-in/drop-out/bounce time typ.	9 ms / 3 ms / 2 ms	
Dielectric strength, contact-coil (AC, 1 min)	2.5 kV_{rms}	
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}	
Dielectric strength contact-contact (AC, 1 min)	1.5 kV_{rms}	
Nominal voltage to EN 60664-1	250V / 2.5kV / 2	
Mechanical life	30 x 10^6 switching operations	
Mechanical life at max. load (resistance)	1 x 10^5 switching operations	
Ambient operating temperature	-25 °C ... +40 °C	
Storage temperature	-40 °C ... +80 °C	
Dimensions (mm) L x W x H		
incl. mounting carrier and relay	38.5 x 48 x 85	
	Height from upper-edge of DIN 35 rail	
Wire connection	CAGE CLAMP®	
Cross sections	0.08 ... 2.5 mm² / 28 ... 12 AWG	
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	

Accessories

WMB Multi marking system for mounting carrier	see page 506	
Marker strips for mounting carrier	white 709-198 / transparent 709-197	

Rail Mounted Relay Modules

	Relay with 1 make contact Relay direct soldered with universal mounting carrier Designed for switching high inrush current loads i.e. filament lamp loads	



DC load limit curve

Contact life at different lamp loads

Load	Switching operations
12 A, 250 V AC, cos φ = 1	3×10^5
TV 8 acc. to UL 508	25×10^3
2500 W, 230 V AC Halogen lamp	$> 10^4$
1000 W, 250 V AC Incandesent lamp	2.3×10^5
3000 W, 250 V AC Incandesent lamp	3.6×10^4
1500 VA, Fluorescent lamp 163 µF	10^4

Description	V_N	I_N	Item No.	Pack. Unit	
Switching relay module	24 VDC	21.8	**288-320**	1	

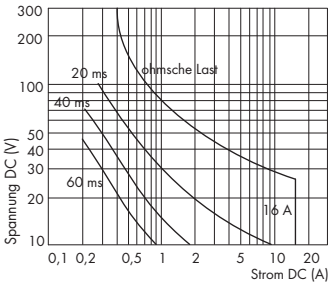
Technical Data

Input voltage range	V_N -15 % ...+20 %
Contact material	$AgSnO_2$
Max. switching voltage	250 VAC
Peak inrush current	20 ms/120 A
Max. continuous current	16 A
Max. switching power (resistive)	4000 VA AC, DC see load limit curve
Recommended minimum load	12 V AC/DC / 100 mA
Pull-in/drop-out/bounce time typ.	8 ms / 2 ms / 2 ms
Dielectric strength contact-coil (AC, 1 min)	4 kV
Dielectric strength open contact	1 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250V / 4kV / 2
IEC 60664-1	
Mechanical life	30×10^6 switching operations
Ambient operating temperature	-25 °C ... +40 °C
Storage temperature	-40 °C ... +70 °C
Dimensions (mm) L x W x H	20.5 x 47 x 85
incl. mounting carrier and relay	
	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®
Cross sections	0.08 ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.
Standards/specifications	EN 60664-1; UL 508

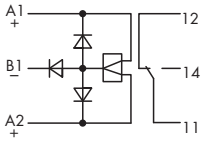
Accessories

WMB Multi marking system for mounting carrier	see page 506
Marker strips for mounting carrier	white 709-198 / transparent 709-197

	Bistable relay with 1 changeover contact Relay direct soldered with universal mounting carrier	



DC load limit curve



Description	V_N	I_N	**Item No.**	**Pack. Unit**	
Switching relay module	24 VDC	41.5	**288-380**	1	

Technical Data

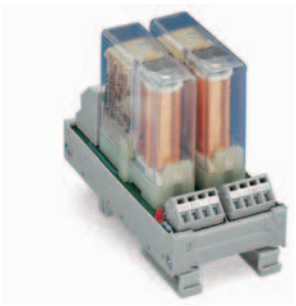
Input voltage range	V_N -15 % ...+20 %	
Contact material	AgNi 0,15	
Max. switching voltage	250 VAC	
Max. make / break current	4 s 20 A / 8 A	
Max. continuous current	6 A	
Max. switching power (resistive)	1500 VA	
Pull-in/drop-out/bounce time typ.	9 ms / 3 ms / 2 ms	
Dielectric strength contact-coil (AC, 1 min)	4 kV	
Dielectric strength open contact	1 kV	
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250 V / 4 kV / 2	
IEC 60664-1		
Mechanical life	30 x 10^6 switching operations	
Ambient operating temperature	-25 °C ... +40 °C	
Storage temperature	-40 °C ... +70 °C	
Dimensions (mm) L x W x H	20.5 x 48 x 85	
incl. mounting carrier and relay		
	Height from upper-edge of DIN 35 rail	
Wire connection	CAGE CLAMP®	
Cross sections	0.08 ... 2.5 mm² / 28 ... 12 AWG	
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	

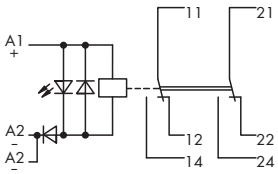
Accessories		
WMB Multi marking system for mounting carrier	see page 506	
Marker strips for mounting carrier	white 709-198 / transparent 709-197	

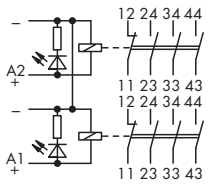
Rail Mounted Relay Modules

	Relay with 2 changeover contacts with forced operated contacts, Type A, Relay direct soldered with universal mounting carrier	2 pluggable relays with 3 make contacts and 1 break contact with forced operated contacts, Type A, plugged in universal mounting carrier

Similiar to picture





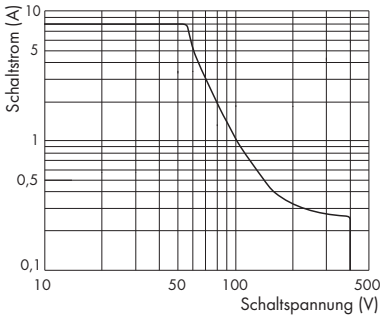


Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Switching relay module	24 VDC	36 mA	**288-437**	1	24 VDC	50 mA	**288-435**	1

Technical Data

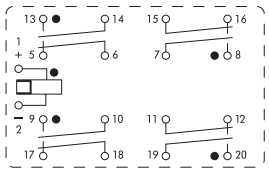
Input voltage range	V_N -15 % ... +10 %	V_N -15 % ... +10 %
Contact material	AgNi 10 + Au	AgCdO
Contact type	2 changeover contacts	3 make contacts / 1 break contact
Max. switching voltage	60 V	300 VDC / 230 VAC
Max. continuous current	0.3 A	–
Max. switching power (resistive)	7 W	2000 VA
Recommended minimum load	100 mV AC/DC / 1 mA / 1 mW	12 V / 300 mA
Pull-in/drop-out/bounce time typ.	15 ms / 12 ms / -	23 ms / 20 ms / -
Nominal voltage to EN 60664-1	250V / 1.5kV / 2	250V / 2.5kV / 2
Dielectric strength, contact-coil (AC, 1 min)	4 kV_{rms}	1.35 kV_{rms}
Dielectric strength open contact (AC, 1 min)		1.35 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	1 kV_{rms}	1.35 kV_{rms}
Mechanical life	50 x 10^7 switching operations	1 x 10^7 switching operations
Ambient operating temperature	-20 °C ... +70 °C	-25 °C ... +70 °C
Relay fixing mechanism	soldered	plastic holden with locking latches (by relay manufacturer)
Dimensions (mm) L x W x H	19 x 38 x 85	57 x 90 x 107
incl. mounting carrier and relay		
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 ... 2.5 mm² / 28 ... 12 AWG	0.08 ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	5 ... 6 mm / 0.2 ... 0.24 in.
Nominal operating mode	EN 60664-1	EN 60664-1
Accessories		
WMB Multi marking system for mounting carrier		see page 506
Marker strips for mounting carrier		white 709-198 / transparent 709-197

If required a ventilation hole (e) can be made in the cover, reducing the degree of protection from IP67 to IP30.	Safety relay type SDS SF4D with 4 break contacts and 4 make contacts with 1 relay with universal mounting carrier with force-guided contacts, type B	



DC load limit curve

If an outer contact (20) should weld then the forced operated inner contact (12) driven by the actuator (d) remains open. The rotating armature (c) remains free to move. The unaffected contact pairs can operate normally, (i. e. their function to make or break remains unaffected).
If an inner contact should weld (12) then the movement of the rotating armature (c) is blocked via the operator (d). Open contacts of all four contact pairs remain open. This arrangement corresponds to conventional, forced contact operation.



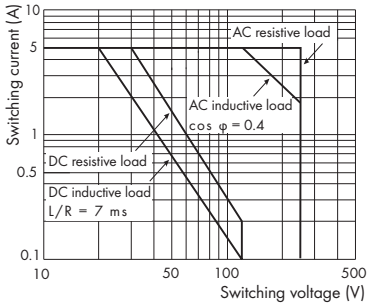
Description	V_N	I_N	Item No.	Pack. Unit	
Switching relay module	24 V AC/DC	26 mA	**288-414**	1	
	230 VAC	10 mA	**288-418**	1	

Technical Data

Coil		
Input voltage range	V_N -15 % ... +10 %	
Contacts		
Contact material	$AgSnO_2$	
Max. continuous current	6 A	
Max. make current	20 A	
Max. switching voltage	250 VAC	
Max. switching power (resistive)	150 W / 1500 VA	
Recommended minimum load	10 V / 10 mA	
Pull-in/drop-out/bounce time typ.	18 ms / 21 ms / 4 ms	
Mechanical life	1 x 10^7 switching operations	
Mechanical life at max. load (resistance)	1 x 10^5 switching operations	
General specifications:		
Nominal voltage to EN 60664-1	250 V / 2.5 kV / 2	
Dielectric strength, contact-coil (AC, 1 min)	2 kV_{rms}	
Dielectric strength contact-contact (AC, 1 min)	1.5 kV_{rms}	
Ambient operating temperature at V_N	-40 °C ... +70 °C	
Storage temperature	-40 °C ... +80 °C	
Dimensions (mm) L x W x H		
incl. mounting carrier and relay	63.5 x 40 x 85	
	Height from upper-edge of DIN 35 rail	
Wire connection	CAGE CLAMP®	
Cross sections	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG	
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	
Standards/specifications	EN 60664-1; EN 50205; EN 61810-1	
Relay approvals	ESTI (SEV): 09.1133	
	UL: E120782	
	TÜV: 968/EZ 116.02/09	
Accessories		
WMB Multi marking system for mounting carrier	see from page 506	
Marker strips for mounting carrier	white 709-198 / transparent 709-197	

Pluggable Modules - Relays

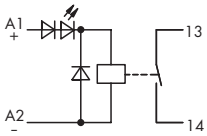
	Relay with 1 make contact Module width 10 mm / 0.394 in.	Relay with 1 break contact Module width 10 mm / 0.394 in.

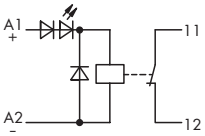


DC load limit curve

WSB marker cards
- Marking K; Item No.: 209-782
- Marking 1 ... 10; Item No.: 209-702
- Marking A1, A2, 13, 14; Item No.: 209-952
- Marking A1, A2, 11, 12; Item No.: 209-953

5 cards, each containing 10 strips with 10 markers



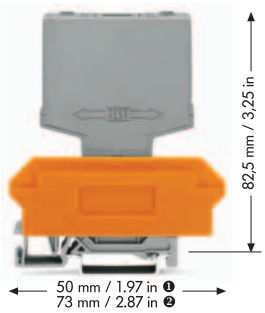


Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Switching relay module	24 VDC	7.4 mA	**286-364**	1	24 VDC	20.4 mA	**286-368**	1

Technical Data	Accessories see page 99	Accessories see page 99
Contact material	AgSnO	AgNi
Max. switching voltage	250 VAC	250 VAC
Max. continuous current	5 A	5 A
Max. switching power (resistive)	1250 VA	1250 VA
Pull-in/drop-out/bounce time typ.	8 ms / 10 ms / 2 ms	10 ms / 4 ms / 3 ms
Dielectric strength contact-coil (AC, 1 min)	3 kV	4 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250V / 2.5kV / 2	250V / 4kV / 2
IEC 60664-1		
Mechanical life	5×10^4 switching operations	5×10^6 switching operations
Mechanical life at max. load (resistance)	1×10^5 switching operations	5×10^4 switching operations
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C

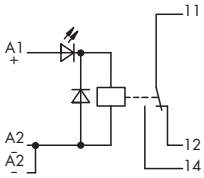
Accessories		Item No.	Pack. Unit		Item No.	Pack. Unit
Terminal block for pluggable modules,						
with 2-conductor terminal blocks, orange separator ❶	12 mm / 0.472 in.	**280-618**	1	12 mm / 0.472 in.	**280-618**	1
with 4-conductor terminal blocks, orange separator ❷	12 mm / 0.472 in.	**280-608**	1	12 mm / 0.472 in.	**280-608**	1
with 4-conductor terminal blocks, marker plate ❷	15 mm / 0.591 in.	**280-762**	1	15 mm / 0.591 in.	**280-762**	1
wire range 0.08 mm² ... 2.5 mm² / 28 ... 14 AWG;						
stripped length 8 ... 9 mm / 0.31 ... 0.35 in.						

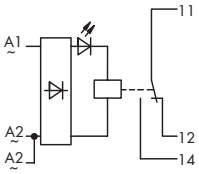
	Relay with 1 changeover contact Module width 15 mm / 0.591 in.	Relay with 1 changeover contact Module width 15 mm / 0.591 in.



WSB marker cards
- Marking K; Item No.: 209-782
- Marking 1 ... 10; Item No.: 209-702
- Marking A1, A2, A2, 11, 12, 14, A1, A2, A2; Item No.: 209-994

5 cards, each containing 10 strips with 10 markers





Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Switching relay module	24 VDC	19.4 mA	**286-304**	1	115 VAC	4.8 mA	**286-507**	1
					230 VAC	6.1 mA	**286-508**	1

Technical Data

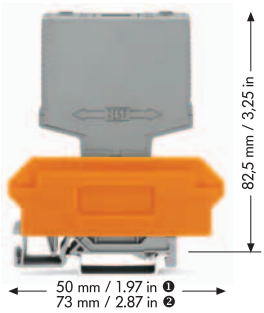
Contact material	AgNi 0.15	AgNi 0.15
Max. switching voltage	250 VAC	250 VAC
Max. continuous current	7 A	7 A
Max. switching power (resistive)	1750 VA	1750 VA
Pull-in/drop-out/bounce time typ.	8 ms / 6 ms / 4 ms	8 ms / 6 ms / 4 ms
Dielectric strength contact-coil (AC, 1 min)	4 kV	4 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	250V / 4kV / 2	250V / 4kV / 2
Mechanical life	30 x 10^6 switching operations	30 x 10^6 switching operations
Mechanical life at max. load (resistance)	1 x 10^5 switching operations	1 x 10^5 switching operations
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C

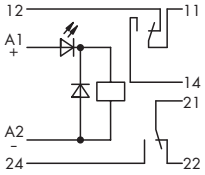
Accessories		Item No.	Pack. Unit		Item No.	Pack. Unit
Terminal block for pluggable modules,						
with 2-conductor terminal blocks, orange separator ❶	17 mm / 0.669 in.	**280-619**	1	17 mm / 0.669 in.	**280-619**	1
with 4-conductor terminal blocks, orange separator ❷	17 mm / 0.669 in.	**280-609**	1	17 mm / 0.669 in.	**280-609**	1
with 4-conductor terminal blocks, marker plate ❷	20 mm / 0.787 in.	**280-763**	1	20 mm / 0.787 in.	**280-763**	1
wire range 0.08 mm² ... 2.5 mm² / 28 ... 14 AWG; stripped length 8 ... 9 mm / 0.31 ... 0.35 in.						

Pluggable Modules - Relays

Relay with 2 changeover contacts

Module width 20 mm / 0.787 in.





WSB marker cards
- Marking K; Item No.: 209-782
- Marking 1 ... 10; Item No.: 209-702
- Marking 12, A1, A2, 24, 11, 14, 21, 22; Item No.: 209-995

5 cards, each containing 10 strips with 10 markers

Description	V_N	I_N	Item No.	Pack. Unit
Switching relay module	24 VDC	21.8 mA	**286-312**	1
	110 VDC	4.9 mA	**286-315**	1
	220 VDC	5 mA	**286-316**	1

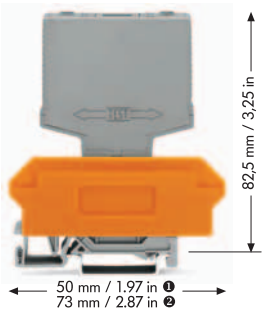
Technical Data

Contact material	AgNi 0.15
Max. switching voltage	250 VAC
Max. make current	0,2 s 30 A
Max. continuous current	7 A
Max. switching power (resistive)	1750 VA
Pull-in/drop-out/bounce time typ.	18 ms / 3 ms / 2 ms
Dielectric strength contact-coil (AC, 1 min)	4 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250V / 4kV / 2
IEC 60664-1	
Mechanical life	30 x 10^7 switching operations
Mechanical life at max. load (resistance)	2.5 x 10^5 switching operations
Ambient operating temperature	-25 °C ... +40 °C

Accessories

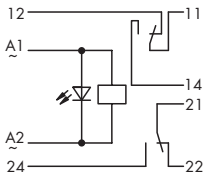
		Item No.	Pack. Unit
Terminal block for pluggable modules,			
with 2-conductor terminal blocks, orange separator ❶	22 mm / 0.866 in.	**280-638**	1
with 4-conductor terminal blocks, orange separator ❷	22 mm / 0.866 in.	**280-628**	1
with 4-conductor terminal blocks, marker plate ❷ wire range 0.08 mm² ... 2.5 mm² / 28 ... 14 AWG; stripped length 8 ... 9 mm / 0.31 ... 0.35 in.	25 mm / 0.984 in.	**280-764**	1

	Relay with 2 changeover contacts **Module width 20 mm / 0.787 in.**	



WSB marker cards
- Marking K; Item No.: 209-782
- Marking 1 ... 10; Item No.: 209-702
- Marking 12, A1, A2, 24, 11, 14, 21, 22; Item No.: 209-995

5 cards, each containing 10 strips with 10 markers



Description	V_N	I_N	Item No.	Pack. Unit	
Switching relay module	24 VAC	47 mA	**286-512**	1	
	115 VAC	10.5 mA	**286-515**	1	
	230 VAC	5.5 mA	**286-516**	1	

Technical Data

Contact material	Ag Ni 0.15
Max. switching voltage	250 VAC
Max. make current	0,2 s 30 A
Max. continuous current	7 A
Max. switching power (resistive)	1750 VA
Pull-in/drop-out/bounce time typ.	15 ms / 5 ms / 2 ms
Dielectric strength contact-coil (AC, 1 min)	2 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250V / 4kV / 2
IEC 60664-1	
Mechanical life	30 x 10^7 switching operations
Mechanical life at max. load (resistance)	2.5 x 10^5 switching operations
Ambient operating temperature	-25 °C ... +40 °C

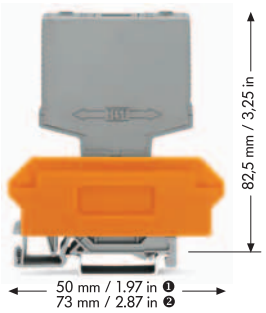
Accessories

		Item No.	Pack. Unit	
Terminal block for pluggable modules,				
with 2-conductor terminal blocks, orange separator ❶	22 mm / 0.866 in.	**280-638**	1	
with 4-conductor terminal blocks, orange separator ❷	22 mm / 0.866 in.	**280-628**	1	
with 4-conductor terminal blocks, marker plate ❷	25 mm / 0.984 in.	**280-764**	1	
wire range 0.08 mm² ... 2.5 mm² / 28 ... 14 AWG;				
stripped length 8 ... 9 mm / 0.31 ... 0.35 in.				

Pluggable Modules - Relays

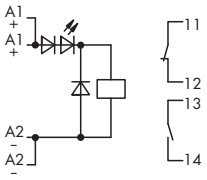
Relay with 1 break and 1 make contact

Module width 20 mm / 0.787 in.



WSB marker cards
- Marking K; Item No.: 209-782
- Marking 1 ... 10; Item No.: 209-702
- Marking A1, A1, A2, A2, 11, 12, 13, 14, 23, 24; Item No.: 209-693

5 cards, each containing 10 strips with 10 markers



Description	V_N	I_N	Item No.	Pack. Unit
Switching relay module	24 VDC	7.4 mA	**286-320**	1

Technical Data

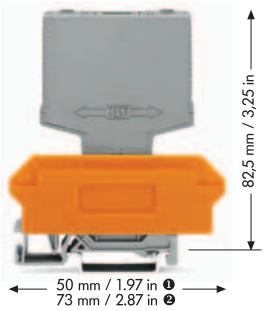
Contact material	$AgSnO_2$
Max. switching voltage	380 VAC
Max. make current	1 s 15 A
Max. continuous current	6 A
Max. switching power (resistive)	2000 VA
Pull-in/drop-out/bounce time typ.	10 ms / 4 ms / 1 ms
Dielectric strength contact-coil (AC, 1 min)	3 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250V / 4kV / 2
IEC 60664-1	
Mechanical life	5×10^7 switching operations
Mechanical life at max. load (resistance)	1×10^5 switching operations
Ambient operating temperature	-25 °C ... +40 °C

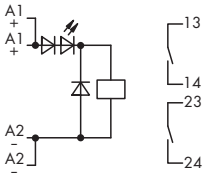
Accessories

		Item No.	Pack. Unit
Terminal block for pluggable modules,			
with 2-conductor terminal blocks, orange separator ❶	22 mm / 0.866 in.	**280-638**	1
with 4-conductor terminal blocks, orange separator ❷	22 mm / 0.866 in.	**280-628**	1
with 4-conductor terminal blocks, marker plate ❷	25 mm / 0.984 in.	**280-764**	1
wire range 0.08 mm² ... 2.5 mm² / 28 ... 14 AWG;			
stripped length 8 ... 9 mm / 0.31 ... 0.35 in.			

Relay with 2 make contacts

Module width 20 mm / 0.787 in.





WSB marker cards
- Marking K; Item No.: 209-782
- Marking 1 ... 10; Item No.: 209-702
- Marking A1, A1, A2, A2, 11, 12, 13, 14, 23, 24; Item No.: 209-693

5 cards, each containing 10 strips with 10 markers

Description	V_N	I_N	Item No.	Pack. Unit	
Switching relay module	24 VDC	7.4 mA	**286-328**	1	

Technical Data

Contact material	$AgSnO_2$
Max. switching voltage	380 VAC
Max. make current	1 s 15 A
Max. continuous current	6 A
Max. switching power (resistive)	2000 VA
Pull-in/drop-out/bounce time typ.	10 ms / 4 ms / 1 ms
Dielectric strength contact-coil (AC, 1 min)	3 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250V / 4kV / 2
IEC 60664-1	
Mechanical life	5 x 10^7 switching operations
Mechanical life at max. load (resistance)	1 x 10^5 switching operations
Ambient operating temperature	-25 °C ... +40 °C

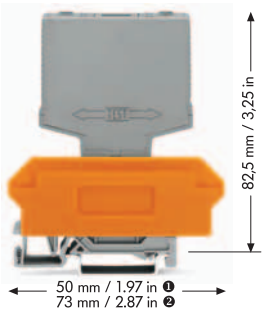
Accessories

		Item No.	Pack. Unit	
Terminal block for pluggable modules,				
with 2-conductor terminal blocks, orange separator ❶	22 mm / 0.866 in.	**280-638**	1	
with 4-conductor terminal blocks, orange separator ❷	22 mm / 0.866 in.	**280-628**	1	
with 4-conductor terminal blocks, marker plate ❷	25 mm / 0.984 in.	**280-764**	1	
wire range 0.08 mm² ... 2.5 mm² / 28 ... 14 AWG;				
stripped length 8 ... 9 mm / 0.31 ... 0.35 in.				

Pluggable Modules - Relays

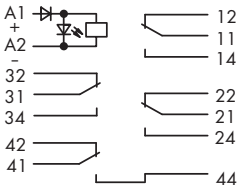
Relay with 4 changeover contacts

Module width 35 mm / 1.378 in



WSB marker cards
- Marking K; Item No.: 209-782
- Marking 1 ... 10; Item No.: 209-702
- Marking 14, A1, A2, 33, 34, 13, 23, 24, 43, 44; Item No.: 209-692
- Marking A1, A2, 32, 31, 34, 42, 41, 12, 11, 14; Item No.: 249-656

5 cards, each containing 10 strips with 10 markers



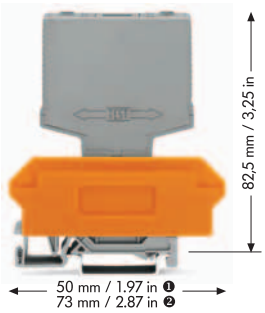
Description	V_N	I_N	Item No.	Pack. Unit
Switching relay module	230 VAC	9,9 mA	**286-579**	1

Technical Data

Contact material	AgNi
Max. switching voltage	240 VAC
Max. make current	
Max. continuous current	4 A
Max. switching power (resistive)	960 VA
Pull-in/drop-out/bounce time typ.	6 ms / - / 2 ms
Dielectric strength contact-coil (AC, 1 min)	1.5 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250V / 4kV / 2
IEC 60664-1	
Mechanical life	30 x 10^6 switching operations
Mechanical life at max. load (resistance)	10 x 10^5 switching operations
Ambient operating temperature	-25 °C ... +40 °C

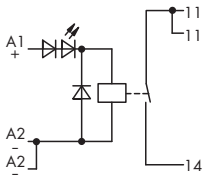
Accessories		Item No.	Pack. Unit
Terminal block for pluggable modules,			
with 2-conductor terminal blocks, orange separator ❶			
with 4-conductor terminal blocks, orange separator ❷	37 mm / 1.457 in.	**280-636**	1
with 4-conductor terminal blocks, marker plate ❷			
wire range 0.08 mm² ... 2.5 mm² / 28 ... 14 AWG;			
stripped length 8 ... 9 mm / 0.31 ... 0.35 in.			

	Relay with 1 make contact for higher DC loads **Module width 15 mm / 0.591 in.**	



WSB marker cards
- Marking K; Item No.: 209-782
- Marking 1 ... 10; Item No.: 209-702
- Marking A1, A1, A2, A2, 11, 12, 13, 14, 23, 24; Item No.: 209-693
- Marking A1, A3, A2, 11, 12, 14; Item No.: 249-607

5 cards, each containing 10 strips with 10 markers



Description	V_N	I_N	Item No.	Pack. Unit	
Switching relay module	24 VDC	20 mA	**286-376**	1	

Technical Data

Contact material	AgNi 0.15	
Max. switching voltage	250 VAC	
Max. make current (resistive)	4 s 14 A	
Recommended minimum load	12 V AC/DC / 10 mA	
Max. continuous current	5 A	
Max. switching power (resistive)	2000 VA	
Pull-in/drop-out/bounce time typ.	9 ms / 3 ms / 5 ms	
Dielectric strength contact-coil (AC, 1 min)	4 kV	
Dielectric strength open contact	2 kV	
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	250V / 4kV / 2	
Mechanical life	20 x 10^6 switching operations	
Mechanical life at max. load (resistance)	3 x 10^5 switching operations	
Ambient operating temperature	-25 °C ... +40 °C	
Standards/specifications	EN 60664-1	

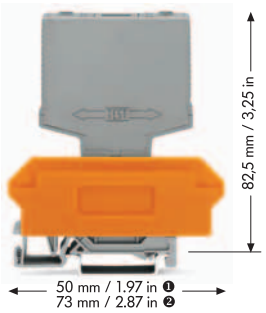
Accessories

		Item No.	Pack. Unit	
Terminal block for pluggable modules,				
with 2-conductor terminal blocks, orange separator ❶	17 mm / 0.669 in.	**280-619**	1	
with 4-conductor terminal blocks, orange separator ❷	17 mm / 0.669 in.	**280-609**	1	
with 4-conductor terminal blocks, marker plate ❷	20 mm / 0.787 in.	**280-763**	1	
wire range 0.08 mm² ... 2.5 mm² / 28 ... 14 AWG;				
stripped length 8 ... 9 mm / 0.31 ... 0.35 in.				

Pluggable Modules - Relays

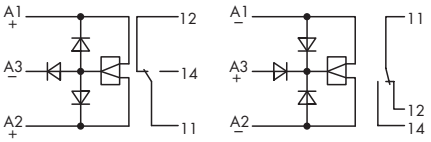
Bistable relay with 1 changeover contact positive switching, negative switching

Module width 15 mm / 0.591 in.



WSB marker cards
- Marking K; Item No.: 209-782
- Marking 1 ... 10; Item No.: 209-702
- Marking A1, A1, A2, A2, 11, 12, 13, 14, 23, 24; Item No.: 209-693
- Marking A1, A3, A2, 11, 12, 14; Item No.: 249-607

5 cards, each containing 10 strips with 10 markers



Description	V_N	I_N	Item No.	Pack. Unit
Switching relay module	24 VDC	41.5 mA	**286-380**	1
	24 VDC	41.5 mA	**286-381**	1

Technical Data

Contact material	AgNi 0,15
Max. switching voltage	250 VAC
Max. make current	20 A
Max. continuous current	6 A
Max. switching power (resistive)	1500 VA
Pull-in/drop-out/bounce time typ.	9 ms / 3 ms / 2 ms
Dielectric strength contact-coil (AC, 1 min)	4 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250V / 4kV / 2
IEC 60664-1	
Mechanical life	30 x 10^6 switching operations
Mechanical life at max. load (resistance)	1 x 10^5 switching operations
Ambient operating temperature	-25 °C ... +40 °C

Accessories		Item No.	Pack. Unit
Terminal block for pluggable modules,			
with 2-conductor terminal blocks, orange separator ❶	17 mm / 0.669 in.	**280-619**	1
with 4-conductor terminal blocks, orange separator ❷	17 mm / 0.669 in.	**280-609**	1
with 4-conductor terminal blocks, marker plate ❷	20 mm / 0.787 in.	**280-763**	1
wire range 0.08 mm² ... 2.5 mm² / 28 ... 14 AWG;			
stripped length 8 ... 9 mm / 0.31 ... 0.35 in.			

Overview Pluggable Modules – Switching Relays

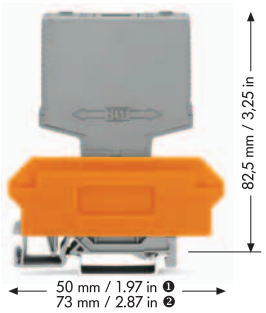
with an extended input voltage and operating temperature range, for railway applications

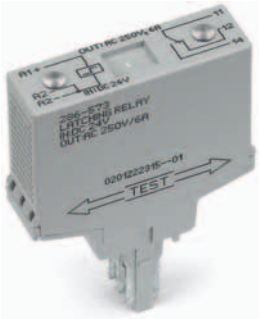
Description	Nominal input voltage V_N	Input voltage range	Max. switching voltage	Module width	Item No.	Pack. Unit
Switching relay module, Relay	24 VDC	V_N -30 % ...+25 %	250 V AC/DC	15 mm / 0.591 in.	**286-304/004-000**	1
Relay with 1 changeover contact	110 VDC	V_N -30 % ...+25 %	250 V AC/DC	15 mm / 0.591 in.	**286-307/004-000**	1
Relay with 2 changeover	24 VDC	V_N -30 % ...+25 %	250 VAC / 200 VDC	20 mm / 0.787 in.	**286-312/004-000**	1
Relay with 1 break contact and 1 make contact	24 VDC	V_N -30 % ...+25 %	250 VAC / 200 VDC	20 mm / 0.787 in.	**286-320/004-000**	1
Relay with 2 make contacts	24 VDC	V_N -30 % ...+25 %	250 VAC / 200 VDC	20 mm / 0.787 in.	**286-328/004-000**	1
Relais with 2 make contacts and 2 make contacts	24 VDC	V_N -30 % ...+25 %	250 VAC / 200 VDC	25 mm / 0.984 in.	**286-336/001-000**	1
Relay with 3 make contacts and 1 break contact	24 VDC	V_N -30 % ...+25 %	250 VAC / 200 VDC	25 mm / 0.984 in.	**286-344/004-000**	1
Relay with 4 make contacts	24 VDC	V_N -30 % ...+25 %	250 VAC / 30 VDC	25 mm / 0.984 in.	**286-352/004-000**	1
Relay with 1 make contact	24 VDC	V_N -30 % ...+25 %	250 VAC	10 mm / 0.394 in.	**286-364/004-000**	1
Relay with 1 changeover contact	24 VDC	V_N -30 % ...+25 %	36 VDC	15 mm / 0.591 in.	**286-394/004-000**	1
Time relay (on-delay timing) with 1 changeover contact	24 VDC	V_N -30 % ...+25 %	250 VAC / 200 VDC	20 mm / 0.787 in.	**286-604/004-000**	1
Multifunction timing relay with1 changeover contact	24 VDC	V_N -30 % ...+25 %	250 VAC / 120 VDC	20 mm / 0.787 in.	**286-640/004-000**	1

For additional technical data see: www.wago.com

Pluggable Modules – Latching Relays

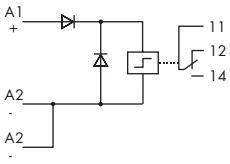
	Latching relay with 1 changeover contact (1 u)	





WSB marker cards
- Marking K; Item No.: 209-782
- Marking 1 ... 10; Item No.: 209-702
- Marking A1, A1, A2, A2, 11, 12, 13, 14, 23, 24; Item No.: 209-693
- Marking A1, A3, A2, 11, 12, 14; Item No.: 249-607

5 cards, each containing 10 strips with 10 markers



Description	V_N	I_N	**Item No.**	**Pack. Unit**	
Latching relay	24 VDC	40 mA	**286-573**	1	

Technical Data

Accessories see page 99

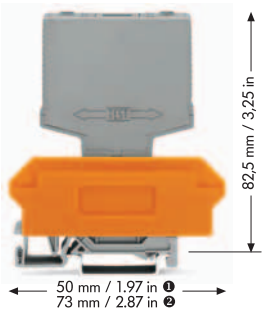
Coil	
Input voltage range	V_N -15 % ... +10 %
Contacts	
Contact material	$AgSnO_2$
Max. continuous current	6 A
Max. make current	50 A (20 ms)
Max. switching voltage	250 V
Max. switching power (resistive)	1500 VA
Recommended minimum load	10 V / 10 mA
Mechanical life	10 x 10^6 switching operations
General specifications:	
Nominal voltage to EN 60664-1	250V / 4kV / 2
Dielectric strength, contact-coil (AC, 1 min)	4 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1.5 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	-
Ambient operating temperature at V_N	-25 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C
Standards/specifications	EN 60664

-

Accessories

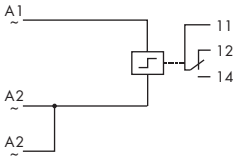
		Item No.	**Pack. Unit**
Terminal block for pluggable modules,			
with 2-conductor terminal blocks, orange separator ❶	17 mm / 0.669 in.	**280-619**	1
with 4-conductor terminal blocks, orange separator ❷	17 mm / 0.669 in.	**280-609**	1
with 4-conductor terminal blocks, marker plate ❷	20 mm / 0.787 in.	**280-763**	1
wire range 0.08 mm² ... 2.5 mm² / 28 ... 14 AWG;			
stripped length 8 ... 9 mm / 0.31 ... 0.35 in.			

	Latching relay with 1 changeover contact (1 u)	



WSB marker cards
- Marking K; Item No.: 209-782
- Marking 1 ... 10; Item No.: 209-702
- Marking A1, A1, A2, A2, 11, 12, 13, 14, 23, 24; Item No.: 209-693
- Marking A1, A3, A2, 11, 12, 14; Item No.: 249-607

5 cards, each containing 10 strips with 10 markers



Description	V_N	I_N	Item No.	Pack. Unit	
Latching relay	230 VAC	10 mA	**286-574**	1	

Technical Data

Accessories see page 99

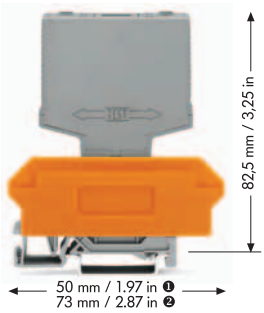
Coil	
Input voltage range	V_N -15 % ... +10 %
Contacts	
Contact material	$AgSnO_2$
Max. continuous current	6 A
Max. make current	50 A (20 ms)
Max. switching voltage	250 V
Max. switching power (resistive)	1500 VA
Recommended minimum load	10 V / 10 mA
Mechanical life	1 x 10^5 switching operations
General specifications:	
Nominal voltage to EN 60664-1	250V / 4kV / 2
Dielectric strength, contact-coil (AC, 1 min)	4 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1.5 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	-
Ambient operating temperature at V_N	-25 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C
Standards/specifications	EN 60664

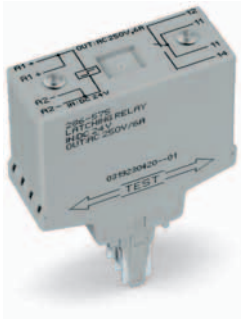
Accessories

		Item No.	Pack. Unit
Terminal block for pluggable modules,			
with 2-conductor terminal blocks, orange separator ❶	17 mm / 0.669 in.	**280-619**	1
with 4-conductor terminal blocks, orange separator ❷	17 mm / 0.669 in.	**280-609**	1
with 4-conductor terminal blocks, marker plate ❷	20 mm / 0.787 in.	**280-763**	1
wire range 0.08 mm² ... 2.5 mm² / 28 ... 14 AWG;			
stripped length 8 ... 9 mm / 0.31 ... 0.35 in.			

Pluggable Module – Latching Relay

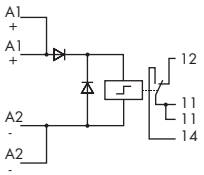
	Latching relay **with 1 changeover contact (1 u)** **Extended input voltage and temperature range** **Railway applications**	





WSB marker cards
- Marking K; Item No.: 209-782
- Marking 1 ... 10; Item No.: 209-702
- Marking A1, A1, A2, A2, 11, 12, 13, 14, 23, 24; Item No.: 209-693
- Marking A1, A3, A2, 11, 12, 14; Item No.: 249-607

5 cards, each containing 10 strips with 10 markers



Description	V_N	I_N	Item No.	Pack. Unit	
Latching relay	24 VDC	70 mA	**286-575**	1	

Technical Data

Accessories see page 61

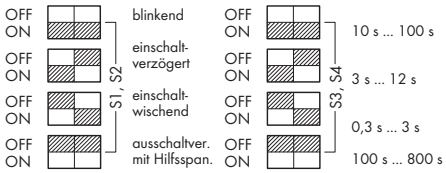
Coil	
Input voltage range	V_N -30 % ... +25 %
Contacts	
Contact material	$AgSnO_2$
Max. continuous current	3 A (6 A at 50 °C)
Max. make current	50 A (20 ms)
Max. switching voltage	250 V
Max. switching power (resistive)	1500 VA
Recommended minimum load	10 V / 10 mA
Mechanical life	10 x 10^6 switching operations
General specifications:	
Nominal voltage to EN 60664-1	250V / 4kV / 2
Dielectric strength, contact-coil (AC, 1 min)	4 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1.5 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	-
Ambient operating temperature at V_N	-25 °C ... +70 °C (I_o < 3 A)
Storage temperature	-40 °C ... +70 °C
Standards/specifications	EN 60664

Accessories

		Item No.	Pack. Unit
Terminal block for pluggable modules,			
with 2-conductor terminal blocks, orange separator ❶	22 mm / 0.866 in.	**280-638**	1
with 4-conductor terminal blocks, orange separator ❷	22 mm / 0.866 in.	**280-628**	1
with 4-conductor terminal blocks, marker plate ❷	25 mm / 0.984 in.	**280-764**	1
wire range 0.08 mm² ... 2.5 mm² / 28 ... 14 AWG;			
stripped length 8 ... 9 mm / 0.31 ... 0.35 in.			

Pluggable Module - Time Relays

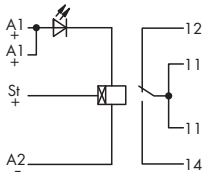
Multifunction timing relay
4 selectable time ranges
4 functions
1 changeover contact
Module width 20 mm / 0.787 in.



Schalterstellung / Funktion S1	S2		Schalterstellung / Zeitbereich S3	S4	(s)
OFF	OFF	ausschaltverz.	OFF	OFF	100 - 800
OFF	ON	einschaltwisch.	OFF	ON	0,3 - 3
ON	OFF	einschaltverz.	ON	OFF	3 - 12
ON	ON	blinkend	ON	ON	10 - 100

Fine adjustment of time within these time ranges can be made with the trimming potentiometer.
St+ will only be connected for the function „off-delay" with auxiliary voltage.
WSB marker cards
- Marking K; Item No.: 209-782
- Marking 1 ... 10; Item No.: 209-702
- Marking A1, A1, St, A2, A2, 12, 11, 11, 14; Item No.: 209-601

5 cards, each containing 10 strips with 10 markers



Description	Item No.	Pack. Unit
Multifunction timing relay module;	**286-640**	1
on-delay, off-delay with auxiliary voltage,		
pulsing in make position, flashing;		
input voltage 24 VDC;		
0.3 s ... 3 s, 3 s ... 12 s, 10 s ... 100 s, 100 s ... 800 s		
Function and timing range are selected with a DIL		
switch		

Technical Data

Accessories see page 99

Nominal input voltage V_N	24 VDC
Current input at rated voltage (coil 20 °C)	24 mA
Contact material	Ag alloy with gold flash
Max. switching voltage	380 VAC
Max. make current	4 s 10 A
Max. continuous current	5 A
Max. switching power (resistive)	1250 VA
Pull-in/drop-out/bounce time typ.	0 ms / 0 ms / 2 ms
Trigger voltage	24 VDC
Reset time	100 ms
Repeat accuracy	±1 %
Dielectric strength contact-coil (AC, 1 min)	3 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250V / 4kV / 2
IEC 60664-1	
Mechanical life	1.5 x 10^7 switching operations
Mechanical life at max. load (resistance)	1 x 10^5 switching operations
Ambient operating temperature	-25 °C ... +40 °C
Dimensions (mm) L x H x W incl. terminal block	20 x 82.5 x 50

Accessories		Item No.	Pack. Unit
Terminal block for pluggable modules,			
with 2-conductor terminal blocks, orange separator ❶	22 mm / 0.866 in.	**280-638**	1
with 4-conductor terminal blocks, orange separator ❷	22 mm / 0.866 in.	**280-628**	1
with 4-conductor terminal blocks, marker plate ❷	25 mm / 0.984 in.	**280-764**	1
wire range 0.08 mm² ... 2.5 mm² / 28 ... 14 AWG;			
stripped length 8 ... 9 mm / 0.31 ... 0.35 in.			

Accessories, 286 Series

2-conductor terminal block

4-conductor terminal block

Description		Item No.	Pack. Unit
Terminal block for pluggable modules,			
with 2-conductor terminal blocks, orange separator	12 mm / 0.472 in. wide	**280-618**	1
with 4-conductor terminal blocks, orange separator	12 mm / 0.472 in. wide	**280-608**	1
with 4-conductor terminal blocks, marker plate	15 mm / 0.591 in. wide	**280-762**	1
Terminal block for pluggable modules,			
with 2-conductor terminal blocks, orange separator	17 mm / 0.669 in. wide	**280-619**	1
with 4-conductor terminal blocks, orange separator	17 mm / 0.669 in. wide	**280-609**	1
with 4-conductor terminal blocks, marker plate	20 mm / 0.787 in. wide	**280-763**	1
Terminal block for pluggable modules,			
with 2-conductor terminal blocks, orange separator	22 mm / 0.866 in. wide	**280-638**	1
with 4-conductor terminal blocks, orange separator	22 mm / 0.866 in. wide	**280-628**	1
with 4-conductor terminal blocks, marker plate	25 mm / 0.984 in. wide	**280-764**	1
Terminal block for pluggable modules,			
with 2-conductor terminal blocks, orange separator	27 mm / 1.063 in. wide	**280-639**	1
with 4-conductor terminal blocks, orange separator	27 mm / 1.063 in. wide	**280-629**	1
with 4-conductor terminal blocks, marker plate	30 mm / 1.181 in. wide	**280-765**	1
Terminal block for pluggable modules,			
with 4-conductor terminal blocks, orange separator	37 mm / 1.457 in. wide	**280-636**	1

Wire range 0.08 mm² ... 2.5 mm² / 28 ... 14 AWG; Stripped lengths 8 ... 9 mm / 0.31 ... 0.35 in.

Accessories, 286 Series

Miniature quick marking card

Description		Item No.	Pack. Unit
Marking:	K	209-782	5 cards
	1 ... 10 (10 x)	209-702	5 cards
	A1, A2, 13, 14	209-952	5 cards
	A1, A2, 11, 12	209-953	5 cards
	11, 12, 14, A1, A2, A2, 11, 12, 14	209-994	5 cards
	12, A1, A2, 24, 11, 14, 21, 22	209-995	5 cards
	A1, A1, A2, A2, 11, 12, 13, 14, 23, 24	209-693	5 cards
	12, A1, A2, 23, 24, 11, 13, 14, 21, 22	209-691	5 cards
	12, A1, A2, 23, 24, 11, 13, 14, 33, 34	209-690	5 cards
	14, A1, A2, 33, 34, 13, 23, 24, 43, 44	209-692	5 cards
	A1, A2, 32, 31, 34, 42, 41, 12, 11, 14, 22, 21, 24, 44	249-656	5 cards
	L+, 1, L-, L-, 11, 12, 13, 14	209-954	5 cards
	A1, A2, A3, 11, 12, 14	249-607	5 cards
	A1, A1, A2, A2, 12, 11, 11, 14	209-996	5 cards
	A1, A1, St, A2, A2, 12, 11, 11, 14	209-601	5 cards
	U1, U2, U3, U4, 0V, 12, 11, 11, 14, 14	209-951	5 cards
	U	209-789	5 cards
	A1, A2, A2, 1, 3, 2	209-685	5 cards
	A1, A2, A2, 1, 2, 2	209-686	5 cards
	A1+, A1+, A2-, A2-, 1, RL1, RL2, 2	209-955	5 cards
	A1+, A1+, A2-, A2-, 1+, 1+, A, 2-	249-651	5 cards
	+/-	209-552	5 cards
	1, 2, 3, 0V, +UB, OUT, ERR., 0V	249-622	5 cards
	1, 2, 0V, +UB, OUT, ERR., 0V	249-623	5 cards
	Lin, Lin, Lout, Lout, 24V, UA, UA, 0V	209-957	5 cards
	Lin, Lin, Lout, 11, 14, 14, Lin, Lin, Lout	249-654	5 cards
	Iin, Iin, Iout, Iout, 24V, 11, 12, 14, 0V	209-997	5 cards
	S	209-682	5 cards
	V	209-784	5 cards
	F1 ... F10	209-787	5 cards
	D	209-783	5 cards
	+, -, 1, 2, 3, 13, 14, 4, 5, 6	249-608	5 cards
	L, N, Quitt, Störung, Test, N, 14, 24	249-606	5 cards
	A1, A2, Quitt, Störung, 12, 11, 11, 14	249-653	5 cards

5 cards, each containing 10 strips with 10 markers

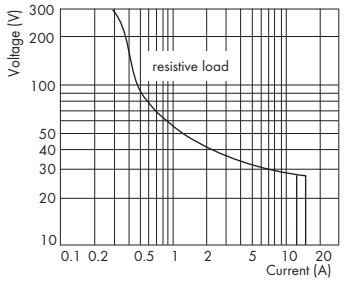
Colored marker cards

Description		Item No.	Pack. Unit
Marker cards and tags WSB 4 mm/0.157 in. (plain)	white	209-701	5 cards
Marking software and printer/plotter see Section 11	yellow	209-701/000-002	5 cards
	red	209-701/000-005	5 cards
	blue	209-701/000-006	5 cards
	gray	209-701/000-007	5 cards
	orange	209-701/000-012	5 cards
	light green	209-701/000-017	5 cards
	green	209-701/000-023	5 cards
	violet	209-701/000-024	5 cards

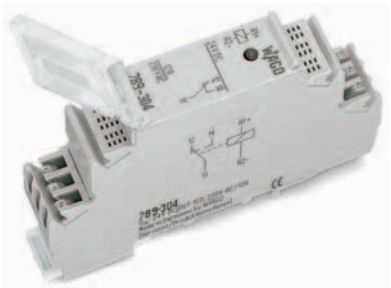
5 cards, each containing 10 strips with 10 markers

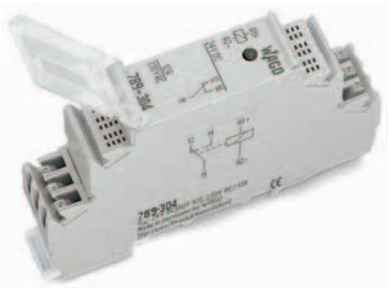
Relay Modules in DIN-Rail Mount Enclosure

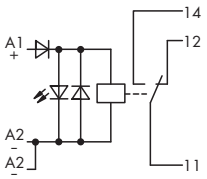
	Relay with 1 changeover contact (1 u) Nominal input voltage V_N 24 VDC	Relay with 1 changeover contact (1 u) Nominal input voltage V_N 230 VAC

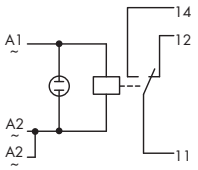


DC load limit curve







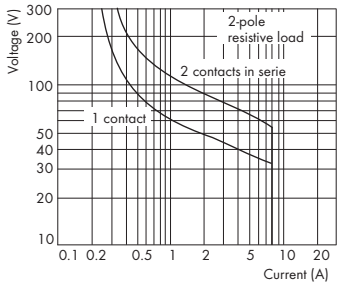


Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Relay module in DIN-rail mount enclosure, for DIN-rail	24 VDC	19 mA	**789-304**	10 (1)	230 VAC	4.2 mA	**789-508**	10 (1)

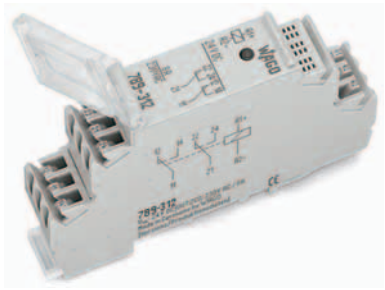
Technical Data	Accessories see pages 115	Accessories see pages 115
Coil:		
Input voltage range	V_N -15 % ... +10 %	V_N -15 % ... +10 %
Contacts:		
Contact material	AgNi 90/10	AgNi 90/10
Max. continuous current	12 A	12 A
Max. make current	25 A / 4 s	25 A / 4 s
Max. switching voltage	250 VAC	250 VAC
Max. switching power (resistive)	3 kVA AC, DC see load limit curve	3 kVA AC, DC see load limit curve
Recommended minimum load	12 V AC/DC, 100 mA	12 V AC/DC, 100 mA
Pull-in/drop-out/bounce time typ.	7ms / 3ms / 3 ms	15ms / 15ms / 3 ms
General specifications:		
Nominal voltage to EN 60664-1	250 V / 4 kV / 2	250 V / 4 kV / 2
Dielectric strength, contact-coil (AC, 1 min)	5 kV_{rms}	5 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}	1 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	-	-
Ambient operating temperature at V_N	-25 °C ... +40 °C	-25 °C ... +40 °C
Storage temperature	-40 °C ... +85 °C	-40 °C ... +85 °C
Dimensions (mm) W x H x L	17.5 x 55 x 90	17.5 x 55 x 90
	Height from upper-edge of DIN-rail	Height from upper-edge of DIN-rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 ... 2.5 mm² / 28 ... 14 AWG	0.08 ... 2.5 mm² / 28 ... 14 AWG
Strip length	9 ... 10 mm / 0.35 ... 0.39 in.	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1	EN 60664-1

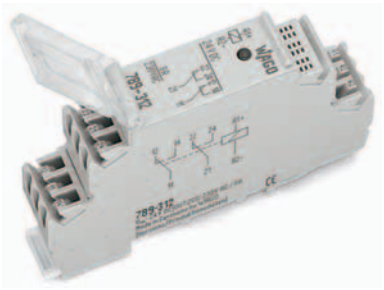
Relay Modules in DIN-Rail Mount Enclosure

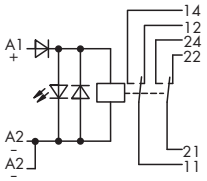
	Relay with 2 changeover contacts (2 u) Nominal input voltage V_N 24 VDC	Relay with 2 changeover contacts (2 u) Nominal input voltage V_N 24 V AC/DC, 230 VAC

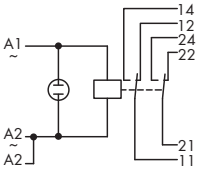


DC load limit curve





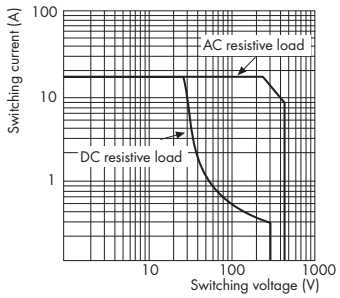




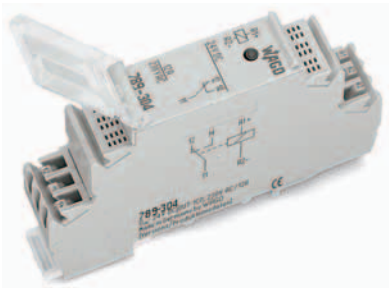
Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Relay module in DIN-rail mount enclosure, for DIN-rail	24 VDC	21 mA	**789-312**	10 (1)	24 V AC/DC 230 VAC	22 mA 4.2 mA	**789-512** **789-516**	10 (1) 10 (1)

Technical Data	Accessories see pages 115	Accessories see pages 115
Coil:		
Input voltage range	V_N -15 % ... +10 %	V_N -15 % ... +10 %
Contacts:		
Contact material	AgNi 90/10	AgNi 90/10
Max. continuous current	8 A	8 A
Max. make current	15 A / 4 s	15 A / 4 s
Max. switching voltage	250 VAC	250 VAC
Max. switching power (resistive)	2 kVA AC, DC see load limit curve	2 kVA AC, DC see load limit curve
Recommended minimum load	12 V AC/DC, 100 mA	12 V AC/DC, 100 mA
Pull-in/drop-out/bounce time typ.	7ms / 2ms / 3 ms	7ms / 2ms / 3 ms
Mechanical life	3 x 10^7 switching operations	5 x 10^6 switching operation
General specifications:		
Nominal voltage to EN 60664-1	250 V / 4 kV / 2	250 V / 4 kV / 2
Dielectric strength, contact-coil (AC, 1 min)	5 kV_{rms}	5 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}	1 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	2.5 kV_{eff}	1.5 kV_{eff}
Ambient operating temperature at V_N	-25 °C ... +40 °C	-25 °C ... +40 °C
Storage temperature	-40 °C ... +85 °C	-40 °C ... +85 °C
Dimensions (mm) W x H x L	17.5 x 55 x 90	17.5 x 55 x 90
	Height from upper-edge of DIN-rail	Height from upper-edge of DIN-rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 ... 2.5 mm² / 28 ... 14 AWG	0.08 ... 2.5 mm² / 28 ... 14 AWG
Strip length	9 ... 10 mm / 0.35 ... 0.39 in.	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1	EN 60664-1

Relay with 1 make contact (1 a)
Nominal input voltage V_N
24 VDC
for lamp loads



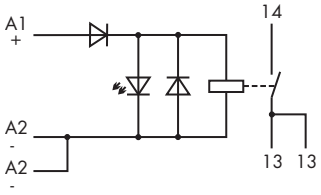
Load limit curve



Similiar to picture

Contact life, type of load	Capability	Electrical life
Incandescent lamp	2200 W	20,000
Halogen lamp 230 VAC	1400 W	50,000
Halogen trafo	120 VA	20,000
Fluorescent lamp not comp., CCG ①, cos φ 0.406	20 x 58 W	25,000
Fluorescent lamp comp., CCG ①, C parallel	9 x 58 W	25,000
Fluorescent lamp comp., CCG ①, Duo-circuit	600 W	20,000
Fluorescent lamp with ECG ②	12 x 58 W	25,000
Energy saving lamp 15 W	25 pcs	20,000
Energy saving lamp 13 W	30 pcs	20,000
Energy saving lamp 9 W	38 pcs	20,000
Gas discharge lamp	1000 W	20,000
Dulux-Lamp not compensated	800 W	20,000
Dulux-Lamp compensated	500 W	20,000
Max. capacitance at 230 VAC	60 µF	> 5,000

① CCG = Conventional Control Gear
② ECG = Electronic Control Gear



Note: Inductive loads have to be attenuated by an appropriate protective circuit in order to protect relay coils and contacts.

Description	V_N	I_N	Item No.	Pack. Unit
Relay module in DIN-rail mount enclosure, for DIN-rail	24 VDC	19 mA	**789-320**	10 (1)

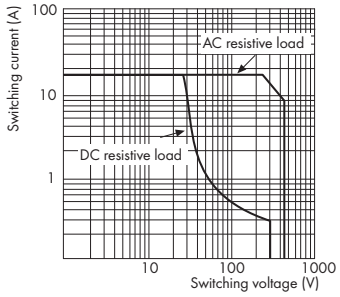
Technical Data

Accessories see pages 115

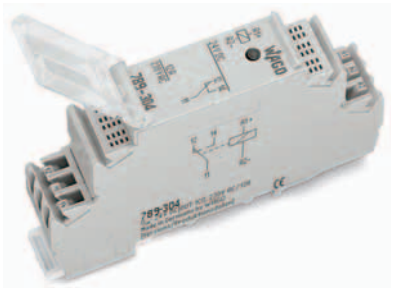
Coil:	
Input voltage range	V_N -15 % ... +20 %
Contacts:	
Contact material	Ag alloy
Max. continuous current	16 A
Max. make current	120 A / 50 ms (AC)
Max. switching voltage	250 VAC
Max. switching power (resistive)	4 kVA AC, DC see load curve
Recommended minimum load	12 V AC/DC, 100 mA
Pull-in/drop-out/bounce time typ.	15ms / 5ms / -
Mechanical life	10 x 10^6 switching operations
General specifications:	
Nominal voltage to EN 60664-1	250 V / 4 kV / 3
Dielectric strength, contact-coil (AC, 1 min)	4 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	-
Ambient operating temperature at V_N	-25 °C ... +40 °C
Storage temperature	-40 °C ... +70 °C
Dimensions (mm) W x H x L	17.5 x 55 x 90
	Height from upper-edge of DIN-rail
Wire connection	CAGE CLAMP®
Cross sections	0.08 ... 2.5 mm² / 28 ... 14 AWG
Strip length	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1, EN 61810-1

Relay Modules in DIN-Rail Mount Enclosure

Relay with 1 make contact (1 a)
Nominal input voltage V_N: 24 VAC
for lamp loads



Load limit curve

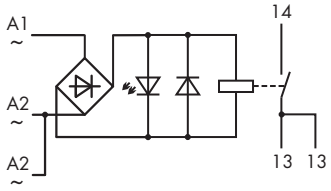


Similiar to picture

Contact life, type of load	Capability	Electrical life
Incandescent lamp	2200 W	20,000
Halogen lamp 230 VAC	1400 W	50,000
Halogen trafo	120 VA	20,000
Fluorescent lamp not comp., CCG ①, cos φ 0.406	20 x 58 W	25,000
Fluorescent lamp comp., CCG ①, C parallel	9 x 58 W	25,000
Fluorescent lamp comp., CCG ①, Duo-circuit	600 W	20,000
Fluorescent lamp with ECG ②	12 x 58 W	25,000
Energy saving lamp 15 W	25 pcs	20,000
Energy saving lamp 13 W	30 pcs	20,000
Energy saving lamp 9 W	38 pcs	20,000
Gas discharge lamp	1000 W	20,000
Dulux-Lamp not compensated	800 W	20,000
Dulux-Lamp compensated	500 W	20,000
Max. capacitance at 230 VAC	60 µF	> 5,000

① CCG = Conventional Control Gear
② ECG = Electronic Control Gear

Note: Inductive loads have to be attenuated by an appropriate protective circuit in order to protect relay coils and contacts.



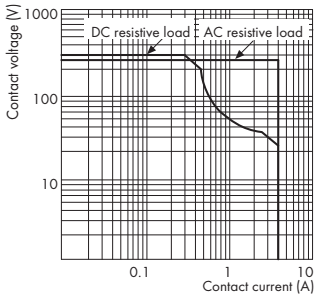
Description	V_N	I_N	Item No.	Pack. Unit
Relay module in DIN-rail mount enclosure, for DIN-rail	24 VAC	32 mA	**789-520**	10 (1)

Technical Data

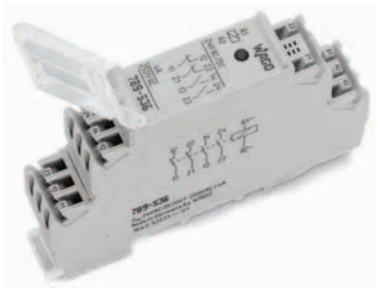
Accessories see pages 115

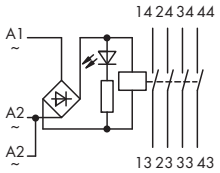
Coil:	
Input voltage range	V_N -15 % ... +20 %
Contacts:	
Contact material	Ag alloy
Max. continuous current	16 A
Max. make current	120 A / 50 ms (AC)
Max. switching voltage	250 VAC
Max. switching power (resistive)	4 kVA AC, DC see load curve
Recommended minimum load	12 V AC/DC, 100 mA
Pull-in/drop-out/bounce time typ.	15ms / 5ms / -
Mechanical life	10 x 10^6 switching operations
General specifications:	
Nominal voltage to EN 60664-1	250 V / 4 kV / 3
Dielectric strength, contact-coil (AC, 1 min)	4 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	-
Ambient operating temperature at V_N	-25 °C ... +40 °C
Storage temperature	-40 °C ... +70 °C
Dimensions (mm) W x H x L	17.5 x 55 x 90
	Height from upper-edge of DIN-rail
Wire connection	CAGE CLAMP®
Cross sections	0.08 ... 2.5 mm² / 28 ... 14 AWG
Strip length	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1, EN 61810-1

Relay with 4 make contacts (4 a)
Nominal input voltage V_N
24 V AC/DC



Load limit curve





Description	V_N	I_N	Item No.	Pack. Unit	
Relay module in DIN-rail mount enclosure, for DIN-rail	24 V AC/DC	12 mA	**789-552**	10 (1)	

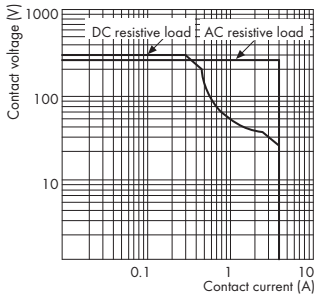
Technical Data

Accessories see pages 115

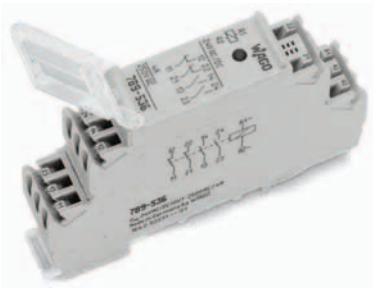
Coil:	
Input voltage range	V_N -15 % ... +10 %
Contacts:	
Contact material	AgNi + Au
Max. continuous current	4 A
Max. make current	-
Max. switching voltage	250 VAC
Max. switching power (resistive)	1 kVA / 90 W, resistive see load limit curve
Recommended minimum load	12 V AC/DC, 100 mA
Pull-in/drop-out/bounce time typ.	20ms / 20ms / 1 ms
General specifications:	
Nominal voltage to EN 60664-1	230 V / 2.5 kV / 2
Dielectric strength, contact-coil (AC, 1 min)	1.5 kV_{rms}
Dielectric strength open contact (AC, 1 min)	0.75 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	1 kV_{eff}
Ambient operating temperature at V_N	-25 °C ... +40 °C
Storage temperature	-40 °C ... +85 °C
Dimensions (mm) W x H x L	17.5 x 55 x 90
	Height from upper-edge of DIN-rail
Wire connection	CAGE CLAMP®
Cross sections	0.08 ... 2.5 mm² / 28 ... 14 AWG
Strip length	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1, EN 61810-1

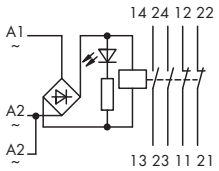
Relay Modules in DIN-Rail Mount Enclosure

Relay with 2 break and 2 make contacts (2 ar)
Nominal input voltage V_N
12 V, 24 V AC/DC



Load limit curve





Note: Inductive loads have to be attenuated by an appropriate protective circuit in order to protect relay coils and contacts!

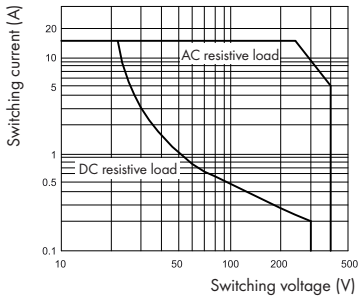
Description	V_N	I_N	Item No.	Pack. Unit
Relay module in DIN-rail mount enclosure,	12 V AC/DC	21 mA	**789-535**	10 (1)
for DIN-rail	24 V AC/DC	12 mA	**789-536**	10 (1)

Technical Data

Accessories see pages 115

Coil:	
Input voltage range	V_N -15 % ... +10 %
Contacts:	
Contact material	AgNi + Au
Max. continuous current	4 A
Max. make current	-
Max. switching voltage	250 VAC
Max. switching power (resistive)	1 kVA / 90 W, resistive see load limit curve
Recommended minimum load	12 V AC/DC, 100 mA
Pull-in/drop-out/bounce time typ.	20ms / 20ms / 1 ms
General specifications:	
Nominal voltage to EN 60664-1	230 V / 2.5 kV / 2
Dielectric strength, contact-coil (AC, 1 min)	1.5 kV_{rms}
Dielectric strength open contact (AC, 1 min)	0.75 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	1 kV_{eff}
Ambient operating temperature at V_N	-25 °C ... +40 °C
Storage temperature	-40 °C ... +85 °C
Dimensions (mm) W x H x L	17.5 x 55 x 90
	Height from upper-edge of DIN-rail
Wire connection	CAGE CLAMP®
Cross sections	0.08 ... 2.5 mm² / 28 ... 14 AWG
Strip length	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1, EN 61810-1

	Relay with 1 changeover contact (1 u), manual configuration, electrical and mechanical activation indicator	Relay with 2 changeover contacts (2 u), manual configuration, electrical and mechanical activation indicator

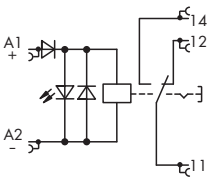


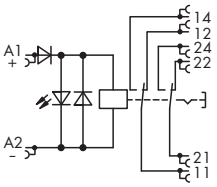
Load limit curve for 788-346, -347, -349, -391

Similiar to picture

Similiar to picture

Note: Inductive loads have to be attenuated by an appropriate protective circuit in order to protect relay coils and contacts.



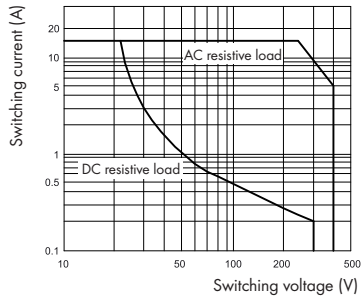


Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Relay module in DIN-rail mount enclosure, for DIN-rail	24 VDC	17 mA	**789-1341**	10 (1)	24 VDC	17 mA	**789-1346**	10 (1)

Technical Data	Accessories see pages 115	Accessories see pages 115
Coil:		
Input voltage range	V_N -10% ... +10 %	V_N -10% ... +10 %
Contacts:		
Contact material	AgNi	AgNi
Max. continuous current	12 A	8 A
Max. make current	16 A	8 A
Max. switching voltage	250 VAC	250 VAC
Max. switching power (resistive)	3000 VA AC	2 x 2000 VA AC
Pull-in/drop-out/bounce time typ.	15ms / 8ms / 6 ms-	15ms / 8ms / 7 ms
Mechanical life	5 x 10^6 switching operations	5 x 10^6 switching operations
General specifications:		
Nominal voltage to EN 60664-1	250V / 4kV / 3	250V / 4kV / 3
Dielectric strength, contact-coil (AC, 1 min)	3.5 kV_{rms}	3.5 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}	1 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	-	1.5 kV_{eff}
Ambient operating temperature at V_N	-25 °C ... +50 °C	-25 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	17.5 x 55 x 90	17.5 x 55 x 90
	Height from upper-edge of DIN-rail	Height from upper-edge of DIN-rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 ... 2.5 mm² / 28 ... 14 AWG	0.08 ... 2.5 mm² / 28 ... 14 AWG
Strip length	9 ... 10 mm / 0.35 ... 0.39 in.	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1	EN 60664-1

Relay Modules in DIN-Rail Mount Enclosure

	Relay with 1 changeover contact (1 u), manual configuration, electrical and mechanical activation indicator	Relay with 2 changeover contacts (2 u), manual configuration, electrical and mechanical activation indicator

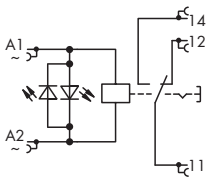


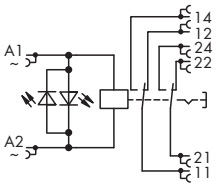
Load limit curve for 788-346, -347, -349, -391

Similiar to picture

Similiar to picture

Note: Inductive loads have to be attenuated by an appropriate protective circuit in order to protect relay coils and contacts.

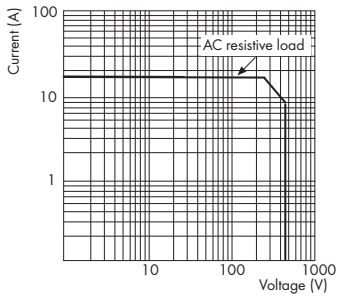




Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Relay module in DIN-rail mount enclosure, for DIN-rail	230 VAC	3.5 mA	**789-1544**	10 (1)	230 VAC	17 mA	**789-1549**	10 (1)

Technical Data	Accessories see pages 115	Accessories see pages 115
Coil:		
Input voltage range	V_N -10% ... +10 %	V_N -10% ... +10 %
Contacts:		
Contact material	AgNi	AgNi
Max. continuous current	12 A	8 A
Max. make current	16 A	8 A
Max. switching voltage	250 VAC	250 VAC
Max. switching power (resistive)	3000 VA AC	2 x 2000 VA AC
Pull-in/drop-out/bounce time typ.	15ms / 8ms / -	15ms / 8ms / -
Mechanical life	5 x 10^6 switching operations	5 x 10^6 switching operations
General specifications:		
Nominal voltage to EN 60664-1	250 V / 4 kV / 3	250 V / 4 kV / 3
Dielectric strength, contact-coil (AC, 1 min)	3.5 kV_{rms}	3.5 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}	1 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	-	1.5 kV_{eff}
Ambient operating temperature at V_N	-25 °C ... +50 °C	-25 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	17.5 x 55 x 90	17.5 x 55 x 90
	Height from upper-edge of DIN-rail	Height from upper-edge of DIN-rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 ... 2.5 mm² / 28 ... 14 AWG	0.08 ... 2.5 mm² / 28 ... 14 AWG
Strip length	9 ... 10 mm / 0.35 ... 0.39 in.	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1	EN 60664-1

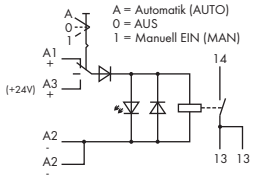
Relay with 1 make contact (1a), manual-0-automatic switch



Load limit curve

Contact life, type of load	Capability	Electrical life
Incandescent lamp	2200 W	20,000
Halogen lamp 230 VAC	1400 W	50,000
Halogen trafo	120 VA	20,000
Fluorescent lamp not comp., CCG ①, cos φ 0.406	20 x 58 W	25,000
Fluorescent lamp comp., CCG ①, C parallel	9 x 58 W	25,000
Fluorescent lamp comp., CCG ①, Duo-circuit	600 W	20,000
Fluorescent lamp with ECG ②	12 x 58 W	25,000
Energy saving lamp 15 W	25 pcs	20,000
Energy saving lamp 13 W	30 pcs	20,000
Energy saving lamp 9 W	38 pcs	20,000
Gas discharge lamp	1000 W	20,000
Dulux-Lamp not compensated	800 W	20,000
Dulux-Lamp compensated	500 W	20,000
Max. capacitance at 230 VAC	60 µF	> 5,000

① CCG = Conventional Control Gear
② ECG = Electronic Control Gear



Note: Inductive loads have to be attenuated by an appropriate protective circuit in order to protect relay coils and contacts!

Description	V_N	I_N	Item No.	Pack. Unit
Relay module in DIN-rail mount enclosure, for DIN-rail	24 VDC	19 mA	**789-323**	10 (1)

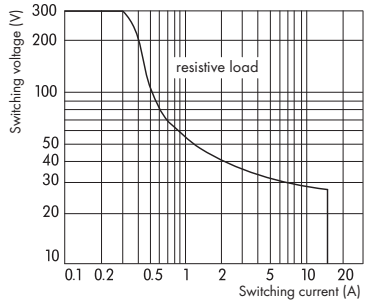
Technical Data

Accessories see pages 115

Coil:	
Input voltage range	V_N -15 % ... +20 %
Contacts:	
Contact material	Ag alloy
Max. continuous current	16 A
Max. make current	120 A / 50 ms (AC)
Max. switching voltage	250 VAC
Max. switching power (resistive)	4 kVA AC, DC see load curve
Recommended minimum load	12 V AC/DC, 100 mA
Pull-in/drop-out/bounce time typ.	15ms / 5ms / -
Mechanical life	10 x 10^6 switching operations
General specifications:	
Nominal voltage to EN 60664-1	250 V / 4 kV / 2
Dielectric strength, contact-coil (AC, 1 min)	4 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	-
Ambient operating temperature at V_N	-25 °C ... +40 °C
Storage temperature	-40 °C ... +70 °C
Dimensions (mm) W x H x L	17.5 x 55 x 90
	Height from upper-edge of DIN-rail
Wire connection	CAGE CLAMP®
Cross sections	0.08 ... 2.5 mm² / 28 ... 14 AWG
Strip length	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1

Relay Modules in DIN-Rail Mount Enclosure

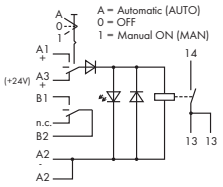
Relay with 1 make contact (1 a), manual-0-automatic switch with monitoring contact



DC load limit curve

Contact life, type of load	Electrical life
3000 W, incandescent lamp, 230 VAC, OT 8.3 % ①, 5 min^{-1}	12,000
620 W, gas discharge lamp, CCG ②, 120/277 VAC, UL 508, 50 °C	6,000
1200 W, tungsten lamp, 120/277 VAC, UL 508, 50 °C	6,000
16 A, 250 VAC, cos φ = 1, 85 °C, IEC 61810	5,000

① OT= On-Time
② CCG = Conventional Control Gear



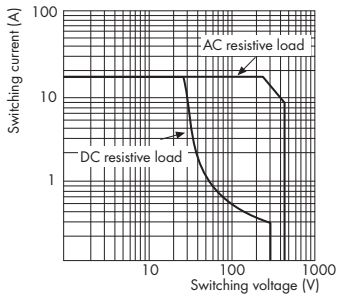
Description	V_N	I_N	Item No.	Pack. Unit
Relay module in DIN-rail mount enclosure, for DIN-rail	24 VDC	17 mA	**789-324**	10 (1)

Technical Data

Accessories see pages 115

Coil:	
Input voltage range	V_N -15 % ... +20 %
Contacts:	
Contact material	$AgSnO_2$, W pre-make contact
Max. continuous current	16 A
Max. make current	165 A / 20 ms (AC)
Max. switching voltage	250 VAC
Max. switching power (resistive)	4 kVA AC, DC see load curve
Recommended minimum load	-
Pull-in/drop-out/bounce time typ.	10ms / 5ms / 4 ms
Mechanical life	5 x 10^6 switching operations
General specifications:	
Nominal voltage to EN 60664-1	250 V / 4 kV / 3
Dielectric strength, contact-coil (AC, 1 min)	4 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1.25 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	-
Ambient operating temperature at V_N	-25 °C ... +40 °C
Storage temperature	-40 °C ... +70 °C
Dimensions (mm) W x H x L	17.5 x 55 x 90
	Height from upper-edge of DIN-rail
Wire connection	CAGE CLAMP®
Cross sections	0.08 ... 2.5 mm² / 28 ... 14 AWG
Strip length	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1, EN 61810-1

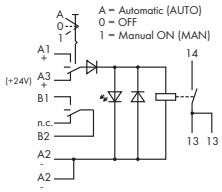
Relay with 1 make contact (1 a), manual-0-automatic switch with monitoring contact



Load limit curve

Contact life, type of load	Capability	Electrical life
Incandescent lamp	2200 W	20,000
Halogen lamp 230 VAC	1400 W	50,000
Halogen trafo	120 VA	20,000
Fluorescent lamp not comp., CCG ①, cos φ 0.406	20 x 58 W	25,000
Fluorescent lamp comp., CCG ①, C parallel	9 x 58 W	25,000
Fluorescent lamp comp., CCG ①, Duo-circuit	600 W	20,000
Fluorescent lamp with ECG ②	12 x 58 W	25,000
Energy saving lamp 15 W	25 pcs	20,000
Energy saving lamp 13 W	30 pcs	20,000
Energy saving lamp 9 W	38 pcs	20,000
Gas discharge lamp	1000 W	20,000
Dulux-Lamp not compensated	800 W	20,000
Dulux-Lamp compensated	500 W	20,000
Max. capacitance at 230 VAC	60 µF	> 5,000

① CCG = Conventional Control Gear
② ECG = Electronic Control Gear



Note: Inductive loads have to be attenuated by an appropriate protective circuit in order to protect relay coils and contacts!

Description	V_N	I_N	Item No.	Pack. Unit
Relay module in DIN-rail mount enclosure, for DIN-rail	24 VDC	19 mA	**789-325**	10 (1)

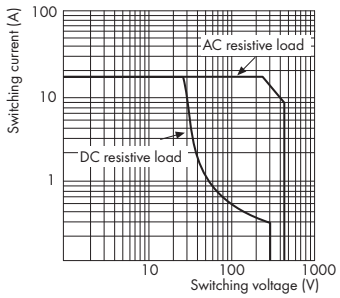
Technical Data

Accessories see pages 115

Coil:	
Input voltage range	V_N -15 % ... +20 %
Contacts:	
Contact material	Ag alloy
Max. continuous current	16 A
Max. make current	120 A / 50 ms (AC)
Max. switching voltage	250 VAC
Max. switching power (resistive)	4 kVA AC, DC see load curve
Recommended minimum load	12 V AC/DC, 100 mA
Pull-in/drop-out/bounce time typ.	15ms / 5ms / -
Mechanical life	10 x 10^6 switching operations
General specifications:	
Nominal voltage to EN 60664-1	250 V / 4 kV / 2
Dielectric strength, contact-coil (AC, 1 min)	4 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	-
Ambient operating temperature at V_N	-25 °C ... +40 °C
Storage temperature	-40 °C ... +70 °C
Dimensions (mm) W x H x L	17.5 x 55 x 90
	Height from upper-edge of DIN-rail
Wire connection	CAGE CLAMP®
Cross sections	0.08 ... 2.5 mm² / 28 ... 14 AWG
Strip length	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1

Relay Modules in DIN-Rail Mount Enclosure

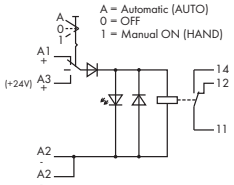
Relay with 1 changeover contact (1 u), Manual/OFF/Auto switch for lamp loads



Load limit curve

Contact life, type of load	Capability	Electrical life
Incandescent lamp	2200 W	20,000
Halogen lamp 230 VAC	1400 W	50,000
Halogen trafo	120 VA	20,000
Fluorescent lamp not comp., CCG ①, cos φ 0.406	20 x 58 W	25,000
Fluorescent lamp comp., CCG ①, C parallel	9 x 58 W	25,000
Fluorescent lamp comp., CCG ①, Duo-circuit	600 W	20,000
Fluorescent lamp with ECG ②	12 x 58 W	25,000
Energy saving lamp 15 W	25 pcs	20,000
Energy saving lamp 13 W	30 pcs	20,000
Energy saving lamp 9 W	38 pcs	20,000
Gas discharge lamp	1000 W	20,000
Dulux-Lamp not compensated	800 W	20,000
Dulux-Lamp compensated	500 W	20,000
Max. capacitance at 230 VAC	60 µF	> 5,000

① CCG = Conventional Control Gear
② ECG = Electronic Control Gear



Note: Inductive loads have to be attenuated by an appropriate protective circuit in order to protect relay coils and contacts.

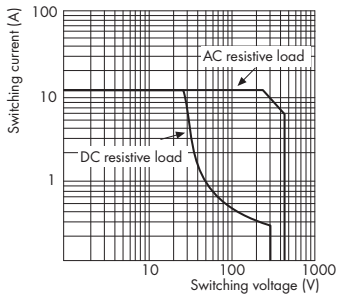
Description	V_N	I_N	Item No.	Pack. Unit
Relay module in DIN-rail mount enclosure, for DIN-rail	24 VDC	19 mA	**789-326**	10 (1)

Technical Data

Accessories see pages 115

Coil:	
Input voltage range	V_N -15 % ... +20 %
Contacts:	
Contact material	Ag alloy
Max. continuous current	12 A
Max. make current	120 A / 50 ms (AC)
Max. switching voltage	250 VAC
Max. switching power (resistive)	4 kVA AC, DC DC see load curve
Recommended minimum load	12 V AC/DC, 100 mA
Pull-in/drop-out/bounce time typ.	15ms / 5ms / -
Mechanical life	10 x 10^6 switching operations
General specifications:	
Nominal voltage to EN 60664-1	250 V / 4 kV / 3
Dielectric strength, contact-coil (AC, 1 min)	4 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	-
Ambient operating temperature at V_N	-20 °C ... +40 °C
Storage temperature	-40 °C ... +70 °C
Dimensions (mm) W x H x L	17.5 x 55 x 90
	Height from upper-edge of DIN-rail
Wire connection	CAGE CLAMP®
Cross sections	0.08 ... 2.5 mm² / 28 ... 14 AWG
Strip length	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1, EN 61810-1

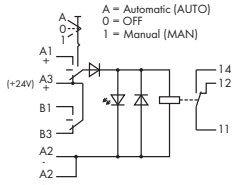
Relay with 1 changeover contact (1 u), manual-0-automatic switch with switch position monitoring



Load limit curve

Contact life, type of load	Capability	Electrical life
Incandescent lamp	2200 W	20,000
Halogen lamp 230 VAC	1400 W	50,000
Halogen trafo	120 VA	20,000
Fluorescent lamp not comp., CCG ①, cos φ 0.406	20 x 58 W	25,000
Fluorescent lamp comp., CCG ①, C parallel	9 x 58 W	25,000
Fluorescent lamp comp., CCG ①, Duo-circuit	600 W	20,000
Fluorescent lamp with ECG ②	12 x 58 W	25,000
Energy saving lamp 15 W	25 pcs	20,000
Energy saving lamp 13 W	30 pcs	20,000
Energy saving lamp 9 W	38 pcs	20,000
Gas discharge lamp	1000 W	20,000
Dulux-Lamp not compensated	800 W	20,000
Dulux-Lamp compensated	500 W	20,000
Max. capacitance at 230 VAC	60 µF	> 5,000

① CCG = Conventional Control Gear
② ECG = Electronic Control Gear



Note: Inductive loads have to be attenuated by an appropriate protective circuit in order to protect relay coils and contacts!

Description	V_N	I_N	Item No.	Pack. Unit
Relay module in DIN-rail mount enclosure, for DIN-rail	24 VDC	19 mA	**789-329**	10 (1)

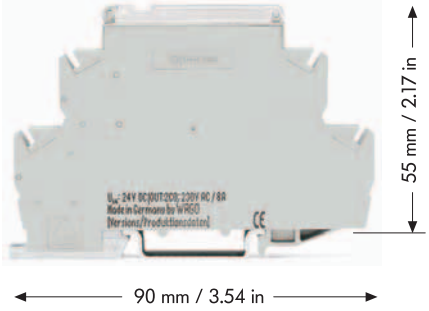
Technical Data

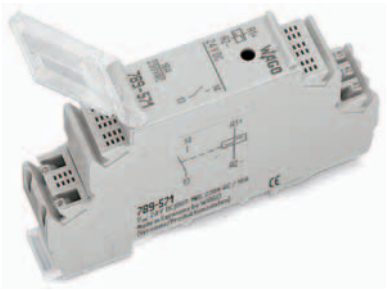
Accessories see pages 115

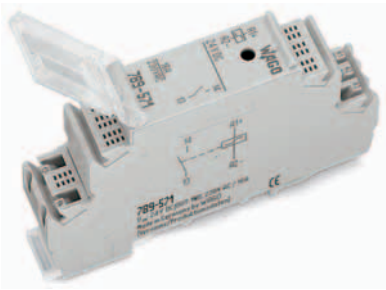
Coil:	
Input voltage range	V_N -15 % ... +20 %
Contacts:	
Contact material	Ag alloy
Max. continuous current	12 A
Max. make current	120 A / 50 ms (AC)
Max. switching voltage	250 VAC
Max. switching power (resistive)	4 kVA AC, DC see load curve
Recommended minimum load	12 V AC/DC, 100 mA
Pull-in/drop-out/bounce time typ.	15ms / 5ms / -
Mechanical life	10 x 10^6 switching operations
General specifications:	
Nominal voltage to EN 60664-1	250 V / 4 kV / 2
Dielectric strength, contact-coil (AC, 1 min)	4 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	-
Ambient operating temperature at V_N	-25 °C ... +40 °C
Storage temperature	-40 °C ... +70 °C
Dimensions (mm) W x H x L	17.5 x 55 x 90
	Height from upper-edge of DIN-rail
Wire connection	CAGE CLAMP®
Cross sections	0.08 ... 2.5 mm² / 28 ... 14 AWG
Strip length	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1

Latching Relays in DIN-Rail Mounted Enclosure

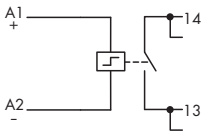
	Latching relay with 1 make contact (1 a) Nominal input voltage V_N 24 VDC	Latching relay with 1 make contact (1 a) Nominal input voltage V_N 230 VAC

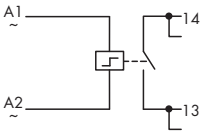






Lamp load: max. load 1500 W
Fluorescent lamp, dual circuit:
max. load 20 x 58 W series compensated
Electronic ballasts: 10 x 58 W





Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Relay modules in DIN-rail mounted enclosure, for DIN-rail	24 VDC	42 mA	**789-571**	10 (1)	230 VAC	10 mA	**789-570**	10 (1)

Technical Data	Accessories see pages 115	Accessories see pages 115
Contact material	AgCdO	AgCdO
Input voltage range	V_N -15 % ... +10 %	V_N -15 % ... +10 %
Max. switching voltage	400 VAC	400 VAC
Recommended minimum load	0.1 A	0.1 A
Max. switching current	50 A / 20 ms	50 A / 20 ms
Max. continuous current	16 A	16 A
Max. switching power (resistive)	4000 VA AC / 300 W DC	4000 VA AC / 300 W DC
Minimum switch-on time	40 ms	40 ms
Minimum break time	180 ms	180 ms
Coil control	Impuls	Impuls
Fuse protection	circuit breaker max. 16 A B-charakteristic	circuit breaker max. 16 A B-charakteristic
Nominal operating mode	continuous duty	continuous duty
Max. switching load with load/without load	6 min^{-1} / 4 s^{-1}	6 min^{-1} / 4 s^{-1}
Dielectric strength, contact-coil (AC, 1 min)	4 kV_{rms}	4 kV_{rms}
Nominal voltage to EN 60664-1	250V / 4kV / 3	250V / 4kV / 3
Mechanical life	1 x 10^5 switching operations	1 x 10^5 switching operations
Mechanical life at max. load (resistance)	5 x 10^4 switching operations	5 x 10^4 switching operations
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C
Storage temperature	-40 °C ... +85 °C	-40 °C ... +85 °C
Dimensions (mm) W x H x L	17.5 x 55 x 90	17.5 x 55 x 90
	Height from upper-edge of DIN-rail	Height from upper-edge of DIN-rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 ... 2.5 mm^2 / 28 ... 14 AWG	0.08 ... 2.5 mm^2 / 28 ... 14 AWG
Strip length	9 ... 10 mm / 0.35 ... 0.39 in.	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1	EN 60664-1

Accessories, 789 Series

Push-in type jumper bars

Commoning

Description		Item No.	Pack. Unit
Push-in type jumper bars	uninsulated, 12-way, to be cut to the required length	**789-112**	100 (4x25)

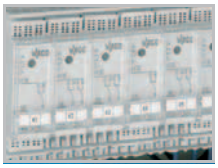
Operating tool

Marking pen with fiber tip

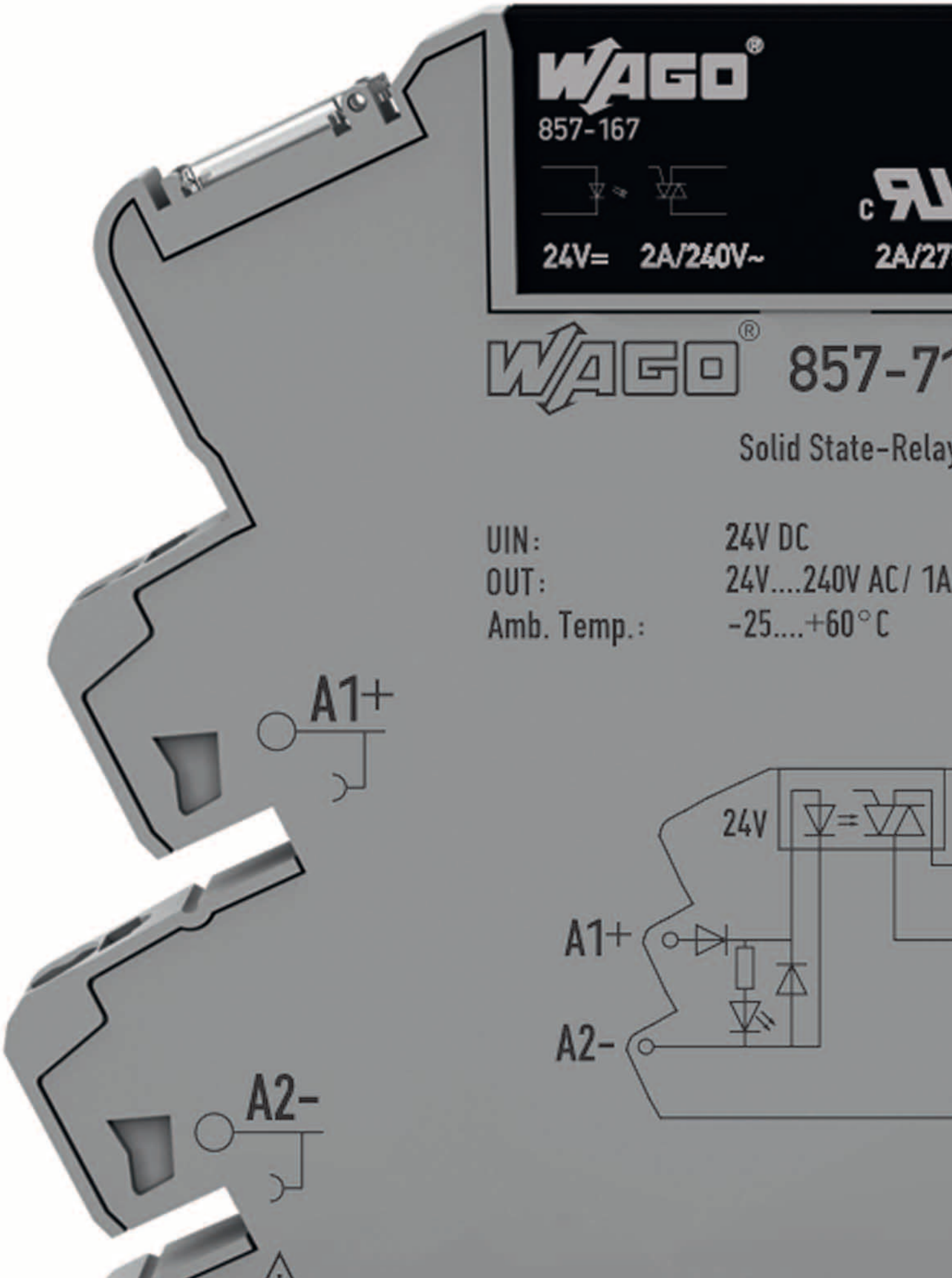
Description		Item No.	Pack. Unit
Marking pen	for permanent marking	**210-110**	1
Operating tool, with partially insulated shaft	Type 2, blade (3.5 x 0.5) mm	**210-720**	1

Miniature quick marking card

Marking



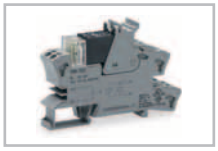
Description		Item No.	Pack. Unit
Miniature WSB Quick marking system	**plain**	**248-501**	5 cards
Marking software and printer/plotter see Section 11			
Marking	**1 ...10 (10 x)**	**248-502**	5 cards
	11 ... 20 (10x)	**248-503**	5 cards
	21 ... 30 (10x)	**248-504**	5 cards
	31 ... 40 (10x)	**248-505**	5 cards
	41 ... 50 (10 x)	**248-506**	5 cards
	1 ... 50 (2 x)	**248-566**	5 cards
	K 1 ... K 10 (10 x)	**248-450**	5 cards
	K 11 ... K 20 (10 x)	**248-451**	5 cards
	K 100 (10 x)	**248-452**	5 cards
	U 1 ... U 10 (10 x)	**248-453**	5 cards
	U 11 ... U 20 (10 x)	**248-454**	5 cards
	U 100 (10 x)	**248-455**	5 cards
10 strips with 10 markers, white with black printing			


WAGO®
857-167
24V= 2A/240V~
WAGO® 857-7
Solid State-Relay
UIN: 24V DC
OUT: 24V....240V AC/ 1A
Amb. Temp.: -25....+60°C
A1+
A2-
24V
A1+
A2-

Solid State Relay and Optocoupler Modules

Relay Sockets with Solid State Relay and Optocoupler, 857 Series

	Page
Relay Sockets with Solid State Relay	118
Optocoupler Modules	124
Multifunction Time Relays mit Solid State Relay	126
Accessories, 857 Series	128



Relay Sockets with Solid State Relay, 788 Series

Relay Sockets with Solid State Relay	132
Accessories, 788 Series	134

Rail-Mounted Terminal Blocks with Optocoupler, 859 Series

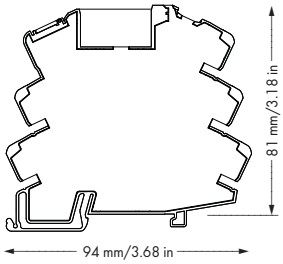
Rail-Mounted Terminal Blocks with Optocoupler	138
Rail-Mounted Terminal Blocks with Optocoupler, with an Extended Input Voltage and Operating Temperature Range	155
Accessories, 859 Series	156

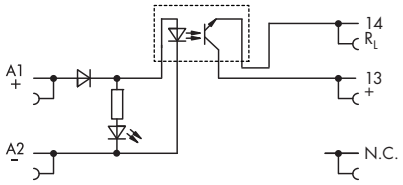
Pluggable Modules – Optocouplers, 286 Series

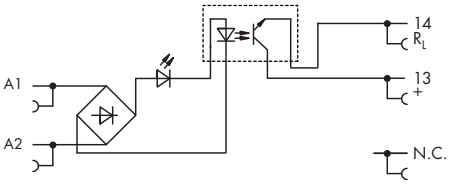
Pluggable Modules – Optocouplers	158
Accessories, 286 Series	166

Relay Sockets with Solid State Relays

	Solid state relay Input: 24 VDC Output: 0 V ... 48 V DC / 0.1 A	Solid state relay Input: 115 V AC/DC Output: 0 V ... 48 V DC / 0.1 A





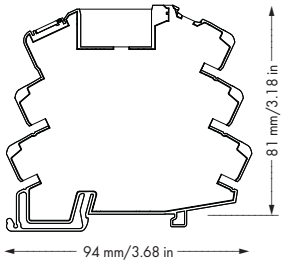


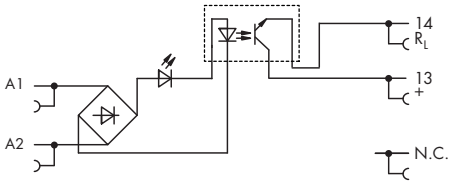
Note: Solid state relays are not intended to be operated on a low-voltage power supply network.

Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Relay socket with solid state relay, for DIN-rail	24 VDC	9 mA	**857-704**	25 (1)	115 V AC/DC	4.2 mA	**857-707**	25 (1)

Technical Data	Accessories see pages 128 ... 130	Accessories see pages 128 ... 130
Control circuit:		
Input voltage range (low level)	0 V ... 10 V DC	0 V ... 25 V AC/DC
Input voltage range (high level)	18 V ... 28.8 V DC	100 V ... 138 V AC/DC
Load circuit:		
Output voltage range	0 V ... 48 V DC	0 V ... 48 V DC
Max. continuous current	0.1 ADC	0.1 ADC
Max. voltage drop at output	< 1 VDC	< 1 VDC
Reverse voltage transistor/triac	54 V	54 V
General specifications:		
Dielectric strength, control/load circuit (AC, 1 min)	2.5 kV_{rms}	2.5 kV_{rms}
Ambient operating temperature	-20 °C ... +60 °C	-20 °C ... +60 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 81 x 94	6 x 81 x 94
	Height from upper-edge of DIN-rail	Height from upper-edge of DIN-rail
Wire connection	Push-in CAGE CLAMP®	Push-in CAGE CLAMP®
Cross sections	0.34 ... 2.5 mm² / 22 ... 14 AWG	0.34 ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1; EN 61000-6-2; EN 61000-6-4	EN 60664-1; EN 61000-6-2; EN 61000-6-4
Approvals	CE; UL 508	CE; UL 508

	Solid state relay **Input: 230 V AC/DC** **Output: 0 V ... 48 V DC / 0.1 A**	





Note: Solid state relays are not intended to be operated on a low-voltage power supply network.

Description	V_N	I_N	Item No.	Pack. Unit	
Relay socket with solid state relay, for DIN-rail	230 V AC/DC	3.25 mA	**857-708**	25 (1)	

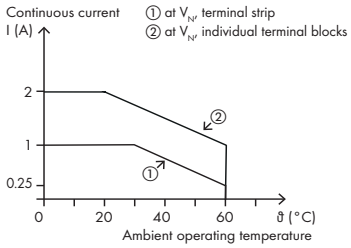
Technical Data

Accessories see pages 128 ... 130

Control circuit:	
Input voltage range (low level)	0 V ... 30 V AC/DC
Input voltage range (high level)	200 V ... 253 V AC/DC
Load circuit:	
Output voltage range	0 V ... 48 V DC
Max. continuous current	0.1 ADC
Max. voltage drop at output	< 1 VDC
Reverse voltage transistor/triac	54 V
General specifications:	
Dielectric strength, control/load circuit (AC, 1 min)	2.5 kV_{rms}
Ambient operating temperature	-20 °C ... +60 °C
Storage temperature	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 81 x 94
	Height from upper-edge of DIN-rail
Wire connection	Push-in CAGE CLAMP®
Cross sections	0.34 ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1; EN 61000-6-2; EN 61000-6-4
Approvals	CE; UL 508

Relay Sockets with Solid State Relays

	Solid state relay Input: 24 VDC Output: 24 V ... 240 VAC / 2 A Zero voltage switch	Solid state relay Input: 115 V AC/DC Output: 24 V ... 240 V AC / 2 A Zero voltage switch



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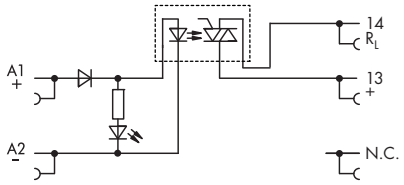
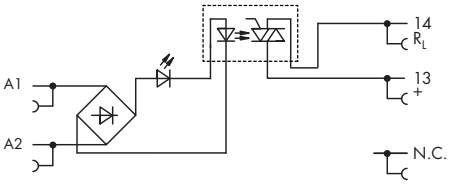


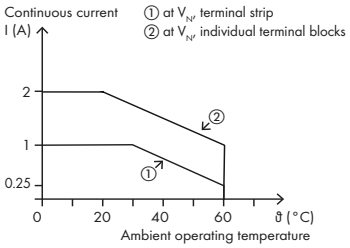


Note: Solid state relays are not intended to be operated on a low-voltage power supply network.

Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Relay socket with solid state relay, for DIN-rail	24 VDC	9.2 mA	**857-714**	25 (1)	115 V AC/DC	3.9 mA	**857-717**	25 (1)

Technical Data	Accessories see pages 128 ... 130	Accessories see pages 128 ... 130
Control circuit:		
Input voltage range (low level)	0 V ... 10 V DC	0 V ... 25 V AC/DC
Input voltage range (high level)	20 V ... 28.8 V DC	90 V ... 138 V AC/DC
Load circuit:		
Output voltage range	24 V ... 240 V AC	24 V ... 240 V AC
Max. continuous current	2 AAC	2 AAC
Max. voltage drop at output	< 1 VAC	< 1 VAC
Reverse voltage transistor/triac	600 V	600 V
General specifications:		
Dielectric strength, control/load circuit (AC, 1 min)	2.5 kV_{rms}	2.5 kV_{rms}
Ambient operating temperature	-20 °C ... +60 °C	-20 °C ... +60 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 81 x 94	6 x 81 x 94
	Height from upper-edge of DIN-rail	Height from upper-edge of DIN-rail
Wire connection	Push-in CAGE CLAMP®	Push-in CAGE CLAMP®
Cross sections	0.34 ... 2.5 mm² / 22 ... 14 AWG	0.34 ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1; EN 61000-6-2; EN 61000-6-4	EN 60664-1; EN 61000-6-2; EN 61000-6-4
Approvals	CE; UL 508	CE; UL 508

	Solid state relay **Input: 230 V AC/DC** **Output: 24 V ... 240 V AC / 2 A** **Zero voltage switch**	



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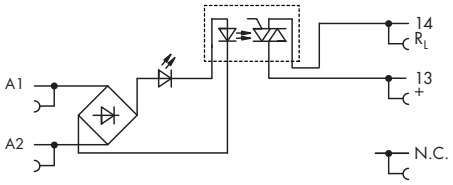


Note: Solid state relays are not intended to be operated on a low-voltage power supply network.

Description	V_N	I_N	Item No.	Pack. Unit	
Relay socket with solid state relay, for DIN-rail	230 V AC/DC	3.2 mA	**857-718**	25 (1)	

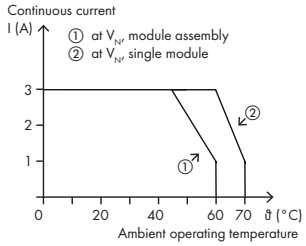
Technical Data

Accessories see pages 128 ... 130

Control circuit:	
Input voltage range (low level)	0 V ... 60 V AC/DC
Input voltage range (high level)	200 V ... 253 V AC/DC
Load circuit:	
Output voltage range	24 V ... 240 V AC
Max. continuous current	2 AAC
Max. voltage drop at output	< 1 VAC
Reverse voltage transistor/triac	600 V
General specifications:	
Dielectric strength, control/load circuit (AC, 1 min)	2.5 kV_{rms}
Ambient operating temperature	-20 °C ... +60 °C
Storage temperature	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 81 x 94
	Height from upper-edge of DIN-rail
Wire connection	Push-in CAGE CLAMP®
Cross sections	0.34 ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1; EN 61000-6-2; EN 61000-6-4
Approvals	CE; UL 508

Relay Sockets with Solid State Relays

	Solid state relay Input: 24 VDC Output: 0 V ... 24 V DC / 3 A	Solid state relay Input: 115 V AC/DC Output: 0 V ... 24 V DC / 3 A



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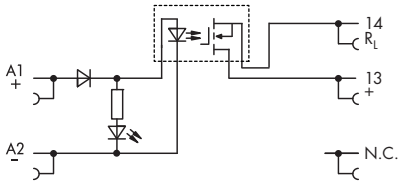
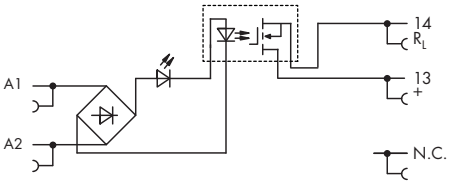


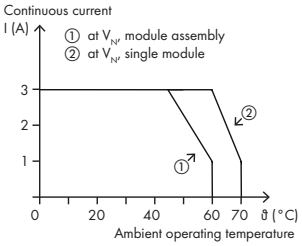


Note: Solid state relays are not intended to be operated on a low-voltage power supply network.

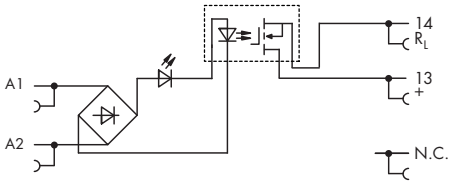
Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Relay socket with solid state relay, for DIN-rail	24 VDC	9.2 mA	**857-724**	25 (1)	115 V AC/DC	3.9 mA	**857-727**	25 (1)

Technical Data	Accessories see pages 128 ... 130	Accessories see pages 128 ... 130
Control circuit:		
Input voltage range (low level)	0 V ... 10 V DC	0 V ... 25 V AC/DC
Input voltage range (high level)	18.8 V ... 31.2 V DC	90 V ... 138 V AC/DC
Load circuit:		
Output voltage range	0 V ... 24 V DC	0 V ... 24 V DC
Max. continuous current	3 ADC	3 ADC
Max. voltage drop at output	120 mV DC	< 120 mV DC
Reverse voltage transistor/triac	33 V	33 V
General specifications:		
Dielectric strength, control/load circuit (AC, 1 min)	2.5 kV_{rms}	2.5 kV_{rms}
Ambient operating temperature	-20 °C ... +70 °C	-20 °C ... +70 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 81 x 94	6 x 81 x 94
	Height from upper-edge of DIN-rail	Height from upper-edge of DIN-rail
Wire connection	Push-in CAGE CLAMP®	Push-in CAGE CLAMP®
Cross sections	0.34 ... 2.5 mm² / 22 ... 14 AWG	0.34 ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1; EN 61000-6-2; EN 61000-6-4	EN 60664-1; EN 61000-6-2; EN 61000-6-4
Approvals	CE; GL; UL 508	CE; UL 508

	Solid state relay **Input: 230 V AC/DC** **Output: 0 V ... 24 V DC / 3 A**	



Derating



Note: Solid state relays are not intended to be operated on a low-voltage power supply network.

Description	V_N	I_N	Item No.	Pack. Unit	
Relay socket with solid state relay, for DIN-rail	230 V AC/DC	3.2 mA	**857-728**	25 (1)	

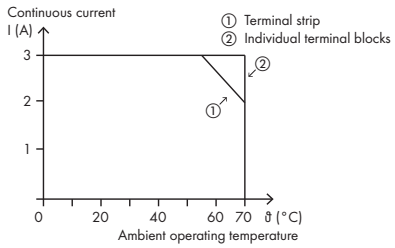
Technical Data

Accessories see pages 128 ... 130

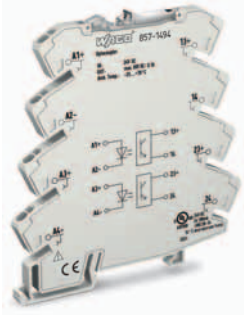
Control circuit:	
Input voltage range (low level)	0 V ... 60 V AC/DC
Input voltage range (high level)	200 V ... 253 V AC/DC
Load circuit:	
Output voltage range	0 V ... 24 V DC
Max. continuous current	3 ADC
Max. voltage drop at output	< 120 mV DC
Reverse voltage transistor/triac	33 V
General specifications:	
Dielectric strength, control/load circuit (AC, 1 min)	2.5 kV_{rms}
Ambient operating temperature	-20 °C ... +70 °C
Storage temperature	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 81 x 94
	Height from upper-edge of DIN-rail
Wire connection	Push-in CAGE CLAMP®
Cross sections	0.34 ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1; EN 61000-6-2; EN 61000-6-4
Approvals	CE; UL 508

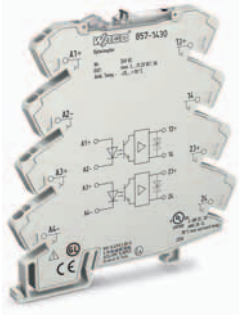
Optocouplers

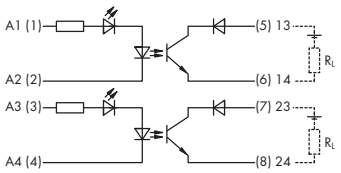
	Dual channel optocoupler Input: 24 VDC Output: 9 V ... 60 V DC / 0.1 A	Dual channel optocoupler Input: 24 VDC Output: 3 V ... 31.2 V DC / 3 A

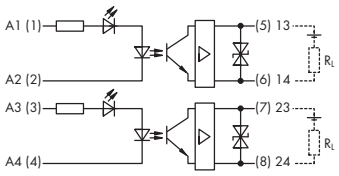


Derating for 857-1430





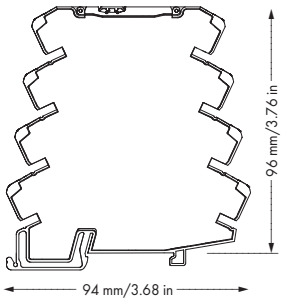


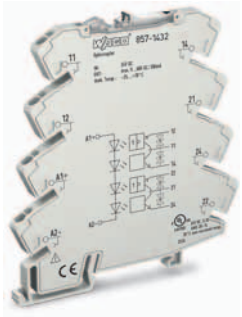


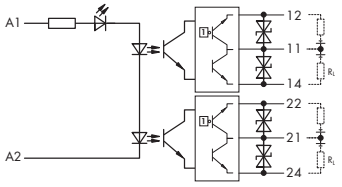
Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Optocoupler module, for DIN-rail	24 VDC	5.6 mA	**857-1494**	25 (1)	24 VDC	7.75	**857-1430**	25 (1)

Technical Data	Accessories see pages 128 ... 130	Accessories see pages 128 ... 130
Control circuit:		
Input voltage range (low level)	0 V ... 5 V DC	0 V ... 5 V DC
Input voltage range (high level)	16.8 V ... 31.2 V DC	16.8 V ... 31.2 V DC
Load circuit:		
Output voltage range	9 V ... 60 V DC	3 V ... 31.2 V DC
Max. continuous current	0.1 ADC	3 ADC
Turn-on time	20 µs	25 µs
Turn-off time	120 µs	250 µs
Max. switching frequency	1.5 kHz	300 Hz
Max. voltage drop at output	2 V	0.2 V
Reverse voltage transistor/triac	100 V	55 V
General specifications:		
Dielectric strength, control/load circuit (AC, 1 min)	2.5 kV_{rms}	2.5 kV_{rms}
Dielectric strength, channel/channel (AC, 1 min)	4 kV_{rms}	4 kV_{rms}
Ambient operating temperature	-25 °C ... +70 °C	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C	-40 °C ... +85 °C
Dimensions (mm) W x H x L	6 x 96 x 94	6 x 96 x 94
	Height from upper-edge of DIN-rail	Height from upper-edge of DIN-rail
Wire connection	Push-in CAGE CLAMP®	Push-in CAGE CLAMP®
Cross sections	0.34 ... 2.5 mm² / 22 ... 14 AWG	0.34 ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1;	EN 60664-1;
	EN 61000-6-2; EN 61000-6-4	EN 61000-6-2; EN 61000-6-4
Approvals	UL 508 (max. 50 °C/100 mA)	GL; UL 508 (max. 70 °C/2 A)

	Dual channel optocoupler Input: 24 VDC Output: 2 changeover contacts, 9 V ... 60 V DC / 0.5 A	







Description	V_N	I_N	Item No.	Pack. Unit	
Optocoupler module, for DIN-rail	24 VDC	5.9 mA	**857-1432**	25 (1)	

Technical Data

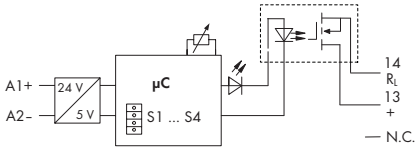
Accessories see pages 128 ... 130

Control circuit:	
Input voltage range (low level)	0 V ... 5 V DC
Input voltage range (high level)	16.8 V ... 30 V DC
Load circuit:	
Output voltage range	2 x 9 V ... 60 V DC
Max. continuous current	2 x 500 mA
Turn-on time	25 µs
Turn-off time	250 µs
Max. switching frequency	1.5 kHz
Max. voltage drop at output	1.5 V
General specifications:	
Dielectric strength, control/load circuit (AC, 1 min)	3.75 kV_{rms}
Dielectric strength, channel/channel (AC, 1 min)	-
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Dimensions (mm) W x H x L	6 x 96 x 94
	Height from upper-edge of DIN-rail
Wire connection	Push-in CAGE CLAMP®
Cross sections	0.34 ... 2.5 mm² / 22 ... 14 AWG
Standards/specifications	EN 60664-1
Approvals	UL 508 (max. 70 °C/300 mA)

Multifunction Time Relays with Solid State Relays

Multifunction time relay with plugged SSR
1 make contact (1 a)
4 time ranges, 4 functions
Switching voltage: 0 V ... 24 VDC

- 4 functions:
  - On-delay
  - Single-shot leading edge
  - On-delay and single-shot leading edge (1 s fixed)
  - Blinking
- Function and time range adjustable via DIP switch



Description	V_N	I_N	Item No.	Pack. Unit
Multifunction time relay, for DIN-rail	24 VDC	9.15 mA	**857-624**	1

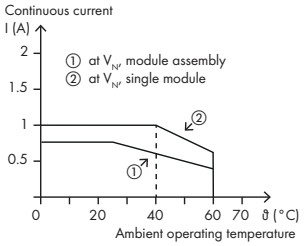
Accessories see pages 128 ... 130

Technical Data

Control circuit:	
Input voltage range	V_N -15 % ... +30 %
Power consumption at V_N	9.15 mA (active) / 2.5 mA (passive)
Load circuit:	
Switching voltage	0 V ... 24 V DC
Peak reverse voltage	33 V
Max. switching current	2 A
Turn-on time	100 µs
Turn-off time	2 ms
Forward voltage at max. switching current	< 120 mV DC
General specifications:	
Time range	adjustable:
	0.1 ... 10 s; 3 ... 300 s; 0.3 ... 30 min; 3 ... 300 min
Reset time	50 ms
Repeat accuracy	±1 %
Dielectric strength, control/load circuit (AC, 1 min)	2.5 kV_{rms}
Ambient operating temperature	-20 °C ... +60 °C
Storage temperature	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 81 x 94
	Height from upper-edge of DIN-rail
Wire connection	Push-in CAGE CLAMP®
Cross sections	0.34 ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1; EN 61812-1;
	EN 61373; EN50121-3-2
Approvals	CE

Multifunction time relay with plugged SSR
1 make contact (1a)
4 time ranges, 4 functions
Switching voltage: 24 V ... 230 V AC

- 4 functions:
  - On-delay
  - Single-shot leading edge
  - On-delay and single-shot leading edge (1 s fixed)
  - Blinking
- Function and time range adjustable via DIP switch



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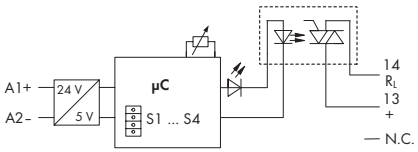


Description	V_N	I_N	Item No.	Pack. Unit	
Multifunction time relay, for DIN-rail	24 VDC	9.15 mA	**857-634**	1	

Technical Data

Accessories see pages 128 ... 130

Control circuit:	
Input voltage range	V_N -15 % ... +30 %
Power consumption at V_N	9.15 mA (active) / 2.5 mA (passive)
Load circuit:	
Switching voltage	24 V ... 230 V AC
Peak reverse voltage	600 V
Max. switching current	1 A
Turn-on time	1 ms
Turn-off time	10 ms
Forward voltage at max. switching current	< 1 VAC
General specifications:	
Time range	adjustable:
	0.1 ... 10 s; 3 ... 300 s; 0.3 ... 30 min; 3 ... 300 min
Reset time	50 ms
Repeat accuracy	±1 %
Dielectric strength, control/load circuit (AC, 1 min)	2.5 kV_{rms}
Ambient operating temperature	-20 °C ... +60 °C
Storage temperature	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 81 x 94
	Height from upper-edge of DIN-rail
Wire connection	Push-in CAGE CLAMP®
Cross sections	0.34 ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1; EN 61812-1;
	EN 61373; EN50121-3-2
Approvals	CE

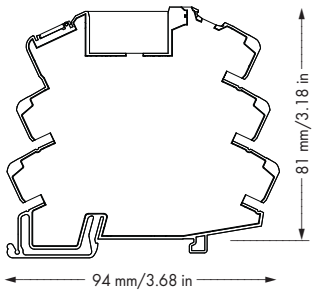
Accessories, 857 Series

	Pluggable replacement solid state relay	Pluggable replacement solid state relay

Description	Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit
Pluggable replacement solid state relay	**857-161**	20	**857-164**	20	**857-167**	20
Technical Data						
Control circuit:						
Nominal input voltage (V_N)	24 VDC		24 VDC		24 VDC	
Input voltage range	18 V ... 30 V DC		16 V ... 30 V DC		18 V ... 30 V DC	
Nominal input current (I_N)	7 mA		7 mA		7 mA	
Load circuit:						
Switching voltage	0 V ... 24 V DC		0 V ... 48 V DC		24 V ... 240 V AC	
Peak reverse voltage	33 V		54 V		600 V	
Max. switching current	3 ADC		100 mA DC		2 AAC	
Forward voltage at max. switching current	< 120 mV DC		< 1 VDC		< 1 VAC	
Dielectric strength control/switching circuit	2.5 kV		2.5 kV		2.5 kV	
General Specifications						
Ambient operating temperature	-30 °C ... +80 °C		-20 °C ... +60 °C		-30 °C ... +80 °C	
Storage temperature	-40 °C ... +100 °C		-40 °C ... +70 °C		-40 °C ... +100 °C	
Dimensions (mm) W x H x L	5 x 15 x 28		5 x 15 x 28		5 x 15 x 28	

Description	Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit
Pluggable replacement solid state relay	**857-162**	20	**857-165**	20	**857-168**	20
Technical Data						
Control circuit:						
Nominal input voltage (V_N)	60 VDC		60 VDC		60 VDC	
Input voltage range	35 V ... 72 V DC		52 V ... 72 V DC		35 V ... 72 V DC	
Nominal input current (I_N)	3 mA		2.8 mA		3.1 mA	
Load circuit:						
Switching voltage	0 V ... 24 V DC		0 V ... 48 V DC		24 V ... 240 V AC	
Peak reverse voltage	33 V		54 V		600 V	
Max. switching current	3 ADC		100 mA DC		2 AAC	
Forward voltage at max. switching current	< 120 mV DC		< 1 VDC		< 1 VAC	
Dielectric strength control/switching circuit	2.5 kV		2.5 kV		2.5 kV	
General Specifications						
Ambient operating temperature	-30 °C ... +80 °C		-20 °C ... +60 °C		-20 °C ... +80 °C	
Storage temperature	-40 °C ... +100 °C		-40 °C ... +70 °C		-40 °C ... +100 °C	
Dimensions (mm) W x H x L	5 x 15 x 28		5 x 15 x 28		5 x 15 x 28	

	Sockets for miniature switching relay and SSR	



Description	Item No.	Pack. Unit	
Socket for miniature switching relay and SSR, 24 V AC/DC for DIN-rail	**857-104**	25 (1)	
Socket for miniature switching relay and SSR, 110 V AC/DC for DIN-rail	**857-107**	25 (1)	
Socket for miniature switching relay and SSR, 230 V AC/DC for DIN-rail	**857-108**	25 (1)	

Technical Data

Status indication	LED yellow	
Operating temperature	-40 °C … +70 °C	
Storage temperature	-40 °C … +70 °C	
Dimensions (mm) W x H x L	6 x 81 x 94	
	Height from upper-edge of DIN-rail	
Wire connection	Push-in CAGE CLAMP®	
Cross sections	0.34 … 2.5 mm² / 22 … 14 AWG	
Strip lengths	9 … 10 mm / 0.35 … 0.39 in.	
Standards/specifications	EN 60664-1	
Approvals	UL 508	

Accessories, 857 Series

Push-in type jumper bar

Commoning

Description		Item No.	Pack. Unit
Push-in type jumper bars, light gray, insulated, 18 A	**2-way**	**859-402**	200 (8x25)
	3-way	**859-403**	200 (8x25)
	4-way	**859-404**	200 (8x25)
	5-way	**859-405**	200 (8x25)
	6-way	**859-406**	100 (4x25)
	7-way	**859-407**	100 (4x25)
	8-way	**859-408**	100 (4x25)
	9-way	**859-409**	100 (4x25)
	10-way	**859-410**	100 (4x25)
Item no. suffix for colored push-in type jumper bars	**yellow**	**... /000-029**	
	red	**... /000-005**	
	blue	**... /000-006**	
Comb-style jumper bar, insulated	**2-way**	**281-482**	100

WMB Multi marking system

Marking

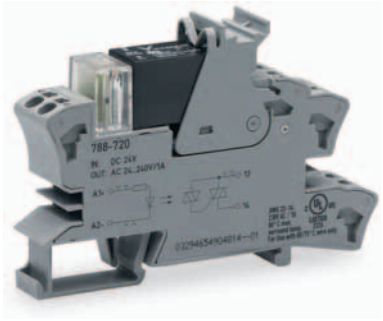
Description		Item No.	Pack. Unit
WMB Multi marking system	**plain**	**793-501**	5 cards
Marking software and printer/plotter see Section 11			
Marking	**1 ... 10 (10x)**	**793-502**	5 cards
	11 ... 20 (10x)	**793-503**	5 cards
	21 ... 30 (10x)	**793-504**	5 cards
	31 ... 40 (10x)	**793-505**	5 cards
	41 ... 50 (10x)	**793-506**	5 cards
	1 ... 50 (2x)	**793-566**	5 cards
10 strips with 10 markers, white with black printing			

Operating tool

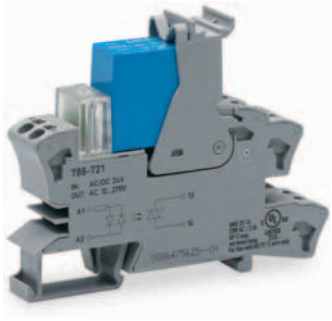
Description		Item No.	Pack. Unit
Operating tool, with partially insulated shaft	Type 2, blade (3.5 x 0.5) mm	**210-720**	1

Relay Sockets with Solid State Relay

	Solid state relay **Input: 24 VDC** **Output: 0 V ... 24 V DC / 3.5 A**	**Solid state relay** **Input: 24 VDC** **Output: 0 V ... 24 V DC / 5 A**

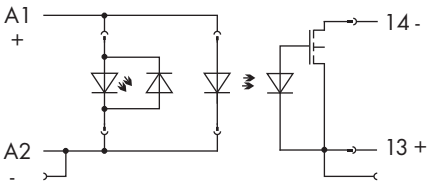


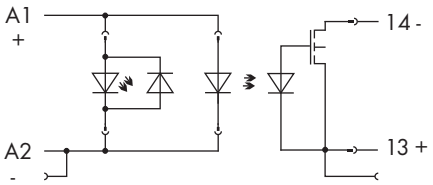
Similiar to pictured device



Similiar to pictured device

Note: A separator plate (e.g., 209-191) must be used for voltages greater than 250 V between adjacent relay modules and for compliance with the reinforced insulation requirements.

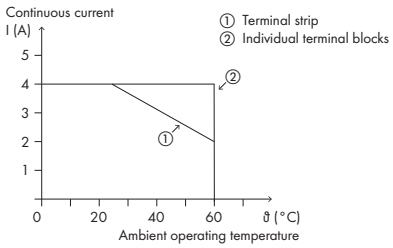




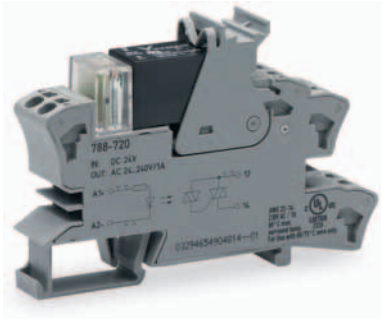
Description	V_N	I_N	**Item No.**	**Pack. Unit**	V_N	I_N	**Item No.**	**Pack. Unit**
Relay socket with solid state relay, for DIN-rail	24 VDC	7 mA	**788-700**	20 (1)	24 VDC	9.3 mA	**788-701**	15 (1)

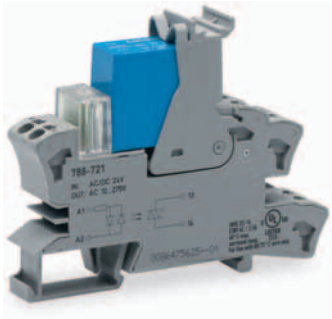
Technical Data	Accessories see pages 134 ... 136	Accessories see pages 134 ... 136
Control circuit:		
Input voltage range (low level)	0 V...8 V DC	0 V ... 2.5 V DC
Input voltage range (high level)	18 V ... 30 V DC	15 V ... 30 V DC
Load circuit:		
Output voltage range	0 ... 24 V DC	0 V ... 30 V DC
Max. continuous current	3.5 ADC	5 ADC
Turn-on time	50 µs	50 µs
Turn-off time	600 µs	600 µs
Max. switching frequency		100 Hz at 5 A
Max. voltage drop at output	< 0.1 VDC	0.3 VDC
Reverse voltage transistor/triac	33 V	36 V
General specifications:		
Nominal voltage to EN 60664-1	250 V / 2.5 kV / 2	250 V / 2.5 kV / 2
Dielectric strength, control/load circuit (AC, 1 min)	2.5 kV_{rms}	2.5 kV_{rms}
Ambient operating temperature	-20 °C ... +60°C	-40 °C ... +60°C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	15 x 53 x 86	15 x 63 x 86
	Height from upper-edge of DIN-rail	Height from upper-edge of DIN-rail
Wire connection	Push-in CAGE CLAMP®	Push-in CAGE CLAMP®
Cross sections	0.34 ... 2.5 mm² / 22 ... 14 AWG	0.34 ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1; UL 508 (max. 60 °C/3.5 A)	EN 60664-1; UL 508 (max. 40 °C/4.7 A)

	Solid state relay Input: 24 VDC Output: 24 V ... 240 V AC / 1 A Zero voltage switch	Solid state relay Input: 24 V AC/DC Output: 12 V ... 275 V AC / 4 A Zero voltage switch

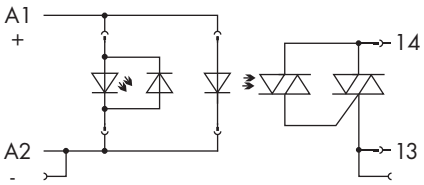


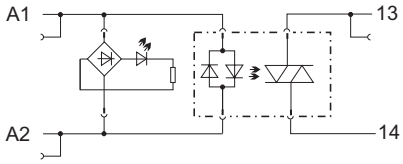
Derating 788-721





Note: A separator plate (e.g., 209-191) must be used for voltages greater than 250 V between adjacent relay modules and for compliance with the reinforced insulation requirements.





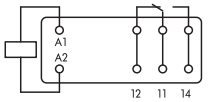
Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Relay socket with solid state relay, for DIN-rail	24 VDC	7 mA	**788-720**	20 (1)	24 V AC/DC	10 mA	**788-721**	15 (1)

Technical Data	Accessories see pages 134 ... 136	Accessories see pages 134 ... 136
Control circuit:		
Input voltage range (low level)	0 V ... 4 VDC	0 V ... 2.5 V AC/DC
Input voltage range (high level)	18 V ... 30 V DC	15 V ... 30 V AC/DC
Load circuit:		
Output voltage range	24 ... 240 VAC	12 V ... 275 VAC (50/60 Hz)
Max. continuous current	1 AAC	4 AAC
Turn-on time	10 ms	10 ms
Turn-off time	10 ms	10 ms
Max. voltage drop at output	< 1.1 VAC	< 1.1 VAC
Reverse voltage transistor/triac	600 V	600 V
General specifications:		
Nominal voltage to EN 60664-1	250 V / 2.5 kV / 2	250 V / 2.5 kV / 2
Dielectric strength, control/load circuit (AC, 1 min)	3.75 kV_{rms}	4 kV_{rms}
Ambient operating temperature	-20 °C ... +60 °C	-20 °C ... +60 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	15 x 53 x 86	15 x 53 x 86
	Height from upper-edge of DIN-rail	Height from upper-edge of DIN-rail
Wire connection	Push-in CAGE CLAMP®	Push-in CAGE CLAMP®
Cross sections	0.34 ... 2.5 mm² / 22 ... 14 AWG	0.34 ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1; UL 508 (max. 60 °C/1 A)	EN 60664-1; UL 508 (max. 40 °C/2.5 A)

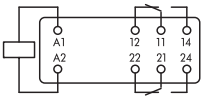
Accessories, 788 Series

Sockets for miniature switching relay
1 changeover contact / 2 changeover contact

1 changeover contact

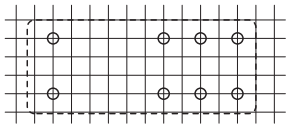


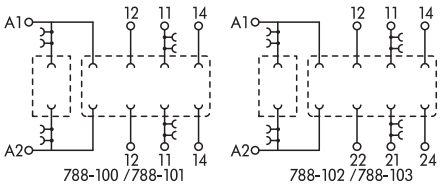
2 changeover contacts



View on pins

Pinning





Description	Item No.	Pack. Unit
Socket without relay, for DIN-rail		
Relay height 15 mm, 1 changeover contact	**788-100**	20 (1)
Relay height 15 mm, 2 changeover contacts	**788-102**	20 (1)
Relay height 25 mm, 1 changeover contact	**788-101**	15 (1)
Relay height 25 mm, 2 changeover contacts	**788-103**	15 (1)

Technical Data

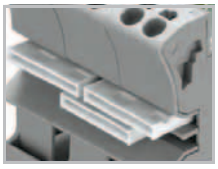
Contacts:	
Max. continuous current	16 A / 2 x 8 A
Max. switching voltage	250 VAC
Max. switching power (resistive)	4 kVA / 2 x 2 kVA AC
General specifications:	
Nominal input voltage (V_N)	depending on relay; max. 250 VAC
Nominal voltage to EN 60664-1	250 V / 4 kV / 3
Dielectric strength	5 kV_{rms} (depending on relay)
Storage temperature	-40 °C ... +80 °C
Ambient operating temperature	-25 °C ... +70 °C (depending on relay)
Wire connection	Push-in CAGE CLAMP®
Cross sections	0.34 ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 60664-1

Status indication

Description	Power consumption at V_N	Item No.	Pack. Unit
Status indication with recovery diode, 24 VDC (12 V ... 24 V)	2.4 mA	**788-120**	50 (2x25)
Status indication with recovery diode, 48 VDC (48 V ... 60 V)	1.9 mA	**788-121**	50 (2x25)
Status indication 110 VDC	1.9 mA	**788-122**	50 (2x25)
Status indication 24 VAC	2.1 mA	**788-123**	50 (2x25)
Status indication 115 VAC	1.7 mA	**788-124**	50 (2x25)
Status indication 230 VAC	1.6 mA	**788-125**	50 (2x25)

Push-in type jumper bar
788-113

Commoning



Push-in type jumper bar

Description			Item No.	Pack. Unit
Push-in type jumper bar, I max. 18 A	**2-way**	(module/module)	**788-113**	200 (8x25)
	3-way		**788-114**	100 (4x25)
	4-way		**788-115**	100 (4x25)
	6-way		**788-116**	100 (4x25)
	8-way		**788-117**	100 (4x25)
Push-in type jumper bars, light gray, insulated, 18 A	**2-way**	(internal)	**859-402**	200 (8x25)

WMB Multi marking system

Marking

Group marker carrier

Description		Item No.	Pack. Unit
WMB Multi marking system	**plain**	**793-501**	5 cards
Marking software and printer/plotter see Section 11			
Marking	**1 ... 10 (10x)**	**793-502**	5 cards
	11 ... 20 (10x)	**793-503**	5 cards
	21 ... 30 (10x)	**793-504**	5 cards
	31 ... 40 (10x)	**793-505**	5 cards
	41 ... 50 (10x)	**793-506**	5 cards
	1 ... 50 (2x)	**793-566**	5 cards
10 strips with 10 markers, white with black printing			
Group marker carrier		**209-145**	100 (50)

Accessories, 788 Series

Operating tool

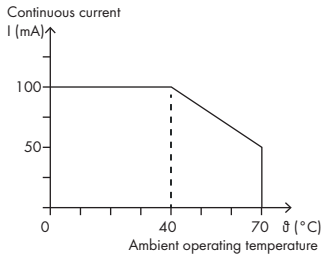
Description		Item No.	Pack. Unit
Operating tool, with partially insulated shaft	Type 2, blade (3.5 x 0.5) mm	**210-720**	1

Ferrule

Description	Sleeve for mm^2 / AWG	Item No.	Pack. Unit
Ferrule, red insulated, 12 mm	2 x 1 mm^2 / 2 x 18	**216-542**	500

Rail-Mounted Terminal Blocks with Optocoupler

	Optocoupler Input: 5 VDC Output: 60 VDC / 100 mA with an extended input voltage and operating temperature range for railway applications	Optocoupler Input: 24 VDC Output: 60 VDC / 100 mA with an extended input voltage and operating temperature range for railway applications



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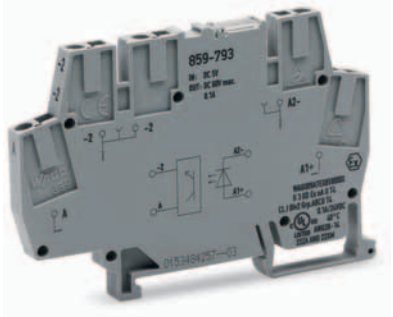
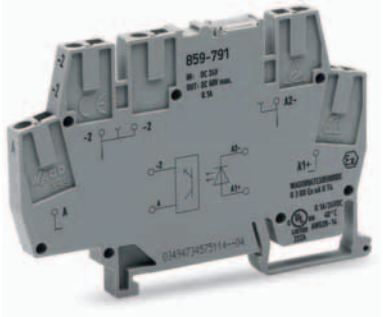
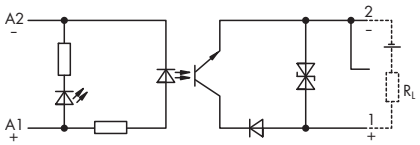
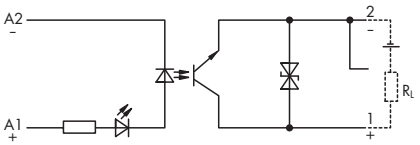




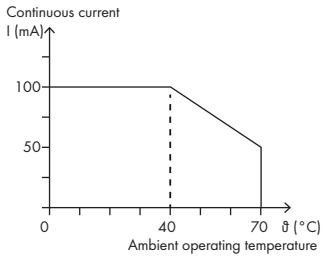




Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Rail-mounted terminal block with optocoupler, for DIN-rail	5 VDC	7.5 mA	**859-793**	25 (1)	24 VDC	4 mA	**859-791**	25 (1)

Technical Data	Accessories see page 156	Accessories see page 156
Control circuit:		
Input voltage range (low level)	0 V ... 0.8 V DC	0 V ... 5 V DC
Input voltage range (high level)	2 V ... 6.25 V DC	16 V ... 30 V DC
Load circuit:		
Output voltage range	3 V ... 60 V DC	7 V ... 60 V DC
Max. continuous current	100 mA	100 mA
Turn-on time	20 µs	20 µs
Turn-off time	120 µs	120 µs
Max. switching frequency	1.5 kHz	3 kHz
Max. voltage drop at output	2.5 V	1.5 V
Reverse voltage transistor/triac	100 V	100 V
General specifications:		
Dielectric strength, control/load circuit (AC, 1 min)	2.5 kV_{rms}	4 kV_{rms}
Ambient operating temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
	Height from upper-edge of DIN-rail	Height from upper-edge of DIN-rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 ... 2.5 mm² / 28 ... 14 AWG	0.08 ... 2.5 mm² / 28 ... 14 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	5 ... 6 mm / 0.2 ... 0.24 in.
Standards/specifications	EN 60664-1; EN 50155; UL 508; EEx nA II T4	EN 60664-1; EN 50155; UL 508; EEx nA II T4

	Optocoupler Input: 24 VDC Output: 24 VDC / 100 mA with an extended input voltage and operating temperature range for railway applications	Optocoupler Input: 5 VDC Output: 24 VDC / 100 mA with an extended input voltage and operating temperature range for railway applications



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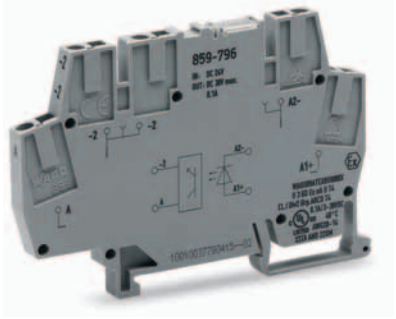
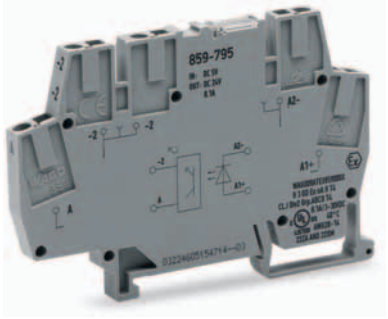
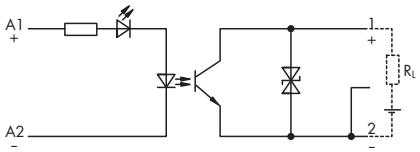
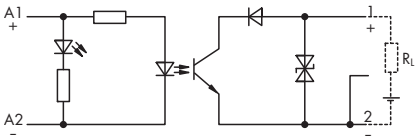






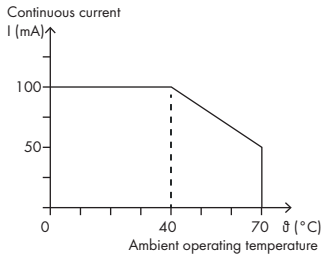


Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Rail-mounted terminal block with optocoupler, for DIN-rail	24 VDC	9.2 mA	**859-796**	25 (1)	5 VDC	17 mA	**859-795**	25 (1)

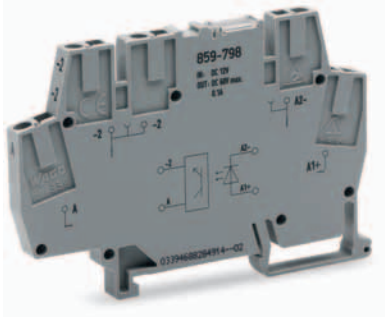
Technical Data	Accessories see page 156	Accessories see page 156
Control circuit:		
Input voltage range (low level)	0 V ... 5 V DC	0 V ... 0.8 V DC
Input voltage range (high level)	18 V ... 30 V DC	2 V ... 6.25 V DC
Load circuit:		
Output voltage range	3 V ... 30 V DC	3 V ... 30 V DC
Max. continuous current	100 mA	100 mA
Turn-on time	10 µs	10 µs
Turn-off time	50 µs	50 µs
Max. switching frequency	10 kHz	10 kHz
Max. voltage drop at output	1 V	1 V
Reverse voltage transistor/triac	65 V	65 V
General specifications:		
Dielectric strength, control/load circuit (AC, 1 min)	2.5 kV_{rms}	2.5 kV_{rms}
Ambient operating temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
	Height from upper-edge of DIN-rail	Height from upper-edge of DIN-rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 ... 2.5 mm² / 28 ... 14 AWG	0.08 ... 2.5 mm² / 28 ... 14 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	5 ... 6 mm / 0.2 ... 0.24 in.
Standards/specifications	EN 60664-1; UL 508; EEx nA II T4	EN 60664-1; UL 508; EEx nA II T4

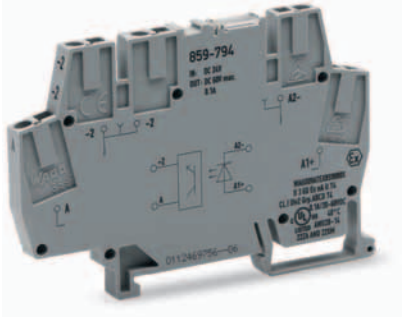
Rail-Mounted Terminal Blocks with Optocoupler

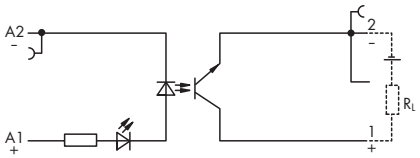
	Optocoupler Input: 12 VDC Output: 24 VDC / 100 mA with an extended input voltage and operating temperature range for railway applications	Optocoupler Input: 24 VDC Output: 24 VDC / 100 mA with an extended input voltage and operating temperature range for railway applications

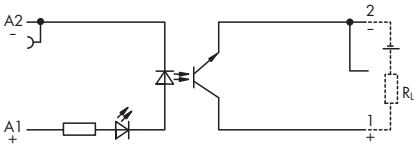


Derating





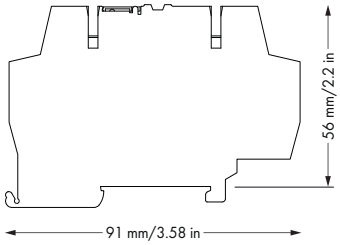


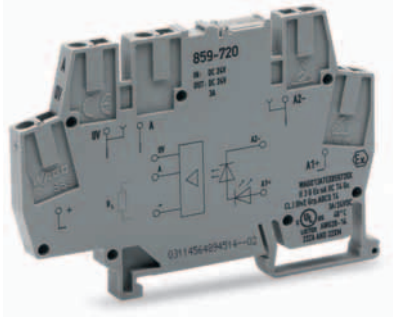


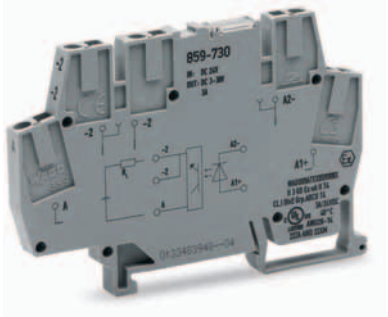
Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Rail-mounted terminal block with optocoupler, for DIN-rail	12 VDC	4 mA	**859-798**	25 (1)	24 VDC	4.2 mA	**859-794**	25 (1)

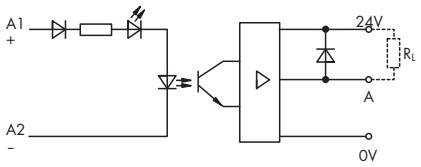
Technical Data	Accessories see page 156	Accessories see page 156
Control circuit:		
Input voltage range (low level)	0.4 V ... 4.8 V DC	0 V ... 5 V DC
Input voltage range (high level)	8.4 V ... 15 V DC	16 V ... 30 V DC
Load circuit:		
Output voltage range	9 V ... 60 V DC	9 V ... 60 V DC
Max. continuous current	100 mA	100 mA
Turn-on time	20 µs	20 µs
Turn-off time	120 µs	120 µs
Max. switching frequency	1.5 kHz	1.5 kHz
Max. voltage drop at output	2 V	2 V
Reverse voltage transistor/triac	300 V	100 V
General specifications:		
Dielectric strength, control/load circuit (AC, 1 min)	2.5 kV_{rms}	2.5 kV_{rms}
Ambient operating temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
	Height from upper-edge of DIN-rail	Height from upper-edge of DIN-rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 ... 2.5 mm² / 28 ... 14 AWG	0.08 ... 2.5 mm² / 28 ... 14 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	5 ... 6 mm / 0.2 ... 0.24 in.
Standards/specifications	EN 60664-1	EN 60664-1; UL 508; EEx nA II T4

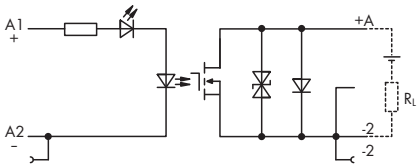
	Power optocoupler Input: 24 VDC Output: 24 VDC / 3 A Negative switching	Power optocoupler Input: 24 VDC Output: 24 VDC / 3 A









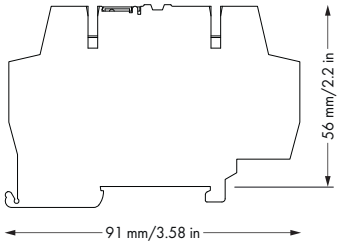


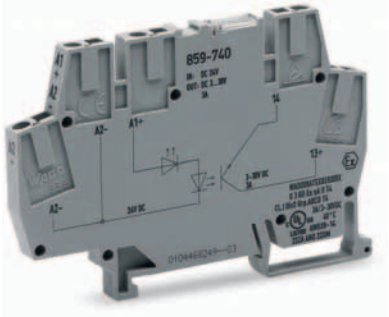
Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Rail-mounted terminal block with optocoupler, for DIN-rail	24 VDC	4 mA	**859-720**	25 (1)	24 VDC	14 mA	**859-730**	25 (1)

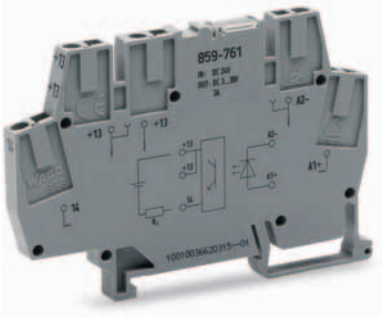
Technical Data	Accessories see page 156	Accessories see page 156
Control circuit:		
Input voltage range (low level)		0 V ... 5 V DC
Input voltage range (high level)	16 V ... 30 V DC	15 V ... 27 V DC
Load circuit:		
Output voltage range	10 V ... 30 V DC	3 V ... 30 V DC
Max. continuous current	3 A	3 A
Peak output current	20 A	25 A
Turn-on time	25 µs	25 µs
Turn-off time	75 µs	450 µs
Max. switching frequency	1 kHz / < 2 A,	350 Hz
	2 kHz / < 1 A,	
	3 kHz / < 0.5 A	
Max. voltage drop at output	0.5 V	0.2 V
Reverse voltage transistor/triac	55 V	55 V
General specifications:		
Dielectric strength, control/load circuit (AC, 1 min)	2.5 kV_{rms}	2.5 kV_{rms}
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +55 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
	Height from upper-edge of DIN-rail	Height from upper-edge of DIN-rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 ... 2.5 mm² / 28 ... 14 AWG	0.08 ... 2.5 mm² / 28 ... 14 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	5 ... 6 mm / 0.2 ... 0.24 in.
Standards/specifications	EN 60664-1	EN 60664-1; UL 508; EEx nA II T4

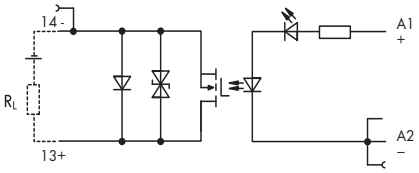
Rail-Mounted Terminal Blocks with Optocoupler

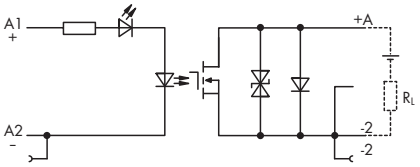
	Power optocoupler Input: 24 VDC Output: 3 V ... 30 V DC / 3A	Power optocoupler Input: 24 VDC Output: 3 V ... 30 V DC / 3 A







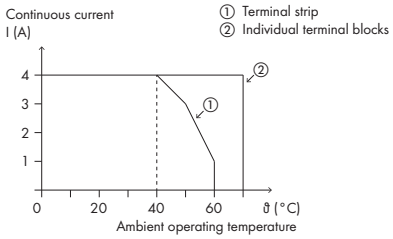




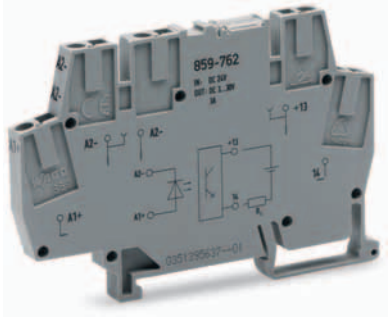
Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Rail-mounted terminal block with optocoupler, for DIN-rail	24 VDC	7 mA	**859-740**	25 (1)	24 VDC	14 mA	**859-761**	25 (1)

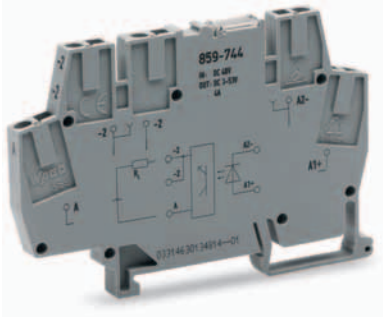
Technical Data	Accessories see page 156	Accessories see page 156
Control circuit:		
Input voltage range (low level)	0 V ... 9 V DC	0 V ... 5 V DC
Input voltage range (high level)	19 V ... 27 V DC	15 V ... 27 V DC
Load circuit:		
Output voltage range	3 V ... 30 V DC	3 V ... 30 V DC
Max. continuous current	3 A	3 A
Peak output current	25 A	25 A
Turn-on time	25 µs	25 µs
Turn-off time	450 µs	450 µs
Max. switching frequency	350 Hz	350 Hz
Max. voltage drop at output	0.2 V	0.2 V
Reverse voltage transistor/triac	55 V	55 V
General specifications:		
Dielectric strength, control/load circuit (AC, 1 min)	2.5 kV_{rms}	2.5 kV_{rms}
Ambient operating temperature	-25 °C ... +55 °C	-25 °C ... +55 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
	Height from upper-edge of DIN-rail	Height from upper-edge of DIN-rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 ... 2.5 mm² / 28 ... 14 AWG	0.08 ... 2.5 mm² / 28 ... 14 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	5 ... 6 mm / 0.2 ... 0.24 in.
Standards/specifications	EN 60664-1; UL 508	EN 60664-1

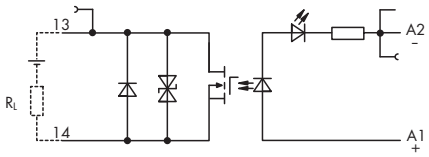
	Power optocoupler Input: 24 VDC Output: 3 V ... 30 V DC / 3 A	Power optocoupler Input: 12 V ... 48 V DC Output: 3 V ... 53 V DC / 4 A

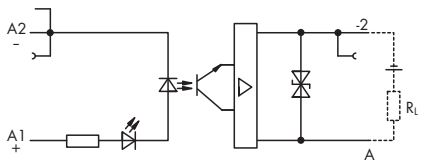


Derating 859-744







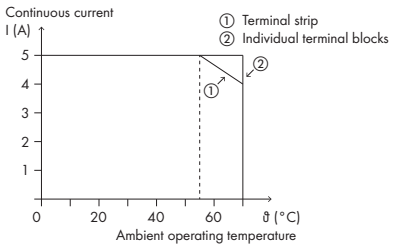


Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Rail-mounted terminal block with optocoupler, for DIN-rail	24 VDC	7 mA	**859-762**	25 (1)	48 VDC	5 mA	**859-744**	25 (1)

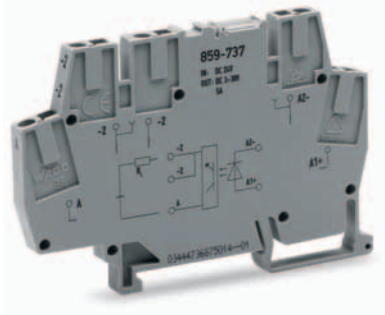
Technical Data	Accessories see page 156	Accessories see page 156
Control circuit:		
Input voltage range (low level)	0 V ... 9 V DC	0 V ... 4 V DC
Input voltage range (high level)	19 V ... 27 V DC	10 V ... 53 V DC
Load circuit:		
Output voltage range	3 V ... 30 V DC	3 V ... 53 V DC
Max. continuous current	3 A	4 A
Peak output current	25 A	30 A
Turn-on time	25 µs	200 µs
Turn-off time	450 µs	450 µs
Max. switching frequency	350 Hz	100 Hz
Max. voltage drop at output	0.2 V	0.2 V
Reverse voltage transistor/triac	55 V	80 V
General specifications:		
Dielectric strength, control/load circuit (AC, 1 min)	2.5 kV_{rms}	2.5 kV_{rms}
Ambient operating temperature	-25 °C ... +55 °C	-40 °C ... +70 °C (Derating must be observed)
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
	Height from upper-edge of DIN-rail	Height from upper-edge of DIN-rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 ... 2.5 mm² / 28 ... 14 AWG	0.08 ... 2.5 mm² / 28 ... 14 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	5 ... 6 mm / 0.2 ... 0.24 in.
Standards/specifications	EN 60664-1	EN 60664-1

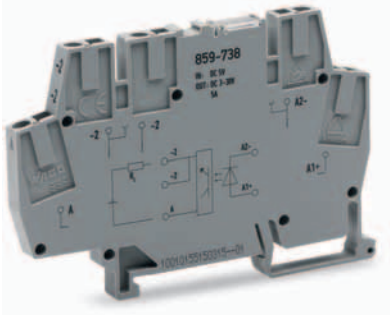
Rail-Mounted Terminal Blocks with Optocoupler

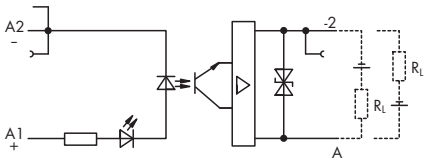
	Power optocoupler Input: 24 VDC Output: 3 V ... 30 V DC / 5 A	Power optocoupler Input: 5 VDC Output: 3 V ... 30 V DC / 5 A

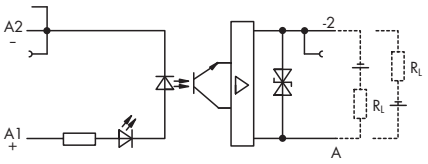


Derating





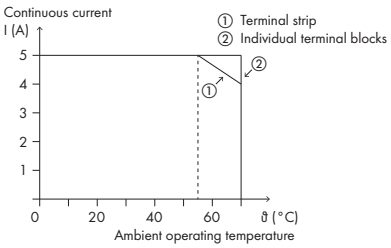




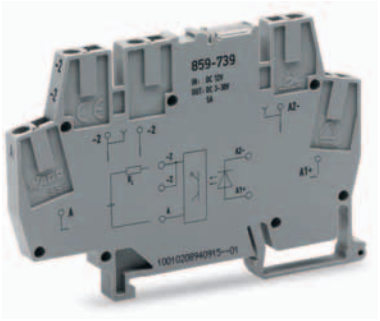
Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Rail-mounted terminal block with optocoupler, for DIN-rail	24 VDC	3.5 mA	**859-737**	25 (1)	5 VDC	7.2 mA	**859-738**	25 (1)

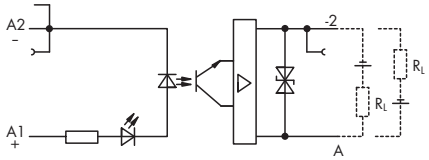
Technical Data	Accessories see page 156	Accessories see page 156
Control circuit:		
Input voltage range (low level)	0 V ... 5 V DC	0 V ... 2 V DC
Input voltage range (high level)	15 V ... 30 V DC	4 V ... 6 V DC
Load circuit:		
Output voltage range	3 V ... 30 V DC	3 V ... 30 V DC
Max. continuous current	5 A	5 A
Peak output current	25 A	25 A
Turn-on time	200 µs	200 µs
Turn-off time	450 µs	450 µs
Max. switching frequency	100 Hz	100 Hz
Max. voltage drop at output	0.2 V	0.2 V
Reverse voltage transistor/triac	55 V	55 V
General specifications:		
Dielectric strength, control/load circuit (AC, 1 min)	2.5 kV_{rms}	2.5 kV_{rms}
Ambient operating temperature	-25 °C ... +70 °C	-25 °C ... +70 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
	Height from upper-edge of DIN-rail	Height from upper-edge of DIN-rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 ... 2.5 mm² / 28 ... 14 AWG	0.08 ... 2.5 mm² / 28 ... 14 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	5 ... 6 mm / 0.2 ... 0.24 in.
Standards/specifications	EN 60664-1	EN 60664-1

	Power optocoupler **Input: 12 VDC** **Output: 3 V ... 30 V DC / 5 A**	



Derating





Description	V_N	I_N	Item No.	Pack. Unit	
Rail-mounted terminal block with optocoupler, for DIN-rail	12 VDC	3.2 mA	**859-739**	25 (1)	

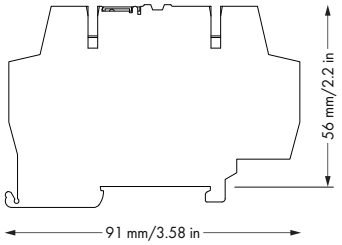
Technical Data

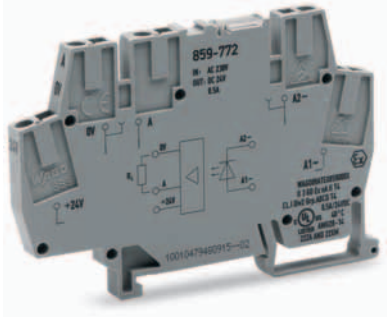
Accessories see page 156

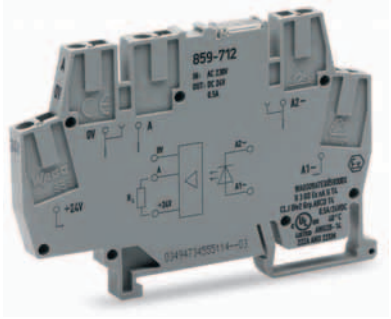
Control circuit:	
Input voltage range (low level)	0 V ... 5 V DC
Input voltage range (high level)	9.6 V ... 14.4 V DC
Load circuit:	
Output voltage range	3 V ... 30 V DC
Max. continuous current	5 A
Peak output current	25 A
Turn-on time	200 µs
Turn-off time	450 µs
Max. switching frequency	100 Hz
Max. voltage drop at output	0.2 V
Reverse voltage transistor/triac	55 V
General specifications:	
Dielectric strength, control/load circuit (AC, 1 min)	2.5 kV_{rms}
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 56 x 91
	Height from upper-edge of DIN-rail
Wire connection	CAGE CLAMP®
Cross sections	0.08 ... 2.5 mm² / 28 ... 14 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.
Standards/specifications	EN 60664-1

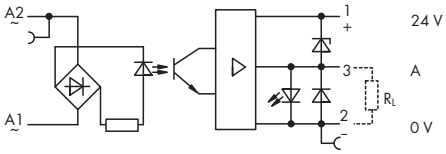
Rail-Mounted Terminal Blocks with Optocoupler

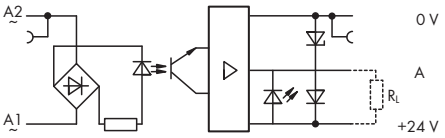
	Optocoupler Input: 230 VAC Output: 24 VDC / 0.5 A Positive switching increased input frequency up to 100 Hz Input voltage up to 270 VAC	Optocoupler Input: 230 VDC Output: 24 VDC / 0.5 A Negative switching







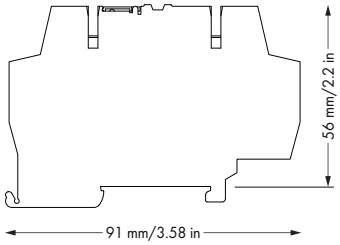


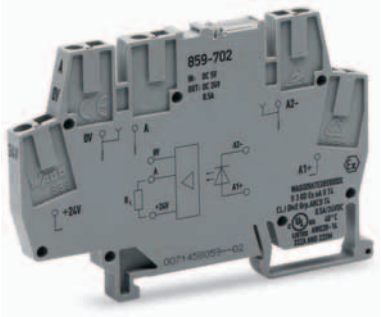


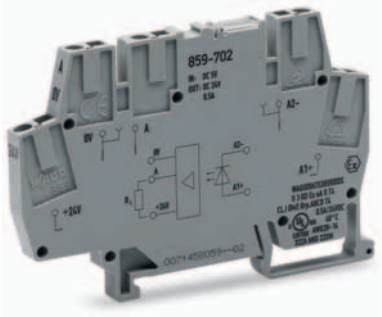
Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Rail-mounted terminal block with optocoupler, for DIN-rail	230 VAC	0.6 mA	**859-772**	25 (1)	230 VAC	0.6 mA	**859-712**	25 (1)

Technical Data	Accessories see page 156	Accessories see page 156
Control circuit:		
Input voltage range (low level)	0 V ... 90 V AC	0 V ... 90 V AC
Input voltage range (high level)	175 V ... 270 V AC	175 V ... 240 V AC
Load circuit:		
Output voltage range	20 V ... 30 V DC	20 V ... 30 V DC
Max. continuous current	500 mA	500 mA
Turn-on time	< 30 ms	< 30 ms
Turn-off time	< 30 ms	< 30 ms
Max. voltage drop at output	1.2 V	1.2 V
Reverse voltage transistor/triac	80 V	80 V
General specifications:		
Dielectric strength, control/load circuit (AC, 1 min)	2.5 kV_{rms}	2.5 kV_{rms}
Ambient operating temperature	-25 °C ... +55 °C	-25 °C ... +55 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
	Height from upper-edge of DIN-rail	Height from upper-edge of DIN-rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 ... 2.5 mm^2 / 28 ... 14 AWG	0.08 ... 2.5 mm^2 / 28 ... 14 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	5 ... 6 mm / 0.2 ... 0.24 in.
Standards/specifications	EN 60664-1; UL 508; EEx nA II T4	EN 60664-1; UL 508; EEx nA II T4

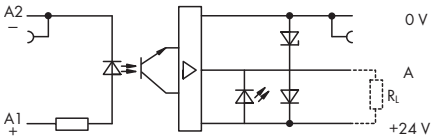
	Optocoupler Input: 5 VDC Output: 24 VDC / 0.5A / 10 kHz Negative switching	Optocoupler Input: 24 VDC Output: 24 VDC / 0.5A / 10 kHz Negative switching

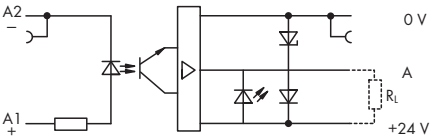






Similiar to pictured device



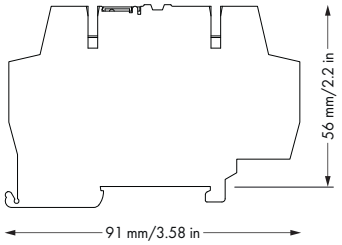


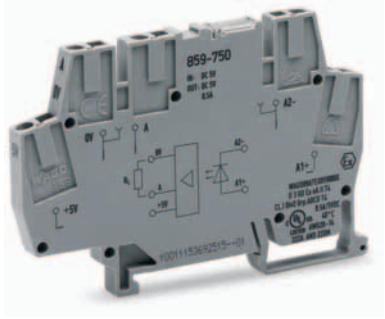
Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Rail-mounted terminal block with optocoupler, for DIN-rail	5 VDC	9.6 mA	**859-702**	25 (1)	24 VDC	7.7 mA	**859-708**	25 (1)

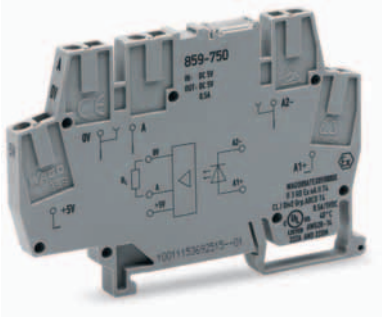
Technical Data	Accessories see page 156	Accessories see page 156
Control circuit:		
Input voltage range (low level)	0 V ... 1 V DC	0 V ... 5 V DC
Input voltage range (high level)	4 V ... 6.25 V DC	19 V ... 30 V DC
Load circuit:		
Output voltage range	20 V ... 30 V DC	20 V ... 30 V DC
Max. continuous current	500 mA	500 mA
Turn-on time	< 7 µs	< 10 µs
Turn-off time	< 15 ms	< 10 µs
Max. switching frequency	10 kHz	10 kHz
Max. voltage drop at output	1.2 V	1.2 V
Reverse voltage transistor/triac	80 V	80 V
General specifications:		
Dielectric strength, control/load circuit (AC, 1 min)	2.5 kV_{rms}	2.5 kV_{rms}
Ambient operating temperature	-25 °C ... +55 °C	-25 °C ... +55 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
	Height from upper-edge of DIN-rail	Height from upper-edge of DIN-rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 ... 2.5 mm² / 28 ... 14 AWG	0.08 ... 2.5 mm² / 28 ... 14 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	5 ... 6 mm / 0.2 ... 0.24 in.
Standards/specifications	EN 60664-1; UL 508; EEx nA II T4	EN 60664-1; UL 508; EEx nA II T4

Rail-Mounted Terminal Blocks with Optocoupler

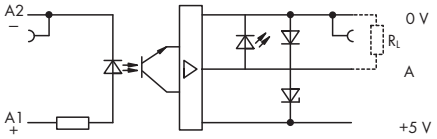
	Optocoupler Input: 5 VDC Output: 5 VDC / 500 mA / 10 kHz Positive switching	Optocoupler Input: 5 VDC Output: 12 VDC / 500 mA / 10 kHz Positive switching

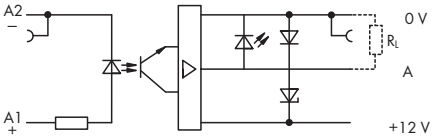






Similiar to pictured device

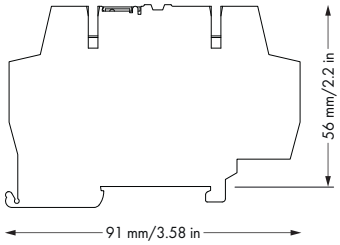


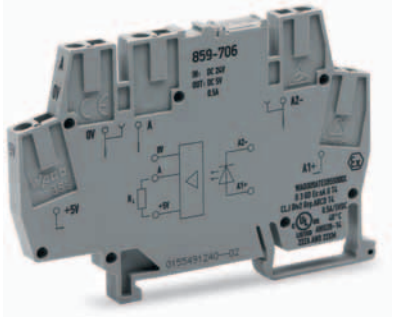


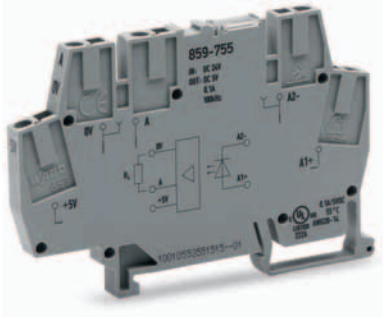
Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Rail-mounted terminal block with optocoupler, for DIN-rail	5 VDC	8 mA	**859-750**	25 (1)	5 VDC	8 mA	**859-751**	25 (1)

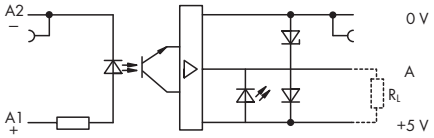
Technical Data	Accessories see page 156	Accessories see page 156
Control circuit:		
Input voltage range (low level)	0 V ... 1 V DC	0 V ... 1 V DC
Input voltage range (high level)	4 V ... 6.25 V DC	4 V ... 6 V DC
Load circuit:		
Output voltage range	4 V ... 6.25 V DC	8 V ... 18 V DC
Max. continuous current	500 mA	500 mA
Peak output current	4 A	4 A
Turn-on time	< 15 µs	< 15 µs
Turn-off time	< 30 µs	< 30 µs
Max. switching frequency	10 kHz	10 kHz
Max. voltage drop at output	1.2 V	1.2 V
Reverse voltage transistor/triac	80 V	80 V
General specifications:		
Dielectric strength, control/load circuit (AC, 1 min)	2.5 kV_{rms}	2.5 kV_{rms}
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
	Height from upper-edge of DIN-rail	Height from upper-edge of DIN-rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 ... 2.5 mm² / 28 ... 14 AWG	0.08 ... 2.5 mm² / 28 ... 14 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	5 ... 6 mm / 0.2 ... 0.24 in.
Standards/specifications	EN 60664-1; UL 508; EEx nA II T4	EN 60664-1; UL 508; EEx nA II T4

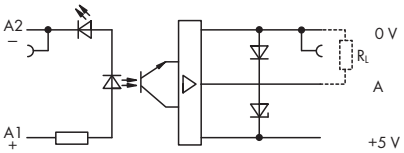
	Optocoupler Input: 24 VDC Output: 5 VDC / 0.5A / 10 kHz Negative switching	Optocoupler Input: 24 VDC Output: 5 VDC / 100 mA / 100 kHz Positive switching









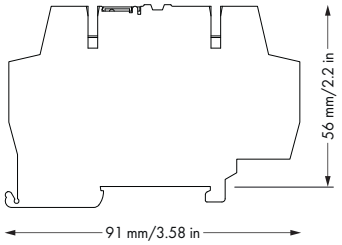


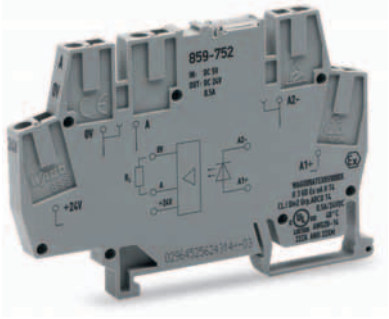
Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Rail-mounted terminal block with optocoupler, for DIN-rail	24 VDC	11 mA	**859-706**	25 (1)	24 VDC	9 mA	**859-755**	25 (1)

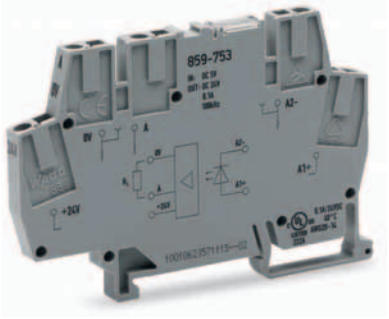
Technical Data	Accessories see page 156	Accessories see page 156
Control circuit:		
Input voltage range (low level)	0 V ... 5 V DC	0 V ... 5 V DC
Input voltage range (high level)	18 V ... 30 V DC	20 V ... 30 V DC
Load circuit:		
Output voltage range	4 V ... 6.25 V DC	4 V ... 6 V DC
Max. continuous current	500 mA	100 mA
Peak output current		0.8 A
Turn-on time	< 7 µs	< 0.5 µs
Turn-off time	< 15 µs	< 2 µs
Max. switching frequency	10 kHz	100 kHz
Max. voltage drop at output	1.2 V	0.6 V
Reverse voltage transistor/triac	80 V	40 V
General specifications:		
Dielectric strength, control/load circuit (AC, 1 min)	2.5 kV_{rms}	2.5 kV_{rms}
Ambient operating temperature	-25 °C ... +55 °C	-25 °C ... +55 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
	Height from upper-edge of DIN-rail	Height from upper-edge of DIN-rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 ... 2.5 mm² / 28 ... 14 AWG	0.08 ... 2.5 mm² / 28 ... 14 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	5 ... 6 mm / 0.2 ... 0.24 in.
Standards/specifications	EN 60664-1; UL 508; EEx nA II T4	EN 60664-1; UL 508

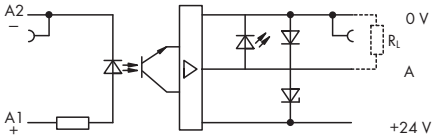
Rail-Mounted Terminal Blocks with Optocoupler

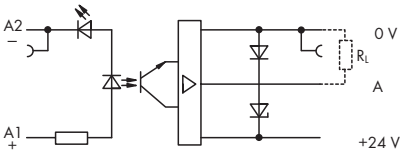
	Optocoupler Input: 5 VDC Output: 24 VDC / 0.5 A / 10 kHz Positive switching	Optocoupler Input: 5 VDC Output: 24 VDC / 100 mA / 100 kHz Positive switching







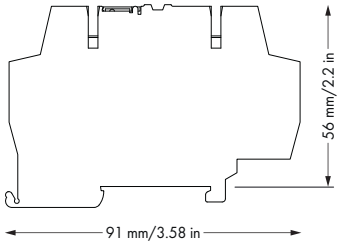


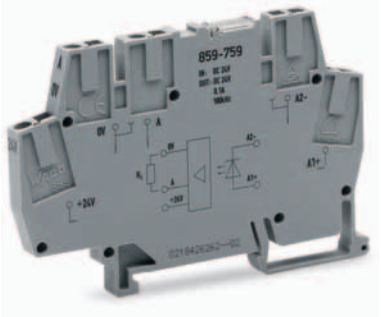


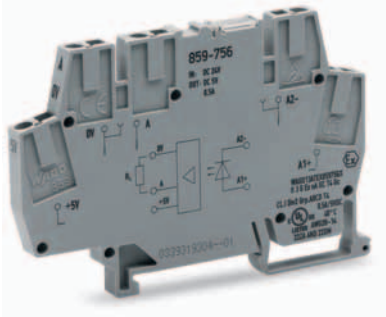
Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Rail-mounted terminal block with optocoupler, for DIN-rail	5 VDC	10 mA	**859-752**	25 (1)	5 VDC	16.5 mA	**859-753**	25 (1)

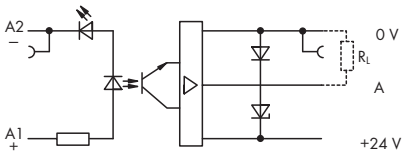
Technical Data	Accessories see page 156	Accessories see page 156
Control circuit:		
Input voltage range (low level)	0 V ... 1 V DC	0 V ... 1 V DC
Input voltage range (high level)	4 V ... 6 V DC	4 V ... 6.25 V DC
Load circuit:		
Output voltage range	20 V ... 30 V DC	20 V ... 28.8 V DC
Max. continuous current	500 mA	100 mA
Peak output current		0.8 A
Turn-on time	< 15 µs	< 0.5 µs
Turn-off time	< 30 µs	< 5 µs
Max. switching frequency	10 kHz	100 kHz
Max. voltage drop at output	1.2 V	0.6 V
Reverse voltage transistor/triac	80 V	40 V
General specifications:		
Dielectric strength, control/load circuit (AC, 1 min)	2.5 kV_{rms}	2.5 kV_{rms}
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +55 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
	Height from upper-edge of DIN-rail	Height from upper-edge of DIN-rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 ... 2.5 mm² / 28 ... 14 AWG	0.08 ... 2.5 mm² / 28 ... 14 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	5 ... 6 mm / 0.2 ... 0.24 in.
Standards/specifications	EN 60664-1; UL 508; EEx nA II T4	EN 60664-1; UL 508

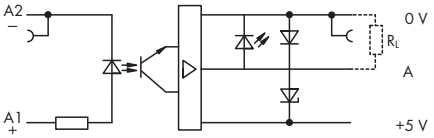
	Optocoupler Input: 24 VDC Output: 24 VDC / 100 mA / 100 kHz Positive switching	Optocoupler Input: 24 VDC Output: 5 VDC / 0.5 A / 10 kHz Positive switching









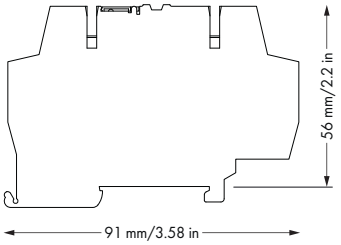


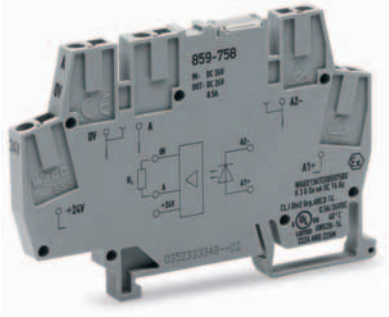
Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Rail-mounted terminal block with optocoupler, for DIN-rail	24 VDC	9 mA	**859-759**	25 (1)	24 VDC	11 mA	**859-756**	25 (1)

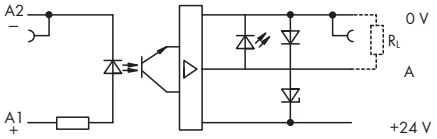
Technical Data	Accessories see page 156	Accessories see page 156
Control circuit:		
Input voltage range (low level)	0 V... 5 V DC	0 V ... 5 V DC
Input voltage range (high level)	20 V ... 30 V DC	18 V ... 30 V DC
Load circuit:		
Output voltage range	20 V ... 28.8 V DC	4 V ... 6.25 V DC
Max. continuous current	100 mA	500 mA
Peak output current	0.8 A	
Turn-on time	< 0.5 µs	< 15 µs
Turn-off time	< 2 µs	< 30 µs
Max. switching frequency	100 kHz	10 kHz
Max. voltage drop at output	1.2 V	1.2 V
Reverse voltage transistor/triac	40 V	80 V
General specifications:		
Dielectric strength, control/load circuit (AC, 1 min)	2.5 kV_{rms}	2.5 kV_{rms}
Ambient operating temperature	-25 °C ... +55 °C	-25 °C ... +40 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
	Height from upper-edge of DIN-rail	Height from upper-edge of DIN-rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 ... 2.5 mm² / 28 ... 14 AWG	0.08 ... 2.5 mm² / 28 ... 14 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	5 ... 6 mm / 0.2 ... 0.24 in.
Standards/specifications	EN 60664-1	EN 60664-1; UL 508; EEx nA II T4

Rail-Mounted Terminal Blocks with Optocoupler

Optocoupler
Input: 24 VDC
Output: 24 VDC / 0.5 A / 10 kHz
Positive switching







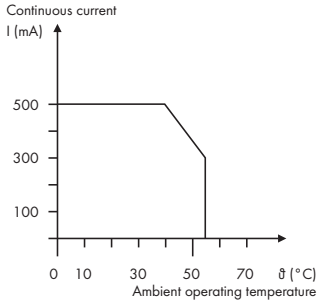
Description	V_N	I_N	Item No.	Pack. Unit
Rail-mounted terminal block with optocoupler, for DIN-rail	24 VDC	8 mA	**859-758**	25 (1)

Technical Data

Accessories see page 156

Control circuit:	
Input voltage range (low level)	0 V ... 5 V DC
Input voltage range (high level)	18 V ... 30 V DC
Load circuit:	
Output voltage range	20 V ... 30 V DC
Max. continuous current	500 mA
Turn-on time	< 15 µs
Turn-off time	< 30 µs
Max. switching frequency	10 kHz
Max. voltage drop at output	1.2 V
Reverse voltage transistor/triac	80 V
General specifications:	
Dielectric strength, control/load circuit (AC, 1 min)	2.5 kV_{rms}
Ambient operating temperature	-25 °C ... +40 °C
Storage temperature	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 56 x 91
	Height from upper-edge of DIN-rail
Wire connection	CAGE CLAMP®
Cross sections	0.08 ... 2.5 mm² / 28 ... 14 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.
Standards/specifications	EN 60664-1; UL 508; EEx nA II T4

	Optocoupler Input: 24 VDC Output: 3 V ... 30 VDC / 500 mA Changeover contact output	Optocoupler Input: 5 VDC Output: 230 VAC / 0.5 A



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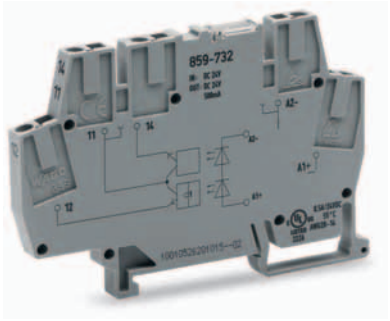
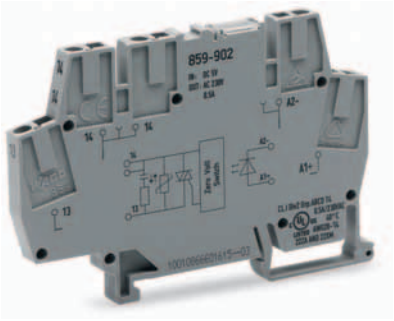
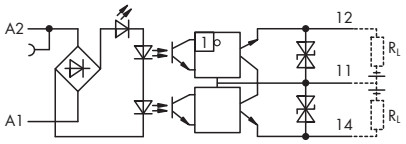
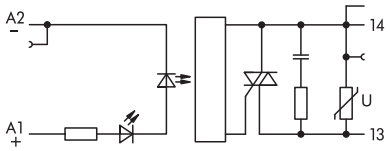






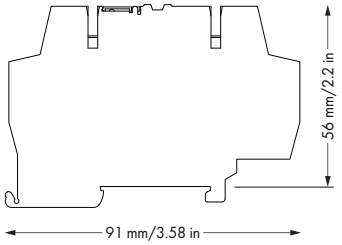


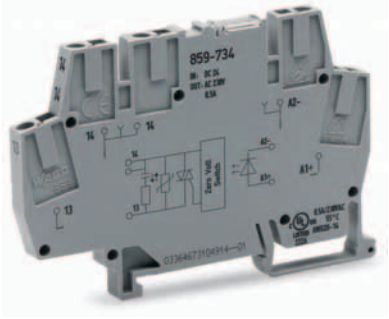
Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Rail-mounted terminal block with optocoupler, for DIN-rail	24 VDC	5.3 mA	**859-732**	25 (1)	5 VDC	7.7 mA	**859-902**	25 (1)

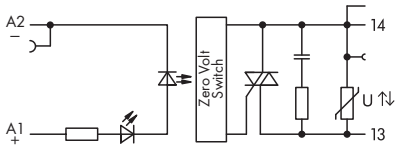
Technical Data	Accessories see page 156	Accessories see page 156
Control circuit:		
Input voltage range (low level)	0 V ... 5 V DC	0 V ... 1 V DC
Input voltage range (high level)	15 V ... 42 V DC	4 V ... 6.25 V DC
Load circuit:		
Output voltage range	3 V ... 30 V DC	24 V ... 260 V AC (50 Hz ... 60 Hz)
Max. continuous current	500 mA	500 mA
Peak output current	4 A	30 A
Turn-on time	25 µs	10 ms
Turn-off time	150 µs	10 ms
Max. switching frequency	1.5 kHz	
Max. voltage drop at output	1.5 V	1.2 V
Reverse voltage transistor/triac	80 V	600 V
General specifications:		
Dielectric strength, control/load circuit (AC, 1 min)	3.75 kV_{rms}	2.5 kV_{rms}
Ambient operating temperature	-25 °C ... +55 °C	-25 °C ... +55 °C
Storage temperature	-25 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
	Height from upper-edge of DIN-rail	Height from upper-edge of DIN-rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 ... 2.5 mm² / 28 ... 14 AWG	0.08 ... 2.5 mm² / 28 ... 14 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	5 ... 6 mm / 0.2 ... 0.24 in.
Standards/specifications	EN 60664-1; UL 508	EN 60664-1; UL 508

Rail-Mounted Terminal Blocks with Optocoupler

Optocoupler
Input: 24 VDC
Output: 24 V ... 260 V AC / 500 mA
Zero-voltage switching







Description	V_N	I_N	Item No.	Pack. Unit
Rail-mounted terminal block with optocoupler, for DIN-rail	24 VDC	6 mA	**859-734**	25 (1)

Technical Data

Accessories see page 156

Control circuit:	
Input voltage range (low level)	0 V ... 5 V DC
Input voltage range (high level)	19 V ... 28.8 V DC
Load circuit:	
Output voltage range	24 V ... 260 V AC (50 Hz ... 60 Hz)
Max. continuous current	500 mA
Peak output current	30 A
Turn-on time	10 ms
Turn-off time	10 ms
Max. switching frequency	-
Max. voltage drop at output	1 V
Reverse voltage transistor/triac	600 V
General specifications:	
Dielectric strength, control/load circuit (AC, 1 min)	2.5 kV_{rms}
Ambient operating temperature	-25 °C ... +55 °C
Storage temperature	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 56 x 91
	Height from upper-edge of DIN-rail
Wire connection	CAGE CLAMP®
Cross sections	0.08 ... 2.5 mm² / 28 ... 14 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.
Standards/specifications	EN 60664-1; UL 508

Rail-Mounted Terminal Blocks with Optocoupler

with an extended input voltage and operating temperature range, for railway applications

Description	Nominal input voltage (V_N)	Input voltage range (high level)	Max. switching capacity	Ambient operating temperature at V_N	Item No.	Pack. Unit
Optocoupler, 2-wire output	5 VDC	2 V ... 6.25 V DC	3 V ... 30 V DC / 50 mA	-40 °C ... +70 °C	**859-795**	25 (1)
Optocoupler, 2-wire output	5 VDC	2 V ... 6.25 V DC	3 V ... 60 V DC / 50 mA	-40 °C ... +70 °C	**859-793**	25 (1)
Optocoupler, 2-wire output	12 VDC	8.4 V ... 15 V DC	9 V ... 60 V DC / 50 mA	-40 °C ... +70 °C	**859-798**	25 (1)
Optocoupler, 2-wire output	24 VDC	18 V ... 30 V DC	3 V ... 30 V DC / 50 mA	-40 °C ... +70 °C	**859-796**	25 (1)
Optocoupler, 2-wire output	24 VDC	16 V ... 30 V DC	7 V ... 60 V DC / 50 mA	-40 °C ... +70 °C	**859-791**	25 (1)
Optocoupler, 2-wire output	24 VDC	16 V ... 30 V DC	9 V ... 60 V DC / 50 mA	-40 °C ... +70 °C	**859-794**	25 (1)

For additional technical data see: www.wago.com

Accessories, 859 Series

Operating tool

Marking pen with fiber tip

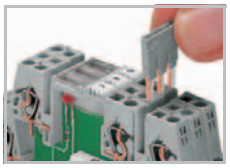
Test pin

End and intermediate plate

Description		Item No.	Pack. Unit
End and intermediate plate; 1 mm / 0.039 in. thick, gray		**859-525**	100 (4x25)
Test pin; Ø 1 mm / 0.039 in.; test wire for sold. onto test		**859-500**	1
Marking pen	for permanent marking	**210-110**	1
Operating tool, with partially insulated shaft	Type 2, blade (3.5 x 0.5) mm	**210-720**	1

Push-in type jumper bar

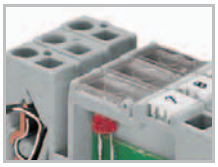
Commoning



Description		Item No.	Pack. Unit
Push-in type jumper bars, light gray, insulated, 18 A	**2-way**	**859-402**	200 (8x25)
	3-way	**859-403**	200 (8x25)
	4-way	**859-404**	200 (8x25)
	5-way	**859-405**	200 (8x25)
	6-way	**859-406**	100 (4x25)
	7-way	**859-407**	100 (4x25)
	8-way	**859-408**	100 (4x25)
	9-way	**859-409**	100 (4x25)
	10-way	**859-410**	100 (4x25)
Item no. suffix for colored push-in type jumper bars	**yellow**	**... /000-029**	
	red	**... /000-005**	
	blue	**... /000-006**	

Miniature quick marking card

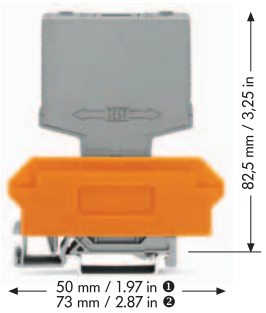
Marking



Description		Item No.	Pack. Unit
Miniature WSB Quick marking system	**plain**	**248-501**	5 cards
Marking software and printer/plotter see Section 11			
Marking	**1 ...10 (10 x)**	**248-502**	5 cards
	11 ... 20 (10x)	**248-503**	5 cards
	21 ... 30 (10x)	**248-504**	5 cards
	31 ... 40 (10x)	**248-505**	5 cards
	41 ... 50 (10 x)	**248-506**	5 cards
	1 ... 50 (2 x)	**248-566**	5 cards
	K 1 ... K 10 (10 x)	**248-450**	5 cards
	K 11 ... K 20 (10 x)	**248-451**	5 cards
	K 100 (10 x)	**248-452**	5 cards
	U 1 ... U 10 (10 x)	**248-453**	5 cards
	U 11 ... U 20 (10 x)	**248-454**	5 cards
	U 100 (10 x)	**248-455**	5 cards
10 strips with 10 markers, white with black printing			

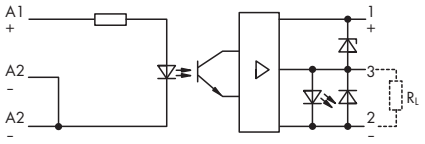
Pluggable Modules - Optocouplers

	Optocoupler **Input 24 VDC** **Output 24 VDC / 500 mA** **Positive switching** **Module width 15 mm / 0.591 in.**	



WSB marker cards
- Marking U; Item No.: 209-789
- Marking 1 ... 10; Item No.: 209-702
- Marking A1, A2, A2, 1, 3, 2, A1, A2, A2; Item No.: 209-685

5 cards, each containing 10 strips with 10 markers



Description	Output	Item No.	Pack. Unit	
Optocoupler module	24 VDC (20 V ... 30 V DC)	**286-752**	1	

Technical Data

Accessories see page 99

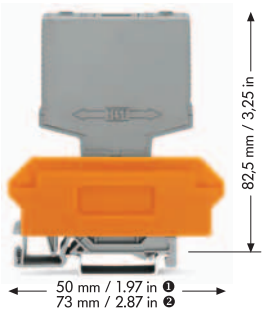
Nominal input voltage (V_N)	24 VDC
Input voltage range	12 V ... 30 V DC
Input current range	5 mA ... 20 mA DC
Current at nominal voltage	15 mA DC
Reverse voltage transistor/triac	80 VDC
Max. permissible continuous current	500 mA
Switch on / Switch off time	< 7 µs / < 15 µs
Max. operating frequency	25 kHz
Leakage current at nominal voltage	2.5 µA
Collector / emitter voltage drop Vce sat	≤ 1.2 V
Max. output (reverse current)	5 mA ; 10 mA ; 12 mA
Test voltage input / output	2.5 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	250V / 4 kV / 2
Ambient operating temperature	-25 °C ... +40 °C

Accessories

		Item No.	Pack. Unit
Terminal block for pluggable modules,			
with 2-conductor terminal blocks, orange separator ❶	17 mm / 0.669 in. wide	**280-619**	1
with 4-conductor terminal blocks, orange separator ❷	17 mm / 0.669 in. wide	**280-609**	1
with 4-conductor terminal blocks, marker plate ❷	20 mm / 0.787 in. wide	**280-763**	1
wire range 0.08 mm² ... 2.5 mm² / 28 ... 14 AWG;			
stripped length 8 ... 9 mm / 0.31 ... 0.35 in.			

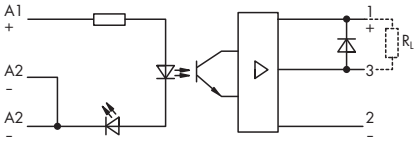
Pluggable Modules - Optocouplers

	Optocoupler **Input 24 VDC** **Output 24 VDC / 5 A** **Negative switching** **Module width 15 mm / 0.591 in.**	



WSB marker cards
- Marking U; Item No.: 209-789
- Marking 1 ... 10; Item No.: 209-702
- Marking A1, A2, A2, 1, 3, 2, A1, A2, A2; Item No.: 209-685

5 cards, each containing 10 strips with 10 markers



Description	Item No.	Pack. Unit	
Optocoupler module	**286-721**	1	

Technical Data

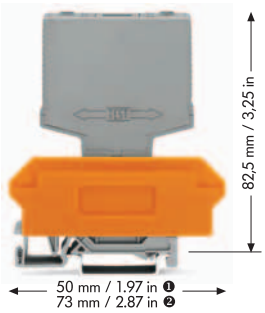
Accessories see page 99

Nominal input voltage (V_N)	24 VDC
Input voltage range	15 V ... 30 V DC
Input current range	7.5 mA ... 18 mA DC
Current at nominal voltage	13.5 mA DC
Output nominal voltage	24 VDC
Output voltage range	15 V ... 40 V DC
Reverse voltage transistor/triac	50 VDC
Max. permissible continuous current	5 A
Switch on / Switch off time	< 20 µs / < 80 µs
Max. operating frequency	1 kHz
Leakage current at nominal voltage	2.5 µA
Collector / emitter voltage drop Vce sat	≤ 0.5 V
Test voltage input / output	2.5 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	250V / 4 kV / 2
Ambient operating temperature	-25 °C ... +40 °C

Accessories

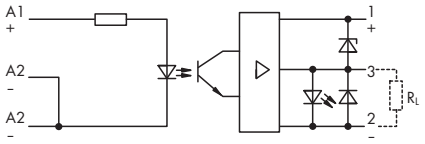
		Item No.	Pack. Unit
Terminal block for pluggable modules,			
with 2-conductor terminal blocks, orange separator ❶	17 mm / 0.669 in. wide	**280-619**	1
with 4-conductor terminal blocks, orange separator ❷	17 mm / 0.669 in. wide	**280-609**	1
with 4-conductor terminal blocks, marker plate ❷	20 mm / 0.787 in. wide	**280-763**	1
wire range 0.08 mm² ... 2.5 mm² / 28 ... 14 AWG;			
stripped length 8 ... 9 mm / 0.31 ... 0.35 in.			

	Optocoupler **Input 5 VDC** **Output 24 VDC / 500 mA** **Positive switching** **Module width 15 mm / 0.591 in.**	



WSB marker cards
- Marking U; Item No.: 209-789
- Marking 1 ... 10; Item No.: 209-702
- Marking A1, A2, A2, 1, 3, 2, A1, A2, A2; Item No.: 209-685

5 cards, each containing 10 strips with 10 markers



Description	Item No.	Pack. Unit	
Optocoupler module	**286-752/002-000**	1	

Technical Data

Accessories see page 99

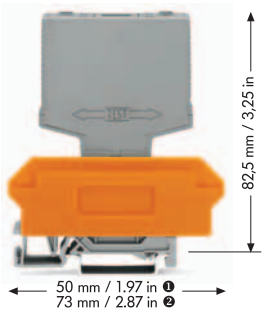
Nominal input voltage (V_N)	5 VDC	
Input voltage range	2 V ... 6,25 V DC	
Input current range	3.3 mA ... > 18.5 mA	
Current at nominal voltage	14 mA DC	
Output nominal voltage	24 VDC	
Output voltage range	20 V ... 30 V DC	
Reverse voltage transistor/triac	80 VDC	
Max. permissible continuous current	500 mA	
Switch on / Switch off time	< 5 µs / < 10 µs	
Max. operating frequency	25 kHz	
Leakage current at nominal voltage	2.5 µA	
Collector / emitter voltage drop Vce sat	≤ 1.2 V	
Max. output (reverse current)	12 mA	
Test voltage input / output	2.5 kV	
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	250V / 4 kV / 2	
Ambient operating temperature	-25 °C ... +40 °C	
Standards/specifications	EN 60664-1	

Accessories

		Item No.	Pack. Unit	
Terminal block for pluggable modules,				
with 2-conductor terminal blocks, orange separator ❶	17 mm / 0.669 in. wide	**280-619**	1	
with 4-conductor terminal blocks, orange separator ❷	17 mm / 0.669 in. wide	**280-609**	1	
with 4-conductor terminal blocks, marker plate ❷	20 mm / 0.787 in. wide	**280-763**	1	
wire range 0.08 mm² ... 2.5 mm² / 28 ... 14 AWG;				
stripped length 8 ... 9 mm / 0.31 ... 0.35 in.				

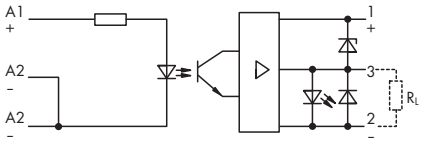
Pluggable Modules - Optocouplers

	Optocoupler **Input 24 VDC** **Output 24 VDC / 4 A** **Positive switching** **Module width 15 mm / 0.591 in.**	



WSB marker cards
- Marking U; Item No.: 209-789
- Marking 1 ... 10; Item No.: 209-702
- Marking A1, A2, A2, 1, 3, 2, A1, A2, A2; Item No.: 209-685

5 cards, each containing 10 strips with 10 markers



Description	Item No.	Pack. Unit	
Optocoupler module	**286-723**	1	

Technical Data

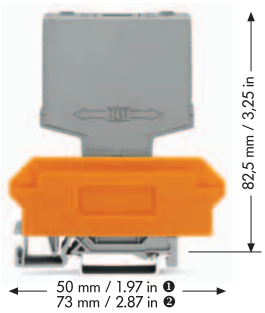
Accessories see page 99

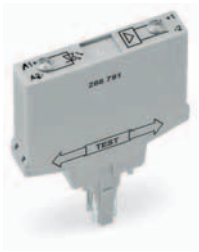
Nominal input voltage (V_N)	24 VDC
Input voltage range	15 V ... 30 V DC
Input current range	7.6 mA ... 15.0 mA DC
Current at nominal voltage	13.5 mA DC
Output nominal voltage	24 VDC
Output voltage range	20 V ... 30 V DC
Reverse voltage transistor/triac	100 VDC
Max. permissible continuous current	4 A
Switch on / Switch off time	≤ 15 µs / ≤ 25 µs
Max. operating frequency	2.5 kHz
Leakage current at nominal voltage	2.5 µA
Collector / emitter voltage drop Vce sat	≤ 1.2 V
Max. output (reverse current)	12 mA
Test voltage input / output	2.5 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	250V / 4 kV / 3
Ambient operating temperature	-25 °C ... +40 °C
Standards/specifications	

Accessories

		Item No.	Pack. Unit
Terminal block for pluggable modules,			
with 2-conductor terminal blocks, orange separator ❶	17 mm / 0.669 in. wide	**280-619**	1
with 4-conductor terminal blocks, orange separator ❷	17 mm / 0.669 in. wide	**280-609**	1
with 4-conductor terminal blocks, marker plate ❷	20 mm / 0.787 in. wide	**280-763**	1
wire range 0.08 mm² ... 2.5 mm² / 28 ... 14 AWG;			
stripped length 8 ... 9 mm / 0.31 ... 0.35 in.			

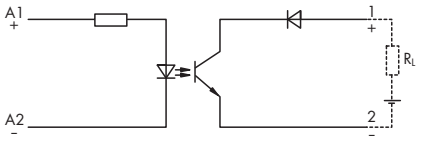
	Optocoupler **Input 24 VDC** **Output 60 VDC / 100 mA** **Module width 10 mm / 0.394 in.**	





WSB marker cards
- Marking U; Item No.: 209-789
- Marking 1 ... 10; Item No.: 209-702
- Marking A1, A2, A2, 1, 3, 2, A1, A2, A2; Item No.: 209-685
- Marking A1, A2, A2, 1, 2, 2, A1, A2, A2; Item No.: 209-686

5 cards, each containing 10 strips with 10 markers



Description	Item No.	Pack. Unit	
Optocoupler module	**286-791**	1	

Technical Data

Accessories see page 99

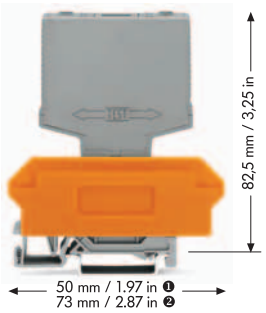
Nominal input voltage (V_N)	24 VDC	
Input voltage range	15 V ... 30 V DC	
Input current range	7.5 mA ... 18 mA DC	
Current at nominal voltage	14 mA DC	
Output nominal voltage	60 VDC	
Output voltage range	20 V ... 60 V DC	
Reverse voltage transistor/triac	80 VDC	
Max. permissible continuous current	100 mA	
Switch on / Switch off time	10 µs / 50 µs	
Max. operating frequency	3 kHz	
Leakage current at nominal voltage	2.5 µA	
Max. voltage drop at output	≤ 2 V	
Test voltage input / output	2.5 kV	
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	250V / 4 kV / 2	
Ambient operating temperature	-25 °C ... +40 °C	

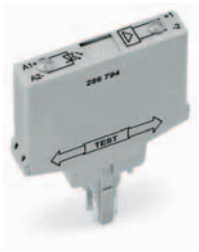
Accessories

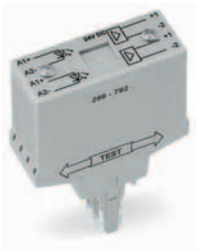
		Item No.	Pack. Unit	
Terminal block for pluggable modules,				
with 2-conductor terminal blocks, orange separator ❶	12 mm / 0.472 in. wide	**280-618**	1	
with 4-conductor terminal blocks, orange separator ❷	12 mm / 0.472 in. wide	**280-608**	1	
with 4-conductor terminal blocks, marker plate ❷	15 mm / 0.591 in. wide	**280-762**	1	
wire range 0.08 mm² ... 2.5 mm² / 28 ... 14 AWG;				
stripped length 8 ... 9 mm / 0.31 ... 0.35 in.				

Pluggable Modules - Optocouplers

	Optocoupler Input 24 VDC Output 60 VDC / 100 mA Module width 10 mm / 0.394 in.	Dual channel optocoupler 2 in.puts 2 x 24 VDC 2 outputs 2 x 24 VDC / 2 x 250 mA Module width 20 mm / 0.787 in.

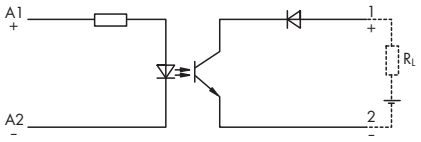


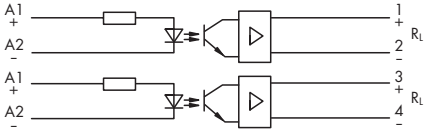




WSB marker cards
- Marking U; Item No.: 209-789
- Marking 1 ... 10; Item No.: 209-702
- Marking A1, A2, A2, 1, 2, 2, A1, A2, A2; Item No.: 209-686
- Marking A1+, A1+, A2-, A2-, 1, RL1, Rl2, 2; Item No.: 209-955
- Marking A1+, A1+, A2-, A2-, 1+, 1+, A, 2-; Item No.: 249-651

5 cards, each containing 10 strips with 10 markers



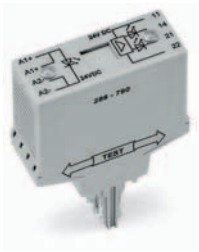


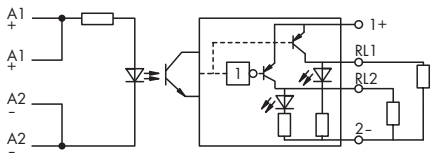
Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Optocoupler module	**286-794**	1	**286-792**	1

Technical Data	Accessories see page 99	Accessories see page 99
Nominal input voltage (V_N)	24 VDC	24 VDC
Input voltage range	18 V ... 30 V DC	7.5 V ... 30 V DC
Input current range	2 mA ... 5 mA DC	4 mA ... 19 mA DC
Current at nominal voltage	4 mA DC	15 mA DC
Output nominal voltage	60 VDC	24 VDC
Output voltage range	20 V ... 60 V DC	20 V ... 30 V DC
Reverse voltage transistor/triac	80 VDC	80 VDC
Max. permissible continuous current	100 mA	250 mA
Switch on / Switch off time	80 µs / 100 µs	< 60 µs / < 120 µs
Max. operating frequency	1.5 kHz	1.5 kHz
Leakage current at nominal voltage	2.5 µA	2.6 µA
Collector / emitter voltage drop Vce sat		< 2.5 V
Max. voltage drop at output	≤ 2 V	
Test voltage input / output	2.5 kV	2.5 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	250V / 4 kV / 2	250V / 4 kV / 2
Ambient operating temperature	-25 °C ... +60 °C	-25 °C ... +40 °C

Accessories		Item No.	Pack. Unit		Item No.	Pack. Unit
Terminal block for pluggable modules,						
with 2-conductor terminal blocks, orange separator ❶	12 mm / 0.472 in. wide	**280-618**	1	22 mm / 0.866 in. wide	**280-638**	1
with 4-conductor terminal blocks, orange separator ❷	12 mm / 0.472 in. wide	**280-608**	1	22 mm / 0.866 in. wide	**280-628**	1
with 4-conductor terminal blocks, marker plate ❷	15 mm / 0.591 in. wide	**280-762**	1	25 mm / 0.984 in. wide	**280-764**	1
wire range 0.08 mm² ... 2.5 mm² / 28 ... 14 AWG;						
stripped length 8 ... 9 mm / 0.31 ... 0.35 in.						

	Optocoupler with 2 inverted outputs **Input 24 VDC** **Output 2 x 24 VDC / 500 mA** **Module width 20 mm / 0.787 in.**	





Description	Item No.	Pack. Unit	
Optocoupler module	**286-790**	1	

Technical Data

Accessories see page 99

Nominal input voltage (V_N)	24 VDC
Input voltage range	20 V ... 30 V DC
Input current range	7 mA ... 12 mA DC
Current at nominal voltage	9 mA DC
Output nominal voltage	24 VDC
Output voltage range	20 V ... 30 V DC
Reverse voltage transistor/triac	100 VDC
Max. permissible continuous current	500 mA
Switch on / Switch off time	4 µs / 15 µs
Max. operating frequency	2.5 kHz
Leakage current at nominal voltage	2.5 µA
Collector / emitter voltage drop Vce sat	< 1.2 V
Test voltage input / output	2.5 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250V / 4 kV / 2
IEC 60664-1	
Ambient operating temperature	-25 °C ... +40 °C

Accessories

		Item No.	Pack. Unit	
Terminal block for pluggable modules,				
with 2-conductor terminal blocks, orange separator ❶	22 mm / 0.866 in. wide	**280-638**	1	
with 4-conductor terminal blocks, orange separator ❷	22 mm / 0.866 in. wide	**280-628**	1	
with 4-conductor terminal blocks, marker plate ❷	25 mm / 0.984 in. wide	**280-764**	1	
wire range 0.08 mm² ... 2.5 mm² / 28 ... 14 AWG;				
stripped length 8 ... 9 mm / 0.31 ... 0.35 in.				

Accessories, 286 Series

2-conductor terminal block

4-conductor terminal block

Description		Item No.	Pack. Unit
Terminal block for pluggable modules,			
with 2-conductor terminal blocks, orange separator	12 mm / 0.472 in. wide	**280-618**	1
with 4-conductor terminal blocks, orange separator	12 mm / 0.472 in. wide	**280-608**	1
with 4-conductor terminal blocks, marker plate	15 mm / 0.591 in. wide	**280-762**	1
Terminal block for pluggable modules,			
with 2-conductor terminal blocks, orange separator	17 mm / 0.669 in. wide	**280-619**	1
with 4-conductor terminal blocks, orange separator	17 mm / 0.669 in. wide	**280-609**	1
with 4-conductor terminal blocks, marker plate	20 mm / 0.787 in. wide	**280-763**	1
Terminal block for pluggable modules,			
with 2-conductor terminal blocks, orange separator	22 mm / 0.866 in. wide	**280-638**	1
with 4-conductor terminal blocks, orange separator	22 mm / 0.866 in. wide	**280-628**	1
with 4-conductor terminal blocks, marker plate	25 mm / 0.984 in. wide	**280-764**	1
Terminal block for pluggable modules,			
with 2-conductor terminal blocks, orange separator	27 mm / 1.063 in. wide	**280-639**	1
with 4-conductor terminal blocks, orange separator	27 mm / 1.063 in. wide	**280-629**	1
with 4-conductor terminal blocks, marker plate	30 mm / 1.181 in. wide	**280-765**	1
Terminal block for pluggable modules,			
with 4-conductor terminal blocks, orange separator	37 mm / 1.457 in. wide	**280-636**	1

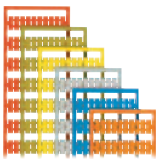
Wire range 0.08 mm² ... 2.5 mm² / 28 ... 14 AWG; Stripped lengths 8 ... 9 mm / 0.31 ... 0.35 in.

Miniature quick marking card

Description		Item No.	Pack. Unit
Marking:	K	209-782	5 cards
	1 ... 10 (10 x)	209-702	5
	A1, A2, 13, 14	209-952	5 cards
	A1, A2, 11, 12	209-953	5 cards
	11, 12, 14, A1, A2, A2, 11, 12, 14	209-994	5 cards
	12, A1, A2, 24, 11, 14, 21, 22	209-995	5 cards
	A1, A1, A2, A2, 11, 12, 13, 14, 23, 24	209-693	5 cards
	12, A1, A2, 23, 24, 11, 13, 14, 21, 22	209-691	5 cards
	12, A1, A2, 23, 24, 11, 13, 14, 33, 34	209-690	5 cards
	14, A1, A2, 33, 34, 13, 23, 24, 43, 44	209-692	5 cards
	A1, A2, 32, 31, 34, 42, 41, 12, 11, 14, 22, 21, 24, 44	249-656	5 cards
	L+, 1, L-, L-, 11, 12, 13, 14	209-954	5 cards
	A1, A2, A3, 11, 12, 14	249-607	5 cards
	A1, A1, A2, A2, 12, 11, 11, 14	209-996	5 cards
	A1, A1, St, A2, A2, 12, 11, 11, 14	209-601	5 cards
	U1, U2, U3, U4, 0V, 12, 11, 11, 14, 14	209-951	5 cards
	U	209-789	5 cards
	A1, A2, A2, 1, 3, 2	209-685	5 cards
	A1, A2, A2, 1, 2, 2	209-686	5 cards
	A1+, A1+, A2-, A2-, 1, RL1, RL2, 2	209-955	5 cards
	A1+, A1+, A2-, A2-, 1+, 1+, A, 2-	249-651	5 cards
	+/-	209-552	5 cards
	1, 2, 3, 0V, +UB, OUT, ERR., 0V	249-622	5 cards
	1, 2, 0V, +UB, OUT, ERR., 0V	249-623	5 cards
	Lin, Lin, Lout, Lout, 24V, UA, UA, 0V	209-957	5 cards
	Lin, Lin, Lout, 11, 14, 14, Lin, Lin, Lout	249-654	5 cards
	Iin, Iin, Iout, Iout, 24V, 11, 12, 14, 0V	209-997	5 cards
	S	209-682	5 cards
	V	209-784	5 cards
	F1 ... F10	209-787	5 cards
	D	209-783	5 cards
	+, -, 1, 2, 3, 13, 14, 4, 5, 6	249-608	5 cards
	L, N, Quitt, Störung, Test, N, 14, 24	249-606	5 cards
	A1, A2, Quitt, Störung, 12, 11, 11, 14	249-653	5 cards

5 cards, each containing 10 strips with 10 markers

Colored marker cards



Description		Item No.	Pack. Unit
Marker cards and tags WSB 4 mm/0.157 in. (plain)	white	209-701	5 cards
Marking software and printer/plotter see Section 8	yellow	209-701/000-002	5 cards
	red	209-701/000-005	5 cards
	blue	209-701/000-006	5 cards
	gray	209-701/000-007	5 cards
	orange	209-701/000-012	5 cards
	light green	209-701/000-017	5 cards
	green	209-701/000-023	5 cards
	violet	209-701/000-024	5 cards

5 cards, each containing 10 strips with 10 markers

DO (DC O.K.) 4.1
GND (-) 4.2
GND (-) 4.3
DC 24 V (+) 4.4
DC 24 V (+) 6.1
GND (-) 6.2

JUMPFLEX® Isolation Amplifiers and Signal Conditioners

Page

JUMPFLEX® Isolation Amplifiers

2857 Series 170
857 Series 172

JUMPFLEX® Current and Voltage Signal Conditioners

2857 Series 192
857 Series 194

JUMPFLEX® Threshold Value Switches

2857 Series 200
857 Series 204

JUMPFLEX® Temperature Signal Conditioners

857 Series 206

JUMPFLEX® Potentiometer Position Signal Conditioner

857 Series 218

JUMPFLEX® Frequency Signal Conditioner

857 Series 222

Configuration Software

Interface Configuration Software and Configuration App 226

Accessories

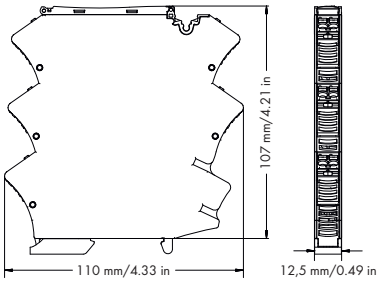
Configuration Display, 2857 Series 228
EPSITRON® Power for *JUMPFLEX*® – Switched-Mode Power Supply, 787 Series 229
WAGO *Bluetooth*® Adapter and WAGO USB Service Cable, 750 Series 230
Supply and Through Module, 857 Series 232
Interface Adapter, 857 Series 234
WAGO Interface Cables, 706 Series 235
Accessories, 857 Series 236

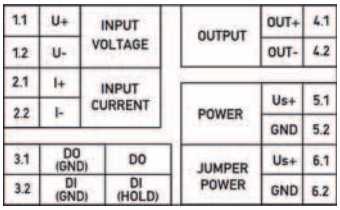
JUMPFLEX® Signal Conditioners

Universal Isolation Amplifier

Configuration via:

DIP switch | Interface configuration software | Interface configuration app | Configuration display





Short description:
The Universal Isolation Amplifier converts, amplifies, filters and electrically isolates analog signals.

Features:

- Analog unipolar/bipolar signals at input/output
- A digital signal output reacts to configured measuring range limits (switching ON/OFF delay and threshold value switch function configurable with up to two threshold values).
- A digital HOLD input freezes the output signal.
- Clipping capability provides analog signal limitation to output end values.
- Adjustable software/hardware filter
- Input/Output response simulation via configuration display
- Safe 3-way isolation with 4 kV test voltage acc. to EN 61140

Description	Item No.	Pack. Unit
***JUMPFLEX*® Signal Conditioner, for DIN 35 rail**	**2857-401**	1
Universal Isolation Amplifier		

Technical Data

Configuration:	
Configuration	DIP switch, interface configuration software, interface configuration app, configuration display
Input:	
Input signal	**Current:**
	± 1 mA; 0 ... 1 mA;
	± 10 mA; 0 ... 10 mA; 2 ... 10 mA;
	± 20 mA; 0 ... 20 mA; 4 ... 20 mA;
	± 100 mA; 0 ... 100 mA*
	Voltage:
	± 1 V; 0 ... 1 V;
	± 10 V; 0 ... 10 V; 2 ... 10 V;
	± 30 V; 0 ... 30 V;
	± 100 V; 0 ... 100 V;
	± 200 V; 0 ... 220 V*
Input resistance	≥ 1 MΩ (U input); ≤ 50 Ω (I input)
Max. operating frequency	10 kHz / 5 kHz / 100 Hz / 30 Hz* (configurable via DIP switch)
Input – Digital:	
HOLD signal	11.8 V ... U_S
Output:	
Output signal	**Current:**
	± 10 mA; 0 ... 10 mA; 2 ... 10 mA;
	± 20 mA; 0 ... 20 mA; 4 ... 20 mA*
	Voltage:
	± 5 V; 0 ... 5 V; 1 ... 5 V;
	± 10 V; 0 ... 10 V; 2 ... 10 V*
Load impedance	**Current:** ≤ 600 Ω;
	Voltage: ≥ 1 kΩ
Overload capacity	-250 V; +250 V / -120 mA; +120 mA
Output – Digital:	
Max. switching voltage	Supply voltage applied -0.3 V
Max. continuous current I_{DO}	100 mA (no internal restriction)

Technical Data

General specifications:	
Nominal supply voltage V_S	24 VDC
Supply voltage range	V_S -30 % ... +30 %
Current consumption at 24 VDC	≤ 70 mA (+ IDO)
Response time (T_{10-90})	< 1 ms
Transmission error	≤ 0.1 % of the full scale value
Temperature coefficient	≤ 0.01 %/K
Environmental requirements:	
Ambient operating temperature	-40 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Safety and protection:	
Test voltage	
(input/output/supply)	4 kV AC, 50 Hz, 1 min.
Connection and type of mounting:	
Wire connection	Push-in CAGE CLAMP® (*picoMAX*® 5.0)
Cross sections	Ssolid/fine-stranded:
	0.2 ... 2.5 mm² / 24 ... 12 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.
Dimensions and weight:	
Dimensions (mm) W x H x L	12.5 x 107 x 110
	Height from upper-edge of DIN 35 rail
Weight	86 g
Standards and approvals:	
Conformity marking	CE
Standards/specifications	DIN EN 60664-1;
	Safe isolation acc. to
	DIN EN 61140:2002; IEC 61000-6-2;
	IEC 61000-6-4
Accessories:	see page 226

(*Additional setting options via interface configuration software or interface configuration app)

DIP Switch Adjustability

● = ON

2857-401

DIP Switch S1

Input													
1	Signal	2	Polarity	3	4	5	Range / mA	Range / V	6	Inverted Characteristic	7	8	Limit Frequency
	Current		Unipolar				0 ... 20	0 ... 10		Not inverted			10 kHz
●	Voltage	●	Bipolar *	●			0 ... 1	0 ... 1	●	Inverted	●		5 kHz
					●		0 ... 5	0 ... 5				●	100 Hz
				●	●		0 ... 10	1 ... 5			●	●	30 Hz
						●	2 ... 10	2 ... 10					
				●		●	4 ... 20	0 ... 30					
					●	●	0 ... 50	0 ... 100					
				●	●	●	0 ... 100	0 ... 220					

DIP Switch S1

Output			
9	Signal	10	Polarity
	Current		Unipolar
●	Voltage	●	Bipolar *

DIP Switch S2

Output			
1	2	Range / mA	Range / V
		0 ... 20	0 ... 10
●		4 ... 20	2 ... 10
	●	0 ... 10	0 ... 5
●	●	2 ... 10	1 ... 5

DIP Switch S2

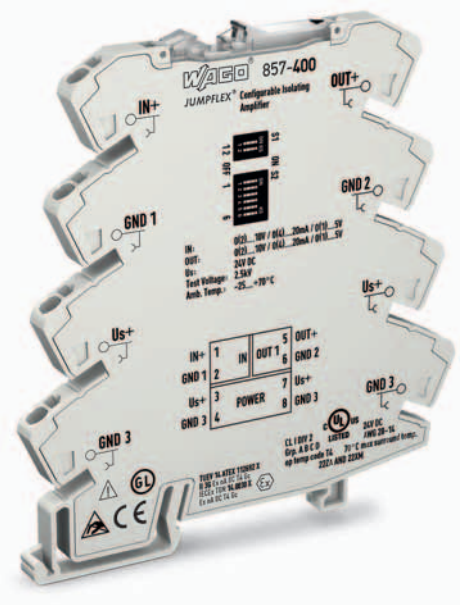
Output				Digital Output (DO)		
3	4	Measuring Range Underflow	Measuring Range Overflow	5	6	
		Lower limit of output range -5% **	Upper limit of output range +2.5% **			Off
●		Lower limit of output range	Upper limit of output range +2.5%	●		DO U_s switching
	●	Lower limit of output range	Upper limit of output range		●	DO GND switching
●	●	Lower limit of output range -5%	Upper limit of output range +5%	●	●	Off

* Bipolar only applies to ranges starting with 0.

** acc. to NAMUR NE 43

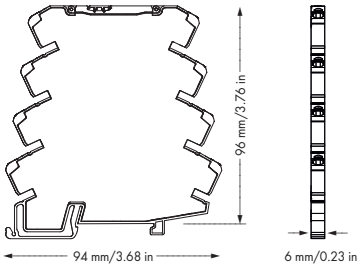
JUMPFLEX® Signal Conditioners

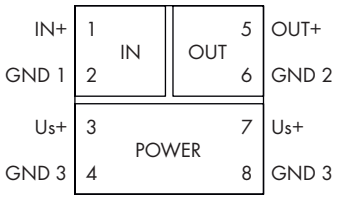
Isolation Amplifier, with Zero/Span Adjustment



Configuration via:

DIP switch





Short description:
The configurable Isolation Amplifier is used to convert, amplify, filter and electrically isolate analog standard signals.

Characteristics:
- Zero/span adjustment across the entire measuring range
- Calibrated scale switching
- Switchable max. operating frequency
- Safe 3-way isolation with 2.5kV test voltage acc. to EN 61140

Description	Item No.	Pack. Unit
***JUMPFLEX*® Signal Conditioner, for DIN 35 rail**	**857-400**	1
Isolation Amplifier, with Zero/Span Adjustment		

Technical Data

Configuration:	
Configuration	DIP switch
Input:	
Input signal	0 ... 20 mA, 4 ... 20 mA,
	0... 5 V, 0 ... 10 V, 2 ... 10 V, 1 ... 5 V
	(calibrated switchable)
Input resistance	≤ 50 Ω (In = mA)
	≥ 100 kΩ (In = V)
Output:	
Output signal	0 ... 20 mA, 4 ... 20 mA,
	0... 5 V, 0 ... 10 V, 2 ... 10 V, 1 ... 5 V
	(calibrated switchable)
Load impedance	600 Ω (Out = mA)
	2 kΩ (Out = V)
General specifications:	
Nominal supply voltage V_S	24 VDC
Supply voltage range	V_S -30 % ... +30 %
Current consumption at 24 VDC	≤ 25 mA
Max. operating frequency	100 Hz / 5 kHz
	(switchable via DIP switch)
Response time (T_{10-90})	< 3.5 ms / < 100 µs
Transmission error	≤ 0.1 % of the full scale value
Temperature coefficient	≤ 0.01 % /K
Zero/span adjustment	± 3% of upper range value

Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Safety and protection:	
Test voltage (input/output/supply)	2.5 kV AC, 50 Hz, 1 min
Connection and type of mounting:	
Wire connection	Push-in CAGE CLAMP®
Cross sections	Ssolid:
	0.08 mm² ... 2.5 mm² / 28 ... 14 AWG
	Fine-stranded:
	0.34 mm² ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.
Dimensions and weight:	
Dimensions (mm) W x H x L	6 x 96 x 94
	Height from upper-edge of DIN 35 rail
Weight	36.8 g
Standards and approvals:	
Conformity marking	CE
cULus UL 508	
cULus ANSI/ISA 12.12.01	Class I, Div. 2, Grp. ABCD, T4
Shipbuilding	GL, PRS, NKK, DNV, BV
Ex TÜV 14 ATEX 112692 X	II 3 G Ex nA IIC T4 Gc
IECEx TUN 14.0030 X	Ex nA IIC T4 Gc
EMC immunity of interference	EN 61000-6-2
EMC emission of interference	EN 61000-6-4
Accessories:	see page 226
	Marking strip: 2009-110

DIP Switch Adjustability

● = ON

857-400

Dip Switch S1 (2-fold) Dip Switch S2 (6-fold)

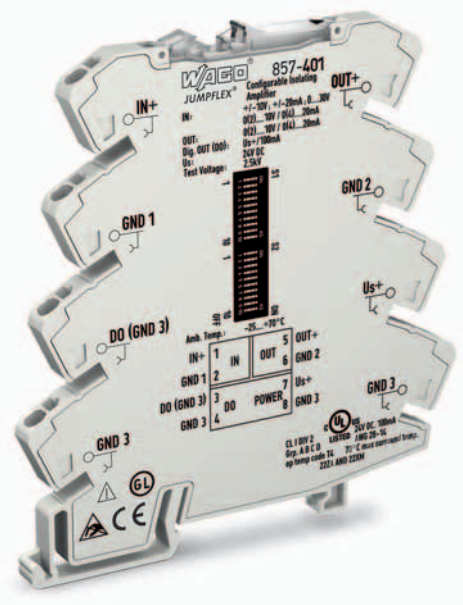
Input Signal			Output Signal						Max. Operating Frequency	
1	2		1	2	3	4	5		6	
●		0 ... 20 mA						0 ... 20 mA		5 kHz
						●		4 ... 20 mA	●	100 Hz
			●	●				0 ... 10 V		
			●	●		●		2 ... 10 V		
			●	●	●			0 ... 5 V		
			●	●	●	●		1 ... 5 V		
●		4 ... 20 mA					●	0 ... 20 mA		
								4 ... 20 mA		
			●	●			●	0 ... 10 V		
			●	●				2 ... 10 V		
			●	●	●		●	0 ... 5 V		
			●	●	●			1 ... 5 V		
	●	0 ... 10 V						0 ... 20 mA		
						●		4 ... 20 mA		
			●	●				0 ... 10 V		
			●	●		●		2 ... 10 V		
			●	●	●			0 ... 5 V		
			●	●	●	●		1 ... 5 V		
	●	2 ... 10 V					●	0 ... 20 mA		
								4 ... 20 mA		
			●	●			●	0 ... 10 V		
			●	●				2 ... 10 V		
			●	●	●		●	0 ... 5 V		
			●	●	●			1 ... 5 V		
		0 ... 5 V						0 ... 20 mA		
						●		4 ... 20 mA		
			●	●				0 ... 10 V		
			●	●		●		2 ... 10 V		
			●	●	●			0 ... 5 V		
			●	●	●	●		1 ... 5 V		
		1 ... 5 V					●	0 ... 20 mA		
								4 ... 20 mA		
			●	●			●	0 ... 10 V		
			●	●				2 ... 10 V		
			●	●	●		●	0 ... 5 V		
			●	●	●			1 ... 5 V		

Default Settings

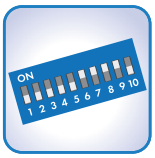
Input	0 ... 20 mA
Output	0 ... 20 mA
Max. Operating Frequency	5 kHz

JUMPFLEX® Signal Conditioners

Isolation Amplifier, configurable with Digital Output



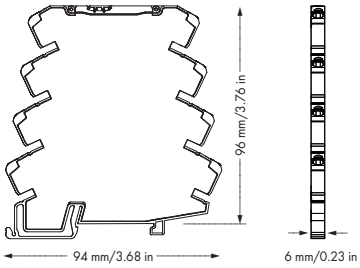
Configuration via:

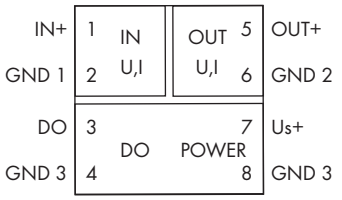


DIP switch

Interface configuration software

Interface configuration app





Short description:
The software-configurable Isolation Amplifier converts standard signals and amplifies, filters and electrically isolates analog standard signals.

Characteristics:
- PC configuration interface
- Digital switching output
- Calibrated scale switching
- Analog, unipolar and bipolar, standard signals at input
- Clipping capability allows analog standard signal limitation to upper range values.
- Safe 3-way isolation with 2.5kV test voltage acc. to EN 61140

Description	Item No.	Pack. Unit
***JUMPFLEX*® Signal Conditioner, for DIN 35 rail**	**857-401**	1
Isolation Amplifier, configurable		
with Digital Output		

Technical Data

Configuration:	
Configuration	DIP switch, interface configuration
	software, interface configuration app
Input:	
Input signal	-20 ... +20mA, -10 ... +10V, 0 ... +30V *
Input resistance	≤ 200 Ω (I input)
	> 100 kΩ (U input)
Max. input signal	31.2 V (U_{IN}) 100 mA (I_{IN})
Output:	
Output signal	0 ... 20mA, 4 ... 20mA,
	0 ... 5V, 1 ... 5V, 0 ... 10V, 2 ... 10V,
	0 ... 10mA, 2 ... 10mA*
Load impedance	≤ 600 Ω (I output)
	≥ 2 kΩ (U output)
Step response	≤ 8ms
Output - Digital	
Max. switching voltage	Supply voltage applied
Max. continuous current	500 mA (up to 60 °C)
	100 mA (60 °C ... 70 °C)
General specifications:	
Nominal supply voltage V_S	24 VDC
Supply voltage range	V_S -30 % ... +30 %
Current consumption at 24 VDC	≤ 40 mA
Min. measuring span	1 V, 2 mA (configurable)
Max. Messspanne	30 V, 40 mA
Transmission error	≤ 0.1 % of upper range value
Temperature coefficient	≤ 0.01 % /K

Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Safety and protection:	
Test voltage (input/output/supply)	2.5 kV AC, 50 Hz, 1 min.
Connection and type of mounting:	
Wire connection	Push-in CAGE CLAMP®
Cross sections	Ssolid:
	0.08 mm² ... 2.5 mm² / 28 ... 14 AWG
	Fine-stranded:
	0.34 mm² ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.
Dimensions and weight:	
Dimensions (mm) W x H x L	6 x 96 x 94
	Height from upper-edge of DIN 35 rail
Weight	42 g
Standards and approvals:	
Conformity marking	CE
cULus UL 508	
cULus ANSI/ISA 12.12.01	Class I, Div. 2, Grp. ABCD, T4
Shipbuilding	GL, PRS, BV
EMC immunity of interference	EN 61000-6-2
EMC emission of interference	EN 61000-6-4
Accessories:	see page 226
	Marking strip: 2009-110

(*Additional setting options via interface configuration software or interface configuration app)

DIP Switch Adjustability

● = ON

857-401

Input Signal Start Value																	
DIP S1																	
1		2	3	4	5	6	7	V	mA	2	3	4	5	6	7	V	mA
	Voltage							0	0						●	5.5	11
●	Current	●						-10	-20	●					●	6	12
			●					-9.5	-19		●				●	6.5	13
		●	●					-9	-18	●	●				●	7	14
				●				-8.5	-17			●			●	7.5	15
		●		●				-8	-16	●		●			●	8	16
			●	●				-7.5	-15		●	●			●	8.5	17
		●	●	●				-7	-14	●	●	●			●	9	18
					●			-6.5	-13				●		●	9.5	19
		●			●			-6	-12	●			●		●	10	20
			●		●			-5.5	-11		●		●		●	10.5	
		●	●		●			-5	-10	●	●		●		●	11	
				●	●			-4.5	-9			●	●		●	11.5	
		●		●	●			-4	-8	●		●	●		●	12	
			●	●	●			-3.5	-7		●	●	●		●	13	
		●	●	●	●			-3	-6	●	●	●	●		●	14	
						●		-2.5	-5					●	●	15	
		●				●		-2	-4	●				●	●	16	
			●			●		-1.5	-3		●			●	●	17	
		●	●			●		-1	-2	●	●			●	●	18	
				●		●		-0.5	-1			●		●	●	19	
		●		●		●		0	0	●		●		●	●	20	
			●	●		●		0.5	1		●	●		●	●	21	
		●	●	●		●		1	2	●	●	●		●	●	22	
					●	●		1.5	3				●	●	●	23	
		●			●	●		2	4	●			●	●	●	24	
			●		●	●		2.5	5		●		●	●	●	25	
		●	●		●	●		3	6	●	●		●	●	●	26	
				●	●	●		3.5	7			●	●	●	●	27	
		●		●	●	●		4	8	●		●	●	●	●	28	
			●	●	●	●		4.5	9		●	●	●	●	●	29	
		●	●	●	●	●		5	10	●	●	●	●	●	●	30	

Input Signal End Value																	
DIP S1			DIP S2					DIP S1			DIP S2						
8	9	10	1	2	3	V	mA	8	9	10	1	2	3	V	mA		
						10	20						●	5.5	11		
●						-10	-20	●					●	6	12		
	●					-9.5	-19		●				●	6.5	13		
●	●					-9	-18	●	●				●	7	14		
		●				-8.5	-17			●			●	7.5	15		
●		●				-8	-16	●		●			●	8	16		
	●	●				-7.5	-15		●	●			●	8.5	17		
●	●	●				-7	-14	●	●	●			●	9	18		
			●			-6.5	-13				●		●	9.5	19		
●			●			-6	-12	●			●		●	10	20		
	●		●			-5.5	-11		●		●		●	10.5			
●	●		●			-5	-10	●	●		●		●	11			
		●	●			-4.5	-9			●	●		●	11.5			
●		●	●			-4	-8	●		●	●		●	12			
	●	●	●			-3.5	-7		●	●	●		●	13			
●	●	●	●			-3	-6	●	●	●	●		●	14			
				●		-2.5	-5					●	●	15			
●				●		-2	-4	●				●	●	16			
	●			●		-1.5	-3		●			●	●	17			
●	●			●		-1	-2	●	●			●	●	18			
		●		●		-0.5	-1			●		●	●	19			
●		●		●		0	0	●		●		●	●	20			
	●	●		●		0.5	1		●	●		●	●	21			
●	●	●		●		1	2	●	●	●		●	●	22			
			●	●		1.5	3				●	●	●	23			
●			●	●		2	4	●			●	●	●	24			
	●		●	●		2.5	5		●		●	●	●	25			
●	●		●	●		3	6	●	●		●	●	●	26			
		●	●	●		3.5	7			●	●	●	●	27			
●		●	●	●		4	8	●		●	●	●	●	28			
	●	●	●	●		4.5	9		●	●	●	●	●	29			
●	●	●	●	●		5	10	●	●	●	●	●	●	30			

DIP Switch S2

Output Signal						Measuring Range Underflow	Measuring Range Overflow			Digital Output DO Signaling
4	5	6		7	8			9	10	
			0 ... 20 mA			Lower limit of output range - 5 % *	Upper limit of output range + 2,5 % *			DO not active
	●		4 ... 20 mA							
		●	0 ... 10 mA	●		Lower limit of output range	Upper limit of output range + 2,5 %		●	GND → U_N (switching)
	●	●	2 ... 10 mA							
●			0 ... 10 V		●	Lower limit of output range	Upper limit of output range	●	●	U_N → GND (switching)
●	●		2 ... 10 V							
●		●	0 ... 5 V	●	●	Lower limit of output range	Upper limit of output range			
●	●	●	1 ... 5 V							

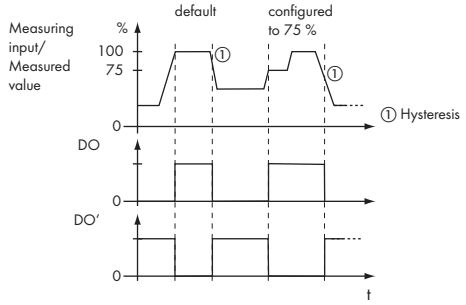
*acc. to NAMUR NE 43

Digital Output DO/Signaling

The digital output (DO) signals error messages and can be configured as follows: 24 V→ 0 V/0 V → 24 V.

In order to increase the switching current of the DO, the latter may be expanded by a relay. Thanks to the contour uniformity of Series 857, for example, a 857-304 Relay can be snapped in next to it. This output can be quickly and easily expanded to a switching current of 6A by simply using an adjacent jumper (859-402).

Switching Behavior, Digital Output (DO)

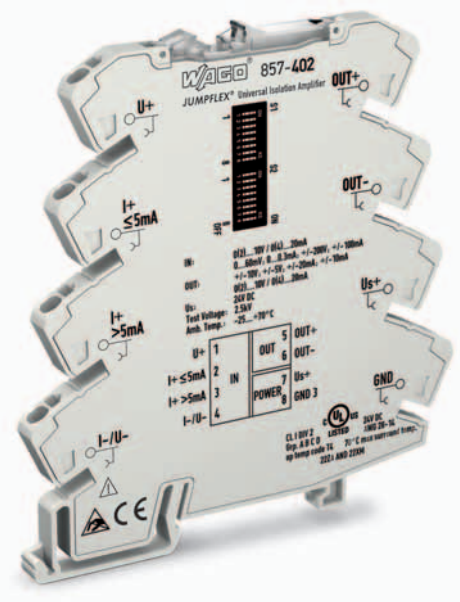


Default Settings

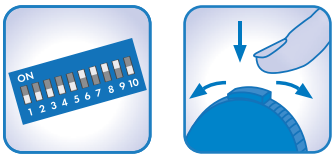
All DIP switches are in „OFF" position for delivery. This is the position used to parameterize the device via PC configuration software.	
Input	
Input signal	Voltage
Start value	0 V
End value	10 V
Output	
Output signal	Current
Start value	0 mA
End value	20 mA
Measuring range underflow	0 mA
Measuring range overflow	20.5 mA
Digital output DO	not active

JUMPFLEX® Signal Conditioners

Universal Isolation Amplifier

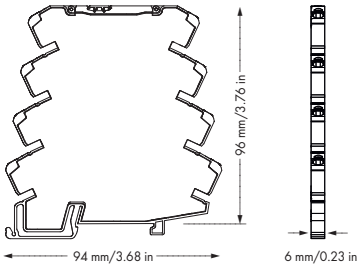


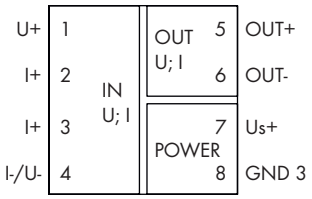
Configuration via:



DIP switch

Push/Slide Switch





Short description:
The universal Isolation Amplifier converts unipolar and bipolar standard signals and amplifies, filters and electrically isolates analog standard signals.

Characteristics:
- Overload protection of current input using reversible fuse
- Zero/span adjustment across the entire measuring range (slide switch)
- Calibrated scale switching for all 456 signals
- Standard analog unipolar and bipolar signals, input/output
- Switchable max. operating frequency
- Clipping capability allows analog standard signal limitation to upper range values.
- Safe 3-way isolation with 2.5kV test voltage acc. to EN 61140

Description	Item No.	Pack. Unit
***JUMPFLEX*® Signal Conditioner, for DIN 35 rail**	**857-402**	1
Universal Isolation Amplifier		

Technical Data

Configuration:	
Configuration	DIP switch, push/slide switch
Input:	
Input signal	**Voltage:**
	± 60 mV, 0 ... 60 mV, ± 100 mV,
	0 ... 100 mV, ± 150 mV, 0 ... 150 mV,
	± 300 mV, 0 ... 300 mV, ± 500 mV,
	0 ... 500 mV, ± 1 V, 0 ... 1 V, ± 5 V,
	0 ... 5 V, 1 ... 5 V, ± 10 V, 0 ... 10 V,
	2 ... 10 V, ± 100 V, 0 ... 100 V
	Current:
	± 0.3 mA, 0 ... 0.3 mA, ± 1 mA,
	0 ... 1 mA, ± 5 mA, 0 ... 5 mA,
	± 10 mA, 0 ... 10 mA, 2 ... 10 mA,
	± 20 mA, 0 ... 20 mA, 4 ... 20 mA,
	± 50 mA, 0 ... 50 mA,
	± 100 mA, 0 ... 100 mA
Input resistance	approx. 1 MΩ (U input)
	≤ 5 mA approx. 100 Ω;
	> 5 mA approx. 10 Ω (I input)
Output:	
Output signal	**Voltage:**
	± 5 V, 0 ... 5 V, 1 ... 5 V,
	± 10 V, 0 ... 10 V, 2 ... 10 V
	Current:
	± 10 mA, 0 ... 10 mA, 2 ... 10 mA,
	± 20 mA, 0 ... 20 mA, 4 ... 20 mA
Load impedance	≤ 600 Ω (I output)
	≥ 1 kΩ (U output)
General specifications:	
Nominal supply voltage V_S	24 VDC
Supply voltage range	V_S -30 % ... +30 %
Current consumption at 24 VDC	≤ 40 mA

Technical Data

General specifications:	
Max. operating frequency	100 Hz / 5 kHz
	(switchable via DIP switch)
Response time (T_{10-90})	< 3.5 ms / < 100 µs
Transmission error	≤ 0.08 % of upper range value
Temperature coefficient	≤ 0.01 % /K
Zero/span adjustment	Adjustable via push/slide switch
Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Safety and protection:	
Test voltage (input/output/supply)	2.5 kV AC, 50 Hz, 1 min.
Connection and type of mounting:	
Wire connection	Push-in CAGE CLAMP®
Cross sections	Ssolid:
	0.08 mm² ... 2.5 mm² / 28 ... 14 AWG
	Fine-stranded:
	0.34 mm² ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.
Dimensions and weight:	
Dimensions (mm) W x H x L	6 x 96 x 94
	Height from upper-edge of DIN 35 rail
Weight	54.3 g
Standards and approvals:	
Conformity marking	CE
cULus UL 508	
cULus ANSI/ISA 12.12.01	Class I, Div. 2, Grp. ABCD, T4
TÜV 14 ATEX 112692 X	II 3 G Ex nA IIC T4 Gc
IECEx TUN 14.0030 X	Ex nA IIC T4 Gc
EMC immunity of interference	EN 61000-6-2
EMC emission of interference	EN 61000-6-4
Accessories:	see page 226
	Marking strip: 2009-110

DIP Switch Adjustability

● = ON

857–402

DIP Switch S1

Input Signal Ranges							Zero/Span Adjustment		Max. Operating Frequency	
1	2	3	4	5	6		7		8	
						Default setting*		Inactive		5 kHz
				●		0 ... 60 mV	●	Active	●	100 Hz
				●	●	± 60 mV				
			●			0 ... 100 mV				
			●		●	± 100 mV				
			●	●		0 ... 150 mV				
			●	●	●	± 150 mV				
		●				0 ... 300 mV				
		●			●	± 300 mV				
		●		●		0 ... 500 mV				
		●		●	●	± 500 mV				
		●	●			0 ... 1 V				
		●	●		●	± 1 V				
		●	●	●		0 ... 5 V				
		●	●	●	●	± 5 V				
	●					0 ... 10 V				
	●				●	± 10 V				
	●			●		0 ... 50 V				
	●			●	●	± 50 V				
	●		●			0 ... 100 V				
	●		●		●	± 100 V				

DIP Switch S1

Input Signal Ranges						
1	2	3	4	5	6	
	●	●				0 ... 0.3 mA
	●	●			●	± 0.3 mA
	●	●		●		0 ... 1 mA
	●	●		●	●	± 1 mA
	●	●	●			0 ... 5 mA
	●	●	●		●	± 5mA
	●	●	●	●		0 ... 10 mA
	●	●	●	●	●	± 10 mA
●						0 ... 20 mA
●					●	± 20 mA
●				●		0 ... 50 mA
●				●	●	± 50 mA
●			●			0 ... 100 mA
●			●		●	± 100 mA
●		●				1 ... 5 V
●		●		●		2 ... 10 V
●		●	●			2 ... 10 mA
●		●	●	●		4 ... 20 mA

More information on measurement range setting is available in 857-402 instruction leaflet.

DIP Switch S2

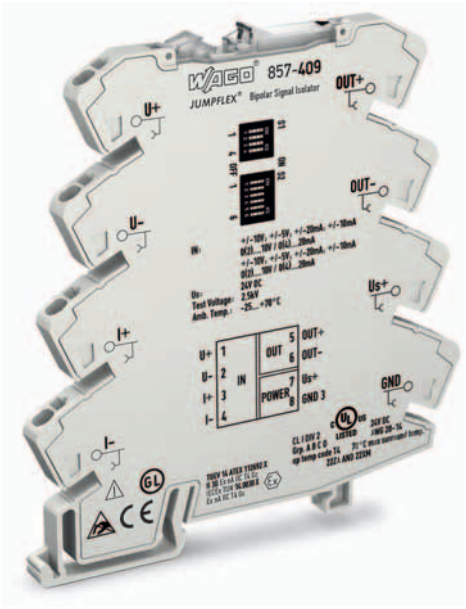
Output Signal Ranges						Reserve	Clipping		Rocker Switch Lock	
1	2	3	4	5		6	7		8	
					Default setting*			inactive (analog response)		switched off
		●			0 ... 10 V		●	active (limiting response)	●	switched on
		●		●	± 10 V					
		●	●		2 ... 10 V					
	●				0 ... 5 V					
	●			●	± 5 V					
	●		●		1 ... 5 V					
	●	●			0 ... 20 mA					
	●	●		●	± 20 mA					
	●	●	●		4 ... 20 mA					
●					0 ... 10 mA					
●				●	± 10 mA					
●			●		2 ... 10 mA					

***Default setting**

Input	± 10 V
Output	± 10 V
Max. operating frequency	5 kHz
*The input and output range DIP switches must be readjusted when changing the default setting.	

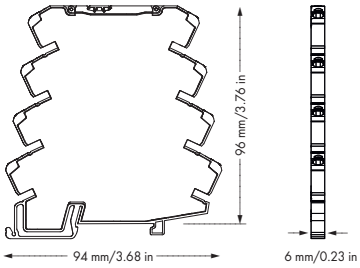
JUMPFLEX® Signal Conditioners

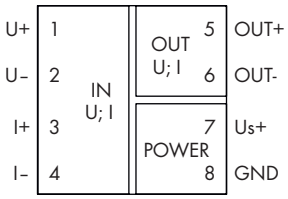
Bipolar Isolation Amplifier



Configuration via:

DIP switch





Short description:
The Bipolar Isolation Amplifier converts unipolar and bipolar standard signals and amplifies, filters and electrically isolates analog standard signals.

Characteristics:
- Overload protection of current input using reversible fuse
- Zero/span adjustment across the entire measuring range
- Calibrated scale switching
- Standard analog unipolar and bipolar signals, input/output
- Switchable max. operating frequency
- Clipping capability allows analog standard signal limitation to upper range values.
- Safe 3-way isolation with 2.5kV test voltage acc. to EN 61140

Description	Item No.	Pack. Unit
***JUMPFLEX*® Signal Conditioner, for DIN 35 rail**	**857-409**	1
Bipolar Isolation Amplifier		

Technical Data

Configuration:	
Configuration	DIP switch
Input:	
Input signal	**Voltage:**
	± 5V, 0 ... 5V, 1 ... 5V,
	± 10V, 0 ... 10V, 2 ... 10V
	Current:
	± 10mA, 0 ... 10mA, 2 ... 10mA,
	± 20mA, 0 ... 20mA, 4 ... 20mA
Input resistance	approx. 1MΩ (U input)
	approx. 50Ω (I input)
Output:	
Output signal	**Voltage:**
	± 5V, 0 ... 5V, 1 ... 5V,
	± 10V, 0 ... 10V, 2 ... 10V,
	Current:
	± 10mA, 0 ... 10mA, 2 ... 10mA,
	± 20mA, 0 ... 20mA, 4 ... 20mA
Load impedance	≤ 600 Ω (I output)
	≥ 2 kΩ (U output)
Overload capacity	32 V / 50 mA
Residual ripple	< 10mV eff
General specifications:	
Nominal supply voltage V_S	24 VDC
Supply voltage range	V_S -30 % ... +30 %
Current consumption at 24 VDC	≤ 25 mA
Max. operating frequency	100 Hz / > 5 kHz
	(switchable via DIP switch)
Response time (T_{10-90})	< 3.5ms / < 60µs
Transmission error	≤ 0.1 % of upper range value
Temperature coefficient	≤ 0.01% /K
Zero/span adjustment	± 5 % of upper range value
	(adjustable via zero/span potentiometer)

Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Safety and protection:	
Test voltage (input/output/supply)	2.5 kV AC, 50 Hz, 1 min
Connection and type of mounting:	
Wire connection	Push-in CAGE CLAMP®
Cross sections	Ssolid:
	0.08 mm² ... 2.5 mm² / 28 ... 14 AWG
	Fine-stranded:
	0.34 mm² ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.
Dimensions and weight:	
Dimensions (mm) W x H x L	6 x 96 x 94
	Height from upper-edge of DIN 35 rail
Weight	42 g
Standards and approvals:	
Conformity marking	CE
cULus UL 508	
cULus ANSI/ISA 12.12.01	Class I, Div. 2, Grp. ABCD, T4
Shipbuilding	GL, PRS, BV
Ex TÜV 14 ATEX 112692 X	II 3 G Ex nA IIC T4 Gc
IECEx TUN 14.0030 X	Ex nA IIC T4 Gc
EMC immunity of interference	EN 61000-6-2
EMC emission of interference	EN 61000-6-3
Accessories:	see page 226
	Marking strip: 2009-110

DIP Switch Adjustability

● = ON

857-409

Dip Switch S1 (4-fold) **Dip Switch S2 (6-fold)**

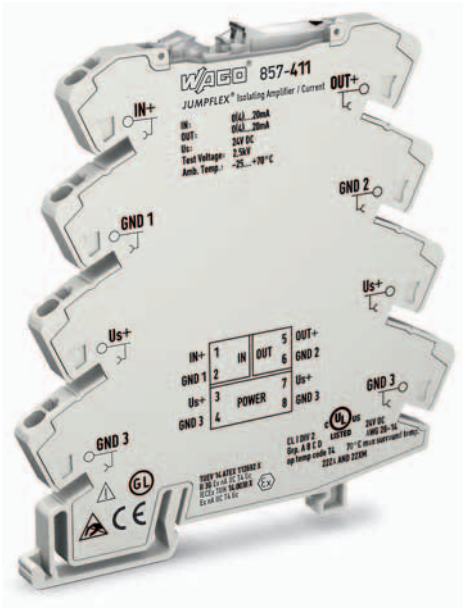
Input Signal					Output Signal						Max. Operating Frequency	
1	2	3	4		1	2	3	4	5		6	
●				± 20 mA				●		± 20 mA		5 kHz
●	●			± 10 mA			●	●		± 10 mA	●	100 Hz
●				± 10 V	●	●		●		± 10 V		
●	●			± 5 V	●	●	●	●		± 5 V		
				0 ... 20 mA						0 ... 20 mA		
		●		4 ... 20 mA					●	4 ... 20 mA		
	●			0 ... 10 mA			●			0 ... 10 mA		
	●	●		2 ... 10 mA			●		●	2 ... 10 mA		
				0 ... 10 V	●	●				0 ... 10 V		
		●		2 ... 10 V	●	●			●	2 ... 10 V		
	●			0 ... 5 V	●	●	●			0 ... 5 V		
	●	●		1 ... 5 V	●	●	●		●	1 ... 5 V		

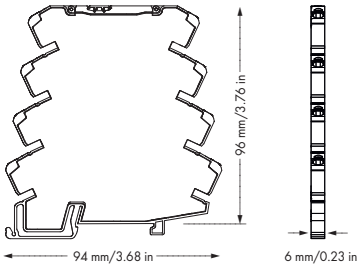
Default Settings

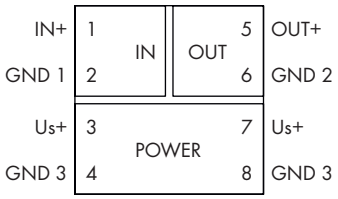
Input	± 10 V
Output	± 10 V
Max. Operating Frequency	5 kHz

JUMPFLEX® Signal Conditioners

Isolation Amplifiers, Fixed Setting for Voltage or Current Signals







Short description:
The pre-configured isolation amplifiers convert, amplify, filter and electrically isolate standard analog signals.

Characteristics:
- Input/Output: current/voltage signal
- Safe 3-way isolation with 2.5kV test voltage acc. to EN 61140

Description	Input signal	Output signal	Item No.	Pack. Unit
***JUMPFLEX*® Signal Conditioner, for DIN 35 rail**				
Isolation amplifier	0(4) ... 20 mA	0(4) ... 20 mA	**857-411**	1
Isolation amplifier	0(2) ... 10 V	0(2) ... 10 V	**857-412**	1
Isolation amplifier	0 ... 10 V	0 ... 20 mA	**857-413**	1
Isolation amplifier	0 ... 10 V	4 ... 20 mA	**857-414**	1
Isolation amplifier	0 ... 20 mA	0 ... 10 V	**857-415**	1
Isolation amplifier	4 ... 20 mA	0 ... 10 V	**857-416**	1

Technical Data

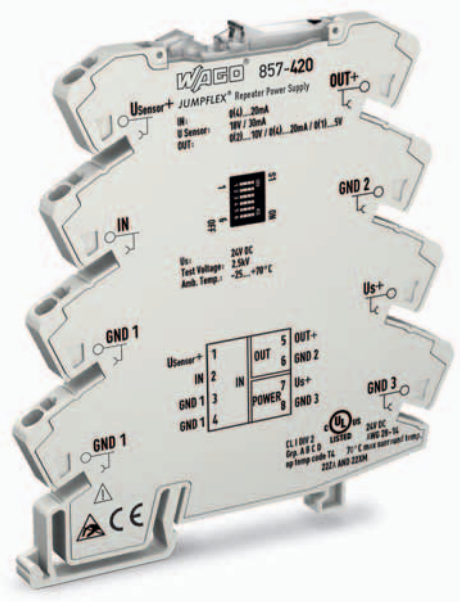
Input:	
Input signal	**857-411:** 0(4) ... 20 mA
	857-412: 0(2) ... 10 V
	857-413: 0 ... 10 V
	857-414: 0 ... 10 V
	857-415: 0 ... 20 mA
	857-416: 4 ... 20 mA
Input resistance	≤ 50 Ω (I input)
	≥ 100 kΩ (U input)
Overload capacity	30 V / 50 mA
Output:	
Output signal	**857-411:** 0(4) ... 20 mA
	857-412: 0(2) ... 10 V
	857-413: 0 ... 20 mA
	857-414: 4 ... 20 mA
	857-415: 0 ... 10 V
	857-416: 0 ... 10 V
Load impedance	≤ 600 Ω (I output)
	≥ 2 kΩ (U output)
General specifications:	
Nominal supply voltage V_S	24 VDC
Supply voltage range	V_S -30 % ... +30 %
Current consumption at 24 VDC	≤ 25 mA
Max. operating frequency	100 Hz
Response time (T_{10-90})	< 3.5 ms
Transmission error	≤ 0.1 % of upper range value
Temperature coefficient	≤ 0.01 % /K

Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Safety and protection:	
Test voltage (input/output/supply)	2.5 kV AC, 50 Hz, 1 min
Connection and type of mounting:	
Wire connection	Push-in CAGE CLAMP®
Cross sections	Ssolid:
	0.08 mm² ... 2.5 mm² / 28 ... 14 AWG
	Fine-stranded:
	0.34 mm² ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.
Dimensions and weight:	
Dimensions (mm) W x H x L	6 x 96 x 94
	Height from upper-edge of DIN 35 rail
Weight	49.2 g
Standards and approvals:	
Conformity marking	CE
cULus UL 508	
cULus ANSI/ISA 12.12.01	Class I, Div. 2, Grp. ABCD, T4
Shipbuilding	GL, PRS, NKK, DNV, BV
Ex TÜV 14 ATEX 112692 X	II 3 G Ex nA IIC T4 Gc
IECEx TUN 14.0030 X	Ex nA IIC T4 Gc
EMC immunity of interference	EN 61000-6-2
EMC emission of interference	EN 61000-6-4
Accessories:	see page 226
	Marking strip: 2009-110

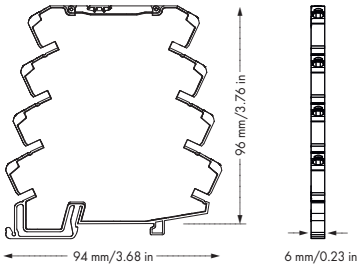
JUMPFLEX® Signal Conditioners

Repeater Power Supply, configurable with Current and Voltage Output



Configuration via:

DIP switch



Short description:
The Repeater Power Supply links 2- or 3-wire transmitters located in the field. It provides the power required and transmits the analog signals in an electrically isolated way.

Characteristics:
- Power supply to SMART transmitters
- Calibrated scale switching
- Safe 3-way isolation with 2.5kV test voltage acc. to EN 61140

Description	Item No.	Pack. Unit
***JUMPFLEX*® Signal Conditioner, for DIN 35 rail**	**857-420**	1
Repeater Power Supply, configurable with Current and Voltage Output		

Technical Data

Configuration:	
Configuration	DIP switch
Input:	
Input signal	0 ... 20 mA, 4 ... 20 mA
	(calibrated switchable)
Input resistance	≤ 50 Ω
Max. input current	50 mA
Transmitter supply	V_v = 18 V at 30 mA
Output:	
Output signal	0 ... 20 mA, 4 ... 20 mA,
	0... 5 V, 0 ... 10 V, 2 ... 10 V, 1 ... 5 V
	(calibrated switchable)
Load impedance	600 Ω (Out = mA)
	2 kΩ (Out = V)
Offset	< 20 µA / < 10 mV
Residual ripple	< 10mV eff
General specifications:	
Nominal supply voltage V_S	24 VDC
Supply voltage range	V_S -30 % ... +30 %
Current consumption at 24 VDC	≤ 45 mA
Max. operating frequency	100 Hz
Response time (T_{10-90})	< 3.5 ms
Transmission error	≤ 0.1 % of the full scale value
Temperature coefficient	≤ 0.01 % /K

Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Safety and protection:	
Test voltage (input/output/supply)	2.5 kV AC, 50 Hz, 1 min
Connection and type of mounting:	
Wire connection	Push-in CAGE CLAMP®
Cross sections	Ssolid:
	0.08 mm² ... 2.5 mm² / 28 ... 14 AWG
	Fine-stranded:
	0.34 mm² ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.
Dimensions and weight:	
Dimensions (mm) W x H x L	6 x 96 x 94
	Height from upper-edge of DIN 35 rail
Weight	46.7 g
Standards and approvals:	
Conformity marking	CE
cULus UL 508	
cULus ANSI/ISA 12.12.01	Class I, Div. 2, Grp. ABCD, T4
Accessories:	see page 226
	Marking strip: 2009-110

DIP Switch Adjustability

● = ON

857-420

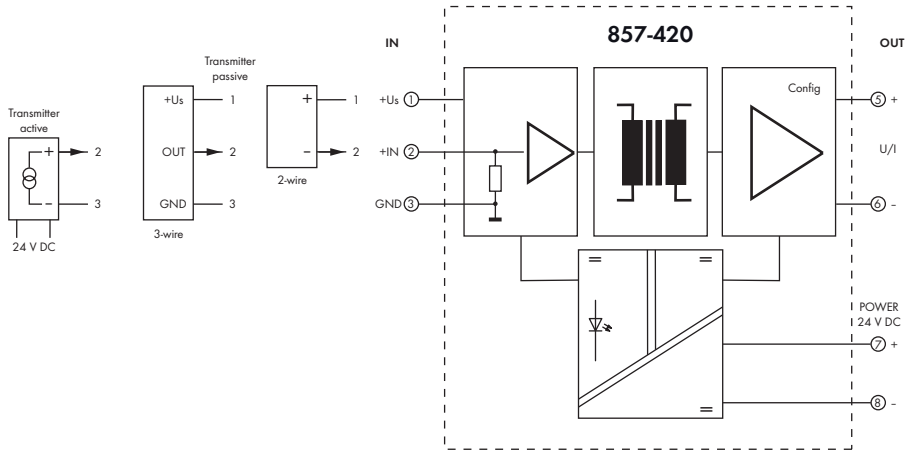
Dip Switch S1 (6-fold)

						Input Signal	Output Signal
1	2	3	4	5	6		
					n.c.	0 ... 20 mA	0 ... 20 mA
			●		n.c.	0 ... 20 mA	4 ... 20 mA
●	●				n.c.	0 ... 20 mA	0 ... 10 V
●	●		●		n.c.	0 ... 20 mA	2 ... 10 V
●	●	●			n.c.	0 ... 20 mA	0 ... 5 V
●	●	●	●		n.c.	0 ... 20 mA	1 ... 5 V
				●	n.c.	4 ... 20 mA	0 ... 20 mA
					n.c.	4 ... 20 mA	4 ... 20 mA
●	●			●	n.c.	4 ... 20 mA	0 ... 10 V
●	●				n.c.	4 ... 20 mA	2 ... 10 V
●	●	●		●	n.c.	4 ... 20 mA	0 ... 5 V
●	●	●			n.c.	4 ... 20 mA	1 ... 5 V

Default Settings

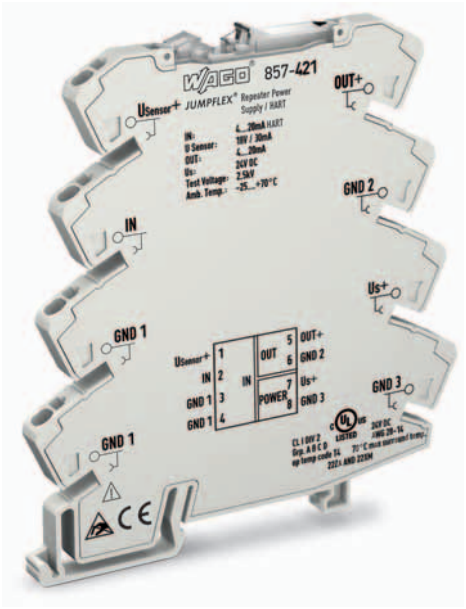
Input	0 ... 20 mA
Output	0 ... 20 mA
DIP 6	n.c.

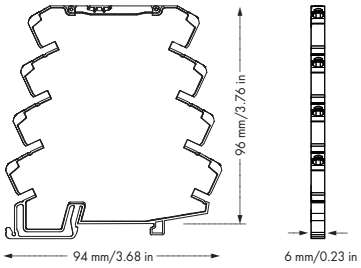
Connection assignment

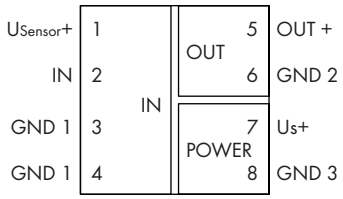


JUMPFLEX® Signal Conditioners

Repeater Power Supply, HART







Short description:
The HART Repeater Power Supply links SMART transmitters located in the field. It provides the power required and transmits the analog signals in an electrically isolated way.

Characteristics:
- HART communication
- Power supply to SMART transmitters
- Safe 3-way isolation with 2.5kV test voltage acc. to EN 61140

Description	Item No.	Pack. Unit
***JUMPFLEX*® Signal Conditioner, for DIN 35 rail**	**857-421**	1
Repeater power supply, HART		

Technical Data

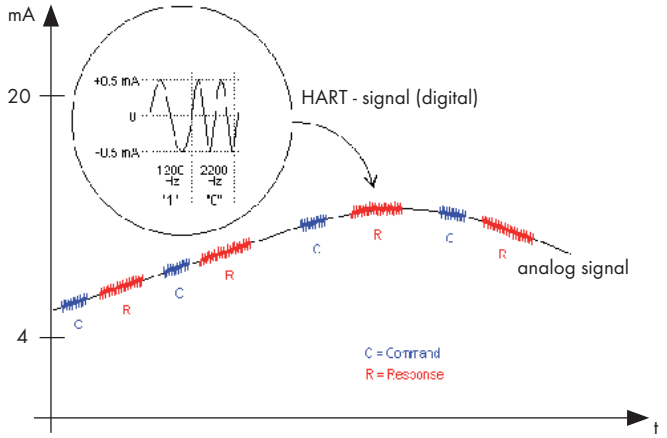
Input:	
Input signal	4 ... 20 mA (with superimposed HART
Input resistance	≤ 50 Ω
Transmitter supply	V_v = 18 V at 30 mA
Max. input current	Max. supply
Output:	
Output signal	4 ... 20 mA (with superimposed HART
Load impedance	230 ... 600Ω
Offset	< 20 µA
Residual ripple	< 10mV eff
General specifications:	
Nominal supply voltage V_S	24 VDC
Supply voltage range	V_S -30 % ... +30 %
Current consumption at 24 VDC	≤ 45 mA
Max. operating frequency	100 Hz signal / ≥ 2.5 kHz HART
Response time (T_{10-90})	< 3.5 ms signal
Transmission error	≤ 0.1 % of the full scale value
Temperature coefficient	≤ 0.01 % /K

Technical Data

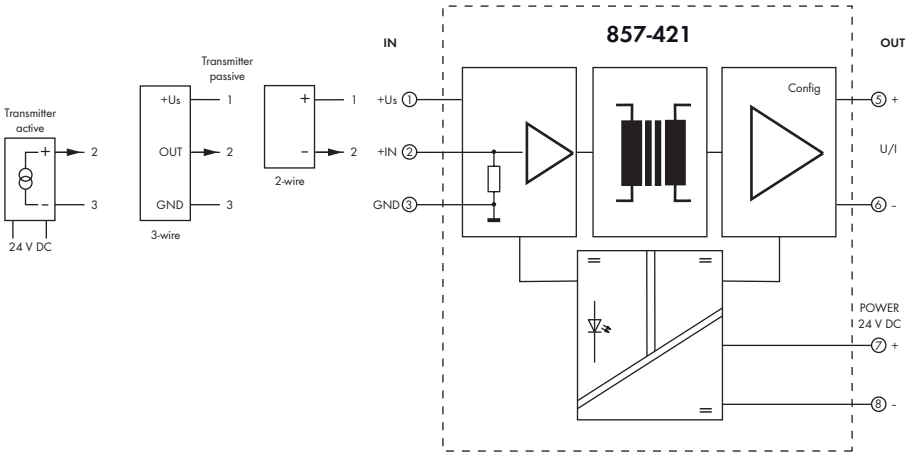
Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Safety and protection:	
Test voltage (input/output/supply)	2.5 kV AC, 50 Hz, 1 min
Connection and type of mounting:	
Wire connection	Push-in CAGE CLAMP®
Cross sections	Ssolid:
	0.08 mm² ... 2.5 mm² / 28 ... 14 AWG
	Fine-stranded:
	0.34 mm² ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.
Dimensions and weight:	
Dimensions (mm) W x H x L	6 x 96 x 94
	Height from upper-edge of DIN 35 rail
Weight	47.8 g
Standards and approvals:	
Conformity marking	CE
cULus UL 508	
cULus ANSI/ISA 12.12.01	Class I, Div. 2, Grp. ABCD, T4
Accessories:	see page 226
	Marking strip: 2009-110

Simultaneous transmission of analog and digital signals

857-421

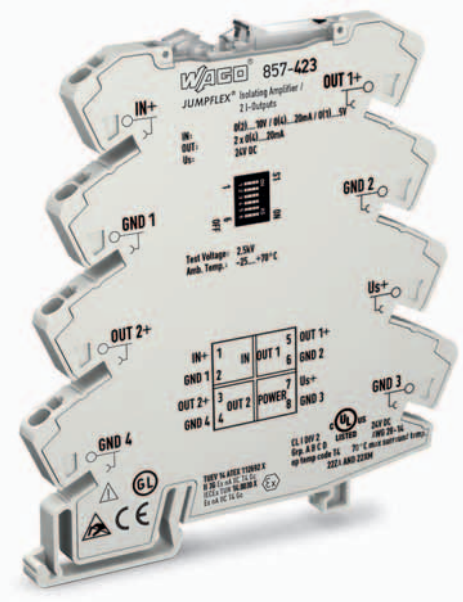


Connection assignment



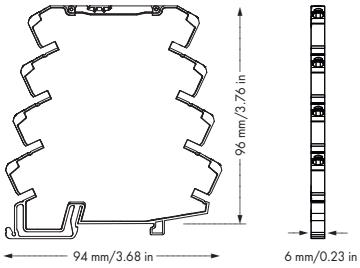
JUMPFLEX® Signal Conditioners

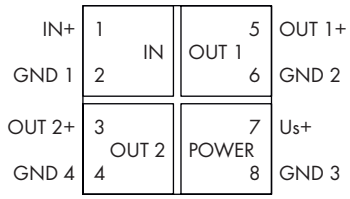
Signal Splitter with 2 configurable Current Outputs



Configuration via:

DIP switch





Short description:
The Signal Splitter converts standard signals and amplifies, filters and electrically isolates analog standard signals.

Characteristics:
- Two configurable current outputs
- Calibrated scale switching
- Switchable max. operating frequency
- Safe 3-way isolation with 2.5kV test voltage acc. to EN 61140

Description	Item No.	Pack. Unit
***JUMPFLEX*® Signal Conditioner, for DIN 35**	**857-423**	1
Signal Splitter with 2 configurable Current Outputs		

Technical Data

Configuration:	
Configuration	DIP switch
Input:	
Input signal	0 ... 20 mA, 4 ... 20 mA, 0... 5 V,
	0 ... 10 V, 2 ... 10 V, 1 ... 5 V
	(calibrated switchable)
Input resistance	≤ 50 Ω (In = mA)
	≥ 100 kΩ (In = V)
Output:	
Output signal	2 x 0(4) ... 20 mA
	(calibrated switchable)
Load impedance	2 x 300Ω
General specifications:	
Nominal supply voltage V_S	24 VDC
Supply voltage range	V_S -30 % ... +30 %
Current consumption at 24 VDC	≤ 35 mA
Max. operating frequency	100 Hz / 1 kHz
	(switchable via DIP switch)
Response time (T_{10-90})	< 3.5 ms / < 300 µs
Transmission error	≤ 0.1 % of the full scale value
Temperature coefficient	≤ 0.01 % /K

Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Safety and protection:	
Test voltage (input/output/supply)	2.5 kV AC, 50 Hz, 1 min
Connection and type of mounting:	
Wire connection	Push-in CAGE CLAMP®
Cross sections	Ssolid:
	0.08 mm² ... 2.5 mm² / 28 ... 14 AWG
	Fine-stranded:
	0.34 mm² ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.
Dimensions and weight:	
Dimensions (mm) W x H x L	6 x 96 x 94
	Height from upper-edge of DIN 35 rail
Weight	40.6 g
Standards and approvals:	
Conformity marking	CE
cULus UL 508	
cULus ANSI/ISA 12.12.01	Class I, Div. 2, Grp. ABCD, T4
Shipbuilding	GL, PRS, NKK, DNV, BV
Ex TÜV 14 ATEX 112692 X	II 3 G Ex nA IIC T4 Gc
IECEx TUN 14.0030 X	Ex nA IIC T4 Gc
EMC immunity of interference	EN 61000-6-2
EMC emission of interference	EN 61000-6-4
Accessories:	see page 226
	Marking strip: 2009-110

DIP Switch Adjustability

● = ON

857-423

Dip Switch S1 (6-fold)

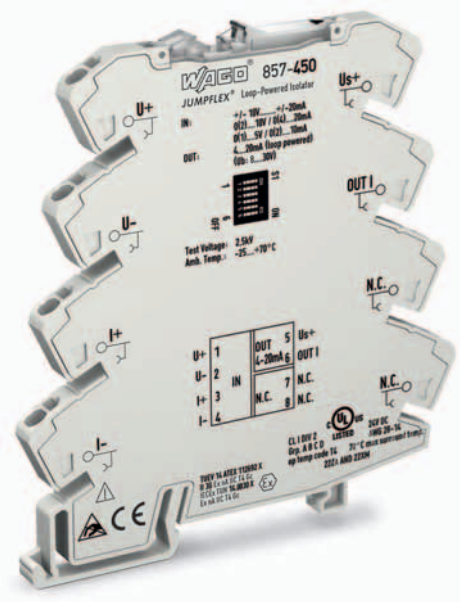
Input Signal				Max. Operating Frequency		Output Signal 1		Output Signal 2	
1	2	3		4		5		6	
●			0 ... 20 mA		1 kHz		0 ... 20 mA		0 ... 20 mA
●		●	4 ... 20 mA	●	100 Hz	●	4 ... 20 mA	●	4 ... 20 mA
	●		0 ... 10 V						
	●	●	2 ... 10 V						
			0 ... 5 V						
		●	1 ... 5 V						

Default Settings

Input	0 ... 20 mA
Output 1	0 ... 20 mA
Output 2	0 ... 20 mA
Max. Operating Frequency	1 kHz

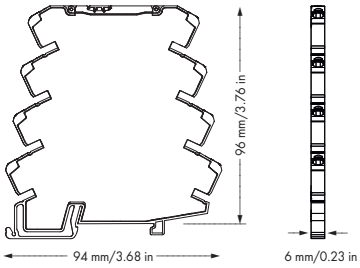
JUMPFLEX® Signal Conditioners

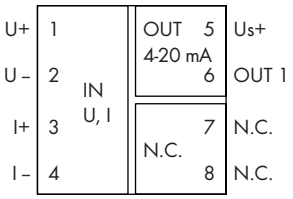
Loop-Powered Isolation Amplifier



Configuration via:

DIP switch





Short description:
The Loop-Powered Isolation Amplifier converts analog, unipolar and bipolar, standard signals. It is also designed to amplify, filter and electrically isolate standard analog signals.

Characteristics:
- No additional supply voltage required
- Zero/span adjustment
- Analog, unipolar and bipolar, standard signals at input
- Calibrated scale switching
- Switchable max. operating frequency
- Safe 2-way isolation with 2.5 kV test voltage acc. to EN 61140

Description	Item No.	Pack. Unit
***JUMPFLEX*® Signal Conditioner, for DIN 35 rail**	**857-450**	1
Loop-Powered Isolation Amplifier		

Technical Data

Configuration:	
Configuration	DIP switch
Input:	
Input signal	**Current:**
	± 5 mA, 0 ... 5 mA,
	± 10 mA, 0 ... 10 mA, 2 ... 10 mA,
	± 20 mA, 0 ... 20 mA, 4 ... 20 mA
	Voltage:
	± 1 V, 0 ... 1 V,
	± 5 V, 0 ... 5 V, 1 ... 5 V,
	± 10 V, 0 ... 10 V, 2 ... 10 V,
	± 20 V, ± 2 V, 0 ... 2 V
Input resistance	approx. 1 MΩ (U input)
	approx. 50 Ω (I input)
Output:	
Output signal	4 ... 20 mA
Load impedance	≤ 600 Ω
Overload capacity	30 V / 50 mA
General specifications:	
Supply voltage	8 ... 30 V, power is derived from the output
	circuit
Max. operating frequency	100 Hz / 30 Hz
	(switchable via DIP switch)
Response time (T_{10-90})	3.5 ms
Transmission error	≤ 0.1 % of upper range value
Temperature coefficient	≤ 0.01 % /K
Zero/span adjustment	± 5 % of upper range value

Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Safety and protection:	
Test voltage (input/output/supply)	2.5 kV AC, 50 Hz, 1 min.
Connection and type of mounting:	
Wire connection	Push-in CAGE CLAMP®
Cross sections	Ssolid:
	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
	Fine-stranded:
	0.34 mm² ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.
Dimensions and weight:	
Dimensions (mm) W x H x L	6 x 96 x 94
	Height from upper-edge of DIN 35 rail
Weight	37 g
Standards and approvals:	
Conformity marking	CE
cULus UL 508	
cULus ANSI/ISA 12.12.01	Class I, Div. 2, Grp. ABCD, T4
Ex TÜV 14 ATEX 112692 X	II 3 G Ex nA IIC T4 Gc
IECEx TUN 14.0030 X	Ex nA IIC T4 Gc
EMC immunity of interference	EN 61000-6-2
EMC emission of interference	EN 61000-6-3
Accessories:	see page 226
	Marking strip: 2009-110

DIP Switch Adjustability

● = ON

857-450

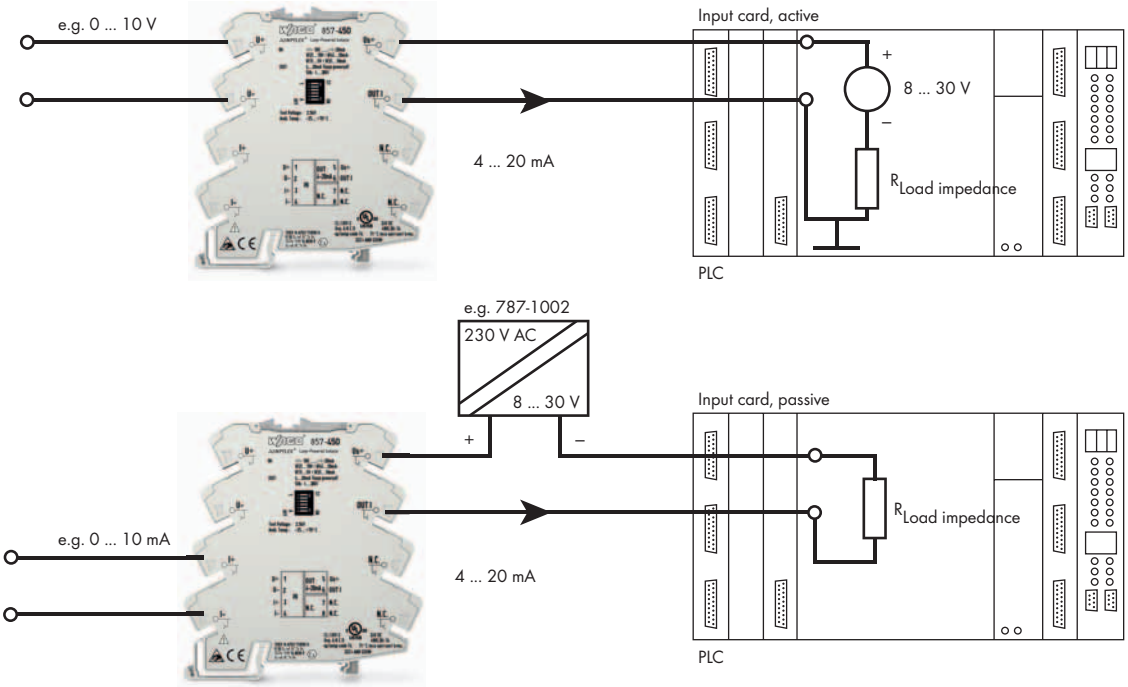
DIP switch (6 positions)

Input Signal							Output Signal	Max. Operating Frequency	
1	2	3	4	5				6	
					4 ... 20 mA	Current	4 ... 20 mA		100 Hz
●		●	●		0 ... 20 mA			●	30 Hz
●		●	●	●	± 20 mA				
●		●			2 ... 10 mA				
●			●		0 ... 10 mA				
●			●	●	± 10 mA				
●					0 ... 5 mA				
●				●	± 5 mA				
	●	●	●		0 ... 20 V	Voltage			
	●	●	●	●	± 20 V				
	●	●			2 ... 10 V				
	●		●		0 ... 10 V				
	●		●	●	± 10 V				
	●				1 ... 5 V				
		●	●		0 ... 5 V				
		●	●	●	± 5 V				
		●			0 ... 2 V				
		●		●	± 2 V				
			●		0 ... 1 V				
			●	●	± 1 V				

Default setting

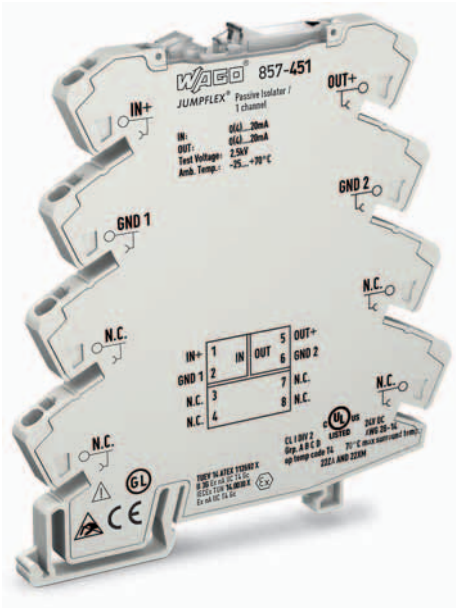
Input	4 ... 20 mA
Output	4 ... 20 mA
Max. operating frequency	100 Hz

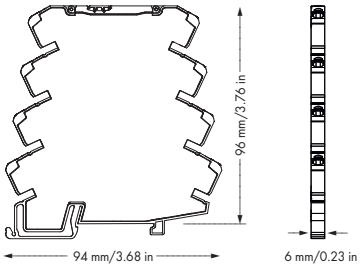
Wiring Material

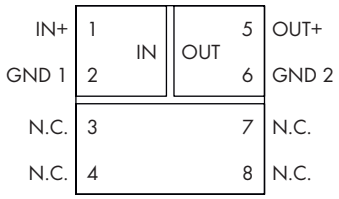


JUMPFLEX® Signal Conditioners

Passive Isolator, 1 Channel







Short description:
The 1-channel passive isolator filters and electrically isolates 0(4) ... 20 mA analog standard signals, while drawing power for signal transmission from the input circuit. The connected sensor supplies the passive isolator with the required power, while powering the connected load.

Characteristics:
- No additional supply voltage required
- Safe 3-way isolation with 2.5kV test voltage acc. to EN 61140

Description	Item No.	Pack. Unit
***JUMPFLEX*® Signal Conditioner, for DIN 35 rail**	**857-451**	1
Passive Isolator, 1 Channel		

Technical Data

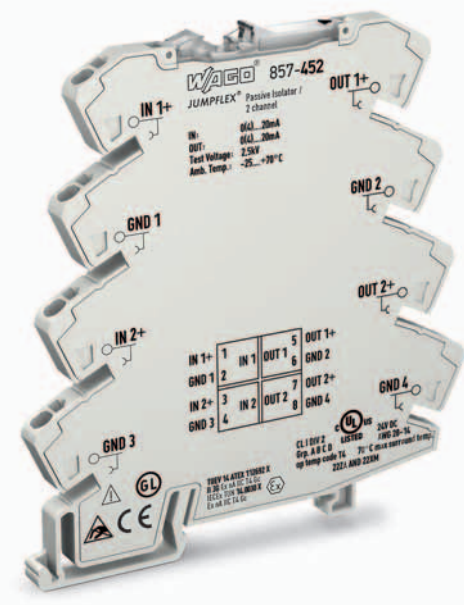
Input:	
Input signal	0(4) ... 20 mA
Responce current	< 200 µA
Voltage drop intput	< 2.0 V at 20 mA (output)
Max. input voltage	< 20 V
Max. input signal	40mA
Output:	
Output signal	0(4) ... 20 mA
Load impedance	≤ 600 Ω
	(Temperature range restrictions may occur)
General specifications:	
Max. operating frequency	100 Hz
Response time (T_{10-90})	< 3.5 ms
Transmission error	≤ 0.1 % of the full scale value
Load error	≤ 0.05 % of upper range value
	per 100 Ω load
Temperature coefficient	≤ 0.01 % /K

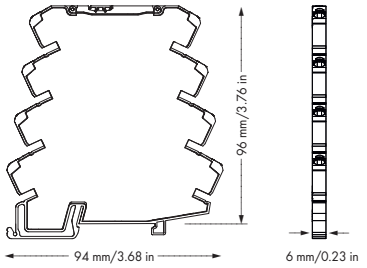
Technical Data

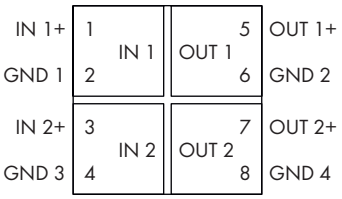
Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Connection and type of mounting:	
Wire connection	Push-in CAGE CLAMP®
Cross sections	Ssolid:
	0.08 mm² ... 2.5 mm² / 28 ... 14 AWG
	Fine-stranded:
	0.34 mm² ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.
Dimensions and weight:	
Dimensions (mm) W x H x L	6 x 96 x 94
	Height from upper-edge of DIN 35 rail
Weight	33.8 g
Standards and approvals:	
Conformity marking	CE
UL 508	
ANSI/ISA 12.12.01	Class I, Div. 2, Grp. ABCD, T4
Shipbuilding	GL, PRS, NKK, DNV, BV
TÜV 14 ATEX 112692 X	II 3 G Ex nA IIC T4 Gc
IECEx TUN 14.0030 X	Ex nA IIC T4 Gc
EMC immunity of interference	EN 61000-6-2
EMC emission of interference	EN 61000-6-4
Accessories:	see page 226
	Marking strip: 2009-110

JUMPFLEX® Signal Conditioners

Passive Isolator, 2 Channels







Short description:
The 2-channel passive isolator filters and electrically isolates 0(4) ... 20 mA analog standard signals, while drawing power for signal transmission from the input circuit. The connected sensor supplies the passive isolator with the required power, while powering the connected load.

Characteristics:
- No additional supply voltage required
- Safe 3-way isolation with 2.5kV test voltage acc. to EN 61140

Description	Item No.	Pack. Unit
***JUMPFLEX*® Signal Conditioner, for DIN 35 rail**	**857-452**	1
Passive Isolator, 2 Channels		

Technical Data

Input: *	
Input signal	0(4) ... 20 mA
Responce current	< 200 µA
Voltage drop intput	< 2.0 V at 20 mA (output)
Max. input voltage	< 20 V
Max. input signal	40mA
Output: *	
Output signal	0(4) ... 20 mA
Load impedance	≤ 600 Ω
	(Temperature range restrictions may occur)
General specifications:	
Max. operating frequency	100 Hz
Response time (T_{10-90})	< 3.5 ms
Transmission error	≤ 0.1 % of the full scale value
Load error	≤ 0.05 % of upper range value
	per 100 Ω load
Temperature coefficient	≤ 0.01 % /K

(* per channel)

Technical Data

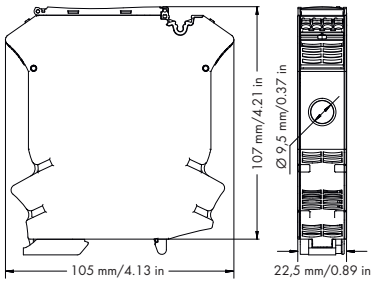
Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Connection and type of mounting:	
Wire connection	Push-in CAGE CLAMP®
Cross sections	Ssolid:
	0.08 mm² ... 2.5 mm² / 28 ... 14 AWG
	Fine-stranded:
	0.34 mm² ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.
Dimensions and weight:	
Dimensions (mm) W x H x L	6 x 96 x 94
	Height from upper-edge of DIN 35 rail
Weight	37.8 g
Standards and approvals:	
Conformity marking	CE
UL 508	
ANSI/ISA 12.12.01	Class I, Div. 2, Grp. ABCD, T4
Shipbuilding	GL, PRS, NKK, DNV, BV
TÜV 14 ATEX 112692 X	II 3 G Ex nA IIC T4 Gc
IECEx TUN 14.0030 X	Ex nA IIC T4 Gc
EMC immunity of interference	EN 61000-6-2
EMC emission of interference	EN 61000-6-4
Accessories:	see page 226
	Marking strip: 2009-110

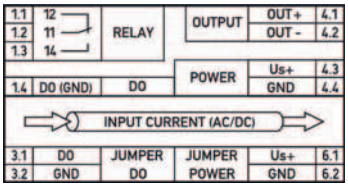
JUMPFLEX® Signal Conditioners

Current Signal Conditioner AC/DC 100 A

Configuration via:

DIP switch | Interface configuration software | Interface configuration app | Configuration display





Short description:
The 2857-550 Current Signal Conditioner measures AC/DC currents up to 100 A, while converting the measured current into an analog standard signal at the output.

Features:

- Both digital signal output and relay with changeover contact react to configured measuring range limits (switching ON/OFF delay and threshold value switch function configurable with up to two threshold values).
- Clipping capability provides analog signal limitation to output end values.
- Adjustable software filter
- Input/Output response simulation via configuration display
- Safe 3-way isolation with 4 kV test voltage acc. to EN 61140

Description	Item No.	Pack. Unit
***JUMPFLEX*® Signal Conditioner, for DIN 35 rail**	**2857-550**	1
Current Signal Conditioner AC/DC 100 A		

Technical Data

Configuration:	
Configuration	DIP switch, interface configuration software, interface configuration app, configuration display
Input:	
Input signal	500 mA ... 100 A (AC) / -100 A ... 100 A (DC)*
Response threshold	500 mA (AC) / 250 mA (DC)
Resolution	10 mA
Frequency range	15 Hz ... 1000 Hz
Output:	
Output signal	**Current:** ± 10 mA; 0 ... 10 mA; 2 ... 10 mA; ± 20 mA; 0 ... 20 mA; 4 ... 20 mA*
	Voltage: ± 5 V; 0 ... 5 V; 1 ... 5 V; ± 10 V; 0 ... 10 V; 2 ... 10 V*
Overcurrent	0% or +5% (e.g., 10.5 V / 24 mA)
Measuring range overflow/underflow	0% or +2.5%
Load impedance	**Current:** ≤ 600 Ω; **Voltage:** ≥ 1 kΩ
Measuring procedure	True RMS measurement (TRMS) or Arithmetic mean value*
Output – Digital:	
Max. switching voltage	Supply voltage applied -0.3 V
Max. continuous current I_{DO}	100 mA (no internal restriction)
Output – Relay:	
Contact type	1 changeover contact (1 u)
Contact material	AgNi (gold-plated)
Max. switching voltage	250 VAC
Max. continuous current	
(terminal blocks in a row)	6 A (up to 60 °C), 3 A (60 °C ... 70 °C)
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}
Pull-in/drop-out/bounce time typ.	8 ms / 4 ms / 8 ms
General specifications:	
Nominal supply voltage V_S	24 VDC
Supply voltage range	V_S -30 % ... +30 %
Current consumption at 24 VDC	≤ 50 mA (+ I_{DO})

Technical Data

General specifications:	
Max. operating frequency	3.3 kHz
Response time	Signal cycle duration + 1 ms
Response time (T_{10-90})	max. 60 ms
Filter (T_{10-90})	Software filter: 600 ms
Linearity error	≤ 1 %
Measurement error	≤ 0,2 % (of the full scale value)
Temperature coefficient	≤ 0.01 %/K
Environmental requirements:	
Ambient operating temperature	-40 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Safety and protection:	
Test voltage (input/output/supply)	2.5 kV AC, 50 Hz, 1 min.
Test voltage (measuring circuit – output)	4 kV AC, 50 Hz, 1 min.
Connection and type of mounting:	
Wire connection	Push-in CAGE CLAMP® (*picoMAX*® 5.0)
Cross sections	Ssolid/fine-stranded: 0.2 ... 2.5 mm² / 24 ... 12 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.
Power cable feed-through	Ø 9.5 mm
Dimensions and weight:	
Dimensions (mm) W x H x L	22.5 x 107 x 105
	Height from upper-edge of DIN 35 rail
Weight	106 g
Standards and approvals:	
Conformity marking	CE
Standards/specifications	DIN EN 60664-1 ; Safe isolation acc. to DIN EN 61140:2002; IEC 61000-6-2; IEC 61000-6-4
Accessories:	see page 226

(*Additional setting options via interface configuration software or interface configuration app)

DIP Switch Adjustability

● = ON

2857-550

DIP Switch S1

Measuring Method		Filter		Analog Output Inverted		Output Signal (Bipolar for Arithmetic Mean Value)			
1		2		3		4	5	6	Analog Output
	True RMS		inactive		not inverted				(±) 0 ... 20 mA
●	Arithmetic mean value (bipolar output)	●	active	●	inverted		●		4 ... 20 mA
						●			(±) 0 ... 10 V
						●	●		2 ... 10 V
								●	(±) 0 ... 10 mA
							●	●	2 ... 10 mA
						●		●	(±) 0 ... 5 V
						●	●	●	1 ... 5 V

DIP Switch S1

		Measuring Range Underflow	Measuring Range Overflow	Overcurrent (Input Signal - End Value +20%)			Digital Output (DO)/ Relay
7	8				9	10	
		Lower measuring range -5% *	Upper measuring range +2.5% *	Upper measuring range +5%			Off
●		Lower measuring range	Upper measuring range +2.5%	Upper measuring range +5%	●		DO US+ switching – relay pulls in
	●	Lower measuring range	Upper measuring range	Lower measuring range		●	DO GND switching – relay drops out
●	●	Lower measuring range -5 %	Upper measuring range +5%	Upper measuring range	●	●	Off

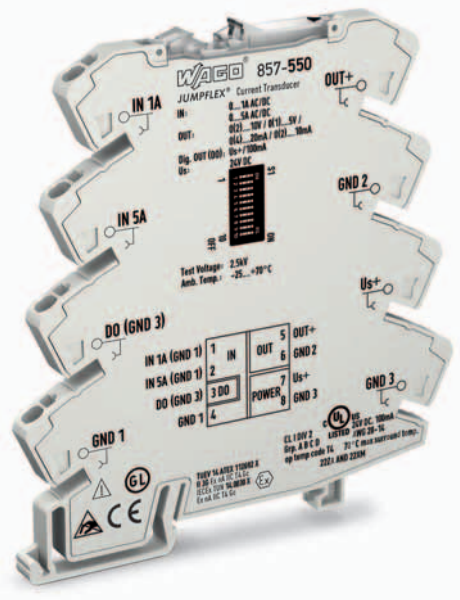
*acc. to NAMUR NE 43

DIP Switch S2

Lower Value						Upper value			
1	2	3	4	A / % (RMS)	A / % (arithmetic mean value)	5	6	7	A / %
				Software configuration (0)	Software configuration (-100)				Software configuration (100)
●				0	-100	●			100
	●			5	-75		●		90
●	●			8	-50	●	●		70
		●		10	-25			●	50
●		●		12	-10	●		●	30
	●	●		14	0		●	●	20
●	●	●		16	5	●	●	●	10
			●	18	10				
●			●	20	15				
	●		●	25	20				
●	●		●	30	25				
		●	●	35	30				
●		●	●	40	35				
	●	●	●	45	40				
●	●	●	●	50	50				

JUMPFLEX® Signal Conditioners

Current Signal Conditioner AC/DC 0 ... 1 A, 0 ... 5 A

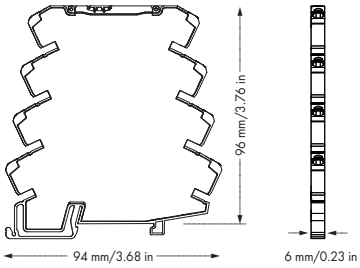


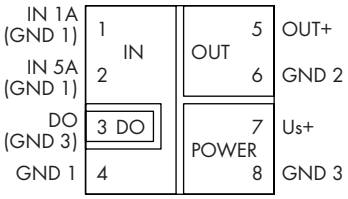
Configuration via:

DIP switch

Interface configuration software

Interface configuration app





Short description:
The Current Signal Conditioner measures both 0 ... 1 A and 0 ... 5 A AC/DC currents, while converting the input signal to a standard analog signal at the output.

Features:
- PC configuration interface
- True RMS measurement or arithmetic mean value
- Digital switching output (configurable switching thresholds)
- Switchable filter function
- Switching between measuring ranges is calibrated
- Safe 3-way isolation with 2.5 kV test voltage acc. to EN 61140
- Extremely fast response times
- Measuring range overflow indication

Description	Item No.	Pack. Unit
***JUMPFLEX*® Signal Conditioner, for DIN 35 rail**	**857-550**	1
Current Signal Conditioner		

Technical Data

Configuration:	
Configuration	DIP switch, interface configuration
	software, interface configuration app
Input:	
Input signal	0 ... 1 A AC/DC; 0 ... 5 A AC/DC *
Input resistance	10 mΩ (5 A); 47 mΩ (1 A)
Frequency range	16 Hz ... 400 Hz
Response threshold	< 0.5 % (of measuring range nominal
Current carrying capacity	2 x I_N (continuous)
Output:	
Output signal	**Voltage:**
	0 ... 5 V, 1 ... 5 V, 0 ... 10 V, 2 ... 10 V *
	Current:
	0 ... 10 mA, 2 ... 10 mA,
	0 ... 20 mA, 4 ... 20 mA *
Load impedance	≤ 600 Ω (I output) **
	≥ 2 kΩ (U output)
	** Temperature range restrictions may
	occur.
Filter (T_{10-90})	260 ms (DC), 600 ms (AC 50 Hz)
Output - Digital	
Max. switching voltage	Supply voltage applied
Max. continuous current	500 mA (up to 60 °C)
	100 mA (60 °C ... 70 °C)
General specifications:	
Nominal supply voltage V_S	24 VDC
Supply voltage range	V_S -30 % ... +30 %
Current consumption at 24 VDC	≤ 40 mA
Measuring procedure	Arithmetic mean value
	True RMS measurement (TRMS)*
Response time	1.5 ms + signal cycle duration
Max. response time	60 ms
Min. measuring span	2 mA ... 1 A; 4 mA ... 5 A

Technical Data

General specifications:	
Transmission error	≤ 0.1 % typ. (≤ 0.4 % max.)
Temperature coefficient	≤ 0.01 % /K
Linearity error	< 0,5 % (of measuring range nominal
Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C (at nominal current)
Storage temperature	-40 °C ... +85 °C
Safety and protection:	
Test voltage	
(input/output/supply)	2.5 kV AC, 50 Hz, 1 min.
Connection and type of mounting:	
Wire connection	Push-in CAGE CLAMP®
Cross sections	Ssolid:
	0.08 mm² ... 2.5 mm² / 28 ... 14 AWG
	Fine-stranded:
	0.34 mm² ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.
Dimensions and weight:	
Dimensions (mm) W x H x L	6 x 96 x 94
	Height from upper-edge of DIN 35 rail
Weight	50 g
Standards and approvals:	
Conformity marking	CE
cULus UL 508	
cULus ANSI/ISA 12.12.01	Class I, Div. 2, Grp. ABCD, T4
Shipbuilding	GL, PRS, BV
TÜV 14 ATEX 112692 X	II 3 G Ex nA IIC T4 Gc
IECEx TUN 14.0030 X	Ex nA IIC T4 Gc
EMC immunity of interference	EN 61000-6-2
EMC emission of interference	EN 61000-6-4
Accessories:	see page 226
	Marking strip: 2009-110

(*Additional setting options via interface configuration software or interface configuration app)

DIP Switch Adjustability

● = ON

857-550

DIP Switch S1

Input Signal		Measuring Method		Filter		Output Signal			
1		2		3		4	5	6	
	5 A		Mean square value		off				0 ... 20 mA
●	1 A	●	Arithmetic mean value	●	active		●		4 ... 20 mA
						●			0 ... 10 V
						●	●		2 ... 10 V
								●	0 ... 10 mA
							●	●	2 ... 10 mA
						●		●	0 ... 5 V
						●	●	●	1 ... 5 V

Filter

The filter function allows a low-pass filter to be switched on in order to mask or "smooth out" oscillating measured values (e.g., during trailing edge flows).

DIP Switch S1

7	8	Measuring Range Underflow	Measuring Range Overflow	Overcurrent (Input Signal - End Value + 20%)	9	10	Digit Output DO Signaling
		Lower limit of measuring range -5 %*	Upper limit of measuring range +2.5 %*	Upper limit of measuring range +5 %*			DO not active
●		Lower limit of measuring range	Upper limit of measuring range +2.5 %	Upper limit of measuring range +5 %		●	DO U_S+ switching
	●	Lower limit of measuring range	Upper limit of measuring range	Lower limit of measuring range	●	●	DO GND switching
●	●	Lower limit of measuring range	Upper limit of measuring range	Upper limit of measuring range			

*acc. to NAMUR NE 43

Digital Output DO/Signaling

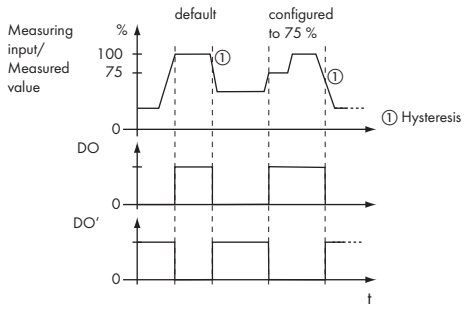
The digital output (DO) signals error messages and can be configured as follows: 24 V → 0 V/0 V → 24 V.

In order to increase the switching current of the DO, the latter may be expanded by a relay. Thanks to the contour uniformity of Series 857, for example, a 857-304 Relay can be snapped in next to it. This output can be quickly and easily expanded to a switching current of 6A by simply using an adjacent jumper (859-402).

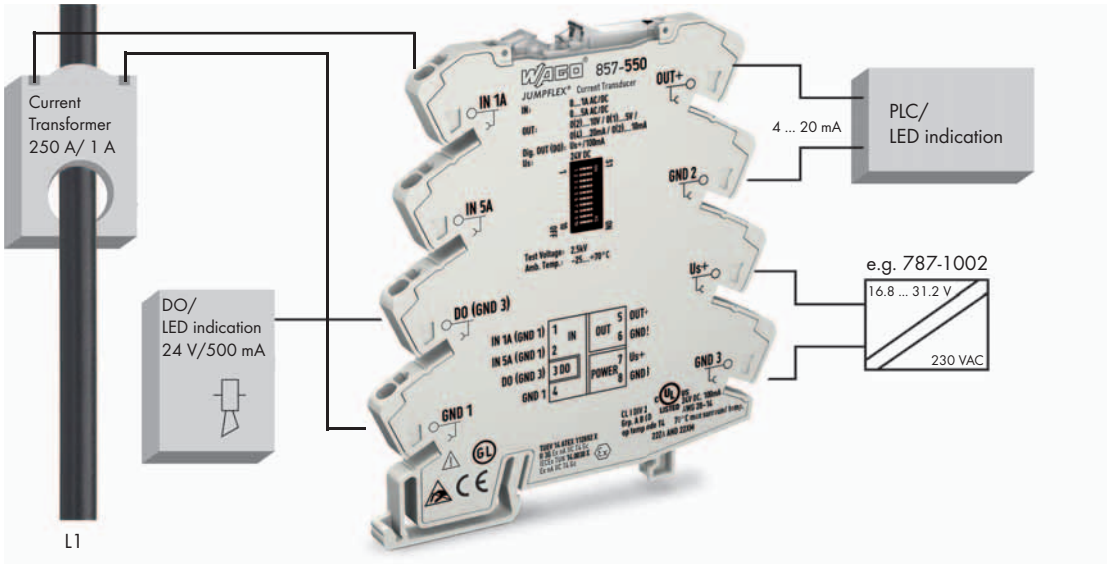
Default Setting

All DIP switches are in "OFF" position for delivery.	
Input	
Input Signal	0 ... 5 A
Measuring Method	Mean square value
Filter	not active
Output	
Output Signal	0 ... 20 mA
Measuring Range Underflow	0 mA
Measuring Range Overflow	20.5 mA
Overcurrent	21 mA
Digital Output DO	not active

Switching Behavior, Digital Output (DO)

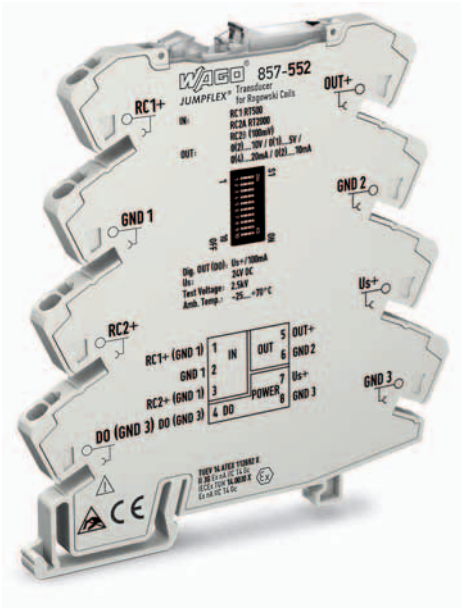


Application example:



JUMPFLEX® Signal Conditioners

Rogowski Signal Conditioner

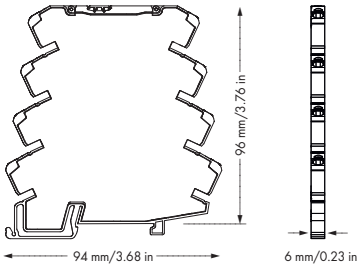


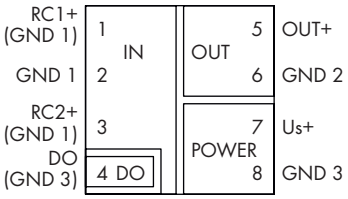
Configuration via:

DIP switch

Interface configuration software

Interface configuration app





Short description:
The Rogowski Signal Conditioner records RMS values from alternating currents via a Rogowski coil, converting the input signal into a standard analog signal on the output side.

Features:
- PC configuration interface
- Supports different types of Rogowski coils
- Digital switching output (configurable switching thresholds)
- True RMS measurement (TRMS)
- Configurable output signal
- Configuration via DIP switch
- Safe 3-way isolation with 2.5 kV test voltage acc. to EN 61140
- No current bar interruption during installation
- Measuring range overflow indication

Description	Item No.	Pack. Unit
***JUMPFLEX*® Signal Conditioner, for DIN 35 rail**	**857-552**	1
Rogowski Signal Conditioner		

Technical Data

Configuration:	
Configuration	DIP switch, interface configuration
	software, interface configuration app
Input:	
Input signal	RC1 500 A: Sensitivity 10.05 mV *
	RC2A 2000 A:
	Sensitivity 40.2 mV *
	RC2B: Sensitivity 100 mV *
	50 Hz ssinusoidal signals
Frequency range	16 Hz ... 1000 Hz
Response threshold	< 1 % (of measuring range nominal value)
Output:	
Output signal	**Voltage:**
	0 ... 5 V, 1 ... 5 V, 0 ... 10 V, 2 ... 10 V *
	Current: 0 ... 10 mA, 2 ... 10 mA,
	0 ... 20 mA, 4 ... 20 mA *
Overcurrent	0 % or +5 % (e. g. 10.5 V/21 mA)*
Measuring range overflow/underflow	0 % or +2.5 %*
Load impedance	Current ≤ 600 Ω, Voltage ≥ 1000 Ω
Measuring procedure	True RMS (TRMS)
Filter (T_{10-90})	600 ms (50 Hz)
Output - Digital	
Max. switching voltage	Supply voltage applied
Max. continuous current	500 mA
General specifications:	
Nominal supply voltage V_S	24 VDC
Supply voltage range	V_S -30 % ... +30 %
Current consumption at 24 VDC	≤ 40 mA
Resolution	500 A measuring range: 250 mA,
	2000 A measuring range: 1000 mA
Measuring procedure	True RMS (TRMS)
Response time	1.5 ms + signal cycle duration
Max. operating frequency	< 2 kHz
Response time (T_{10-90})	max. 60 ms

Technical Data

General specifications:	
Linearity error	≤ 0,1 %
Temperature coefficient	≤ 0.01 %/K
Measurement error	< 1 %
Line length	< 3 m (to the Rogowski coil)
Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C (at rated current)
Storage temperature	-40 °C ... +85 °C
Safety and protection:	
Test voltage	
(input/output/supply)	2.5 kV AC, 50 Hz, 1 min.
Connection and type of mounting:	
Wire connection	Push-in CAGE CLAMP®
Cross sections	Ssolid:
	0.08 mm² ... 2.5 mm² / 28 ... 14 AWG
	Fine-stranded:
	0.34 mm² ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.
Dimensions and weight:	
Dimensions (mm) W x H x L	6 x 96 x 94
	Height from upper-edge of DIN 35 rail
Weight	36.2 g
Standards and approvals:	
Conformity marking	CE
⟨Ex⟩ TÜV 14 ATEX 112692 X	II 3 G Ex nA IIC T4 Gc
IECEx TUN 14.0030 X	Ex nA IIC T4 Gc
Accessories:	see page 226
	Marking strip: 2009-110
	Rogowski Coils see Section 4

(*Additional setting options via interface configuration software or interface configuration app)

DIP Switch Adjustability

● = ON

857-552

DIP Switch S1

Input Signal		RC Configuration Input		Filter		Output Signal			
1		2		3		4	5	6	
	RC1 = RT500 from LEM		RC2 = RT2000 from LEM		off				0 ... 20 mA
●	RC2	●	RC2 = 100 mV eff. => 1 kA	●	active		●		4 ... 20 mA
						●			0 ... 10 V
						●	●		2 ... 10 V
								●	0 ... 10 mA
							●	●	2 ... 10 mA
						●		●	0 ... 5 V
						●	●	●	1 ... 5 V

Filter

The filter function allows a low-pass filter to be switched on in order to mask or "smooth out" oscillating measured values (e.g., during trailing edge flows).

DIP Switch S1

7	8	Measuring Range Underflow	Measuring Range Overflow	Overcurrent (Input Signal - End Value + 20%)	9	10	Digital Output DO Signaling
		Lower limit of measuring range +5 %*	Upper limit of measuring range +2.5 %*	Upper limit of measuring range +5 %*			DO not active
●		Lower limit of measuring range	Upper limit of measuring range +2.5 %	Upper limit of measuring range +5 %		●	DO U_s+ switching
	●	Lower limit of measuring range	Upper limit of measuring range	Lower limit of measuring range	●	●	DO GND switching
●	●	Lower limit of measuring range	Upper limit of measuring range	Upper limit of measuring range			

*acc. to NAMUR NE 43

Digital Output DO/Signaling

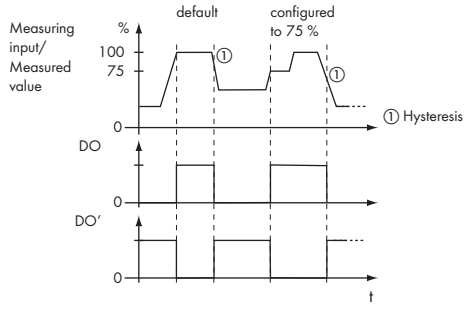
The digital output (DO) signals error messages and can be configured as follows: 24 V → 0 V/0 V → 24 V.

In order to increase the switching current of the DO, the latter may be expanded by a relay. Thanks to the contour uniformity of Series 857, for example, a 857-304 Relay can be snapped in next to it. This output can be quickly and easily expanded to a switching current of 6A by simply using an adjacent jumper (859-402).

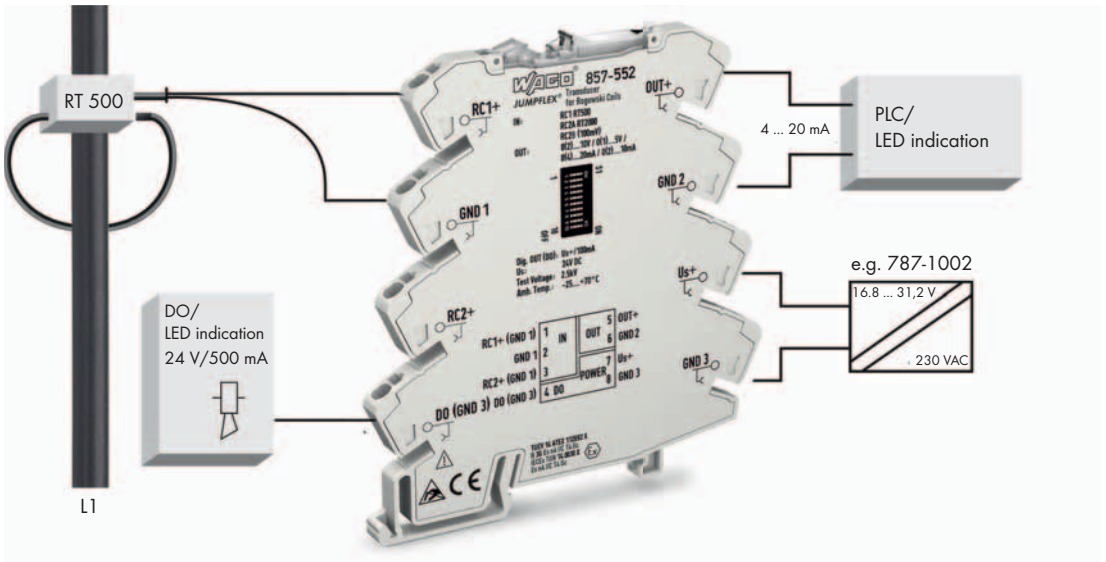
Default Setting

All DIP switches are in "OFF" position for delivery.	
Input	
Input Signal	RC1 500 A
Measuring Method	Mean square value
Filter	not active
Output	
Output Signal	0 ... 20 mA
Measuring Range Underflow	0 mA
Measuring Range Overflow	20.5 mA
Overcurrent	21 mA
Digital Output DO	not active

Switching Behavior, Digital Output (DO)

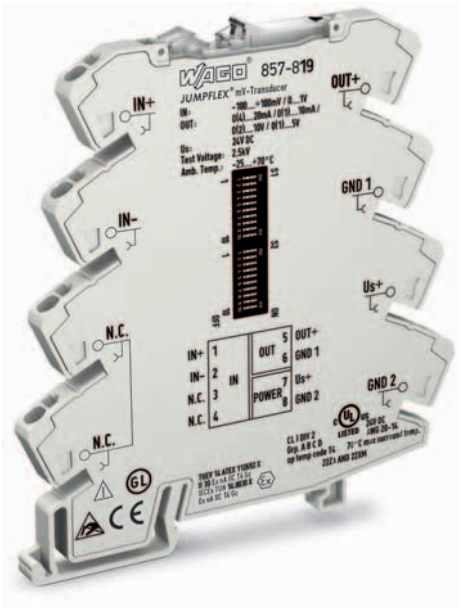


Application example:



JUMPFLEX® Signal Conditioners

Millivolt Signal Conditioner from -100 mV ... +100 mV and 0 mV ... 1000 mV

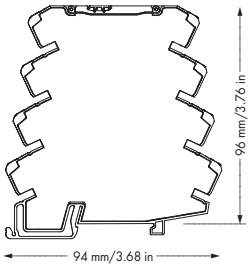


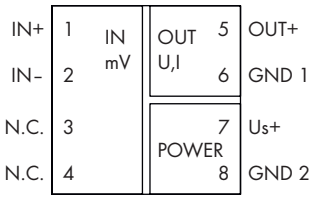
Configuration via:

DIP switch

Interface configuration software

Interface configuration app





Short description:
The Millivolt Signal Conditioner converts input millivolt signals into an analog standard signal on the output side.

Characteristics:
- PC configuration interface
- Calibrated scale switching
- Clipping capability allows analog standard signal limitation to upper range values
- Safe 3-way isolation with 2.5 kV test voltage acc. to EN 61140

Description	Item No.	Pack. Unit
***JUMPFLEX*® Signal Conditioner, for DIN 35 rail**	**857-819**	1
Millivolt Signal Conditioner with Millivolt Input as well as Current and Voltage Output		

Technical Data

Configuration:	
Configuration	DIP switch, interface configuration software, interface configuration app
Input:	
Input signal	-100 mV ... +100 mV, 0 mV ... 200 mV, 0 mV ... 1000 mV * (in 100 mV increments)
Input resistance	> 1MΩ
Max. input signal	31.2V
Output:	
Output signal	0 ... 10 mA, 2 ... 10 mA, 0 ... 20 mA, 4 ... 20 mA, 0... 5 V, 1 ... 5 V, 0 ... 10 V, 2 ... 10 V *
Load impedance	≤ 600 Ω (I output) ≥ 2 kΩ (U output)
Step response	50ms
General specifications:	
Nominal supply voltage V_S	24 VDC
Supply voltage range	V_S -30 % ... +30 %
Current consumption at 24 VDC	≤ 40 mA
Min. measuring span	10 mV (configurable)
Transmission error	≤ 0.1 % of upper range value
Temperature coefficient	≤ 0.01 %/K

Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Safety and protection:	
Test voltage (input/output/supply)	2.5 kV AC, 50 Hz, 1 min
Connection and type of mounting:	
Wire connection	Push-in CAGE CLAMP®
Cross sections	Ssolid: 0.08 mm² ... 2.5 mm² / 28 ... 14 AWG Fine-stranded: 0.34 mm² ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.
Dimensions and weight:	
Dimensions (mm) W x H x L	6 x 96 x 94
	Height from upper-edge of DIN 35 rail
Weight	50 g
Standards and approvals:	
Conformity marking	CE
cULus UL 508	
cULus ANSI/ISA 12.12.01	Class I, Div. 2, Grp. ABCD, T4
Shipbuilding	GL, PRS, NKK, DNV , BV
Ex TÜV 14 ATEX 112692 X	II 3 G Ex nA IIC T4 Gc
IECEx TUN 14.0030 X	Ex nA IIC T4 Gc
EMC immunity of interference	EN 61000-6-2
EMC emission of interference	EN 61000-6-4
Accessories:	see page 226
	Marking strip: 2009-110

(*Additional setting options via interface configuration software or interface configuration app)

DIP Switch Adjustability

● = ON

857-819

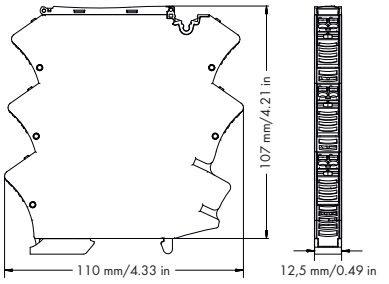
| Input Start value | | |

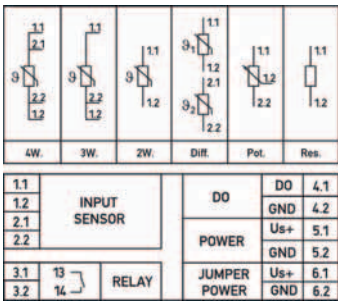
JUMPFLEX® Signal Conditioners

RTD Threshold Value Switch

Configuration via:

DIP switch | Interface configuration software | Interface configuration app | Configuration display





Short description:
WAGO's RTD Threshold Value Switch for RTD sensors, potentiometers and resistors monitors and reports signals of up to two switching thresholds.

Features:
- Both digital signal output and relay with make contact react to configured measuring range limits (switching ON/OFF delay and threshold value switch function configurable with up to two threshold values).
- Configurable RTD factor
- Adjustable software filter
- Input/Output response simulation via configuration display
- Safe 3-way isolation with 4 kV test voltage acc. to EN 61140

Description	Item No.	Pack. Unit
***JUMPFLEX*® Signal Conditioner, for DIN 35 rail** RTD Threshold Value Switch	**2857-533**	1

Technical Data

Configuration:	
Configuration	DIP switch, interface configuration software, interface configuration app, configuration display
Input:	
Input signal	RTD sensors, potentiometers and resistors*
Sensor types	Pt100, Pt200, Pt500, Pt1000, Pt5000, Pt10000, Pt10 ... Pt20000 (expanded)*
Sensor connection	2-, 3-, and 4-wire, Difference
Sensor supply current	< 0.5 mA
Temperature range	-200 °C ... +850 °C
Resistor input	0 ... 100 kΩ
Output:	
Output – Digital:	
Max. switching voltage	Supply voltage applied -0.3 V
Max. continuous current I_{DO}	100 mA (no internal restriction)
Number of switching tresholds	1 or 2
Configurable rise and fall delay time	0 ... 10 s (via DIP switch); 0 ... 60 s (expanded)
Output – Relay:	
Contact type	1 make contact (1 a)
Contact material	AgNi (gold-plated)
Max. switching voltage	250 VAC
Max. continuous current (terminal blocks in a row)	6 A (up to 60 °C), 3 A (60 °C ... 70 °C)
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}
Pull-in/drop-out/bounce time typ.	8 ms / 4 ms / 8 ms
Number of switching tresholds	1 or 2
Configurable rise and fall delay time	0 ... 10 s (via DIP switch); 0 ... 60 s (expanded)

Technical Data

General specifications:	
Nominal supply voltage V_S	24 VDC
Supply voltage range	V_S -30 % ... +30 %
Current consumption at 24 VDC	≤ 40 mA + I_{DO}
Measurement error	± 1 K
Temperature coefficient	≤ 0.01 %/K
Environmental requirements:	
Ambient operating temperature	-40 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Safety and protection:	
Test voltage (input/output/supply)	4 kV AC, 50 Hz, 1 min.
Connection and type of mounting:	
Wire connection	Push-in CAGE CLAMP® (*picoMAX*® 5.0)
Cross sections	Ssolid/fine-stranded: 0.2 ... 2.5 mm² / 24 ... 12 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.
Dimensions and weight:	
Dimensions (mm) W x H x L	12.5 x 107 x 110
	Height from upper-edge of DIN 35 rail
Weight	86 g
Standards and approvals:	
Conformity marking	CE
Standards/specifications	DIN EN 50178; DIN EN 60664-1; EN 61000-6-2; EN 61000-6-4
Accessories:	see page 226

(*Additional setting options via interface configuration software or interface configuration app)

DIP Switch Adjustability

● = ON

2857-533

DIP Switch S1

Sensor Type				Connection Technology			Hysteresis		Rise/Fall Delay Time Relay/ Digital Output (DO)					
1	2	3		4	5		6	T / K	7	8	9	t / s	10	Not assigned
			Pt100			2-wire		3				0		
●			Pt200	●		3-wire	●	5	●			1		
	●		Pt500		●	4-wire				●		2		
●	●		Pt1000	●	●	Difference			●	●		3		
		●	Pt5000								●	4		
●		●	Pt10000						●		●	5		
	●	●	Resistor							●	●	8		
●	●	●	Potentiometer						●	●	●	10		

DIP Switch S2

Starting Value								End Value							
1	2	3	4	5	Temperature / °C	Resistance / Ω	Potentiometer Position	6	7	8	9	10	Temperature / °C	Resistance / Ω	Potentiometer Position
					0	OFF	OFF						100	OFF	OFF
●					OFF	10	0 %	●					OFF	10	0 %
	●				-200	15	5 %		●				-200	15	5 %
●	●				-150	22	10 %	●	●				-150	22	10 %
		●			-100	33	15 %			●			-100	33	15 %
●		●			-50	47	20 %	●		●			-50	47	20 %
	●	●			-10	68	25 %		●	●			-10	68	25 %
●	●	●			10	100	30 %	●	●	●			10	100	30 %
			●		20	120	35 %				●		20	120	35 %
●			●		30	150	40 %	●			●		30	150	40 %
	●		●		40	220	45 %		●		●		40	220	45 %
●	●		●		50	330	50 %	●	●		●		50	330	50 %
		●	●		60	470	55 %			●	●		60	470	55 %
●		●	●		70	560	60 %	●		●	●		70	560	60 %
	●	●	●		80	680	65 %		●	●	●		80	680	65 %
●	●	●	●		90	1000	70 %	●	●	●	●		90	1000	70 %
				●	100	1200	75 %					●	100	1200	75 %
●				●	150	1500	80 %	●				●	150	1500	80 %
	●			●	200	2200	85 %		●			●	200	2200	85 %
●	●			●	250	3300	90 %	●	●			●	250	3300	90 %
		●		●	300	4700	95 %			●		●	300	4700	95 %
●		●		●	350	5600	100 %	●		●		●	350	5600	100 %
	●	●		●	400	6800	OFF		●	●		●	400	6800	OFF
●	●	●		●	450	10000	OFF	●	●	●		●	450	10000	OFF
			●	●	500	12000	OFF				●	●	500	12000	OFF
●			●	●	550	15000	OFF	●			●	●	550	15000	OFF
	●		●	●	600	22000	OFF		●		●	●	600	22000	OFF
●	●		●	●	650	33000	OFF	●	●		●	●	650	33000	OFF
		●	●	●	700	47000	OFF			●	●	●	700	47000	OFF
●		●	●	●	750	56000	OFF	●		●	●	●	750	56000	OFF
	●	●	●	●	800	68000	OFF		●	●	●	●	800	68000	OFF
●	●	●	●	●	850	100000	OFF	●	●	●	●	●	850	100000	OFF

Default Settings

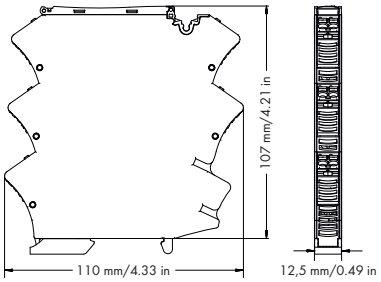
Sensor Type	Pt100
Connection Technology	2-wire
Starting Value	0 °C
End Value	100 °C
Hysteresis	3 K
Rise/Fall Delay Time Relay/Digital Output (DO)	0 s

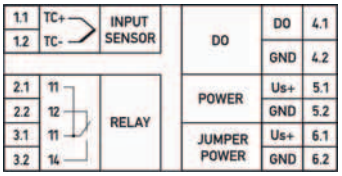
JUMPFLEX® Signal Conditioners

TC Threshold Value Switch

Configuration via:

DIP switch | Interface configuration software | Interface configuration app | Configuration display





Short description:
WAGO's Thermocouple Threshold Value Switch for TC sensors monitors and reports signals of up to two switching thresholds.

Features:

- Both digital signal output and relay with changeover contact react to configured measuring range limits (switching ON/OFF delay and threshold value switch function configurable with up to two threshold values).
- Adjustable software filter
- Input/Output response simulation via configuration display
- Safe 3-way isolation with 4 kV test voltage acc. to EN 61140

Description	Item No.	Pack. Unit
***JUMPFLEX*® Signal Conditioner, for DIN 35 rail** TC Threshold Value Switch	**2857-534**	1

Technical Data

Configuration:	
Configuration	DIP switch, interface configuration software, interface configuration app, configuration display
Input:	
Input signal	Thermocouples*
Sensor types	Thermocouple's type J, K, E, R, N, S, T, B, S*
Temperature range	Type J: -210 °C ... +1200 °C Type K: -200 °C ... +1372 °C
Cold junction compensation	On/Off (Default: On)
Cold junction error	3 K (type 2 K)
Output:	
Output – Digital:	
Max. switching voltage	Supply voltage applied -0.3 V
Max. continuous current I_{DO}	100 mA (no internal restriction)
Number of switching tresholds	1 or 2
Configurable rise and fall delay time	0 ... 10 s (via DIP switch); 0 ... 60 s (expanded)
Output – Relay:	
Contact type	1 changeover contact (1 u)
Contact material	AgNi (gold-plated)
Max. switching voltage	250 VAC
Max. continuous current (terminal blocks in a row)	6 A (up to 60 °C), 3 A (60 °C ... 70 °C)
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}
Pull-in/drop-out/bounce time typ.	8 ms / 4 ms / 8 ms
Number of switching tresholds	1 or 2
Configurable rise and fall delay time	0 ... 10 s (via DIP switch); 0 ... 60 s (expanded)

Technical Data

General specifications:	
Nominal supply voltage V_S	24 VDC
Supply voltage range	V_S -30 % ... +30 %
Current consumption at 24 VDC	≤ 40 mA + I_{DO}
Measurement error	± 1 K
Temperature coefficient	≤ 0.01 %/K
Environmental requirements:	
Ambient operating temperature	-40 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Safety and protection:	
Test voltage (input/output/supply)	4 kV AC, 50 Hz, 1 min.
Connection and type of mounting:	
Wire connection	Push-in CAGE CLAMP® (*picoMAX*® 5.0)
Cross sections	Ssolid/fine-stranded: 0.2 ... 2.5 mm² / 24 ... 12 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.
Dimensions and weight:	
Dimensions (mm) W x H x L	12.5 x 107 x 110 Height from upper-edge of DIN 35 rail
Weight	87 g
Standards and approvals:	
Conformity marking	CE
Standards/specifications	DIN EN 50178; DIN EN 60664-1; EN 61000-6-2; EN 61000-6-4
Accessories:	see page 226

(*Additional setting options via interface configuration software or interface configuration app)

DIP Switch Adjustability

● = ON

2857-534

DIP Switch S1

Sensor Type Thermocouple					Cold Junction Compensation		Hysteresis		Rise/Fall Delay Time Relay/ Digital Output (DO)					
1	2	3	4	Type	5		6	T / K	7	8	9	t / s	10	Not assigned
				J		ON		3				0		
●				K	●	OFF	●	5	●			1		
	●			E						●		2		
●	●			R					●	●		3		
		●		N							●	4		
●		●		S					●		●	5		
	●	●		T						●	●	8		
●	●	●		B					●	●	●	10		
			●	C										

DIP Switch S2

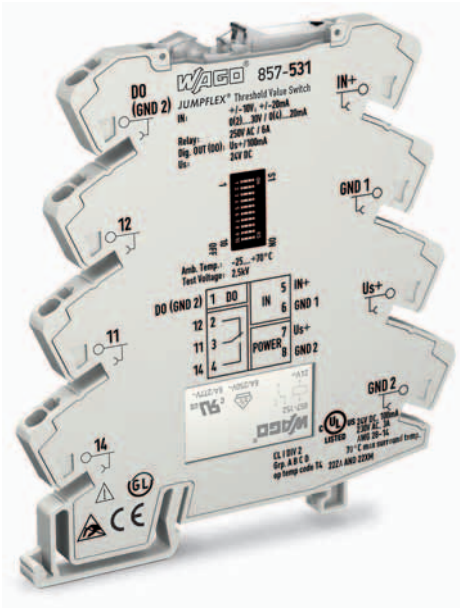
Lower Value						Upper Value					
1	2	3	4	5	Temperature / °C	6	7	8	9	10	Temperature / °C
					0						100
●					OFF	●					OFF
	●				-200		●				-200
●	●				-150	●	●				-150
		●			-100			●			-100
●		●			-50	●		●			-50
	●	●			50		●	●			50
●	●	●			100	●	●	●			100
			●		150				●		150
●			●		200	●			●		200
	●		●		250		●		●		250
●	●		●		300	●	●		●		300
		●	●		350			●	●		350
●		●	●		400	●		●	●		400
	●	●	●		450		●	●	●		450
●	●	●	●		500	●	●	●	●		500
				●	550					●	550
●				●	600	●				●	600
	●			●	650		●			●	650
●	●			●	700	●	●			●	700
		●		●	750			●		●	750
●		●		●	800	●		●		●	800
	●	●		●	850		●	●		●	850
●	●	●		●	900	●	●	●		●	900
			●	●	950				●	●	950
●			●	●	1000	●			●	●	1000
	●		●	●	1050		●		●	●	1050
●	●		●	●	1100	●	●		●	●	1100
		●	●	●	1150			●	●	●	1150
●		●	●	●	1200	●		●	●	●	1200
	●	●	●	●	1300		●	●	●	●	1300
●	●	●	●	●	1400	●	●	●	●	●	1400

Default Settings

Cold Junction Compensation	ON
Sensor Type	Thermocouple of type J
Lower Value	0 °C
Upper Value	100 °C
Hysteresis	3 K
Rise/Fall Delay Time Relay/Digital Output (DO)	0 s

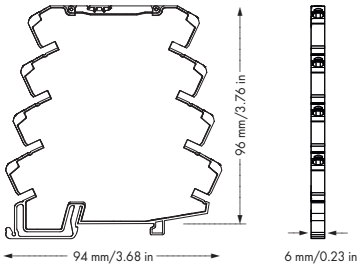
JUMPFLEX® Signal Conditioners

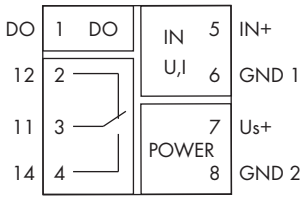
Threshold Value Switch with Analog Input and Changeover Relay Output



Configuration via:

DIP switch | Interface configuration software | Interface configuration app | Push/Slide Switch





Short description:
The threshold value switch for analog signals monitors analog standard signals and reports signals exceeding a preset threshold.

Characteristics:
- PC configuration interface
- Digital switching output
- Changeover contact relay output
- Calibrated scale switching
- Threshold value configuration via DIP switches and teach-in function via push/slide switch
- Safe 3-way isolation with 2.5kV test voltage acc. to EN 61140

Description	Item No.	Pack. Unit
***JUMPFLEX*® Signal Conditioner, for DIN 35 rail** Threshold Value Switch with Analog Input, Changeover Relay Output and Digital Output	**857-531**	1

Technical Data

Configuration:	
Configuration	DIP switch, push/slide switch, interface configuration software, interface configuration app
Input:	
Input signal	-10...+10V, -20...+20mA, 0...+30V *
Input resistance	≤ 200 Ω (I input) > 100 kΩ (U input)
Max. input signal	31.2 V (V_{IN}) 100 mA (I_{IN})
Output:	
Output - Relay	
Contact type	1 changeover contact
Max. switching voltage	250 VAC
Max. continuous current (terminal blocks in a row)	max. 6 A (to 60 °C), 2 A (60 to 70 °C)
Max. Switching power (resistive)	1250 VA AC
Anzahl der Schaltschwellen	1 or 2 (adjustable) *
Configurable rise and fall delay time	0 ... 10 s (via DIP switch), 0 ... 30 s *
Output - Digital	
Max. switching voltage	Supply voltage applied
Max. continuous current	500 mA (to 60 °C) 100 mA (60 to 70 °C)
General specifications:	
Response time	≤ 16ms
Nominal supply voltage V_S	24 VDC
Supply voltage range	V_S -30 % ... +30 %
Current consumption at 24 VDC	≤ 25 mA
Transmission error	≤ 0.1 % of upper range value
Temperature coefficient	≤ 0.01 %/K

Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Safety and protection:	
Test voltage (input/output/supply)	2.5 kV AC, 50 Hz, 1 min
Connection and type of mounting:	
Wire connection	Push-in CAGE CLAMP®
Cross sections	Ssolid: 0.08 mm² ... 2.5 mm² / 28 ... 14 AWG Fine-stranded: 0.34 mm² ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.
Dimensions and weight:	
Dimensions (mm) W x H x L	6 x 96 x 94 Height from upper-edge of DIN 35 rail
Weight	49 g
Standards and approvals:	
Conformity marking	CE
UL 508	
ANSI/ISA 12.12.01	Class I, Div. 2, Grp. ABCD, T4
Shipbuilding	GL, PRS, NKK, DNV, BV
EMC immunity of interference	EN 61000-6-2; EN 61131-2
EMC emission of interference	EN 61000-6-4; EN 61131-2
Standards/specifications	EN 50121-3-2, EN 50178, EN 61326-1
Accessories:	see page 226 Marking strip: 2009-110

(*Additional setting options via interface configuration software or interface configuration app)

DIP Switch Adjustability

● = ON

857-531

DIP Switch S1

Input signal limits ± 0.25 V; ± 0.5 mA					Hysteresis	
1	2	3	4		5	
				±10 V		5 mV; 10 µA
	●			0 ... 10 V	●	10 mV, 20 µA
		●		2 ... 10 V		
	●	●		0 ... 5 V		
			●	1 ... 5 V		
	●		●	± 5 V		
		●	●	0 ... 15 V		
	●	●	●	0 ... 30 V		
●				± 20 mA		
●	●			0 ... 20 mA		
●		●		4 ... 20 mA		
●	●	●		0 ... 10 mA		
●			●	2 ... 10 mA		
●	●		●	± 10 mA		

DIP Switch S1

Configurable rise/fall delay time in sec.				Digital output DO Signaling		
6	7	8		9	10	
			0			DO not active
●			1		●	GND → U_N (switching)
	●		2	●	●	U_N → GND (switching)
●	●		3			
		●	4			
●		●	5			
	●	●	8			
●	●	●	10			

Default Settings

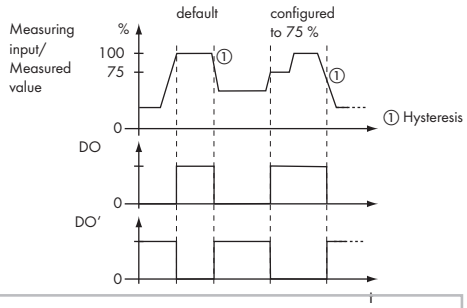
All DIP switches are in „OFF" position for delivery.	
Input	
Input range	± 10 V
Hysteresis	5 mV
Output	
Configurable rise/fall delay time	0 s
Digital output DO	not active

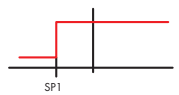
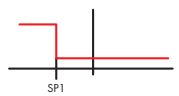
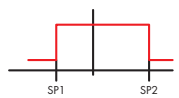
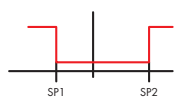
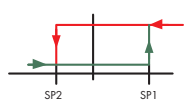
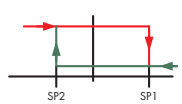
Push/Slide Switch Operation

Digital Output DO/Signaling

The digital output (DO) signals error messages and can be configured as follows: 24 V → 0 V/0 V → 24 V.

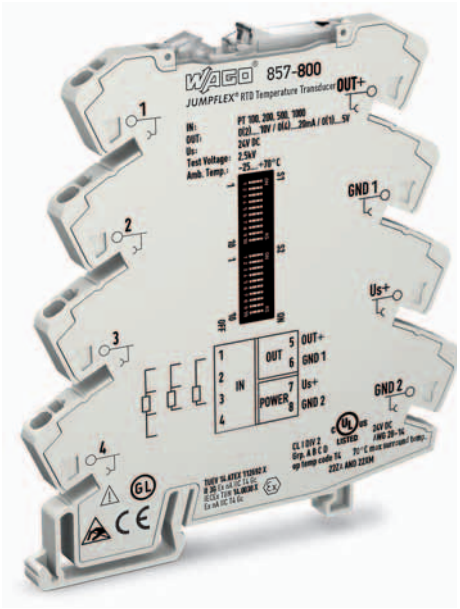
Switching Behavior, Digital Output (DO)



Switching Behavior	Configuration							
	Number of Switching Thresholds	Values for Switching T hresholds	Switching Threshold 1, Relay	Switching Threshold 2, Relay	Press for 1 sec. Yellow LED flashes	Red LED flashes briefly		No flashing LED
1 	1	S1	„On"	–				
2 	1	S1	„Off"	–				
3 	2	S1 < S2	„On"	„Off"				
4 	2	S1 < S2	„Off"	„On"				
5 	2	S1 > S2	„On"	„Off"				
6 	2	S1 > S2	„Off"	„On"				
Leave param. mode without storing a value	–	–	–	–				

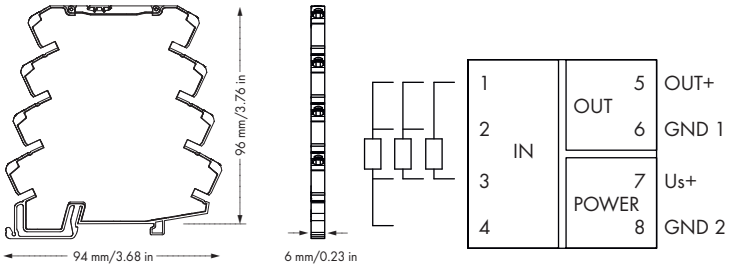
JUMPFLEX® Signal Conditioners

Temperature Signal Conditioner for Pt 00, Pt200, Pt500 and Pt1000 as well as Resistors



Configuration via:

DIP switch



Short description:
The Temperature Signal Conditioner records Pt100, Pt200, Pt500 and Pt1000 sensors, as well as resistors up to 4.5 kOhm, converting the temperature signal into a standard analog signal on the output side.

Characteristics:
- For Pt100, Pt200, Pt500 and Pt1000 sensors, as well as resistors up to 4.5 kOhm
- 2-, 3-, and 4-wire connection technology
- Calibrated scale switching
- Sensor's wire break/short circuit
- Measuring range underflow/overflow
- Clipping capability allows analog standard signal limitation to upper range values
- Safe 3-way isolation with 2.5kV test voltage acc. to EN 61140

Description	Item No.	Pack. Unit
***JUMPFLEX*® Signal Conditioner, for DIN 35**	**857-800**	1
Temperature Signal Conditioner for Pt 100, Pt 200, Pt 500 and Pt 1000 as well as Resistors 0 ... 1 kΩ; 0 ... 4.5 kΩ		

Technical Data

Configuration:	
Configuration	DIP switch
Input:	
Input signal	PT sensors and resistors
Sensor types	Pt100, Pt200, Pt500, Pt1000
Sensor connection	2-wire, 3-wire, 4-wire (switchable)
Temperature range	-200 °C ... +850 °C
Sensor supply current	< 0.5 mA
Resistor input	0 ... 1 kΩ , 0 ... 4.5 kΩ
Output:	
Output signal	0 ... 20 mA, 4 ... 20 mA,
	0 ... 10 V, 2 ... 10 V,
	0... 5 V, 1 ... 5 V,
	0 ... 10 mA, 2 ... 10 mA
Load impedance	≤ 600 Ω (Out = mA)
	≥ 2 kΩ (Out = V)
Step response	180 ms (360 ms at 3-wire)
General specifications:	
Nominal supply voltage V_S	24 VDC
Supply voltage range	V_S -30 % ... +30 %
Current consumption at 24 VDC	< 40 mA
Min. measuring span	50 K (50 Ω)
Transmission error	≤ 0.1 % at max. measuring span
Transmission error of set measuring span	((10 K / set measuring span [K]) + 0.1) %
Temperature coefficient	≤ 0.02 % /K

Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Safety and protection:	
Test voltage (input/output/supply)	2.5 kV AC, 50 Hz, 1 min
Connection and type of mounting:	
Wire connection	Push-in CAGE CLAMP®
Cross sections	Ssolid:
	0.08 mm² ... 2.5 mm² / 28 ... 14 AWG
	Fine-stranded:
	0.34 mm² ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.
Dimensions and weight:	
Dimensions (mm) W x H x L	6 x 96 x 94
	Height from upper-edge of DIN 35 rail
Weight	42 g
Standards and approvals:	
Conformity marking	CE
cULus UL 508	
cULus ANSI/ISA 12.12.01	Class I, Div. 2, Grp. ABCD, T4
Shipbuilding	GL, PRS, NKK, DNV, BV
Ex TÜV 14 ATEX 112692 X	II 3 G Ex nA IIC T4 Gc
IECEx TUN 14.0030 X	Ex nA IIC T4 Gc
EMC immunity of interference	EN 61000-6-2
EMC emission of interference	EN 61000-6-4
Accessories:	see page 226
	Marking strip: 2009-110

DIP Switch Adjustability

● = ON

857-800

DIP Switch S1

Wire connection			Sensor type				Output signal						Measuring range underflow	Measuring range overflow	Wire break	Short circuit
1	2		3	4	5		6	7	8		9	10				
		2-wire				Pt100				0 ... 20 mA			Lower limit of output range - 5 % *	Upper limit of output range + 2,5 % *	Upper limit of output range + 5 % *	Lower limit of output range - 12,5 % *
●		3-wire	●			Pt200	●			4 ... 20 mA						
	●	4-wire		●		Pt500		●		0 ... 10 mA	●		Lower limit of output range	Upper limit of output range + 2,5 %	Upper limit of output range + 5 %	Lower limit of output range
			●	●		Pt1000	●	●		2 ... 10 mA						
					●	1 kΩ			●	0 ... 10 V		●	Lower limit of output range	Upper limit of output range	Upper limit of output range + 5 %	Upper limit of output range + 5 %
			●		●	4.5 kΩ	●		●	2 ... 10 V						
								●	●	0 ... 5 V	●	●	Lower limit of output range	Upper limit of output range	Lower limit of output range	Lower limit of output range
							●	●	●	1 ... 5 V						

* acc. to NAMUR NE 43

DIP Switch S2

Start temperature						End temperature																													
1	2	3	4	°C	°F	5	6	7	8	9	10	°C	°F	5	6	7	8	9	10	°C	°F	5	6	7	8	9	10	°C	°F	5	6	7	8	9	10	°C	°F
																		●		75	167						●	210	410					●	●	475	887
●				-200	-328	●						0	32	●				●		80	176	●					●	220	428	●				●	●	500	932
	●			-175	-283		●					5	41		●			●		85	185		●				●	230	446		●			●	●	525	997
●	●			-150	-238	●	●					10	50	●	●			●		90	194	●	●				●	240	464	●	●			●	●	550	1022
		●		-125	-193			●				15	59			●		●		95	203			●			●	250	482			●		●	●	575	1067
●		●		-100	-148	●		●				20	68	●		●		●		100	212	●		●			●	260	500	●		●		●	●	600	1112
	●	●		-90	-130		●	●				25	77		●	●		●		110	230		●	●			●	270	518		●	●		●	●	625	1157
●	●	●		-80	-112	●	●	●				30	86	●	●	●		●		120	248	●	●	●			●	280	536	●	●	●		●	●	650	1202
			●	-70	-94				●			35	95				●	●		130	266				●		●	290	554				●	●	●	675	1247
●			●	-60	-76	●			●			40	104	●			●	●		140	284	●			●		●	300	572	●			●	●	●	700	1292
	●		●	-50	-58		●		●			45	113		●		●	●		150	302		●		●		●	325	617		●		●	●	●	725	1337
●	●		●	-40	-40	●	●		●			50	122	●	●		●	●		160	320	●	●		●		●	350	662	●	●		●	●	●	750	1382
		●	●	-30	-22			●	●			55	131			●	●	●		170	338			●	●		●	375	707			●	●	●	●	775	1427
●		●	●	-20	-4	●		●	●			60	140	●		●	●	●		180	356	●		●	●		●	400	752	●		●	●	●	●	800	1472
	●	●	●	-10	14		●	●	●			65	149		●	●	●	●		190	374		●	●	●		●	425	797		●	●	●	●	●	825	1517
●	●	●	●	0	32	●	●	●	●			70	158	●	●	●	●	●		200	392	●	●	●	●		●	450	842	●	●	●	●	●	●	850	1562

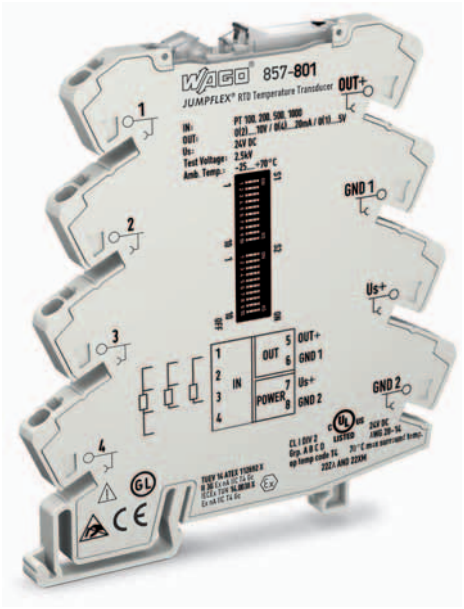
The minimum distance from the start temperature to the end temperature may not fall short of 50K degrees on the Celsius (C) scale or 122K degrees on the Fahrenheit (F) scale.

Default Settings

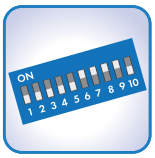
All DIP switches are in „OFF" position for delivery.	
Sensor connection	2-wire
Sensor type	Pt 100
Start temperature	0 °C
End temperature	100 °C
Output signal	0 ... 20 mA
Measuring range underflow	0 mA
Measuring range overflow	20.5 mA
Wire break	21 mA
Short circuit	0 mA

JUMPFLEX® Signal Conditioners

Temperature Signal Conditioner for Pt100, Pt200, Pt500 and Pt1000 as well as Resistors



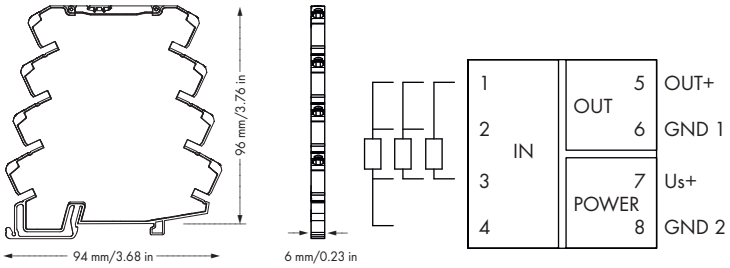
Configuration via:



DIP switch

Interface configuration software

Interface configuration app



Short description:
The Temperature Signal Conditioner records Pt100, Pt200, Pt500 and Pt1000 sensors, as well as resistors up to 4.5 kOhm, converting the temperature signal into a standard analog signal on the output side..

Characteristics::
- PC configuration interface
- For Pt100, Pt200, Pt500 and Pt1000 sensors, as well as resistors up to 4.5 kOhm
- 2-, 3-, and 4-wire connection technology
- Calibrated scale switching
- Sensor's wire break/short circuit
- Measuring range underflow/overflow
- Clipping capability allows analog standard signal limitation to upper range values.
- Safe 3-way isolation with 2.5kV test voltage acc. to EN 61140

Description	Item No.	Pack. Unit
***JUMPFLEX*® Signal Conditioner, for DIN 35**	**857-801**	1
Temperature Signal Conditioner for Pt 100, Pt 200, Pt 500 and Pt 1000 as well as Resistors *		

Technical Data

Configuration:	
Configuration	DIP switch, interface configuration software, interface configuration app
Input:	
Input signal	PT sensors and resistors *
Sensor types	Pt100, Pt200, Pt500, Pt1000 *
Sensor connection	2-wire, 3-wire, 4-wire (switchable) *
Temperature range	-200 °C ... +850 °C
Sensor supply current	< 0.5 mA
Resistor input	0 ... 1 kΩ , 0 ... 4.5 kΩ *
Output:	
Output signal	0 ... 20 mA, 4 ... 20 mA, 0 ... 10 V, 2 ... 10 V, 0... 5 V, 1 ... 5 V, 0 ... 10 mA, 2 ... 10 mA *
Load impedance	≤ 600 Ω (Out = mA) ≥ 2 kΩ (Out = V)
Step response	180 ms (360 ms at 3-wire)
General specifications:	
Nominal supply voltage V_S	24 VDC
Supply voltage range	V_S -30 % ... +30 %
Current consumption at 24 VDC	< 40 mA
Min. measuring span	50 K (50 Ω)
Transmission error	≤ 0.1 % at max. measuring span
Transmission error of set measuring span	((10 K / set measuring span [K]) + 0.1) %
Temperature coefficient	≤ 0.02 % /K

Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Safety and protection:	
Test voltage (input/output/supply)	2.5 kV AC, 50 Hz, 1 min
Connection and type of mounting:	
Wire connection	Push-in CAGE CLAMP®
Cross sections	Ssolid: 0.08 mm² ... 2.5 mm² / 28 ... 14 AWG Fine-stranded: 0.34 mm² ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.
Dimensions and weight:	
Dimensions (mm) W x H x L	6 x 96 x 94
	Height from upper-edge of DIN 35 rail
Weight	49.2 g
Standards and approvals:	
Conformity marking	CE
UL 508	
ANSI/ISA 12.12.01	Class I, Div. 2, Grp. ABCD, T4
Shipbuilding	GL, PRS, NKK, DNV, BV
TÜV 14 ATEX 112692 X	II 3 G Ex nA IIC T4 Gc
IECEx TUN 14.0030 X	Ex nA IIC T4 Gc
EMC immunity of interference	EN 61000-6-2
EMC emission of interference	EN 61000-6-4
Accessories:	see page 226
	Marking strip: 2009-110

(*Additional setting options as well as output signal inversion via PC configuration software or smartphone app)

DIP Switch Adjustability

● = ON

857-801

DIP Switch S1

Wire connection			Sensor type				Output signal						Measuring range underflow	Measuring range overflow	Wire break	Short circuit
1	2		3	4	5		6	7	8		9	10				
		2-wire				Pt100				0 ... 20 mA			Lower limit of output range - 5 % *	Upper limit of output range + 2,5 % *	Upper limit of output range + 5 % *	Lower limit of output range - 12,5 % *
●		3-wire	●			Pt200	●			4 ... 20 mA						
	●	4-wire		●		Pt500		●		0 ... 10 mA	●		Lower limit of output range	Upper limit of output range + 2,5 %	Upper limit of output range + 5 %	Lower limit of output range
			●	●		Pt1000	●	●		2 ... 10 mA						
					●	1 kΩ			●	0 ... 10 V		●	Lower limit of output range	Upper limit of output range	Upper limit of output range + 5 %	Upper limit of output range + 5 %
			●		●	4.5 kΩ	●		●	2 ... 10 V						
								●	●	0 ... 5 V	●	●	Lower limit of output range	Upper limit of output range	Lower limit of output range	Lower limit of output range
							●	●	●	1 ... 5 V						

* acc. to NAMUR NE 43

DIP Switch S2

Start temperature						End temperature																											
1	2	3	4	°C	°F	5	6	7	8	9	10	°C	°F	5	6	7	8	9	10	°C	°F	5	6	7	8	9	10	°C	°F	5	6	7	8	9	10	°C	°F
																		●		75	167						●	210	410					●	●	475	887
●				-200	-328	●						0	32	●				●		80	176	●					●	220	428	●				●	●	500	932
	●			-175	-283		●					5	41		●			●		85	185		●				●	230	446		●			●	●	525	997
●	●			-150	-238	●	●					10	50	●	●			●		90	194	●	●				●	240	464	●	●			●	●	550	1022
		●		-125	-193			●				15	59			●		●		95	203			●			●	250	482			●		●	●	575	1067
●		●		-100	-148	●		●				20	68	●		●		●		100	212	●		●			●	260	500	●		●		●	●	600	1112
	●	●		-90	-130		●	●				25	77		●	●		●		110	230		●	●			●	270	518		●	●		●	●	625	1157
●	●	●		-80	-112	●	●	●				30	86	●	●	●		●		120	248	●	●	●			●	280	536	●	●	●		●	●	650	1202
			●	-70	-94				●			35	95				●	●		130	266				●		●	290	554				●	●	●	675	1247
●			●	-60	-76	●			●			40	104	●			●	●		140	284	●			●		●	300	572	●			●	●	●	700	1292
	●		●	-50	-58		●		●			45	113		●		●	●		150	302		●		●		●	325	617		●		●	●	●	725	1337
●	●		●	-40	-40	●	●		●			50	122	●	●		●	●		160	320	●	●		●		●	350	662	●	●		●	●	●	750	1382
		●	●	-30	-22			●	●			55	131			●	●	●		170	338			●	●		●	375	707			●	●	●	●	775	1427
●		●	●	-20	-4	●		●	●			60	140	●		●	●	●		180	356	●		●	●		●	400	752	●		●	●	●	●	800	1472
	●	●	●	-10	14		●	●	●			65	149		●	●	●	●		190	374		●	●	●		●	425	797		●	●	●	●	●	825	1517
●	●	●	●	0	32	●	●	●	●			70	158	●	●	●	●	●		200	392	●	●	●	●		●	450	842	●	●	●	●	●	●	850	1562

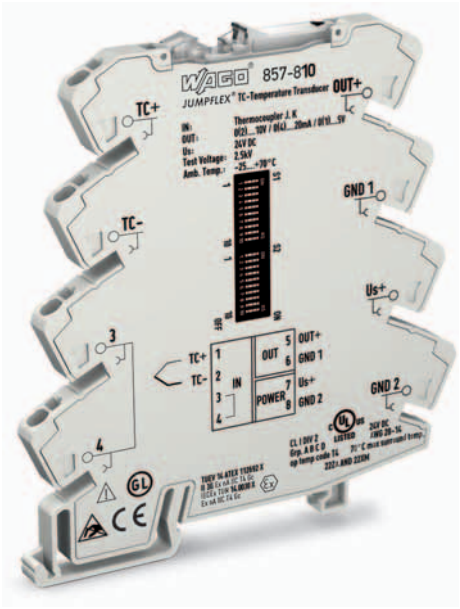
The minimum distance from the start temperature to the end temperature may not fall short of 50K degrees on the Celsius (C) scale or 122K degrees on the Fahrenheit (F) scale.

Default Settings

All DIP switches are in „OFF" position for delivery. This is the position used to parameterize the device via PC configuration software.	
Sensor connection	2-wire
Sensor type	Pt 100
Start temperature	0 °C
End temperature	100 °C
Output signal	0 ... 20 mA
Measuring range underflow	0 mA
Measuring range overflow	20.5 mA
Wire break	21 mA
Short circuit	0 mA

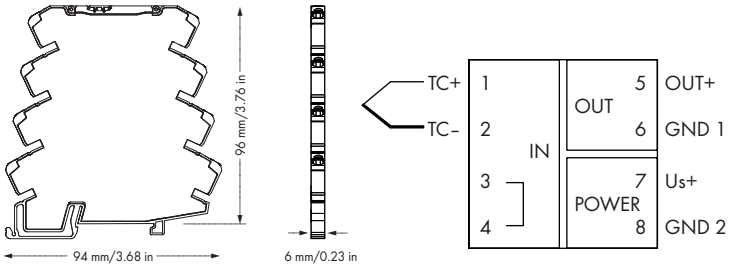
JUMPFLEX® Signal Conditioners

Temperature Signal Conditioner for Thermocouples of Types J and K



Configuration via:

DIP switch



Short description:
The Thermocouple Temperature Signal Conditioner is suitable for the connection of type J and K thermocouples. On the output side, the thermocouple temperature signal conditioner converts the temperature signal into an analog standard signal.

Characteristics:
- For thermocouples of type J and K
- Cold junction compensation (on/off)
- Calibrated scale switching
- Sensor's wire break
- Measuring range underflow/overflow
- Clipping capability allows analog standard signal limitation to upper range values
- Safe 3-way isolation with 2.5kV test voltage acc. to EN 61140

Description	Item No.	Pack. Unit
***JUMPFLEX*® Signal Conditioner, for DIN 35**	**857-810**	1
Temperature Signal Conditioner for Thermocouples of Types J and K		

Technical Data

Configuration:	
Configuration	DIP switch
Input:	
Input signal	Thermocouples
Sensor types	Thermocouples of types J and K
Temperature range	Type J: -150 °C ... +1200 °C
	Type K: -150 °C ... +1350 °C
Output:	
Output signal	0 ... 20 mA, 4 ... 20 mA,
	0 ... 10 V, 2 ... 10 V,
	0... 5 V, 1 ... 5 V,
	0 ... 10 mA, 2 ... 10 mA
Load impedance	≤ 600 Ω (Out = mA)
	≥ 2 kΩ (Out = V)
Cold junction compensation	on / off (default: on)
Cold junction error	3 K (typ. 2 K)
Step response	60 ms without cold junction compensation/
	120 ms with cold junction compensation
General specifications:	
Nominal supply voltage V_S	24 VDC
Supply voltage range	V_S -30 % ... +30 %
Current consumption at 24 VDC	≤ 40 mA
Min. measuring span	100 K (configurable)
Transmission error	≤ 0.1 % at max. measuring span (Typ J, K)
Transmission error of set	
measuring span	(150 K / set measuring span [K]) %
Temperature coefficient	≤ 0.04 % /K

Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Safety and protection:	
Test voltage (input/output/supply)	2.5 kV AC, 50 Hz, 1 min
Connection and type of mounting:	
Wire connection	Push-in CAGE CLAMP®
Cross sections	Ssolid:
	0.08 mm² ... 2.5 mm² / 24 ... 14 AWG
	Fine-stranded:
	0.34 mm² ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.
Dimensions and weight:	
Dimensions (mm) W x H x L	6 x 96 x 94
	Height from upper-edge of DIN 35 rail
Weight	44.7 g
Standards and approvals:	
Conformity marking	CE
cULus UL 508	
cULus ANSI/ISA 12.12.01	Class I, Div. 2, Grp. ABCD, T4
Shipbuilding	GL, PRS, NKK, DNV, BV
Ex TÜV 14 ATEX 112692 X	II 3 G Ex nA IIC T4 Gc
IECEx TUN 14.0030 X	Ex nA IIC T4 Gc
EMC immunity of interference	EN 61000-6-2
EMC emission of interference	EN 61000-6-4
Accessories:	see page 226
	Marking strip: 2009-110

DIP Switch Adjustability

● = ON

857-810

DIP Switch S1

Cold junction compensation		Sensor type			Output signal						Measuring range underflow	Measuring range overflow	Wire break
1		2	3		4	5	6		7	8			
	on			J				0 ... 20 mA			Lower limit of output range - 5 % *	Upper limit of output range + 2,5 % *	Upper limit of output range + 5 % *
●	off	●		K	●			4 ... 20 mA					
						●		0 ... 10 mA	●		Lower limit of output range	Upper limit of output range + 2,5 %	Upper limit of output range + 5 %
					●	●		2 ... 10 mA					
							●	0 ... 10 V		●	Lower limit of output range	Upper limit of output range	Upper limit of output range + 5 %
					●		●	2 ... 10 V					
						●	●	0 ... 5 V	●	●	Lower limit of output range	Upper limit of output range	Lower limit of output range
					●	●	●	1 ... 5 V					

DIP 9 and 10 n.c.

* acc. to NAMUR NE 43

DIP Switch S2

Start temperature						End temperature																									
1	2	3	4	°C	°F	5	6	7	8	9	10	°C	°F	5	6	7	8	9	10	°C	°F	5	6	7	8	9	10	°C	°F	5	6	7	8	9	10	°C	°F
																		●		225	437						●	625	1157					●	●	1025	1877
●				-200	-328	●						0	32	●				●		250	482	●					●	650	1202	●				●	●	1050	1922
	●			-175	-283		●					10	50		●			●		275	527		●				●	675	1247		●			●	●	1075	1967
●	●			-150	-283	●	●					20	68	●	●			●		300	572	●	●				●	700	1292	●	●			●	●	1100	2012
		●		-125	-193			●				30	86			●		●		325	617			●			●	725	1337			●		●	●	1125	2057
●		●		-100	-148	●		●				40	104	●		●		●		350	662	●		●			●	750	1382	●		●		●	●	1150	2102
	●	●		-90	-130		●	●				50	122		●	●		●		375	707		●	●			●	775	1427		●	●		●	●	1175	2147
●	●	●		-80	-112	●	●	●				60	140	●	●	●		●		400	752	●	●	●			●	800	1472	●	●	●		●	●	1200	2192
			●	-70	-94				●			70	158				●	●		425	797				●		●	825	1517				●	●	●	1225	2237
●			●	-60	-76	●			●			80	176	●			●	●		450	842	●			●		●	850	1562	●			●	●	●	1250	2282
	●		●	-50	-58		●		●			90	194		●		●	●		475	887		●		●		●	875	1607		●		●	●	●	1275	2327
●	●		●	-40	-40	●	●		●			100	212	●	●		●	●		500	932	●	●		●		●	900	1652	●	●		●	●	●	1300	2372
		●	●	-30	-22			●	●			125	257			●	●	●		525	977			●	●		●	925	1697			●	●	●	●	1325	2417
●		●	●	-20	-4	●		●	●			150	302	●		●	●	●		550	1022	●		●	●		●	950	1742	●		●	●	●	●	1350	2462
	●	●	●	-10	14		●	●	●			175	347		●	●	●	●		575	1067		●	●	●		●	975	1787		●	●	●	●	●	1375	2507
●	●	●	●	0	32	●	●	●	●			200	392	●	●	●	●	●		600	1112	●	●	●	●		●	1000	1832	●	●	●	●	●	●	1400	2552

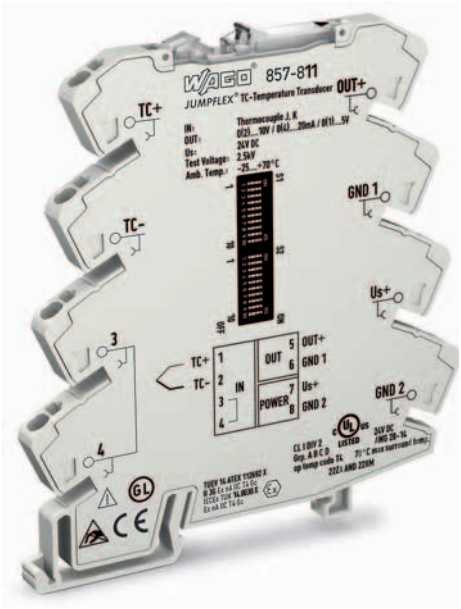
The minimum distance from the start temperature to the end temperature may not fall short of 100K degrees on the Celsius (C) scale or 212K degrees on the Fahrenheit (F) scale.

Default Settings

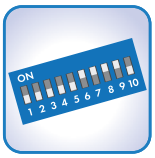
All DIP switches are in „OFF" position for delivery.	
Cold junction compensation	on
Thermocouple	Type J
Start temperature	0 °C
End temperature	1000 °C
Output signal	0 ... 20 mA
Measuring range underflow	0 mA
Measuring range overflow	20.5 mA
Wire break	21 mA

JUMPFLEX® Signal Conditioners

Temperature Signal Conditioner for Thermocouples of Types J and K



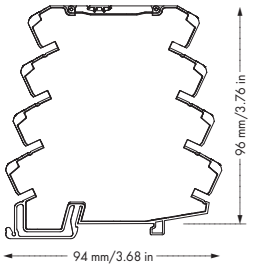
Configuration via:

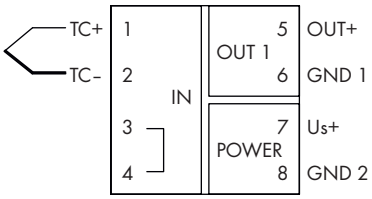


DIP switch

Interface configuration software

Interface configuration app





Short description:
The Thermocouple Temperature Signal Conditioner is suitable for the connection of type J and K thermocouples. On the output side, the thermocouple temperature signal conditioner converts the temperature signal into an analog standard signal.

Characteristics:
- PC configuration interface
- For thermocouples of type J and K (E, R, N, S, T, B, C)
- Cold junction compensation (on/off)
- Calibrated scale switching
- Sensor's wire break
- Measuring range underflow/overflow
- Clipping capability allows analog standard signal limitation to upper range values
- Safe 3-way isolation with 2.5kV test voltage acc. to EN 61140

Description	Item No.	Pack. Unit
***JUMPFLEX*® Signal Conditioner, for DIN 35**	**857-811**	1
Temperature Signal Conditioner for Thermocouples of Types J and K *		

Technical Data

Configuration:	
Configuration	DIP switch, interface configuration software, interface configuration app
Input:	
Input signal	Thermocouples
Sensor types	Thermocouples of types J and K *
Temperature range	Type J: -150 °C ... +1200 °C Type K: -150 °C ... +1350 °C
Output:	
Output signal	0 ... 10 mA, 2 ... 10 mA, 0 ... 20 mA, 4 ... 20 mA, 0... 5 V, 1 ... 5 V, 0 ... 10 V, 2 ... 10 V *
Load impedance	≤ 600 Ω (Out = mA) ≥ 2 kΩ (Out = V)
Cold junction compensation	on / off (default: on) *
Cold junction error	3 K (typ. 2 K)
Step response	60 ms without cold junction compensation/ 120 ms with cold junction compensation
General specifications:	
Nominal supply voltage V_S	24 VDC
Supply voltage range	V_S -30 % ... +30 %
Current consumption at 24 VDC	≤ 40 mA
Min. measuring span	100 K (configurable)
Transmission error	≤ 0.1 % at max. measuring span (Typ J, K)
Transmission error of set measuring span	(150 K / set measuring span [K]) %
Temperature coefficient	≤ 0.04 % /K

Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Safety and protection:	
Test voltage (input/output/supply)	2.5 kV AC, 50 Hz, 1 min
Connection and type of mounting:	
Wire connection	Push-in CAGE CLAMP®
Cross sections	Ssolid: 0.08 mm² ... 2.5 mm² / 28 ... 14 AWG Fine-stranded: 0.34 mm² ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.
Dimensions and weight:	
Dimensions (mm) W x H x L	6 x 96 x 94 Height from upper-edge of DIN 35 rail
Weight	49.2 g
Standards and approvals:	
Conformity marking	CE
cULus UL 508	
cULus ANSI/ISA 12.12.01	Class I, Div. 2, Grp. ABCD, T4
Shipbuilding	GL, PRS, NKK, DNV, BV
Ex TÜV 14 ATEX 112692 X	II 3 G Ex nA IIC T4 Gc
IECEx TUN 14.0030 X	Ex nA IIC T4 Gc
EMC immunity of interference	EN 61000-6-2
EMC emission of interference	EN 61000-6-4
Accessories:	see page 226 Marking strip: 2009-110

(*Additional setting options as well as output signal inversion via PC configuration software or smartphone app)

DIP Switch Adjustability

● = ON

857-811

DIP Switch S1

Cold junction compensation		Sensor type			Output signal						Measuring range underflow	Measuring range overflow	Wire break
1		2	3		4	5	6		7	8			
	on			J				0 ... 20 mA			Lower limit of output range - 5 % *	Upper limit of output range + 2,5 % *	Upper limit of output range + 5 % *
●	off	●		K	●			4 ... 20 mA					
						●		0 ... 10 mA	●		Lower limit of output range	Upper limit of output range + 2,5 %	Upper limit of output range + 5 %
					●	●		2 ... 10 mA					
							●	0 ... 10 V		●	Lower limit of output range	Upper limit of output range	Upper limit of output range + 5 %
					●		●	2 ... 10 V					
						●	●	0 ... 5 V	●	●	Lower limit of output range	Upper limit of output range	Lower limit of output range
					●	●	●	1 ... 5 V					

DIP 9 and 10 n.c.

* acc. to NAMUR NE 43

DIP Switch S2

Start temperature						End temperature																									
1	2	3	4	°C	°F	5	6	7	8	9	10	°C	°F	5	6	7	8	9	10	°C	°F	5	6	7	8	9	10	°C	°F	5	6	7	8	9	10	°C	°F
																		●		225	437						●	625	1157					●	●	1025	1877
●				-200	-328	●						0	32	●				●		250	482	●					●	650	1202	●				●	●	1050	1922
	●			-175	-283		●					10	50		●			●		275	527		●				●	675	1247		●			●	●	1075	1967
●	●			-150	-283	●	●					20	68	●	●			●		300	572	●	●				●	700	1292	●	●			●	●	1100	2012
		●		-125	-193			●				30	86			●		●		325	617			●			●	725	1337			●		●	●	1125	2057
●		●		-100	-148	●		●				40	104	●		●		●		350	662	●		●			●	750	1382	●		●		●	●	1150	2102
	●	●		-90	-130		●	●				50	122		●	●		●		375	707		●	●			●	775	1427		●	●		●	●	1175	2147
●	●	●		-80	-112	●	●	●				60	140	●	●	●		●		400	752	●	●	●			●	800	1472	●	●	●		●	●	1200	2192
			●	-70	-94				●			70	158				●	●		425	797				●		●	825	1517				●	●	●	1225	2237
●			●	-60	-76	●			●			80	176	●			●	●		450	842	●			●		●	850	1562	●			●	●	●	1250	2282
	●		●	-50	-58		●		●			90	194		●		●	●		475	887		●		●		●	875	1607		●		●	●	●	1275	2327
●	●		●	-40	-40	●	●		●			100	212	●	●		●	●		500	932	●	●		●		●	900	1652	●	●		●	●	●	1300	2372
		●	●	-30	-22			●	●			125	257			●	●	●		525	977			●	●		●	925	1697			●	●	●	●	1325	2417
●		●	●	-20	-4	●		●	●			150	302	●		●	●	●		550	1022	●		●	●		●	950	1742	●		●	●	●	●	1350	2462
	●	●	●	-10	14		●	●	●			175	347		●	●	●	●		575	1067		●	●	●		●	975	1787		●	●	●	●	●	1375	2507
●	●	●	●	0	32	●	●	●	●			200	392	●	●	●	●	●		600	1112	●	●	●	●		●	1000	1832	●	●	●	●	●	●	1400	2552

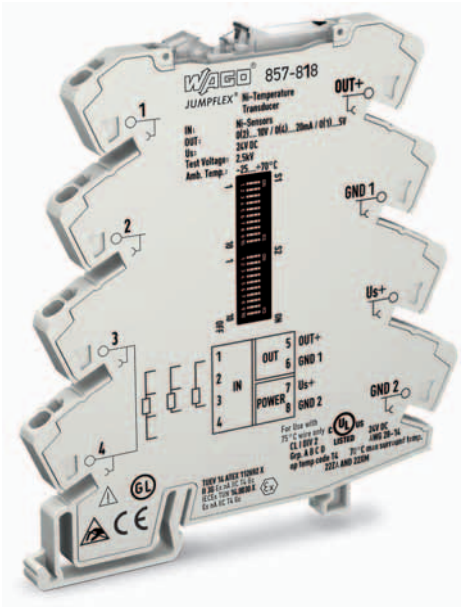
The minimum distance from the start temperature to the end temperature may not fall short of 100K degrees on the Celsius (C) scale or 212K degrees on the Fahrenheit (F) scale.

Default Settings

All DIP switches are in „OFF" position for delivery. This is the position used to parameterize the device via PC configuration software.	
Cold junction compensation	on
Thermocouple	Type J
Start temperature	0 °C
End temperature	1000 °C
Output signal	0 ... 20 mA
Measuring range underflow	0 mA
Measuring range overflow	20.5 mA
Wire break	21 mA

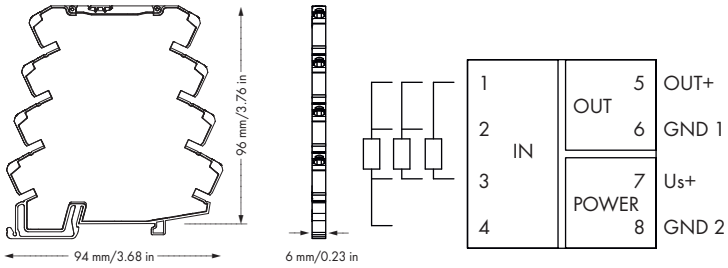
JUMPFLEX® Signal Conditioners

Ni Signal Conditioner for Ni 100, Ni 120, Ni 200, Ni 500, Ni 1000



Configuration via:

DIP switch



Short description:
The Ni Signal Conditioner (Ni = nickel) records signals from Ni sensors featuring all standard characteristics. On the output side, the NI temperature signal conditioner converts the temperature signal into a standard analog signal.

Characteristics:
- For Ni100, Ni120, Ni200, Ni500 and Ni1000 sensors
- Calibrated scale switching
- Clipping capability allows analog standard signal limitation to upper range values
- Safe 3-way isolation with 2.5 kV test voltage acc. to EN 61140

Description	Item No.	Pack. Unit
***JUMPFLEX*® Signal Conditioner, for DIN 35**	**857-818**	1
Ni Signal Conditioner for Ni100, Ni120, Ni200, Ni500, Ni1000		
with Temperature Coefficients: 6178 ppm/K (DIN 43760)		
5000 ppm/K; 6720 ppm/K; 6370 ppm/K		

Technical Data

Configuration:	
Configuration	DIP switch
Input:	
Input signal	Ni sensors
Max. input signal	± 31.2 VDC
Sensor types	Ni 100, Ni 120, Ni 200, Ni 500, Ni 1000
Sensor connection	2-wire, 3-wire, 4-wire (switchable)
Output:	
Output signal	0 ... 10 mA, 2 ... 10 mA, 0 ... 20 mA, 4 ... 20 mA, 0... 5 V, 1 ... 5 V, 0 ... 10 V, 2 ... 10 V
Load impedance	≤ 600 Ω (I output) ≥ 2 kΩ (U output)
Step response	< 60 ms at 2- and 4-conductor measurement < 120 ms at 3-conductor measurement
General specifications:	
Nominal supply voltage V_S	24 VDC
Supply voltage range	V_S -30 % ... +30 %
Current consumption at 24 VDC	≤ 40 mA
Transmission error	≤ 0.1 % of upper range value

Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Safety and protection:	
Test voltage (input/output/supply)	2.5 kV AC, 50 Hz, 1 min.
Connection and type of mounting:	
Wire connection	Push-in CAGE CLAMP®
Cross sections	Ssolid: 0.08 mm² ... 2.5 mm² / 28 ... 14 AWG Fine-stranded: 0.34 mm² ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.
Dimensions and weight:	
Dimensions (mm) W x H x L	6 x 96 x 94
	Height from upper-edge of DIN 35 rail
Weight	50 g
Standards and approvals:	
Conformity marking	CE
cULus UL 508	
cULus ANSI/ISA 12.12.01	Class I, Div. 2, Grp. ABCD, T4
Shipbuilding	GL, PRS, BV
TÜV 14 ATEX 112692 X	II 3 G Ex nA IIC T4 Gc
IECEx TUN 14.0030 X	Ex nA IIC T4 Gc
EMC immunity of interference	EN 61000-6-2
EMC emission of interference	EN 61000-6-4
Accessories:	see page 226
	Marking strip: 2009-110

DIP Switch Adjustability

● = ON

857-818

DIP Switch S1

Connection Technology			Temperature Coefficient			Sensor Type			
1	2		3	4		5	6	7	
		2-conductor			6178 ppm/K				Ni 100
●		3-conductor	●		5000 ppm/K	●			Ni 120
	●	4-conductor		●	6720 ppm/K		●		Ni 200
			●	●	Reserve	●	●		Ni 500
								●	Ni 1000

DIP Switch S1

Start Temperature				End Temperature																	
8	9	10	°C	1	2	3	4	5	T / °C	1	2	3	4	5	T / °C	1	2	3	4	5	T / °C
●			-60	●					0	●	●		●		100	●		●		●	200
	●		-50		●				10			●	●		110		●	●		●	210
●	●		-40	●	●				20	●		●	●		120	●	●	●		●	220
		●	-30			●			30		●	●	●		130				●	●	230
●		●	-20	●		●			40	●	●	●	●		140	●			●	●	240
	●	●	-10		●	●			50					●	150		●		●	●	250
●	●	●	0	●	●	●			60	●				●	160	●	●		●	●	260
							●		70		●			●	170			●	●	●	270
				●			●		80	●	●			●	180	●		●	●	●	280
					●		●		90			●		●	190		●	●	●	●	290
																●	●	●	●	●	300

DIP Switch S2

Output Signal						Measuring Range Underflow	Measuring Range Overflow	Wire Break	Short Circuit
6	7	8		9	10				
			0 ... 20 mA			Lower limit of output range -5 % **2	Upper limit of output range +2.5 %*2	Upper limit of output range 5 %*2	Lower limit of output range -12.5 % **2
●			4 ... 20 mA						
	●		0 ... 10 mA	●		Lower limit of output range	Upper limit of output range +2.5 %	Upper limit of output range 5 %	Lower limit of output range
●	●		2 ... 10 mA						
		●	0 ... 10 V		●	Lower limit of output range	Upper limit of output range	Upper limit of output range 5 %	Upper limit of output range 5 %
●		●	2 ... 10 V						
	●	●	0 ... 5 V	●	●	Lower limit of output range	Upper limit of output range	Lower limit of output range	Lower limit of output range
●	●	●	1 ... 5 V						

* but not when lower limit of output range = 0V or 0mA

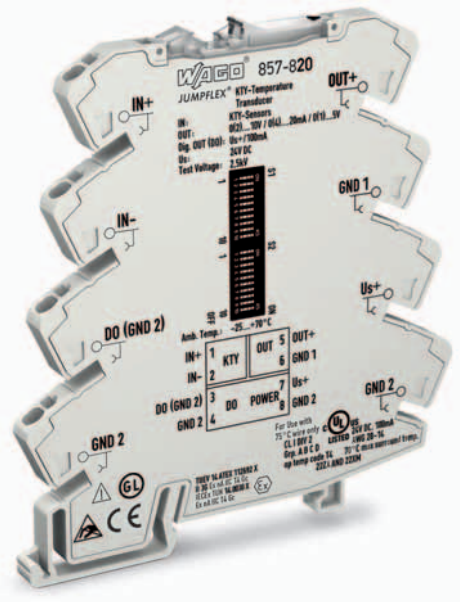
*2 acc. to NAMUR NE 43

Default Setting

All DIP switches are in "OFF" position for delivery.	
Sensor connection	2-conductor
Sensor type	NI 100
Temperature coefficient	6178 ppm/K
Start temperature	0 °C
End temperature	100 °C
Output signal	0 ... 20 mA
Measuring range underflow	0 mA
Measuring range overflow	20.5 mA
Wire break	21 mA
Short circuit	0 mA

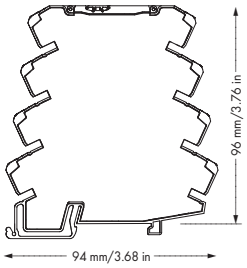
JUMPFLEX® Signal Conditioners

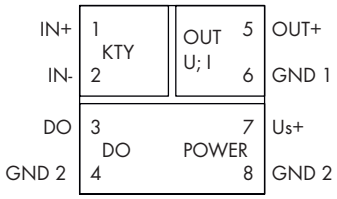
KTY Signal Conditioner



Configuration via:

DIP switch





Short description:
The KTY Signal Conditioner records signals from KTY sensors featuring all standard characteristics. On the output side, the KTY temperature signal conditioner converts the temperature signal into a standard analog signal.

Characteristics:
- Supports all standard KTY sensors
- Calibrated scale switching
- Clipping capability allows analog standard signal limitation to upper range values
- Safe 3-way isolation with 2.5 kV test voltage acc. to EN 61140

Description	Item No.	Pack. Unit
***JUMPFLEX*® Signal Conditioner, for DIN 35**	**857-820**	1
KTY Signal Conditioner		

Technical Data

Configuration:	
Configuration	DIP switch
Input:	
Input signal	KTY sensors
Max. input signal	± 30 VDC
Sensor types	KTY81-110, KTY81-120, KTY81-150
	KTY82-110, KTY82-120, KTY82-150,
	KTY81-121, KTY82-121, KTY81-122,
	KTY82-122, KTY81-210, KTY81-220,
	KTY82-210, KTY82-220, KTY81-221,
	KTY82-221, KTY81-222, KTY82-222,
	KTY81-250, KTY82-250, KTY83-110,
	KTY83-120, KTY83-150, KTY83-121,
	KTY83-122, KTY83-151, KTY84-130,
	KTY84-150, KTY84-151, KTY16, KTY19,
	ST13, ST20
Sensor connection	2-conductor
Output:	
Output signal	0 ... 10 mA, 2 ... 10 mA,
	0 ... 20 mA, 4 ... 20 mA,
	0... 5 V, 1 ... 5 V,
	0 ... 10 V, 2 ... 10 V
Load impedance	≤ 600 Ω (I output)
	≥ 2 kΩ (U output)
Step response	< 50 ms
Output - Digital	
Max. switching voltage	Supply voltage applied
Max. continuous current	500 mA (up to 60 °C)
	100 mA (60 °C ... 70 °C)

Technical Data

General specifications:	
Nominal supply voltage V_S	24 VDC
Supply voltage range	V_S -30 % ... +30 %
Current consumption at 24 VDC	≤ 40 mA
Transmission error	≤ 0.1 % of upper range value
Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Safety and protection:	
Test voltage (input/output/supply)	2.5 kV AC, 50 Hz, 1 min.
Connection and type of mounting:	
Wire connection	Push-in CAGE CLAMP®
Cross sections	Ssolid:
	0.08 mm² ... 2.5 mm² / 28 ... 14 AWG
	Fine-stranded:
	0.34 mm² ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.
Dimensions and weight:	
Dimensions (mm) W x H x L	6 x 96 x 94
	Height from upper-edge of DIN 35 rail
Weight	50 g
Standards and approvals:	
Conformity marking	CE
cULus UL 508	
cULus ANSI/ISA 12.12.01	Class I, Div. 2, Grp. ABCD, T4
Shipbuilding	GL, PRS, BV
TÜV 14 ATEX 112692 X	II 3 G Ex nA IIC T4 Gc
IECEx TUN 14.0030 X	Ex nA IIC T4 Gc
EMC immunity of interference	EN 61000-6-2
EMC emission of interference	EN 61000-6-4
Accessories:	see page 226
	Marking strip: 2009-110

DIP Switch Adjustability

● = ON

857-820

DIP Switch S1

Sensor Type				
1	2	3	4	
				KTY81-110, KTY81-120, KTY82-110, KTY82-120
●				KTY81-121, KTY82-121
	●			KTY81-122, KTY82-122
●	●			KTY81-150, KTY82-150
		●		KTY81-210, KTY81-220, KTY82-210, KTY82-220
●		●		KTY81-221, KTY82-221
	●	●		KTY81-222, KTY82-222
●	●	●		KTY81-250, KTY82-250
			●	KTY83-110, KTY83-120,
●			●	KTY83-121
	●		●	KTY83-122
●	●		●	KTY83-150
		●	●	KTY83-151
●		●	●	KTY84-130, KTY84-150
	●	●	●	KTY84-151
●	●	●	●	KTY16, KTY19, ST13, ST20

DIP Switch S2

Start Temperature				End Temperature															
1	2	3	°C	4	5	6	7	8	°C	4	5	6	7	8	°C	4	5	6	7	8	°C
●			-55	●					0	●	●		●		100	●		●		●	200
	●		-50		●				10			●	●		110		●	●		●	210
●	●		-40	●	●				20	●		●	●		120	●	●	●		●	220
		●	-30			●			30		●	●	●		130				●	●	230
●		●	-20	●		●			40	●	●	●	●		140	●			●	●	240
	●	●	-10		●	●			50					●	150		●		●	●	250
●	●	●	0	●	●	●			60	●				●	160	●	●		●	●	260
							●		70		●			●	170			●	●	●	270
				●			●		80	●	●			●	180	●		●	●	●	280
					●		●		90			●		●	190		●	●	●	●	290
																●	●	●	●	●	300

DIP Switch S1

Output Signal						Measuring Range Underflow	Measuring Range Overflow	Wire Break	Short Circuit
6	7	8		9	10				
			0 ... 20 mA			Lower limit of output range -5 % **2	Upper limit of output range +2.5 %*2	Upper limit of output range 5 %*2	Lower limit of output range -12.5 % **2
●			4 ... 20 mA						
	●		0 ... 10 mA	●		Lower limit of output range	Upper limit of output range +2.5 %	Upper limit of output range 5 %	Lower limit of output range
●	●		2 ... 10 mA						
		●	0 ... 10 V		●	Lower limit of output range	Upper limit of output range	Upper limit of output range 5 %	Upper limit of output range 5 %
●		●	2 ... 10 V						
	●	●	0 ... 5 V	●	●	Lower limit of output range	Upper limit of output range	Lower limit of output range	Lower limit of output range
●	●	●	1 ... 5 V						

* but not when lower limit of output range = 0V or 0mA

*2 acc. to NAMUR NE 43

Default Setting

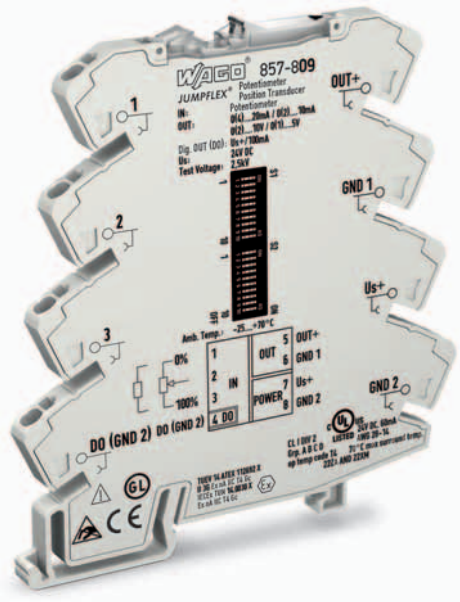
All DIP switches are in „OFF" position for delivery.	
Sensor type	KTY81-110, KTY81-120, KTY82-110, KTY82-120
Start temperature	0 °C
End temperature	100 °C
Output signal	0 ... 20 mA
Measuring range underflow	0 mA
Measuring range overflow	20.5 mA
Wire break	21 mA
Short circuit	0 mA
Digital output	not active

DIP Switch S2

		Digital Output DO Signaling
9	10	
		DO not active
	●	DO Us+ switching
●	●	DO GND switching

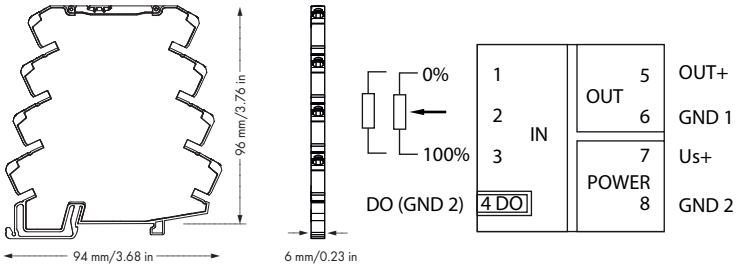
JUMPFLEX® Signal Conditioners

Potentiometer Position Signal Conditioner



Configuration via:

DIP switch | Interface configuration software | Interface configuration app | Push/Slide Switch



Short description:
The Potentiometer Position Signal Conditioner records resistance signals (e.g., from potentiometers), converting them into an analog standard signal. The device is supplied with 24VDC (nominal voltage). It is set via DIP switches or push and slide switch.

Features:
- PC configuration interface
- Calibrated measurement range switching
- Automatic potentiometer identification
- Safe 3-way isolation with 2.5 kV test voltage acc. to EN 61140

Description	Item No.	Pack. Unit
***JUMPFLEX*® Signal Conditioner, for DIN 35 rail** Potentiometer Position Signal Conditioner	**857-809**	1

Technical Data

Configuration:	
Configuration	DIP switch, push/slide switch, interface configuration software, interface
Input:	
Input signal	Potentiometers and resistors *
Input range	
Potentiometer	100 Ω ... 100 kΩ *
Resistors	10 Ω ... 100 kΩ *
Max. potentiometer supply voltage	2.5V
Min. measuring range	100 Ω
Output:	
Output signal	**Voltage:** 0 ... 10 V, 2 ... 10 V, 0 ... 5 V, 1 ... 5 V * **Current:** 0 ... 20 mA, 4 ... 20 mA, 0 ... 10 mA, 2 ... 10 mA *
Load impedance	≤ 600 Ω (I output) ≥ 2 kΩ (U output)
Step response	< 32 ms
Output - Digital	
Max. switching voltage	Supply voltage applied
Max. continuous current	100 mA
General specifications:	
Nominal supply voltage V_S	24 VDC
Supply voltage range	V_S -30 % ... +30 %
Current consumption at 24 VDC	≤ 40 mA
Transmission error	≤ 0.1 % of upper range value
Temperature coefficient	≤ 0.01 %/K

Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Safety and protection:	
Test voltage (input/output/supply)	2.5 kV AC, 50 Hz, 1 min.
Connection and type of mounting:	
Wire connection	Push-in CAGE CLAMP®
Cross sections	Ssolid: 0.08 mm² ...2.5 mm² / 24 ... 14 AWG Fine-stranded: 0.34 mm² ...2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ...10 mm / 0.35 ... 0.39 in.
Dimensions and weight:	
Dimensions (mm) W x H x L	6 x 96 x 94 Height from upper-edge of DIN 35 rail
Weight	49.2 g
Standards and approvals:	
Conformity marking	CE
cULus UL 508	
cULus ANSI/ISA 12.12.01	Class I, Div. 2, Grp. ABCD, T4
Shipbuilding	GL, PRS, BV
EMC immunity of interference	EN 61000-6-2
EMC emission of interference	EN 61000-6-4
Accessories:	see page 226 Marking strip: 2009-110

(*Additional setting options via interface configuration software or interface configuration app)

DIP Switch Adjustability

● = ON

857-809

DIP Switch S1 and S2

Input	
DIP S1	
1	
	Potentiometer
●	Resistor

Start Value					
DIP S1					Resistor Ω
2	3	4	5	6	
					0*
●					0
	●				10
●	●				11
		●			12
●		●			13
	●	●			15
●	●	●			16
			●		18
●			●		20
	●		●		22
●	●		●		24
		●	●		27
●		●	●		30
	●	●	●		33
●	●	●	●		36
				●	39
●				●	43
	●			●	47
●	●			●	51
		●		●	56
●		●		●	62
	●	●		●	68
●	●	●		●	75
			●	●	82
●			●	●	91
	●		●	●	40
●	●		●	●	50
		●	●	●	60
●		●	●	●	70
	●	●	●	●	80
●	●	●	●	●	90

End Value					
DIP S1				DIP S2	Resistor Ω
7	8	9	10	1	
					100000*
●					0
	●				10
●	●				11
		●			12
●		●			13
	●	●			15
●	●	●			16
			●		18
●			●		20
	●		●		22
●	●		●		24
		●	●		27
●		●	●		30
	●	●	●		33
●	●	●	●		36
				●	39
●				●	43
	●			●	47
●	●			●	51
		●		●	56
●		●		●	62
	●	●		●	68
●	●	●		●	75
			●	●	82
●			●	●	91
	●		●	●	40
●	●		●	●	50
		●	●	●	60
●		●	●	●	70
	●	●	●	●	80
●	●	●	●	●	90

*Default setting

DIP Switch S2

Factor of Initial Value			Factor of End Value			Output		Output Signal Range		
2	3		4	5		6		7	8	
		x1*			x1*		Current*			0 – 10 V/0 – 20 mA*
●		x10	●		x10	●	Voltage	●		2 – 10 V/4 – 20 mA
	●	x100		●	x100				●	0 – 5 V/0 – 10 mA
●	●	x1000	●	●	x1000			●	●	1 – 5 V/2 – 10 mA

*Default setting

9	10	Measuring Range Underflow	Measuring Range Overflow	Wire Break
		Upper limit of output range*1 +2.5 %	Lower limit of output range*1 -5 %	Upper limit of output range*1 +5 %
●		Upper limit of output range +2.5 %	Lower limit of output range	Upper limit of output range +5 %
	●	Upper limit of output range	Lower limit of output range	Upper limit of output range +5 %
●	●	Upper limit of output range	Lower limit of output range	Lower limit of output range

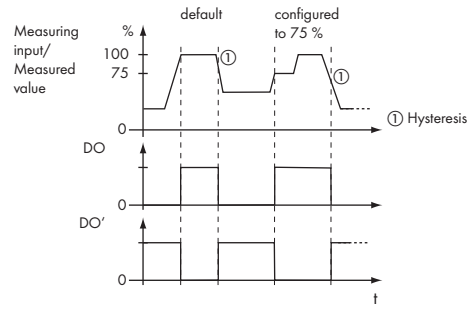
*1acc. to NAMUR NE 45

Digital Output DO/Signaling

The digital output (DO) signals error messages and can be configured as follows: 24 V → 0 V/0 V → 24 V.

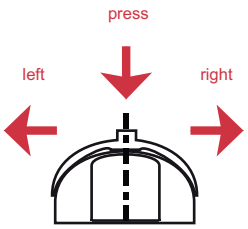
In order to increase the switching current of the DO, the latter may be expanded by a relay. Thanks to the contour uniformity of Series 857, for example, a 857-304 Relay can be snapped in next to it. This output can be quickly and easily expanded to a switching current of 6A by simply using an adjacent jumper (859-402).

Switching Behavior, Digital Output (DO)



Push/Slide Switch Operation:

857-809



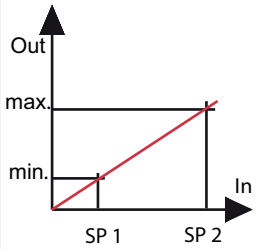
Operating push/slide switch:

The following switching thresholds (SP1 and SP2) are set via push/slide switch. The switch is located under the front-side transparent cover and can be operated manually.

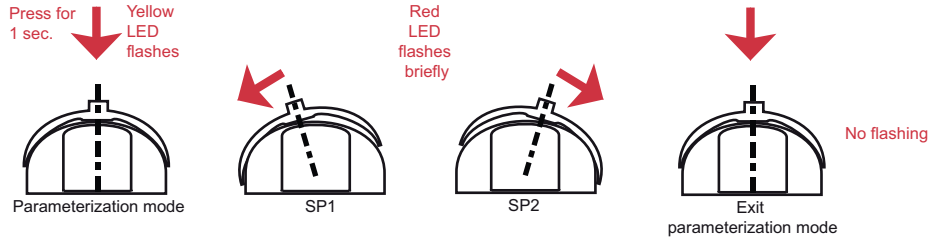
- Press PSS down until the yellow LED is flashing
- Set potentiometer to the minimum value
- Briefly push PSS to the left
- Red LED flashes briefly
- Set potentiometer to the maximum value
- Briefly push PSS to the right
- Red LED flashes briefly
- Briefly press PSS downward
- The yellow LED stops flashing

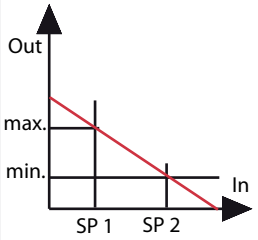
PSS = Push/slide switch

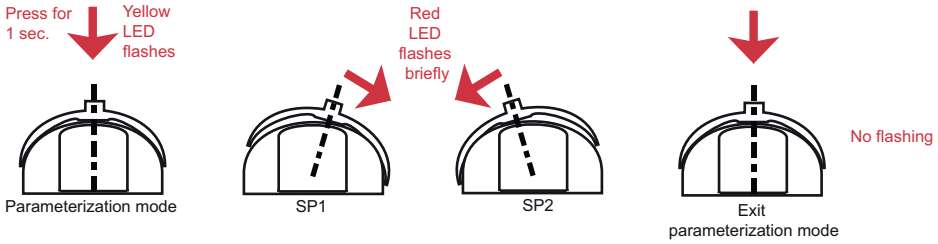
Transmission function



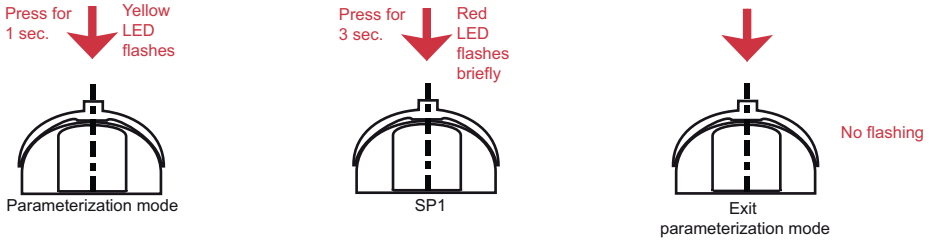
Configuration instructions





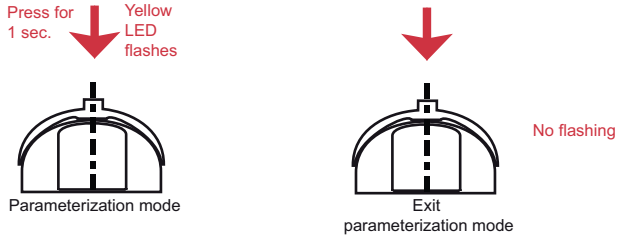


Delete set switching points

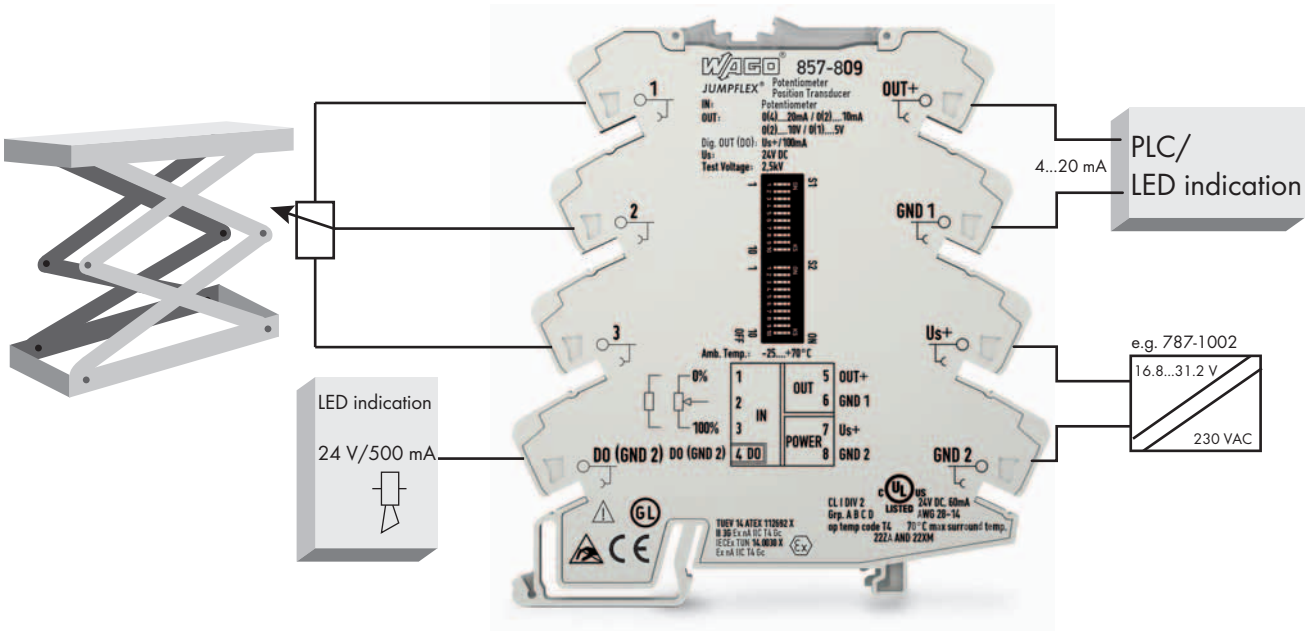


Exit parameterization mode without saving value.

SP = Switching points

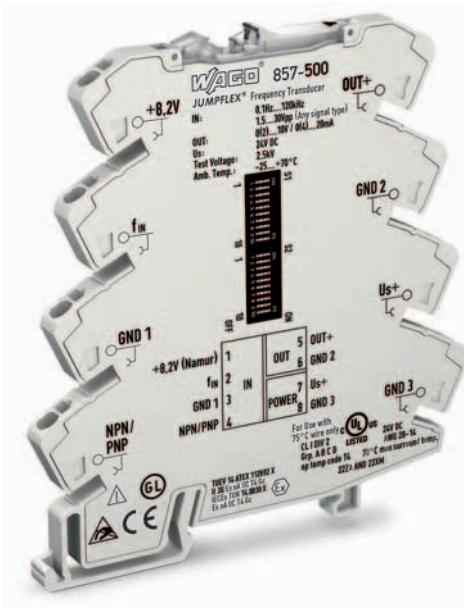


Application example:

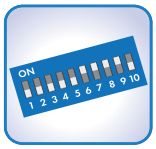


JUMPFLEX® Signal Conditioners

Frequency Signal Conditioner 0.1 Hz ... 120 kHz



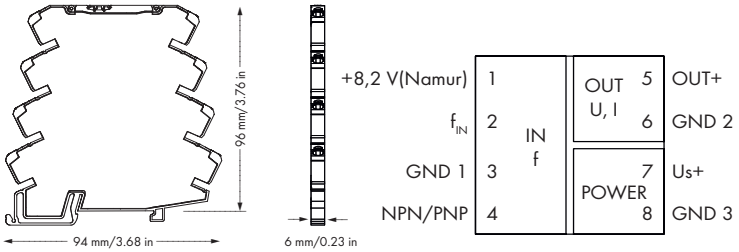
Configuration via:



DIP switch

Interface configuration software

Interface configuration app



Short description:
The Frequency Signal Conditioner collects 0.1 ... 120kHz signals from NAMUR, NPN or PNP sensors and converts them into analog standard signals.

Characteristics:
- PC configuration interface
- Signal acquisition from NAMUR, NPN or PNP sensors
- Calibrated scale switching
- Safe 3-way isolation with 2.5kV test voltage acc. to EN 61140

Description	Item No.	Pack. Unit
***JUMPFLEX*® Signal Conditioner, for DIN 35 rail**	**857-500**	1
Frequency Signal Conditioner		

Technical Data

Configuration:	
Configuration	DIP switch, interface configuration software, interface configuration app
Input:	
Sensor types	-Frequency generators -NAMUR sensors -NPN/PNP transistor outputs without pull-up or pull-down resistor -mech. contact (dry contact)

Technical Data

Input for frequency generators or NPN/PNP transistor outputs with pull-up or pull-down resistor	
Frequency range	0.1 Hz ... 120 kHz
Signal level	1.5 V, 10 V, 20 V (switchable)
Max. input signal	± DC 31.2 V
Pulse length	≥ 1 µs
Signal form	Any
Coupling	AC/DC (AC above 10 Hz) (adjustable)
Min. measuring span	10 Hz
Input resistance	10 kΩ
Input for NAMUR sensors per DIN EN 50227	
Sensor supply	DC 8.2 V
Signal current (0)	≤ 1.2 mA
Signal current (1)	≥ 2.1 mA
Hysteresis	0.45 mA
Input resistance	< 600 Ω
Frequency range	0.1 Hz ... 1 kHz
Pulse length	≥ 500 µs
Min. measuring span	100 Hz
Short-circuit current	≤ 14 mA
Short-circuit monitoring	> 4.7 mA
Wire break monitoring	< 0.2 mA
Input for NPN/PNP transistor outputs without pull-up or pull-down resistor or mech. contact (dry contact)	
Frequency range	0.1 Hz ... 20 kHz
Pulse length	≥ 25 µs
Min. measuring span	10 Hz
Open-circuit voltage	5VDC
NPN_Residual voltage	< 1.5 V
PNP Switching voltage	> 7.5 V + residual voltage U_{CE} sat

Technical Data

Output:	
Output signal	**Voltage:**
	0 ... 5 V, 1 ... 5 V, 0 ... 10 V, 2 ... 10 V
	Current:
	0 ... 10 mA, 2 ... 10 mA,
	0 ... 20 mA, 4 ... 20 mA
Load impedance	≤ 600 Ω (I output)
	≥ 2 kΩ (U output)
Conversion time	Gate time measurement method
	(> 400 Hz): < 20 ms
	Pulse time measurement method
	(< 400 Hz): < 200 µs + $T_{Cycle\ duration}$
General specifications:	
Nominal supply voltage V_S	24 VDC
Supply voltage range	V_S -30 % ... +30 %
Current consumption at 24 VDC	≤ 40 mA
Transmission error	≤ 0.1 % of upper range value
Temperature coefficient	≤ 0.01 % /K

General Specifications

Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Safety and protection:	
Test voltage (input/output/supply)	2.5 kV AC, 50 Hz, 1 min.
Connection and type of mounting:	
Wire connection	Push-in CAGE CLAMP®
Cross sections	Ssolid:
	0.08 mm² ... 2.5 mm² / 28 ... 14 AWG
	Fine-stranded:
	0.34 mm² ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.
Dimensions and weight:	
Dimensions (mm) W x H x L	6 x 96 x 94
	Height from upper-edge of DIN 35 rail
Weight	38.7 g
Standards and approvals:	
Conformity marking	CE
UL 508	
ANSI/ISA 12.12.01	Class I, Div. 2, Grp. ABCD, T4
Shipbuilding	GL, PRS, BV
TÜV 14 ATEX 112692 X	II 3 G Ex nA IIC T4 Gc
IECEx TUN 14.0030 X	Ex nA IIC T4 Gc
EMC immunity of interference	EN 61000-6-2
EMC emission of interference	EN 61000-6-4
Accessories:	see page 226
	Marking strip: 2009-110

Refer to following pages for DIP Switch Table and Pin Assignments.

DIP Switch Adjustability

● = ON

857-500

DIP Switch S1

Source Input			Coupling		*Operation with disturbed frequency signals for acceptable signal level (applies only to f_{IN} input)*			
1	2		3		4	5	High	Low
		Frequency generator or NPN/PNP transistor outputs with pull-up or pull-down resistor		AC/DC			> 1.5 V	< 0.4 V
●		NAMUR	●	AC (without DC), see Figure 1	●		> 10 V	< 8 V
	●	NPN/PNP transistor outputs without pull-up or pull-down resistor input Dry Contact				●	> 20 V	<16 V
					●	●	> 1.5 V	< 0.4 V

DIP Switch S1 **DIP Switch S2**

Input Start Value					Frequency/Hz	Input End Value					Frequency/Hz
6	7	8	9	10		1	2	3	4	5	
●					0.1	●					0.1
	●				1		●				1
●	●				100	●	●				100
		●			200			●			200
●		●			300	●		●			300
	●	●			400		●	●			400
●	●	●			500	●	●	●			500
			●		600				●		600
●			●		700	●			●		700
	●		●		800		●		●		800
●	●		●		900	●	●		●		900
		●	●		1000			●	●		1000
●		●	●		2000	●		●	●		2000
	●	●	●		3000		●	●	●		3000
●	●	●	●		4000	●	●	●	●		4000
				●	5000					●	5000
●				●	6000	●				●	6000
	●			●	7000		●			●	7000
●	●			●	8000	●	●			●	8000
		●		●	9000			●		●	9000
●		●		●	10000	●		●		●	10000
	●	●		●	20000		●	●		●	20000
●	●	●		●	30000	●	●	●		●	30000
			●	●	40000				●	●	40000
●			●	●	50000	●			●	●	50000
	●		●	●	60000		●		●	●	60000
●	●		●	●	70000	●	●		●	●	70000
		●	●	●	80000			●	●	●	80000
●		●	●	●	90000	●		●	●	●	90000
	●	●	●	●	100000		●	●	●	●	100000
●	●	●	●	●	120000	●	●	●	●	●	120000

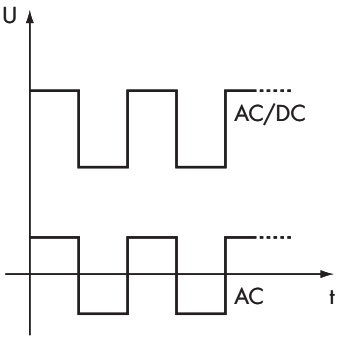


Figure 1: Coupling

Default Setting

Input:	
Input source	Frequency generator/transistor output with pull-up or pull-down resistor
Coupling	AC/DC
Signal level	> 1.5 V
Start value	100 Hz
End value	1000 Hz
Measuring technique	Gate time measurement method
Output:	
Output signal	Current
Start value	0 mA
End value	20 mA
Measuring range underflow	0 mA
Measuring range overflow	20.5 mA

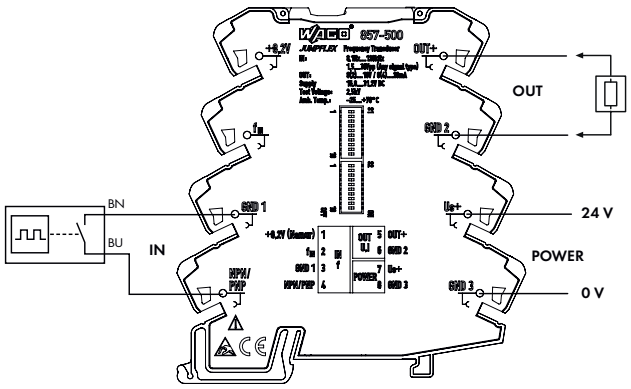
DIP Switch S2

Output Signal						Measuring Range Underflow	Measuring Range Overflow	Only for NAMUR Sensors	
6	7	8		9	10			Wire Break	Short Circuit
			0 ... 20 mA			Lower limit of output range* -5 %	Upper limit of output range* +2.5 %	Upper limit of output range* 5 %	Lower limit of output range * -12.5 %
	●		4 ... 20 mA						
		●	0 ... 10 mA	●		Lower limit of output range	Upper limit of output range +2.5 %	Upper limit of output range 5 %	Lower limit of output range
	●	●	2 ... 10 mA						
●			0 ... 10 V		●	Lower limit of output range	Upper limit of output range	Upper limit of output range 5 %	Upper limit of output range 5 %
●	●		2 ... 10 V						
●		●	0 ... 5 V	●	●	Lower limit of output range	Upper limit of output range	Lower limit of output range	Lower limit of output range
●	●	●	1 ... 5 V						

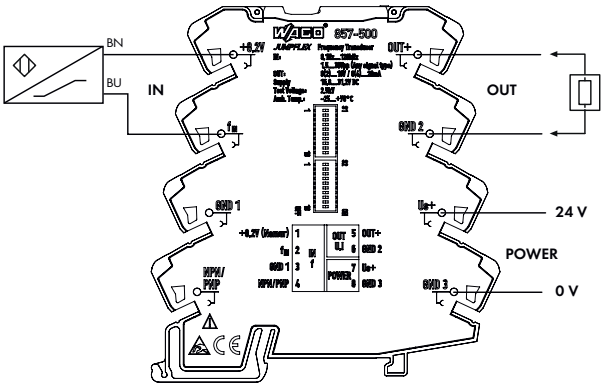
*acc. to NAMUR NE 43

857-500, Wiring Material

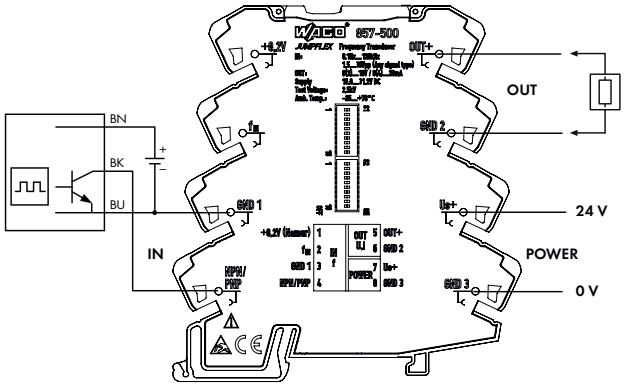
2-Conductor DC (Mechanical Contact)



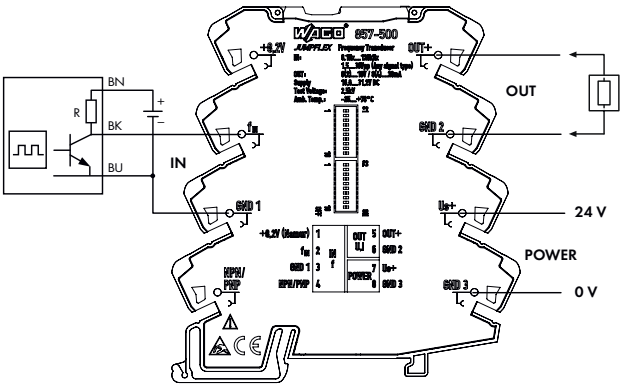
2-Conductor DC NAMUR Sensor



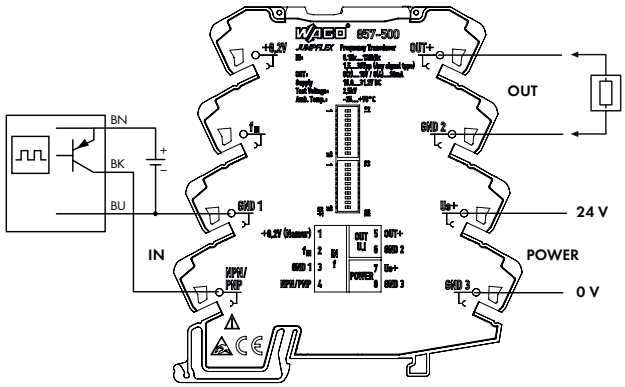
NPN Transistor Output



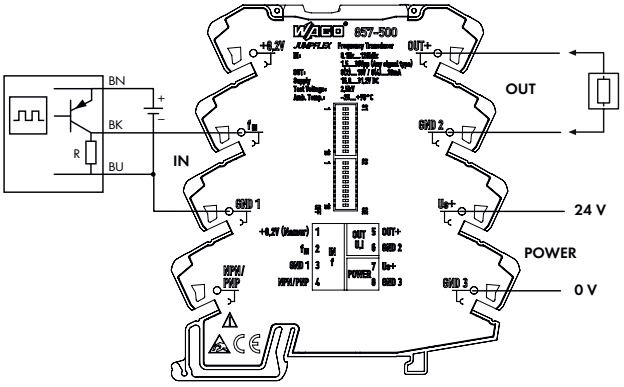
NPN Transistor Output with Pull-Up Resistor



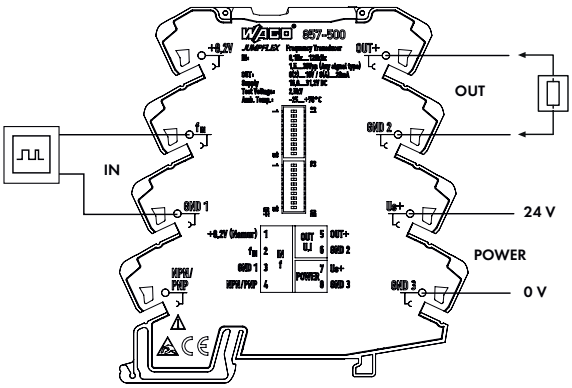
PNP Transistor Output



PNP Transistor Output with Pull-Down Resistor



Frequency Generator

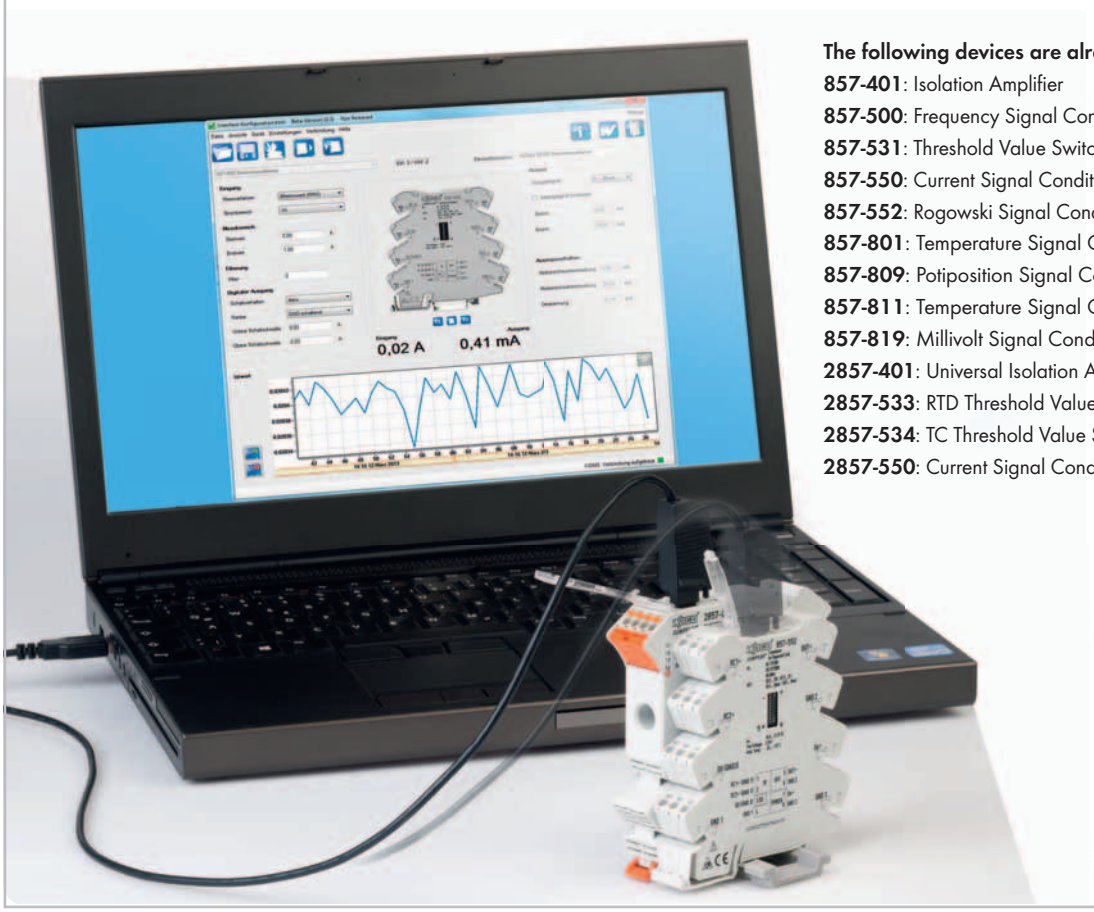


Interface Configuration Software

Interface Configuration Software – DIP Switch Alternative

Software features:
- Automatic module recognition
- Visualization of process values
- Parameterization of the digital switch output (threshold functionality)
- Communication via 750-923 WAGO USB Service Cable or WAGO 750-921 *Bluetooth*® Adapter

Description
Interface Configuration Software
Download: www.wago.com



The following devices are already supported:

857-401: Isolation Amplifier
857-500: Frequency Signal Conditioner
857-531: Threshold Value Switch
857-550: Current Signal Conditioner
857-552: Rogowski Signal Conditioner
857-801: Temperature Signal Conditioner for Pt Sensors
857-809: Potiposition Signal Conditioner
857-811: Temperature Signal Conditioner for TC Sensors
857-819: Millivolt Signal Conditioner
2857-401: Universal Isolation Amplifier
2857-533: RTD Threshold Value Switch
2857-534: TC Threshold Value Switch
2857-550: Current Signal Conditioner

Interface Configuration App

Interface Configuration App
DIP Switch Alternative

WAGO's Interface Configuration App brings the power of a PC-based configuration software to mobile end-user devices. WAGO's 857 Series signal conditioner's input and output parameters can be configured via finger swipe on an Android-based smartphone or tablet. Furthermore, both configuration data and actual measured values can be easily displayed.
WAGO's 750-921 *Bluetooth®* Adapter communicates between a smartphone and signal conditioner.

Description
WAGO Interface Configuration App (Android)
Download from Google Play

Device Information

Input Parameter

Output Parameter

Digital Output

Actual Value

The following devices are already supported:

857-401: Isolation Amplifier
857-500: Frequency Signal Conditioner
857-531: Threshold Value Switch
857-550: Current Signal Conditioner
857-552: Rogowski Signal Conditioner
857-801: Temperature Signal Conditioner for Pt Sensors
857-809: Potiposition Signal Conditioner
857-811: Temperature Signal Conditioner for TC Sensors
857-819: Millivolt Signal Conditioner

2857-401: Universal Isolation Amplifier
2857-533: RTD Threshold Value Switch
2857-534: TC Threshold Value Switch
2857-550: Current Signal Conditioner

***JUMPFLEX®*-ToGo**

Download from Google Play

Configuration Display

Features:

- Easy mounting on 2857 Series devices
- Automatic module detection
- Capacitive user interface with slider function
- Intuitive menu navigation
- Color backlight for status indication
- Device configuration and process value visualization
- Easy copying of device configuration

Description	Item No.	Pack. Unit
Configuration Display	**2857-900**	1

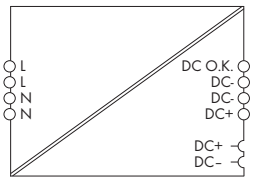
Technical Data

Environmental requirements:	
Ambient operating temperature	-20 °C ... +70 °C
Storage temperature	-30 °C ... +80 °C
Dimensions and weight:	
Dimensions (mm) W x H x L	22 x 13 x 59
Standards and approvals:	
Conformity marking	CE

Switched-Mode Power Supply in 2857 Series Housing

***EPSITRON*® Power for *JUMPFLEX*®**

Similiar to picture



- Primary switch mode power supply in 22.5 mm wide 2857 Series Housing, same profile as 2857 and 857 Series *JUMPFLEX*® Signal Conditioners
- Both 24 VDC and 0 V output voltage can be easily supplied to adjacent *JUMPFLEX*® modules via 859-4xx Jumpers
- Pluggable *picoMAX*® connection technology
- Natural convection cooling
- DC OK message as active signal output (24 VDC, 20 mA)
- Integrated redundancy diode enables easy fail-safe power supply via parallel connection of two power supplies
- Approvals for worldwide applications with *JUMPFLEX*® Modules (pending)

Description	Item No.	Pack. Unit
Switched-mode power supply in 2857 Series housing, 24 VDC / 1 A	**787-2852**	1

Technical Data

Input:	
Nominal input voltage $V_{i\,nom}$	100 ... 240 VAC
Input voltage range	85 ... 264 VAC; 90 ... 370 VDC
Frequency	47 Hz ... 63 Hz; 0 Hz
Input current I_i	< 0.2 A (230 VAC, nominal load);
	< 0.9 A (90 VAC, nominal load)
Power factor	> 0.6 (230 VAC, nominal load,
	acc. to EN 61000-3-2)
Discharge current	< 1 mA (230 VAC)
Inrush current	< 30 A (230 VAC), limited
Mains failure hold-up time	120 ms (230 VAC)
Output:	
Nominal output voltage $V_{o\,nom}$	24 VDC (SELV)
Factory preset	24 VDC
Nominal load $P_{o\,nom}$	24 W
Output current I_o	1 ADC
Deviation, dynamic load change	
10 ... 90 %	< ± 1 %
Adjustment accuracy	< 2 %
Residual ripple	< 100 mV (peak-peak) at 20 MHz
Current limitation	1.1 x I_o typ.
Overload behavior	Constant current
Operational indication	Green LED (V_o > 21.5 V)
Efficiency/Power losses:	
Efficiency	86 % typ. (230 VAC, nominal load);
	84 % typ. (110 VAC, nominal load)
Power loss P_V	< 1 W (230 VAC, no load);
	4.3 W (230 VAC, nominal load)
Max. power loss P_V	4.6 W typ. (100 VAV / 24 VDC, 1 A)
Fuse protection:	
Internal fuse	2 AT
External fuse	Circuit breakers 6 A,
	B or C characteristic
Environmental Requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Relative humidity	30 % ... 85 % (no condensation
Derating	-2 %/K (> +60 °C)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)

Technical Data

Safety and protection:	
Test voltage	4.2 kV DC (input – output)
Protection class	II
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage protection	Varistor (input side);
	internal protective circuit,
	< 29 ... 31 VDC (output side in case of an
	error)
Short circuit protection	Yes
No-load proof	Yes
Feedback voltage	Max. 60 VDC
Parallel operation	Yes, for 2 devices of the same type
Series connection	Yes, for 2 devices of the same type
MTBF	> 500,000 h (at 25 °C)
	Calculation acc. to IEC 61709
Connection and type of mounting:	
Wire connection	Input/Output/Signaling:
	Push-in CAGE CLAMP® (*picoMAX*® 5.0)
Cross sections	Input/Output/Signaling:
	Ssolid/fine-stranded:
	0.2 ... 2.5 mm² / 24 ... 10 AWG
Strip lengths	Input/Output/Signaling:
	9 ... 10 mm / 0.35 ... 0.39 in.
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	22.5 x 110 x 118
	Length from upper-edge of DIN 35 rail
Weight	195 g
Standards and approvals:	
Standards/specifications	EN 61000-6-2, EN 61000-6-3,
	EN 60950-1, UL 60950 *, cULus 508 *,
	ANSI-ISA 12.12.01 (Class I Div 2) *,
	ATEX/IEC Ex *, GL * (* pending)

Bluetooth® Adapter

Application Example: 750 Series

Application Example: 857 Series

***Bluetooth*® Adapter in Connection with 750 Series**
The *Bluetooth*® Adapter wirelessly connects a notebook computer with Bluetooth® functionality to the service interface of the buscoupler/controller.
It also provides an active connection to a programmable fieldbus controller.
As a cable substitute, the Bluetooth® Adapter allows communication between two fieldbus controllers, as well as between fieldbus couplers/controllers via WAGO software tools (e.g., WAGO-I/O-CHECK, WAGO-I/O-PRO).
Configurable coexistence properties ensure trouble-free operation in the presence of other radio systems.

***Bluetooth*® Adapter in Connection with 857 Series**
The *Bluetooth*® Adapter wirelessly connects a notebook computer with Bluetooth® functionality to the service interface of a configurable 857 Series *JUMPFLEX*® Module.
As a cable substitute, the *Bluetooth*® Adapter allows communication between *JUMPFLEX*® Modules and WAGO software tool (WAGOframe) or configuration APP for Android-based end devices.

If required, adapter configuration may be performed via AT commands.
The adapter is supplied via both service interface and power supply of coupler/controller or *JUMPFLEX*® module.

Description	Item No.	Pack. Unit
***Bluetooth*® Adapter**	**750-921**	1

Approvals

Conformity marking	CE
Bluetooth	Bluetooth®-Zulassung

Technical Data

Data transfer rate	9600 ... 115000 bps
Frequency range	2.4 ... 2.4835 GHz (ISM band)
Type of communication	Point-to-point connection
Profiles supported	Serial Port Profile (SPP)
Version	2.1
Radio class	Class 2
RF output power	Max. +4 dBm (class 2)
RF input sensitivity	Typ. -82 dBm
Antenna	Integrated
Ports	4-pole service connectors
Configuration	AT commands (e.g. via Hyper Terminal)
Function	Master or Slave
LED	Operating status
Operating temperature	-20 °C ... +60 °C
Current consumption (internal)	60 mA
Security authentification	PIN code or configurable access list
Security encryption	128-bit encryption
Dimensions (mm) W x H x L	15 x 50 x 19
Weight	7 g
Coexistence	Frequency Hopping Spread Spectrum (FHSS), Adaptive Frequency Hopping (AFH), Adaptive transmission power with configurable upper limit, configurable channel blacklist, supports coexistence optimized inquiry (transmission time ≤ 0.1 s; transmission cycle ≥ 2.9 s)

WAGO USB Communication Cable

The WAGO USB Communication Cable connects a PC (notebook) to either the service interface of the 857 Series Signal Conditioners and Relay Modules (JUMPFLEX), or to WAGO-I/O-SYSTEM buscouplers/controllers.

Notice:
Using the WAGO 759-923 USB Communication Cable in combination with select programmable fieldbus controllers requires the specific firmware versions listed below (or greater):750-841 as from firmware version 12750-872/0020-0000 as from firmware version 2

Description	Item No.	Pack. Unit
WAGO USB Communication Cable, length 2.5 m	**750-923**	1
WAGO USB Communication Cable, length 5 m	**750-923/000-001**	1

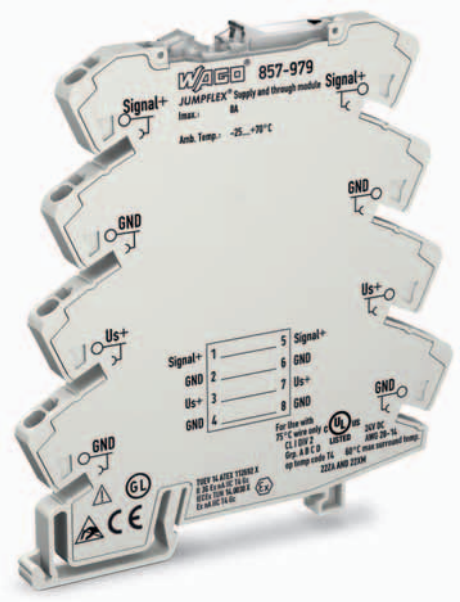
Technical Data

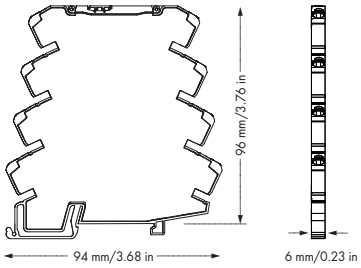
USB specification	2.0 compatible/full-speed device
Operating system	Microsoft® Windows® 2000;
	Microsoft® Windows® XP Professional;
	Microsoft® Windows® Vista®;
	Microsoft® Windows® 7
Operating temperature	-25 °C ... +70 °C
Interface USB	Type A/m
Length	2.5 m (750-923)
	5 m (750-923/000-001)
Connector dimensions (WxHxD)	15 x 50 x 19
Test voltage	2.5 kV, 50 Hz, 1 min.
EMC: CE - immunity to interference	Acc. to EN 61000-4-3, EN 61000-4-6
EMC: CE - emission of interference	Acc. to EN 55022

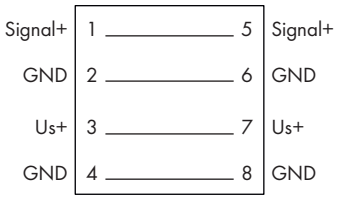
Approvals

Conformity marking	CE

Supply and Through Module







Short description:
The 857-979 Supply and Through Module transmits electrically isolated signals (e.g., in conjunction with the 857-980 Interface Adapter for analog signals). When used as a supply module, it transmits the power from the clamping points to the adjacent *JUMPFLEX*® modules via push-in type jumper bars.

Description	Item No.	Pack. Unit
Supply and Through Module	**857-979**	25

Technical Data

General specifications:	
Max. voltage	33 V AC/DC
Current carrying capacity	8 A
Contact resistance	< 10 mΩ
Environmental Requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Connection and type of mounting:	
Wire connection	Push-in CAGE CLAMP®
Cross sections	Ssolid:
	0.08 mm² ... 2.5 mm² / 28 ... 14 AWG
	Fine-stranded:
	0.34 mm² ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in
Dimensions and weight:	
Dimensions (mm) W x H x L	6 x 96 x 94
	Height from upper-edge of DIN 35 rail
Weight	27.5 g
Standards and approvals:	
Conformity marking	CE
UL 508	
ANSI/ISA 12.12.01	Class I, Div. 2, Grp. ABCD, T4
Shipbuilding	GL, PRS
TÜV 14 ATEX 112692 X	II 3 G Ex nA IIC T4 Gc
IECEx TUN 14.0030 X	Ex nA IIC T4 Gc
Accessories:	Marking strip: 2009-110

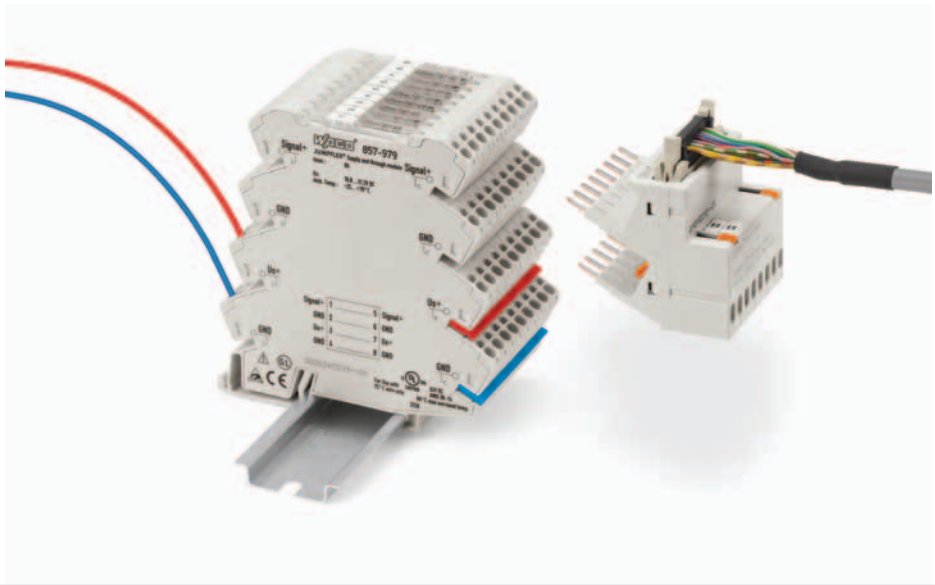
Technical Data

Application example:

857-979

Power supply for 8 JUMPFLEX® modules with plugged interface adapter
- WAGO interface adapter, 857-980
- WAGO Interface Cable, 706-100/1602-200, 16-pole socket/open-ended
- Push-in type jumper bar, 9-way, 859-409

1



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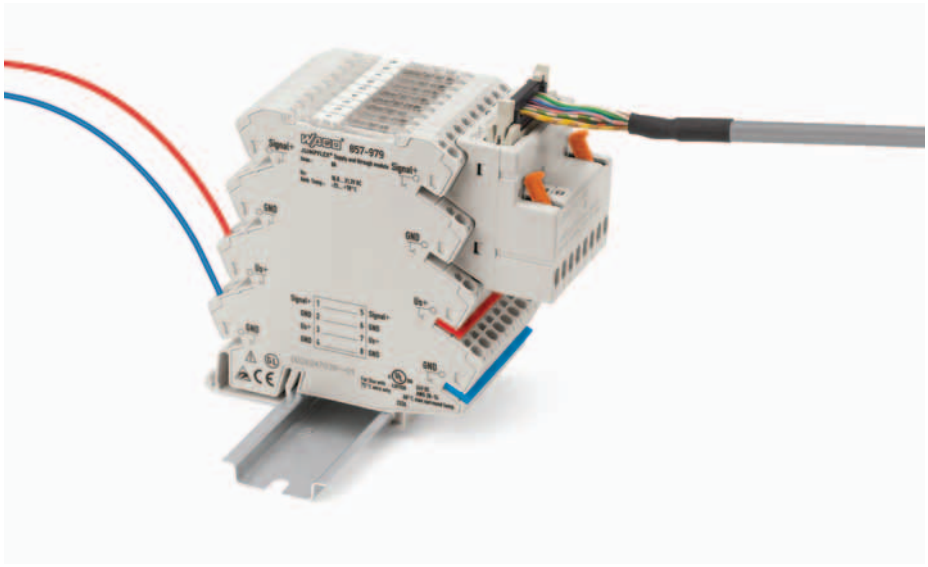
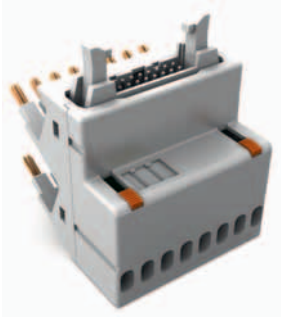
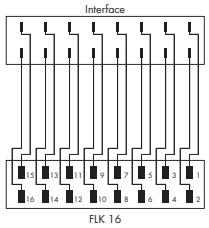


Interface Modules for System Wiring

Interface Adapters, 857 Series

	8-channel adapter with 16-pin ribbon cable connector Analog	





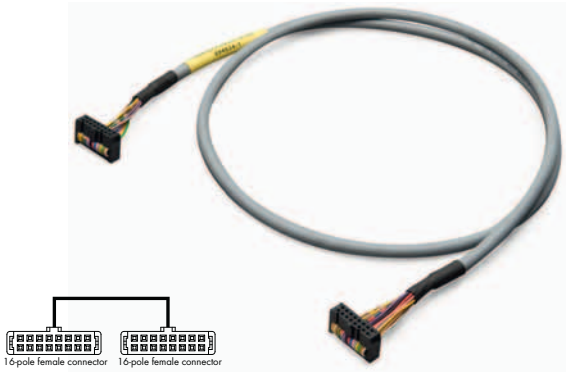
Description	Item No.	Pack. Unit	
8-channel adapter for system wiring	**857-980**	1	

Technical Data

Connection type, signal level	16-pin ribbon cable connector acc. to DIN 41651	
Performance level	3	
Contact resistance	≤ 20mΩ	
Current carrying capacity	1A	
Test voltage	500 V / 50 Hz / 1 min.	
Overvoltage category	III	
Degree of pollution	2	
Standards and approvals:		
Conformity marking	CE	
UL 508		
Shipbuilding	GL, PRS, NKK, DNV, BV	

WAGO Interface Cables

for Interface Adapters, 857 Series



The 16-pin WAGO Interface Cables transmit signals one-to-one from the 16-pole connector and are available in 1-, 2- and 3-meter lengths. Signal transmission from the 857-980 Interface Adapter is also possible.

Suitable for system wiring when combined with the Interface Adapter (Item No. 857-980)

Color coding acc. to DIN VDE 47100	HE 10 16-pole contact number
white	1
brown	2
green	3
yellow	4
grey	5
pink	6
blue	7
red	8
black	9
violet	10
grey/pink	11
red/blue	12
white/green	13
brown/green	14
white/yellow	15
yellow/brown	16

Description	Item No.	Pack. Unit
WAGO Interface Cable 16/16, 1m long	**706-753/301-100**	1
WAGO Interface Cable 16/16, 2m long	**706-753/301-200**	1
WAGO Interface Cable 16/16, 3m long	**706-753/301-300**	1

Technical Data

Ports	2 x 16-pole connector acc. to DIN 41651
Wire cross-section	0.14 mm^2 LiYY
Color coding	acc. to DIN VDE 47100
Current per channel	max. 1 A
Operating temperature	-25 °C ... +70 °C
Degree of protection	IP20
Length	1 m (706-753/301-100) 2 m (706-753/301-200) 3 m (706-753/301-300)

Description	Item No.	Pack. Unit
WAGO Interface Cable, 16-pole/ one free cable end, lenght 2 m	**706-100/1602-200**	1

Technical Data

Ports	16-pole HE 10 connector/ one free cable end
Wire cross-section	0.14 mm^2 LiYY
Color coding	acc. to DIN VDE 47100
Current per channel	max. 1 A
Operating temperature	-25 °C ... +70 °C
Degree of protection	IP20
Length	2 m

Accessories, 857 Series

Push-in type jumper bar

Commoning

Comb-style jumper bar

Description		Item No.	Pack. Unit
Push-in type jumper bars, light gray, insulated, 18 A	**2-way**	**859-402**	200 (8x25)
	3-way	**859-403**	200 (8x25)
	4-way	**859-404**	200 (8x25)
	5-way	**859-405**	200 (8x25)
	6-way	**859-406**	100 (4x25)
	7-way	**859-407**	100 (4x25)
	8-way	**859-408**	100 (4x25)
	9-way	**859-409**	100 (4x25)
	10-way	**859-410**	100 (4x25)
Item no. suffix for colored push-in type jumper bars	**yellow**	**... /000-029**	
	red	**... /000-005**	
	blue	**... /000-006**	
Comb-style jumper bar, insulated	**2-way**	**281-482**	100

WMB Multi marking system

Marking

Marking strips

Description		Item No.	Pack. Unit
WMB Multi marking system	**plain**	**793-501**	5 cards
Marking software and printer/plotter see Section 11			
Marking	**1 ... 10 (10x)**	**793-502**	5 cards
	11 ... 20 (10x)	**793-503**	5 cards
	21 ... 30 (10x)	**793-504**	5 cards
	31 ... 40 (10x)	**793-505**	5 cards
	41 ... 50 (10x)	**793-506**	5 cards
	1 ... 50 (2x)	**793-566**	5 cards
10 strips with 10 markers, white with black printing			
Marking strips for TOPJOB®S Series,			
white, plain, 11 mm wide	50 m coil	**2009-110**	1

Operating tool

WAGO *Bluetooth*®
Adapter

WAGO USB
service cable

Configuration

Description		Item No.	Pack. Unit
Operating tool, with partially insulated shaft	Type 2, blade (3.5 x 0.5) mm	**210-720**	1
WAGO USB service cable		**750-923**	1
WAGO *Bluetooth*® Adapter		**750-921**	1

WAGO
50-60 Hz E i
855-0301/0800-1001
600
1
A
10
VA
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Kl.
Nr.
12F

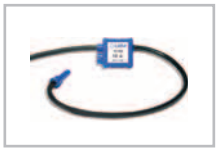
Page

JUMPFLEX® Current and Voltage Signal Conditioners

2857 Series 240
857 Series 242

Current Transformers

Plug-In Current Transformers with CAGE CLAMP® Connector, 855 Series 248
Plug-In Current Transformers with *picoMAX*® Pluggable Connector, 855 Series 250
Split-Core Current Transformers, 855 Series 252



Rogowski Coils and Current Signal Conditioners

Rogowski Coils, 855 Series 254
Current Signal Conditioners, 789 Series 256

Current Sensor Modules

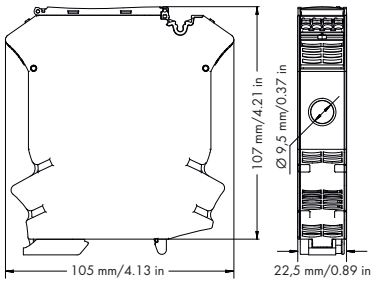
Current Sensor Modules, 789 Series 260
Accessories for 789 Series Current Sensor Modules 266

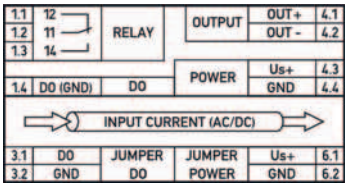
JUMPFLEX® Signal Conditioners

Current Signal Conditioner AC/DC 100 A

Configuration via:

DIP switch | Interface configuration software | Interface configuration app | Configuration display





Short description:
The 2857-550 Current Signal Conditioner measures AC/DC currents up to 100 A, while converting the measured current into an analog standard signal at the output.

Features:

- Both digital signal output and relay with changeover contact react to configured measuring range limits (switching ON/OFF delay and threshold value switch function configurable with up to two threshold values).
- Clipping capability provides analog signal limitation to output end values.
- Adjustable software filter
- Input/Output response simulation via configuration display
- Safe 3-way isolation with 4 kV test voltage acc. to EN 61140

Description	Item No.	Pack. Unit
***JUMPFLEX*® Signal Conditioner, for DIN 35 rail**	**2857-550**	1
Current Signal Conditioner AC/DC 100 A		

Technical Data

Configuration:	
Configuration	DIP switch, interface configuration software, interface configuration app, configuration display
Input:	
Input signal	500 mA ... 100 A (AC) / -100 A ... 100 A (DC)*
Response threshold	500 mA (AC) / 250 mA (DC)
Resolution	10 mA
Frequency range	15 Hz ... 1000 Hz
Output:	
Output signal	**Current:** ± 10 mA; 0 ... 10 mA; 2 ... 10 mA; ± 20 mA; 0 ... 20 mA; 4 ... 20 mA*
	Voltage: ± 5 V; 0 ... 5 V; 1 ... 5 V; ± 10 V; 0 ... 10 V; 2 ... 10 V*
Overcurrent	0% or +5% (e.g., 10.5 V / 24 mA)
Measuring range overflow/underflow	0% or +2.5%
Load impedance	**Current:** ≤ 600 Ω; **Voltage:** ≥ 1 kΩ
Measuring procedure	True RMS measurement (TRMS) or Arithmetic mean value*
Output – Digital:	
Max. switching voltage	Supply voltage applied -0.3 V
Max. continuous current I_{DO}	100 mA (no internal restriction)
Output – Relay:	
Contact type	1 changeover contact (1 u)
Contact material	AgNi (gold-plated)
Max. switching voltage	250 VAC
Max. continuous current	
(terminal blocks in a row)	6 A (up to 60 °C), 3 A (60 °C ... 70 °C)
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}
Pull-in/drop-out/bounce time typ.	8 ms / 4 ms / 8 ms
General specifications:	
Nominal supply voltage V_S	24 VDC
Supply voltage range	V_S -30 % ... +30 %
Current consumption at 24 VDC	≤ 50 mA (+ I_{DO})

Technical Data

General specifications:	
Max. operating frequency	3.3 kHz
Response time	Signal cycle duration + 1 ms
Response time (T_{10-90})	max. 60 ms
Filter (T_{10-90})	Software filter: 600 ms
Linearity error	≤ 1 %
Measurement error	≤ 0,2 % (of the full scale value)
Temperature coefficient	≤ 0.01 %/K
Environmental requirements:	
Ambient operating temperature	-40 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Safety and protection:	
Test voltage (input/output/supply)	2.5 kV AC, 50 Hz, 1 min.
Test voltage (measuring circuit – output)	4 kV AC, 50 Hz, 1 min.
Connection and type of mounting:	
Wire connection	Push-in CAGE CLAMP® (*picoMAX*® 5.0)
Cross sections	Ssolid/fine-stranded: 0.2 ... 2.5 mm² / 24 ... 12 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.
Power cable feed-through	Ø 9.5 mm
Dimensions and weight:	
Dimensions (mm) W x H x L	22.5 x 107 x 105
	Height from upper-edge of DIN 35 rail
Weight	106 g
Standards and approvals:	
Conformity marking	CE
Standards/specifications	DIN EN 60664-1 ; Safe isolation acc. to DIN EN 61140:2002; IEC 61000-6-2; IEC 61000-6-4
Accessories:	see page 226

(*Additional setting options via interface configuration software or interface configuration app)

DIP Switch Adjustability

● = ON

2857-550

DIP Switch S1

Measuring Method		Filter		Analog Output Inverted		Output Signal (Bipolar for Arithmetic Mean Value)			
1		2		3		4	5	6	Analog Output
	True RMS		inactive		not inverted				(±) 0 ... 20 mA
●	Arithmetic mean value (bipolar output)	●	active	●	inverted		●		4 ... 20 mA
						●			(±) 0 ... 10 V
						●	●		2 ... 10 V
								●	(±) 0 ... 10 mA
							●	●	2 ... 10 mA
						●		●	(±) 0 ... 5 V
						●	●	●	1 ... 5 V

DIP Switch S1

		Measuring Range Underflow	Measuring Range Overflow	Overcurrent (Input Signal - End Value +20%)			Digital Output (DO)/ Relay
7	8				9	10	
		Lower measuring range -5% *	Upper measuring range +2.5% *	Upper measuring range +5%			Off
●		Lower measuring range	Upper measuring range +2.5%	Upper measuring range +5%	●		DO US+ switching – relay pulls in
	●	Lower measuring range	Upper measuring range	Lower measuring range		●	DO GND switching – relay drops out
●	●	Lower measuring range -5 %	Upper measuring range +5%	Upper measuring range	●	●	Off

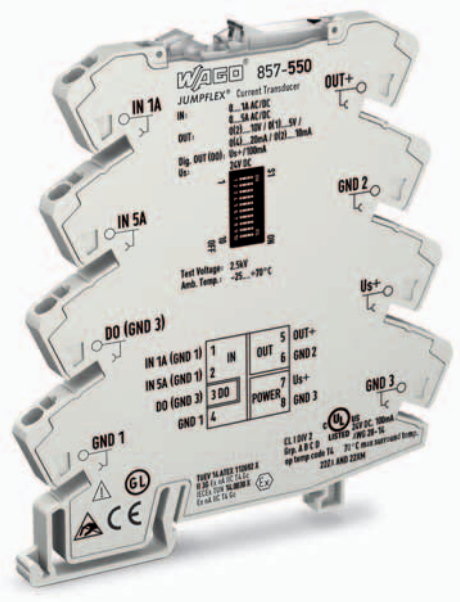
*acc. to NAMUR NE 43

DIP Switch S2

Lower Value						Upper value			
1	2	3	4	A / % (RMS)	A / % (arithmetic mean value)	5	6	7	A / %
				Software configuration (0)	Software configuration (-100)				Software configuration (100)
●				0	-100	●			100
	●			5	-75		●		90
●	●			8	-50	●	●		70
		●		10	-25			●	50
●		●		12	-10	●		●	30
	●	●		14	0		●	●	20
●	●	●		16	5	●	●	●	10
			●	18	10				
●			●	20	15				
	●		●	25	20				
●	●		●	30	25				
		●	●	35	30				
●		●	●	40	35				
	●	●	●	45	40				
●	●	●	●	50	50				

JUMPFLEX® Signal Conditioners

Current Signal Conditioner AC/DC 0 ... 1 A, 0 ... 5 A

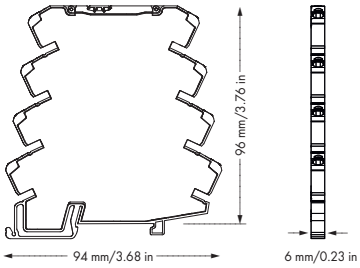


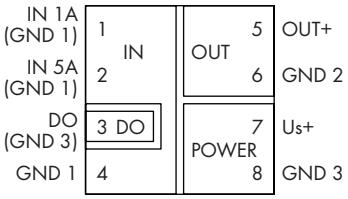
Configuration via:

DIP switch

Interface configuration software

Interface configuration app





Short description:
The Current Signal Conditioner measures both 0–1 A and 0–5 A AC/DC currents, while converting the input signal to a standard analog signal at the output.

Features:
- PC configuration interface
- True RMS measurement or arithmetic mean value
- Digital switching output (configurable switching thresholds)
- Switchable filter function
- Switching between measuring ranges is calibrated
- Safe 3-way isolation with 2.5 kV test voltage acc. to EN 61140
- Extremely fast response times
- Measuring range overflow indication

Description	Item No.	Pack. Unit
***JUMPFLEX*® Signal Conditioner, for DIN 35 rail**	**857-550**	1
Current Signal Conditioner		

Technical Data

Configuration:	
Configuration	DIP switch, interface configuration
	software, interface configuration app
Input:	
Input signal	0 ... 1 A AC/DC; 0 ... 5 A AC/DC *
Input resistance	10 mΩ (5 A); 47 mΩ (1 A)
Frequency range	16 Hz ... 400 Hz
Response threshold	< 0.5 % (of measuring range nominal
Current carrying capacity	2 x I_N (continuous)
Output:	
Output signal	**Voltage:**
	0 ... 5 V, 1 ... 5 V, 0 ... 10 V, 2 ... 10 V *
	Current:
	0 ... 10 mA, 2 ... 10 mA,
	0 ... 20 mA, 4 ... 20 mA *
Load impedance	≤ 600 Ω (I output) **
	≥ 2 kΩ (U output)
	** Temperature range restrictions may
	occur.
Filter (T_{10-90})	260 ms (DC), 600 ms (AC 50 Hz)
Output - Digital	
Max. switching voltage	Supply voltage applied
Max. continuous current	500 mA (up to 60 °C)
	100 mA (60 °C ... 70 °C)
General specifications:	
Nominal supply voltage V_S	24 VDC
Supply voltage range	V_S -30 % ... +30 %
Current consumption at 24 VDC	≤ 40 mA
Measuring procedure	Arithmetic mean value
	True RMS measurement (TRMS)*
Response time	1.5 ms + signal cycle duration
Max. response time	60 ms
Min. measuring span	2 mA ... 1 A; 4 mA ... 5 A

Technical Data

General specifications:	
Transmission error	≤ 0.1 % typ. (≤ 0.4 % max.)
Temperature coefficient	≤ 0.01 % /K
Linearity error	< 0,5 % (of measuring range nominal
Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C (at nominal current)
Storage temperature	-40 °C ... +85 °C
Safety and protection:	
Test voltage	
(input/output/supply)	2.5 kV AC, 50 Hz, 1 min.
Connection and type of mounting:	
Wire connection	Push-in CAGE CLAMP®
Cross sections	Ssolid:
	0.08 mm² ... 2.5 mm² / 28 ... 14 AWG
	Fine-stranded:
	0.34 mm² ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.
Dimensions and weight:	
Dimensions (mm) W x H x L	6 x 96 x 94
	Height from upper-edge of DIN 35 rail
Weight	50 g
Standards and approvals:	
Conformity marking	CE
cULus UL 508	
cULus ANSI/ISA 12.12.01	Class I, Div. 2, Grp. ABCD, T4
Shipbuilding	GL, PRS, BV
TÜV 14 ATEX 112692 X	II 3 G Ex nA IIC T4 Gc
IECEx TUN 14.0030 X	Ex nA IIC T4 Gc
EMC immunity of interference	EN 61000-6-2
EMC emission of interference	EN 61000-6-4
Accessories:	see page 226
	Marking strip: 2009-110
(*Additional setting options via interface configuration software or interface configuration app)	

DIP Switch Adjustability

● = ON

857-550

DIP Switch S1

Input Signal		Measuring Method		Filter		Output Signal			
1		2		3		4	5	6	
	5 A		Mean square value		off				0 ... 20 mA
●	1 A	●	Arithmetic mean value	●	active		●		4 ... 20 mA
						●			0 ... 10 V
						●	●		2 ... 10 V
								●	0 ... 10 mA
							●	●	2 ... 10 mA
						●		●	0 ... 5 V
						●	●	●	1 ... 5 V

Filter

The filter function allows a low-pass filter to be switched on in order to mask or "smooth out" oscillating measured values (e.g., during trailing edge flows).

DIP Switch S1

7	8	Measuring Range Underflow	Measuring Range Overflow	Overcurrent (Input Signal - End Value + 20%)	9	10	Digit Output DO Signaling
		Lower limit of measuring range -5 %*	Upper limit of measuring range +2.5 %*	Upper limit of measuring range +5 %*			DO not active
●		Lower limit of measuring range	Upper limit of measuring range +2.5 %	Upper limit of measuring range +5 %		●	DO U_S+ switching
	●	Lower limit of measuring range	Upper limit of measuring range	Lower limit of measuring range	●	●	DO GND switching
●	●	Lower limit of measuring range	Upper limit of measuring range	Upper limit of measuring range			

*acc. to NAMUR NE 43

Digital Output DO/Signaling

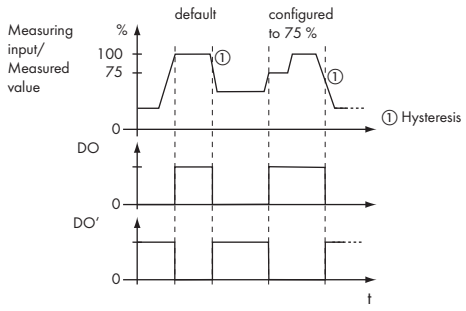
The digital output (DO) signals error messages and can be configured as follows: 24 V → 0 V/0 V → 24 V.

In order to increase the switching current of the DO, the latter may be expanded by a relay. Thanks to the contour uniformity of Series 857, for example, a 857-304 Relay can be snapped in next to it. This output can be quickly and easily expanded to a switching current of 6A by simply using an adjacent jumper (859-402).

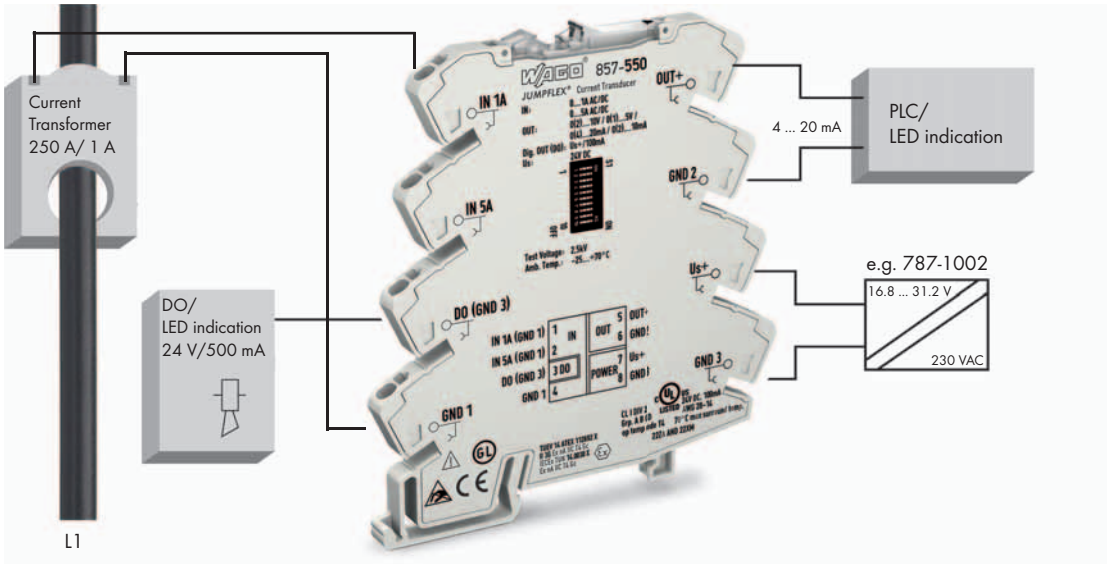
Default Setting

All DIP switches are in "OFF" position for delivery.	
Input	
Input Signal	0 ... 5 A
Measuring Method	Mean square value
Filter	not active
Output	
Output Signal	0 ... 20 mA
Measuring Range Underflow	0 mA
Measuring Range Overflow	20.5 mA
Overcurrent	21 mA
Digital Output DO	not active

Switching Behavior, Digital Output (DO)

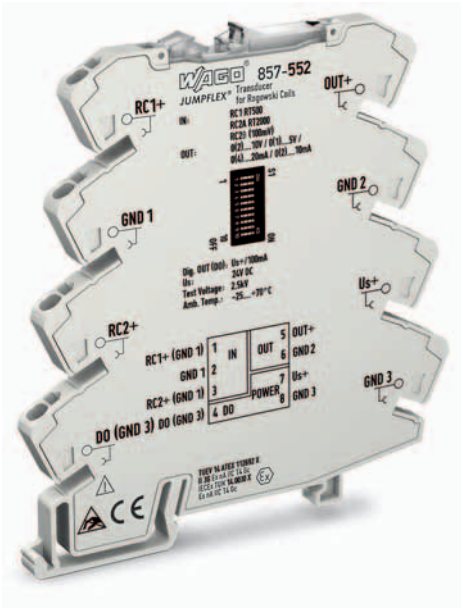


Application example:

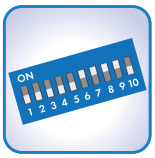


JUMPFLEX® Signal Conditioners

Rogowski Signal Conditioner



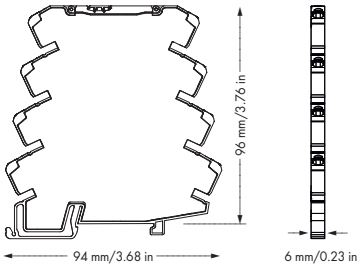
Configuration via:

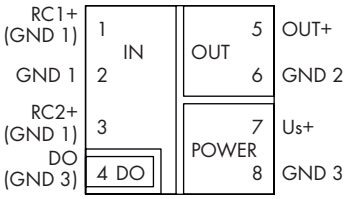


DIP switch

Interface configuration software

Interface configuration app





Short description:
The Rogowski Signal Conditioner records RMS values from alternating currents via a Rogowski coil, converting the input signal into a standard analog signal on the output side.

Features:
- PC configuration interface
- Supports different types of Rogowski coils
- Digital switching output (configurable switching thresholds)
- True RMS measurement (TRMS)
- Configurable output signal
- Configuration via DIP switch
- Safe 3-way isolation with 2.5 kV test voltage acc. to EN 61140
- No current bar interruption during installation
- Measuring range overflow indication

Description	Item No.	Pack. Unit
***JUMPFLEX*® Signal Conditioner, for DIN 35 rail**	**857-552**	1
Rogowski Signal Conditioner		

Technical Data

Configuration:	
Configuration	DIP switch, interface configuration
	software, interface configuration app
Input:	
Input signal	RC1 500 A: Sensitivity 10.05 mV *
	RC2A 2000 A:
	Sensitivity 40.2 mV *
	RC2B: Sensitivity 100 mV *
	50 Hz ssinusoidal signals
Frequency range	16 Hz ... 1000 Hz
Response threshold	< 1 % (of measuring range nominal value)
Output:	
Output signal	**Voltage:**
	0 ... 5 V, 1 ... 5 V, 0 ... 10 V, 2 ... 10 V *
	Current: 0 ... 10 mA, 2 ... 10 mA,
	0 ... 20 mA, 4 ... 20 mA *
Overcurrent	0 % or +5 % (e. g. 10.5 V/21 mA)*
Measuring range overflow/underflow	0 % or +2.5 %*
Load impedance	Current ≤ 600 Ω, Voltage ≥ 1000 Ω
Measuring procedure	True RMS (TRMS)
Filter (T_{10-90})	600 ms (50 Hz)
Output - Digital	
Max. switching voltage	Supply voltage applied
Max. continuous current	500 mA
General specifications:	
Nominal supply voltage V_S	24 VDC
Supply voltage range	V_S -30 % ... +30 %
Current consumption at 24 VDC	≤ 40 mA
Resolution	500 A measuring range: 250 mA,
	2000 A measuring range: 1000 mA
Measuring procedure	True RMS (TRMS)
Response time	1.5 ms + signal cycle duration
Max. operating frequency	< 2 kHz
Response time (T_{10-90})	max. 60 ms

Technical Data

General specifications:	
Linearity error	≤ 0,1 %
Temperature coefficient	≤ 0.01 %/K
Measurement error	< 1 %
Line length	< 3 m (to the Rogowski coil)
Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C (at rated current)
Storage temperature	-40 °C ... +85 °C
Safety and protection:	
Test voltage	
(input/output/supply)	2.5 kV AC, 50 Hz, 1 min.
Connection and type of mounting:	
Wire connection	Push-in CAGE CLAMP®
Cross sections	Ssolid:
	0.08 mm² ... 2.5 mm² / 28 ... 14 AWG
	Fine-stranded:
	0.34 mm² ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.
Dimensions and weight:	
Dimensions (mm) W x H x L	6 x 96 x 94
	Height from upper-edge of DIN 35 rail
Weight	36.2 g
Standards and approvals:	
Conformity marking	CE
⟨Ex⟩ TÜV 14 ATEX 112692 X	II 3 G Ex nA IIC T4 Gc
IECEx TUN 14.0030 X	Ex nA IIC T4 Gc
Accessories:	see page 226
	Marking strip: 2009-110
	Rogowski Coils see Section 4

(*Additional setting options via interface configuration software or interface configuration app)

DIP Switch Adjustability

● = ON

857-552

DIP Switch S1

Input Signal		RC Configuration Input		Filter		Output Signal			
1		2		3		4	5	6	
	RC1 = RT500 from LEM		RC2 = RT2000 from LEM		off				0 ... 20 mA
●	RC2	●	RC2 = 100 mV eff. => 1 kA	●	active		●		4 ... 20 mA
						●			0 ... 10 V
						●	●		2 ... 10 V
								●	0 ... 10 mA
							●	●	2 ... 10 mA
						●		●	0 ... 5 V
						●	●	●	1 ... 5 V

Filter

The filter function allows a low-pass filter to be switched on in order to mask or "smooth out" oscillating measured values (e.g., during trailing edge flows).

DIP Switch S1

7	8	Measuring Range Underflow	Measuring Range Overflow	Overcurrent (Input Signal - End Value + 20%)	9	10	Digital Output DO Signaling
		Lower limit of measuring range +5 %*	Upper limit of measuring range +2.5 %*	Upper limit of measuring range +5 %*			DO not active
●		Lower limit of measuring range	Upper limit of measuring range +2.5 %	Upper limit of measuring range +5 %		●	DO U_s+ switching
	●	Lower limit of measuring range	Upper limit of measuring range	Lower limit of measuring range	●	●	DO GND switching
●	●	Lower limit of measuring range	Upper limit of measuring range	Upper limit of measuring range			

*acc. to NAMUR NE 43

Digital Output DO/Signaling

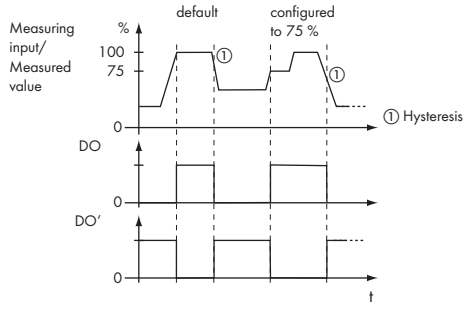
The digital output (DO) signals error messages and can be configured as follows: 24 V → 0 V/0 V → 24 V.

In order to increase the switching current of the DO, the latter may be expanded by a relay. Thanks to the contour uniformity of Series 857, for example, a 857-304 Relay can be snapped in next to it. This output can be quickly and easily expanded to a switching current of 6A by simply using an adjacent jumper (859-402).

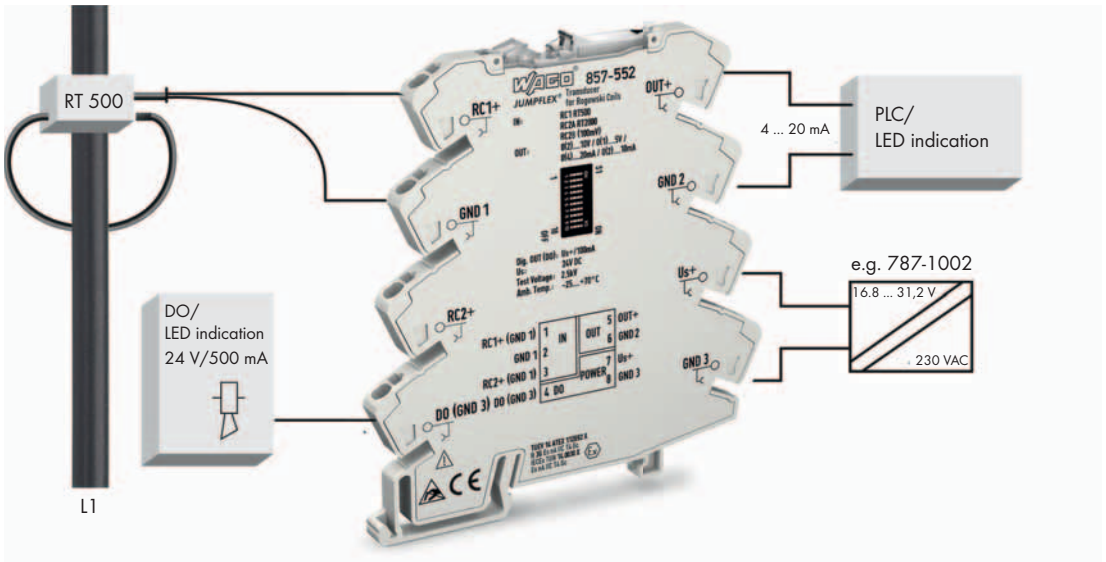
Default Setting

All DIP switches are in "OFF" position for delivery.	
Input	
Input Signal	RC1 500 A
Measuring Method	Mean square value
Filter	not active
Output	
Output Signal	0 ... 20 mA
Measuring Range Underflow	0 mA
Measuring Range Overflow	20.5 mA
Overcurrent	21 mA
Digital Output DO	not active

Switching Behavior, Digital Output (DO)

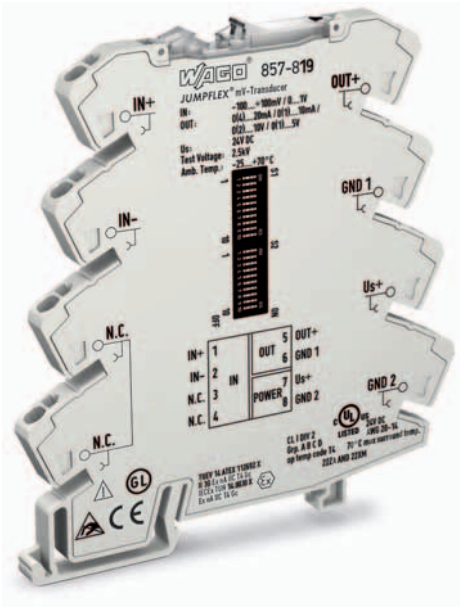


Application example:

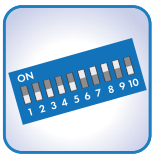


JUMPFLEX® Signal Conditioners

Millivolt Signal Conditioner from -100 mV ... +100 mV and 0 mV ... 1000 mV



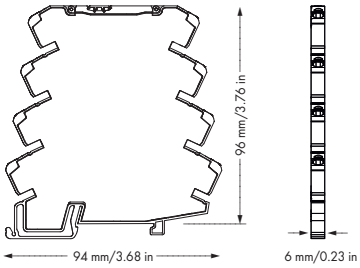
Configuration via:

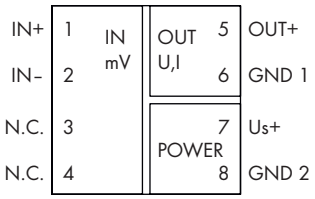


DIP switch

Interface configuration software

Interface configuration app





Short description:
The Millivolt Signal Conditioner converts input millivolt signals into an analog standard signal on the output side.

Characteristics:
- PC configuration interface
- Calibrated scale switching
- Clipping capability allows analog standard signal limitation to upper range values
- Safe 3-way isolation with 2.5 kV test voltage acc. to EN 61140

Description	Item No.	Pack. Unit
***JUMPFLEX*® Signal Conditioner, for DIN 35 rail**	**857-819**	1
Millivolt Signal Conditioner with Millivolt Input as well as Current and Voltage Output		

Technical Data

Configuration:	
Configuration	DIP switch, interface configuration software, interface configuration app
Input:	
Input signal	-100 mV ... +100 mV, 0 mV ... 200 mV, 0 mV ... 1000 mV * (in 100 mV increments)
Input resistance	> 1MΩ
Max. input signal	31.2V
Output:	
Output signal	0 ... 10 mA, 2 ... 10 mA, 0 ... 20 mA, 4 ... 20 mA, 0... 5 V, 1 ... 5 V, 0 ... 10 V, 2 ... 10 V *
Load impedance	≤ 600 Ω (I output) ≥ 2 kΩ (U output)
Step response	50ms
General specifications:	
Nominal supply voltage V_S	24 VDC
Supply voltage range	V_S -30 % ... +30 %
Current consumption at 24 VDC	≤ 40 mA
Min. measuring span	10 mV (configurable)
Transmission error	≤ 0.1 % of upper range value
Temperature coefficient	≤ 0.01 %/K

Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Safety and protection:	
Test voltage (input/output/supply)	2.5 kV AC, 50 Hz, 1 min
Connection and type of mounting:	
Wire connection	Push-in CAGE CLAMP®
Cross sections	Ssolid: 0.08 mm² ... 2.5 mm² / 28 ... 14 AWG Fine-stranded: 0.34 mm² ... 2.5 mm² / 22 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.
Dimensions and weight:	
Dimensions (mm) W x H x L	6 x 96 x 94
	Height from upper-edge of DIN 35 rail
Weight	50 g
Standards and approvals:	
Conformity marking	CE
cULus UL 508	
cULus ANSI/ISA 12.12.01	Class I, Div. 2, Grp. ABCD, T4
Shipbuilding	GL, PRS, NKK, DNV , BV
Ex TÜV 14 ATEX 112692 X	II 3 G Ex nA IIC T4 Gc
IECEx TUN 14.0030 X	Ex nA IIC T4 Gc
EMC immunity of interference	EN 61000-6-2
EMC emission of interference	EN 61000-6-4
Accessories:	see page 226
	Marking strip: 2009-110

(*Additional setting options via interface configuration software or interface configuration app)

DIP Switch Adjustability

● = ON

857-819

| Input Start value | | |

Plug-In Current Transformers

with CAGE CLAMP® connector

	Plug-In Current Transformers Secondary rated current: 1 A	Plug-In Current Transformers Secondary rated current: 5 A

Short description:

The 855 Series Plug-In Current Transformers are inductive, single-conductor current transformers. Based on the principle of measurement, current transformers of this type are for use in AC networks exclusively.

Features:

- Screwless CAGE CLAMP® connection technology
- Several mounting options available
- Vibration- and shock-resistant
- High mechanical retention forces
- High current-carrying capacity
- Continuous overload of 120 % the nominal primary current
- Low-voltage current transformer for max. operating voltages up to 1.2 kV
- Can be used in 690 V power networks
- UL (Recognized Components)

Description	I_{pr}	I_{sr}	S_r	G	Item No.	Pack. Unit	I_{pr}	I_{sr}	S_r	G	Item No.	Pack. Unit
Plug-in current transformer	50 A	1 A	1.25	3	**855-301/050-103**	1	50 A	5 A	1.25	3	**855-305/050-103**	1
	60 A	1 A	1.25	1	**855-301/060-101**	1	60 A	5 A	1.25	1	**855-305/060-101**	1
	75 A	1 A	2.5VA	1	**855-301/075-201**	1	75 A	5 A	2.5VA	1	**855-305/075-201**	1
	100 A	1 A	2.5VA	1	**855-301/100-201**	1	100 A	5 A	2.5VA	1	**855-305/100-201**	1
	150 A	1 A	5VA	1	**855-301/150-501**	1	150 A	5 A	5VA	1	**855-305/150-501**	1
	200 A	1 A	5VA	1	**855-301/200-501**	1	200 A	5 A	5VA	1	**855-305/200-501**	1
	250 A	1 A	5VA	1	**855-301/250-501**	1	250 A	5 A	5VA	1	**855-305/250-501**	1
I_{pr} = Primary rated current	400 A	1 A	10VA	1	**855-301/400-1001**	1	400 A	5 A	10VA	1	**855-305/400-1001**	1
I_{sr} = Secondary rated current	600 A	1 A	10VA	1	**855-301/600-1001**	1	600 A	5 A	10VA	1	**855-305/600-1001**	1
S_r = Rated power	400 A	1 A	5VA	1	**855-401/400-501**	1	400 A	5 A	5VA	1	**855-405/400-501**	1
G = Accuracy class	1000 A	1 A	10VA	1	**855-501/1000-1001**	1	1000 A	5 A	10VA	1	**855-505/1000-1001**	1

Technical Data

Input:		
Rated continuous thermal current I_{cth}	1.2 x I_N	1.2 x I_N
Rated short-time thermal current I_{th}	60 x I_N (max.100 kA), 1 s	60 x I_N (max.100 kA), 1 s
Max. operating voltage V_m	1.2 kV_{rms}	1.2 kV_{rms}
Rated frequency	50 Hz ... 60 Hz	50 Hz ... 60 Hz
Overcurrent limiting factor	FS5 or FS10 (type-dependent, see type plate inscription)	FS5 or FS10 (type-dependent, see type plate inscription)
Environmental requirements:		
Ambient operating temperature	-5 °C ... +50 °C	-5 °C ... +50 °C
Storage temperature	-25 °C ... +70 °C	-25 °C ... +70 °C
Max. operating altitude	1000 m	1000 m
Safety and protection:		
Test voltage	6 kV_{rms} AC / 50 Hz / 1 min	6 kV_{rms} AC / 50 Hz / 1 min
Insulation class	E	E
Connection:		
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 4 mm² / 28 ... 12 AWG	0.08 mm² ... 4 mm² / 28 ... 12 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.	9 ... 10 mm / 0.35 ... 0.39 in.
Standards and approvals:		
Conformity marking	CE	CE
Standards/specifications	EN 61869-1; EN 61869-2	EN 61869-1; EN 61869-2
cULus (Recognized Components)	E356480	E356480

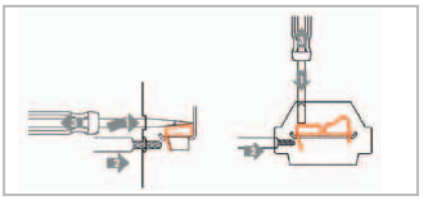
Accessories

	Item No.	Pack. Unit
Carrier rail adapter for plug-in current transformers		
(for 855-3xx/xxxx-xxxx and 855-4xx/xxxx-xxxx)	**855-9900**	1
Quick-mount kit	**855-9910**	1
Operating tool, with partially insulated shaft, type 2, blade (3.5 x 0.5) mm	**210-720**	1
Connector assembly for current transformer	**2007-8873**	1

Connection / Connection Assignment

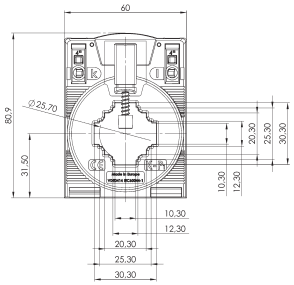
855 Series

Implementation of the primary winding is designated with "K-P1" and "L-P2." Connections for the secondary winding are designated with the corresponding lower case letters " k-S1" and "l-S2."



Dimensions:

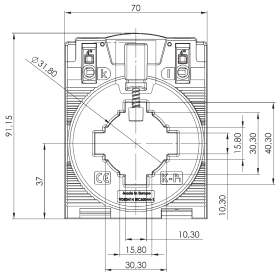
Item No.
855-3xx/xxxx-xxxx



Current bar 1: 30 x 10 mm
Current bar 2: 25 x 12 mm
Current bar 3: 20 x 20 mm
Round cable: 26 mm

Width: 60 mm
Overall height: 80.5 mm
Overall depth: 52 mm

Item No.
855-4xx/xxxx-xxxx

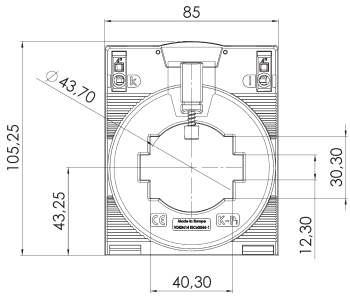


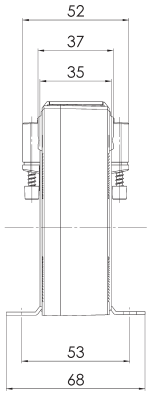
Current bar 1: 40 x 10 mm
Current bar 2: 30 x 15 mm

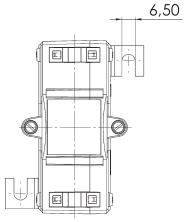
Round cable: 32 mm

Width: 70 mm
Overall height: 91 mm
Overall depth: 52 mm

Item No.
855-5xx/xxxx-xxxx







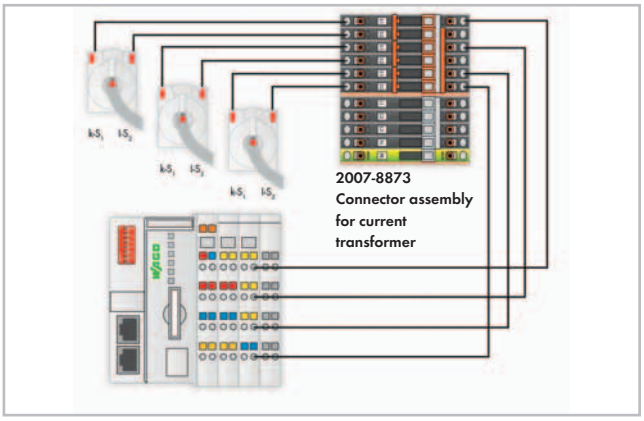
Current bar 1: 50 x 12 mm
Current bar 2: 40 x 30 mm

Round cable: 44 mm

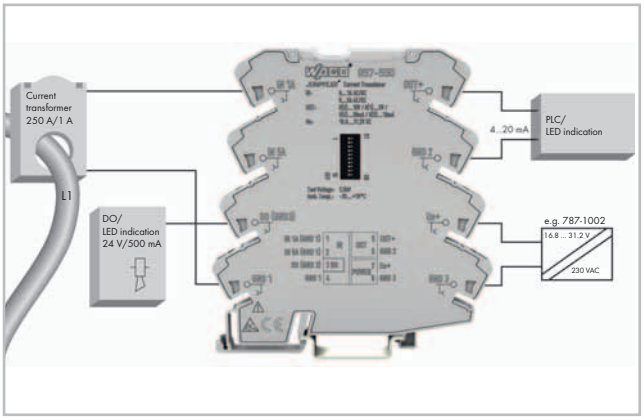
Width: 85 mm
Overall height: 105.25 mm
Overall depth: 52 mm

Application examples:

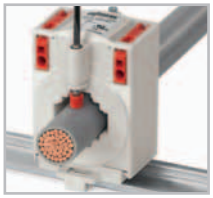
750 Series (3-Phase Power Measurement Module)



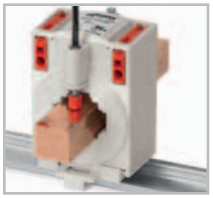
857 Series (*JUMPFLEX*® Current Transducer)



Mounting Options



Mounting on round cable



Mounting on copper current bar

Mounting on carrier rail with carrier rail adapter

Mounting on mounting plate

Quick-mount installation for conductors

Note:
* The carrier rail adapter is only suitable for 855-3xx/xxxx-xxxx and 855-4xx/xxxx-xxxx transformers.

Plug-In Current Transformers, 855 Series

with the *picoMAX*® pluggable connector

	Primary rated current: 35 A Secondary rated current: 1 A	Primary rated current: 64 A Secondary rated current: 1 A

Short description:
The 855 Series Plug-In Current Transformers are inductive, single-conductor current transformers. Due to the measurement principle used, these current transformers are exclusively designed for AC network applications.

Features:
- First current transformer featuring *picoMAX*® connection technology
- Also suitable for space-restricted applications
- Simple assembly permits 17.5 mm phase spacing, allowing perfect adjustment to any circuit breaker.
- Easy mounting on DIN rails or panels via carrier rail adapter
- Converts currents from 64 A or 35 A to 1 A
- Accuracy class 1

Description	I_{pr}	I_{sr}	S_r	G	Item No.	Pack. Unit	I_{pr}	I_{sr}	S_r	G	Item No.	Pack. Unit
Plug-in current transformer	35 A	1 A	0.2VA	1	**855-2701/035-001**	15	64 A	1 A	0.2VA	1	**855-2701/064-001**	15
I_{pr} = Primary rated current												
I_{sr} = Secondary rated current												
S_r = Rated power												
G = Accuracy class												

Technical Data

Input:		
Rated continuous thermal current I_{cth}	100 %	100 %
Rated short-time thermal current I_{th}	60 x I_{pr} / 1 s	60 x I_{pr} / 1 s
Rated surge current I_{dyn}	2.5 x I_{th}	2.5 x I_{th}
Max. operating voltage V_m	0.72/3/- kV	0.72/3/- kV
Rated frequency f_R	50 Hz ... 60 Hz	50 Hz ... 60 Hz
Environmental requirements:		
Ambient operating temperature	-10 °C ... +55 °C	-10 °C ... +55 °C
Storage temperature	-20 °C ... +70 °C	-20 °C ... +70 °C
Rel. humidity	5 % ... 85 % (non-condensing)	5 % ... 85 % (non-condensing)
Max. operating altitude	2000 m	2000 m
Safety and protection:		
Degree of protection	IP20	IP20
Insulation class	E (120 °C)	E (120 °C)
Housing material	PA 66	PA 66
Flammability rating	V2 (UL94)	V2 (UL94)
Connection:		
Power cable feed-through	Ø 7.5 mm	Ø 7.5 mm
Wire connection	Push-in CAGE CLAMP® (*picoMAX*® 3.5, 2091-1122)	Push-in CAGE CLAMP® (*picoMAX*® 3.5, 2091-1122)
Cross sections	0.2 mm² ... 1.5 mm² / 24 ... 14 AWG	0.2 mm² ... 1.5 mm² / 24 ... 14 AWG
Strip lengths	8 ... 9 mm / 0.31 ... 0.35 in.	8 ... 9 mm / 0.31 ... 0.35 in.
Standards and approvals:		
Conformity marking	CE	CE
Standards/specifications	EN 61869-2; EN 61010-1	EN 61869-2; EN 61010-1

Accessories

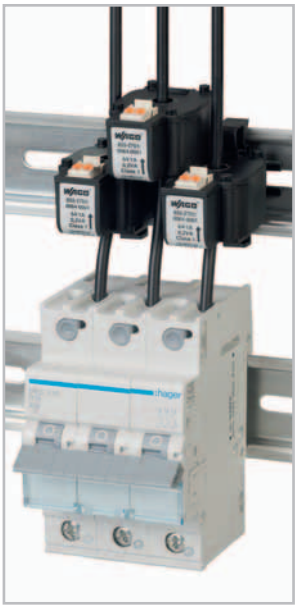
	Item No.	Pack. Unit
Carrier rail adapter for plug-in current transformer	**855-9927**	1
Connector assembly for current transformer	**2007-8873**	1
Operating tool, with partially insulated shaft, type 2, blade (3.5 x 0.5) mm	**210-720**	1

Termination

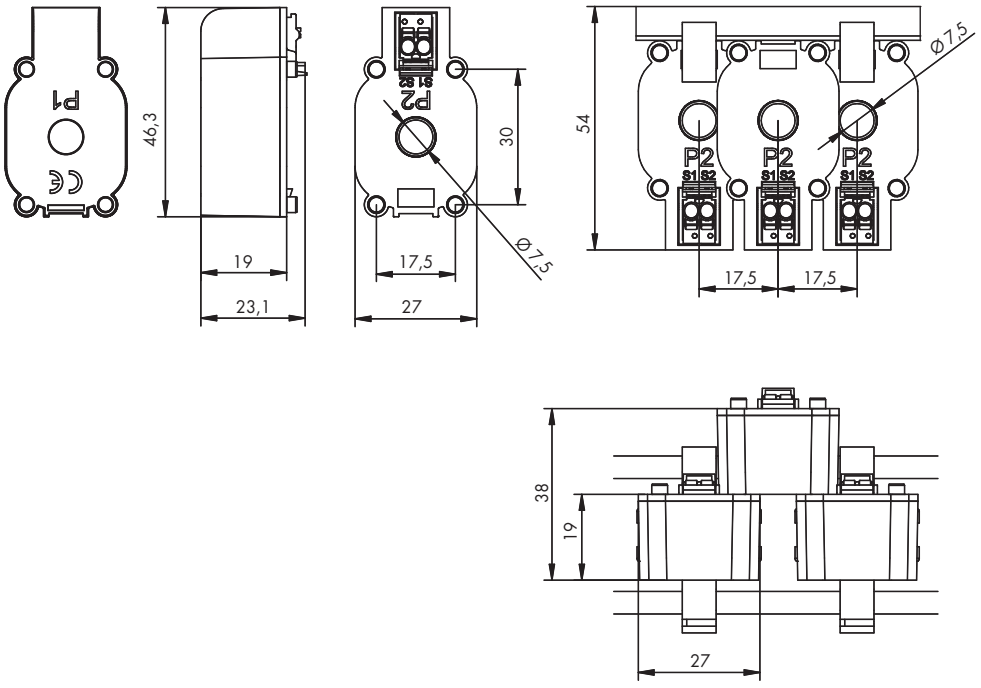
855 Series

Mounting

Application



Dimensions



Split-Core Current Transformers

Short description:
WAGO's compact split-core current transformers are ideal for retrofit applications in existing systems. They are particularly suited for applications in which the current path may not be disrupted. The transformer's accuracy permits extremely precise current measurements. The split-core current transformers are capable of supplying the specified rated power at the end of the secondary cable. All transformers are supplied with color-coded cables. Two UV-resistant cable ties for reliable and easy mounting are also included.

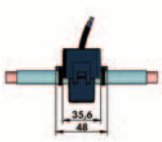
Features:
- Current ratios from
  60 A up to 1000 A (primary side) and
  1 A or 5 A (secondary side)
- No interruption of the measuring cable
- Ideal for use in very confined spaces
- Superfast mounting
- For use around insulated cables up to Ø 42 mm
- Compact and hinged
- Color-coded connecting cables up to 5 m

Technical Data

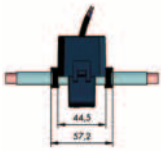
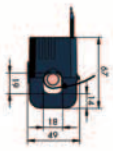
Input:	
Rated continuous thermal current I_{cth}	100 %
Rated short-time thermal current I_{th}	60 x I_{pr} / 1 s
Rated surge current I_{dyn}	2.5 x I_{th}
Rated frequency f_R	50 Hz ... 60 Hz
Max. operating voltage V_m	0.72/3/- kV
Connection:	
Conductor size	0.5 mm², fine-stranded (855-xxx1/...)
	1.5 mm², fine-stranded (855-xxx5/...)
Conductor identification	brown = S1, blue = S2 (855-xxx1/...)
	black = S1, red = S2 (855-xxx5/...)

Technical Data

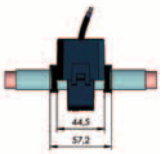
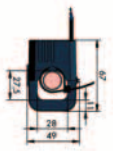
Environmental Requirements:	
Ambient operating temperature	-10 °C ... +55 °C
	-10 °C ... +40 °C (855-5xxx/1000-000)
Storage temperature	-20 °C ... +70 °C
Relative humidity	5 % ... 85 % (non-condensing)
Max. operating altitude	2000 m
Safety and protection:	
Degree of protection	IP20
Insulation class	E (120 °C)
Housing material	PA 66
Flammability rating	V2 (UL94)
Standards and approvals:	
Conformity marking	CE
Standards/specifications	EN 61869-2; EN 61010-2-032



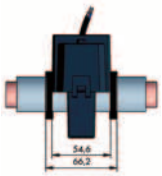
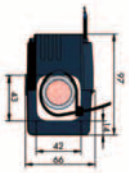
Power Cable Feed-Through	Primary Rated Current	Secondary Rated Current	Rated Power	Accuracy Class	Cable Length	Item No.	Pack. Unit
Ø 18 mm	60 A	1 A	0.2VA	3	3 m	**855-3001/060-003**	1
	100 A	1 A	0.2VA	3	3 m	**855-3001/100-003**	1
	200 A	1 A	0.2VA	1	3 m	**855-3001/200-001**	1
	250 A	1 A	0.2VA	1	3 m	**855-3001/250-001**	1

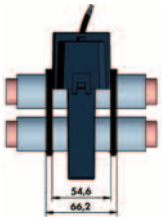
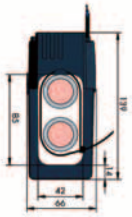
Power Cable Feed-Through	Primary Rated Current	Secondary Rated Current	Rated Power	Accuracy Class	Cable Length	Item No.	Pack. Unit
Ø 18 mm	100 A	1 A	0.2VA	1	3 m	**855-4001/100-001**	1
	150 A	1 A	0.2VA	1	3 m	**855-4001/150-001**	1
	150 A	5 A	1VA	1	0.5 m	**855-4005/150-101**	1
	200 A	1 A	0.2VA	0.5	3 m	**855-4001/200-001**	1

Power Cable Feed-Through	Primary Rated Current	Secondary Rated Current	Rated Power	Accuracy Class	Cable Length	Item No.	Pack. Unit
Ø 28 mm	200 A	1 A	0.2VA	1	3 m	**855-4101/200-001**	1
	250 A	1 A	0.2VA	1	3 m	**855-4101/250-001**	1
	250 A	5 A	1VA	1	0.5 m	**855-4105/250-101**	1
	400 A	1 A	0.2VA	1	3 m	**855-4101/400-001**	1
	400 A	5 A	1VA	1	0.5 m	**855-4105/400-101**	1

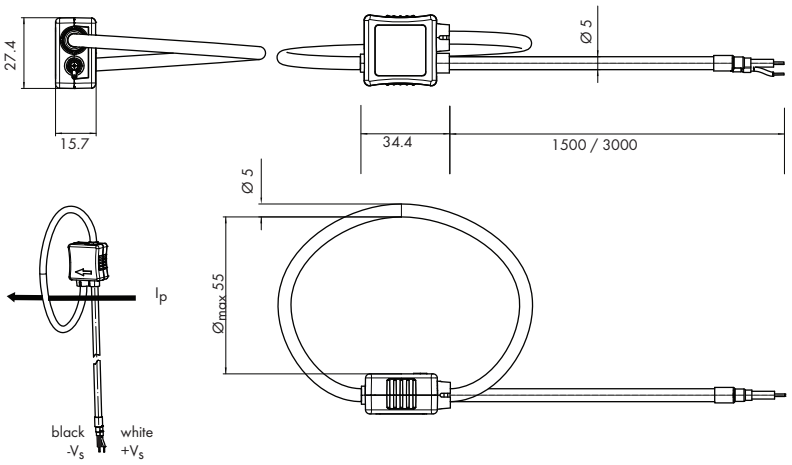



Power Cable Feed-Through	Primary Rated Current	Secondary Rated Current	Rated Power	Accuracy Class	Cable Length	Item No.	Pack. Unit
Ø 42 mm	250 A	1 A	0.5VA	1	5 m	**855-5001/250-001**	1
	400 A	1 A	0.5VA	0.5	5 m	**855-5001/400-000**	1
	400 A	5 A	0.5VA	1	3 m	**855-5005/400-001**	1
	600 A	1 A	0.5VA	0.5	5 m	**855-5001/600-000**	1
	600 A	5 A	0.5VA	0.5	3 m	**855-5005/600-000**	1
	1000 A	1 A	0.5VA	0.5	5 m	**855-5001/1000-000**	1
	1000 A	5 A	0.5VA	0.5	3 m	**855-5005/1000-000**	1

Power Cable Feed-Through	Primary Rated Current	Secondary Rated Current	Rated Power	Accuracy Class	Cable Length	Item No.	Pack. Unit
Ø Ø 42 mm x 48	1000 A	1 A	0.5VA	0.5	5 m	**855-5101/1000-000**	1
	1000 A	5 A	0.5VA	0.5	3 m	**855-5105/1000-000**	1

Rogowski Coils RT 500



Output voltage (open output, no load)

- dynamic	$V_{out} = M \times dI_p/dt$
- sinusoidal signal	$V_{out} = 2 \times \pi \times M \times f \times I_p$ AC Example: $V_{out} = 2 \times \pi \times 0.064\ \mu H \times 50\ Hz \times 500\ A = 10.05\ mV$

Short description:
The Rogowski coil is a closed-air coil with non-magnetic split core, placed around a conductor or a current bar.
The magnetic field produced by the AC current flowing through the conductor induces an output voltage in the coil.
This measurement procedure provides galvanic isolation between the primary circuit (power) and secondary circuit (measurement).
Easy placement of the Rogowski coils allows existing systems to be retrofitted without time-consuming installation or process interruption.
The Rogowski coil can be used together with the 789-652 Signal Conditioner or the 857-552 Rogowski Signal Conditioner.

Features:
- Split-core style coil for easy installation
- Ø 55 mm coil aperture for non-contact measurement
- 1.5 m or 3 m output cable
- Insulated plastic case to UL 94-V0

Description	Item No.	Pack. Unit
Rogowski coil RT 500, 1.5 m output cable	**855-9100/500-000**	3
Rogowski coil RT 500, 3 m output cable	**855-9300/500-000**	3

Approvals

Conformity marking	CE
Standards/specifications	IEC 61010-1:2001 (2nd edition), IEC 61010-2-032:2002, IEC 61010-031:2002 + A1:2008

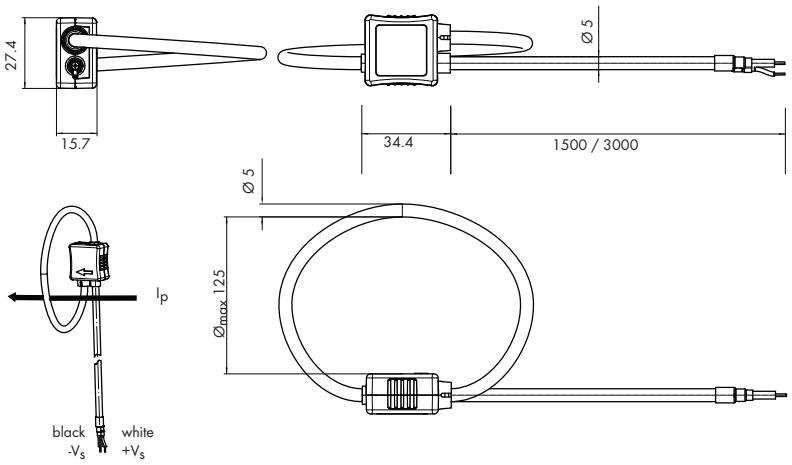
Technical Data

Electrical data	
Primary rated current I_{pN}	500 A_{rms}
Coil inductance (± 5 %)	125 µH
Coil resistance	40 Ω (at 20 °C ambient operating temperature, typ.)
Transfer ratio M	0.064 µH (WAGO provides uncalibrated coils with 5 % tolerance)
Output signal	Example shown above 10.05 mV at I_{pN} = 500 A, sinusoidal, 50 Hz (open output, no load)
Max. operating frequency	700 kHz (open output, no load)

Technical Data

Accuracy and dynamic performance:	
Linearity error	none
Temperature coefficient	30 ppm/K, related to transfer ratio M
Positioning error	855-9100/500-000: max. 0.65 % 855-9300/500-000: max. 0,80 % (considering a primary conductor of at least Ø 15 mm perpendicular to the coil)
Safety and protection:	
Nominal isolation voltage	300 V_{rms} (between primary conductor and ground)
Voltage for isolation test	3.5 kV_{rms} AC / 50 Hz / 1 min
Impulse withstand voltage (1.2/50 µs)	6.5 kV
Adjacent contacts	6 mm / 6 mm
Comparative Tracking Index (CTI, group I)	600 V (plastic parts)
Degree of protection	IP2X
General specifications:	
Cable length	855-9100/500-000: 1.5 m 855-9300/500-000: 3 m
Ambient operating temperature	-10 °C ... +65 °C
Storage temperature	-25 °C ... +70 °C
Weight	85 g

Rogowski Coils RT 2000



Output voltage (open output, no load)

- dynamic	$V_{out} = M \times dI_p/dt$
- sinusoidal signal	$V_{out} = 2 \times \pi \times M \times f \times I_p$ AC Example: $V_{out} = 2 \times \pi \times 0.064\ \mu H \times 50\ Hz \times 2000\ A = 40.2\ mV$

Short description:
The Rogowski coil is a closed-air coil with non-magnetic split core, placed around a conductor or a current bar.
The magnetic field produced by the AC current flowing through the conductor induces an output voltage in the coil.
This measurement procedure provides galvanic isolation between the primary circuit (power) and secondary circuit (measurement).
Easy placement of the Rogowski coils allows existing systems to be retrofitted without time-consuming installation or process interruption.
The Rogowski coil can be used together with the 857-552 Rogowski Signal Conditioner.

Features:
- Split-core style coil for easy installation
- Ø 125 mm coil aperture for non-contact measurement
- 1.5 m or 3 m output cable
- Insulated plastic case to UL 94-V0

Description	Item No.	Pack. Unit
Rogowski coil RT 2000,		
1.5 m output cable	**855-9100/2000-000**	3
Rogowski coil RT 2000,		
3 m output cable	**855-9300/2000-000**	3

Approvals

Conformity marking	CE
Standards/specifications	IEC 61010-1:2001 (2nd edition), IEC 61010-2-032:2002, IEC 61010-031:2002 + A1:2008

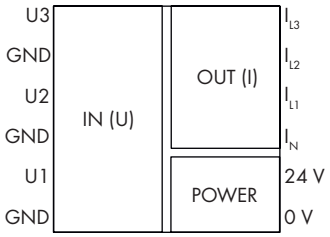
Technical Data

Electrical data	
Primary rated current I_{pN}	2000 A_{rms}
Coil inductance (± 5 %)	190 µH
Coil resistance	60 Ω (at 20 °C ambient operating temperature, typ.)
Transfer ratio M	0.064 µH (WAGO provides uncalibrated coils with 5 % tolerance)
Output signal	Example shown above 40.2 mV at I_{pN} = 2000 A, sinusoidal, 50 Hz (open output, no load)
Max. operating frequency	500 kHz (open output, no load)

Technical Data

Accuracy and dynamic performance:	
Linearity error	none
Temperature coefficient	30 ppm/K, related to transfer ratio M
Positioning error	855-9100/2000-000: max. 0.65 % 855-9300/2000-000: max. 0,80 % (considering a primary conductor of at least Ø 15 mm perpendicular to the coil)
Safety and protection:	
Nominal isolation voltage	300 V_{rms} (between primary conductor and ground)
Voltage for isolation test	3.5 kV_{rms} AC / 50 Hz / 1 min
Impulse withstand voltage (1.2/50 µs)	6.5 kV
Adjacent contacts	6 mm / 6 mm
Comparative Tracking Index (CTI, group I)	600 V (plastic parts)
Degree of protection	IP2X
General specifications:	
Cable length	855-9100/2000-000: 1.5 m 855-9300/2000-000: 3 m
Ambient operating temperature	-10 °C ... +65 °C
Storage temperature	-25 °C ... +70 °C
Weight	90 g

Current Signal Conditioner for RT 500 Rogowski Coils



Short description:
The Rogowski Current Signal Conditionerucer acquires 5–500A alternating currents in a three-phase system.
The magnetic field produced around each conductor is sensed via three non-contact Rogowski coils and provided as a proportional voltage signal to the signal conditioner. The current signal conditioner adjusts the phase of each of the three voltage signals, converting them into 100mA alternating current signals. These are then transmitted to the 750-494 3-Phase Power Measurement Module.

The 750-494 3-Phase Power Measurement Module within the WAGO-I/O-SYSTEM measures electrical data (e.g., voltages, currents, effective power and energy consumption) in a three-phase supply network. Thus, the user is always able to determine the load condition (imbalance, capacitive components), to optimize consumption and protect machines or systems from damage and breakdowns. Easy installation of Rogowski coils also allows existing systems to be retrofitted without process interruption.

Description	Item No.	Pack. Unit
Signal Conditioner for RT 500 Rogowski Coils	**789-652**	1

Accessories	Item No.	Pack. Unit
Rogowski Coil RT 500, 1.5 m output cable	**855-9100/500-000**	3
Rogowski Coil RT 500, 3 m output cable	**855-9300/500-000**	3
3-Phase Power Measurement Module (480V/1A)	**750-494**	1

Technical Data

Input:	
Input signal	3 x RT500 (500 A)
Sensitivity	10.05 mV
	50 Hz sinus
Outputs:	
Output signal	3 x 100 mA AC
Rated output current	100 mA AC (for direct connection to 750-494 Phase Power Measurement Module)
Overcurrent	750 A (max. 150 mA per output)

Technical Data

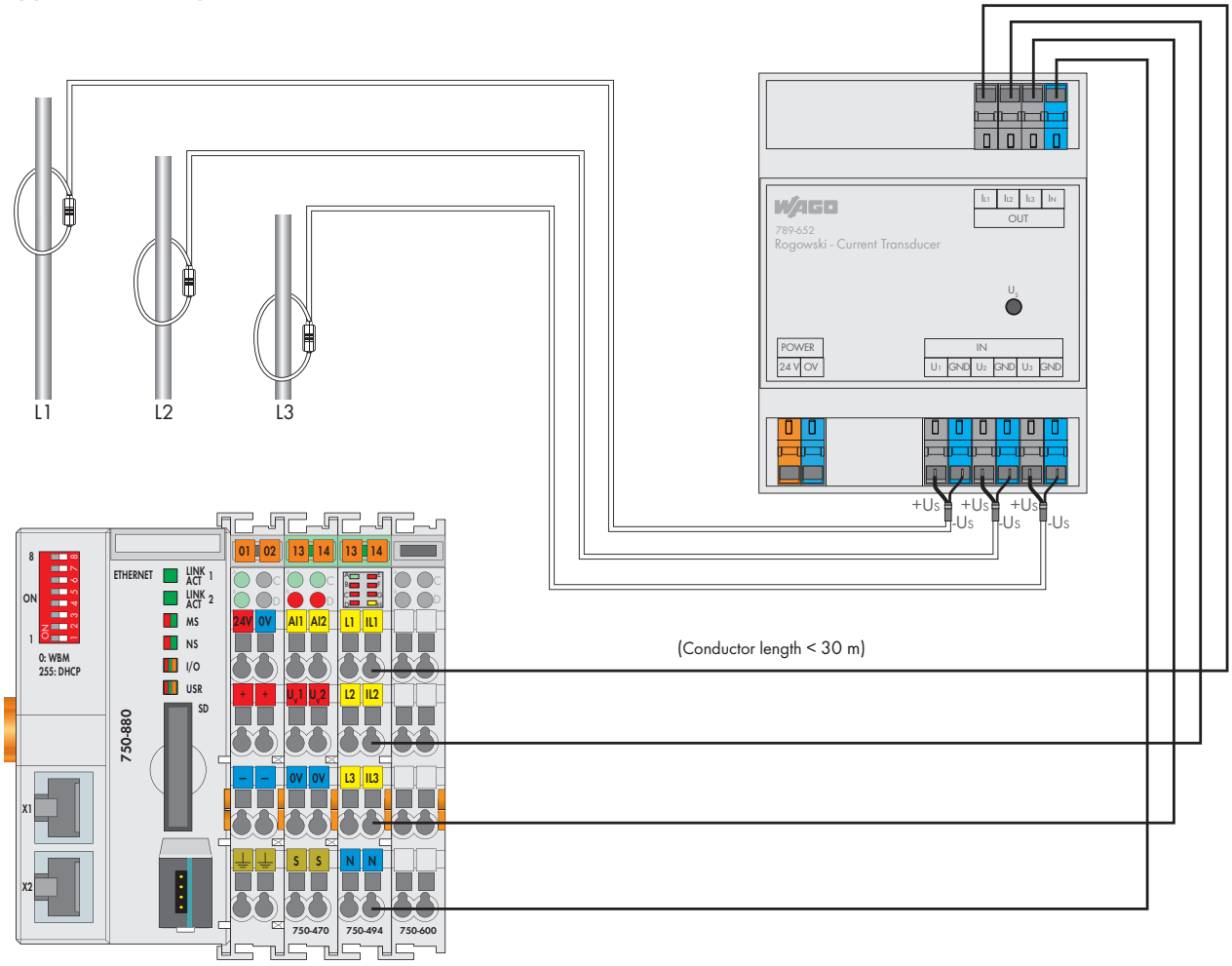
General specifications:	
Supply voltage range	16.8 ... 32 V
Max. power consumption	4000 mW
Operational indication	LED, green
Degree of protection	IP20
Phase error	< 1°
Max. operating frequency	300 Hz (phase accuracy at 50 Hz only)
Linearity	≤ 0.1 %
Temperature coefficient	≤ 0.1 %/K
Transmission error	< 1.1 %
Response threshold	2 A
Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Safety and protection:	
Test voltage	
(input/output/supply)	2.5 kV AC, 50 Hz, 1 min.
Connection and type of mounting:	
Wire connection	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.
Dimensions and weight:	
Dimensions (mm) W x H x L	70 x 55 x 90
Weight	128.4 g
Standards and approvals:	
Conformity marking	CE
UL 508	(pending)

Recommended conductor sizes and lengths: 789-652

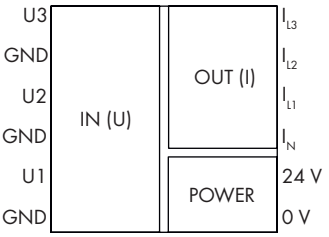
Conductor size in mm²	Conductor length in m							
	1	2	3	5	10	15	20	25
0.14	0.26	0.51	0.77	1.28	2.55	3.83	5.10	6.38
0.34	0.11	0.21	0.32	0.53	1.05	1.58	2.10	2.63
0.5	0.07	0.14	0.21	0.36	0.71	1.07	1.43	1.79
0.75	0.05	0.10	0.14	0.24	0.48	0.71	0.95	1.19
1	0.04	0.07	0.11	0.18	0.36	0.54	0.71	0.89
1.25	0.03	0.06	0.09	0.14	0.29	0.43	0.57	0.71
1.5	0.02	0.05	0.07	0.12	0.24	0.36	0.48	0.60
2.5	0.01	0.03	0.04	0.07	0.14	0.21	0.29	0.36

Conductor resistance in Ω (total value for both outgoing and return conductors)
Recommendation: Select the conductor size so that the conductor resistance is ≤ 0.3 Ω.

Application example:



Current Signal Conditioner for RT 2000 Rogowski Coils



Short description:
The Rogowski Current Signal Conditioner acquires 5–2000A alternating currents in a three-phase system.
The magnetic field produced around each conductor is sensed via three non-contact Rogowski coils and provided as a proportional voltage signal to the signal conditioner. The current signal conditioner adjusts the phase of each of the three voltage signals, converting them into 100mA alternating current signals. These are then transmitted to the 750-494 3-Phase Power Measurement Module.

The 750-494 3-Phase Power Measurement Module within the WAGO-I/O-SYSTEM measures electrical data (e.g., voltages, currents, effective power and energy consumption) in a three-phase supply network. Thus, the user is always able to determine the load condition (imbalance, capacitive components), to optimize consumption and protect machines or systems from damage and breakdowns. Easy installation of Rogowski coils also allows existing systems to be retrofitted without process interruption.

Description	Item No.	Pack. Unit
Signal Conditioner for RT 2000 Rogowski Coils	**789-654**	1

Accessories	Item No.	Pack. Unit
Rogowski Coil RT 2000, 1.5 m output cable	**855-9100/2000-000**	3
Rogowski Coil RT 2000, 3 m output cable	**855-9300/2000-000**	3
3-Phase Power Measurement Module (480V/1A)	**750-494**	1

Technical Data

Input:	
Input signal	3 x RT 2000 (2000 A)
Sensitivity	42.2 mV
	50 Hz sinus
Outputs	
Output signal	3 x 100 mA AC
Rated output current	100 mA AC (for direct connection to
	750-494 Phase Power Measurement
	Module)
Overcurrent	3000 A (max. 150 mA per output)

Technical Data

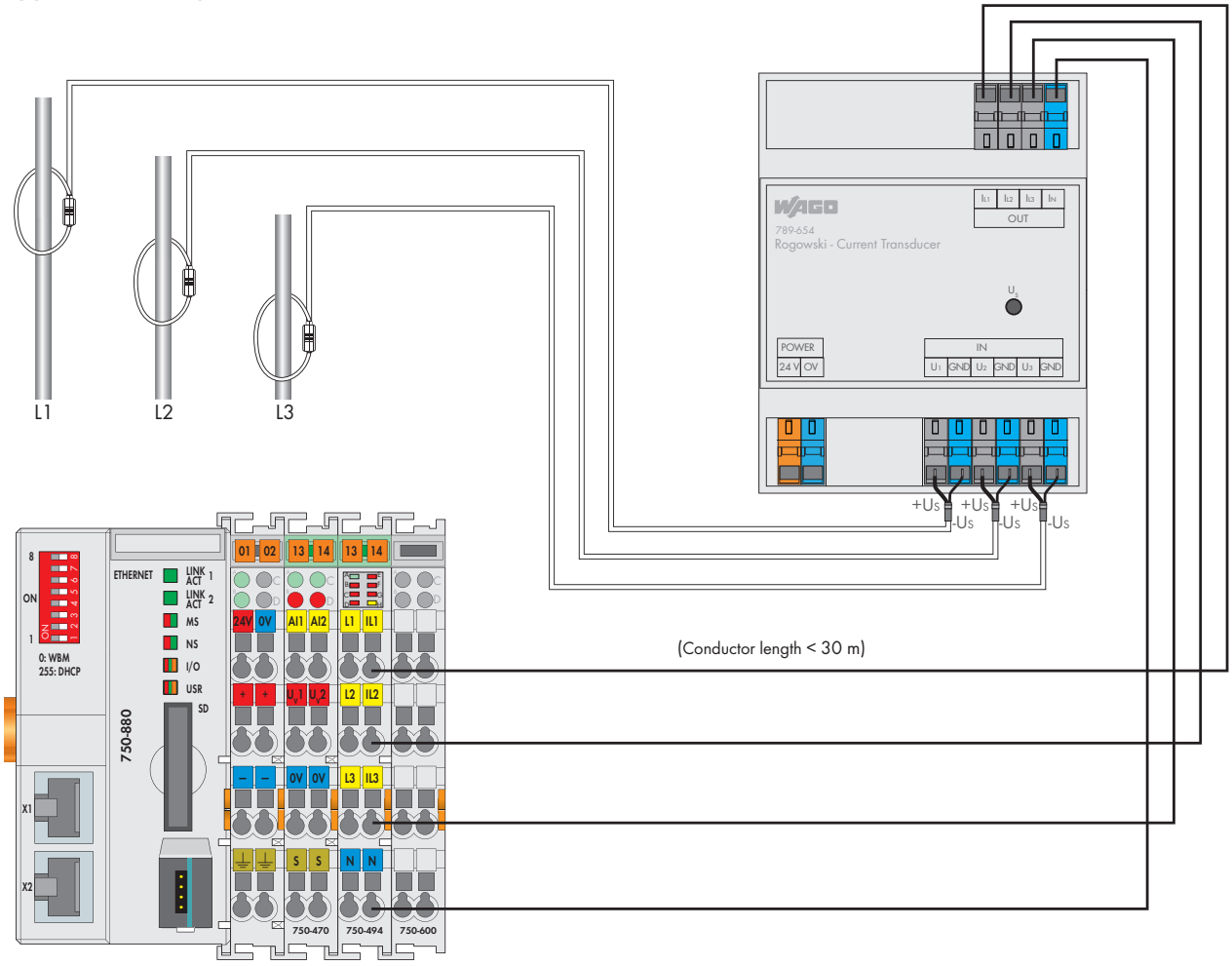
General specifications:	
Supply voltage range	16.8 ... 32 V
Max. power consumption	4000 mW
Operational indication	LED, green
Degree of protection	IP20
Phase error	< 1°
Max. operating frequency	300 Hz (phase accuracy at 50 Hz only)
Linearity	≤ 0.1 %
Temperature coefficient	≤ 0.1 %/K
Transmission error	< 1.1 %
Response threshold	2 A
Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Safety and protection:	
Test voltage	
(input/output/supply)	2.5 kV AC, 50 Hz, 1 min.
Connection and type of mounting:	
Wire connection	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.
Dimensions and weight:	
Dimensions (mm) W x H x L	70 x 55 x 90
Weight	128.3 g
Standards and approvals:	
Conformity marking	CE
cULus UL 508	(pending)

Recommended conductor sizes and lengths: 789-654

Conductor size in mm²	Conductor length in m							
	1	2	3	5	10	15	20	25
0.14	0.26	0.51	0.77	1.28	2.55	3.83	5.10	6.38
0.34	0.11	0.21	0.32	0.53	1.05	1.58	2.10	2.63
0.5	0.07	0.14	0.21	0.36	0.71	1.07	1.43	1.79
0.75	0.05	0.10	0.14	0.24	0.48	0.71	0.95	1.19
1	0.04	0.07	0.11	0.18	0.36	0.54	0.71	0.89
1.25	0.03	0.06	0.09	0.14	0.29	0.43	0.57	0.71
1.5	0.02	0.05	0.07	0.12	0.24	0.36	0.48	0.60
2.5	0.01	0.03	0.04	0.07	0.14	0.21	0.29	0.36

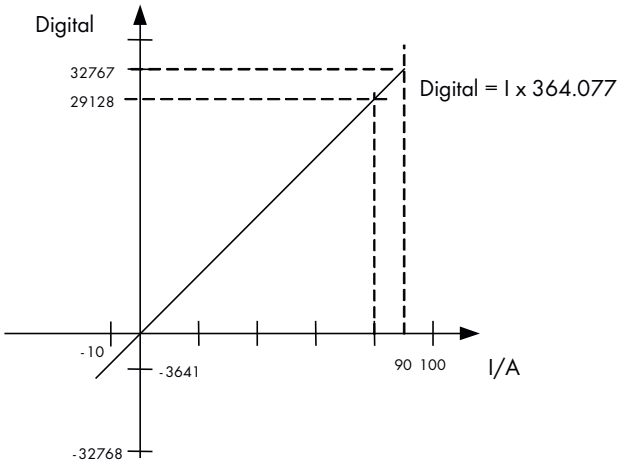
Conductor resistance in Ω (total value for both outgoing and return conductors)
Recommendation: Select the conductor size so that the conductor resistance is ≤ 0.3 Ω.

Application example:



Current Sensor with Bus Connection in DIN-Rail Mountable Enclosure

Measuring range 0 ... 80 A DC



Short description:

Intelligent current sensor for monitoring solar plants or inverters for DC measurements within a large current measuring range.

Description	Item No.	Pack. Unit
Current sensor with bus connection	**789-620**	1

Accessories	Item No.	Pack. Unit
Accessories for data and auxiliary power supply		
RJ-45 interface module	**289-965**	1
RJ-45 interface module with shield (screen) clamping saddle	**289-966**	1
ETHERNET RJ-45 connector, IP20	**750-975**	1

Approvals

Conformity marking	CE
Standards/specifications	DIN EN 50178; EN 61000-6-2 ; EN 61000-6-4

General Specifications

Dimensions (mm) W x H x L	35 x 55 x 90
	Height from upper-edge of DIN 35 rail
Ambient operating temperature	-20°C ... +70°C
Storage temperature	-40 °C ... +85 °C

Technical Data

Electrical data:	
Measuring range	0 ... 80 A DC
Voltage supply	12 ... 34 V
Max. current consumption	≤ 8 mA at 24 V
Transmission error	≤ 0.5 % of upper range value (at room temperature)
Temperature coefficient	0.01 % /K
Time frame for polling by master	< 30 ms
Hot plugging	possible
Terminating resistor	150 Ω (can be activated via DIP switch 1)
Status indication	Green: power
	Red: measured current < -3 A or > 83 A
Mechanical data:	
Power cable feed-through	15 mm
Degree of protection	IP20
Communication:	
Interface	RS-485
Transmission channels	Half duplex 8-bit data, 1 stop bit
Protocols	MODBUS over serial line
Connector	RJ-45
Addressing	1 ... 32
Max. length of bus line	≤ 1200m
Baud rate	19,200 baud
Parity	Even

RJ-45-Connector Pin Assignment:

Pin	Function
1	Ub
2	
3	n.c.
4	A (Data+)
5	B (Data-)
6	n.c.
7	GND
8	

Communication Description:

MODBUS Function	Read Holding Registers (0x03)
Address of Measured Value	0x0004
Data Type Measurement	Integer

Error Numbers:	
id	Description
01	Illegal Function
03	Illegal Data
101	Overflow (Current > +83 A)
102	Underflow (Current < -3 A)

DIP Switch Adjustability

● = ON

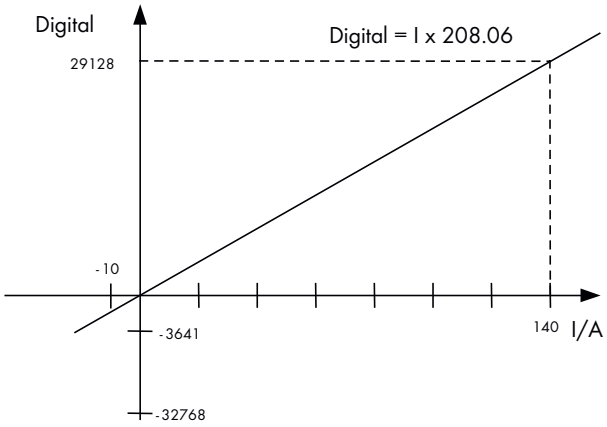
Adress	DIP Switch				
	2	3	4	5	6
1					
2					●
3				●	
4				●	●
5			●		
6			●		●
7			●	●	
8			●	●	●
9		●			
10		●			●
11		●		●	
12		●		●	●
13		●	●		
14		●	●		●
15		●	●	●	
16		●	●	●	●
17	●				
18	●				●
19	●			●	
20	●			●	●
21	●		●		
22	●		●		●
23	●		●	●	
24	●		●	●	●
25	●	●			
26	●	●			●
27	●	●		●	
28	●	●		●	●
29	●	●	●		
30	●	●	●		●
31	●	●	●	●	
32	●	●	●	●	●

Terminating resistor	DIP Switch 1
-	
150 Ohm	●

NOTICE:
Only set the MODBUS address in the OFF state.

Current Sensor with Bus Connection in DIN-Rail Mountable Enclosure

Measuring range: 0 ... 140 A DC



Short description:

Intelligent current sensor for monitoring solar plants or inverters for DC measurements within a large current measuring range.

Description	Item No.	Pack. Unit
Current sensor with bus connection	**789-621**	1

Accessories	Item No.	Pack. Unit
Accessories for data and auxiliary power supply		
RJ-45 interface module	**289-965**	1
RJ-45 interface module with shield (screen) clamping saddle	**289-966**	1
ETHERNET RJ-45 connector, IP20	**750-975**	1

Approvals

Conformity marking	CE
Standards/specifications	DIN EN 50178; EN 61000-6-2 ; EN 61000-6-4

General Specifications

Dimensions (mm) W x H x L	35 x 55 x 90
	Height from upper-edge of DIN 35 rail
Ambient operating temperature	-20 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C

Technical Data

Electrical data:	
Measuring range	0 ... 140 A DC
Voltage supply	12 ... 34 V
Max. current consumption	≤ 8 mA at 24 V
Transmission error	0 ... 80 A: ≤ 0.5% of upper range value (at room temperature); 80 ... 140 A: ≤ 1% of upper range value (at room temperature)
Temperature coefficient	≤ 0.05% /K (at ambient operating temperature: -20 °C ... +60 °C); ≤ 0.1% /K (at ambient operating temperature: +60 °C ... +70 °C)
Time frame for polling by master	< 30 ms
Hot plugging	possible
Terminating resistor	150Ω (can be activated via DIP switch 1)
Status indication	Green: power; Red: measured current < -3A or > 143 A
Mechanical data:	
Power cable feed-through	15 mm
Degree of protection	IP20
Communication:	
Interface	RS-485
Transmission channels	Half duplex, 8-bit data, 1 stop bit
Protocols	MODBUS RTU Slave over serial line
Connector	RJ-45
Addressing	1 ... 32
Max. length of bus line	≤ 1200 m
Baud rate	19200 baud
Parity	Even

789-621

RJ-45-Connector Pin Assignment:

Pin	Function
1	Ub
2	
3	n.c.
4	A (Data+)
5	B (Data-)
6	n.c.
7	GND
8	

Communication Description:

MODBUS Function	Read Holding Registers (0x03)
Address of Measured Value	0x0004
Data Type Measurement	Integer

Error Numbers:	
id	Description
01	Illegal Function
03	Illegal Data
101	Overflow (Current > +83 A)
102	Underflow (Current < -3 A)

DIP Switch Adjustability

● = ON

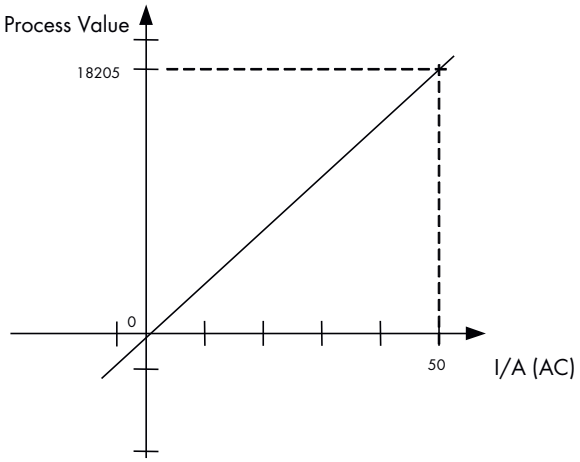
Adress	DIP Switch				
	2	3	4	5	6
1					
2					●
3				●	
4				●	●
5			●		
6			●		●
7			●	●	
8			●	●	●
9		●			
10		●			●
11		●		●	
12		●		●	●
13		●	●		
14		●	●		●
15		●	●	●	
16		●	●	●	●
17	●				
18	●				●
19	●			●	
20	●			●	●
21	●		●		
22	●		●		●
23	●		●	●	
24	●		●	●	●
25	●	●			
26	●	●			●
27	●	●		●	
28	●	●		●	●
29	●	●	●		
30	●	●	●		●
31	●	●	●	●	
32	●	●	●	●	●

Terminating resistor	DIP Switch 1
-	
150 Ohm	●

NOTICE:
Only set the MODBUS address in the OFF state.

Current Sensor with Bus Connection in DIN-Rail Mountable Enclosure

Measuring range: 0 ... 50 A_{rms} AC



Short description:

Intelligent DIN 35-rail mount current sensor
for monitoring AC currents.

Description	Item No.	Pack. Unit
Current sensor with bus connection	**789-622**	1

Accessories	Description	Item No.	Pack. Unit
Accessories for data and auxiliary power supply			
RJ-45 interface module		**289-965**	1
RJ-45 interface module with shield (screen) clamping saddle		**289-966**	1
ETHERNET RJ-45 connector, IP20		**750-975**	1

Approvals

Conformity marking	CE
Standards/specifications	DIN EN 50178; EN 61000-6-2 ; EN 61000-6-4

General Specifications

Dimensions (mm) W x H x L	35 x 55 x 90
	Height from upper-edge of DIN 35 rail
Ambient operating temperature	-20 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C

Technical Data

Electrical data:	
Measuring range	0 ... 50 A_{rms} AC
Voltage supply	12 ... 34 V
Max. current consumption	≤ 8 mA at 24 V
Transmission error	typ. 1%, max. 3% of upper range value (at room temperature)
Temperature coefficient	≤ 0.01% /K
Time frame for polling by master	< 30 ms
Hot plugging	possible
Terminating resistor	150 Ω (can be activated via DIP switch 1)
Status indication	Green: Power
	Red: Measured current > 55 $A_{rmseff.}$
Mechanical data:	
Power cable feed-through	15 mm
Degree of protection	IP20
Communication:	
Interface	RS-485
Transmission channels	Half duplex, 8-bit data, 1 stop bit
Protocols	MODBUS RTU slave over serial line
Connector	RJ-45
Addressing	1 ... 32
Max. length of bus line	≤ 1200 m
Baud rate	19200 baud
Parity	Even

789-622

RJ-45-Connector Pin Assignment:

Pin	Function
1	Ub
2	
3	n.c.
4	A (Data+)
5	B (Data-)
6	n.c.
7	GND
8	

Communication Description:

MODBUS Function	Read Holding Registers (0x03)
Address of Measured Value	0x0004
Data Type Measurement	Integer

Error Numbers:	
id	Description
01	Illegal Function
03	Illegal Data
101	Overflow (Current > +83 A)
102	Underflow (Current < -3 A)

DIP Switch Adjustability

● = ON

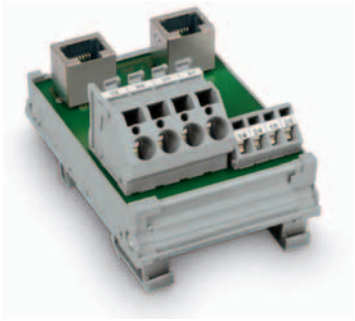
Adress	DIP Switch				
	2	3	4	5	6
1					
2					●
3				●	
4				●	●
5			●		
6			●		●
7			●	●	
8			●	●	●
9		●			
10		●			●
11		●		●	
12		●		●	●
13		●	●		
14		●	●		●
15		●	●	●	
16		●	●	●	●
17	●				
18	●				●
19	●			●	
20	●			●	●
21	●		●		
22	●		●		●
23	●		●	●	
24	●		●	●	●
25	●	●			
26	●	●			●
27	●	●		●	
28	●	●		●	●
29	●	●	●		
30	●	●	●		●
31	●	●	●	●	
32	●	●	●	●	●

Terminating resistor	DIP Switch 1
-	
150 Ohm	●

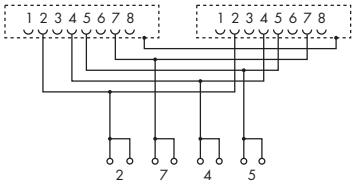
NOTICE:
Only set the MODBUS address in the OFF state.

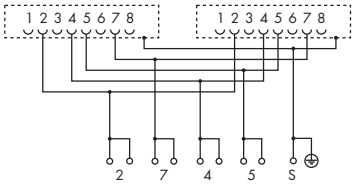
Accessories for 789 Series Current Sensor Modules

	RJ-45 interface module for current sensor modules Mounting carrier for DIN 35 rail	RJ-45 interface module for current sensor modules with shield clamping saddle Mounting carrier for DIN 35 rail



Compatible on the field side with the
789-620, 789-621 and 789-622 Current Sensors.
Required terminal assignment:
2: + Supply
7: - Supply
4: D+
5: D-
For 289-966, direct shield connection to the carrier rail via shield grounding foot.





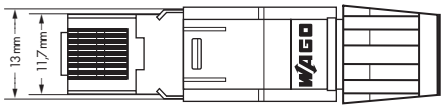
Description	Item No.	Pack. Unit	Item No.	Pack. Unit
RJ-45 interface module	**289-965**	1	**289-966**	1

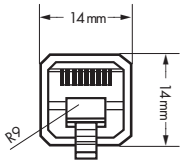
Technical Data

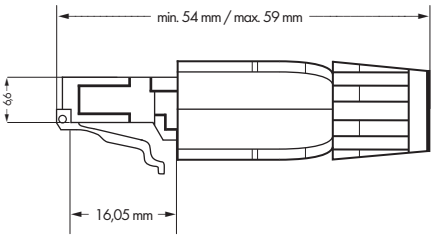
Connecting cable	assembled RJ-45 cable	assembled, shielded RJ-45 cable
	(recommended: UTP)	(recommended: UTP, STP)
Connector	RJ-45, shielded	RJ-45, shielded
Min. mating cycles	500	500
Current load	≤ 1.5 A	≤ 1.5 A
Insulation resistance	> 500 MΩ	> 500 MΩ
Dielectric strength contact-contact	0.5 kV_{rms}	0.5 kV_{rms}
Contact resistance typ.	< 20 mΩ	< 20 mΩ
WAGO shield (screen) clamping saddle		790-124 (included)
Ambient operating temperature	-20°C ... +85°C	-20°C ... +85°C
Dimensions (mm) W x H x L,	40 x 58 x 85	40 x 69 x 85
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	Clamping units 4, 5:	Clamping units 4, 5:
	CAGE CLAMP® (WAGO 236 Series)	CAGE CLAMP® (WAGO 236 Series)
	Clamping units 2, 7:	Clamping units 2, 7:
	CAGE CLAMP® (WAGO 745 Series)	CAGE CLAMP® (WAGO 745 Series)
Cross sections	Clamping units 4, 5:	Clamping units 4, 5:
	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
	(12 AWG: THHN, THWN)	(12 AWG: THHN, THWN)
	Clamping units 2, 7:	Clamping units 2, 7:
	0.2 mm² ... 6 mm² / 24 ... 10 AWG	0.2 mm² ... 6 mm² / 24 ... 10 AWG
Strip lengths	Clamping units 4, 5: 5 ... 6 mm / 0.2 ... 0.24 in.	Clamping units 4, 5: 5 ... 6 mm / 0.2 ... 0.24 in.
	Clamping units 2, 7: 11 ... 12 mm / 0.43 ... 0.47 in.	Clamping units 2, 7: 11 ... 12 mm / 0.43 ... 0.47 in.

ETHERNET RJ-45 Connector, IP20

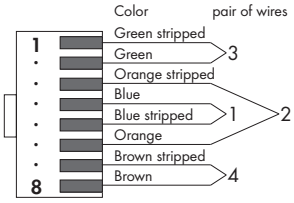
ETHERNET 10/100 Mbits/s; for field assembly







Pin assignment TIA-568A



Versatile RJ-45 connector for industrial, office and building wiring.

The compact RJ-45 uses IDC technology for easy field assembly – connection is made without tools.
The connector is compliant with all required standards. Large conductor cross sections can also be connected.
The connector satisfies Category 5e.

Description	Item No.	Pack. Unit
ETHERNET RJ-45 connector, IP20	**750-975**	1

Technical Data

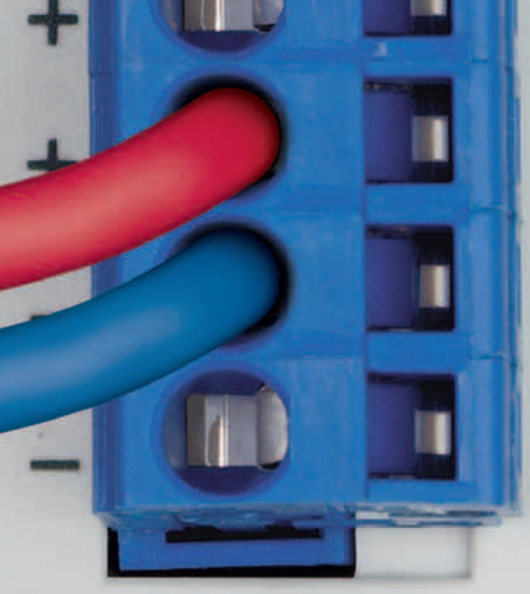
General Specifications	
No. of Poles	8
Contact material	Bronze (CuSn6)
Contact plating	> 1.2 µm gold over 1.2 µm nickel
Insulation material	Connector, polycarbonate (UL-94-V0)
Housing material	Plastic, gray, (UL94-V0)
Mating cycles	min. > 1000
Wire connection	IDC (Insulation Displacement Contact),
IDC surface treatment	Tin-plated, approx. 5 µm
Cross sections	solid:
	0.13 mm² ... 0.24 mm² /
	26/1 ... 23/1 AWG
	stranded:
	0.14 mm² ... 0.36 mm² /
	26/7 ... 22/7 AWG
Admissible insulation Ø	≤ 1.6 mm
Cable jacket Ø	4.5 mm ... 8.0 mm
Wire strain relief	With plastic ribs
Cable strain relief	> 50N
Shield contacting	Large surface >180° (on cable shield)
Shield material	Brass (CuZn), hot-dip tinned 3 µm
Ambient operating temperature	-20°C ... +70°C
Storage temperature	-40 °C ... +70 °C
Degree of protection	IP20

Technical Data

Electrical data:	
Contact resistance	(wire – IDC) < 1 mΩ;
	(strand – IDC) < 5 mΩ
Connector shield	< 20 mΩ
Insulation resistance	(100 V) > 500 MΩ
Dielectric strength	(contact-contact) > 1000 V, 1 min.;
	(shield-contact) > 1500 V, 1 min.
Nominal current	1.75 A / 20 °C
Standards/specifications	- Basic standard:
	IEC 60603-7 RJ-45 Category 5
	- CD ISO/IEC 11801: 2002
	- EN 50173: 2002
	- EIA/TIA 568A: 2002

Approvals

Shipbuilding	see www.wago.com
cULus UL 508	



ADJ.

23-28.5V

INTERFACE

24V
(200mA)

GND

Rx

Tx

Alarm

Charge/
Bat. Mode

DC OK

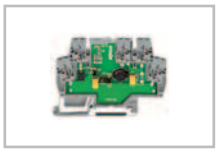
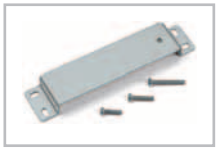
Input
(200mA)

Alarm

Bat. Mode

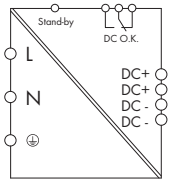
Bat. Charge

EPSITRON® Power Supply System

		Page
	EPSITRON® PRO Power	
	Switched-Mode Power Supplies, 1-Phase, 787 Series	270
	Switched-Mode Power Supplies, 3-Phase, 787 Series	279
	EPSITRON® CLASSIC Power	
	Switched-Mode Power Supplies, 1-Phase, 787 Series	287
	EPSITRON® ECO Power	
	Switched-Mode Power Supplies, 1-Phase, 787 Series	302
	Switched-Mode Power Supplies, 3-Phase, 787 Series	307
	EPSITRON® COMPACT Power	
	Switched-Mode Power Supplies, 1-Phase, 787 Series	310
	**DC/DC Converters**	
	Rail-Mounted Terminal Blocks with DC/DC Converters, 859 Series	318
	EPSITRON® COMPACT Power – DC/DC Converter, 787 Series	320
	Rail-Mounted Modules – DC/DC Converter, 288, 289 Series	322
	EPSITRON® – UPS, Battery Modules and Buffer Modules	
	EPSITRON® UPS Charger and Controller, 787 Series	324
	EPSITRON® Lead-Acid (AGM) Battery Modules, 787 Series	327
	EPSITRON® Capacitive Buffer Modules, 787 Series	331
	Back-Up Capacitor Module, 288 Series	333
	EPSITRON® Redundancy Modules	
	787 Series	334
	EPSITRON® Electronic Circuit Breakers	
	787 Series	338
	Constant Voltage Sources and Power Supplies	
	Rail-Mounted Modules – Constant Voltage Sources, 288, 289 Series	352
	Rail-Mounted Modules – Power Supplies, 288 Series	354
	**Accessories, 787 Series**	
	EPSITRON® Communication Cables, Wall Mount Adapter, Carrier Rail Adapter	358

Switched-Mode Power Supply, 1-Phase

***EPSITRON*® PRO Power**



- Primary switch mode power supply unit with PowerBoost and TopBoost
- Stand-by input for switching off the output and minimizing power consumption
- DC OK contact for output monitoring
- Suitable for both parallel and series operation
- Natural convection cooling when horizontally mounted
- Enclosed for use in switchgear cabinets
- Electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950-1

Description	Item No.	Pack. Unit
Switched-mode power supply, 12 V DC / 6 A	**787-819**	1

Technical Data

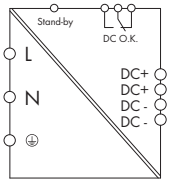
Input:	
Nominal input voltage $V_{i\,nom}$	110 ... 240 VAC
Input voltage range	85 ... 264 VAC; 120 ... 350 VDC
Input voltage derating	-5 % / V AC < 95 VAC
Frequency	50 Hz ... 60 Hz
Input current I_i	0.51 A at 230 VAC and 6 ADC
Discharge current	1 mA typ.
Inrush current	< 30 A (peak)
Mains failure hold-up time	70 ms typ. at 230 VAC
Output:	
Nominal output voltage $V_{o\,nom}$	12 VDC (SELV)
Output voltage range	11 ... 18 VDC adjustable
Output current I_o	6 A at 12 V DC
PowerBoost	12 ADC (for 4 s); 9 ADC (for 8 s)
TopBoost	21 ADC (for 25 ms)
Factory preset	12 VDC
Adjustment accuracy	1%
Residual ripple	< 70 mV (peak-to-peak)
Current limitation	1.1 x Io typ.
Overload behavior	TopBoost / PowerBoost /Constant current
Operational indication	LED green (DC OK), LED red (error)
Signaling	Relay contact DC OK (changeover contact)
Efficiency / power losses:	
Efficiency	83 % typ.
Power loss P_V	0.5 W (stand-by) / 3.0 W (no load) / 9.4 W (rated load)
Fuse protection:	
Internal fuse	T 2 A / 250 V
External fuse	Circuit breakers 6 A, 10 A, 16 A, B or C characteristic; an external DC fuse is required for the DC input voltage

Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-25 °C ... +85 °C
Rel. humidity	5 % ... 96 % (no condensation permissible)
Derating	-3 % / K (> +50 °C)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Test voltage pri.-sec./ pri.-gr. / sec.-gr.	4.2 kV DC / 2.2 kV DC / 0.7 kV DC
Protection class	I
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage category	II
Overvoltage protection	Via varistor at primary circuit
Short circuit protection	Yes
No-load proof	Yes
Feedback voltage	Max. 25 VDC
Parallel operation	Yes
Series connection	Yes
MTBF	> 500000 h (acc. to IEC 61709)
Connection and type of mounting:	
Wire connection	Input/Output: WAGO 231 Series Signalising: WAGO 733 Series
Cross sections	Input/Output: 0.08 mm² ... 2.5 mm² / 28 ... 12 AWG Signalising: 0.08 mm² ... 0.5 mm² / 28 ... 20 AWG
Strip lengths	Input/Output: 8 ... 9 mm / 0.31 ... 0.35 in. Signalising: 5 ... 6 mm / 0.2 ... 0.24 in.
Type of mounting	DIN-rail mounting (EN 60715) in 2 positions
Dimensions and weight:	
Dimensions (mm) W x H x L	40 x 163 x 163 (incl. female connector) Length from upper-edge of DIN 35 rail
Weight	800 g
Standards and approvals:	
Standards/specifications	EN 60950, EN 61204-3, UL 60950, UL 508

Switched-Mode Power Supply, 1-Phase

***EPSITRON*® PRO Power**



- Primary switch mode power supply unit with PowerBoost and TopBoost
- Stand-by input for switching off the output and minimizing power consumption
- DC OK contact for output monitoring
- Suitable for both parallel and series operation
- Natural convection cooling when horizontally mounted
- Enclosed for use in switchgear cabinets
- Electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950-1

Description	Item No.	Pack. Unit
Switched-mode power supply, 12 V DC / 10 A	**787-821**	1

Technical Data

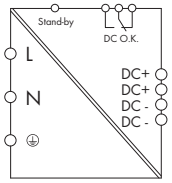
Input:	
Nominal input voltage $V_{i\,nom}$	110 ... 240 VAC
Input voltage range	85 ... 264 VAC; 120 ... 350 VDC
Input voltage derating	-5 % / V AC < 95 VAC
Frequency	50 Hz ... 60 Hz
Input current I_i	0.97 A at 230 VAC and 10 ADC
Discharge current	1 mA typ.
Inrush current	< 30 A (peak)
Mains failure hold-up time	35 ms typ. at 230 VAC
Output:	
Nominal output voltage $V_{o\,nom}$	12 VDC (SELV)
Output voltage range	11 ... 18 VDC adjustable
Output current I_o	10 A at 12 V DC
PowerBoost	20 ADC (for 4 s); 15 ADC (for 8 s)
TopBoost	60 ADC (for 25 ms);
	40 ADC at V_{IN} < 110 VAC (for 25 ms)
Factory preset	12 VDC
Adjustment accuracy	1%
Residual ripple	< 70 mV (peak-to-peak)
Current limitation	1.1 x Io typ.
Overload behavior	TopBoost / PowerBoost /Constant current
Operational indication	LED green (DC OK), LED red (error)
Signaling	Relay contact DC OK (changeover contact)
Efficiency / power losses:	
Efficiency	87.8 % typ.
Power loss P_V	0.5 W (stand-by) / 5.0 W (no load) /
	14.6 W (rated load)
Fuse protection:	
Internal fuse	T 4 A / 250 V
External fuse	Circuit breakers 6 A, 10 A, 16 A,
	B or C characteristic;
	an external DC fuse is required for the DC
	input voltage

Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-25 °C ... +85 °C
Rel. humidity	5 % ... 96 % (no condensation permissible)
Derating	-3 % / K (> +50 °C)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Test voltage pri.-sec./ pri.-gr. / sec.-gr.	4.2 kV DC / 2.2 kV DC / 0.7 kV DC
Protection class	I
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage category	II
Overvoltage protection	Via varistor at primary circuit
Short circuit protection	Yes
No-load proof	Yes
Feedback voltage	Max. 25 VDC
Parallel operation	Yes
Series connection	Yes
MTBF	> 500000 h (acc. to IEC 61709)
Connection and type of mounting:	
Wire connection	Input/Output: WAGO 231 Series
	Signalising: WAGO 733 Series
Cross sections	Input/Output:
	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
	Signalising:
	0.08 mm² ... 0.5 mm² / 28 ... 20 AWG
Strip lengths	Input/Output: 8 ... 9 mm / 0.31 ... 0.35 in.
	Signalising: 8 ... 9 mm / 0.31 ... 0.35 in.
Type of mounting	DIN-rail mounting (EN 60715)
	in 2 positions
Dimensions and weight:	
Dimensions (mm) W x H x L	57 x 163 x 163
	(incl. female connector)
	Length from upper-edge of DIN 35 rail
Weight	1295 g
Standards and approvals:	
Standards/specifications	EN 60950, EN 61204-3, UL 60950,
	UL 508

Switched-Mode Power Supply, 1-Phase

***EPSITRON*® PRO Power**



- Primary switch mode power supply unit with PowerBoost and TopBoost
- Stand-by input for switching off the output and minimizing power consumption
- DC OK contact for output monitoring
- Suitable for both parallel and series operation
- Natural convection cooling when horizontally mounted
- Enclosed for use in switchgear cabinets
- Electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950-1

Description	Item No.	Pack. Unit
Switched-mode power supply, 12 V DC / 15 A	**787-831**	1

Technical Data

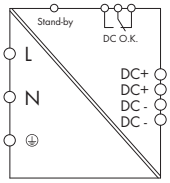
Input:	
Nominal input voltage $V_{i\,nom}$	110 ... 240 VAC
Input voltage range	85 ... 264 VAC; 120 ... 350 VDC
Input voltage derating	-1.5 % / V AC < 110 VAC
Frequency	50 Hz ... 60 Hz
Input current I_i	0.9 A at 230 VAC and 15 ADC
Discharge current	1 mA typ.
Inrush current	< 8 A (active inrush current limitation)
Mains failure hold-up time	30 ms typ. at 230 VAC
Output:	
Nominal output voltage $V_{o\,nom}$	12 VDC (SELV)
Output voltage range	11 ... 18 VDC adjustable
Output current I_o	15 A at 12 VDC
PowerBoost	30 ADC (for 4 s); 22.5 ADC (for 8 s)
TopBoost	55 ADC (for 25 ms)
Factory preset	12 VDC
Adjustment accuracy	1%
Residual ripple	< 70 mV (peak-peak)
Current limitation	1.1 x Io typ.
Overload behavior	TopBoost / PowerBoost /Constant current
Operational indication	LED green (DC OK), LED red (error)
Signaling	Relay contact DC OK (changeover contact)
Efficiency / power losses:	
Efficiency	87 % typ.
Power loss P_V	0.8 W (stand-by) / 4.6 W (no load) / 23.4 W (rated load)
Fuse protection:	
Internal fuse	T 6.3 A / 250 V
External fuse	Circuit breakers 6 A, 10 A, 16 A, B or C characteristic; an external DC fuse is required for the DC input voltage

Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-25 °C ... +85 °C
Rel. humidity	5 % ... 96 % (no condensation permissible)
Derating	-3 % / K (> +50 °C)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Test voltage pri.-sec./ pri.-gr. / sec.-gr.	4.2 kV DC / 2.2 kV DC / 0.7 kV DC
Protection class	I
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage category	II
Overvoltage protection	Via varistor at primary circuit
Short circuit protection	Yes
No-load proof	Yes
Feedback voltage	Max. 25 VDC
Parallel operation	Yes
Series connection	Yes
MTBF	> 500000 h (acc. to IEC 61709)
Connection and type of mounting:	
Wire connection	Input/Output: WAGO 231 Series Signalising: WAGO 733 Series
Cross sections	Input/Output: 0.08 mm² ... 2.5 mm² / 28 ... 12 AWG Signalising: 0.08 mm² ... 0.5 mm² / 28 ... 20 AWG
Strip lengths	Input/Output: 8 ... 9 mm / 0.31 ... 0.35 in. Signalising: 5 ... 6 mm / 0.2 ... 0.24 in.
Type of mounting	DIN-rail mounting (EN 60715) in 2 positions
Dimensions and weight:	
Dimensions (mm) W x H x L	57 x 163 x 179 (incl. female connector) Length from upper-edge of DIN 35 rail
Weight	1480 g
Standards and approvals:	
Standards/specifications	EN 60950, EN 61204-3, UL 60950, UL 508

Switched-Mode Power Supply, 1-Phase

***EPSITRON*® PRO Power**



- Primary switch mode power supply unit with PowerBoost and TopBoost
- Stand-by input for switching off the output and minimizing power consumption
- DC OK contact for output monitoring
- Suitable for both parallel and series operation
- Natural convection cooling when horizontally mounted
- Enclosed for use in switchgear cabinets
- Electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950-1

Description	Item No.	Pack. Unit
Switched-mode power supply, 24 V DC / 3 A	**787-818**	1

Technical Data

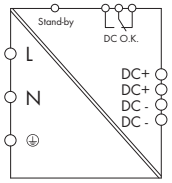
Input:	
Nominal input voltage $V_{i\,nom}$	100 ... 240 VAC
Input voltage range	85 ... 264 VAC; 120 ... 350 VDC
Input voltage derating	-5 % / V AC < 95 VAC
Frequency	50 Hz ... 60 Hz
Input current I_i	0.51 A at 230 VAC and 3 ADC
Discharge current	1 mA typ.
Inrush current	< 30 A (peak)
Mains failure hold-up time	70 ms typ. at 230 VAC
Output:	
Nominal output voltage $V_{o\,nom}$	24 VDC (SELV)
Output voltage range	22 ... 29.5 VDC adjustable
Output current I_o	3 A at 24 VDC
PowerBoost	6 ADC (for 4 s); 4.5A DC(for 8 s)
TopBoost	14 A DC (for 25 ms)
Factory preset	24 VDC
Adjustment accuracy	1%
Residual ripple	< 70 mV (peak-peak)
Current limitation	1.1 x Io typ.
Overload behavior	TopBoost / PowerBoost /Constant current
Operational indication	LED green (DC OK), LED red (error)
Signaling	Relay contact DC OK (changeover contact)
Efficiency / power losses:	
Efficiency	87.8 % typ.
Power loss P_V	0.5 W (stand-by) / 3.0 W (no load) / 8.8 W (rated load)
Fuse protection:	
Internal fuse	T 2 A / 250 V
External fuse	Circuit breakers 6 A, 10 A, 16 A, B or C characteristic; an external DC fuse is required for the DC input voltage

Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-25 °C ... +85 °C
Rel. humidity	5 % ... 96 % (no condensation permissible)
Derating	-3 % / K (> +50 °C)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Test voltage pri.-sec./ pri.-gr. / sec.-gr.	4.2 kV DC / 2.2 kV DC / 0.7 kV DC
Protection class	I
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage category	II
Overvoltage protection	Via varistor at primary circuit
Short circuit protection	Yes
No-load proof	Yes
Feedback voltage	Max. 35 VDC
Parallel operation	Yes
Series connection	Yes
MTBF	> 500000 h (acc. to IEC 61709)
Connection and type of mounting:	
Wire connection	Input/Output: WAGO 231 Series Signalising: WAGO 733 Series
Cross sections	Input/Output: 0.08 mm² ... 2.5 mm² / 28 ... 12 AWG Signalising: 0.08 mm² ... 0.5 mm² / 28 ... 20 AWG
Strip lengths	Input/Output: 8 ... 9 mm / 0.31 ... 0.35 in. Signalising: 5 ... 6 mm / 0.2 ... 0.24 in.
Type of mounting	DIN-rail mounting (EN 60715) in 2 positions
Dimensions and weight:	
Dimensions (mm) W x H x L	40 x 163 x 163 (incl. female connector) Length from upper-edge of DIN 35 rail
Weight	960 g
Standards and approvals:	
Standards/specifications	EN 60950, EN 61204-3, UL 60950, UL 508

Switched-Mode Power Supply, 1-Phase

***EPSITRON*® PRO Power**



- Primary switch mode power supply unit with PowerBoost and TopBoost
- Stand-by input for switching off the output and minimizing power consumption
- DC OK contact for output monitoring
- Suitable for both parallel and series operation
- Natural convection cooling when horizontally mounted
- Enclosed for use in switchgear cabinets
- Electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950-1

Description	Item No.	Pack. Unit
Switched-mode power supply, 24 V DC / 5 A	**787-822**	1

Technical Data

Input:	
Nominal input voltage $V_{i\,nom}$	100 ... 240 VAC
Input voltage range	85 ... 264 VAC; 120 ... 350 VDC
Frequency	50 Hz ... 60 Hz
Input current I_i	0.97 A at 230 VAC and 5 ADC
Discharge current	1 mA typ.
Inrush current	< 15 A
Mains failure hold-up time	35 ms typ. at 230 VAC
Output:	
Nominal output voltage $V_{o\,nom}$	24 VDC (SELV)
Output voltage range	22... 29.5 VDC adjustable
Output current I_o	5 A at 24 VDC
PowerBoost	10 ADC (for 4 sec.);
	7.5 ADC (for another 4 sec.)
TopBoost	21 ADC (for 25 ms)
Factory preset	24 VDC
Adjustment accuracy	1%
Residual ripple	< 70 mV (peak-to-peak)
Current limitation	1.1 x Io typ.
Overload behavior	Constant current
Operational indication	LED green (DC OK), LED red (error)
Signaling	Relay contact DC OK (changeover contact)
Efficiency / power losses:	
Efficiency	87.8 % typ.
Power loss P_V	0.5 W (stand-by) / 5.0 W (no load) /
	14.6 W (rated load)
Fuse protection:	
Internal fuse	T 4 A / 250 V
External fuse	C10 or B16 circuit breakers;
	an external DC fuse is required for the DC
	input voltage;
	transient overvoltage protection: Varistor

Technical Data

Environmental requirements:	
Ambient operating temperature	-25°C ... +70°C
Storage temperature	-25 °C ... +85 °C
Rel. humidity	5 % ... 96 % (no condensation permissible)
Derating	-2.5 % / K (> 55 °C)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Test voltage pri.-sec./ pri.-gr. / sec.-gr.	4.2 kV DC / 2.2 kV DC / 0.7 kV DC
Protection class	I
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage category	II
Overvoltage protection	Via varistor at primary circuit
Short circuit protection	Yes
No-load proof	Yes
Feedback voltage	Max. 35 VDC
Parallel operation	Yes
Series connection	Yes
MTBF	> 500000 h (acc. to IEC 61709)
Connection and type of mounting:	
Wire connection	Input/Output: WAGO 231 Series
	Signalising: WAGO 733 Series
Cross sections	Input/Output:
	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
	Signalising:
	0.08 mm² ... 0.5 mm² / 28 ... 20 AWG
Strip lengths	Input/Output: 8 ... 9 mm / 0.31 ... 0.35 in.
	Signalising: 5 ... 6 mm / 0.2 ... 0.24 in.
Type of mounting	DIN-rail mounting (EN 60715) in
	2 positions
Dimensions and weight:	
Dimensions (mm) W x H x L	57 x 163 x 163
	Length from upper-edge of DIN 35 rail
Weight	1268 g
Standards and approvals:	
Standards/specifications	EN 60950, EN 61204-3, UL 60950,
	UL 508

Switched-Mode Power Supply, 1-Phase

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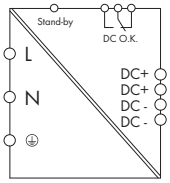


- Primary switch mode power supply unit with PowerBoost and TopBoost
- Stand-by input for switching off the output and minimizing power consumption
- DC OK contact for output monitoring
- Suitable for both parallel and series operation
- Natural convection cooling when horizontally mounted
- Enclosed for use in switchgear cabinets
- Electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950-1

Description	Item No.	Pack. Unit
Switched-mode power supply, 24 V DC / 10 A	**787-832**	1

Technical Data

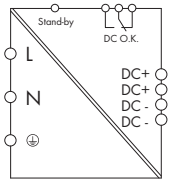
Input:	
Nominal input voltage $V_{i\ nom}$	110 ... 240 VAC
Input voltage range	85 ... 264 VAC; 120 ... 350 VDC
Frequency	50 Hz ... 66 Hz
Input current I_i	1.2 A at 230 VAC and 10 ADC
Discharge current	1mA typ.
Inrush current	≤ Ie (active inrush current limitation)
Mains failure hold-up time	24 ms typ. at 230 VAC
Output:	
Nominal output voltage $V_{o\ nom}$	24 VDC (SELV)
Output voltage range	22... 29.5 VDC adjustable
Output current I_o	10 A at 24 V DC
PowerBoost	20 ADC (for 4 sec.);
	15 ADC (for another 4 sec.)
TopBoost	60 ADC (for 25 ms)
Factory preset	24 VDC
Adjustment accuracy	1%
Residual ripple	< 70 mV (peak-to-peak)
Current limitation	1.1 x Io typ.
Overload behavior	Constant current
Operational indication	LED green (DC OK), LED red (error)
Signaling	Relay contact DC OK (changeover contact)
Efficiency / power losses:	
Efficiency	91.8 % typ.
Power loss P_V	0.8 W (stand-by) / 3.5 W (no load) /
	19.7 W (rated load)
Fuse protection:	
Internal fuse	T 6.3 A / 250 V
External fuse	C10 or B16 circuit breakers;
	an external DC fuse is required for the DC
	input voltage;
	transient overvoltage protection: Varistor

Technical Data

Environmental requirements:	
Ambient operating temperature	-25°C ... +70°C
Storage temperature	-25 °C ... +85 °C
Rel. humidity	5 % ... 96 % (no condensation permissible)
Derating	-3 % / K (> 50 °C)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Test voltage pri.-sec./ pri.-gr. / sec.-gr.	4.2 kV DC / 2.2 kV DC / 0.7 kV DC
Protection class	I
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage category	II
Overvoltage protection	Via varistor at primary circuit
Short circuit protection	Yes
No-load proof	Yes
Feedback voltage	Max. 35 VDC
Parallel operation	Yes
Series connection	Yes
MTBF	> 500000 h (acc. to IEC 61709)
Connection and type of mounting:	
Wire connection	Input/Output: WAGO 231 Series
	Signalising: WAGO 733 Series
Cross sections	Input/Output:
	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
	Signalising:
	0.08 mm² ... 0.5 mm² / 28 ... 20 AWG
Strip lengths	Input/Output: 8 ... 9 mm / 0.31 ... 0.35 in.
	Signalising: 5 ... 6 mm / 0.2 ... 0.24 in.
Type of mounting	DIN-rail mounting (EN 60715) in
	2 positions
Dimensions and weight:	
Dimensions (mm) W x H x L	57 x 163 x 179
	Length from upper-edge of DIN 35 rail
Weight	1485 g
Standards and approvals:	
Standards/specifications	EN 60950, EN 61204-3, UL 60950,
	UL 508

Switched-Mode Power Supply, 1-Phase

***EPSITRON*® PRO Power**



- Primary switch mode power supply unit with PowerBoost and TopBoost
- Stand-by input for switching off the output and minimizing power consumption
- DC OK contact for output monitoring
- Suitable for both parallel and series operation
- Natural convection cooling when horizontally mounted
- Enclosed for use in switchgear cabinets
- Electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950-1

Description	Item No.	Pack. Unit
Switched-mode power supply, 24 V DC / 20 A	**787-834**	1

Technical Data

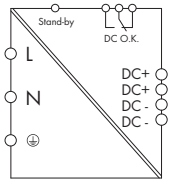
Input:	
Nominal input voltage $V_{i\ nom}$	110 ... 240 VAC
Input voltage range	85 ... 264 VAC; 120 ... 350 VDC
Input voltage derating	-1.5 % / V AC < 110 VAC
Frequency	50 Hz ... 60 Hz
Input current I_i	2.3 A at 230 VAC and 20 ADC
Discharge current	1 mA typ.
Inrush current	< 8 A (active inrush current limitation)
Mains failure hold-up time	25 ms typ. at 230 VAC
Output:	
Nominal output voltage $V_{o\ nom}$	24 VDC (SELV)
Output voltage range	22 ... 29.5 VDC adjustable
Output current I_o	20 A at 24 V DC
PowerBoost	30 ADC (for 4 s); 25 ADC (for 8 s)
TopBoost	80 ADC (for 25 ms)
Factory preset	24 VDC
Adjustment accuracy	1%
Residual ripple	< 70 mV (peak-peak)
Current limitation	1.1 x Io typ.
Overload behavior	TopBoost / PowerBoost /Constant current
Operational indication	LED green (DC OK), LED red (error)
Signaling	Relay contact DC OK (changeover contact)
Efficiency / power losses:	
Efficiency	91 % typ.
Power loss P_V	0.8 W (stand-by) / 4.8 W (no load) / 50.2 W (rated load)
Fuse protection:	
Internal fuse	T 10 A / 250 V
External fuse	Circuit breakers 6 A, 10 A, 16 A, B or C characteristic; an external DC fuse is required for the DC input voltage

Technical Data

Environmental requirements:	
Ambient operating temperature	-25°C ... +70°C
Storage temperature	-25 °C ... +85 °C
Rel. humidity	5 % ... 96 % (no condensation permissible)
Derating	-3 % / K (> +50 °C)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Test voltage pri.-sec./ pri.-gr. / sec.-gr.	4.2 kV DC / 2.2 kV DC / 0.7 kV DC
Protection class	I
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage category	II
Overvoltage protection	Via varistor at primary circuit
Short circuit protection	Yes
No-load proof	Yes
Feedback voltage	Max. 35 VDC
Parallel operation	Yes
Series connection	Yes
MTBF	> 500000 h (acc. to IEC 61709)
Connection and type of mounting:	
Wire connection	Input: WAGO 231 Series Output: WAGO 831 Series Signalising: WAGO 733 Series
Cross sections	Input: 0.08 mm² ... 2.5 mm² / 28 ... 12 AWG Output: 0.5 mm² ... 10 mm² / 20 ... 8 AWG Signalising: 0.08 mm² ... 0.5 mm² / 28 ... 20 AWG
Strip lengths	Input: 8 ... 9 mm / 0.31 ... 0.35 in. Output: 13 ... 15 mm / 0.51 ... 0.59 in. Signalising: 5 ... 6 mm / 0.2 ... 0.24 in.
Type of mounting	DIN-rail mounting (EN 60715) in 2 positions
Dimensions and weight:	
Dimensions (mm) W x H x L	97 x 171 x 187 (incl. female connector) Length from upper-edge of DIN 35 rail
Weight	2300 g
Standards and approvals:	
Standards/specifications	EN 60950, EN 61204-3, UL 60950, UL 508

Switched-Mode Power Supply, 1-Phase

***EPSITRON*® PRO Power**



- Primary switch mode power supply unit with PowerBoost and TopBoost
- Stand-by input for switching off the output and minimizing power consumption
- DC OK contact for output monitoring
- Suitable for both parallel and series operation
- Natural convection cooling when horizontally mounted
- Enclosed for use in switchgear cabinets
- Electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950-1

Description	Item No.	Pack. Unit
Switched-mode power supply, 48 V DC / 5 A	**787-833**	1

Technical Data

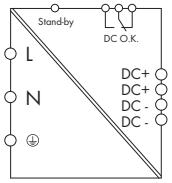
Input:	
Nominal input voltage $V_{i\,nom}$	110 ... 240 VAC
Input voltage range	85 ... 264 VAC; 120 ... 350 VDC
Input voltage derating	-1.5 % / V AC < 110 VAC
Frequency	50 Hz ... 60 Hz
Input current I_i	1.2 A at 230 VAC and 5 ADC
Discharge current	1 mA typ.
Inrush current	< 8 A (active inrush current limitation)
Mains failure hold-up time	20 ms typ. at 230 VAC
Output:	
Nominal output voltage $V_{o\,nom}$	48 VDC (SELV)
Output voltage range	33 ... 52 VDC adjustable
Output current I_o	5 A at 48 V DC
PowerBoost	10 ADC (for 4 s); 7.5 ADC (for 8 s)
TopBoost	30 ADC (for 25 ms)
Factory preset	48 VDC
Adjustment accuracy	1%
Residual ripple	< 70 mV (peak-peak)
Current limitation	1.1 x Io typ.
Overload behavior	TopBoost / PowerBoost /Constant current
Operational indication	LED green (DC OK), LED red (error)
Signaling	Relay contact DC OK (changeover contact)
Efficiency / power losses:	
Efficiency	91 % typ.
Power loss P_V	0.8 W (stand-by) / 7.4 W (no load) / 21.6 W (rated load)
Fuse protection:	
Internal fuse	T 6.3 A / 250 V
External fuse	Circuit breakers 6 A, 10 A, 16 A, B or C characteristic; an external DC fuse is required for the DC input voltage

Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-25 °C ... +85 °C
Rel. humidity	5 % ... 96 % (no condensation permissible)
Derating	-3 % / K (> +50 °C)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Test voltage pri.-sec./ pri.-gr. / sec.-gr.	4.2 kV DC / 2.2 kV DC / 0.7 kV DC
Protection class	I
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage category	II
Overvoltage protection	Via varistor at primary circuit
Short circuit protection	Yes
No-load proof	Yes
Feedback voltage	Max. 63 VDC
Parallel operation	Yes
Series connection	Yes
MTBF	> 500000 h (acc. to IEC 61709)
Connection and type of mounting:	
Wire connection	Input/Output: WAGO 231 Series Signalising: WAGO 733 Series
Cross sections	Input/Output: 0.08 mm² ... 2.5 mm² / 28 ... 12 AWG Signalising: 0.08 mm² ... 0.5 mm² / 28 ... 20 AWG
Strip lengths	Input/Output: 8 ... 9 mm / 0.31 ... 0.35 in. Signalising: 5 ... 6 mm / 0.2 ... 0.24 in.
Type of mounting	DIN-rail mounting (EN 60715) in 2 positions
Dimensions and weight:	
Dimensions (mm) W x H x L	57 x 163 x 179 (incl. female connector) Length from upper-edge of DIN 35 rail
Weight	1475 g
Standards and approvals:	
Standards/specifications	EN 60950, EN 61204-3, UL 60950, UL 508

Switched-Mode Power Supply, 1-Phase

***EPSITRON*® PRO Power**



- Primary switch mode power supply unit with PowerBoost and TopBoost
- Stand-by input for switching off the output and minimizing power consumption
- DC OK contact for output monitoring
- Suitable for both parallel and series operation
- Natural convection cooling when horizontally mounted
- Enclosed for use in switchgear cabinets
- Electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950-1

Description	Item No.	Pack. Unit
Switched-mode power supply, 48 V DC / 10 A	**787-835**	1

Technical Data

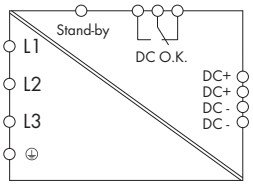
Input:	
Nominal input voltage $V_{i\,nom}$	110 ... 240 VAC
Input voltage range	85 ... 264 VAC; 120 ... 350 VDC
Input voltage derating	-1.5 % / V AC < 110 VAC
Frequency	50 Hz ... 60 Hz
Input current I_i	2.3 A at 230 VAC and 10 ADC
Discharge current	1 mA typ.
Inrush current	< 8 A (active inrush current limitation)
Mains failure hold-up time	20 ms typ. at 230 VAC
Output:	
Nominal output voltage $V_{o\,nom}$	48 VDC (SELV)
Output voltage range	33 ... 52 VDC adjustable
Output current I_o	10 A at 48 V DC
PowerBoost	17.5 ADC (for 4 s); 15 ADC (for 8 s)
TopBoost	60 ADC (for 25 ms)
Factory preset	48 VDC
Adjustment accuracy	1%
Residual ripple	< 70 mV (peak-peak)
Current limitation	1.1 x Io typ.
Overload behavior	TopBoost / PowerBoost /Constant current
Operational indication	LED green (DC OK), LED red (error)
Signaling	Relay contact DC OK (changeover contact)
Efficiency / power losses:	
Efficiency	91 % typ.
Power loss P_V	0.8 W (stand-by) / 4.8 W (no load) / 43.2 W (rated load)
Fuse protection:	
Internal fuse	T 10 A / 250 V
External fuse	Circuit breakers 6 A, 10 A, 16 A, B or C characteristic; an external DC fuse is required for the DC input voltage

Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-25 °C ... +85 °C
Rel. humidity	5 % ... 96 % (no condensation permissible)
Derating	-3 % / K (> +50 °C)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Test voltage pri.-sec./ pri.-gr. / sec.-gr.	4.2 kV DC / 2.2 kV DC / 0.7 kV DC
Protection class	I
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage category	II
Overvoltage protection	Via varistor at primary circuit
Short circuit protection	Yes
No-load proof	Yes
Feedback voltage	Max. 63 VDC
Parallel operation	Yes
Series connection	Yes
MTBF	> 500000 h (acc. to IEC 61709)
Connection and type of mounting:	
Wire connection	Input: WAGO 231 Series Output: WAGO 831 Series Signalising: WAGO 733 Series
Cross sections	Input: 0.08 mm² ... 2.5 mm² / 28 ... 12 AWG Output: 0.5 mm² ... 10 mm² / 20 ... 8 AWG Signalising: 0.08 mm² ... 0.5 mm² / 28 ... 20 AWG
Strip lengths	Input: 8 ... 9 mm / 0.31 ... 0.35 in. Output: 13 ... 15 mm / 0.51 ... 0.59 in. Signalising: 5 ... 6 mm / 0.2 ... 0.24 in.
Type of mounting	DIN-rail mounting (EN 60715) in 2 positions
Dimensions and weight:	
Dimensions (mm) W x H x L	97 x 171 x 187 (incl. female connector) Length from upper-edge of DIN 35 rail
Weight	2460 g
Standards and approvals:	
Standards/specifications	EN 60950, EN 61204-3, UL 60950, UL 508

Switched-Mode Power Supply, 3-Phase

***EPSITRON*® PRO Power**



- Primary switch mode power supply unit with PowerBoost and TopBoost
- Stand-by input for switching off the output and minimizing power consumption
- DC OK contact for output monitoring
- Suitable for both parallel and series operation
- Natural convection cooling when horizontally mounted
- Enclosed for use in switchgear cabinets
- Electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950-1

Description	Item No.	Pack. Unit
Switched-mode power supply, 24 V DC / 10 A	**787-840**	1

Technical Data

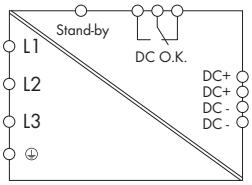
Input:	
Nominal input voltage $V_{i\,nom}$	3x (2x) 400 ... 500 VAC
Input voltage range	340 ... 550 VAC; 480 ... 780 VDC
Frequency	50 Hz ... 60 Hz
Input current I_i	3 x 0.6 A at 340 VAC and 10 ADC
Discharge current	1mA typ.
Inrush current	< 30 A
Mains failure hold-up time	22 ms typ. at 3 x 400 VAC
Output:	
Nominal output voltage $V_{o\,nom}$	24 VDC (SELV)
Output voltage range	22.8 ... 28.8 VDC adjustable
Output current I_o	10 A at 24 V DC
PowerBoost	20 ADC (for 4 s); 15 ADC (for 16 s)
TopBoost	70 ADC (for 50 ms)
Factory preset	24 VDC
Adjustment accuracy	1%
Residual ripple	< 70 mV (peak-to-peak)
Current limitation	1.1 x Io typ.
Overload behavior	Constant current
Operational indication	LED green (DC OK), LED red (error)
Efficiency / power losses:	
Efficiency	91.7 % typ.
Power loss P_V	7.9 W (stand-by) / 19.9 W (rated load)
Fuse protection:	
Internal fuse	3 x T 1.6 A / 250 V
External fuse	3 x circuit breakers 6 A, 10 A, 16 A, B or C characteristic; or motor circuit breakers, setpoint: 1.6 A, setting range: 1.6 ... 2.5 A; an external DC fuse is required for the DC input voltage

Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-25 °C ... +85 °C
Rel. humidity	5 % ... 96 % (no condensation permissible)
Derating	-3 % / K (> 50 °C)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Test voltage pri.-sec./ pri.-gr. / sec.-gr.	4.2 kV DC / 2.2 kV DC / 0.7 kV DC
Protection class	I
Degree of protection	IP20 acc. to EN 60529
Overvoltage category	II
Overvoltage protection	Via varistor at primary circuit
Short circuit protection	Yes
No-load proof	Yes
Feedback voltage	Max. 35 VDC
Parallel operation	Yes
Series connection	Yes
MTBF	> 500000 h (acc. to IEC 61709)
Connection and type of mounting:	
Wire connection	Input/Output: WAGO 231 Series
Cross sections	Input/Output: 0.08 ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	Input/Output: 8 ... 9 mm / 0.31 ... 0.35 in.
Type of mounting	DIN-rail mounting (EN 60715) in 2 positions
Dimensions and weight:	
Dimensions (mm) W x H x L	57 x 163 x 179
	Length from upper-edge of DIN 35 rail
Weight	1000 g
Standards and approvals:	
Standards/specifications	EN 60950, EN 61204-3, UL 60950, UL 508

Switched-Mode Power Supply, 3-Phase

***EPSITRON*® PRO Power**



- Primary switch mode power supply unit with PowerBoost and TopBoost
- Stand-by input for switching off the output and minimizing power consumption
- DC OK contact for output monitoring
- Suitable for both parallel and series operation
- Natural convection cooling when horizontally mounted
- Enclosed for use in switchgear cabinets
- Electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950-1

Description	Item No.	Pack. Unit
Switched-mode power supply, 24 V DC / 20 A	**787-842**	1

Technical Data

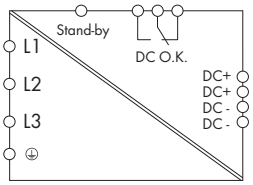
Input:	
Nominal input voltage $V_{i\,nom}$	3x (2x) 400 ... 500 VAC
Input voltage range	340 ... 550 VAC; 480 ... 780 VDC
Frequency	50 Hz ... 60 Hz
Input current I_i	3 x 1.0 A at 340 VAC and 20 ADC
Discharge current	1mA typ.
Inrush current	< 30 A
Mains failure hold-up time	13 ms typ. at 3 x 400 VAC
Output:	
Nominal output voltage $V_{o\,nom}$	24 VDC (SELV)
Output voltage range	22.8 ... 28.8 VDC adjustable
Output current I_o	20 A at 24 VDC
PowerBoost	40 ADC (for 4 s); 30 ADC (for 16 s)
TopBoost	80 ADC (for 50 ms)
Factory preset	24 VDC
Adjustment accuracy	1%
Residual ripple	< 70 mV (peak-to-peak)
Current limitation	1.1 x Io typ.
Overload behavior	Constant current
Operational indication	LED green (DC OK), LED red (error)
Efficiency / power losses:	
Efficiency	92.9 % typ.
Power loss P_V	8.3 W (stand-by) / 34.1 W (rated load)
Fuse protection:	
Internal fuse	3 x T 2.5 A / 250 V
External fuse	3 x circuit breakers 6 A, 10 A, 16 A, B or C characteristic; or motor circuit breakers, setpoint: 2.5 A, setting range: 2.5 ... 4.0 A; an external DC fuse is required for the DC input voltage

Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-25 °C ... +85 °C
Rel. humidity	5 % ... 96 % (no condensation permissible)
Derating	-3 % / K (> 50 °C)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Test voltage pri.-sec./ pri.-gr. / sec.-gr.	4.2 kV DC / 2.2 kV DC / 0.7 kV DC
Protection class	I
Degree of protection	IP20 acc. to EN 60529
Overvoltage category	II
Overvoltage protection	Via varistor at primary circuit
Short circuit protection	Yes
No-load proof	Yes
Feedback voltage	Max. 35 VDC
Parallel operation	Yes
Series connection	Yes
MTBF	> 500000 h (acc. to IEC 61709)
Connection and type of mounting:	
Wire connection	Input: WAGO 231 Series
	Output: WAGO 831 Series
Cross sections	Input:
	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
	Output:
	0.5 mm² ... 10 mm² / 20 ... 8 AWG
Strip lengths	Input: 8 ... 9 mm / 0.31 ... 0.35 in.
	Output: 13 ... 15 mm / 0.51 ... 0.59 in.
Type of mounting	DIN-rail mounting (EN 60715) in 2 positions
Dimensions and weight:	
Dimensions (mm) W x H x L	77 x 171 x 179
	Length from upper-edge of DIN 35 rail
Weight	1300 g
Standards and approvals:	
Standards/specifications	EN 60950, EN 61204-3, UL 60950, UL 508

Switched-Mode Power Supply, 3-Phase

***EPSITRON*® PRO Power**



- Primary switch mode power supply unit with PowerBoost and TopBoost
- Stand-by input for switching off the output and minimizing power consumption
- DC OK contact for output monitoring
- Suitable for both parallel and series operation
- Natural convection cooling when horizontally mounted
- Enclosed for use in switchgear cabinets
- Electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950-1

Description	Item No.	Pack. Unit
Switched-mode power supply, 24 V DC / 40 A	**787-844**	1
Switched-mode power supply, 24 V DC / 40 A, with lateral DIN-rail support	**787-844/000-002**	1

Technical Data

Input:	
Nominal input voltage $V_{i\,nom}$	3x (2x) 400 ... 500 VAC
Input voltage range	340 ... 550 VAC; 480 ... 780 VDC
Frequency	50 Hz ... 60 Hz
Input current I_i	3 x 2.0 A at 340 VAC and 40 ADC
Discharge current	1 mA typ.
Inrush current	< 30 A
Mains failure hold-up time	15 ms typ. at 3 x 400 VAC
Output:	
Nominal output voltage $V_{o\,nom}$	24 VDC (SELV)
Output voltage range	22.8 ... 28.8 VDC adjustable
Output current I_o	40 A at 24 VDC
PowerBoost	60 ADC (for 4 s); 50 ADC (for 16 s)
TopBoost	100 ADC (for 50 ms)
Factory preset	24 VDC
Adjustment accuracy	1%
Residual ripple	< 70 mV (peak-to-peak)
Current limitation	1.1 x Io typ.
Overload behavior	Constant current
Operational indication	LED green (DC OK), LED red (error)
Efficiency / power losses:	
Efficiency	93.6 % typ.
Power loss P_V	7.0 W (stand-by) / 61.5 W (rated load)
Fuse protection:	
Internal fuse	3 x T 3.2 A / 250 V
External fuse	3 x circuit breakers 6 A, 10 A, 16 A, B or C characteristic; or motor circuit breakers, setpoint: 3.2 A, setting range: 2.5 ... 4.0 A; an external DC fuse is required for the DC input voltage

Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-25 °C ... +85 °C
Rel. humidity	5 % ... 96 % (no condensation permissible)
Derating	-5 % / K (45 °C)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Test voltage pri.-sec./ pri.-gr. / sec.-gr.	4.2 kV DC / 2.2 kV DC / 0.7 kV DC
Protection class	I
Degree of protection	IP20 acc. to EN 60529
Overvoltage category	II
Overvoltage protection	Via varistor at primary circuit
Short circuit protection	Yes
No-load proof	Yes
Feedback voltage	Max. 35 VDC
Parallel operation	Yes
Series connection	Yes
MTBF	> 500000 h (acc. to IEC 61709)
Connection and type of mounting:	
Wire connection	Input: WAGO 231 Series
	Output: WAGO 831 Series
Cross sections	Input:
	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
	Output:
	0.5 mm² ... 10 mm² / 20 ... 8 AWG
Strip lengths	Input: 8 ... 9 mm / 0.31 ... 0.35 in.
	Output: 13 ... 15 mm / 0.51 ... 0.59 in.
Type of mounting	DIN-rail mounting (EN 60715) in 2 positions
Dimensions and weight:	
Dimensions (mm) W x H x L	128 x 171 x 205
	Length from upper-edge of DIN 35 rail
Weight	2500 g
Standards and approvals:	
Standards/specifications	EN 60950, EN 61204-3, UL 60950, UL 508

Switched-Mode Power Supply, 3-Phase

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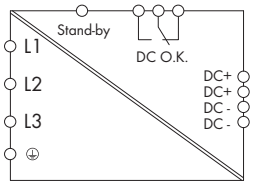


- Primary switch mode power supply unit with PowerBoost and TopBoost
- Stand-by input for switching off the output and minimizing power consumption
- DC OK contact for output monitoring
- Suitable for both parallel and series operation
- Natural convection cooling when horizontally mounted
- Enclosed for use in switchgear cabinets
- Electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950-1

Description	Item No.	Pack. Unit
Switched-mode power supply, 48 V DC / 10 A	**787-845**	1

Technical Data

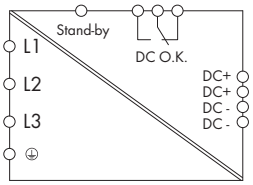
Input:	
Nominal input voltage $V_{i\ nom}$	3x (2x) 400 ... 500 VAC
Input voltage range	340 ... 550 VAC; 480 ... 780 VDC
Frequency	50 Hz ... 60 Hz
Input current I_i	3 x 1.1 A at 340 VAC and 10 ADC
Discharge current	1 mA typ.
Inrush current	< 30 A (peak)
Mains failure hold-up time	12 ms typ. at 3 x 400 VAC
Output:	
Nominal output voltage $V_{o\ nom}$	48 VDC (SELV)
Output voltage range	39 ... 53 VDC adjustable
Output current I_o	10 A at 48 VDC
PowerBoost	15 ADC (for 4 s); 12.5 ADC (for 16 s)
TopBoost	55 ADC (for 50 ms)
Factory preset	48 VDC
Adjustment accuracy	1 %
Residual ripple	< 70 mV (peak-to-peak)
Current limitation	1.1 x Io typ.
Overload behavior	TopBoost / PowerBoost /Constant current
Operational indication	LED green (DC OK), LED red (error)
Efficiency / power losses:	
Efficiency	93 % typ.
Power loss P_V	0.8 W (stand-by) / 8.2 W (no load) / 38 W (rated load)
Fuse protection:	
Internal fuse	3 x T 3.2 A / 250 V
External fuse	3 x circuit breakers 6 A, 10 A, 16 A, B or C characteristic; or motor circuit breakers, setpoint: 2.5 A, setting range: 2.5 ... 4.0 A; an external DC fuse is required for the DC input voltage

Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-25 °C ... +85 °C
Rel. humidity	5 % ... 96 % (no condensation permissible)
Derating	-3 % / K (> +50 °C)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Test voltage pri.-sec./ pri.-gr. / sec.-gr.	4.2 kV DC / 2.2 kV DC / 0.7 kV DC
Protection class	I
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage category	II
Overvoltage protection	Via varistor at primary circuit
Short circuit protection	Yes
No-load proof	Yes
Feedback voltage	Max. 63 VDC
Parallel operation	Yes
Series connection	Yes
MTBF	> 500000 h (acc. to IEC 61709)
Connection and type of mounting:	
Wire connection	Input: WAGO 231 Series Output: WAGO 831 Series Signalising: WAGO 733 Series
Cross sections	Input: 0.08 mm² ... 2.5 mm² / 28 ... 12 AWG Output: 0.5 mm² ... 10 mm² / 20 ... 8 AWG Signalising: 0.08 mm² ... 0.5 mm² / 28 ... 20 AWG
Strip lengths	Input: 8 ... 9 mm / 0.31 ... 0.35 in. Output: 13 ... 15 mm / 0.51 ... 0.59 in. Signalising: 5 ... 6 mm / 0.2 ... 0.24 in.
Type of mounting	DIN-rail mounting (EN 60715) in 2 positions
Dimensions and weight:	
Dimensions (mm) W x H x L	77 x 171 x 179 (incl. female connector) Length from upper-edge of DIN 35 rail
Weight	1900 g
Standards and approvals:	
Standards/specifications	EN 60950, EN 61204-3, UL 60950, UL 508

Switched-Mode Power Supply, 3-Phase

***EPSITRON*® PRO Power**



- Primary switch mode power supply unit with PowerBoost and TopBoost
- Stand-by input for switching off the output and minimizing power consumption
- DC OK contact for output monitoring
- Suitable for both parallel and series operation
- Natural convection cooling when horizontally mounted
- Enclosed for use in switchgear cabinets
- Electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950-1

Description	Item No.	Pack. Unit
Switched-mode power supply, 48 V DC / 20 A	**787-847**	1

Technical Data

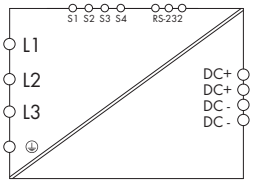
Input:	
Nominal input voltage $V_{i\,nom}$	3x (2x) 400 ... 500 VAC
Input voltage range	340 ... 550 VAC; 480 ... 780 VDC
Frequency	50 Hz ... 60 Hz
Input current I_i	3 x 2.0 A at 340 VAC and 20 ADC
Discharge current	1 mA typ.
Inrush current	< 30 A (peak)
Mains failure hold-up time	15 ms typ. at 3 x 400 VAC
Output:	
Nominal output voltage $V_{o\,nom}$	48 VDC (SELV)
Output voltage range	39 ... 53 VDC adjustable
Output current I_o	20 A at 48 VDC
PowerBoost	30 ADC (for 4 s); 25 ADC (for 16 s)
TopBoost	80 ADC (for 25 ms)
Factory preset	48 VDC
Adjustment accuracy	1%
Residual ripple	< 70 mV (peak-peak)
Current limitation	1.1 x Io typ.
Overload behavior	TopBoost / PowerBoost /Constant current
Operational indication	LED green (DC OK), LED red (error)
Efficiency / power losses:	
Efficiency	94.4 % typ.
Power loss P_v	0.8 W (stand-by) / 5.2 W (no load) / 59.2 W (rated load)
Fuse protection:	
Internal fuse	3 x T 3.2 A / 250 V
External fuse	3 x circuit breakers 6 A, 10 A, 16 A, B or C characteristic; or motor circuit breakers, setpoint: 3.2 A, setting range: 2.5 ... 4.0 A; an external DC fuse is required for the DC input voltage

Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-25 °C ... +85 °C
Rel. humidity	5 % ... 96 % (no condensation permissible)
Derating	-5 % / K (> +45 °C)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Test voltage pri.-sec./ pri.-gr. / sec.-gr.	4.2 kV DC / 2.2 kV DC / 0.7 kV DC
Protection class	I
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage category	II
Overvoltage protection	Via varistor at primary circuit
Short circuit protection	Yes
No-load proof	Yes
Feedback voltage	Max. 63 VDC
Parallel operation	Yes
Series connection	Yes
MTBF	> 500000 h (acc. to IEC 61709)
Connection and type of mounting:	
Wire connection	Input: WAGO 231 Series Output: WAGO 831 Series Signalising: WAGO 733 Series
Cross sections	Input: 0.08 mm² ... 2.5 mm² / 28 ... 12 AWG Output: 0.5 mm² ... 10 mm² / 20 ... 8 AWG Signalising: 0.08 mm² ... 0.5 mm² / 28 ... 20 AWG
Strip lengths	Input: 8 ... 9 mm / 0.31 ... 0.35 in. Output: 13 ... 15 mm / 0.51 ... 0.59 in. Signalising: 5 ... 6 mm / 0.2 ... 0.24 in.
Type of mounting	DIN-rail mounting (EN 60715) in 2 positions
Dimensions and weight:	
Dimensions (mm) W x H x L	128 x 171 x 205 (incl. female connector) Length from upper-edge of DIN 35 rail
Weight	3270 g
Standards and approvals:	
Standards/specifications	EN 60950, EN 61204-3, UL 60950, UL 508

Switched-Mode Power Supply, 3-Phase

***EPSITRON*® PRO Power**



- Primary switch mode power supply unit with PowerBoost and TopBoost
- LineMonitor for parameter setting and monitoring
- RS-232 serial interface
- 4 signal outputs
- Suitable for both parallel and series operation
- Natural convection cooling when horizontally mounted
- Enclosed for use in switchgear cabinets
- Electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950-1

Description	Item No.	Pack. Unit
Switched-mode power supply, 24 V DC / 10 A	**787-850**	1

Technical Data

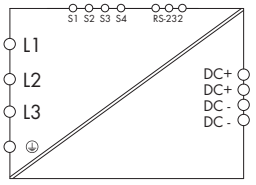
Input:	
Nominal input voltage $V_{i\,nom}$	3x (2x) 400 ... 500 VAC
Input voltage range	340 ... 550 VAC; 480 ... 780 VDC
Frequency	50 Hz ... 60 Hz
Input current I_i	3 x 0.6 A at 340 VAC and 10 ADC
Discharge current	1 mA typ.
Inrush current	< 30 A
Mains failure hold-up time	22 ms typ. at 3 x 400 VAC
Output:	
Nominal output voltage $V_{o\,nom}$	24 VDC (SELV)
Output voltage range	22.8 ... 28.8 VDC adjustable
Output current I_o	10 A at 24 VDC
PowerBoost	20 ADC (for 4 s); 15 ADC (for 16 s)
TopBoost	70 ADC (for 50 ms)
Factory preset	24 VDC
Adjustment accuracy	1%
Residual ripple	< 70 mV (peak-to-peak)
Current limitation	1.1 x Io typ.
Overload behavior	adjustable (constant current / fuse mode)
Operational indication	LED green (DC OK), LED yellow (warning), LED red (error)
Signaling	LED, LCD, 4 x signal output 24 V DC, 25 mA
LineMonitor, parameter setting	via LCD and RS-232 serial interface
Efficiency / power losses:	
Efficiency	91.7 % typ.
Power loss P_V	7.8 W (stand-by) / 19.9 W (rated load)
Fuse protection:	
Internal fuse	3 x T 1.6 A / 250 V
External fuse	3 x circuit breakers 6 A, 10 A, 16 A, B or C characteristic; or motor circuit breakers, setpoint: 1.6 A, setting range: 1.6 ... 2.5 A; an external DC fuse is required for the DC input voltage

Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-25 °C ... +85 °C
Rel. humidity	5 % ... 96 % (no condensation permissible)
Derating	-3 % / K (> 50 °C)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Test voltage pri.-sec./ pri.-gr. / sec.-gr.	4.2 kV DC / 2.2 kV DC / 0.7 kV DC
Protection class	I
Degree of protection	IP20 acc. to EN 60529
Overvoltage category	II
Overvoltage protection	Via varistor at primary circuit
Short circuit protection	Yes
No-load proof	Yes
Feedback voltage	Max. 35 VDC
Parallel operation	Yes
Series connection	Yes
MTBF	> 500000 h (acc. to IEC 61709)
Connection and type of mounting:	
Wire connection	Input/Output: WAGO 231 Series Signalising: WAGO 733 Series
Cross sections	Input/Output: 0.08 mm² ... 2.5 mm² / 28 ... 12 AWG Signalising: 0.08 mm² ... 0.5 mm² / 28 ... 20 AWG
Strip lengths	Input/Output: 8 ... 9 mm / 0.31 ... 0.35 in. Signalising: 5 ... 6 mm / 0.2 ... 0.24 in.
Type of mounting	DIN-rail mounting (EN 60715) in 2 positions
Dimensions and weight:	
Dimensions (mm) W x H x L	57 x 163 x 179 Length from upper-edge of DIN 35 rail
Weight	1000 g
Standards and approvals:	
Standards/specifications	EN 60950, EN 61204-3, UL 60950, UL 508

Switched-Mode Power Supply, 3-Phase

***EPSITRON*® PRO Power**



- Primary switch mode power supply unit with PowerBoost and TopBoost
- LineMonitor for parameter setting and monitoring
- RS-232 serial interface
- 4 signal outputs
- Suitable for both parallel and series operation
- Natural convection cooling when horizontally mounted
- Enclosed for use in switchgear cabinets
- Electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950-1

Description	Item No.	Pack. Unit
Switched-mode power supply, 24 V DC / 20 A	**787-852**	1

Technical Data

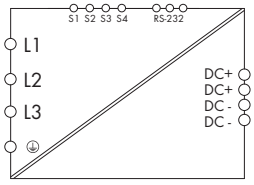
Input:	
Nominal input voltage $V_{i\,nom}$	3x (2x) 400 ... 500 VAC
Input voltage range	340 ... 550 VAC; 480 ... 780 VDC
Frequency	50 Hz ... 60 Hz
Input current I_i	3 x 1.0 A at 340 VAC and 20 ADC
Discharge current	1mA typ.
Inrush current	< 30 A
Mains failure hold-up time	13 ms typ. at 3 x 400 VAC
Output:	
Nominal output voltage $V_{o\,nom}$	24 VDC (SELV)
Output voltage range	22.8 ... 28.8 VDC adjustable
Output current I_o	20 A at 24 VDC
PowerBoost	40 ADC (for 4 s); 30 ADC (for 16 s)
TopBoost	80 ADC (for 50 ms)
Factory preset	24 VDC
Adjustment accuracy	1%
Residual ripple	< 70 mV (peak-to-peak)
Current limitation	1.1 x Io typ.
Overload behavior	adjustable (constant current / fuse mode)
Operational indication	LED green (DC OK), LED yellow (warning), LED red (error)
Signaling	LED, LCD, 4 x signal output 24 V DC, 25 mA
LineMonitor, parameter setting	via LCD and RS-232 serial interface
Efficiency / power losses:	
Efficiency	92.9 % typ.
Power loss P_V	8.3 W (stand-by) / 34.1 W (rated load)
Fuse protection:	
Internal fuse	3 x T 2.5 A / 250 V
External fuse	3 x circuit breakers 6 A, 10 A, 16 A, B or C characteristic; or motor circuit breakers, setpoint: 2.5 A, setting range: 2.5 ... 4.0 A; an external DC fuse is required for the DC input voltage

Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-25 °C ... +85 °C
Rel. humidity	5 % ... 96 % (no condensation permissible)
Derating	-3 % / K (> 50 °C)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Test voltage pri.-sec./ pri.-gr. / sec.-gr.	4.2 kV DC / 2.2 kV DC / 0.7 kV DC
Protection class	I
Degree of protection	IP20 acc. to EN 60529
Overvoltage category	II
Overvoltage protection	Via varistor at primary circuit
Short circuit protection	Yes
No-load proof	Yes
Feedback voltage	Max. 35 VDC
Parallel operation	Yes
Series connection	Yes
MTBF	> 500000 h (acc. to IEC 61709)
Connection and type of mounting:	
Wire connection	Input: WAGO 231 Series Output: WAGO 831 Series Signalising: WAGO 733 Series
Cross sections	Input: 0.08 mm² ... 2.5 mm² / 28 ... 12 AWG Output: 0.5 mm² ... 10 mm² / 20 ... 8 AWG Signalising: 0.08 mm² ... 0.5 mm² / 28 ... 20 AWG
Strip lengths	Input: 8 ... 9 mm / 0.31 ... 0.35 in. Output: 13 ... 15 mm / 0.51 ... 0.59 in. Signalising: 5 ... 6 mm / 0.2 ... 0.24 in.
Type of mounting	DIN-rail mounting (EN 60715) in 2 positions
Dimensions and weight:	
Dimensions (mm) W x H x L	77 x 171 x 179 Length from upper-edge of DIN 35 rail
Weight	1300 g
Standards and approvals:	
Standards/specifications	EN 60950, EN 61204-3, UL 60950, UL 508

Switched-Mode Power Supply, 3-Phase

***EPSITRON*® PRO Power**



- Primary switch mode power supply unit with PowerBoost and TopBoost
- LineMonitor for parameter setting and monitoring
- RS-232 serial interface
- 4 signal outputs
- Parallel operation, series connection possible
- Natural convection cooling when horizontally mounted
- Enclosed for use in switchgear cabinets
- Electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950-1

Description	Item No.	Pack. Unit
Switched-mode power supply, 24 V DC / 40 A	**787-854**	1

Technical Data

Input:	
Nominal input voltage $V_{i\,nom}$	3x (2x) 400 ... 500 VAC
Input voltage range	340 ... 550 VAC; 480 ... 780 VDC
Frequency	50 Hz ... 60 Hz
Input current I_i	3 x 2.0 A at 340 VAC
Discharge current	1mA typ.
Inrush current	< 30 A
Mains failure hold-up time	15 ms typ. at 3 x 400 VAC
Output:	
Nominal output voltage $V_{o\,nom}$	24 VDC (SELV)
Output voltage range	22.8 ... 28.8 VDC adjustable
Output current I_o	40 A at 24 VDC
PowerBoost	60 ADC (for 4 s); 50 ADC (for 16 s)
TopBoost	100 ADC (for 50 ms)
Factory preset	24 VDC
Adjustment accuracy	1%
Residual ripple	< 70 mV (peak-to-peak)
Current limitation	1.1 x Io typ.
Overload behavior	adjustable (constant current / fuse mode)
Operational indication	LED green (DC OK), LED yellow (warning), LED red (error)
Signaling	LED, LCD, 4 x signal output 24 V DC, 25 mA
LineMonitor, parameter setting	via LCD and RS-232 serial interface
Efficiency / power losses:	
Efficiency	93.6 % typ.
Power loss P_V	7.0 W (stand-by) / 61.5 W (rated load)
Fuse protection:	
Internal fuse	3 x T 3.2 A / 250 V
External fuse	3 x circuit breakers 6 A, 10 A, 16 A, B or C characteristic; or motor circuit breakers, setpoint: 3.2 A, setting range: 2.5 ... 4.0 A; an external DC fuse is required for the DC input voltage

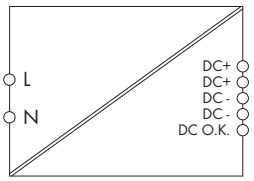
Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +55 °C
Storage temperature	-25 °C ... +85 °C
Rel. humidity	5 % ... 96 % (no condensation permissible)
Derating	-5 % / K (> 45 °C)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Test voltage pri.-sec./ pri.-gr. / sec.-gr.	4.2 kV DC / 2.2 kV DC / 0.7 kV DC
Protection class	I
Degree of protection	IP20 acc. to EN 60529
Overvoltage category	II
Overvoltage protection	Via varistor at primary circuit
Short circuit protection	Yes
No-load proof	Yes
Feedback voltage	Max. 35 VDC
Parallel operation	Yes
Series connection	Yes
MTBF	> 500000 h (acc. to IEC 61709)
Connection and type of mounting:	
Wire connection	Input: WAGO 231 Series Output: WAGO 831 Series Signalising: WAGO 733 Series
Cross sections	Input: 0.08 mm² ... 2.5 mm² / 28 ... 12 AWG Output: 0.5 mm² ... 10 mm² / 20 ... 8 AWG Signalising: 0.08 mm² ... 0.5 mm² / 28 ... 20 AWG
Strip lengths	Input: 8 ... 9 mm / 0.31 ... 0.35 in. Output: 13 ... 15 mm / 0.51 ... 0.59 in. Signalising: 5 ... 6 mm / 0.2 ... 0.24 in.
Type of mounting	DIN-rail mounting (EN 60715) in 2 positions
Dimensions and weight:	
Dimensions (mm) W x H x L	128 x 171 x 205 Length from upper-edge of DIN 35 rail
Weight	2300 g
Standards and approvals:	
Standards/specifications	EN 60950, EN 61204-3, UL 60950, UL 508

Switched-Mode Power Supply, 1-Phase

***EPSITRON*® CLASSIC Power**

Similiar to pictured deviced device



- Primary switch mode power supply unit
- Natural convection cooling when horizontally mounted
- Enclosed for use in switchgear cabinets
- Bounce-free switching signal (DC OK)
- Suitable for both parallel and series operation
- Electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950-1

Description	Item No.	Pack. Unit
Switched-mode power supply, 12 VDC / 2 A	**787-1601**	1

Technical Data

Input:	
Nominal input voltage $V_{i\,nom}$	100 ... 240 VAC
Input voltage range	85 ... 264 VAC; 120 V ... 372 VDC
Input voltage derating	-2.5 % (< 95 VAC)
Frequency	44 Hz ... 66 Hz; 0 Hz
Input current I_i	0.22 A (240 VAC);
	0.45 A (100 VAC)
Inrush current	< 30 A
Mains failure hold-up time	120 ms (230 VAC);
	15 ms (100 VAC)
Output:	
Nominal output voltage $V_{o\,nom}$	12 VDC (SELV)
Output voltage range	11.5 ... 14.5 VDC adjustable
Output current I_o	2 A at 12 VDC (2.1 A up to 40 °C)
Factory preset	12 VDC
Adjustment accuracy	< 1 %
Residual ripple	25 mV (peak-to-peak) typ.
Current limitation	1.1 x I_o typ.
Overload behavior	Constant current
Operational indication	Green LED (V_o)
Signaling	1 x active signal output 12 VDC, 40 mA
Efficiency/Power losses:	
Efficiency	82 % typ.
Power loss P_V	< 0.7 W (230 VAC, no load);
	5.3 W (230 VAC, nominal load)
Max. power loss P_V	5.7 W typ. (100 VAC / 12 VDC, 2 A)
Fuse protection:	
Internal fuse	T 2 A / 250 V
External fuse	Circuit breakers 6 A, 10 A, 16 A,
	B or C characteristic;
	an external DC fuse is required for the DC
	input voltage

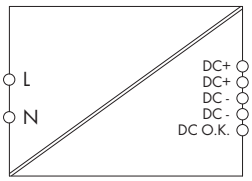
Technical Data

Environmental Requirements:	
Ambient operating temperature	-25 °C ... +70 °C;
	Device start at -40 °C (type-tested)
Storage temperature	-25 °C ... +85 °C
Relative humidity	5 % ... 96 % (no condensation permissible)
Derating	-3 %/K (> 50 °C)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Test voltage pri. - sec.	4.2 kV DC
Protection class	II
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage category	II
Overvoltage protection	Varistor (input side);
	internal protective circuit,
	< 35 VDC (output side in case of an error)
Short circuit protection	Yes
No-load proof	Yes
Feedback voltage	Max. 25 VDC
Parallel operation	Yes
Series connection	Yes
MTBF	> 500,000 h (acc. to IEC 61709)
Connection and type of mounting:	
Wire connection	Input/Output/Signaling:
	WAGO 721 Series
Cross sections	Input/Output/Signaling:
	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	Input/Output/Signaling:
	8 ... 9 mm / 0.31 ... 0.35 in.
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	22.5 x 90 x 107.5
	Length from upper-edge of DIN 35 rail
Weight	128 g
Standards and approvals:	
Standards/specifications	EN 60950-1, EN 61204-3, EN 60335-1,
	UL 60950-1, UL 508, GL

Switched-Mode Power Supply, 1-Phase

***EPSITRON*® CLASSIC Power**

Similiar to pictured device



- Primary switch mode power supply unit
- Natural convection cooling when horizontally mounted
- Enclosed for use in switchgear cabinets
- Bounce-free switching signal (DC OK)
- Suitable for both parallel and series operation
- Electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950-1

Description	Item No.	Pack. Unit
Switched-mode power supply, 12 VDC / 4 A	**787-1611**	1

Technical Data

Input:	
Nominal input voltage $V_{i\ nom}$	100 ... 240 VAC
Input voltage range	85 ... 264 VAC; 120 V ... 372 VDC
Input voltage derating	-2.5 % (< 95 VAC)
Frequency	44 Hz ... 66 Hz; 0 Hz
Input current I_i	0.41 A (240 VAC);
	0.83 A (100 VAC)
Inrush current	< 30 A
Mains failure hold-up time	120 ms (230 VAC);
	15 ms (100 VAC)
Output:	
Nominal output voltage $V_{o\ nom}$	12 VDC (SELV)
Output voltage range	11.5 ... 14.5 VDC adjustable
Output current I_o	4 A at 12 VDC (4.2 A up to 40 °C)
Factory preset	12 VDC
Adjustment accuracy	< 1 %
Residual ripple	30 mV (peak-to-peak) typ.
Current limitation	1.1 x I_o typ.
Overload behavior	Constant current
Operational indication	Green LED (V_o)
Signaling	1 x active signal output 12 VDC, 40 mA
Efficiency/Power losses:	
Efficiency	86 % typ.
Power loss P_V	< 1 W (230 VAC, no load);
	8 W (230 VAC, nominal load)
Max. power loss P_V	9.1 W typ. (100 VAC / 12 VDC, 4 A)
Fuse protection:	
Internal fuse	T 4 A / 250 V
External fuse	Circuit breakers 6 A, 10 A, 16 A,
	B or C characteristic;
	an external DC fuse is required for the DC
	input voltage

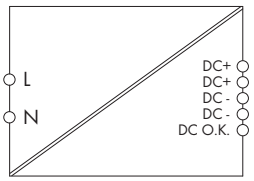
Technical Data

Environmental Requirements:	
Ambient operating temperature	-25 °C ... +70 °C;
	Device start at -40 °C (type-tested)
Storage temperature	-25 °C ... +85 °C
Relative humidity	5 % ... 96 % (no condensation permissible)
Derating	-3 %/K (> 50 °C)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Test voltage pri. - sec.	4.2 kV DC
Protection class	II
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage category	II
Overvoltage protection	Varistor (input side);
	internal protective circuit,
	< 35 VDC (output side in case of an error)
Short circuit protection	Yes
No-load proof	Yes
Feedback voltage	Max. 25 VDC
Parallel operation	Yes
Series connection	Yes
MTBF	> 500,000 h (acc. to IEC 61709)
Connection and type of mounting:	
Wire connection	Input/Output/Signaling:
	WAGO 721 Series
Cross sections	Input/Output/Signaling:
	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	Input/Output/Signaling:
	8 ... 9 mm / 0.31 ... 0.35 in.
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	45 x 90 x 107.5
	Length from upper-edge of DIN 35 rail
Weight	210 g
Standards and approvals:	
Standards/specifications	EN 60950-1, EN 61204-3, EN 60335-1,
	UL 60950-1, UL 508, GL

Switched-Mode Power Supply, 1-Phase

***EPSITRON*® CLASSIC Power**

Similiar to pictured device



- Primary switch mode power supply unit
- Natural convection cooling when horizontally mounted
- Enclosed for use in switchgear cabinets
- Bounce-free switching signal (DC OK)
- Suitable for both parallel and series operation
- Electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950-1

Description	Item No.	Pack. Unit
Switched-mode power supply, 12 VDC / 7 A	**787-1621**	1

Technical Data

Input:	
Nominal input voltage $V_{i\ nom}$	100 ... 240 VAC
Input voltage range	85 ... 264 VAC; 120 V ... 372 VDC
Input voltage derating	-2.5 % (< 95 VAC)
Frequency	44 Hz ... 66 Hz; 0 Hz
Input current I_i	0.7 A (240 VAC);
	1.5 A (100 VAC)
Inrush current	< 30 A
Mains failure hold-up time	100 ms (230 VAC);
	15 ms (100 VAC)
Output:	
Nominal output voltage $V_{o\ nom}$	12 VDC (SELV)
Output voltage range	11.5 ... 14.5 VDC adjustable
Output current I_o	7 A at 12 VDC (7.5 A up to 40 °C)
Factory preset	12 VDC
Adjustment accuracy	< 1 %
Residual ripple	50 mV (peak-to-peak) typ.
Current limitation	1.1 x I_o typ.
Overload behavior	Constant current
Operational indication	Green LED (V_o)
Signaling	1 x active signal output 12 VDC, 40 mA
Efficiency/Power losses:	
Efficiency	85 % typ.
Power loss P_V	< 0.6 W (230 VAC, no load);
	15.2 W (230 VAC, nominal load)
Max. power loss P_V	16.4 W typ. (100 VAC / 12 VDC, 7 A)
Fuse protection:	
Internal fuse	T 4 A / 250 V
External fuse	Circuit breakers 6 A, 10 A, 16 A,
	B or C characteristic;
	an external DC fuse is required for the DC
	input voltage

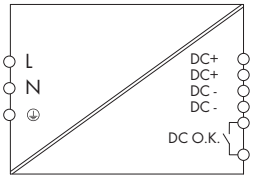
Technical Data

Environmental Requirements:	
Ambient operating temperature	-25 °C ... +70 °C;
	Device start at -40 °C (type-tested)
Storage temperature	-25 °C ... +85 °C
Relative humidity	5 % ... 96 % (no condensation permissible)
Derating	-3 %/K (> 50 °C)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Test voltage pri. - sec.	4.2 kV DC
Protection class	II
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage category	II
Overvoltage protection	Varistor (input side);
	internal protective circuit,
	< 32 VDC (output side in case of an error)
Short circuit protection	Yes
No-load proof	Yes
Feedback voltage	Max. 25 VDC
Parallel operation	Yes
Series connection	Yes
MTBF	> 500,000 h (acc. to IEC 61709)
Connection and type of mounting:	
Wire connection	Input/Output/Signaling:
	WAGO 721 Series
Cross sections	Input/Output/Signaling:
	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	Input/Output/Signaling:
	8 ... 9 mm / 0.31 ... 0.35 in.
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	52 x 90 x 119
	Length from upper-edge of DIN 35 rail
Weight	384 g
Standards and approvals:	
Standards/specifications	EN 60950-1, EN 61204-3, EN 60335-1,
	UL 60950-1, UL 508, GL

Switched-Mode Power Supply, 1-Phase

***EPSITRON*® CLASSIC Power**

Similiar to pictured device



- Primary switch mode power supply unit
- Natural convection cooling when horizontally mounted
- Enclosed for use in switchgear cabinets
- Integrated TopBoost, enabling secondary-side protection via wire breakers
- DC OK contact
- Suitable for both parallel and series operation
- Electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950-1

Description	Item No.	Pack. Unit
Switched-mode power supply, 12 VDC / 15 A	**787-1631**	1

Technical Data

Input:	
Nominal input voltage $V_{i\,nom}$	100 ... 240 VAC
Input voltage range	85 ... 264 VAC; 120 V ... 372 VDC
Input voltage derating	-2.5 % (< 100 VAC)
Frequency	44 Hz ... 66 Hz; 0 Hz
Input current I_i	0.95 A (240 VAC);
	2.07 A (100 VAC)
Discharge current	< 1 mA
Inrush current	< 30 A
Mains failure hold-up time	28 ms (230 VAC);
	28 ms (100 VAC)
Output:	
Nominal output voltage $V_{o\,nom}$	12 VDC (SELV)
Output voltage range	11.5 ... 14.5 VDC adjustable
Output current I_o	15 A at 12 VDC
Factory preset	12 VDC
Adjustment accuracy	< 1 %
Residual ripple	35 mV (peak-to-peak) typ.
Current limitation	1.1 x I_o typ.
Overload behavior	Constant current
Operational indication	Green LED (V_o)
Signaling	DC OK contact;
	(Make contact, max. 30 V AC/DC, 1 A)
Efficiency/Power losses:	
Efficiency	90 % typ.
Power loss P_V	4.4 W (230 VAC, no load);
	21.8 W (230 VAC, nominal load)
Max. power loss P_V	24.7 W typ. (100 VAC / 12 VDC, 15 A)
Fuse protection:	
Internal fuse	T 6.3 A / 250 V
External fuse	Circuit breakers 10 A, 16 A,
	B or C characteristic;
	an external DC fuse is required for the DC
	input voltage

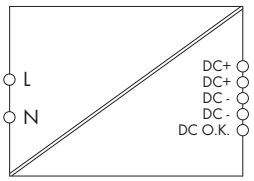
Technical Data

Environmental Requirements:	
Ambient operating temperature	-25 °C ... +70 °C;
	Device start at -40 °C (type-tested)
Storage temperature	-25 °C ... +85 °C
Relative humidity	5 % ... 96 % (no condensation permissible)
Derating	-5 %/K (>60° C, 196 ... 264 VAC);
	-2.5 %/K (>50° C, 85 ... 195 VAC)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Test voltage PRI-SEC/PRI-GND/SEC-GND	4.2 kV DC kV / 2.2 kV DC kV / 0.7 kV DC
Protection class	I
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage category	II
Overvoltage protection	Varistor (input side);
	internal protective circuit,
	< 20 VDC (output side in case of an error)
Short circuit protection	Yes
No-load proof	Yes
Feedback voltage	Max. 25 VDC
Parallel operation	Yes
Series connection	Yes
MTBF	> 500,000 h (acc. to IEC 61709)
Connection and type of mounting:	
Wire connection	Input/Output/Signaling:
	WAGO 721 Series
Cross sections	Input/Output/Signaling:
	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	Input/Output/Signaling:
	8 ... 9 mm / 0.31 ... 0.35 in.
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	55 x 127 x 172
	Length from upper-edge of DIN 35 rail
Weight	930 g
Standards and approvals:	
Standards/specifications	EN 60950-1, EN 61204-3,
	UL 60950-1, UL 508, GL

Switched-Mode Power Supply, 1-Phase

***EPSITRON*® CLASSIC Power**

Similiar to pictured device



- Primary switch mode power supply unit
- Natural convection cooling when horizontally mounted
- Enclosed for use in switchgear cabinets
- Bounce-free switching signal (DC OK)
- Suitable for both parallel and series operation
- Electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950-1

Description	Item No.	Pack. Unit
Switched-mode power supply, 24 VDC/ 1 A	**787-1602**	1

Technical Data

Input:	
Nominal input voltage $V_{i\ nom}$	100 ... 240 VAC
Input voltage range	85 ... 264 VAC; 120 V ... 372 VDC
Input voltage derating	-2.5 % (< 95 VAC)
Frequency	44 Hz ... 66 Hz; 0 Hz
Input current I_i	0.2 A (240 VAC);
	0.43 A (100 VAC)
Inrush current	< 30 A
Mains failure hold-up time	120 ms (230 VAC);
	20 ms (100 VAC)
Output:	
Nominal output voltage $V_{o\ nom}$	24 VDC (SELV)
Output voltage range	23 ... 28.5 VDC adjustable
Output current I_o	1 A at 24 VDC (1.2 A up to 40 °C)
Factory preset	24 VDC
Adjustment accuracy	< 1 %
Residual ripple	20 mV (peak-to-peak) typ.
Current limitation	1.1 x I_o typ.
Overload behavior	Constant current
Operational indication	Green LED (V_o)
Signaling	1 x active signal output 24 VDC, 20 mA
Efficiency/Power losses:	
Efficiency	86 % typ.
Power loss P_V	< 1 W (230 VAC, no load);
	3.9 W (230 VAC, nominal load)
Max. power loss P_V	4.2 W typ. (100 VAC / 24 VDC, 1 A)
Fuse protection:	
Internal fuse	T 2 A / 250 V
External fuse	Circuit breakers 6 A, 10 A, 16 A,
	B or C characteristic;
	an external DC fuse is required for the DC
	input voltage

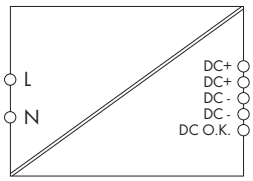
Technical Data

Environmental Requirements:	
Ambient operating temperature	-25 °C ... +70 °C;
	Device start at -40 °C (type-tested)
Storage temperature	-25 °C ... +85 °C
Relative humidity	5 % ... 96 % (no condensation permissible)
Derating	-3 %/K (> 50 °C)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Test voltage pri. - sec.	4.2 kV DC
Protection class	II
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage category	II
Overvoltage protection	Varistor (input side);
	internal protective circuit,
	< 39 VDC (output side in case of an error)
Short circuit protection	Yes
No-load proof	Yes
Feedback voltage	Max. 35 VDC
Parallel operation	Yes
Series connection	Yes
MTBF	> 500,000 h (acc. to IEC 61709)
Connection and type of mounting:	
Wire connection	Input/Output/Signaling:
	WAGO 721 Series
Cross sections	Input/Output/Signaling:
	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	Input/Output/Signaling:
	8 ... 9 mm / 0.31 ... 0.35 in.
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	22.5 x 90 x 107.5
	Length from upper-edge of DIN 35 rail
Weight	128 g
Standards and approvals:	
Standards/specifications	EN 60950-1, EN 61204-3, EN 60335-1,
	UL 60950-1, UL 508, GL

Switched-Mode Power Supply, 1-Phase

***EPSITRON*® CLASSIC Power**

Similiar to pictured device



- Primary switch mode power supply unit
- Natural convection cooling when horizontally mounted
- Enclosed for use in switchgear cabinets
- Bounce-free switching signal (DC OK)
- Suitable for both parallel and series operation
- Electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950-1

Description	Item No.	Pack. Unit
Switched-mode power supply, 24 VDC / 2 A	**787-1606**	1

Technical Data

Input:	
Nominal input voltage $V_{i\ nom}$	100 ... 240 VAC
Input voltage range	85 ... 264 VAC; 120 V ... 372 VDC
Input voltage derating	-2.5 % (< 95 VAC)
Frequency	44 Hz ... 66 Hz; 0 Hz
Input current I_i	0.37 A (240 VAC);
	0.73 A (100 VAC)
Inrush current	< 30 A
Mains failure hold-up time	120 ms (230 VAC);
	20 ms (100 VAC)
Output:	
Nominal output voltage $V_{o\ nom}$	24 VDC (SELV)
Output voltage range	23 ... 28.5 VDC adjustable
Output current I_o	2 A at 24 VDC (2.2 A up to 40 °C)
Factory preset	24 VDC
Adjustment accuracy	< 1 %
Residual ripple	20 mV (peak-to-peak) typ.
Current limitation	1.1 x I_o typ.
Overload behavior	Constant current
Operational indication	Green LED (V_o)
Signaling	1 x active signal output 24 VDC, 20 mA
Efficiency/Power losses:	
Efficiency	89 % typ.
Power loss P_V	< 1 W (230 VAC, no load);
	6 W (230 VAC, nominal load)
Max. power loss P_V	6.6 W typ. (100 VAC / 24 VDC, 2 A)
Fuse protection:	
Internal fuse	T 4 A / 250 V
External fuse	Circuit breakers 6 A, 10 A, 16 A,
	B or C characteristic;
	an external DC fuse is required for the DC
	input voltage

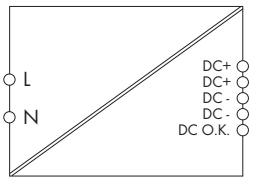
Technical Data

Environmental Requirements:	
Ambient operating temperature	-25 °C ... +70 °C;
	Device start at -40 °C (type-tested)
Storage temperature	-25 °C ... +85 °C
Relative humidity	5 % ... 96 % (no condensation permissible)
Derating	-3 %/K (> 50 °C)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Test voltage pri. - sec.	4.2 kV DC
Protection class	II
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage category	II
Overvoltage protection	Varistor (input side);
	internal protective circuit,
	< 37 VDC (output side in case of an error)
Short circuit protection	Yes
No-load proof	Yes
Feedback voltage	Max. 35 VDC
Parallel operation	Yes
Series connection	Yes
MTBF	> 500,000 h (acc. to IEC 61709)
Connection and type of mounting:	
Wire connection	Input/Output/Signaling:
	WAGO 721 Series
Cross sections	Input/Output/Signaling:
	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	Input/Output/Signaling:
	8 ... 9 mm / 0.31 ... 0.35 in.
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	45 x 90 x 107.5
	Length from upper-edge of DIN 35 rail
Weight	210 g
Standards and approvals:	
Standards/specifications	EN 60950-1, EN 61204-3, EN 60335-1,
	UL 60950-1, UL 508, GL

Switched-Mode Power Supply, 1-Phase

***EPSITRON*® CLASSIC Power**

Similiar to pictured device



- Primary switch mode power supply unit
- Natural convection cooling when horizontally mounted
- Enclosed for use in switchgear cabinets
- Bounce-free switching signal (DC OK)
- Suitable for both parallel and series operation
- Electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950-1

Description	Item No.	Pack. Unit
Switched-mode power supply, 24 VDC / 4 A	**787-1616**	1

Technical Data

Input:	
Nominal input voltage $V_{i\,nom}$	100 ... 240 VAC
Input voltage range	85 ... 264 VAC; 120 V ... 372 VDC
Input voltage derating	-2.5 % (< 95 VAC)
Frequency	44 Hz ... 66 Hz; 0 Hz
Input current I_i	0.66 A (240 VAC);
	1.52 A (100 VAC)
Inrush current	< 30 A
Mains failure hold-up time	80 ms (230 VAC);
	15 ms (100 VAC)
Output:	
Nominal output voltage $V_{o\,nom}$	24 VDC (SELV)
Output voltage range	23 ... 28.5 VDC adjustable
Output current I_o	4 A at 24 VDC (4.2 A up to 40 °C)
Factory preset	24 VDC
Adjustment accuracy	< 1 %
Residual ripple	20 mV (peak-to-peak) typ.
Current limitation	1.1 x I_o typ.
Overload behavior	Constant current
Operational indication	Green LED (V_o)
Signaling	1 x active signal output 24 VDC, 20 mA
Efficiency/Power losses:	
Efficiency	89 % typ.
Power loss P_V	< 1 W (230 VAC, no load);
	12.4 W (230 VAC, nominal load)
Max. power loss P_V	15 W typ. (100 VAC / 24 VDC, 4 A)
Fuse protection:	
Internal fuse	T 4 A / 250 V
External fuse	Circuit breakers 6 A, 10 A, 16 A,
	B or C characteristic;
	an external DC fuse is required for the DC
	input voltage

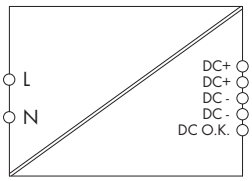
Technical Data

Environmental Requirements:	
Ambient operating temperature	-25 °C ... +70 °C;
	Device start at -40 °C (type-tested)
Storage temperature	-25 °C ... +85 °C
Relative humidity	5 % ... 96 % (no condensation permissible)
Derating	-3 %/K (> 50 °C)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Test voltage pri. - sec.	4.2 kV DC
Protection class	II
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage category	II
Overvoltage protection	Varistor (input side);
	internal protective circuit,
	< 40 VDC (output side in case of an error)
Short circuit protection	Yes
No-load proof	Yes
Feedback voltage	Max. 35 VDC
Parallel operation	Yes
Series connection	Yes
MTBF	> 500,000 h (acc. to IEC 61709)
Connection and type of mounting:	
Wire connection	Input/Output/Signaling:
	WAGO 721 Series
Cross sections	Input/Output/Signaling:
	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	Input/Output/Signaling:
	8 ... 9 mm / 0.31 ... 0.35 in.
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	52 x 90 x 119
	Length from upper-edge of DIN 35 rail
Weight	384 g
Standards and approvals:	
Standards/specifications	EN 60950-1, EN 61204-3, EN 60335-1,
	UL 60950-1, UL 508, GL

Switched-Mode Power Supply, 1-Phase

***EPSITRON*® CLASSIC Power**

Similiar to pictured device



- Primary switch mode power supply unit
- Natural convection cooling when horizontally mounted
- Enclosed for use in switchgear cabinets
- Limited Power Source (LPS) acc. to NEC Class 2
- Bounce-free switching signal (DC OK)
- Suitable for both parallel and series operation
- Electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950-1

Description	Item No.	Pack. Unit
Switched-mode power supply, 24 VDC / 3.8 A LPS	**787-1616/000-1000**	1

Technical Data

Input:	
Nominal input voltage $V_{i\ nom}$	100 ... 240 VAC
Input voltage range	85 ... 264 VAC; 120 V ... 372 VDC
Input voltage derating	-2.5 % (< 95 VAC)
Frequency	44 Hz ... 66 Hz; 0 Hz
Input current I_i	0.7 A (240 VAC);
	1.8 A (100 VAC)
Inrush current	< 30 A
Mains failure hold-up time	80 ms (230 VAC);
	15 ms (100 VAC)
Output:	
Nominal output voltage $V_{o\ nom}$	24 VDC (SELV)
Output voltage range	23 ... 28.5 VDC adjustable
Output current I_o	3.8 A at 24 VDC
Factory preset	24 VDC
Adjustment accuracy	< 1 %
Residual ripple	20 mV (peak-to-peak) typ.
Current limitation	3.8 A (3.2 A at V_o > 25 VDC),
	LPS acc. to NEC Class 2
Overload behavior	Constant current
Operational indication	Green LED (V_o)
Signaling	1 x active signal output 24 VDC, 20 mA
Efficiency/Power losses:	
Efficiency	87 % typ.
Power loss P_V	2.8 W (230 VAC, no load);
	14 W (230 VAC, nominal load)
Max. power loss P_V	< 20 W (100 VAC / 91 W)
Fuse protection:	
Internal fuse	T 4 A / 250 V
External fuse	Circuit breakers 6 A, 10 A, 16 A,
	B or C characteristic;
	an external DC fuse is required for the DC
	input voltage

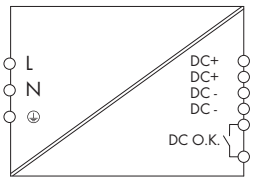
Technical Data

Environmental Requirements:	
Ambient operating temperature	-25 °C ... +70 °C;
	Device start at -40 °C (type-tested)
Storage temperature	-25 °C ... +85 °C
Relative humidity	5 % ... 96 % (no condensation permissible)
Derating	-3 %/K (> 50 °C)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Test voltage pri. - sec.	4.2 kV DC
Protection class	II
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage category	II
Overvoltage protection	Varistor (input side);
	internal protective circuit,
	< 40 VDC (output side in case of an error)
Short circuit protection	Yes
No-load proof	Yes
Feedback voltage	Max. 35 VDC
Parallel operation	Yes
Series connection	Yes
MTBF	> 500,000 h (acc. to IEC 61709)
Connection and type of mounting:	
Wire connection	Input/Output/Signaling:
	WAGO 721 Series
Cross sections	Input/Output/Signaling:
	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	Input/Output/Signaling:
	8 ... 9 mm / 0.31 ... 0.35 in.
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	52 x 90 x 119
	Length from upper-edge of DIN 35 rail
Weight	384 g
Standards and approvals:	
Standards/specifications	EN 60950-1, EN 61204-3, EN 60335-1,
	UL 60950-1, UL 508, UL 1310, GL

Switched-Mode Power Supply, 1-Phase

***EPSITRON*® CLASSIC Power**

Similiar to pictured device



- Primary switch mode power supply unit
- Natural convection cooling when horizontally mounted
- Enclosed for use in switchgear cabinets
- Integrated TopBoost, enabling secondary-side protection via wire breakers
- DC OK contact
- Suitable for both parallel and series operation
- Electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950-1

Description	Item No.	Pack. Unit
Switched-mode power supply, 24 VDC / 5 A	**787-1622**	1

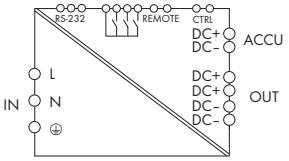
Technical Data

Input:	
Nominal input voltage $V_{i\,nom}$	100 ... 240 VAC
Input voltage range	85 ... 264 VAC; 120 V ... 372 VDC
Input voltage derating	-2.5 % (< 97 VAC)
Frequency	44 Hz ... 66 Hz; 0 Hz
Input current I_i	1.2 A (240 VAC);
	2.25 A (100 VAC)
Discharge current	< 1 mA
Inrush current	< 30 A
Mains failure hold-up time	80 ms (230 VAC);
	10 ms (100 VAC)
Output:	
Nominal output voltage $V_{o\,nom}$	24 VDC (SELV)
Output voltage range	23 ... 28.5 VDC adjustable
Output current I_o	5 A at 24 VDC
Factory preset	24 VDC
Adjustment accuracy	< 1 %
Residual ripple	30 mV (peak-to-peak) typ.
Current limitation	1.1 x I_o typ.
Overload behavior	Constant current
Operational indication	Green LED (V_o)
Signaling	DC OK contact;
	(Make contact, max. 30 V AC/DC, 1 A)
Efficiency/Power losses:	
Efficiency	89 % typ.
Power loss P_V	1.2 W (230 VAC, no load);
	14.6 W (230 VAC, nominal load)
Max. power loss P_V	19.4 W typ. (100 VAC / 24 VDC, 5 A)
Fuse protection:	
Internal fuse	T 4 A / 250 V
External fuse	Circuit breakers 6 A, 10 A, 16 A,
	B or C characteristic;
	an external DC fuse is required for the DC
	input voltage

Technical Data

Environmental Requirements:	
Ambient operating temperature	-25 °C ... +70 °C;
	Device start at -40 °C (type-tested)
Storage temperature	-25 °C ... +85 °C
Relative humidity	5 % ... 96 % (no condensation permissible)
Derating	-5 %/K (>60° C, 196 ... 264 VAC);
	-2.5 %/K (>50° C, 85 ... 195 VAC)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Test voltage PRI-SEC/PRI-GND/SEC-GND	4.2 kV DC kV / 2.2 kV DC kV / 0.7 kV DC
Protection class	I
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage category	II
Overvoltage protection	Varistor (input side);
	internal protective circuit,
	< 41 VDC (output side in case of an error)
Short circuit protection	Yes
No-load proof	Yes
Feedback voltage	Max. 35 VDC
Parallel operation	Yes
Series connection	Yes
MTBF	> 500,000 h (acc. to IEC 61709)
Connection and type of mounting:	
Wire connection	Input/Output/Signaling:
	WAGO 721 Series
Cross sections	Input/Output/Signaling:
	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	Input/Output/Signaling:
	8 ... 9 mm / 0.31 ... 0.35 in.
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	42 x 127 x 137.5
	Length from upper-edge of DIN 35 rail
Weight	590 g
Standards and approvals:	
Standards/specifications	EN 60950-1, EN 61204-3, EN 60335-1,
	UL 60950-1, UL 508, GL

Switched-Mode Power Supply with Integrated UPS Charger and Controller *EPSITRON®*



- Primary switch mode power supply with integrated charger and controller for uninterruptible power supply (UPS)
- Battery control technology for smooth charging and predictive maintenance applications
- Potential-free contacts provide function monitoring
- Buffer time can be set on-site via rotary switch
- Parameter setting and monitoring via RS-232 interface
- Natural convection cooling when horizontally mounted
- Enclosed for use in switchgear cabinets
- Electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950

Description	Item No.	Pack. Unit
Switched-mode power supply, with Integrated UPS Charger and Controller, 24VDC / 5A	**787-1675**	1

Technical Data

Input:	
Nominal input voltage $V_{i\,nom}$	100 ... 240 VAC; 110 ... 370 VDC
Input voltage range	85 ... 264 VAC
Frequency	44 Hz ... 66 Hz; 0 Hz
Input current I_i	1,1 A at 230 VAC and 5 ADC
Discharge current	1 mA typ.
Inrush current	< 30 A
Output:	
Nominal output voltage $V_{o\,nom}$	24 VDC (SELV)
Output voltage range	23.0 ... 28.5 VDC (mains operation)
	18.5 ... 27.5 VDC (battery operation)
Output current I_o	5 A
Adjustment accuracy	1 %
Residual ripple	< 100 mV (peak-peak)
Current limitation	1.1 x Io; TopBoost approx. 24 A
Buffer time	0.5 ...20 min, IPC mode or constant (adjustable)
Switch-on threshold (adjustable)	22 VDC (pre-configured),
	20 ... 25.5 VDC (configurable via
	software)
Final load voltage	26 ... 29.5 VDC temperature-controlled
	(fixed or adjustable)
Charging current	0.3 A ... 0.6 A
Recommended battery modules	787-876, 787-871, 787-872, 787-873
Operational indication	Green LED (DC OK), yellow LED (battery
	mode), red LED (warning/fault)
Signaling	3 x 24 VDC signal output, 25 mA and
	1 x 30 VDC isolated relay contact, 1 A
Remote input	to switch off buffer operation
LineMonitor, parameter setting	via RS-232 serial interface
Efficiency / power losses:	
Efficiency	89 % typ.
Power loss P_V	5.2 W (battery operation, 24 VDC, 5 A) /
	17 W (mains operation,
	230 VAC/24 VDC, 5 A)
Fuse protection:	
Internal fuse	T 4 A / 250 V (input side)
External fuse	Circuit breakers 6 A, 10 A, 16 A,
	B or C characteristic;
	an external DC fuse is required for the DC
	input voltage

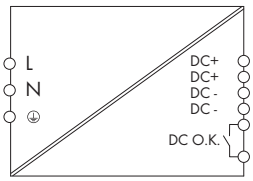
Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C;
	Device start at -40 °C (type-tested)
Storage temperature	-25 °C ... +85 °C
Relative humidity	5 % ... 96 % (no condensation permissible)
Derating	-3 % / K (> +50 °C)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Test voltage	
pri.-sec./pri.-gr./sec.-gr.	4.2 kV DC / 2.2 kV DC / 0.7 kV DC
Protection class	I
Reverse voltage protection	Yes
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage category	II
Feedback voltage	Max. 35 VDC
Parallel operation	Yes, max. 3 battery modules for buffer time
	extension
Connection and type of mounting:	
Wire connection	Input/Output/Signals:
	WAGO 721 Series
	Interface: WAGO 733 Series
Cross sections	Input/Output/Signals: 0
	.5 mm² ... 10 mm² / 20 ... 10 AWG
	Interface:
	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	Input/Output/Signals:
	13 ... 15 mm / 0.51 ... 0.59 in.
	Interface: 8 ... 9 mm / 0.31 ... 0.35 in.
Line length	≤ 3 m (Output, Battery Control)
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	60 x 127 x 135.5
	Length from upper-edge of DIN 35 rail
Weight	885 g
Standards and approvals:	
Standards/specifications	EN 60950, UL 60950, UL 508,
	EN 61204-3, GL

Switched-Mode Power Supply, 1-Phase

***EPSITRON*® CLASSIC Power**

Similiar to pictured device



- Primary switch mode power supply unit
- Natural convection cooling when horizontally mounted
- Enclosed for use in switchgear cabinets
- Integrated TopBoost, enabling secondary-side protection via wire breakers
- DC OK contact
- Suitable for both parallel and series operation
- Electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950-1

Description	Item No.	Pack. Unit
Switched-mode power supply, 24 VDC / 10 A	**787-1632**	1

Technical Data

Input:	
Nominal input voltage $V_{i\,nom}$	100 ... 240 VAC
Input voltage range	85 ... 264 VAC; 120 V ... 372 VDC
Input voltage derating	-2.5 % (< 100 VAC)
Frequency	44 Hz ... 66 Hz; 0 Hz
Input current I_i	1.25 A (240 VAC);
	2.74 A (100 VAC)
Discharge current	< 1 mA
Inrush current	< 30 A
Mains failure hold-up time	17 ms (230 VAC);
	15 ms (100 VAC)
Output:	
Nominal output voltage $V_{o\,nom}$	24 VDC (SELV)
Output voltage range	23 ... 28.5 VDC adjustable
Output current I_o	10 A at 24 VDC
Factory preset	24 VDC
Adjustment accuracy	< 1 %
Residual ripple	50 mV (peak-to-peak) typ.
Current limitation	1.1 x I_o typ.
Overload behavior	Constant current
Operational indication	Green LED (V_o)
Signaling	DC OK contact;
	(Make contact, max. 30 V AC/DC, 1 A)
Efficiency/Power losses:	
Efficiency	91 % typ.
Power loss P_V	6.6 W (230 VAC, no load);
	24.4 W (230 VAC, nominal load)
Max. power loss P_V	31.3 W typ. (100 VAC / 24 VDC, 10 A)
Fuse protection:	
Internal fuse	T 6.3 A / 250 V
External fuse	Circuit breakers 10 A, 16 A,
	B or C characteristic;
	an external DC fuse is required for the DC
	input voltage

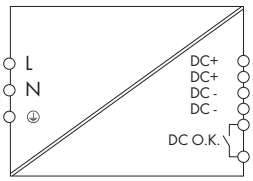
Technical Data

Environmental Requirements:	
Ambient operating temperature	-25 °C ... +70 °C;
	Device start at -40 °C (type-tested)
Storage temperature	-25 °C ... +85 °C
Relative humidity	5 % ... 96 % (no condensation permissible)
Derating	-5 %/K (>60° C, 196 ... 264 VAC);
	-2.5 %/K (>50° C, 85 ... 195 VAC)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Test voltage PRI-SEC/PRI-GND/SEC-GND	4.2 kV DC kV / 2.2 kV DC kV / 0.7 kV DC
Protection class	I
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage category	II
Overvoltage protection	Varistor (input side);
	internal protective circuit,
	< 40 VDC (output side in case of an error)
Short circuit protection	Yes
No-load proof	Yes
Feedback voltage	Max. 35 VDC
Parallel operation	Yes
Series connection	Yes
MTBF	> 500,000 h (acc. to IEC 61709)
Connection and type of mounting:	
Wire connection	Input/Output/Signaling:
	WAGO 721 Series
Cross sections	Input/Output/Signaling:
	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	Input/Output/Signaling:
	8 ... 9 mm / 0.31 ... 0.35 in.
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	55 x 127 x 172
	Length from upper-edge of DIN 35 rail
Weight	930 g
Standards and approvals:	
Standards/specifications	EN 60950-1, EN 61204-3,
	UL 60950-1, UL 508, GL

Switched-Mode Power Supply, 1-Phase

***EPSITRON*® CLASSIC Power**

Similiar to pictured device



- Primary switch mode power supply unit
- Natural convection cooling when horizontally mounted
- Enclosed for use in switchgear cabinets
- Integrated TopBoost, enabling secondary-side protection via wire breakers
- DC OK contact
- Suitable for both parallel and series operation
- Electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950-1

Description	Item No.	Pack. Unit
Switched-mode power supply, 24 VDC / 20 A	**787-1634**	1

Technical Data

Input:	
Nominal input voltage $V_{i\,nom}$	100 ... 240 VAC
Input voltage range	85 ... 264 VAC; 120 V ... 372 VDC
Input voltage derating	-1.8 % (< 105 VAC)
Frequency	44 Hz ... 66 Hz; 0 Hz
Input current I_i	2.23 A (240 VAC);
	5.56 A (100 VAC)
Discharge current	< 1 mA
Inrush current	< 30 A
Mains failure hold-up time	20 ms (230 VAC);
	20 ms (100 VAC)
Output:	
Nominal output voltage $V_{o\,nom}$	24 VDC (SELV)
Output voltage range	23 ... 28.5 VDC adjustable
Output current I_o	20 A at 24 VDC
Factory preset	24 VDC
Adjustment accuracy	< 1 %
Residual ripple	70 mV (peak-to-peak) typ.
Current limitation	1.1 x I_o typ.
Overload behavior	Constant current
Operational indication	Green LED (V_o)
Signaling	DC OK contact;
	(Make contact, max. 30 V AC/DC, 1 A)
Efficiency/Power losses:	
Efficiency	92 % typ.
Power loss P_V	7.0 W (230 VAC, no load);
	40.8 W (230 VAC, nominal load)
Max. power loss P_V	68.3 W typ. (100 VAC / 24 VDC, 20 A)
Fuse protection:	
Internal fuse	T 10 A / 250 V
External fuse	Circuit breakers 10 A, 16 A,
	B or C characteristic;
	an external DC fuse is required for the DC
	input voltage

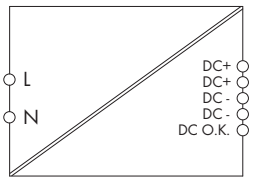
Technical Data

Environmental Requirements:	
Ambient operating temperature	-25 °C ... +70 °C;
	Device start at -40 °C (type-tested)
Storage temperature	-25 °C ... +85 °C
Relative humidity	5 % ... 96 % (no condensation permissible)
Derating	-5 %/K (>60° C, 196 ... 264 VAC);
	-2.5 %/K (>50° C, 85 ... 195 VAC)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Test voltage PRI-SEC/PRI-GND/SEC-GND	4.2 kV DC kV / 2.2 kV DC kV / 0.7 kV DC
Protection class	I
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage category	II
Overvoltage protection	Varistor (input side);
	internal protective circuit,
	< 40 VDC (output side in case of an error)
Short circuit protection	Yes
No-load proof	Yes
Feedback voltage	Max. 35 VDC
Parallel operation	Yes
Series connection	Yes
MTBF	> 500,000 h (acc. to IEC 61709)
Connection and type of mounting:	
Wire connection	Input/Signaling: WAGO 721 Series
	Output: WAGO 831 Series
Cross sections	Input/Signaling:
	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
	Output: 0.5 mm² ... 10 mm² / 20 ... 8 AWG
Strip lengths	Input/Signaling:
	8 ... 9 mm / 0.31 ... 0.35 in.
	Output: 13 ... 15 mm / 0.51 ... 0.59 in.
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	95 x 127 x 170
	Length from upper-edge of DIN 35 rail
Weight	1600 g
Standards and approvals:	
Standards/specifications	EN 60950-1, EN 61204-3,
	UL 60950-1, UL 508, GL

Switched-Mode Power Supply, 1-Phase

***EPSITRON*® CLASSIC Power**

Similiar to pictured device



- Primary switch mode power supply unit
- Natural convection cooling when horizontally mounted
- Enclosed for use in switchgear cabinets
- Bounce-free switching signal (DC OK)
- Suitable for both parallel and series operation
- Electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950-1

Description	Item No.	Pack. Unit
Switched-mode power supply, 48 VDC / 2 A	**787-1623**	1

Technical Data

Input:	
Nominal input voltage $V_{i\,nom}$	100 ... 240 VAC
Input voltage range	85 ... 264 VAC; 120 V ... 372 VDC
Input voltage derating	-2.5 % (< 95 VAC)
Frequency	44 Hz ... 66 Hz; 0 Hz
Input current I_i	0.9 A (240 VAC);
	1.78 A (100 VAC)
Inrush current	< 30 A
Mains failure hold-up time	80 ms (230 VAC);
	15 ms (100 VAC)
Output:	
Nominal output voltage $V_{o\,nom}$	48 VDC (SELV)
Output voltage range	40 ... 56 VDC adjustable
Output current I_o	2 A at 48 VDC (2.1 A up to 40 °C)
Factory preset	48 VDC
Adjustment accuracy	< 1 %
Residual ripple	20 mV (peak-to-peak) typ.
Current limitation	1.1 x I_o typ.
Overload behavior	Constant current
Operational indication	Green LED (V_o)
Signaling	1 x active signal output 48 VDC, 10 mA
Efficiency/Power losses:	
Efficiency	86 % typ.
Power loss P_V	< 1 W (230 VAC, no load);
	16.2 W (230 VAC, nominal load)
Max. power loss P_V	19.8 W typ. (100 VAC / 48 VDC, 2 A)
Fuse protection:	
Internal fuse	T 4 A / 250 V
External fuse	Circuit breakers 6 A, 10 A, 16 A,
	B or C characteristic;
	an external DC fuse is required for the DC
	input voltage

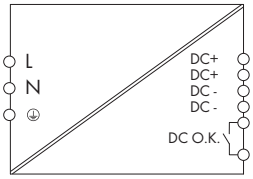
Technical Data

Environmental Requirements:	
Ambient operating temperature	-25 °C ... +70 °C;
	Device start at -40 °C (type-tested)
Storage temperature	-25 °C ... +85 °C
Relative humidity	5 % ... 96 % (no condensation permissible)
Derating	-3 %/K (> 50 °C)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Test voltage pri. - sec.	4.2 kV DC
Protection class	II
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage category	II
Overvoltage protection	Varistor (input side);
	internal protective circuit,
	< 60 VDC (output side in case of an error)
Short circuit protection	Yes
No-load proof	Yes
Feedback voltage	Max. 63 VDC
Parallel operation	Yes
Series connection	Yes
MTBF	> 500,000 h (acc. to IEC 61709)
Connection and type of mounting:	
Wire connection	Input/Output/Signaling:
	WAGO 721 Series
Cross sections	Input/Output/Signaling:
	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	Input/Output/Signaling:
	8 ... 9 mm / 0.31 ... 0.35 in.
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	52 x 90 x 119
	Length from upper-edge of DIN 35 rail
Weight	385 g
Standards and approvals:	
Standards/specifications	EN 60950-1, EN 61204-3, EN 60335-1,
	UL 60950-1, UL 508, GL

Switched-Mode Power Supply, 1-Phase

***EPSITRON*® CLASSIC Power**

Similiar to pictured device



- Primary switch mode power supply unit
- Natural convection cooling when horizontally mounted
- Enclosed for use in switchgear cabinets
- Integrated TopBoost, enabling secondary-side protection via wire breakers
- DC OK contact
- Suitable for both parallel and series operation
- Electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950-1

Description	Item No.	Pack. Unit
Switched-mode power supply, 48 VDC / 5 A	**787-1633**	1

Technical Data

Input:	
Nominal input voltage $V_{i\ nom}$	100 ... 240 VAC
Input voltage range	85 ... 264 VAC; 120 V ... 372 VDC
Input voltage derating	-2.5 % (< 100 VAC)
Frequency	44 Hz ... 66 Hz; 0 Hz
Input current I_i	1.19 A (240 VAC);
	2.68 A (100 VAC)
Discharge current	< 1 mA
Inrush current	< 30 A
Mains failure hold-up time	21 ms (230 VAC);
	21 ms (100 VAC)
Output:	
Nominal output voltage $V_{o\ nom}$	48 VDC (SELV)
Output voltage range	40 ... 56 VDC adjustable
Output current I_o	5 A at 48 VDC
Factory preset	48 VDC
Adjustment accuracy	< 1 %
Residual ripple	30 mV (peak-to-peak) typ.
Current limitation	1.11.1 x I_o typ.
Overload behavior	Constant current
Operational indication	Green LED (V_o)
Signaling	DC OK contact;
	(Make contact, max. 30 V AC/DC, 1 A)
Efficiency/Power losses:	
Efficiency	92 % typ.
Power loss P_V	7 W (230 VAC, no load);
	40.8 W (230 VAC, nominal load)
Max. power loss P_V	26.5 W typ. (100 VAC / 48 VDC, 5 A)
Fuse protection:	
Internal fuse	T 6.3 A / 250 V
External fuse	Circuit breakers 10 A, 16 A,
	B or C characteristic;
	an external DC fuse is required for the DC
	input voltage

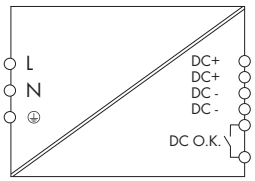
Technical Data

Environmental Requirements:	
Ambient operating temperature	-25 °C ... +70 °C;
	Device start at -40 °C (type-tested)
Storage temperature	-25 °C ... +85 °C
Relative humidity	5 % ... 96 % (no condensation permissible)
Derating	-5 %/K (>60° C, 196 ... 264 VAC);
	-2.5 %/K (>50° C, 85 ... 195 VAC)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Test voltage PRI-SEC/PRI-GND/SEC-GND	4.2 kV DC kV / 2.2 kV DC kV / 0.7 kV DC
Protection class	I
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage category	II
Overvoltage protection	Varistor (input side);
	internal protective circuit,
	< 60 VDC (output side in case of an error)
Short circuit protection	Yes
No-load proof	Yes
Feedback voltage	Max. 63 VDC
Parallel operation	Yes
Series connection	Yes
MTBF	> 500,000 h (acc. to IEC 61709)
Connection and type of mounting:	
Wire connection	Input/Output/Signaling:
	WAGO 721 Series
Cross sections	Input/Output/Signaling:
	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	Input/Output/Signaling:
	8 ... 9 mm / 0.31 ... 0.35 in.
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	55 x 127 x 172
	Length from upper-edge of DIN 35 rail
Weight	930 g
Standards and approvals:	
Standards/specifications	EN 60950-1, EN 61204-3,
	UL 60950-1, UL 508, GL

Switched-Mode Power Supply, 1-Phase

***EPSITRON*® CLASSIC Power**

Similiar to pictured device



- Primary switch mode power supply unit
- Natural convection cooling when horizontally mounted
- Enclosed for use in switchgear cabinets
- Integrated TopBoost, enabling secondary-side protection via wire breakers
- DC OK contact
- Suitable for both parallel and series operation
- Electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950-1

Description	Item No.	Pack. Unit
Switched-mode power supply, 48 VDC / 10 A	**787-1635**	1

Technical Data

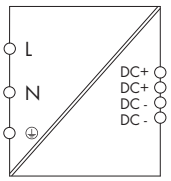
Input:	
Nominal input voltage $V_{i\,nom}$	100 ... 240 VAC
Input voltage range	85 ... 264 VAC; 120 V ... 372 VDC
Input voltage derating	-2.5 % (< 100 VAC)
Frequency	44 Hz ... 66 Hz; 0 Hz
Input current I_i	2.22 A (240 VAC);
	5.15 A (100 VAC)
Discharge current	< 1 mA
Inrush current	< 30 A
Mains failure hold-up time	20 ms (230 VAC);
	20 ms (100 VAC)
Output:	
Nominal output voltage $V_{o\,nom}$	48 VDC (SELV)
Output voltage range	40 ... 56 VDC adjustable
Output current I_o	10 A at 48 VDC
Factory preset	48 VDC
Adjustment accuracy	< 1 %
Residual ripple	80 mV (peak-to-peak) typ.
Current limitation	1.1 x I_o typ.
Overload behavior	Constant current
Operational indication	Green LED (V_o)
Signaling	DC OK contact;
	(Make contact, max. 30 V AC/DC, 1 A)
Efficiency/Power losses:	
Efficiency	93 % typ.
Power loss P_V	11.7 W (230 VAC, no load);
	36.3 W (230 VAC, nominal load)
Max. power loss P_V	64.9 W typ. (100 VAC / 48 VDC, 10 A)
Fuse protection:	
Internal fuse	T 10 A / 250 V
External fuse	Circuit breakers 10 A, 16 A,
	B or C characteristic;
	an external DC fuse is required for the DC
	input voltage

Technical Data

Environmental Requirements:	
Ambient operating temperature	-25 °C ... +70 °C;
	Device start at -40 °C (type-tested)
Storage temperature	-25 °C ... +85 °C
Relative humidity	5 % ... 96 % (no condensation permissible)
Derating	-5 %/K (>60° C, 196 ... 264 VAC);
	-2.5 %/K (>50° C, 85 ... 195 VAC)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Test voltage PRI-SEC/PRI-GND/SEC-GND	4.2 kV DC kV / 2.2 kV DC kV / 0.7 kV DC
Protection class	I
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage category	II
Overvoltage protection	Varistor (input side);
	internal protective circuit,
	< 60 VDC (output side in case of an error)
Short circuit protection	Yes
No-load proof	Yes
Feedback voltage	Max. 63 VDC
Parallel operation	Yes
Series connection	Yes
MTBF	> 500,000 h (acc. to IEC 61709)
Connection and type of mounting:	
Wire connection	Input/Signaling: WAGO 721 Series
	Output: WAGO 831 Series
Cross sections	Input/Signaling:
	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
	Output: 0.5 mm² ... 10 mm² / 20 ... 8 AWG
Strip lengths	Input/Signaling:
	8 ... 9 mm / 0.31 ... 0.35 in.
	Output: 13 ... 15 mm / 0.51 ... 0.59 in.
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	95 x 127 x 170
	Length from upper-edge of DIN 35 rail
Weight	1600 g
Standards and approvals:	
Standards/specifications	EN 60950-1, EN 61204-3,
	UL 60950-1, UL 508, GL

Switched-Mode Power Supply, 1-Phase

***EPSITRON*® ECO Power**



- Primary switch mode power supply unit
- Natural convection cooling when horizontally mounted
- Enclosed for use in switchgear cabinets
- Parallel operation, series connection possible
- Electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950

Description	Item No.	Pack. Unit
Switched-mode power supply, 24 VDC / 2.5 A	**787-712**	1

Technical Data

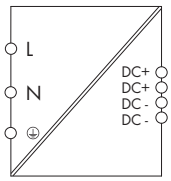
Input:	
Nominal input voltage $V_{i\,nom}$	110 ... 240 VAC
Input voltage range	85 ... 264 VAC; 130 ... 373 VDC
Frequency	47 Hz ... 63 Hz
Input current I_i	0.7 A typ. at 230 VAC;
	1.2 A at 115 VAC
Discharge current	< 1 mA
Inrush current	< 30 A
Mains failure hold-up time	> 20 ms at 230 VAC
Output:	
Nominal output voltage $V_{o\,nom}$	24 VDC (SELV)
Output voltage range	22 ... 28 VDC adjustable
Output current I_o	2.5 A at 24 V DC
Factory preset	24 VDC
Adjustment accuracy	1%
Residual ripple	< 100 mV (peak-to-peak) to 20 MHz
Overload behavior	Constant power (in overload range:
	1.15 ... 1.4 x Ia); shutdown and automatic
	restart in the event of a short circuit
Operational indication	LED green (24 V DC OK),
	LED red (overload)
Efficiency / power losses:	
Efficiency	82 % typ.
Power loss P_V	8.3 W (at 230 VAC and 2.5 ADC)
Max. power loss P_V	11.5 W (at 110 VAC and 2.75 ADC)
Fuse protection:	
Internal fuse	F 2.5 A / 250 V
External fuse	Circuit breakers 10 A, 16 A,
	B or C characteristic;
	an external DC fuse is required for the DC
	input voltage

Technical Data

Environmental requirements:	
Ambient operating temperature	-10 °C ... +70°C
Storage temperature	-25 °C ... +85 °C
Rel. humidity	95 % (no condensation permissible)
Derating	-3.3 % / K (> 55 °C at 230 VAC)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Test voltage pri.-sec./ pri.-gr. / sec.-gr.	3 kV AC / 1.5 kV AC / 0.5 kV AC
Protection class	I
Degree of protection	IP20 acc. to EN 60529
Overvoltage category	II
Overvoltage protection	Via varistor at primary circuit
Short circuit protection	Yes
No-load proof	Yes
Feedback voltage	28 VDC
Parallel operation	Yes
Series connection	Yes
MTBF	480000 h (acc. IEC 61709)
Connection and type of mounting:	
Wire connection	CAGE CLAMP® (WAGO 745 Series)
Cross sections	0.08 ... 4 mm² / 28 ... 12 AWG
	(12 AWG: THHN, THWN)
Strip lengths	8 ... 9 mm / 0.31 ... 0.35 in.
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	50 x 92 x 136
	Length from upper-edge of DIN 35 rail
Weight	596 g
Standards and approvals:	
Standards/specifications	EN 60950, EN 61000-6-2,
	EN 61000-6-3, UL 60950, UL 508,
	ANSI/ISA 12.12.01 (Class I Div.2),
	ATEX, IEC Ex

Switched-Mode Power Supply, 1-Phase

***EPSITRON*® ECO Power**



- Primary switch mode power supply unit
- Natural convection cooling when horizontally mounted
- Enclosed for use in switchgear cabinets
- Parallel operation, series connection possible
- Electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950

Description	Item No.	Pack. Unit
Switched-mode power supply, 24 VDC / 5 A	**787-722**	1

Technical Data

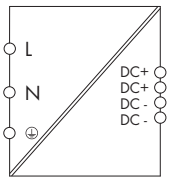
Input:	
Nominal input voltage $V_{i\,nom}$	110 ... 240 VAC
Input voltage range	85 ... 264 VAC; 130 ... 373 VDC
Frequency	47 Hz ... 63 Hz
Input current I_i	1.0 A typ. at 230 VAC;
	2.0 A at 115 VAC
Discharge current	< 3.5mA
Inrush current	< 30 A
Mains failure hold-up time	> 20 ms at 230 VAC
Output:	
Nominal output voltage $V_{o\,nom}$	24 VDC (SELV)
Output voltage range	22 ... 28 VDC adjustable
Output current I_o	5 A at 24 V DC
Factory preset	24 VDC
Adjustment accuracy	1%
Residual ripple	< 100 mV (peak-to-peak) to 20 MHz
Overload behavior	Constant power (in overload range:
	1.15 ... 1.4 x Ia); shutdown and automatic
	restart in the event of a short circuit
Operational indication	LED green (24 V DC OK),
	LED red (overload)
Efficiency / power losses:	
Efficiency	82 % typ.
Power loss P_V	19.5 W (at 230 VAC and 5 ADC)
Max. power loss P_V	23.5 W (at 110 VAC and 5.5 ADC)
Fuse protection:	
Internal fuse	F 3.15 A / 250 V
External fuse	Circuit breakers 10 A, 16 A,
	B or C characteristic;
	an external DC fuse is required for the DC
	input voltage

Technical Data

Environmental requirements:	
Ambient operating temperature	-10 °C ... +60 °C
Storage temperature	-25 °C ... +85 °C
Rel. humidity	95 % (no condensation permissible)
Derating	-5.33 % / K (> 45 °C at 230 VAC)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Test voltage pri.-sec./ pri.-gr. / sec.-gr.	3 kV AC / 1.5 kV AC / 0.5 kV AC
Protection class	I
Degree of protection	IP20 acc. to EN 60529
Overvoltage category	II
Overvoltage protection	Via varistor at primary circuit
Short circuit protection	Yes
No-load proof	Yes
Feedback voltage	28 VDC
Parallel operation	Yes
Series connection	Yes
MTBF	480000 h (acc. IEC 61709)
Connection and type of mounting:	
Wire connection	CAGE CLAMP® (WAGO 745 Series)
Cross sections	0.08 mm² ... 4 mm² / 28 ... 12 AWG
	(12 AWG: THHN, THWN)
Strip lengths	8 ... 9 mm / 0.31 ... 0.35 in.
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	75 x 92 x 136
	Length from upper-edge of DIN 35 rail
Weight	850 g
Standards and approvals:	
Standards/specifications	EN 60950, EN 61000-6-2,
	EN 61000-6-3, UL 60950, UL 508,
	ANSI/ISA 12.12.01 (Class I Div.2),
	ATEX, IEC Ex

Switched-Mode Power Supply, 1-Phase

***EPSITRON*® ECO Power**



- Primary switch mode power supply unit
- Natural convection cooling when horizontally mounted
- Enclosed for use in switchgear cabinets
- Parallel operation, series connection possible
- Electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950

Description	Item No.	Pack. Unit
Switched-mode power supply, 24 VDC / 10 A	**787-732**	1

Technical Data

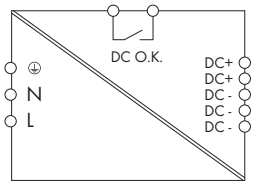
Input:	
Nominal input voltage $V_{i\,nom}$	110 ... 240 VAC
Input voltage range	85 ... 264 VAC; 130 ... 373 VDC
Frequency	47 Hz ... 63 Hz
Input current I_i	1.5 A typ. at 230 VAC;
	3.0 A at 115 VAC
Discharge current	< 3.5mA
Inrush current	< 30 A
Mains failure hold-up time	> 20 ms at 230 VAC
Output:	
Nominal output voltage $V_{o\,nom}$	24 VDC (SELV)
Output voltage range	22 ... 28 VDC adjustable
Output current I_o	10 A at 24 V DC
Factory preset	24 VDC
Adjustment accuracy	1%
Residual ripple	< 100 mV (peak-to-peak) to 20 MHz
Overload behavior	Constant power (in overload range:
	1.15 ... 1.4 x Ia); shutdown and automatic
	restart in the event of a short circuit
Operational indication	LED green (24 V DC OK),
	LED red (overload)
Efficiency / power losses:	
Efficiency	82 % typ.
Power loss P_V	37.5 W (at 230 VAC and 10 ADC)
Max. power loss P_V	53 W (at 110 VAC and 11 ADC)
Fuse protection:	
Internal fuse	F 5 A / 250 V
External fuse	Circuit breakers 10 A, 16 A,
	B or C characteristic;
	an external DC fuse is required for the DC
	input voltage

Technical Data

Environmental requirements:	
Ambient operating temperature	-10 °C ... +70°C
Storage temperature	-25 °C ... +85 °C
Rel. humidity	95 % (no condensation permissible)
Derating	-2.33 % / K (> 55 °C at 230 VAC)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Test voltage pri.-sec./ pri.-gr. / sec.-gr.	3 kV AC / 1.5 kV AC / 0.5 kV AC
Protection class	I
Degree of protection	IP20 acc. to EN 60529
Overvoltage category	II
Overvoltage protection	Via varistor at primary circuit
Short circuit protection	Yes
No-load proof	Yes
Feedback voltage	28 VDC
Parallel operation	Yes
Series connection	Yes
MTBF	480000 h (acc. IEC 61709)
Connection and type of mounting:	
Wire connection	CAGE CLAMP® (WAGO 745 Series)
Cross sections	0.08 mm² ... 4 mm² / 28 ... 12 AWG
	(12 AWG: THHN, THWN)
Strip lengths	8 ... 9 mm / 0.31 ... 0.35 in.
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	110 x 92 x 136
	Length from upper-edge of DIN 35 rail
Weight	1200 g
Standards and approvals:	
Standards/specifications	EN 60950, EN 61000-6-2,
	EN 61000-6-3, UL 60950, UL 508,
	ANSI/ISA 12.12.01 (Class I Div.2),
	ATEX, IEC Ex

Switched-Mode Power Supply, 1-Phase

***EPSITRON*® ECO Power**



- Natural convection cooling when horizontally mounted
- Enclosed for use in switchgear cabinets
- Fast and tool-free termination via lever-actuated terminal blocks
- Bounce-free switching contact (DC OK)
- Parallel operation
- Electrically isolated output voltage (SELV) acc. to EN / UL 60950-1

Description	Item No.	Pack. Unit
Switched-mode power supply, 24 VDC / 20 A	**787-734**	1

Technical Data

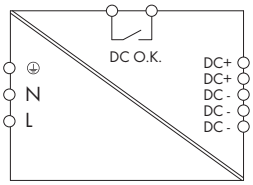
Input:	
Nominal input voltage $V_{i\,nom}$	100 ... 240 VAC
Input voltage range	85 ... 264 VAC; 130 ... 373 VDC
Frequency	47 Hz ... 63 Hz
Input current I_i	3 A typ. at 230 VAC;
	6.0 A at 115 VAC
Discharge current	1.7 mA
Inrush current	< 30 A
Mains failure hold-up time	> 20 ms at 230 VAC
Output:	
Nominal output voltage $V_{o\,nom}$	24 VDC (SELV)
Output voltage range	22 ... 28 VDC adjustable
Output current I_o	20 A at 24 VDC
Factory preset	24 VDC
Adjustment accuracy	1 %
Residual ripple	< 100 mV (peak-peak)
Overload behavior	Constant power
	(in overload range: 1.15 ... 1.4 x I_o);
	shutdown and automatic restart in the event
	of a short circuit
Operational indication	LED green (24 V DC OK),
	LED red (overload)
Efficiency/Power losses:	
Efficiency	90 % typ.
Power loss P_V	65 W (230 VAC / nominal load)
Max. power loss P_V	107 W typ. (110 VAC / 24 VDC, 23 A)
Fuse protection:	
Internal fuse	16 AT / 250 V
External fuse	Circuit breakers 10 A, 16 A,
	B or C characteristic;
	an external DC fuse is required for the DC
	input voltage

Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-25 °C ... +85 °C
Rel. humidity	95 % (no condensation permissible)
Derating	see instruction manual
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Test voltage	
PRI-SEC/PRI-GND/SEC-GND	3 kV AC / 1.5 kV AC / 0.5 kV AC
Protection class	I
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage category	II
Overvoltage protection	Via varistor at primary circuit
Short circuit protection	Yes
No-load proof	Yes
Feedback voltage	29 VDC
Parallel operation	Yes
Series connection	Yes
MTBF	> 250000 h
Connection and type of mounting:	
Wire connection	Input/Signalising: WAGO 2706 Series
	Output: WAGO 2716 Series
Cross sections	Input/Signalising:
	0.5 mm² ... 6 mm² / 20 ... 10 AWG
	Output:
	1.5 mm² ... 16 mm² / 16 ... 6 AWG
Strip lengths	Input/Signalising:
	11 ... 12 mm / 0.43 ... 0.47 in.
	Output: 12 ... 13 mm / 0.47 ... 0.51 in.
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	115 x 136 x 144
	Length from upper-edge of DIN 35 rail
Weight	2120 g
Standards and approvals:	
Standards/specifications	EN 60950, EN 61000-6-2,
	EN 61000-6-3, UL 60950, UL 508

Switched-Mode Power Supply, 1-Phase

***EPSITRON*® ECO Power**



- Natural convection cooling when horizontally mounted
- Enclosed for use in switchgear cabinets
- Fast and tool-free termination via lever-actuated terminal blocks
- Bounce-free switching contact (DC OK)
- Parallel operation
- Electrically isolated output voltage (SELV) acc. to EN / UL 60950-1

Description	Item No.	Pack. Unit
Switched-mode power supply, 24 VDC / 40 A	**787-736**	1

Technical Data

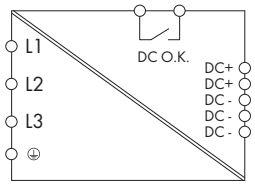
Input:	
Nominal input voltage $V_{i\,nom}$	100 ... 240 VAC
Input voltage range	90 ... 264 VAC; 130 ... 373 VDC
Frequency	47 Hz ... 63 Hz
Input current I_i	< 6 A at 230 VAC;
	< 12 A at 115 VAC
Discharge current	< 3.5 mA
Inrush current	< 30 A at 230 VAC;
	< 25 A at 115 VAC
Mains failure hold-up time	> 17 ms at AC 230 V / nominal load
Power factor	> 0.94 at 230 VAC
	> 0.98 at 115 VAC
Output:	
Nominal output voltage $V_{o\,nom}$	24 VDC (SELV)
Output voltage range	22 ... 28 VDC adjustable
Output current I_o	40 A at 24 VDC
Factory preset	24 VDC
Adjustment accuracy	1 %
Residual ripple	< 100 mV (peak-peak)
Overload behavior	Constant power
	(in overload range: 1.15 ... 1.4 x I_o);
	shutdown and automatic restart in the event
	of a short circuit
Operational indication	LED green (24 V DC OK),
	LED red (overload)
Signaling	Contact DC OK;
	make contact (max. 31.2 V / 20 mA)
Efficiency/Power losses:	
Efficiency	90 % typ.
Power loss P_V	107 W at AC 230 V / nominal load
Fuse protection:	
Internal fuse	T 20 A / 250 V
External fuse	Circuit breakers 13 A, 16 A, 20 A,
	B or C characteristic;
	an external DC fuse is required for the DC
	input voltage

Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Rel. humidity	95 % (no condensation permissible)
Derating	-2.66 % / K (> 55 °C);
	-2 % / V (V_i < 100 VAC)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Test voltage PRI-SEC/PRI-GND/	3 kV AC / 1.5 kV AC /
SEC-GND/SEC-DC OK	0.5 kV AC / 0.5 kV AC
Protection class	I
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage category	II
Overvoltage protection	Via varistor at primary circuit
Short circuit protection	Yes
No-load proof	Yes
Feedback voltage	29 VDC
Parallel operation	Yes
Series connection	Yes
MTBF	> 250000 h
Connection and type of mounting:	
Wire connection	Input/Signalising: WAGO 2706 Series
	Output: WAGO 2716 Series
Cross sections	Input/Signalising:
	0.5 mm² ... 6 mm² / 20 ... 10 AWG
	Output:
	1.5 mm² ... 16 mm² / 16 ... 6 AWG
Strip lengths	Input/Signalising:
	11 ... 12 mm / 0.43 ... 0.47 in.
	Output: 12 ... 13 mm / 0.47 ... 0.51 in.
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	170 x 136 x 150
	Length from upper-edge of DIN 35 rail
Weight	3500 g
Standards and approvals:	
Standards/specifications	EN 60950 (SELV), EN 61000-6-2,
	EN 61000-6-4, UL 60950, UL 508

Switched-Mode Power Supply, 3-Phase

***EPSITRON*® ECO Power**



- Natural convection cooling when horizontally mounted
- Enclosed for use in switchgear cabinets
- Fast and tool-free termination via lever-actuated terminal blocks
- DC OK contact
- Parallel operation
- Electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950-1

Description	Item No.	Pack. Unit
Switched-mode power supply, 24 VDC / 6.25 A	**787-738**	1

Technical Data

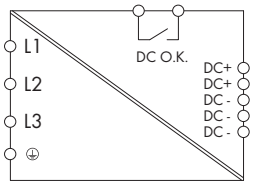
Input:	
Nominal input voltage $V_{i\,nom}$	3 x (2 x) 400 VAC
Input voltage range	360 ... 460 VAC; 500 ... 650 VDC
	(no damage up to 575 VAC/800 VDC
	under normal conditions)
Frequency	47 Hz ... 63 Hz
Input current I_i	3 x 0.4 A at 400 VAC and 6.25 ADC
Power factor	≥ 0.6
Discharge current	< 3.5 mA
Inrush current	< 25 A
Mains failure hold-up time	> 17 ms at 3x 400 VAC
Output:	
Nominal output voltage $V_{o\,nom}$	24 VDC (SELV)
Output voltage range	22 ... 28 VDC adjustable
Output current I_o	6.25 A at 24 VDC
Factory preset	24 VDC
Adjustment accuracy	1 %
Residual ripple	< 80 mV (peak-to-peak)
Overload behavior	Constant power
	(in overload range: 1.15 ... 1.4 x I_o);
	shutdown and automatic restart in the event
	of a short circuit
Operational indication	Green LED (V_o) ; Red LED (overload)
Signaling	DC OK contact;
	Make contact (max. 31.2 V / 20 mA)
Efficiency/Power losses:	
Efficiency	87 % typ.
Power loss P_V	18.5 W
Max. power loss P_V	20 W
Fuse protection:	
Internal fuse	3 x T 2 A / 250 V
External fuse	3 x circuit breakers 10 A, 16 A,
	B or C characteristic;
	or motor circuit breakers;
	an external DC fuse required for DC input
	voltage
Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Rel. humidity	95% (no condensation permissible)

Technical Data

Environmental requirements:	
Derating	-2.5 % / K (> +50 °C; 400 VAC)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Test voltage PRI-SEC/PRI-GND/	3 kV AC / 1.5 kV AC /
SEC-GND/SEC-DC OK	0.5 kV AC / 0.5 kV AC
Protection class	I
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage category	II
Overvoltage protection	Yes
Short circuit protection	Yes
No-load proof	Yes
Feedback voltage	30 V
Parallel operation	Yes
Series connection	Yes
MTBF	> 250000 h
Connection and type of mounting:	
Wire connection	Input/Output: WAGO 2706 Series
	Signaling: WAGO 2091 Series
Cross sections	Input/Output:
	0.5 mm² ... 6 mm² / 20 ... 10 AWG
	Signaling:
	0.2 mm² ... 1.5 mm² / 24 ... 14 AWG
Strip lengths	Input/Output:
	11 ... 12 mm / 0.43 ... 0.47 in.
	Signaling: 8 ... 9 mm / 0.31 ... 0.35 in.
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	50 x 130 x 92
	Length from upper-edge of DIN 35 rail
Weight	3500 g
Standards and approvals:	
Standards/specifications	EN 60950, EN 61204-3 (Class A),
	UL 60950*, UL 508*
	(*pending)

Switched-Mode Power Supply, 3-Phase

***EPSITRON*® ECO Power**



- Natural convection cooling when horizontally mounted
- Enclosed for use in switchgear cabinets
- Fast and tool-free termination via lever-actuated terminal blocks
- DC OK contact
- Parallel operation
- Electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950-1

Description	Item No.	Pack. Unit
Switched-mode power supply, 24 VDC / 10 A	**787-740**	1

Technical Data

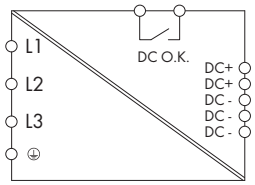
Input:	
Nominal input voltage $V_{i\,nom}$	3 x (2 x) 400 VAC
Input voltage range	360 ... 460 VAC; 500 ... 650 VDC (no damage up to 575 VAC/800 VDC under normal conditions)
Frequency	47 Hz ... 63 Hz
Input current I_i	3 x 0.6 A at 400 VAC and 10 ADC
Power factor	≥ 0.6
Discharge current	< 3.5 mA
Inrush current	< 25 A
Mains failure hold-up time	> 17 ms at 3x 400 VAC
Output:	
Nominal output voltage $V_{o\,nom}$	24 VDC (SELV)
Output voltage range	22 ... 28 VDC adjustable
Output current I_o	10 A at 24 VDC
Factory preset	24 VDC
Adjustment accuracy	1 %
Residual ripple	< 80 mV (peak-to-peak)
Overload behavior	Constant power (in overload range: 1.15 ... 1.4 x I_o); shutdown and automatic restart in the event of a short circuit
Operational indication	Green LED (V_o); Red LED (overload)
Signaling	DC OK contact; Make contact (max. 31.2 V / 20 mA)
Efficiency/Power losses:	
Efficiency	89 % typ.
Power loss P_V	32.5 W
Max. power loss P_V	36 W
Fuse protection:	
Internal fuse	3 x T 2 A / 250 V
External fuse	3 x circuit breakers 10 A, 16 A, B or C characteristic; or motor circuit breakers; an external DC fuse required for DC input voltage
Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Rel. humidity	95% (no condensation permissible)

Technical Data

Environmental requirements:	
Derating	-1.25 % / K (> +50 °C; 400 VAC)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Test voltage PRI-SEC/PRI-GND/ SEC-GND/SEC-DC OK	3 kV AC / 1.5 kV AC / 0.5 kV AC / 0.5 kV AC
Protection class	I
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage category	II
Overvoltage protection	Yes
Short circuit protection	Yes
No-load proof	Yes
Feedback voltage	30 V
Parallel operation	Yes
Series connection	Yes
MTBF	> 250000 h
Connection and type of mounting:	
Wire connection	Input/Output: WAGO 2706 Series Signaling: WAGO 2091 Series
Cross sections	Input/Output: 0.5 mm² ... 6 mm² / 20 ... 10 AWG Signaling: 0.2 mm² ... 1.5 mm² / 24 ... 14 AWG
Strip lengths	Input/Output: 11 ... 12 mm / 0.43 ... 0.47 in. Signaling: 8 ... 9 mm / 0.31 ... 0.35 in.
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	65 x 130 x 130 Length from upper-edge of DIN 35 rail
Weight	2120 g
Standards and approvals:	
Standards/specifications	EN 60950, EN 61204-3 (Class A), UL 60950*, UL 508* (*pending)

Switched-Mode Power Supply, 3-Phase

***EPSITRON*® ECO Power**



- Natural convection cooling when horizontally mounted
- Enclosed for use in switchgear cabinets
- Fast and tool-free termination via lever-actuated terminal blocks
- DC OK contact
- Parallel operation
- Electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950-1

Description	Item No.	Pack. Unit
Switched-mode power supply, 24 VDC / 20 A	**787-742**	1

Technical Data

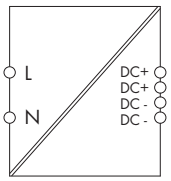
Input:	
Nominal input voltage $V_{i\,nom}$	3 x (2 x) 400 VAC
Input voltage range	360 ... 460 VAC; 500 ... 650 VDC (no damage up to 575 VAC/800 VDC under normal conditions)
Frequency	47 Hz ... 63 Hz
Input current I_i	3 x 2.05 A at 400 VAC and 20 ADC
Power factor	≥ 0.6
Discharge current	< 3.5 mA
Inrush current	< 30 A
Mains failure hold-up time	> 17 ms at 3x 400 VAC
Output:	
Nominal output voltage $V_{o\,nom}$	24 VDC (SELV)
Output voltage range	22 ... 28 VDC adjustable
Output current I_o	20 A at 24 VDC
Factory preset	24 VDC
Adjustment accuracy	1 %
Residual ripple	< 80 mV (peak-to-peak)
Overload behavior	Constant power (in overload range: 1.15 ... 1.4 x I_o); shutdown and automatic restart in the event of a short circuit
Operational indication	Green LED (V_o), Red LED (overload)
Signaling	DC OK contact; Make contact (max. 31.2 V / 20 mA)
Efficiency/Power losses:	
Efficiency	90 % typ.
Power loss P_V	50 W
Max. power loss P_V	55 W
Fuse protection:	
Internal fuse	3 x T 5 A / 250 V
External fuse	3 x circuit breakers 10 A, 16 A, B or C characteristic; or motor circuit breakers; an external DC fuse required for DC input voltage
Environmental Requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Rel. humidity	95% (no condensation permissible)

Technical Data

Environmental Requirements:	
Derating	-2 % / K (> +50 °C; 400 VAC)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Test voltage PRI-SEC/PRI-GND/ SEC-GND/SEC-DC OK	3 kV AC / 1.5 kV AC / 0.5 kV AC / 0.5 kV AC
Protection class	I
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage category	II
Overvoltage protection	Yes
Short circuit protection	Yes
No-load proof	Yes
Feedback voltage	30 V
Parallel operation	Yes
Series connection	Yes
MTBF	> 250000 h
Connection and type of mounting:	
Wire connection	Input/Output: WAGO 2706 Series Signaling: WAGO 2091 Series
Cross sections	Input/Output: 0.5 mm² ... 6 mm² / 20 ... 10 AWG Signaling: 0.2 mm² ... 1.5 mm² / 24 ... 14 AWG
Strip lengths	Input/Output: 11 ... 12 mm / 0.43 ... 0.47 in. Signaling: 8 ... 9 mm / 0.31 ... 0.35 in.
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	110 x 130 x 151 Length from upper-edge of DIN 35 rail
Weight	1930 g
Standards and approvals:	
Standards/specifications	EN 60950, EN 61204-3 (Class A), UL 60950*, UL 508* (*pending)

Switched-Mode Power Supply, 1-Phase

***EPSITRON*® COMPACT Power**



- Primary switch mode power supply unit
- Natural convection cooling when horizontally mounted
- Stepped profile, ideal for distribution boards or distribution boxes
- Parallel operation, series connection possible
- Electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950-1

Description	Item No.	Pack. Unit
Switched-mode power supply, 5 VDC / 5.5A	**787-1020**	1

Technical Data

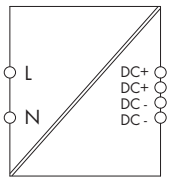
Input:	
Nominal input voltage $V_{i\ nom}$	100 ... 240 VAC
Input voltage range	85 ... 264 VAC; 120 ... 373 VDC
Frequency	44 Hz ... 66 Hz; 0 Hz
Input current I_i	0.6 A at 110 VAC;
	0.3 A at 230 VAC
Discharge current	1 mA typ.
Inrush current	< 30 A, NTC
Mains failure hold-up time	> 10 ms at 110 VAC;
	> 80 ms at 230 VAC
Output:	
Nominal output voltage $V_{o\ nom}$	5 VDC, SELV
Output voltage range	4.5 ... 8.5 VDC adjustable
Factory preset	5 VDC
Output current I_o	5.5 A at 5 VDC;
	max. 3.5 A in any mounting position
Adjustment accuracy	< 2 %
Residual ripple	< 100 mV (peak-to-peak) at 20 MHz
Current limitation	1.1 x I_o typ.
Overload behavior	Constant current
Operational indication	LED green (V_o)
Efficiency/Power Losses:	
Efficiency	75 % typ.
Power loss P_V	2.4 W (230 VAC, no load)
	9.4 W (230 VAC, nominal load)
Max. power loss P_V	9,9 W typ. (264 VAC; 5 VDC, 5,5 A)
Fuse Protection:	
Internal fuse	T 2 A / 250 V
External fuse	Circuit breakers 6 A, 10 A, 16 A,
	B or C characteristic;
	an external DC fuse is required for the DC
	input voltage

Technical Data

Environmental Requirements:	
Ambient operating temperature	-25 °C ... +60 °C
	(UL: -25 °C ... +55 °C);
	Device start at -40 °C (type-tested)
Storage temperature	-25 °C ... +80 °C
Relative humidity	5 % ... 96 % (no condensation permissible)
Derating	-3 % / K (> 45 °C)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Enclosure	Plastic, light gray,
	Flammability class V0 acc. to UL94
Test voltage PRI–SEC	4.2 kV DC
Protection class	II
Degree of protection	IP20 acc. to EN 60529
Overvoltage category	II
Overvoltage protection	< 16 VDC (in the event of a fault)
Short circuit protection	Yes
No-load proof	Yes
Feedback voltage	Max. 10 VDC
Parallel operation	Yes
Series connection	Yes
MTBF	> 500000 h
Connection and type of mounting:	
Wire connection	Input/Output: WAGO 740 Series
Cross sections	Input/Output:
	0.08 ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	Input/Output:
	6 ... 7 mm / 0.24 ... 0.28 in.
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	72 x 89 x 59
	Length: 55 mm, from upper-edge of DIN
Weight	240 g
Standards and Specifications:	
Standards/specifications	EN 60950-1, EN 61204-3,
	UL 60950-1, UL 508, GL*
	(*pending)

Switched-Mode Power Supply, 1-Phase

***EPSITRON*® COMPACT Power**



- Primary switch mode power supply unit
- Natural convection cooling when horizontally mounted
- Stage profile, ideal for distribution boards or distribution boxes
- Parallel operation, series connection possible
- Electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950

Description	Item No.	Pack. Unit
Switched-mode power supply, 12 VDC / 2A	**787-1001**	1

Technical Data

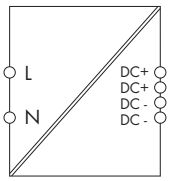
Input:	
Nominal input voltage $V_{i\,nom}$	100 ... 240 VAC
Input voltage range	85 ... 264 VAC; 120 ... 373 VDC
Input voltage derating	< 100 VAC: Ia max. 1.5 A
Frequency	44 ... 66 Hz; 0 Hz
Input current I_i	0.6 A at 110 VAC / 0.4 A at 230 VAC
Discharge current	1mA typ.
Inrush current	< 30 A, NTC
Mains failure hold-up time	> 10 ms at 110 VAC /
	> 80 ms at 230 VAC
Output:	
Nominal output voltage $V_{o\,nom}$	12 VDC (SELV)
Output voltage range	10.8 ... 18 VDC adjustable
Output current I_o	2 A at 12 VDC
	0.75 A at 18 VDC
	max. 1.4 A (12 VDC) in any mounting
	position
Factory preset	12 VDC
Adjustment accuracy	2%
Residual ripple	< 150 mV (peak-to-peak) at 20 MHz
Current limitation	1.1 x I_o typ.
Overload behavior	Constant current
Operational indication	LED green (V_o)
Efficiency / power losses:	
Efficiency	80 % typ.
Power loss P_V	2.6 W (230 VAC/no load),
	6.0 W (230 VAC/rated load)
Max. power loss P_V	6 W typ. (100 VAC / 12 VDC, 2 A)
Fuse protection:	
Internal fuse	T 2 A / 250 V
External fuse	Circuit breakers 10 A, 16 A,
	B or C characteristic
	an external DC fuse is required for the DC
	input voltage

Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +60 °C
	(UL: -25 °C ... +55 °C);
	Device start at -40 °C (type-tested)
Storage temperature	-25 °C ... +80 °C
Rel. humidity	5 % ... 96 % (no condensation permissible)
Derating	-3 % / K (> 45 °C)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Enclosure	Plastic, light gray,
	Flammability class V0 acc. to UL94
Test voltage pri. - sec.	4.2 kV DC
Protection class	II
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage category	II
Overvoltage protection	< 30 VDC (in the event of a fault)
Short circuit protection	Yes
No-load proof	Yes
Feedback voltage	Max. 20 VDC
Parallel operation	Yes
Series connection	Yes
MTBF	500000 h
Connection and type of mounting:	
Wire connection	Input/Output: WAGO 740 Series
Cross sections	Input/Output:
	0.08 ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	Input/Output:
	6 ... 7 mm / 0.24 ... 0.28 in.
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	54 x 89 x 59
	Length: 55 mm, from upper-edge of DIN 35 rail
Weight	180 g
Standards and approvals:	
Standards/specifications	EN 60950, EN 61204-3,
	UL 60950, UL 508, GL

Switched-Mode Power Supply, 1-Phase

***EPSITRON*® COMPACT Power**



- Primary switch mode power supply unit
- Natural convection cooling when horizontally mounted
- Stage profile, ideal for distribution boards or distribution boxes
- Parallel operation, series connection possible
- Electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950

Description	Item No.	Pack. Unit
Switched-mode power supply, 12 VDC / 4A	**787-1011**	1

Technical Data

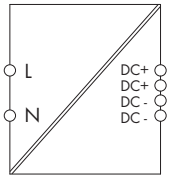
Input:	
Nominal input voltage $V_{i\ nom}$	100 ... 240 VAC
Input voltage range	85 ... 264 VAC; 120 ... 373 VDC
Input voltage derating	< 100 VAC: Ia max. 3.5 A
Frequency	44 ... 66 Hz; 0 Hz
Input current I_i	0.9 A at 110 VAC / 0.5 A at 230 VAC
Discharge current	1mA typ.
Inrush current	< 30 A, NTC
Mains failure hold-up time	> 10 ms at 110 VAC /
	> 80 ms at 230 VAC
Output:	
Nominal output voltage $V_{o\ nom}$	12 VDC (SELV)
Output voltage range	10.5 ... 15.5 VDC adjustable
Output current I_o	4 A at 12 VDC
	max. 2.4 A in any mounting position
Factory preset	12 VDC
Adjustment accuracy	2%
Residual ripple	< 100 mV (peak-to-peak) at 20 MHz
Current limitation	1.1 x I_o typ.
Overload behavior	Constant current
Operational indication	LED green (V_o)
Efficiency / power losses:	
Efficiency	85 % typ.
Power loss P_V	2.2 W (230 VAC/no load),
	8.5 W (230 VAC/rated load)
Max. power loss P_V	9 W typ. (100 VAC / 12 VDC, 4 A)
Fuse protection:	
Internal fuse	T 2 A / 250 V
External fuse	Circuit breakers 10 A, 16 A,
	B or C characteristic
	an external DC fuse is required for the DC
	input voltage

Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +60 °C
	(UL: -25 °C ... +55 °C);
	Device start at -40 °C (type-tested)
Storage temperature	-25 °C ... +80 °C
Rel. humidity	5 % ... 96 % (no condensation permissible)
Derating	-3 % / K (> 45 °C)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Enclosure	Plastic, light gray,
	Flammability class V0 acc. to UL94
Test voltage pri. - sec.	4.2 kV DC
Protection class	II
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage category	II
Overvoltage protection	< 30 VDC (in the event of a fault)
Short circuit protection	Yes
No-load proof	Yes
Feedback voltage	Max. 20 VDC
Parallel operation	Yes
Series connection	Yes
MTBF	500000 h
Connection and type of mounting:	
Wire connection	Input/Output: WAGO 740 Series
Cross sections	Input/Output:
	0.08 ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	Input/Output:
	6 ... 7 mm / 0.24 ... 0.28 in.
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	72 x 89 x 59
	Length: 55 mm, from upper-edge of DIN 35 rail
Weight	255 g
Standards and approvals:	
Standards/specifications	EN 60950, EN 61204-3,
	UL 60950, UL 508, GL

Switched-Mode Power Supply, 1-Phase

***EPSITRON*® COMPACT Power**



- Primary switch mode power supply unit
- Natural convection cooling when horizontally mounted
- Stage profile, ideal for distribution boards or distribution boxes
- Parallel operation, series connection possible
- Electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950

Description	Item No.	Pack. Unit
Switched-mode power supply, 12 VDC / 6.5A	**787-1021**	1

Technical Data

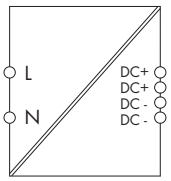
Input:	
Nominal input voltage $V_{i\,nom}$	100 ... 240 VAC
Input voltage range	85 ... 264 VAC; 120 ... 373 VDC
Input voltage derating	Max. 6 A (< 100 VAC) /
	5.5 A (< 90 VAC)
Frequency	44 ... 66 Hz; 0 Hz
Input current I_i	1.6 A at 110 VAC / 0.9 A at 230 VAC
Discharge current	1mA typ.
Inrush current	< 30 A, NTC
Mains failure hold-up time	> 15 ms at 110 VAC /
	> 100 ms at 230 VAC
Output:	
Nominal output voltage $V_{o\,nom}$	12 VDC (SELV)
Output voltage range	10.5 ... 15.5 VDC adjustable
Output current I_o	6.5 A at 12 VDC
	max. 3.9 A (12 VDC) in any mounting
	position
Factory preset	12 VDC
Adjustment accuracy	2%
Residual ripple	< 100 mV (peak-to-peak) at 20 MHz
Current limitation	1.1 x I_o typ.
Overload behavior	Constant current
Operational indication	LED green (V_o)
Efficiency / power losses:	
Efficiency	87 % typ.
Power loss P_V	< 1 W (no load) /
	15 W (rated load)
Max. power loss P_V	15 W typ. (100 VAC / 12 VDC, 6.5 A)
Fuse protection:	
Internal fuse	T 4 A / 250 V
External fuse	Circuit breakers 10 A, 16 A,
	B or C characteristic;
	an external DC fuse is required for the DC
	input voltage

Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +60 °C
	(UL: -25 °C ... +55 °C);
	Device start at -40 °C (type-tested)
Storage temperature	-25 °C ... +85 °C
Rel. humidity	5 % ... 96 % (no condensation permissible)
Derating	-3 % / K (> 45 °C)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Enclosure	Plastic, light gray,
	Flammability class V0 acc. to UL94
Test voltage pri. - sec.	4.2 kV DC
Protection class	II
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage category	II
Overvoltage protection	< 30 VDC (in the event of a fault)
Short circuit protection	Yes
No-load proof	Yes
Feedback voltage	Max. 20 VDC
Parallel operation	Yes
Series connection	Yes
MTBF	500000 h
Connection and type of mounting:	
Wire connection	Input/Output: WAGO 740 Series
Cross sections	Input/Output:
	0.08 ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	Input/Output:
	6 ... 7 mm / 0.24 ... 0.28 in.
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	90 x 89 x 59
	Length: 55 mm, from upper-edge of DIN 35 rail
Weight	300 g
Standards and approvals:	
Standards/specifications	EN 60950, EN 61204-3,
	UL 60950, UL 508, GL

Switched-Mode Power Supply, 1-Phase

***EPSITRON*® COMPACT Power**



- Primary switch mode power supply unit
- Natural convection cooling when horizontally mounted
- Stage profile, ideal for distribution boards or distribution boxes
- Parallel operation, series connection possible
- Electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950

Description	Item No.	Pack. Unit
Switched-mode power supply, 24 VDC / 1.3A	**787-1002**	1

Technical Data

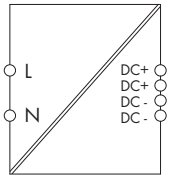
Input:	
Nominal input voltage $V_{i\ nom}$	100 ... 240 VAC
Input voltage range	85 ... 264 VAC; 120 ... 373 VDC
Input voltage derating	< 100 VAC: Ia max. 1 A
Frequency	44 ... 66 Hz; 0H z
Input current I_i	0.7 A at 110 VAC / 0.5 A at 230 VAC
Discharge current	1mA typ.
Inrush current	< 30 A, NTC
Mains failure hold-up time	> 10 ms at 110 VAC /
	> 80 ms at 230 VAC
Output:	
Nominal output voltage $V_{o\ nom}$	24 VDC (SELV)
Output voltage range	22.8 ... 26.4 VDC adjustable
Output current I_o	1.3 A at 24 VDC
	max. 0.9 A in any mounting position
Factory preset	24 VDC
Adjustment accuracy	2%
Residual ripple	< 100 mV (peak-to-peak) at 20 MHz
Current limitation	1.1 x I_o typ.
Overload behavior	Constant current
Operational indication	LED green (V_o)
Efficiency / power losses:	
Efficiency	82 % typ.
Power loss P_V	2.6 W (230 VAC/no load),
	7.0 W (230 VAC/rated load)
Max. power loss P_V	7.3 W typ. (100 VAC / 24 VDC, 1.3 A)
Fuse protection:	
Internal fuse	T 2 A / 250 V
External fuse	Circuit breakers 10 A, 16 A,
	B or C characteristic;
	an external DC fuse is required for the DC
	input voltage

Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +60 °C
	(UL: -25 °C ... +55 °C);
	Device start at -40 °C (type-tested)
Storage temperature	-25 °C ... +80 °C
Rel. humidity	5 % ... 96 % (no condensation permissible)
Derating	-3 % / K (> 45 °C)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Enclosure	Plastic, light gray,
	Flammability class V0 acc. to UL94
Test voltage pri. - sec.	4.2 kV DC
Protection class	II
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage category	II
Overvoltage protection	< 40 VDC (in the event of a fault)
Short circuit protection	Yes
No-load proof	Yes
Feedback voltage	Max. 30 VDC
Parallel operation	Yes
Series connection	Yes
MTBF	500000 h
Connection and type of mounting:	
Wire connection	Input/Output: WAGO 740 Series
Cross sections	Input/Output:
	0.08 ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	Input/Output:
	6 ... 7 mm / 0.24 ... 0.28 in.
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	54 x 89 x 59
	Length: 55 mm, from upper-edge of DIN 35 rail
Weight	180 g
Standards and approvals:	
Standards/specifications	EN 60950, EN 61204-3,
	UL 60950, UL 508, GL

Switched-Mode Power Supply, 1-Phase

***EPSITRON*® COMPACT Power**



- Primary switch mode power supply unit
- Natural convection cooling when horizontally mounted
- Stage profile, ideal for distribution boards or distribution boxes
- Parallel operation, series connection possible
- Electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950

Description	Item No.	Pack. Unit
Switched-mode power supply, 24 VDC / 2.5A	**787-1012**	1

Technical Data

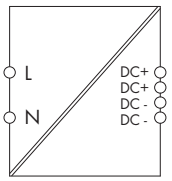
Input:	
Nominal input voltage $V_{i\,nom}$	100 ... 240 VAC
Input voltage range	85 ... 264 VAC; 120 ... 373 VDC
Input voltage derating	< 100 VAC: Ia max. 2.0 A
	< 90 VAC: Ia max. 1.8 A
Frequency	44 ... 66 Hz; 0 Hz
Input current I_i	1.4 A at 110 VAC / 0.6 A at 230 VAC
Discharge current	1mA typ.
Inrush current	< 30 A, NTC
Mains failure hold-up time	> 10 ms at 110 VAC /
	> 80 ms at 230 VAC
Output:	
Nominal output voltage $V_{o\,nom}$	24 VDC (SELV)
Output voltage range	22.8 ... 26.4 VDC adjustable
Output current I_o	2.5 A at 24 VDC
	max. 1.6 A in any mounting position
Factory preset	24 VDC
Adjustment accuracy	2%
Residual ripple	< 100 mV (peak-to-peak) at 20 MHz
Current limitation	1.1 x I_o typ.
Overload behavior	Constant current
Operational indication	LED green (V_o)
Efficiency / power losses:	
Efficiency	88 % typ.
Power loss P_V	2.2 W (230 VAC/no load),
	8.5 W (230 VAC/rated load)
Max. power loss P_V	10.5 W typ. (100 VAC / 24 VDC, 2.5 A)
Fuse protection:	
Internal fuse	T 2 A / 250 V
External fuse	Circuit breakers 10 A, 16 A,
	B or C characteristic;
	an external DC fuse is required for the DC
	input voltage

Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +60 °C
	(UL: -25 °C ... +55 °C);
	Device start at -40 °C (type-tested)
Storage temperature	-25 °C ... +80 °C
Rel. humidity	5 % ... 96 % (no condensation permissible)
Derating	-3 % / K (> 45 °C)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Enclosure	Plastic, light gray,
	Flammability class V0 acc. to UL94
Test voltage pri. - sec.	4.2 kV DC
Protection class	II
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage category	II
Overvoltage protection	< 40 VDC (in the event of a fault)
Short circuit protection	Yes
No-load proof	Yes
Feedback voltage	Max. 30 VDC
Parallel operation	Yes
Series connection	Yes
MTBF	> 500000 h
Connection and type of mounting:	
Wire connection	Input/Output: WAGO 740 Series
Cross sections	Input/Output:
	0.08 ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	Input/Output:
	6 ... 7 mm / 0.24 ... 0.28 in.
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	72 x 89 x 59
	Length: 55 mm, from upper-edge of DIN 35 rail
Weight	255 g
Standards and approvals:	
Standards/specifications	EN 60950, EN 61204-3,
	UL 60950, UL 508, GL

Switched-Mode Power Supply, 1-Phase

***EPSITRON*® COMPACT Power**



- Primary switch mode power supply unit
- Natural convection cooling when horizontally mounted
- Stage profile, ideal for distribution boards or distribution boxes
- Parallel operation, series connection possible
- Electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950

Description	Item No.	Pack. Unit
Switched-mode power supply, 24 VDC / 4A	**787-1022**	1

Technical Data

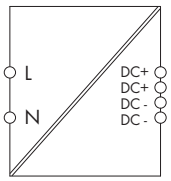
Input:	
Nominal input voltage $V_{i\ nom}$	100 ... 240 VAC
Input voltage range	85 ... 264 VAC; 120 ... 373 VDC
Input voltage derating	On request
Frequency	44 ... 66 Hz; 0 Hz
Input current I_i	1.6 A at 110 VAC / 0.9 A at 230 VAC
Discharge current	1mA typ.
Inrush current	< 30 A, NTC
Mains failure hold-up time	> 15 ms at 110 VAC /
	> 100 ms at 230 VAC
Output:	
Nominal output voltage $V_{o\ nom}$	24 VDC (SELV)
Output voltage range	22.8 ... 26.4 VDC adjustable
Output current I_o	4 A at 24 VDC
	max. 2.4 A in any mounting position
Factory preset	24 VDC
Adjustment accuracy	2 %
Residual ripple	< 100 mV (peak-to-peak) at 20 MHz
Current limitation	1.1 x I_o typ.
Overload behavior	Constant current
Operational indication	LED green (V_o)
Efficiency / power losses:	
Efficiency	88 % typ.
Power loss P_V	0.8 W (230 VAC/no load),
	13.1 W (230 VAC/rated load)
Max. power loss P_V	14.8 W typ. (264 VAC / 24 VDC, 4 A)
Fuse protection:	
Internal fuse	T 4 A / 250 V
External fuse	Circuit breakers 10 A, 16 A,
	B or C characteristic;
	an external DC fuse is required for the DC
	input voltage

Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +60 °C
	(UL: -25 °C ... +55 °C);
	Device start at -40 °C (type-tested)
Storage temperature	-25 °C ... +80 °C
Rel. humidity	5 % ... 96 % (no condensation permissible)
Derating	-3 % / K (> 45 °C)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Enclosure	Plastic, light gray,
	Flammability class V0 acc. to UL94
Test voltage pri. - sec.	4.2 kV DC
Protection class	II
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage category	II
Overvoltage protection	< 40 VDC (in the event of a fault)
Short circuit protection	Yes
No-load proof	Yes
Feedback voltage	Max. 30 VDC
Parallel operation	Yes
Series connection	Yes
MTBF	500000 h
Connection and type of mounting:	
Wire connection	Input/Output: WAGO 740 Series
Cross sections	Input/Output:
	0.08 ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	Input/Output:
	6 ... 7 mm / 0.24 ... 0.28 in.
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	90 x 89 x 59
	Length: 55 mm, from upper-edge of DIN 35 rail
Weight	310 g
Standards and approvals:	
Standards/specifications	EN 60950, EN 61204-3,
	UL 60950, UL 508, GL

Switched-Mode Power Supply, 1-Phase

***EPSITRON*® COMPACT Power**



- Primary switch mode power supply unit
- Natural convection cooling when horizontally mounted
- Stage profile, ideal for distribution boards or distribution boxes
- At reduced output current, any type of mounting positions are possible (e.g., horizontal, overhead mounting).
- Electrically isolated output voltage (SELV) acc. to EN / UL 60950-1

Description	Item No.	Pack. Unit
Switched-mode power supply, 15 ... 28 VDC / 2 A	**787-1017**	1

Technical Data

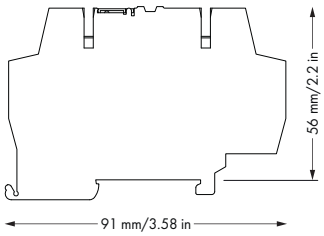
Input:	
Nominal input voltage $V_{i\,nom}$	100 ... 240 VAC
Input voltage range	85 ... 264 VAC; 120 ... 373 VDC
Input voltage derating	Max. 2 A (< 100 VAC)
Frequency	44 Hz ... 66 Hz; 0 Hz
Input current I_i	0.9 A at 110 VAC /
	0.5 A at 230 VAC
Discharge current	1 mA typ.
Inrush current	< 30 A, NTC
Mains failure hold-up time	> 10 ms at 110 VAC /
	> 130 ms at 230 VAC
Output:	
Nominal output voltage $V_{o\,nom}$	18 VDC
Output voltage range	15 ... 28 VDC adjustable
Output current I_o	2.4 A at 18 VDC
	2.0 A at 24 VDC in horizontal mounting
	position
Factory preset	18 VDC
Adjustment accuracy	2 %
Residual ripple	< 100 mV (peak-to-peak) at 20 MHz
Current limitation	1.1 x I_o typ.
Overload behavior	Constant current
Operational indication	LED green (V_o)
Efficiency/Power losses:	
Efficiency	84 % typ.
Power loss P_V	2.6 W (230 VAC / no load)
	8.1 W (230 VAC / nominal load)
Max. power loss P_V	8.2 W (100 VAC / 18 VDC, 2.4 A)
Fuse protection:	
Internal fuse	T 2 A / 250 V
External fuse	Circuit breakers 10 A, 16 A,
	B or C characteristic;
	an external DC fuse is required for the DC
	input voltage

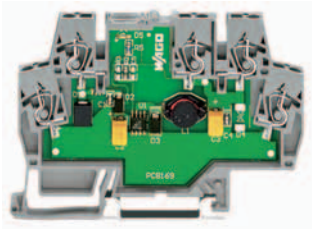
Technical Data

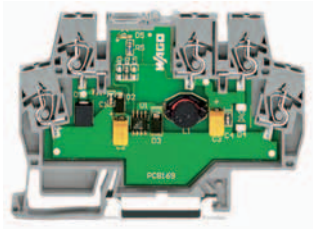
Environmental requirements:	
Ambient operating temperature	-25 °C ... +60 °C
	(UL: -25 °C ... +55 °C);
	Device start at -40 °C (type-tested)
Storage temperature	-25 °C ... +80 °C
Rel. humidity	5 % ... 96 % (no condensation permissible)
Derating	-3 % / K (> 45 °C)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Enclosure	Plastic, light gray,
	Flammability class V0 acc. to UL94
Test voltage pri. - sec.	4.2 kV DC
Protection class	II
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage category	II
Overvoltage protection	< 40 VDC (in the event of a fault)
Short circuit protection	Yes
No-load proof	Yes
Feedback voltage	Max. 25 VDC
Parallel operation	Yes
Series connection	Yes
MTBF	500000 h
Connection and type of mounting:	
Wire connection	Input/Output: WAGO 740 Series
Cross sections	Input/Output:
	0.08 ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	Input/Output:
	6 ... 7 mm / 0.24 ... 0.28 in.
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	72 x 89 x 59
	Length: 55 mm, from upper-edge of DIN 35 rail
Weight	264 g
Standards and approvals:	
Standards/specifications	EN 60950, EN 61204-3,
	UL 60950-1, UL 508, GL*
	(*pending)

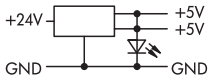
Rail-Mounted Terminal Blocks with DC/DC Converter

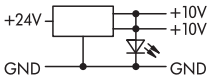
	DC/DC converter 24 V / 5 V, 0.5 ADCADC	DC/DC converter 24 V / 10 V, 0.5 ADC









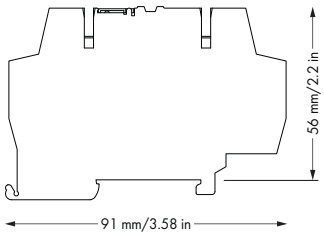


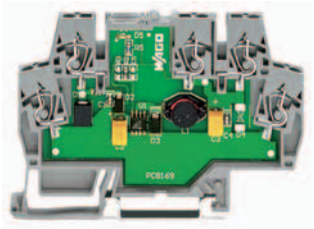
Description	V_N / V_O	Item No.	Pack. Unit	V_N / V_O	Item No.	Pack. Unit
DC/DC converter, for DIN 35 rail	24 VDC / 5 VDC ± 2 %	**859-801**	1	24 VDC / 10 VDC ± 2 %	**859-802**	1

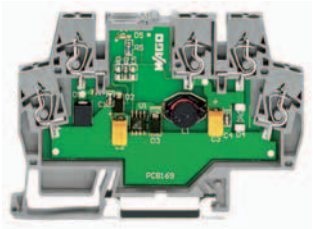
Technical Data

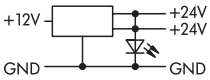
Nominal input voltage (V_N)	24 VDC	24 VDC
Input voltage range	10 ... 30 VDC	15 ... 30 VDC
Output voltage	5 VDC ± 2 %	10 VDC ± 2 %
Output current (max.)	500 mA (individual terminal block, 10 mm distance); 400 mA (terminal strip)	500 mA
Line regulation, max. (full load, over input voltage range)	2 %	0.5 %
Max. load regulation (no load to full load, nominal input	0.5 %	0.7 %
Efficiency at full load (24 VDC in)	70 %	85 %
Output noise peak-to-peak max. (20 MHz bandwidth)	150 mV	20 mV
Switching frequency	200 kHz (nominal)	200 kHz (nominal)
Isolation	Non-isolated	Non-isolated
Reverse voltage protection, input	Yes	Yes
Minimum load requirement	No	No
Max. transient recovery time (recovery time for load change from 25 % to 75% of full load)	40 µs	500 µs
Max. startup time (24 VDC in, full load)	3 ms	3 ms
Max. hold time (nominal input voltage, full load)	1 ms	500 µs
Input fuse	TVS diode	TVS diode
Output short circuit protection	Temporary (short-circuit of the output for 1 minute without damage to the device)	Temporary (short-circuit of the output for 1 minute without damage to the device)
Temperature coefficient	70 ppm/°C	100 ppm/°C
Ambient operating temperature	0 °C ... +40 °C	-25 °C ... +55 °C
Dimensions (mm) W x H x L	6 x 56 x 91 Height from upper-edge of DIN 35 rail	6 x 56 x 91 Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 ... 2.5 mm² / 28 ... 14 AWG	0.08 ... 2.5 mm² / 28 ... 14 AWG
Stripped lengths	5 ... 6 mm / 0.2 ... 0.24 in.	5 ... 6 mm / 0.2 ... 0.24 in.

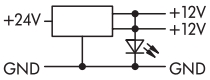
	DC/DC converter 12 V / 24 V, 250 mADC	DC/DC converter 24 V / 12 V, 0.5 ADC











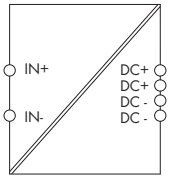
Description	V_N / V_O	Item No.	Pack. Unit	V_N / V_O	Item No.	Pack. Unit
DC/DC converter, for DIN 35 rail	12 VDC / 24 VDC ± 1 %	**859-804**	1	24 VDC / 12 VDC ± 2 %	**859-805**	1

Technical Data

Nominal input voltage (V_N)	12 VDC	24 VDC
Input voltage range	8 … 16 VDC	15 … 30 VDC
Output voltage	24 VDC ± 1 %	12 VDC ± 2 %
Output current (max.)	250 mA	500 mA
Line regulation, max. (full load, over input voltage range)	0.5 %	0.5 %
Max. load regulation (no load to full load, nominal input	0.5 %	0.7 %
Efficiency at full load (24 VDC in)	83 %	85 %
Output noise peak-to-peak max. (20 MHz bandwidth)	40 mV	20 mV
Switching frequency	1.2 MHz (nominal)	200 kHz (nominal)
Isolation	Non-isolated	Non-isolated
Reverse voltage protection, input	Yes	Yes
Minimum load requirement	No	No
Max. transient recovery time (recovery time for load change from 25 % to 75% of full load)	50 µs	500 µs
Max. startup time (24 VDC in, full load)	8 ms	3 ms
Max. hold time (nominal input voltage, full load)	500 µs	500 µs
Input fuse	TVS diode	TVS diode
Output short circuit protection	Fuse	Temporary (short-circuit of the output for 1 minute without damage to the device)
Temperature coefficient	100 ppm/°C	100 ppm/°C
Ambient operating temperature	-25 °C … +55 °C	-25 °C … +55 °C
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 … 2.5 mm² / 28 … 14 AWG	0.08 … 2.5 mm² / 28 … 14 AWG
Stripped lengths	5 … 6 mm / 0.2 … 0.24 in.	5 … 6 mm / 0.2 … 0.24 in.

DC/DC Converter

***EPSITRON*® COMPACT Power**



- Primary switch mode power supply unit
- Natural convection cooling when horizontally mounted
- Stepped profile, ideal for distribution boards or distribution boxes
- Suitable for both parallel and series operation
- Electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950-1

Description	Item No.	Pack. Unit
DC/DC Converter, 110 VDC / 24 VDC; 2.0 A	**787-1014**	1

Technical Data

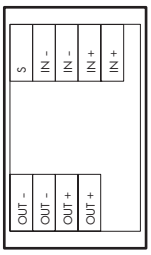
Input:	
Nominal input voltage $V_{i\,nom}$	110 VDC
Input voltage range	77 V ... 140 VDC
Frequency	0 Hz
Input current I_i	0.77 A at 77 VDC /
	0.42 A at 140 VDC
Inrush current	< 30 A, NTC
Mains failure hold-up time	> 8 ms at 77 VDC /
	> 25 ms at 140 VDC
Output:	
Nominal output voltage $V_{o\,nom}$	24 VDC (SELV)
Output current I_o	2.0 A at 24 VDC
	max. 1.6 A in any mounting position
Factory preset	24 VDC
Adjustment accuracy	10 %
Residual ripple	< 100 mV (peak-to-peak) at 20 MHz
Current limitation	1.1 x I_o typ.
Overload behavior	Constant current
Operational indication	LED green (V_o)
Efficiency/Power losses:	
Efficiency	85 % typ.
Power loss P_V	1.9 W (110 VDC/no load),
	9.9 W (110 VDC/nominal load)
Max. power loss P_V	9.9 W typ. (77 VDC / 24 VDC, 2 A)
Fuse protection:	
Internal fuse	T 4 A / 125 VDC
External fuse	6 A, 10 A power circuit breakers,
	B, C characteristics
Environmental requirements:	
Ambient operating temperature	-40 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Rel. humidity	5 % ... 96 % (varnished PCB)
Derating	-1.5 %/K (> 55 °C)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Shock and vibration	Category 1, class B
	(acc. to EN 61373:2010)

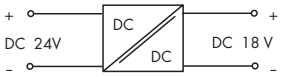
Technical Data

Safety and protection:	
Enclosure	Plastic, light gray,
	Flammability class V0 acc. to UL94
Test voltage pri. - sec.	4.2 kV DC
Protection class	II
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage category	II
Overvoltage protection	Varistor (input side);
	internal protective circuit,
	< 40 VDC (output side in case of an error)
Short circuit protection	Yes
No-load proof	Yes
Feedback voltage	Max. 35 VDC
Parallel operation	Yes
Series connection	Yes
MTBF	> 500000 h
Fire load	7 MJ
Connection and type of mounting:	
Wire connection	Input/Output: WAGO 740 Series
Cross sections	Input/Output:
	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	Input/Output:
	6 ... 7 mm / 0.24 ... 0.28 in.
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	72 x 89 x 59
	Length: 55 mm, from upper-edge of DIN-rail
Weight	250 g
Standards and approvals:	
Standards/specifications	EN 60950, EN 61204-3, EN 50121-3-2,
	EN 50125*, UL 60950*, UL 508*, GL*
	(*pending)

Rail-Mounted Modules - DC/DC Converter

	24 V / 18 V; 0.4 A DC **Mounting carrier for DIN 35 rail**	



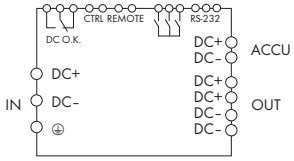


Description	Item No.	Pack. Unit	
DC/DC converter	**288-895**	5 (1)	

Technical Data

Input voltage	24 V DC	
Input voltage range	18 V ... 36 V DC	
Output voltage	18 V DC (± 1 %)	
Nominal output current	400 mA	
Efficiency	82 %	
Test voltage input/output	DC 1500 V	
Short circuit protection	Permanent	
Storage temperature	-40 °C ... +80 °C	
Ambient operating temperature	-25°C ... +70°C	
Weight	75.9 g	
Dimensions (mm) W x H x L	50 x 25 x 85	
	Height from upper-edge of DIN 35 rail	
Wire connection	CAGE CLAMP® (256 Series)	
Cross sections	0.08 ... 2.5 mm² / 28 ... 12 AWG	
	(THHN, THWN)	
Stripped lengths	5 ... 6 mm / 0.2 ... 0.24 in.	
EMC 1-Immunity to interference	Acc. to EN 50082-2 (1996) * * Only in conjunction with	
	DALI/DSI Master Module 750-641	
EMC 1-Emission of interference	Acc. to EN 50081-1 (1993) * * Only in conjunction with	
	DALI/DSI Master Module 750-641	
Accessories		
WMB Multi marking system for mounting carrier	see page 506	
Marker strips for mounting carrier	white 709-198 / translucent 709-196	

EPSITRON® - UPS Charger and Controller



- Charger and controller for uninterruptible power supply (UPS)
- Current and voltage monitoring, as well as parameter setting via LCD and RS-232 interface
- Active signal outputs for watchdog functions
- Remote input for switching off buffered output
- Input for temperature control of connected battery
- Battery control (from manufacturing no. 215563) detects both battery life and battery type

Description	Item No.	Pack. Unit
UPS charger and controller, 24 V DC / 10 A	**787-870**	1

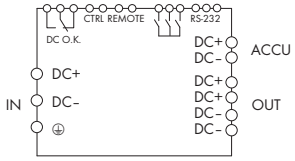
Technical Data

Input:	
Nominal input voltage $V_{i\ nom}$	24 V DC
Input voltage range	22 V ... 29 V DC
Input current I_i	0.1 A (no-load running); 0.8 A (charging); 10.8 A (max.)
Inrush current	< 4 A (no load)
Switch-on threshold (adjustable)	20 V ... 25.5 V DC
Output:	
Nominal output voltage $V_{o\ nom}$	24 V DC
Output voltage range	V_i - 0.5 V DC (below switch-on threshold); 20 V ... 25.5 V DC (during buffer operation)
Output current I_o	10 A
Current limitation	typ. 11 ... 14 A
Buffer time	10 s ... 600 s or constant (adjustable)
Final load voltage	26 V ... 29.5 V DC or temperature controlled (adjustable)
Charging current	Max. 0.6 A
Recommended battery modules	787-871, 787-872, 787-873, 787-876
Operational indication	LED green (V_o), LED yellow (warning), LED red (error)
Signaling	LCD, 3 x signal output 24 V DC, 25 mA and 1 x floating relay contact 30 V DC, 1 A
Remote input	To switch off buffer operation
LineMonitor, parameter setting	Via LCD and RS-232 serial interface
Efficiency / power losses:	
Efficiency	95 % typ.
Power loss P_V	15 W (stand-by) / 20 W (rated load)
Fuse protection:	
Internal fuse	15AT

Technical Data

Environmental requirements:	
Ambient operating temperature	-10 °C ... +60°C
Storage temperature	-25 °C ... +85 °C
Rel. humidity	30 % ... 85 % (no condensation permissible)
Safety and protection:	
Test voltage	500 V DC (terminals to enclosure)
Protection class	III
Reverse voltage protection	Yes
Degree of protection	IP20 acc. to EN 60529
Feedback voltage	Max. 35 VDC
Parallel operation	Yes, for buffer time extension (temperature measurement evaluation is only possible via one battery module)
Connection and type of mounting:	
Wire connection	Input/Output: WAGO 231 Series
Cross sections	Input/Output: 0.08 ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	Input/Output: 8 ... 9 mm / 0.31 ... 0.35 in.
Line length	≤ 3 m (Input, Output, Battery Control)
Type of mounting	DIN-rail mounting (EN 60715) in 2 positions
Dimensions and weight:	
Dimensions (mm) W x H x L	40 x 163 x 163
	Height from upper-edge of DIN 35 rail
Weight	800 g
Standards and approvals:	
Standards/specifications	EN 60950, UL 60950, UL 508, EN 61000-6-2, EN 61000-6-3

EPSITRON®- UPS Charger and Controller



- Charger and controller for uninterruptible power supply (UPS)
- Current and voltage monitoring, as well as parameter setting via LCD and RS-232 interface
- Active signal outputs for watchdog functions
- Remote input for switching off buffered output
- Input for temperature control of connected battery
- Battery control (from manufacturing no. 215563) detects both battery life and battery type

Description	Item No.	Pack. Unit
UPS charger and controller, 24 V DC / 20 A	**787-875**	1

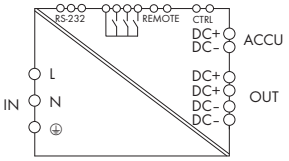
Technical Data

Input:	
Nominal input voltage $V_{i\,nom}$	24 V DC
Input voltage range	22 V ... 29 V DC
Input current I_i	0.1 A (no-load running); 1.5 A (charging);
	21.5 A (max.)
Inrush current	< 4 A (no load)
Switch-on threshold (adjustable)	20 V ... 25.5 V DC
Output:	
Nominal output voltage $V_{o\,nom}$	24 V DC
Output voltage range	V_i - 1 V DC (below switch-on threshold);
	20 V ... 25.5 V DC (buffer mode)
Output current I_o	20 A
Current limitation	Typ. 22 ... 26A
Buffer time	10 s ... 600 s or constant (adjustable)
Final load voltage	26 V ... 29.5 V DC or temperature
	controlled (adjustable)
Charging current	Max. 1.0 A
Recommended battery modules	787-871, 787-872, 787-873
Operational indication	LED green (V_o), LED yellow (warning),
	LED red (error)
Signaling	LCD, 3 x signal output 24 V DC,
	25 mA and 1 x floating relay contact
	30 V DC, 1 A
Remote input	To switch off buffer operation
LineMonitor, parameter setting	Via LCD and RS-232 serial interface
Efficiency / power losses:	
Efficiency	95 % typ.
Power loss P_V	15 W (stand-by) / 30 W (rated load)
Fuse protection:	
Internal fuse	25 AT

Technical Data

Environmental requirements:	
Ambient operating temperature	-10 °C ... +60 °C
Storage temperature	-25 °C ... +85 °C
Rel. humidity	30 % ... 85 % (no condensation permissible)
Safety and protection:	
Test voltage	500 V DC (terminals to enclosure)
Protection class	III
Reverse voltage protection	Yes
Degree of protection	IP20
Feedback voltage	Max. 35 VDC
Parallel operation	Yes, for buffer time extension (temperature
	measurement evaluation is only possible via
	one battery module)
Connection and type of mounting:	
Wire connection	Input/Output: WAGO 831 Series
	Signalising: WAGO 733 Series
Cross sections	Input/Output:
	0.5 mm² ... 10 mm² / 20 ... 8 AWG
	Signalising:
	0.08 mm² ... 0.5 mm² / 28 ... 20 AWG
Strip lengths	Input/Output:
	13 ... 15 mm / 0.51 ... 0.59 in.
	Signalising: 5 ... 6 mm / 0.2 ... 0.24 in.
Line length	≤ 3 m (Input, Output, Battery Control)
Type of mounting	DIN-rail mounting (EN 60715) in 2
	positions
Dimensions and weight:	
Dimensions (mm) W x H x L	57 x 163 x 171
	Height from upper-edge of DIN 35 rail
Weight	1200 g
Standards and approvals:	
Standards/specifications	EN 60950, UL 60950*, UL 508*,
	EN 61000-6-2, EN 61000-6-3
	(*pending)

Switched-Mode Power Supply with Integrated UPS Charger and Controller *EPSITRON®*



- Primary switch mode power supply with integrated charger and controller for uninterruptible power supply (UPS)
- Battery control technology for smooth charging and predictive maintenance applications
- Potential-free contacts provide function monitoring
- Buffer time can be set on-site via rotary switch
- Parameter setting and monitoring via RS-232 interface
- Natural convection cooling when horizontally mounted
- Enclosed for use in switchgear cabinets
- Electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950

Description	Item No.	Pack. Unit
Switched-mode power supply, with Integrated UPS Charger and Controller, 24VDC / 5A	**787-1675**	1

Technical Data

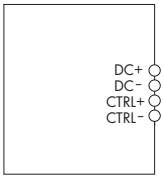
Input:	
Nominal input voltage $V_{i\,nom}$	100 ... 240 VAC; 110 ... 370 VDC
Input voltage range	85 ... 264 VAC
Frequency	44 Hz ... 66 Hz; 0 Hz
Input current I_i	1,1 A at 230 VAC and 5 ADC
Discharge current	1 mA typ.
Inrush current	< 30 A
Output:	
Nominal output voltage $V_{o\,nom}$	24 VDC (SELV)
Output voltage range	23.0 ... 28.5 VDC (mains operation)
	18.5 ... 27.5 VDC (battery operation)
Output current I_o	5 A
Adjustment accuracy	1 %
Residual ripple	< 100 mV (peak-peak)
Current limitation	1.1 x Io; TopBoost approx. 24 A
Buffer time	0.5 ...20 min, IPC mode or constant (adjustable)
Switch-on threshold (adjustable)	22 VDC (pre-configured),
	20 ... 25.5 VDC (configurable via
	software)
Final load voltage	26 ... 29.5 VDC temperature-controlled
	(fixed or adjustable)
Charging current	0.3 A ... 0.6 A
Recommended battery modules	787-876, 787-871, 787-872, 787-873
Operational indication	Green LED (DC OK), yellow LED (battery
	mode), red LED (warning/fault)
Signaling	3 x 24 VDC signal output, 25 mA and
	1 x 30 VDC isolated relay contact, 1 A
Remote input	To switch off buffer operation
LineMonitor, parameter setting	Via RS-232 serial interface
Efficiency / power losses:	
Efficiency	89 % typ.
Power loss P_V	5.2 W (battery operation, 24 VDC, 5 A) /
	17 W (mains operation,
	230 VAC/24 VDC, 5 A)
Fuse protection:	
Internal fuse	T 4 A / 250 V (input side)
External fuse	Circuit breakers 6 A, 10 A, 16 A,
	B or C characteristic;
	an external DC fuse is required for the DC
	input voltage

Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C;
	Device start at -40 °C (type-tested)
Storage temperature	-25 °C ... +85 °C
Relative humidity	5 % ... 96 % (no condensation permissible)
Derating	-3 % / K (> +50 °C)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Test voltage	
pri.-sec./pri.-gr./sec.-gr.	4.2 kV DC / 2.2 kV DC / 0.7 kV DC
Protection class	I
Reverse voltage protection	Yes
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage category	II
Feedback voltage	Max. 35 VDC
Parallel operation	Yes, max. 3 battery modules for buffer time
	extension
Connection and type of mounting:	
Wire connection	Input/Output/Signals:
	WAGO 721 Series
	Interface: WAGO 733 Series
Cross sections	Input/Output/Signals: 0
	.5 mm² ... 10 mm² / 20 ... 10 AWG
	Interface:
	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	Input/Output/Signals:
	13 ... 15 mm / 0.51 ... 0.59 in.
	Interface: 8 ... 9 mm / 0.31 ... 0.35 in.
Line length	≤ 3 m (Output, Battery Control)
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	60 x 127 x 135.5
	Length from upper-edge of DIN 35 rail
Weight	885 g
Standards and approvals:	
Standards/specifications	EN 60950, UL 60950, UL 508,
	EN 61204-3, GL

EPSITRON® - Lead-Acid (AGM) Battery Modules

Similiar to pictured device



- Lead-acid Absorbed Glass Mat (AGM) battery module for uninterruptible power supply (UPS)
- Can be connected to both 787-870 UPS Charger and Controller and 787-1675 Power Supply with integrated UPS charger and controller
- Parallel operation provides higher buffer time *
- With built-in temperature sensor
- DIN 35 carrier rail mounting
- Battery control (from manufacturing no. 216570) detects both battery life and battery type

Description	Item No.	Pack. Unit
Lead-acid Absorbed Glass Mat (AGM) battery module	**787-876**	1

Technical Data

Input:	
Nominal input voltage $V_{i\,nom}$	24 V DC
Output:	
Nominal output voltage $V_{o\,nom}$	24 V DC
Output current I_o	Max. 7.5 A
Final load voltage	Max. 27 V DC (at 25 °C)
Charging current	Max. 0.3 A
Capacity	1.2 Ah
Fuse protection:	
Internal fuse	15 AT (Type FK 2)

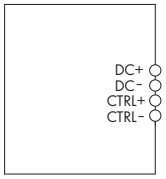
* for parallel connection, please switch battery capacity setting to "OFF" in the UPS charger and controller.

Technical Data

Environmental requirements:	
Ambient operating temperature	-10 °C ... +40 °C
Storage temperature	-20 °C ... +40 °C
Service life	Typ. 5/ 4/ 2 years
	at 20 °C/ 30 °C/ 40 °C
Safety and protection:	
Protection class	III
Degree of protection	IP20 (acc. to EN 60529)
Connection and type of mounting:	
Wire connection	Input/Output: WAGO 231 Series
	Battery Control: WAGO 231 Series
Cross sections	Input/Output:
	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
	Battery Control:
	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	Input/Output: 8 ... 9 mm / 0.31 ... 0.35 in.
	Battery Control: 8 ... 9 mm / 0.31 ... 0.35 in.
Line length	≤ 3 m (Input, Output, Battery Control)
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	55 x 153 x 136.5
	Height, incl. female connector,
	Length from upper-edge of DIN 35 rail
Weight	1800 g
Standards and approvals:	
Standards/specifications	Battery is tested to VdS, UL 508

EPSITRON® - Lead-Acid (AGM) Battery Modules

Similiar to pictured device



- Lead-acid Absorbed Glass Mat (AGM) battery module for uninterruptible power supply (UPS)
- Can be connected to 787-873 or 787-875 UPS Controller and power supply with integrated UPS charger and controller
- Parallel connection to increase the buffer time*
- Features built-in temperature sensor
- Battery control (from manufacturing no. 216654) detects both battery life and battery type

Description	Item No.	Pack. Unit
Lead-acid Absorbed Glass Mat (AGM) battery module	**787-871**	1

Technical Data

Input:	
Nominal input voltage $V_{i\,nom}$	24 V DC
Output:	
Nominal output voltage $V_{o\,nom}$	24 V DC
Output current I_o	20 A
Final load voltage	Max. 27 V DC (at 25 °C)
Charging current	Max. 0.8 A
Capacity	3.2 Ah
Fuse protection:	
Internal fuse	25 AT

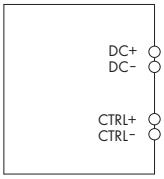
* for parallel connection, please switch battery capacity setting to "OFF" in the UPS charger and controller.

Technical Data

Environmental requirements:	
Ambient operating temperature	-10°C ... +40°C
Storage temperature	-20 °C ... +40 °C
Service life	Typ. 5/ 4/ 2 years
	at 20 °C/ 30 °C/ 40 °C
Safety and protection:	
Protection class	III
Degree of protection	IP20 acc. to EN 60529
Connection and type of mounting:	
Wire connection	Input/Output: WAGO 231 Series
	Battery Control: WAGO 231 Series
Cross sections	Input/Output:
	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
	Battery Control:
	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	Input/Output: 8 ... 9 mm / 0.31 ... 0.35 in.
	Battery Control: 8 ... 9 mm / 0.31 ... 0.35 in.
Line length	≤ 3 m (Input, Output, Battery Control)
Type of mounting	Screw mount
Dimensions and weight:	
Dimensions (mm) W x H x L	76.2 x 168 x 175.5
Weight	3975 g
Standards and approvals:	
Standards/specifications	Battery is tested to VdS, UL 508

EPSITRON® - Lead-Acid (AGM) Battery Modules

Similiar to pictured device



- Lead-acid Absorbed Glass Mat (AGM) battery module for uninterruptible power supply (UPS)
- Can be connected to 787-870 or 787-875 UPS Controller and power supply with integrated UPS charger and controller
- Parallel connection to increase the buffer time*
- Features built-in temperature sensor
- Battery control (from manufacturing no. 213987) detects both battery life and battery type

Description	Item No.	Pack. Unit
Lead-acid Absorbed Glass Mat (AGM) battery module	**787-872**	1

Technical Data

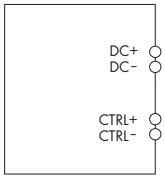
Input:	
Nominal input voltage $V_{i\,nom}$	24 V DC
Output:	
Nominal output voltage $V_{o\,nom}$	24 V DC
Output current I_o	40 A
Final load voltage	Max. 27 V DC (at 25 °C)
Charging current	Max. 1.8 A
Capacity	7Ah
Fuse protection:	
Internal fuse	2 x 25 AT

* for parallel connection, please switch battery capacity setting to "OFF" in the UPS charger and controller.

Technical Data

Environmental requirements:	
Ambient operating temperature	-10°C ... +40°C
Storage temperature	-20 °C ... +40 °C
Service life	Typ. 5/ 4/ 2 years
	at 20 °C/ 30 °C/ 40 °C
Safety and protection:	
Protection class	III
Degree of protection	IP20 acc. to EN 60529
Connection and type of mounting:	
Wire connection	Input/Output: WAGO 231 Series
	Battery Control: WAGO 231 Series
Cross sections	Input/Output:
	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
	Battery Control:
	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	Input/Output: 8 ... 9 mm / 0.31 ... 0.35 in.
	Battery Control: 8 ... 9 mm / 0.31 ... 0.35 in.
Line length	≤ 3 m (Input, Output, Battery Control)
Type of mounting	Screw mount
Dimensions and weight:	
Dimensions (mm) W x H x L	86 x 239 x 217.5
Weight	6500 g
Standards and approvals:	
Standards/specifications	Battery is tested to VdS, UL 508

EPSITRON® - Lead-Acid (AGM) Battery Modules



- Lead-acid Absorbed Glass Mat (AGM) battery module for uninterruptible power supply (UPS)
- Can be connected to 787-873 or 787-875 UPS Controller and power supply with integrated UPS charger and controller
- Parallel connection to increase the buffer time*
- Features built-in temperature sensor
- Battery control (from manufacturing no. 213412) detects both battery life and battery type
- With UL 508 approval (from manufacturing no. 416334)

Description	Item No.	Pack. Unit
Lead-acid Absorbed Glass Mat (AGM) battery module	**787-873**	1

Technical Data

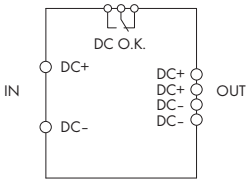
Input:	
Nominal input voltage $V_{i\,nom}$	24 V DC
Output:	
Nominal output voltage $V_{o\,nom}$	24 V DC
Output current I_o	40 A
Final load voltage	Max. 27 V DC (at 25 °C)
Charging current	Max. 3A
Capacity	12 Ah
Fuse protection:	
Internal fuse	2 x 25 AT

* for parallel connection, please switch battery capacity setting to "OFF" in the UPS charger and controller.

Technical Data

Environmental requirements:	
Ambient operating temperature	-10°C ... +40°C
Storage temperature	-20 °C ... +40 °C
Service life	Typ. 5/ 4/ 2 years
	at 20 °C/ 30 °C/ 40 °C
Safety and protection:	
Protection class	III
Degree of protection	IP20 (acc. to EN 60529)
Connection and type of mounting:	
Wire connection	Input/Output: WAGO 831 Series
	Battery Control: WAGO 231 Series
Cross sections	Input/Output:
	0.5 mm² ... 10 mm² / 20 ... 8 AWG
	Battery Control:
	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	Input/Output: 13 ... 15 mm / 0.51 ... 0.59 in.
	Battery Control: 8 ... 9 mm / 0.31 ... 0.35 in.
Line length	≤ 3 m (Input, Output, Battery Control)
Type of mounting	Screw mount
Dimensions and weight:	
Dimensions (mm) W x H x L	120.5 x 239 x 217.5
Weight	10830 g
Standards and approvals:	
Standards/specifications	Battery is tested to VdS, UL 508

EPSITRON® - Capacitive Buffer Modules



- Capacitive buffer module bridges short duration voltage drops
- For uninterruptible power supply
- Potential-free contact for charge condition monitoring

Description	Item No.	Pack. Unit
Capacitive buffer modules, for DIN 35 rail	**787-880**	1

Technical Data

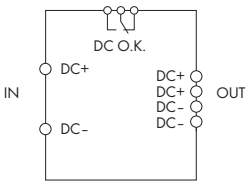
Input:	
Nominal input voltage $V_{i\,nom}$	24 V DC
Input voltage range	20 V ... 30 V DC
Input current I_i	60 mA (no-load running); 1 A (charging); 11 A (max.)
Switch-on threshold (adjustable)	20 V ... 24 V DC
Output:	
Nominal output voltage $V_{o\,nom}$	24 V DC
Output voltage range	V_i - 0.5 V DC (below switch-on threshold); 20.4 V ... 24 V DC (during buffer operation)
Output current I_o	10 A
Current limitation	Electronic, typ. 11 A
Buffer time	0.06 s ... 7.2 s (depends on load current and switch-on threshold)
Charging time	Typ. 5 minutes
Operational indication	LED green (V_o > 20 V), LED yellow (charging), LED red (V_o < 20 V)
Signaling	1 x floating relay contact 30 V DC, 1 A
Efficiency / power losses:	
Power loss P_V	1.5 W open circuit 6.5 W nominal load

Technical Data

Environmental requirements:	
Ambient operating temperature	-10 °C ... +50 °C
Storage temperature	-10 °C ... +60 °C
Service life	Typ. 87.600 h (at 25 °C ambient operating temperature); typ. 30.500 h (at 40 °C ambient operating temperature)
Rel. humidity	30 % ... 85 % (no condensation permissible)
Safety and protection:	
Test voltage	500 V DC (terminals to enclosure)
Protection class	III
Reverse voltage protection	Yes
Degree of protection	IP20 acc. to EN 60529
Feedback voltage	Max. 35 VDC
Parallel operation	Yes
Connection and type of mounting:	
Wire connection	Input/Output: WAGO 231 Series Relay: WAGO 231 Series
Cross sections	Input/Output: 0.08 mm² ... 2.5 mm² / 28 ... 12 AWG Relay: 0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	Input/Output: 8 ... 9 mm / 0.31 ... 0.35 in. Relay: 8 ... 9 mm / 0.31 ... 0.35 in.
Type of mounting	DIN-rail mounting (EN 60715) in 2 positions
Dimensions and weight:	
Dimensions (mm) W x H x L	57 x 179 x 163 Height from upper-edge of DIN 35 rail
Weight	1000 g
Standards and approvals:	
Standards/specifications	EN 60950, UL 508, EN 61000-6-2, EN 61000-6-3

EPSITRON® - Capacitive Buffer Modules

Similiar to pictured device



- Capacitive buffer module bridges short duration voltage drops
- For uninterruptible power supply
- Potential-free contact for charge condition monitoring

Description	Item No.	Pack. Unit
Capacitive buffer modules, for DIN 35 rail	**787-881**	1

Technical Data

Input:	
Nominal input voltage $V_{i\ nom}$	24 V DC
Input voltage range	20 V ... 30 V DC
Input current I_i	60 mA (no-load running); 1 A (charging); 22 A (max.)
Switch-on threshold (adjustable)	20 V ... 24 V DC
Output:	
Nominal output voltage $V_{o\ nom}$	24 V DC
Output voltage range	V_i - 1 V DC (below switch-on threshold); 20.4 V ... 24 V DC (during buffer operation)
Output current I_o	20 A
Current limitation	Electronic, typ. 22 A
Buffer time	0.17 s ... 16.5 s (depends on load current and switch-on threshold)
Charging time	Typ. 5 minutes
Operational indication	LED green (V_o > 20 V), LED yellow (charging), LED red (V_o < 20 V)
Signaling	1 x floating relay contact 30 V DC, 1 A
Efficiency / power losses:	
Power loss P_V	1.5 W open circuit 15 W nominal load

Technical Data

Environmental requirements:	
Ambient operating temperature	-10 °C ... +50°C
Storage temperature	-10 °C ... +60 °C
Service life	Typ. 87.600 h (at 25 °C ambient operating temperature); typ. 30.500 h (at 40 °C ambient operating temperature)
Rel. humidity	30 % ... 85 % (no condensation permissible)
Safety and protection:	
Test voltage	500 V DC (terminals to enclosure)
Protection class	III
Reverse voltage protection	Yes
Degree of protection	IP20 acc. to EN 60529
Feedback voltage	Max. 35 VDC
Parallel operation	Yes
Connection and type of mounting:	
Wire connection	Input/Output: WAGO 831 Series Relay: WAGO 231 Series
Cross sections	Input/Output: 0.5 mm² ... 10 mm² / 20 ... 8 AWG Relay: 0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	Input/Output: 13 ... 15 mm / 0.51 ... 0.59 in. Relay: 8 ... 9 mm / 0.31 ... 0.35 in.
Type of mounting	DIN-rail mounting (EN 60715) in 2 positions
Dimensions and weight:	
Dimensions (mm) W x H x L	57 x 179 x 181 Height from upper-edge of DIN 35 rail
Weight	1000 g
Standards and approvals:	
Standards/specifications	EN 60950, UL 508, EN 61000-6-2, EN 61000-6-3

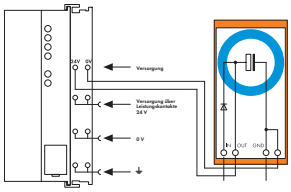
Back-Up Capacitor Module

	Back-up capacitor module smoothes unstable 24 VDC power supplies Mounting carrier for DIN 35 rail	

This module is equipped with a capacitor which smoothes unstable 24 VDC power supplies in case the voltage tolerances mentioned in our data sheets cannot be ensured. Reasons for voltage transients could be:

- Voltage disconnections (switching transients) on primary side
- Overloads on secondary side
- Switching of inductive or capacitive loads

The back-up capacitor module is connected between the 24 V power supply and the electronic device which has to be protected.
Notice:
If using a non-filtered single-phase power supply, the capacitor causes a voltage increase.



Description	Item No.	Pack. Unit	
Back-up capacitor module	**288-824**	1	

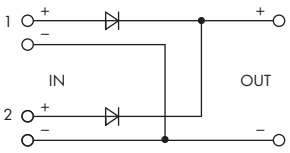
Technical Data

Nominal voltage	24 VDC (+25 %)	
Nominal current	1 A	
Nominal capacity	10000 µF	
Weight	104.4 g	
Dimensions (mm) W x H x L	38 x 81 x 85	
	Height from upper-edge of DIN 35 rail	
Wire connection	CAGE CLAMP® (236 Series)	
Cross sections	0.08 … 2.5 mm² / 28 … 12 AWG	
Stripped lengths	5 … 6 mm / 0.2 … 0.24 in.	

Accessories

WMB Multi marking system for mounting carrier	see page 506	
Marker strips for mounting carrier	white 709-198 / transparent 709-196	

EPSITRON® - Redundancy Module



- Redundancy module with 2 inputs for decoupling 2 power supplies
- For redundant or uninterruptible power supply
- With potential-free contact for input voltage monitoring

Description	Item No.	Pack. Unit
Redundancy Module	**787-885**	1
24 VDC, 2 x 20 A / 1 x 40 A		

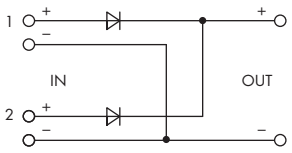
Technical Data

Input:	
Nominal input voltage $V_{i\,nom}$	2 x 24 V DC
Input voltage range	18 V ... 30 V DC
Input current I_i	2 x 20 A, max. 1 x 40 A
Output:	
Nominal output voltage $V_{o\,nom}$	24 V DC
Output voltage range	V_i - 1 V DC
Output current I_o	20 A, max. 40 A
Operational indication	LED green (V_o), 2 x LED yellow (V_i)
Signaling	1 x floating relay contact 30 V DC, 1 A
Efficiency / power losses:	
Efficiency	97 % typ.
Power loss P_V	1.5 W open circuit
	14 W nominal load (20 A) /
	26 W nominal load (40 A)
Fuse protection:	
Internal fuse	No

Technical Data

Environmental requirements:	
Ambient operating temperature	-10 °C ... +60°C
Storage temperature	-25 °C ... +85 °C
Rel. humidity	30 % ... 85 % (no condensation permissible)
Safety and protection:	
Test voltage	500 V DC (terminals to enclosure)
Protection class	III
Reverse voltage protection	Yes
Degree of protection	IP20 (acc. to EN 60529)
Feedback voltage	Max. 33 VDC
Parallel operation	Yes
Connection and type of mounting:	
Wire connection	Input/Output: WAGO 831 Series
	Relay: WAGO 231 Series
Cross sections	Input/Output:
	0.5 mm² ... 10 mm² / 20 ... 8 AWG
	Relay:
	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	Input/Output: 13 ... 15 mm / 0.51 ... 0.59 in.
	Relay: 8 ... 9 mm / 0.31 ... 0.35 in.
Type of mounting	DIN-rail mounting (EN 60715) in
	2 positions
Dimensions and weight:	
Dimensions (mm) W x H x L	40 x 163 x 181
	Height from upper-edge of DIN 35 rail,
	L=127mm without pluggable female
Weight	870 g
Standards and approvals:	
Standards/specifications	EN 60950, UL 60950, UL 508,
	EN 61000-6-2, EN 61000-6-3

EPSITRON® - Redundancy Module



- Redundancy module with 2 inputs for decoupling 2 power supplies
- For redundant or uninterruptible power supply
- With potential-free contact for input voltage monitoring

Description	Item No.	Pack. Unit
Redundancy Module	**787-886**	1
48 VDC, 2 x 20 A / 1 x 40 A		

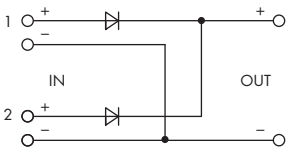
Technical Data

Input:	
Nominal input voltage $V_{i\,nom}$	2 x 48 V DC
Input voltage range	36 V ... 54 V DC
Input current I_i	2 x 20 A, max. 1 x 40 A
Output:	
Nominal output voltage $V_{o\,nom}$	48 V DC
Output voltage range	V_i - 1 V DC
Output current I_o	20 A, max. 40 A
Operational indication	LED green (V_o), 2 x LED yellow (V_i)
Signaling	1 x floating relay contact 30 V DC, 1 A
Efficiency / power losses:	
Efficiency	96 % typ.
Power loss P_V	1.7 W (48 VDC/no load) /
	20 W (48 VDC/rated load) (20 A) /
	40 W (48 VDC/rated load) (40 A)
Fuse protection:	
Internal fuse	No

Technical Data

Environmental requirements:	
Ambient operating temperature	-10 °C ... +60 °C
Storage temperature	-25 °C ... +85 °C
Rel. humidity	30 % ... 85 % (no condensation permissible)
Safety and protection:	
Test voltage	500 V DC (terminals to enclosure)
Protection class	III
Reverse voltage protection	Yes
Degree of protection	IP20 (acc. to EN 60529)
Feedback voltage	Max. 60 VDC
Parallel operation	Yes
MTBF	> 500000 h (acc. to IEC 61709)
Connection and type of mounting:	
Wire connection	Input/Output: WAGO 831 Series
	Relay: WAGO 231 Series
Cross sections	Input/Output:
	0.5 mm² ... 10 mm² / 20 ... 8 AWG
	Relay:
	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	Input/Output: 13 ... 15 mm / 0.51 ... 0.59 in.
	Relay: 8 ... 9 mm / 0.31 ... 0.35 in.
Type of mounting	DIN-rail mounting (EN 60715) in
	2 positions
Dimensions and weight:	
Dimensions (mm) W x H x L	40 x 163 x 181
	Height from upper-edge of DIN 35 rail
Weight	860 g
Standards and approvals:	
Standards/specifications	EN 60950, UL 60950*, UL 508*,
	EN 61000-6-2, EN 61000-6-3
	(*pending)

EPSITRON® - Redundancy Module



- Diode redundancy module with 2 inputs for decoupling 2 power supplies
- For redundant and fail-safe power supply
- Same profile as *EPSITRON*® ECO Power Supplies
- Connects to power supplies with electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950-1

Description	Item No.	Pack. Unit
Diode Redundancy Module 24 VDC, 12.5 A	**787-783**	1

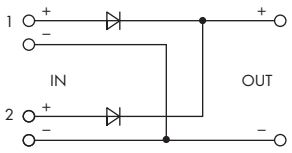
Technical Data

Input:	
Nominal input voltage $V_{i\ nom}$	2 x 24 VDC
Input voltage range	2 x 9 ... 54 VDC
Input current I_i	Max. 2 x 12.5 ADC
Output:	
Nominal output voltage $V_{o\ nom}$	24 VDC
Output voltage range	9 ... 54 VDC
Voltage drop	0.6 V (input/output)
Output current I_o	Max. 25 ADC
Operational indication	2 x LED green (V_i > 7.5 VDC),
	1 x LED green (V_o > 7.5 VDC)
Output power	≤ 1350 W
Efficiency/Power losses:	
Efficiency	≥ 96 %
Power loss P_V	12.5 W (nominal load)
Environmental Requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Relative humidity	≤ 95 % (no condensation permissible)
Derating	-2.66 %/K (55 °C < T_{amb} ≤ 70 °C)
Temperature coefficient	± 0.03 %/K (0 °C < T_{amb} < 50 °C)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721, except for low air pressure)
Vibration resistance	0.7 g (acc. to EN 60068-2-6)
Shock resistance	15 g (acc. to EN 60068-2-27)

Technical Data

Safety and protection:	
Test voltage	0.5 kV (input – housing);
	0.5 kV (output – housing)
Protection class	I
Degree of protection	IP20 acc. to EN 60529
Overvoltage protection	No
Short circuit protection	No
No-load proof	Yes
Feedback voltage	60 V
Parallel operation	Yes
MTBF	> 10 Mio. h (acc. to IEC 61709)
Connection and type of mounting:	
Wire connection	CAGE CLAMP® (WAGO 2706 Series)
Cross sections	Solid/fine-stranded:
	0.5 ... 6 mm² / 20 ... 10 AWG
Strip lengths	11 ... 12 mm / 0.43 ... 0.47 in.
Type of mounting	DIN-rail mounting (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	50 x 130 x 92
	Length from upper-edge of DIN rail
Weight	340 g
Standards and approvals:	
Standards/specifications	UL 508

EPSITRON® - Redundancy Module



- Diode redundancy module with 2 inputs for decoupling 2 power supplies
- For redundant and fail-safe power supply
- Same profile as *EPSITRON*® ECO Power Supplies
- Connects to power supplies with electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950-1

Description	Item No.	Pack. Unit
Diode Redundancy Module 24 VDC, 40 A	**787-785**	1

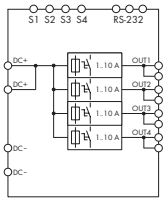
Technical Data

Input:	
Nominal input voltage $V_{i\,nom}$	2 x 24 VDC
Input voltage range	2 x 9 ... 54 VDC
Input current I_i	Max. 2 x 40 ADC
	(in total max. 76 ADC)
Output:	
Nominal output voltage $V_{o\,nom}$	24 VDC
Output voltage range	9 ... 54 VDC
Voltage drop	0.6 V (input/output)
Output current I_o	Max. 76 ADC
Operational indication	2 x LED green (V_i > 7.5 VDC),
	1 x LED green (V_o > 7.5 VDC)
Output power	≤ 4104 W
Efficiency/Power losses:	
Efficiency	≥ 97 %
Power loss P_V	29.7 W (nominal load)
Environmental Requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Relative humidity	≤ 95 % (no condensation permissible)
Derating	-2.66 %/K (55 °C < T_{amb} ≤ 70 °C)
Temperature coefficient	± 0.03 %/K (0 °C < T_{amb} < 50 °C)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721, except for low air
	pressure)
Vibration resistance	0.7 g (acc. to EN 60068-2-6)
Shock resistance	15 g (acc. to EN 60068-2-27)

Technical Data

Safety and protection:	
Test voltage	0.5 kV (input – housing);
	0.5 kV (output – housing)
Protection class	I
Degree of protection	IP20 acc. to EN 60529
Overvoltage protection	No
Short circuit protection	No
No-load proof	Yes
Feedback voltage	60 V
Parallel operation	Yes
MTBF	> 10 Mio. h (acc. to IEC 61709)
Connection and type of mounting:	
Wire connection	CAGE CLAMP® (WAGO 2716 Series)
Cross sections	Solid/fine-stranded:
	1.5 ... 16 mm² / 16 ... 6 AWG
Strip lengths	12 ... 13 mm / 0.47 ... 0.51 in.
Type of mounting	DIN-rail mounting (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	83 x 130 x 153
	Length from upper-edge of DIN rail
Weight	960 g
Standards and approvals:	
Standards/specifications	UL 508

Electronic Circuit Breaker
EPSITRON®



- Electronic circuit breaker with 4 channels, parametrizable
- Time-delayed switching of channels
- Floating switch contact
- Current and voltage monitoring via RS-232 interface and LCD
- Watchdog functions with active signal ports

Description	Item No.	Pack. Unit
Electronic circuit breaker, 24 VDC / 4 x 10 A	**787-862**	1

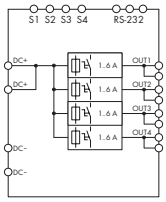
Technical Data

Input:	
Nominal input voltage $V_{i\,nom}$	24 V DC
Input voltage range	18 ... 30 V DC
Output:	
Nominal output voltage $V_{o\,nom}$	4 x 24 V DC
Nominal current	4 x 1 ... 10 A DC
	(adjustable for each channel in 1 A steps)
Voltage drop	140 mV at 6 A, 240 mV at 10 A
Trip time	100 s (100 ms .. 600 s; adjustable)
Switch-on capacity	Max. 20,000 µF
Switch-on behavior	time-delayed channel switching (250 ms each)
Active current limitation	No
Operational indication	LED green (all channels o.k.),
	LED yellow (warning),
	LED red (at least one channel has tripped)
Signaling	LCD, 4 x signal output 24 V DC,
	25 mA and 1 x floating relay contact
	30 V DC, 1 A
Remote input	Reactivation of all tripped channels via
	18 V ... 30 V DC impulse for min. 50 ms
LineMonitor, parameter setting	via LCD and RS-232 serial interface
Efficiency / power losses:	
Efficiency	96 % typ.
Power loss P_V	2 W (stand-by) / 12 W (rated load)
Fuse protection:	
Internal fuse	15 AT

Technical Data

Environmental requirements:	
Ambient operating temperature	-10 °C ... +60°C
Storage temperature	-25 °C ... +85 °C
Rel. humidity	30 % ... 85 % (no condensation permissible)
Safety and protection:	
Test voltage	500 V DC (terminals to enclosure)
Protection class	III
Reverse voltage protection	No
Degree of protection	IP20 acc. to EN 60529
Overload protection	via suppressor diode at input
Feedback voltage	Max. 33 VDC
Series connection of several devices	Not permitted
Parallel operation of single channels	Not permitted
Connection and type of mounting:	
Wire connection	Input: WAGO 831 Series
	Output: WAGO 231 Series
Cross sections	Input:
	0.5 mm² ... 10 mm² / 20 ... 8 AWG
	Output:
	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	Input: 13 ... 15 mm / 0.51 ... 0.59 in.
	Output: 8 ... 9 mm / 0.31 ... 0.35 in.
Type of mounting	DIN-rail mounting (EN 60715) in
	2 positions
Dimensions and weight:	
Dimensions (mm) W x H x L	40 x 171 x 163
	Height from upper-edge of DIN 35 rail
Weight	800 g
Standards and approvals:	
Standards/specifications	EN 60950, UL 508, EN 61000-6-2,
	EN 61000-6-3

Electronic Circuit Breaker
EPSITRON®



- Electronic circuit breaker with 4 channels, parametrizable
- Time-delayed switching of channels
- Floating switch contact
- Current and voltage monitoring via RS-232 interface and LCD
- Watchdog functions with active signal ports

Description	Item No.	Pack. Unit
Electronic circuit breaker, 24 VDC / 4 x 6 A	**787-860**	1

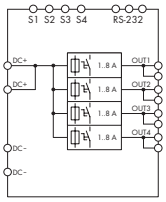
Technical Data

Input:	
Nominal input voltage $V_{i\,nom}$	24 V DC
Input voltage range	18 ... 30 V DC
Output:	
Nominal output voltage $V_{o\,nom}$	4 x 24 V DC
Nominal current	4 x 1 ... 6 A DC
	(adjustable for each channel in 1 A steps)
Voltage drop	140 mV at 6 A
Trip time	100 s (100 ms .. 600 s; adjustable)
Switch-on capacity	Max. 20,000 µF
Switch-on behavior	time-delayed channel switching (250 ms each)
Active current limitation	No
Operational indication	LED green (all channels o.k.),
	LED yellow (warning),
	LED red (at least one channel has tripped)
Signaling	LCD, 4 x signal output 24 V DC,
	25 mA and 1 x floating relay contact
	30 V DC, 1 A
Remote input	Reactivation of all tripped channels via
	18 V ... 30 V DC impulse for min. 50 ms
LineMonitor, parameter setting	via LCD and RS-232 serial interface
Efficiency / power losses:	
Efficiency	96 % typ.
Power loss P_v	2 W (stand-by) / 5.5 W (rated load)
Fuse protection:	
Internal fuse	6.3 AT

Technical Data

Environmental requirements:	
Ambient operating temperature	-10 °C ... +60 °C
Storage temperature	-25 °C ... +85 °C
Rel. humidity	30 % ... 85 % (no condensation permissible)
Safety and protection:	
Test voltage	500 V DC (terminals to enclosure)
Protection class	III
Reverse voltage protection	No
Degree of protection	IP20 acc. to EN 60529
Overload protection	via suppressor diode at input
Feedback voltage	Max. 33 VDC
Series connection of several devices	Not permitted
Parallel operation of single channels	Not permitted
Connection and type of mounting:	
Wire connection	Input: WAGO 831 Series
	Output: WAGO 231 Series
Cross sections	Input:
	0.5 mm² ... 10 mm² / 20 ... 8 AWG
	Output:
	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	Input: 13 ... 15 mm / 0.51 ... 0.59 in.
	Output: 8 ... 9 mm / 0.31 ... 0.35 in.
Type of mounting	DIN-rail mounting (EN 60715) in
	2 positions
Dimensions and weight:	
Dimensions (mm) W x H x L	40 x 171 x 163
	Height from upper-edge of DIN 35 rail
Weight	800 g
Standards and approvals:	
Standards/specifications	EN 60950, UL 508, EN 61000-6-2,
	EN 61000-6-3

Electronic Circuit Breaker with Active Current Limitation
EPSITRON®



- Electronic circuit breaker with 4 channels, parametrizable
- Features active current limitation, reliably prevents voltage drops
- Time-delayed switching of channels
- Current and voltage monitoring via RS-232 interface and LCD
- Watchdog functions with active signal ports

Description	Item No.	Pack. Unit
Electronic circuit breaker, 24 VDC / 4 x 8 A	**787-861**	1

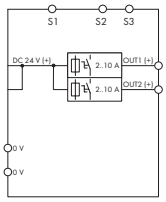
Technical Data

Input:	
Nominal input voltage $V_{i\,nom}$	24 V DC
Input voltage range	18 ... 30 V DC
Output:	
Nominal output voltage $V_{o\,nom}$	4 x 24 V DC
Nominal current	4 x 1 ... 8 A DC
	(adjustable for each channel in 1 A steps)
Voltage drop	140 mV at 8 A
Trip time	100 ms (100 ms .. 1.5 s;
	adjustable, depending on nominal current)
Switch-on capacity	Max. 20,000 µF
Switch-on behavior	time-delayed channel switching (250 ms
	each)
Trip current	1.1 x nominal current typ.
Active current limitation	Yes
Current limitation	1.5 x nominal current typ.
Operational indication	LED green (all channels o.k.),
	LED yellow (warnings),
	LED red (at least one channel has tripped)
Signaling	LCD, 4 x signal output 24 V DC, 25 mA
LineMonitor, parameter setting	via LCD and RS-232 serial interface
Efficiency / power losses:	
Efficiency	96 % typ.
Power loss P_V	2 W (stand-by) / 8.2 W (rated load)
Fuse protection:	
Internal fuse	15 AT

Technical Data

Environmental requirements:	
Ambient operating temperature	-10 °C ... +60°C
Storage temperature	-25 °C ... +85 °C
Rel. humidity	30 % ... 85 % (no condensation permissible)
Safety and protection:	
Test voltage	500 V DC (terminals to enclosure)
Protection class	III
Reverse voltage protection	No
Degree of protection	IP20 acc. to EN 60529
Overload protection	via suppressor diode at input
Feedback voltage	Max. 33 VDC
Series connection of several devices	Not permitted
Parallel operation of single channels	Not permitted
Connection and type of mounting:	
Wire connection	Input: WAGO 831 Series
	Output: WAGO 231 Series
Cross sections	Input:
	0.5 mm² ... 10 mm² / 20 ... 8 AWG
	Output:
	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	Input: 13 ... 15 mm / 0.51 ... 0.59 in.
	Output: 8 ... 9 mm / 0.31 ... 0.35 in.
Type of mounting	DIN-rail mounting (EN 60715) in
	2 positions
Dimensions and weight:	
Dimensions (mm) W x H x L	40 x 171 x 163
	Height from upper-edge of DIN 35 rail
Weight	800 g
Standards and approvals:	
Standards/specifications	EN 60950, UL 508, EN 61000-6-2,
	EN 61000-6-3

Electronic Circuit Breaker
EPSITRON®



- Space-saving electronic circuit breaker with 2 channels
- 2 ... 10 A nominal current, adjustable for each channel via sealable selector switch
- Switch-on capacity > 50,000 µF per channel
- One illuminated, three-colored button per channel simplifies switching (on/off), resetting and on-site diagnostics
- Time-delayed switching of channels
- Tripped message (group signal)
- Status message for each channel via pulse sequence
- Remote input resets tripped channels or switches on/off any number of channels via pulse sequence

Description	Item No.	Pack. Unit
Electronic circuit breaker, 24 VDC / 2 x 10 A	**787-1662**	1

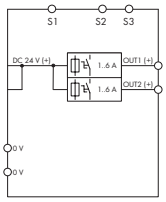
Technical Data

Input:	
Nominal input voltage $V_{i\,nom}$	24 VDC
Input voltage range	18 ... 30 VDC
Output:	
Nominal output voltage $V_{o\,nom}$	2 x 24 VDC
Nominal current	Max. 2 x 10 ADC
	(2, 3, 4, 6, 8, 10 A adjustable for each channel via selector switch)
Voltage drop	200 mV at 10 A
Trip time	Load-dependent (16 ms ... 100 s)
Switch-on capacity	> 50,000 µF per channel
Switch-on behavior	Time-delayed channel switching (load-dependent, min. 50 ms / max. 5 s)
Active current limitation	No
Operational indication	Green LED (O.K. channel), Red LED (tripped channel)
Signaling	2 x LED (green/red/orange)
Remote input	Reactivation of all tripped channels via 15 ... 30 VDC pulse for min. 500 ms. Switching on/off any number of channels via pulse sequence.
Efficiency/Power losses:	
Efficiency	99 % typ.
Power loss P_V	5.5 W (nominal load)
Fuse protection:	
Internal fuse	15 AT per channel

Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-25 °C ... +85 °C
Rel. humidity	5 % ... 96 % (no condensation permissible)
Derating	No derating
Safety and protection:	
Test voltage	500 VDC (connectors to housing)
Protection class	III
Reverse voltage protection	No
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage protection	Via 33 V suppressor diode at input
Feedback voltage	Max. 35 VDC
Series connection of several devices	Not permitted
Parallel operation of single channels	Not permitted
Connection and type of mounting:	
Wire connection	Input (+): WAGO 831 Series
	Input (–), output, signaling: WAGO 721 Series
Cross sections	Input (+): 0.5 mm² ... 10 mm² / 20 ... 8 AWG
	Input (–), output, signaling: 0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	Input (+): 13 ... 15 mm / 0.51 ... 0.59 in.
	Input (–), output, signaling: 8 ... 9 mm / 0.31 ... 0.35 in.
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	45 x 90 x 115.5
	Length from upper-edge of DIN 35 rail
Weight	200 g
Standards and approvals:	
Standards/specifications	UL 508, UL 2367, GL, EN 60950, EN 61000-6-2, EN 61000-6-3

Electronic Circuit Breaker
EPSITRON®



- Space-saving electronic circuit breaker with 4 channels
- 1 ... 6 A nominal current, adjustable for each channel via sealable selector switch
- Switch-on capacity > 50,000 µF per channel
- One illuminated, three-colored button per channel simplifies switching (on/off), resetting and on-site diagnostics
- Time-delayed switching of channels
- Tripped message (group signal)
- Status message for each channel via pulse sequence
- Remote input resets tripped channels or switches on/off any number of channels via pulse sequence

Description	Item No.	Pack. Unit
Electronic circuit breaker, 24 VDC / 2 x 6 A	**787-1662/106-000**	1

Technical Data

Input:	
Nominal input voltage $V_{i\,nom}$	24 VDC
Input voltage range	18 ... 30 VDC
Output:	
Nominal output voltage $V_{o\,nom}$	2 x 24 VDC
Nominal current	Max. 2 x 6 ADC
	(1, 2, 3, 4, 5, 6 A adjustable for each channel via selector switch)
Voltage drop	120 mV at 6 A
Trip time	Load-dependent (16 ms ... 100 s)
Switch-on capacity	> 50,000 µF per channel
Switch-on behavior	Time-delayed channel switching (load-dependent, min. 50 ms / max. 5 s)
Active current limitation	No
Operational indication	Green LED (O.K. channel), Red LED (tripped channel)
Signaling	2 x LED (green/red/orange)
Remote input	Reactivation of all tripped channels via 15 ... 30 VDC pulse for min. 500 ms. Switching on/off any number of channels via pulse sequence.
Efficiency/Power losses:	
Efficiency	99 % typ.
Power loss P_V	2.5 W (nominal load)
Fuse protection:	
Internal fuse	15 AT per channel

Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-25 °C ... +85 °C
Rel. humidity	5 % ... 96 % (no condensation permissible)
Derating	No derating
Safety and protection:	
Test voltage	500 VDC (connectors to housing)
Protection class	III
Reverse voltage protection	No
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage protection	Via 33 V suppressor diode at input
Feedback voltage	Max. 35 VDC
Series connection of several devices	Not permitted
Parallel operation of single channels	Not permitted
Connection and type of mounting:	
Wire connection	Input (+): WAGO 831 Series
	Input (-), output, signaling: WAGO 721 Series
Cross sections	Input (+): 0.5 mm² ... 10 mm² / 20 ... 8 AWG
	Input (-), output, signaling: 0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	Input (+): 13 ... 15 mm / 0.51 ... 0.59 in.
	Input (-), output, signaling: 8 ... 9 mm / 0.31 ... 0.35 in.
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	45 x 90 x 115.5
	Length from upper-edge of DIN 35 rail
Weight	170 g
Standards and approvals:	
Standards/specifications	UL 508, UL 2367, GL, EN 60950, EN 61000-6-2, EN 61000-6-3

Electronic Circuit Breaker with Active Current Limitation
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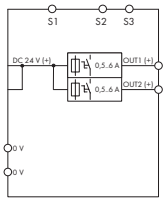


- Space-saving electronic circuit breaker with 2 channels
- 0.5 ... 6 A nominal current, adjustable for each channel via sealable selector switch
- Active current limitation
- Switch-on capacity > 65000 µF per channel
- One illuminated, three-colored button per channel simplifies switching (on/off), resetting and on-site diagnostics
- Time-delayed switching of channels
- Tripped message (group signal)
- Status message for each channel via pulse sequence
- Remote input resets tripped channels or switches on/off any number of channels via pulse sequence

Description	Item No.	Pack. Unit
Electronic circuit breaker, 24 VDC / 2 x 6 A	**787-1662/006-1000**	1

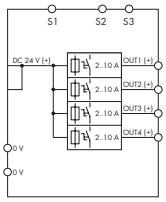
Technical Data

Input:	
Nominal input voltage $V_{i\,nom}$	24 VDC
Input voltage range	18 ... 30 VDC
Output:	
Nominal output voltage $V_{o\,nom}$	2 x 24 VDC
Nominal current	Max. 2 x 6 ADC
	(0.5, 1, 2, 3, 4, 6 A adjustable for each
	channel via selector switch)
Voltage drop	145 mV at 6 A
Trip time	Load-dependent (16 ms ... 5 s)
Switch-on capacity	> 65,000 µF per channel
Switch-on behavior	Time-delayed channel switching
	(load-dependent, min. 50 ms / max. 5 s)
Active current limitation	Yes
Operational indication	Green LED (O.K. channel),
	Red LED (tripped channel)
Signaling	2 x LED (green/red/orange)
Remote input	Reactivation of all tripped channels via
	15 ... 30 VDC pulse for min. 500 ms.
	Switching on/off any number of channels
	via pulse sequence.
Efficiency/Power losses:	
Efficiency	99 % typ.
Power loss P_V	2.5 W (nominal load)
Fuse protection:	
Internal fuse	15 AT per channel

Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-25 °C ... +85 °C
Rel. humidity	5 % ... 96 % (no condensation permissible)
Derating	No derating
Safety and protection:	
Test voltage	500 VDC (connectors to housing)
Protection class	III
Reverse voltage protection	No
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage protection	Via 33 V suppressor diode at input
Feedback voltage	Max. 35 VDC
Series connection of several devices	Not permitted
Parallel operation of single channels	Not permitted
Connection and type of mounting:	
Wire connection	Input (+): WAGO 831 Series
	Input (–), output, signaling:
	WAGO 721 Series
Cross sections	Input (+):
	0.5 mm² ... 10 mm² / 20 ... 8 AWG
	Input (–), output, signaling:
	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	Input (+): 13 ... 15 mm / 0.51 ... 0.59 in.
	Input (–), output, signaling:
	8 ... 9 mm / 0.31 ... 0.35 in.
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	45 x 90 x 115.5
	Length from upper-edge of DIN 35 rail
Weight	170 g
Standards and approvals:	
Standards/specifications	UL 508, UL 2367, GL, EN 60950,
	EN 61000-6-2, EN 61000-6-3

Electronic Circuit Breaker
EPSITRON®



- Compact 4-channel electronic circuit breaker
- 2 ... 10 A nominal current, adjustable for each channel via sealable selector switch
- Switch-on capacity > 50000 µF per channel
- One illuminated, three-colored button per channel simplifies switching (on/off), resetting and on-site diagnostics
- Time-delayed switching of channels
- Tripped message (group signal)
- Status message for each channel via pulse sequence
- Remote input resets tripped channels or switching on/off any number of channels via pulse sequence

Description	Item No.	Pack. Unit
Electronic circuit breaker, 24 VDC / 4 x 10 A	**787-1664**	1

Technical Data

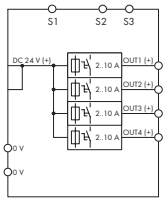
Input:	
Nominal input voltage $V_{i\,nom}$	24 V DC
Input voltage range	18 ... 30 V DC
Output:	
Nominal output voltage $V_{o\,nom}$	4 x 24 V DC
Nominal current	Max. 4 x 10 ADC
	(2, 3, 4, 6, 8, 10 A adjustable for each
	channel via selector switch)
Voltage drop	200 mV at 10 A
Trip time	Load-dependent (20 ms ... 100 s)
Switch-on capacity	> 50000 µF per channel
Switch-on behavior	Time-delayed channel switching
	(50 ... 100 ms each)
Active current limitation	No
Operational indication	Green LED (channel OK),
	Red LED (channel triggered)
Signaling	4 x LED (green/red/orange)
Remote input	Reactivation of all tripped channels via
	15 ... 30 VDC pulse for min. 500 ms.
	Switching on/off any number of channels
	via pulse sequence.
Efficiency / power losses:	
Efficiency	99 % typ.
Power loss P_V	1.3 W (stand-by) / 20 W (nominal load)
Fuse protection:	
Internal fuse	15 AT per channel

Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-25 °C ... +85 °C
Rel. humidity	5 % ... 96 % (no condensation permissible)
Derating	≥ +50 °C: see instruction manual
Safety and protection:	
Test voltage	500 V DC (terminals to enclosure)
Protection class	III
Reverse voltage protection	No
Degree of protection	IP20 (acc. to EN 60529)
Overload protection	Via 33 V suppressor diode at input
Feedback voltage	Max. 35 VDC
Series connection of several devices	Not permitted
Parallel operation of single channels	Not permitted
Connection and type of mounting:	
Wire connection	Input (+): WAGO 831 Series
	Input (–), Output, Signalising:
	WAGO 721 Series
Cross sections	Input (+):
	0.5 mm² ... 10 mm² / 20 ... 8 AWG
	Input (–), Output, Signalising:
	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	Input (+): 13 ... 15 mm / 0.51 ... 0.59 in.
	Input (–), Output, Signalising:
	8 ... 9 mm / 0.31 ... 0.35 in.
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	45 x 90 x 115.5
	Length from upper-edge of DIN 35 rail
Weight	170 g
Standards and approvals:	
Standards/specifications	UL 508, UL 2367, GL, EN 60950,
	EN 61000-6-2, EN 61000-6-3

Electronic Circuit Breaker
EPSITRON®

Similiar to pictured device



- Space-saving electronic circuit breaker with 4 channels
- 2 ... 6 A nominal current, adjustable for each channel via sealable selector switch;
  factory preset: 2 A, switched off
- Switch-on capacity > 50000 µF per channel
- One illuminated, three-colored button per channel simplifies switching (on/off), resetting and on-site diagnostics
- Time-delayed switching of channels
- Tripped and switched off message (common group signal S3)
- Status message for each channel via pulse sequence
- Remote input resets tripped channels or switches on/off any number of channels via pulse sequence

Description	Item No.	Pack. Unit
Electronic circuit breaker, 24 VDC / 4 x 10 A	**787-1664/000-004**	1

Technical Data

Input:	
Nominal input voltage $V_{i\,nom}$	24 VDC
Input voltage range	18 ... 30 VDC
Output:	
Nominal output voltage $V_{o\,nom}$	4 x 24 VDC
Nominal current	Max. 4 x 10 ADC
	(2, 3, 4, 6, 8, 10 A adjustable for each channel via selector switch)
Factory preset	2 ADC, switched off
Voltage drop	200 mV at 10 A
Trip time	Load-dependent (20 ms ... 100 s)
Switch-on capacity	> 50000 µF per channel
Switch-on behavior	Time-delayed channel switching (50 ... 100 ms each)
Active current limitation	No
Operational indication	Green LED (channel OK), Red LED (channel triggered)
Signaling	4 x LED (green/red/orange)
Remote input	Reactivation of all tripped channels via 15 ... 30 VDC pulse for min. 500 ms. Switching on/off any number of channels via pulse sequence.
Efficiency/Power Losses:	
Efficiency	99 % typ.
Power loss P_v	1.3 W (stand-by) / 20 W (nominal load)
Fuse Protection:	
Internal fuse	15 AT per channel

Technical Data

Environmental Requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-25 °C ... +85 °C
Relative humidity	5 % ... 96 % (no condensation permissible)
Derating	≥ +50 °C: see instruction manual
Safety and protection:	
Test voltage	500 VDC (connectors to housing)
Protection class	III
Reverse voltage protection	No
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage protection	Via 33 V suppressor diode at input
Feedback voltage	Max. 35 VDC
Series connection of several devices	Not permitted
Parallel operation of single channels	Not permitted
Connection and type of mounting:	
Wire connection	Input (+): WAGO 831 Series Input (–), output, signaling: WAGO 721 Series
Cross sections	Input (+): 0.5 mm² ... 10 mm² / 20 ... 8 AWG Input (–), output, signaling: 0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	Input (+): 13 ... 15 mm / 0.51 ... 0.59 in. Input (–), output, signaling: 8 ... 9 mm / 0.31 ... 0.35 in.
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	45 x 90 x 115.5 Length from upper-edge of DIN 35 rail
Weight	161 g
Standards and Specifications:	
Standards/specifications	UL 508, UL 2367, GL, EN 60950, EN 61000-6-2, EN 61000-6-3

Electronic Circuit Breaker
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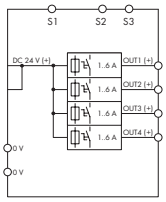


- Space-saving electronic circuit breaker with 4 channels
- 1 ... 6 A nominal current, adjustable for each channel via sealable selector switch
- Switch-on capacity > 50,000 µF per channel
- One illuminated, three-colored button per channel simplifies switching (on/off), resetting and on-site diagnostics
- Time-delayed switching of channels
- Tripped message (group signal)
- Status message for each channel via pulse sequence
- Remote input resets tripped channels or switches on/off any number of channels via pulse sequence

Description	Item No.	Pack. Unit
Electronic circuit breaker, 24 VDC / 4 x 6 A	**787-1664/106-000**	1

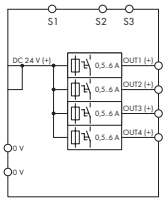
Technical Data

Input:	
Nominal input voltage $V_{i\,nom}$	24 VDC
Input voltage range	18 ... 30 VDC
Output:	
Nominal output voltage $V_{o\,nom}$	4 x 24 VDC
Nominal current	Max. 4 x 6 ADC
	(1, 2, 3, 4, 5, 6 A adjustable for each
	channel via selector switch)
Voltage drop	120 mV at 6 A
Trip time	Load-dependent (16 ms ... 100 s)
Switch-on capacity	> 50,000 µF per channel
Switch-on behavior	Time-delayed channel switching
	(load-dependent, min. 50 ms / max. 5 s)
Active current limitation	No
Operational indication	Green LED (O.K. channel),
	Red LED (tripped channel)
Signaling	4 x LED (green/red/orange)
Remote input	Reactivation of all tripped channels via
	15 ... 30 VDC pulse for min. 500 ms.
	Switching on/off any number of channels
	via pulse sequence.
Efficiency/Power losses:	
Efficiency	99 % typ.
Power loss P_V	4.2 W (nominal load)
Fuse protection:	
Internal fuse	15 AT per channel

Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-25 °C ... +85 °C
Rel. humidity	5 % ... 96 % (no condensation permissible)
Derating	No derating
Safety and protection:	
Test voltage	500 VDC (connectors to housing)
Protection class	III
Reverse voltage protection	No
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage protection	Via 33 V suppressor diode at input
Feedback voltage	Max. 35 VDC
Series connection of several devices	Not permitted
Parallel operation of single channels	Not permitted
Connection and type of mounting:	
Wire connection	Input (+): WAGO 831 Series
	Input (–), output, signaling:
	WAGO 721 Series
Cross sections	Input (+):
	0.5 mm² ... 10 mm² / 20 ... 8 AWG
	Input (–), output, signaling:
	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	Input (+): 13 ... 15 mm / 0.51 ... 0.59 in.
	Input (–), output, signaling:
	8 ... 9 mm / 0.31 ... 0.35 in.
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	45 x 90 x 115.5
	Length from upper-edge of DIN 35 rail
Weight	170 g
Standards and approvals:	
Standards/specifications	UL 508, UL 2367, GL, EN 60950,
	EN 61000-6-2, EN 61000-6-3

Electronic Circuit Breaker with Active Current Limitation
EPSITRON®



- Space-saving electronic circuit breaker with 4 channels
- 0.5 ... 6 A nominal current, adjustable for each channel via sealable selector switch
- Active current limitation
- Switch-on capacity > 65000 µF per channel
- One illuminated, three-colored button per channel simplifies switching (on/off), resetting and on-site diagnostics
- Time-delayed switching of channels
- Tripped message (group signal)
- Status message for each channel via pulse sequence
- Remote input resets tripped channels or switches on/off any number of channels via pulse sequence

Description	Item No.	Pack. Unit
Electronic circuit breaker, 24 VDC / 4 x 6 A	**787-1664/006-1000**	1

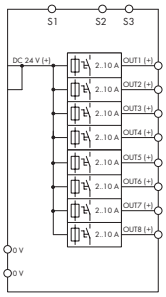
Technical Data

Input:	
Nominal input voltage $V_{i\,nom}$	24 VDC
Input voltage range	18 ... 30 VDC
Output:	
Nominal output voltage $V_{o\,nom}$	4 x 24 VDC
Nominal current	Max. 4 x 6 ADC
	(0.5, 1, 2, 3, 4, 6 A adjustable for each
	channel via selector switch)
Voltage drop	145 mV at 6 A
Trip time	Load-dependent (16 ms ... 5 s)
Switch-on capacity	> 65,000 µF per channel
Switch-on behavior	Time-delayed channel switching
	(load-dependent, min. 50 ms / max. 5 s)
Active current limitation	Yes
Operational indication	Green LED (O.K. channel),
	Red LED (tripped channel)
Signaling	4 x LED (green/red/orange)
Remote input	Reactivation of all tripped channels via
	15 ... 30 VDC pulse for min. 500 ms.
	Switching on/off any number of channels
	via pulse sequence.
Efficiency/Power losses:	
Efficiency	99 % typ.
Power loss P_V	4.3 W (nominal load)
Fuse protection:	
Internal fuse	15 AT per channel

Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-25 °C ... +85 °C
Rel. humidity	5 % ... 96 % (no condensation permissible)
Derating	No derating
Safety and protection:	
Test voltage	500 VDC (connectors to housing)
Protection class	III
Reverse voltage protection	No
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage protection	Via 33 V suppressor diode at input
Feedback voltage	Max. 35 VDC
Series connection of several devices	Not permitted
Parallel operation of single channels	Not permitted
Connection and type of mounting:	
Wire connection	Input (+): WAGO 831 Series
	Input (–), output, signaling:
	WAGO 721 Series
Cross sections	Input (+):
	0.5 mm² ... 10 mm² / 20 ... 8 AWG
	Input (–), output, signaling:
	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	Input (+): 13 ... 15 mm / 0.51 ... 0.59 in.
	Input (–), output, signaling:
	8 ... 9 mm / 0.31 ... 0.35 in.
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	45 x 90 x 115.5
	Length from upper-edge of DIN 35 rail
Weight	170 g
Standards and approvals:	
Standards/specifications	UL 508, UL 2367, GL, EN 60950,
	EN 61000-6-2, EN 61000-6-3

Electronic Circuit Breaker
EPSITRON®



- Compact 8-channel electronic circuit breaker
- 2 ... 10 A nominal current, adjustable for each channel via sealable selector switch
- Switch-on capacity > 50000 µF per channel
- One illuminated, three-colored button per channel simplifies switching (on/off), resetting and on-site diagnostics
- Time-delayed switching of channels
- Tripped message (group signal)
- Status message for each channel via pulse sequence
- Remote input resets tripped channels or switching on/off any number of channels via pulse sequence

Description	Item No.	Pack. Unit
Electronic circuit breaker, 24 VDC / 8 x 10 A	**787-1668**	1

Technical Data

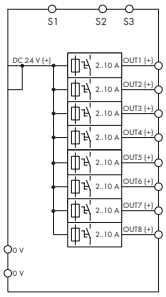
Input:	
Nominal input voltage $V_{i\,nom}$	24 V DC
Input voltage range	18 ... 30 V DC
Output:	
Nominal output voltage $V_{o\,nom}$	8x 24 V DC
Nominal current	Max. 8 x 10 ADC
	(2, 3, 4, 6, 8, 10 A adjustable for each
	channel via selector switch)
Voltage drop	200 mV at 10 A
Trip time	Load-dependent (20 ms ... 100 s)
Switch-on capacity	> 50000 µF per channel
Switch-on behavior	Time-delayed channel switching
	(50 ... 100 ms each)
Active current limitation	No
Operational indication	Green LED (channel OK),
	Red LED (channel triggered)
Signaling	8 x LED (green/red/orange)
Remote input	Reactivation of all tripped channels via
	15 ... 30 VDC pulse for min. 500 ms.
	Switching on/off any number of channels
	via pulse sequence.
Efficiency / power losses:	
Efficiency	99 % typ.
Power loss P_V	1.3 W (stand-by) / 20 W (nominal load)
Fuse protection:	
Internal fuse	15 AT per channel

Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-25 °C ... +85 °C
Rel. humidity	5 % ... 96 % (no condensation permissible)
Derating	≥ +50 °C: see instruction manual
Safety and protection:	
Test voltage	500 V DC (terminals to enclosure)
Protection class	III
Reverse voltage protection	No
Degree of protection	IP20 (acc. to EN 60529)
Overload protection	Via 33 V suppressor diode at input
Feedback voltage	Max. 35 VDC
Series connection of several devices	Not permitted
Parallel operation of single channels	Not permitted
Connection and type of mounting:	
Wire connection	Input (+): WAGO 831 Series
	Input (–), Output, Signalising:
	WAGO 721 Series
Cross sections	Input (+):
	0.5 mm² ... 10 mm² / 20 ... 8 AWG
	Input (–), Output, Signalising:
	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	Input (+): 13 ... 15 mm / 0.51 ... 0.59 in.
	Input (–), Output, Signalising:
	8 ... 9 mm / 0.31 ... 0.35 in.
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	42 x 127 x 142.5
	Length from upper-edge of DIN 35 rail
Weight	800 g
Standards and approvals:	
Standards/specifications	UL 508, UL 2367, GL, EN 60950,
	EN 61000-6-2, EN 61000-6-3

Electronic Circuit Breaker
EPSITRON®

Similiar to pictured device



- Space-saving electronic circuit breaker with 8 channels
- 2 ... 6 A nominal current, adjustable for each channel via sealable selector switch; factory preset: 2 A, switched off
- Switch-on capacity > 50000 µF per channel
- One illuminated, three-colored button per channel simplifies switching (on/off), resetting and on-site diagnostics
- Time-delayed switching of channels
- Tripped and switched off message (common group signal S3)
- Status message for each channel via pulse sequence
- Remote input resets tripped channels or switches on/off any number of channels via pulse sequence

Description	Item No.	Pack. Unit
Electronic circuit breaker, 24 VDC / 8 x 10 A	**787-1668/000-004**	1

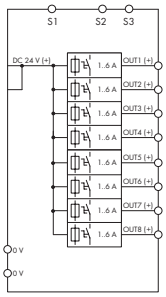
System Data

Input:	
Nominal input voltage $V_{i\,nom}$	24 VDC
Input voltage range	18 ... 30 VDC
Output:	
Nominal output voltage $V_{o\,nom}$	8 x 24 VDC
Nominal current	Max. 8 x 10 ADC
	(2, 3, 4, 6, 8, 10 A adjustable for each channel via selector switch)
Factory preset	2 ADC, switched off
Voltage drop	200 mV at 10 A
Trip time	Load-dependent (20 ms ... 100 s)
Switch-on capacity	> 50000 µF per channel
Switch-on behavior	Time-delayed channel switching (50 ... 100 ms each)
Active current limitation	No
Operational indication	Green LED (channel OK), Red LED (channel triggered)
Signaling	8 x LED (green/red/orange)
Remote input	Reactivation of all tripped channels via 15 ... 30 VDC pulse for min. 500 ms. Switching on/off any number of channels via pulse sequence.
Efficiency/Power Losses:	
Efficiency	99 % typ.
Power loss P_v	1.3 W (stand-by) / 20 W (nominal load)
Fuse Protection:	
Internal fuse	15 AT per channel

Technical Data

Environmental Requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-25 °C ... +85 °C
Relative humidity	5 % ... 96 % (no condensation permissible)
Derating	≥ +50 °C: see instruction manual
Safety and protection:	
Test voltage	500 VDC (connectors to housing)
Protection class	III
Reverse voltage protection	No
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage protection	Via 33 V suppressor diode at input
Feedback voltage	Max. 35 VDC
Series connection of several devices	Not permitted
Parallel operation of single channels	Not permitted
Connection and type of mounting:	
Wire connection	Input (+): WAGO 831 Series Input (–), output, signaling: WAGO 721 Series
Cross sections	Input (+): 0.5 mm² ... 10 mm² / 20 ... 8 AWG Input (–), output, signaling: 0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	Input (+): 13 ... 15 mm / 0.51 ... 0.59 in. Input (–), output, signaling: 8 ... 9 mm / 0.31 ... 0.35 in.
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	42 x 127 x 142.5 Length from upper-edge of DIN 35 rail
Weight	420 g
Standards and Specifications:	
Standards/specifications	UL 508, UL 2367, GL, EN 60950, EN 61000-6-2, EN 61000-6-3

Electronic Circuit Breaker
EPSITRON®



- Space-saving electronic circuit breaker with 8 channels
- 1 ... 6 A nominal current, adjustable for each channel via sealable selector switch
- Switch-on capacity > 50,000 µF per channel
- One illuminated, three-colored button per channel simplifies switching (on/off), resetting and on-site diagnostics
- Time-delayed switching of channels
- Tripped message (group signal)
- Status message for each channel via pulse sequence
- Remote input resets tripped channels or switches on/off any number of channels via pulse sequence

Description	Item No.	Pack. Unit
Electronic circuit breaker, 24 VDC / 8 x 6 A	**787-1668/106-000**	1

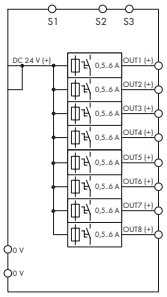
Technical Data

Input:	
Nominal input voltage $V_{i\,nom}$	24 VDC
Input voltage range	18 ... 30 VDC
Output:	
Nominal output voltage $V_{o\,nom}$	8 x 24 VDC
Nominal current	Max. 8 x 6 ADC
	(1, 2, 3, 4, 5, 6 A adjustable for each
	channel via selector switch)
Voltage drop	120 mV at 6 A
Trip time	Load-dependent (16 ms ... 100 s)
Switch-on capacity	> 50,000 µF per channel
Switch-on behavior	Time-delayed channel switching
	(load-dependent, min. 50 ms / max. 5 s)
Active current limitation	No
Operational indication	Green LED (O.K. channel),
	Red LED (tripped channel)
Signaling	8 x LED (green/red/orange)
Remote input	Reactivation of all tripped channels via
	15 ... 30 VDC pulse for min. 500 ms.
	Switching on/off any number of channels
	via pulse sequence.
Efficiency/Power losses:	
Efficiency	99 % typ.
Power loss P_V	8 W (nominal load)
Fuse protection:	
Internal fuse	15 AT per channel

Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-25 °C ... +85 °C
Rel. humidity	5 % ... 96 % (no condensation permissible)
Derating	No derating
Safety and protection:	
Test voltage	500 VDC (connectors to housing)
Protection class	III
Reverse voltage protection	No
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage protection	Via 33 V suppressor diode at input
Feedback voltage	Max. 35 VDC
Series connection of several devices	Not permitted
Parallel operation of single channels	Not permitted
Connection and type of mounting:	
Wire connection	Input (+): WAGO 831 Series
	Input (–), output, signaling:
	WAGO 721 Series
Cross sections	Input (+):
	0.5 mm² ... 10 mm² / 20 ... 8 AWG
	Input (–), output, signaling:
	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	Input (+): 13 ... 15 mm / 0.51 ... 0.59 in.
	Input (–), output, signaling:
	8 ... 9 mm / 0.31 ... 0.35 in.
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	42 x 127 x 142.5
	Length from upper-edge of DIN 35 rail
Weight	440 g
Standards and approvals:	
Standards/specifications	UL 508, UL 2367, GL, EN 60950,
	EN 61000-6-2, EN 61000-6-3

Electronic Circuit Breaker with Active Current Limitation
EPSITRON®



- Space-saving electronic circuit breaker with 8 channels
- 0.5 ... 6 A nominal current, adjustable for each channel via sealable selector switch
- Active current limitation
- Switch-on capacity > 65000 µF per channel
- One illuminated, three-colored button per channel simplifies switching (on/off), resetting and on-site diagnostics
- Time-delayed switching of channels
- Tripped message (group signal)
- Status message for each channel via pulse sequence
- Remote input resets tripped channels or switches on/off any number of channels via pulse sequence

Description	Item No.	Pack. Unit
Electronic circuit breaker, 24 VDC / 8 x 6 A	**787-1668/006-1000**	1

Technical Data

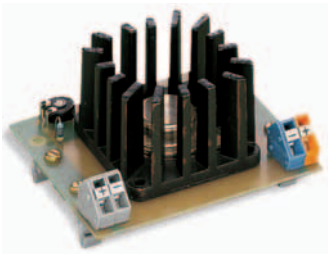
Input:	
Nominal input voltage $V_{i\,nom}$	24 VDC
Input voltage range	18 ... 30 VDC
Output:	
Nominal output voltage $V_{o\,nom}$	8 x 24 VDC
Nominal current	Max. 8 x 6 ADC
	(0.5, 1, 2, 3, 4, 6 A adjustable for each
	channel via selector switch)
Voltage drop	155 mV at 6 A
Trip time	Load-dependent (16 ms ... 5 s)
Switch-on capacity	> 65,000 µF per channel
Switch-on behavior	Time-delayed channel switching
	(load-dependent, min. 50 ms / max. 5 s)
Active current limitation	Yes
Operational indication	Green LED (O.K. channel),
	Red LED (tripped channel)
Signaling	8 x LED (green/red/orange)
Remote input	Reactivation of all tripped channels via
	15 ... 30 VDC pulse for min. 500 ms.
	Switching on/off any number of channels
	via pulse sequence.
Efficiency/Power losses:	
Efficiency	99 % typ.
Power loss P_V	8.6 W (nominal load)
Fuse protection:	
Internal fuse	15 AT per channel

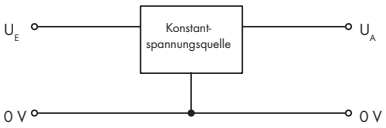
Technical Data

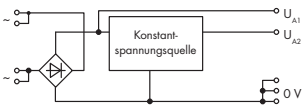
Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-25 °C ... +85 °C
Rel. humidity	5 % ... 96 % (no condensation permissible)
Derating	No derating
Safety and protection:	
Test voltage	500 VDC (connectors to housing)
Protection class	III
Reverse voltage protection	No
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage protection	Via 33 V suppressor diode at input
Feedback voltage	Max. 35 VDC
Series connection of several devices	Not permitted
Parallel operation of single channels	Not permitted
Connection and type of mounting:	
Wire connection	Input (+): WAGO 831 Series
	Input (–), output, signaling:
	WAGO 721 Series
Cross sections	Input (+):
	0.5 mm² ... 10 mm² / 20 ... 8 AWG
	Input (–), output, signaling:
	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	Input (+): 13 ... 15 mm / 0.51 ... 0.59 in.
	Input (–), output, signaling:
	8 ... 9 mm / 0.31 ... 0.35 in.
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	42 x 127 x 142.5
	Length from upper-edge of DIN 35 rail
Weight	440 g
Standards and approvals:	
Standards/specifications	UL 508*, UL 2367*, GL, EN 60950,
	EN 61000-6-2, EN 61000-6-3
	(*pending)

Rail-Mounted Modules - Constant Voltage Sources

	24 VDC; 3 A Input 27 ... 35 VDC Mounting feet for DIN 35 rail	24 VDC; 3 A Input 24 VAC +10 %, 50 ... 60 Hz Mounting carrier for DIN 35 rail

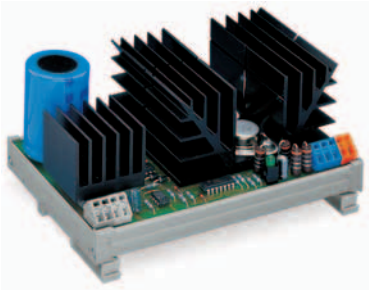


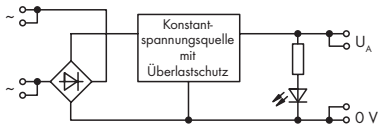




Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Constant voltage source 24 VDC	**289-907**	1	**288-800**	1
Technical Data				
Input voltage	27 ... 35 VDC		24 VAC +10%	
Output voltage	24 VDC (± 10 %)		24 VDC (± 10 %)	
Nominal output current	3 A		3 A	
Ambient operating temperature	-25 °C ... +40 °C		-25 °C ... +40 °C	
Weight	88 g		209 g	
Dimensions (mm) W x H x L	78.5 x 39 x 66		140 x 44 x 85	
	Height from upper-edge of DIN 35 rail		Height from upper-edge of DIN 35 rail	
Wire connection	CAGE CLAMP® (236 Series)		CAGE CLAMP® (236 Series)	
Cross sections	0.08 ... 2.5 mm² / 28 ... 12 AWG		0.08 ... 2.5 mm² / 28 ... 12 AWG	
	(12 AWG: THHN, THWN)		(12 AWG: THHN, THWN)	
Stripped lengths	5 ... 6 mm / 0.2 ... 0.24 in.		5 ... 6 mm / 0.2 ... 0.24 in.	
Accessories				
WMB Multi marking system for mounting carrier			see page 506	
Marker strips for mounting carrier			white 709-198 / translucent 709-196	

	24 VDC; 5 A **Input 24 VAC +10 %** **Electronic overload protection** **Output voltage indication by LED** **Mounting carrier for DIN 35 rail**	





Description	Item No.	Pack. Unit	
Constant voltage source 24 VDC	**288-801**	1	

Technical Data

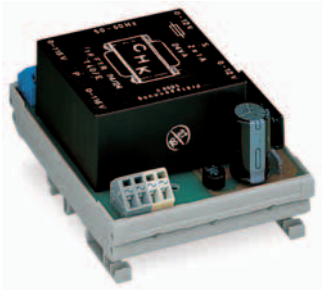
Input voltage	24 VAC +10%	
Output voltage	24 VDC (± 10 %)	
Nominal output current	5 A	
Overload protection	Electronic	
Voltage returns after removal of overload	After 4 s	
Ambient operating temperature	0 °C ... +30 °C	
Weight	600.5 g	
Dimensions (mm) W x H x L	170 x 85 x 108	
	Height from upper-edge of DIN 35 rail	
Wire connection	CAGE CLAMP® (236 Series)	
Cross sections	0.08 ... 2.5 mm² / 28 ... 12 AWG	
	(12 AWG: THHN, THWN)	
Stripped lengths	5 ... 6 mm / 0.2 ... 0.24 in.	

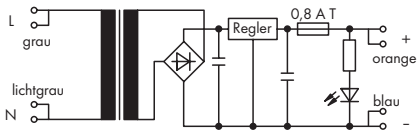
Accessories

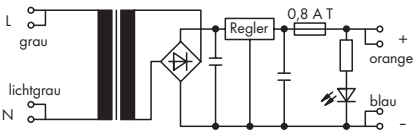
WMB Multi marking system for mounting carrier	see page 506	
Marker strips for mounting carrier	white 709-198 / translucent 709-196	

Rail-Mounted Modules - Power Supplies

	115 VAC / 24 VDC; 0.5 A Output voltage indication by LED Mounting carrier for DIN 35 rail	230 VAC / 24 VDC; 0.5 A Output voltage indication by LED Mounting carrier for DIN 35 rail





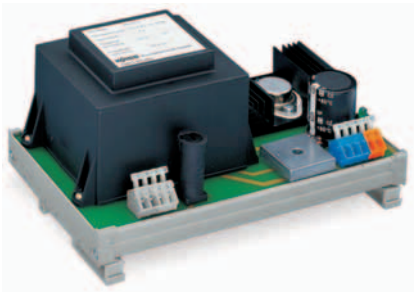


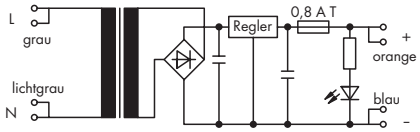
Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Power supply, with universal mounting carrier	**288-809**	1	**288-810**	1

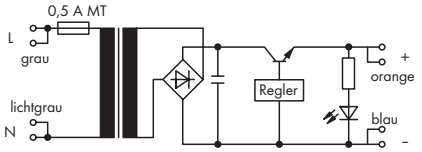
Technical Data

Nominal input voltage $V_{i\ nom}$	115 VAC	230 VAC
Input voltage range	± 10 %	± 10 %
Frequency	50 Hz ... 60 Hz	50 Hz ... 60 Hz
Power consumption at nominal load	30 VA	30 VA
Nominal output voltage $V_{o\ nom}$	24 VDC	24 VDC
Output voltage range	± 4 %	± 4 %
Output current I_o	0.5 A	0.5 A
Residual ripple	≤ 10 mVss	≤ 10 mVss
Output fuse	0.8 A slow	0.8 A slow
Ambient operating temperature	0 °C ... +50 °C	0 °C ... +50 °C
Weight	579 g	552 g
Dimensions (mm) W x H x L	77 x 52 x 106	77 x 52 x 106
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (236 Series)	CAGE CLAMP® (236 Series)
Cross sections	0.08 ... 2.5 mm² / 28 ... 12 AWG	0.08 ... 2.5 mm² / 28 ... 12 AWG
	(12 AWG: THHN, THWN)	(12 AWG: THHN, THWN)
Stripped lengths	5 ... 6 mm / 0.2 ... 0.24 in.	5 ... 6 mm / 0.2 ... 0.24 in.
Approvals	Transformer acc. to VDE 0551	Transformer acc. to VDE 0551
Accessories		
WMB Multi marking system for mounting carrier	see page 506	see page 506
Marker strips for mounting carrier	white 709-198 / translucent 709-196	white 709-198 / translucent 709-196

	230 VAC / 12 VDC; 0.5 A Output voltage indication by LED Mounting carrier for DIN 35 rail	115 VAC / 24 VDC; 2 A Output voltage indication by LED Mounting carrier for DIN 35 rail







Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Power supply, with universal mounting carrier	**288-808**	1	**288-813**	1

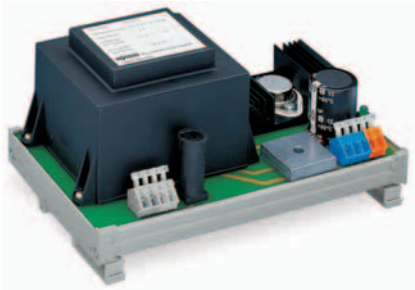
Technical Data

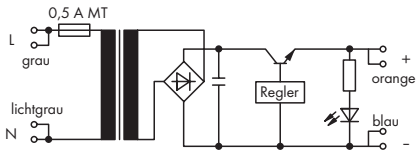
Nominal input voltage $V_{i\,nom}$	230 VAC	115 VAC
Input voltage range	± 10 %	± 10 %
Frequency	50 Hz ... 60 Hz	50 Hz ... 60 Hz
Power consumption at nominal load	23 VA	80 VA
Nominal output voltage $V_{o\,nom}$	12 VDC	24 VDC
Output voltage range	± 4 %	± 10 %
Output current I_o	0.5 A	2 A
Residual ripple	≤ 10 mVss	≤ 80 mVss
Input fuse		0.8 A medium-slow
Output fuse	0.8 A slow	Electronic, short-circuit protected
Short-circuit current		2.5 A
Ambient operating temperature	0 °C ... +50 °C	0 °C ... +40 °C
Weight	574 g	1969 g
Dimensions (mm) W x H x L	77 x 52 x 106	182 x 98 x 106
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (236 Series)	CAGE CLAMP® (256 Series)
Cross sections	0.08 ... 2.5 mm² / 28 ... 12 AWG	0.08 ... 2.5 mm² / 28 ... 12 AWG
	(12 AWG: THHN, THWN)	(12 AWG: THHN, THWN)
Stripped lengths	5 ... 6 mm / 0.2 ... 0.24 in.	5 ... 6 mm / 0.2 ... 0.24 in.
Approvals	Transformer acc. to VDE 0551	Transformer acc. to VDE 0551

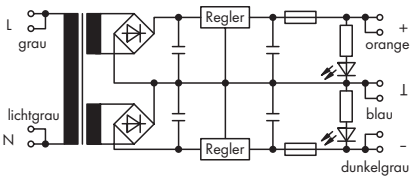
Accessories		
WMB Multi marking system for mounting carrier	see page 506	see page 506
Marker strips for mounting carrier	white 709-198 / translucent 709-196	white 709-198 / translucent 709-196

Rail-Mounted Modules - Power Supplies

	230 VAC / 24 VDC; 2 A Output voltage indication by LED Mounting carrier for DIN 35 rail	230 VAC / ± 12 VDC; 0.5 A 230 VAC / ± 15 VDC; 0.5 A Output voltage indication by LED Mounting carrier for DIN 35 rail





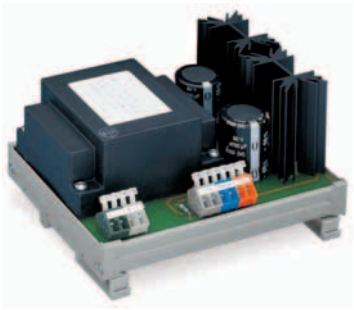


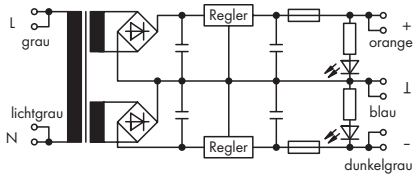
Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Power supply, with universal mounting carrier	**288-812**	1	**288-814**	1
			288-815	1

Technical Data

Nominal input voltage $V_{i\ nom}$	230 VAC	230 VAC
Input voltage range	± 10 %	± 10 %
Frequency	50 Hz ... 60 Hz	50 Hz ... 60 Hz
Power consumption at nominal load	80 VA	27 VA
Nominal output voltage $V_{o\ nom}$	24 VDC	± 12 VDC (288-814)
		± 15 VDC (288-815)
Output voltage range	± 10 %	± 4 %
Output current I_o	2 A	2 x 0.5 A
Residual ripple	≤ 80 mVss	≤ 10 mVss
Input fuse	0.5 A medium-slow	
Output fuse	Electronic, short-circuit protected	2 x 0.8 A slow
Short-circuit current	2.5 A	
Ambient operating temperature	0 °C ... +40 °C	0 °C ... +40 °C
Weight	1900 g	675 g (288-814)
		665 g (288-815)
Dimensions (mm) W x H x L	182 x 98 x 106	94 x 57 x 106
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (256 Series)	CAGE CLAMP® (256 Series)
Cross sections	0.08 ... 2.5 mm² / 28 ... 12 AWG	0.08 ... 2.5 mm² / 28 ... 12 AWG
	(12 AWG: THHN, THWN)	(12 AWG: THHN, THWN)
Stripped lengths	5 ... 6 mm / 0.2 ... 0.24 in.	5 ... 6 mm / 0.2 ... 0.24 in.
Approvals	Transformer acc. to VDE 0551	Transformer acc. to VDE 0551
Accessories		
WMB Multi marking system for mounting carrier	see page 506	see page 506
Marker strips for mounting carrier	white 709-198 / translucent 709-196	white 709-198 / translucent 709-196

	230 VAC / ± 15 VDC; **2 x 1 A short-circuit proof** **Output voltage indication by LED** **Mounting carrier for DIN 35 rail**	





Description	Item No.	Pack. Unit	
Power supply, with universal mounting carrier	**288-816**	1	

Technical Data

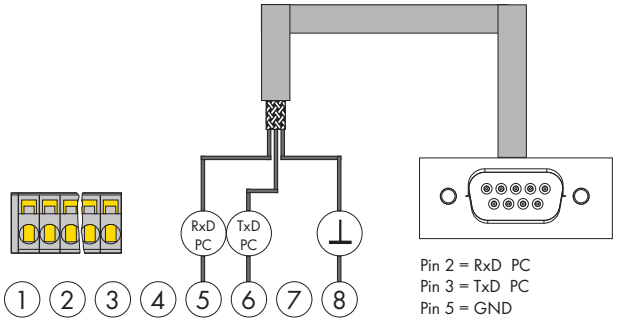
Nominal input voltage $V_{i\,nom}$	230 VAC	
Input voltage range	± 10 %	
Frequency	50 Hz ... 60 Hz	
Power consumption at nominal load	53 VA	
Nominal output voltage $V_{o\,nom}$	± 15 VDC	
Output voltage range	± 4 %	
Output current I_o	2 x 1 A	
Residual ripple	≤ 10 mVss	
Short-circuit current	Approx. 1.5 A	
Ambient operating temperature	0 °C ... +40 °C	
Weight	1011 g	
Dimensions (mm) W x H x L	138 x 87 x 106	
	Height from upper-edge of DIN 35 rail	
Wire connection	CAGE CLAMP® (256 Series)	
Cross sections	0.08 ... 2.5 mm² / 28 ... 12 AWG	
	(12 AWG: THHN, THWN)	
Stripped lengths	5 ... 6 mm / 0.2 ... 0.24 in.	
Approvals	Transformer acc. to VDE 0551	

Accessories

WMB Multi marking system for mounting carrier	see page 506	
Marker strips for mounting carrier	white 709-198 / translucent 709-196	

EPSITRON® Communication Cables with an RS-232 Interface

Similiar to pictured device



The communication cables are used for configuration and visualization via PC or controller.
The communication cables are suitable for 787-1675 or all 787-8xx Series devices equipped with an RS-232 serial interface.
Download the corresponding PC software for all 787 Series devices at www.wago.com/epsitron.
Function blocks for communication with the WAGO-I/O-SYSTEM 750 and other control systems are also available.

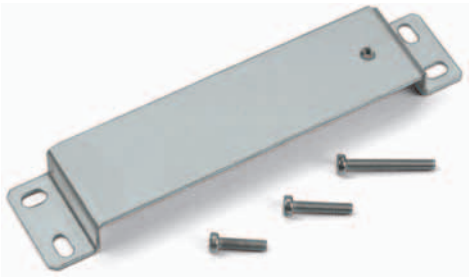
Note:
The 787-890 or 787-892 Communication Cables are not electrically isolated.

Description	Item No.	Pack. Unit
Communication cable with RS-232	**787-890**	1
Communication cable with RS-232, suitable for 787-1675 (not pictured)	**787-892**	1

Technical Data	
Type of signal	Serial Signal (RS-232)
Ports	1 x 8-pole 733-108 Female Connector with strain relief (787-8xx Module side), 1 x 9-pole Sub-D female connector (PC/controller side)
Isolation	No
Cross sections	3 x 0.34 mm² (22 AWG), shielded
Ambient operating temperature	-10°C ... +70°C
Degree of protection	IP20
Length	1.8 m

EPSITRON® Wall Mounting Adapter

	Wall mounting adapter, for screw fixing of 787-8xx devices on mounting plate or wall without DIN 35 rail.	



Wall mounting adapter, for screw fixing of 787-8xx devices on mounting plate or wall without DIN 35 rail.
The wall mounting adapter replaces the rail support of the 787-8xx device.
The adapter is screwed to the 787-8xx device using one of the provided screws.

Description	Item No.	Pack. Unit	
Wall Mount Adapter	**787-895**	*5*	

Technical Data

Material	Galvanized sheet steel	
Dimensions (mm) W x H x L	35 x 15 x 158.5	
Fixing	Fixing holes: 4 slots, 5.3 mm x 9 mm	
	Fixing hole spacing: 143 mm x 19.5 mm	
Included	Wall mounting adapter	
	1x screw M4 x 16	
	1x screw M4 x 20	
	1x screw M4 x 30	

EPSITRON® Carrier Rail Adapter

	Carrier rail adapter for mounting 787-8xx devices to a DIN 35 rail	

Carrier rail adapter for mounting 787-8xx devices to a DIN 35 rail.
The 787-896 Carrier Rail Adapter allows both vertical and horizontal mounting of 787-8xx devices.
Mounting the adapter to the device is performed by sliding both single parts into the guide slots of the cooling element and then screwing, allowing the position to be changed easily.

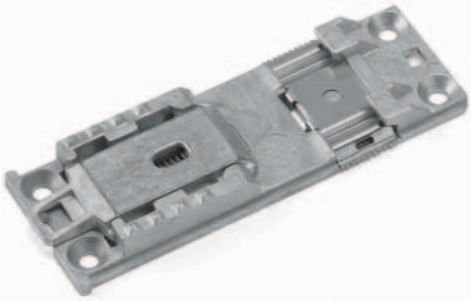
Description	Item No.	Pack. Unit	
Carrier Rail Adapter	**787-896**	1	

Technical Data

Material	Galvanized sheet metal	
Dimensions (mm) W x H x L	35 x 136.5 x 15.5	
Fixing	By sliding both single parts into the guide slot and then screwing	
Included	Carrier rail adapter Assembly instructions	

EPSITRON® Carrier Rail Adapter

	Carrier rail adapter made of zinc die-cast for mounting 787-8xx devices to a DIN 35 rail	

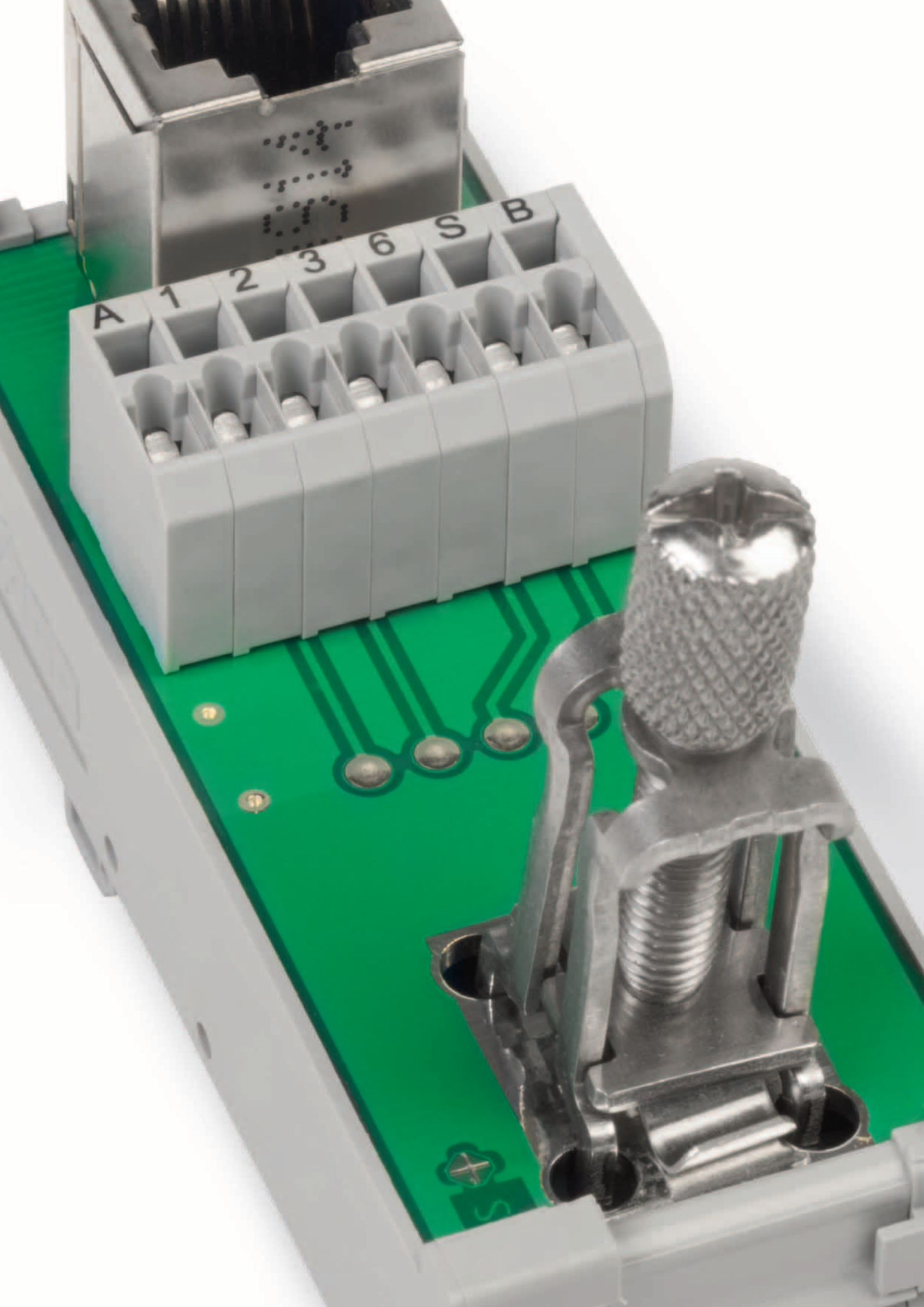


Carrier rail adapter made of zinc die-cast for mounting 787-8xx devices to a DIN 35 rail.
The 787-897 Carrier Rail Adapter allows horizontal mounting of 787-8xx devices.
Mounting the adapter to the device is performed by sliding both single parts into the guide slots of the cooling element and then screwing, allowing the position to be changed easily.

Description	Item No.	Pack. Unit	
Carrier Rail Adapter	**787-897**	1	

Technical Data

Material	Zinc die-cast	
Dimensions (mm) W x H x L	37 x 102.5 x 10.5	
Fixing	By pressing the adapter into the guide slot	
Included	Carrier rail adapter	
	Assembly instructions	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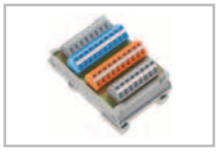
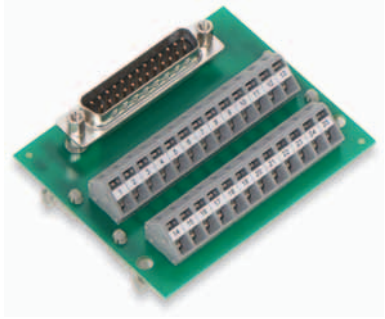
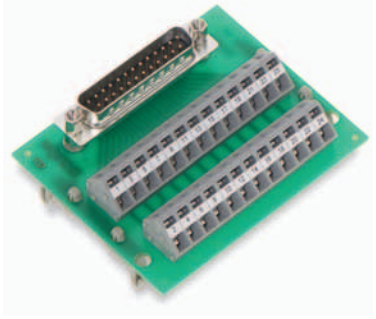
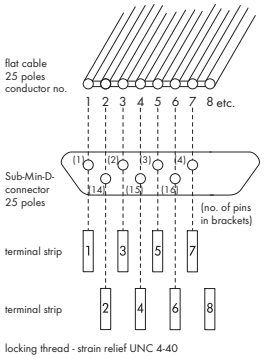
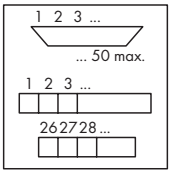
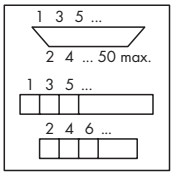
B

Interface Modules

		Page
	Interface Modules for D-Sub/HD D-Sub Connectors 289 Series	364
	Interface Modules for Connectors acc. to DIN 41651 289 Series	374
	Interface Modules for Connectors acc. to DIN 41612 289 Series	376
	Interface Modules for RJ-45 Connectors 289 Series	380
	**Connection Modules for Sensors and Actuators** 289 Series	384

Interface Modules

for D-Sub/HD D-Sub Connectors

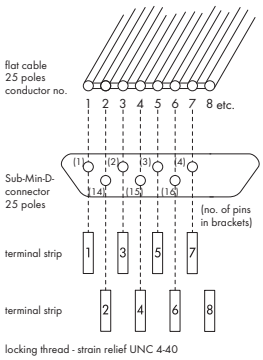
	Interface module with D-subminiature male connector, for mating connectors with solder connection, mating direction vertical Mounting carrier for DIN 35 rail	Interface module with D-subminiature male connector, for mating connectors with IDC, mating direction vertical Mounting carrier for DIN 35 rail
		
		
289-440 to 289-444		

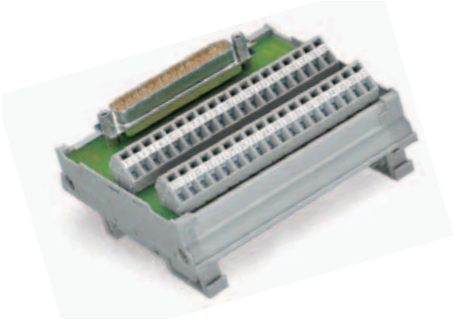
Description	No. of Poles	Width	Item No.	Pack. Unit	No. of Poles	Width	Item No.	Pack. Unit
Interface module	9	38	**289-445**	1	9	38	**289-440**	1
	15	53.5	**289-446**	1	15	53.5	**289-441**	1
	25	79	**289-447**	1	25	79	**289-442**	1
	37	120	**289-448**	1	37	120	**289-443**	1
	50	157	**289-449**	1	50	157	**289-444**	1

Technical Data

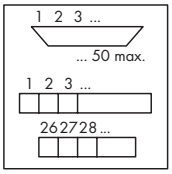
Operating voltage	125 V AC/DC	125 V AC/DC
Nominal current	1 A	1 A
Connector contact	Au over Ni	Au over Ni
Contact resistance	≤ 30 mΩ	≤ 30 mΩ
Performance level	2 / 200 mating cycles	2 / 200 mating cycles
Nominal voltage to EN 60664-1	50 V / 0.8 kV / 2	50 V / 0.8 kV / 2
Ambient operating temperature	-20 °C ... +50 °C	-20 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L,	W x 19 x 63.5	W x 19 x 63.5
incl. mounting carrier or feet		
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (WAGO 236 Series)	CAGE CLAMP® (WAGO 236 Series)
Cross sections	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	5 ... 6 mm / 0.2 ... 0.24 in.

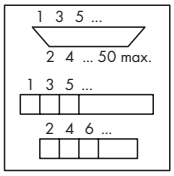
	Interface module with D-subminiature male connector, for mating connectors with solder connection, mating direction vertical Mounting carrier for DIN 35 rail	Interface module with D-subminiature male connector, for mating connectors with IDC, mating direction vertical Mounting carrier for DIN 35 rail





289-540 to 289-544





Description	No. of Poles	Width	Item No.	Pack. Unit	No. of Poles	Width	Item No.	Pack. Unit
Interface module	9	38	**289-545**	1	9	38	**289-540**	1
	15	46	**289-546**	1	15	46	**289-541**	1
	25	72	**289-547**	1	25	72	**289-542**	1
	37	102	**289-548**	1	37	102	**289-543**	1
	50	94	**289-549**	1	50	94	**289-544**	1

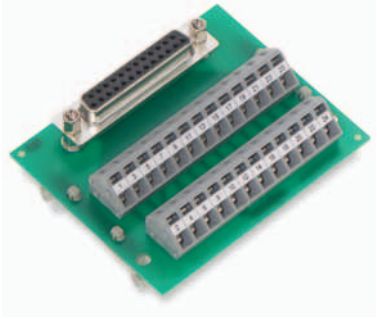
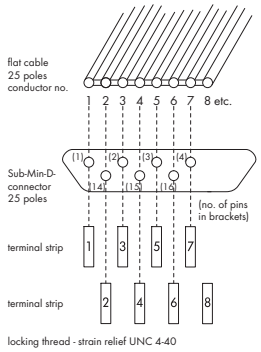
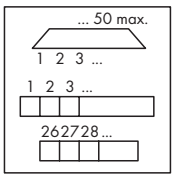
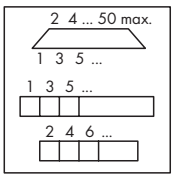
Technical Data

Operating voltage	125 V AC/DC	125 V AC/DC
Nominal current	2 A	2 A
Connector contact	Au over Ni	Au over Ni
Contact resistance	≤ 30 mΩ	≤ 30 mΩ
Performance level	2 / 200 mating cycles	2 / 200 mating cycles
Nominal voltage to EN 60664-1	125 V / 0.8 kV / 2	125 V / 0.8 kV / 2
Ambient operating temperature	-20 °C ... +50 °C	-20 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L,	W x 34 x 85	W x 34 x 85
incl. mounting carrier or feet		
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (WAGO 236 Series)	CAGE CLAMP® (WAGO 236 Series)
Cross sections	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	5 ... 6 mm / 0.2 ... 0.24 in.

Accessories		
WMB Multi marking system for mounting carrier	see page 506	see page 506
Marker strips for mounting carrier	white 709-198 / transparent 709-197	white 709-198 / transparent 709-197

Interface Modules

for D-Sub/HD D-Sub Connectors

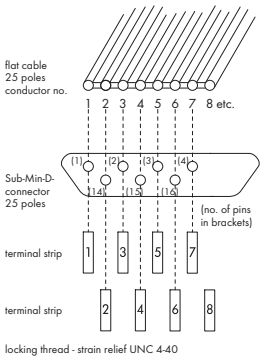
	Interface module with D-subminiature female connector, for mating connectors with solder connection, mating direction vertical Mounting carrier for DIN 35 rail	Interface module with D-subminiature female connector, for mating connectors with IDC, mating direction vertical Mounting carrier for DIN 35 rail
		
		
289-450 to 289-454		
		

Description	No. of Poles	Width	Item No.	Pack. Unit	No. of Poles	Width	Item No.	Pack. Unit
Interface module	9	38	**289-455**	1	9	38	**289-450**	1
	15	53.5	**289-456**	1	15	53.5	**289-451**	1
	25	79	**289-457**	1	25	79	**289-452**	1
	37	120	**289-458**	1	37	120	**289-453**	1
	50	157	**289-459**	1	50	157	**289-454**	1

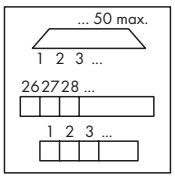
Technical Data

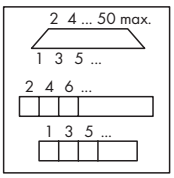
Operating voltage	125 V AC/DC	125 V AC/DC
Nominal current	1 A	1 A
Connector contact	Au over Ni	Au over Ni
Contact resistance	≤ 30 mΩ	≤ 30 mΩ
Performance level	2 / 200 mating cycles	2 / 200 mating cycles
Nominal voltage to EN 60664-1	50 V / 0.8 kV / 2	50 V / 0.8 kV / 2
Ambient operating temperature	-20 °C ... +50 °C	-20 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L,	W x 19 x 63.5	W x 19 x 63.5
incl. mounting carrier or feet		
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (WAGO 236 Series)	CAGE CLAMP® (WAGO 236 Series)
Cross sections	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	5 ... 6 mm / 0.2 ... 0.24 in.

	Interface module with D-subminiature female connector, for mating connectors with solder connection, mating direction vertical Mounting carrier for DIN 35 rail	Interface module with D-Subminiature female connector, for mating connectors with IDC, mating direction vertical Mounting carrier for DIN 35 rail



289-550 to 289-554





Description	No. of Poles	Width	Item No.	Pack. Unit	No. of Poles	Width	Item No.	Pack. Unit
Interface module	9	38	**289-555**	1	9	38	**289-550**	1
	15	46	**289-556**	1	15	46	**289-551**	1
	25	72	**289-557**	1	25	72	**289-552**	1
	37	102	**289-558**	1	37	102	**289-553**	1
	50	94	**289-559**	1	50	94	**289-554**	1

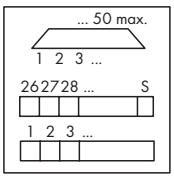
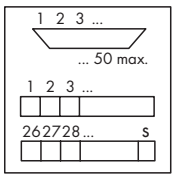
Technical Data

Operating voltage	125 V AC/DC	125 V AC/DC
Nominal current	2 A	2 A
Connector contact	Au over Ni	Au over Ni
Contact resistance	≤ 30 mΩ	≤ 30 mΩ
Performance level	2 / 200 mating cycles	2 / 200 mating cycles
Nominal voltage to EN 60664-1	125 V / 0.8 kV / 2	125 V / 0.8 kV / 2
Ambient operating temperature	-20 °C ... +50 °C	-20 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L,	W x 34 x 85	W x 34 x 85
incl. mounting carrier or feet		
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (WAGO 236 Series)	CAGE CLAMP® (WAGO 236 Series)
Cross sections	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	5 ... 6 mm / 0.2 ... 0.24 in.

Accessories		
WMB Multi marking system for mounting carrier	see page 506	see page 506
Marker strips for mounting carrier	white 709-198 / transparent 709-197	white 709-198 / transparent 709-197

Interface Modules

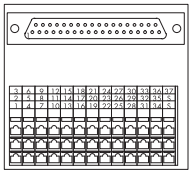
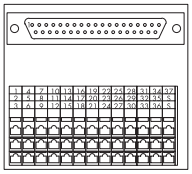
for D-Sub/HD D-Sub Connectors

	Interface module with D-subminiature female connector, for mating connectors with solder connection, mating direction vertical, shield (screen) connection Mounting carrier for DIN 35 rail	Interface module with D-subminiature male connector, for mating connectors with solder connection, mating direction vertical, shield (screen) connection Mounting carrier for DIN 35 rail
		

Description	No. of Poles	Width	Item No.	Pack. Unit	No. of Poles	Width	Item No.	Pack. Unit
Interface module	9	33	**289-575**	1	9	38.5	**289-585**	1
	15	43	**289-576**	1	15	46	**289-586**	1
	25	68.5	**289-577**	1	25	71.5	**289-587**	1
	37	99	**289-578**	1	37	102	**289-588**	1

Technical Data

Operating voltage	125 V AC/DC	125 V AC/DC
Nominal current	2 A	2 A
Connector contact	Au over Ni	Au over Ni
Contact resistance	≤ 30 mΩ	≤ 30 mΩ
Performance level	2 / 200 mating cycles	2 / 200 mating cycles
Nominal voltage to EN 60664-1	125 V / 0.8 kV / 2	125 V / 0.8 kV / 2
Ambient operating temperature	-20 °C ... +50 °C	-20 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L,	W x 34 x 85	W x 34 x 85
incl. mounting carrier or feet		
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (WAGO 236 Series)	CAGE CLAMP® (WAGO 236 Series)
Cross sections	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	5 ... 6 mm / 0.2 ... 0.24 in.
Accessories		
WMB Multi marking system for mounting carrier	see page 506	see page 506
Marker strips for mounting carrier	white 709-198 / transparent 709-197	white 709-198 / transparent 709-197

	Interface module with D-subminiature female connector, for mating connectors with solder connection, mating direction vertical, shield (screen) connection Mounting carrier for DIN 35 rail	Interface module with D-subminiature male connector, for mating connectors with solder connection, mating direction vertical, shield (screen) connection Mounting carrier for DIN 35 rail
		

Description	No. of Poles	Width	Item No.	Pack. Unit	No. of Poles	Width	Item No.	Pack. Unit
Interface module	25	56	**289-623**	1	25	56	**289-620**	1
	37	74	**289-624**	1	37	74	**289-621**	1

Technical Data

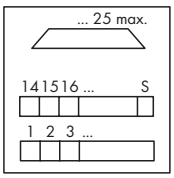
Operating voltage	125 V AC/DC	125 V AC/DC
Nominal current	2 A	2 A
Connector contact	Au over Ni	Au over Ni
Contact resistance	≤ 30 mΩ	≤ 30 mΩ
Performance level	2 / 200 mating cycles	2 / 200 mating cycles
Nominal voltage to EN 60664-1	125 V / 0.8 kV / 2	125 V / 0.8 kV / 2
Mounting direction	vertical	
Pull relief stud bolt	UNC 4-40	
Ambient operating temperature	-20 °C ... +55 °C	-20 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L,	W x 62 x 85	W x 62 x 85
incl. mounting carrier or feet		
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (WAGO 737 Series)	CAGE CLAMP® (WAGO 737 Series)
Cross sections	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	5 ... 6 mm / 0.2 ... 0.24 in.

Accessories		
WMB Multi marking system for mounting carrier	see page 506	see page 506
Marker strips for mounting carrier	white 709-198 / transparent 709-197	white 709-198 / transparent 709-197

Interface Modules

for D-Sub/HD D-Sub Connectors

	Interface module with D-subminiature female connector with shield (screen) connection **Mounting carrier for DIN 35 rail**	



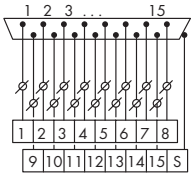
Description	No. of Poles	Width	Item No.	Pack. Unit	
Interface module	9	33	**289-650**	1	
	25	68.5	**289-652**	1	

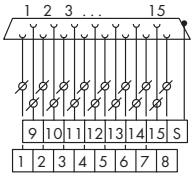
Technical Data

Operating voltage	125 V AC/DC
Nominal current	2 A
Connector contact	Au over Ni
Contact resistance	≤ 30 mΩ
Performance level	2 / 200 mating cycles
Nominal voltage to EN 60664-1	125 V / 0.8 kV / 2
Mounting direction	vertical
Pull relief stud bolt	UNC 4-40
Ambient operating temperature	-20 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C
Dimensions (mm) W x H x L,	W x 48 x 85
incl. mounting carrier or feet	
	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (WAGO 736 Series)
Cross sections	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.

Accessories	
WMB Multi marking system for mounting carrier	see page 506
Marker strips for mounting carrier	white 709-198 / transparent 709-197

	Interface module with D-subminiature male connector Mounting carrier for DIN 35 rail	Interface module with D-subminiature female connector Mounting carrier for DIN 35 rail





1 solder pin per pole is available for testing and patching (except for shield (screen) contact)

Description	No. of Poles	Width	Item No.	Pack. Unit	No. of Poles	Width	Item No.	Pack. Unit
Interface module	9	33.5	**289-720**	1	9	33.5	**289-725**	1
	15	43.5	**289-721**	1	15	43.5	**289-726**	1

Technical Data

Operating voltage	125 V AC/DC	125 V AC/DC
Nominal current	2 A	2 A
Connector contact	Au over Ni	Au over Ni
Contact resistance	≤ 30 mΩ	≤ 30 mΩ
Performance level	2 / 200 mating cycles	2 / 200 mating cycles
Nominal voltage to EN 60664-1	50 V / 0.8 kV / 2	50 V / 0.8 kV / 2
Mounting direction	vertical	vertical
Pull relief stud bolt	UNC 4-40	UNC 4-40
Ambient operating temperature	-20 °C ... +50 °C	-20 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L,	W x 48 x 85	W x 48 x 85
incl. mounting carrier or feet		
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (WAGO 736 Series)	CAGE CLAMP® (WAGO 736 Series)
Cross sections	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	5 ... 6 mm / 0.2 ... 0.24 in.

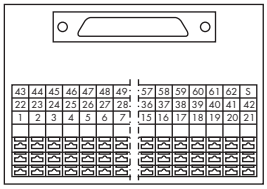
Accessories		
WMB Multi marking system for mounting carrier	see page 506	see page 506
Marker strips for mounting carrier	white 709-198 / transparent 709-197	white 709-198 / transparent 709-197

Interface Modules

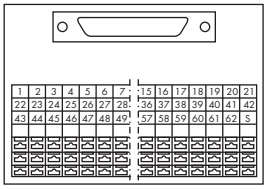
for D-Sub/HD D-Sub Connectors

	Interface module with HD D-sub female connector, mounting carrier for DIN 35 rail	Interface module with HD D-sub male connector, mounting carrier for DIN 35 rail

Picture: 289-708
Drawing: 289-708



Picture: 289-710
Drawing: 289-710

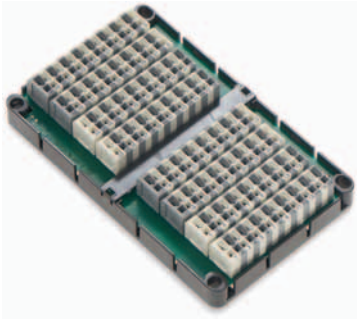


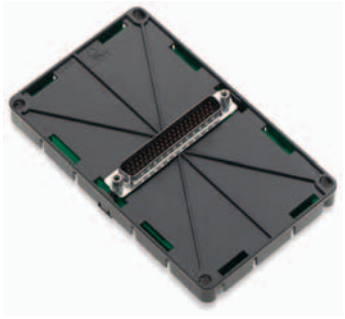
Description	No. of Poles	Width	Item No.	Pack. Unit	No. of Poles	Width	Item No.	Pack. Unit
Interface module	15	35	**289-713**	1	15	35	**289-714**	1
	44	79	**289-707**	1				
	62	108	**289-708**	1	62	62	**289-710**	1

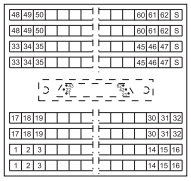
Technical Data

Operating voltage	125 V AC/DC	125 V AC/DC
Nominal current	1 A	1 A
Connector contact	Au over Ni	Au over Ni
Contact resistance	≤ 15 mΩ	≤ 15 mΩ
Performance level	3 / 50 mating cycles	3 / 50 mating cycles
Nominal voltage to EN 60664-1	125 V / 0.8 kV / 2	125 V / 0.8 kV / 2
Mounting direction	vertical	vertical
Pull relief stud bolt	UNC 4-40	UNC 4-40
Ambient operating temperature	-20 °C ... +55 °C	-20 °C ... +55 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L,		
incl. mounting carrier or feet	W x 62 x 85	W x 62 x 85
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (WAGO 737 Series)	CAGE CLAMP® (WAGO 737 Series)
Cross sections	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
	(12 AWG: THHN, THWN)	(12 AWG: THHN, THWN)
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	5 ... 6 mm / 0.2 ... 0.24 in.
Standards/specifications	VDE 0660, EN 60947	VDE 0660, EN 60947
Accessories		
WMB Multi marking system for mounting carrier	see page 506	see page 506
Marker strips for mounting carrier	White 709-198 / Transparent 709-197	White 709-198 / Transparent 709-197

Interface module
with high density D-sub header
for 19" racks







Description	No. of Poles	Width	Item No.	Pack. Unit	
Interface module for 19" racks	62	80	**289-822**	1	

Technical Data

Operating voltage	125 V AC/DC
Nominal current	1 A
Connector contact	0.8 µm Au over Ni
Contact resistance	≤ 10 mΩ
Performance level	2 / 400 mating cycles
Nominal voltage to EN 60664-1	125 V / 0.8 kV / 2
Touch-proof terminal strip	IP20
Touch-proof HD D-sub header	IP00
Dimensions (mm) W x H x L,	W x 27 x 132
incl. mounting carrier or feet	
Wire connection	CAGE CLAMP® (WAGO 739 Series)
Cross sections	0.08 mm² ... 1.5 mm² / 28 ... 14 AWG
	(AWG14: THHN, THWN)
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.
Mounting direction	vertical
Pull relief stud bolt	UNC 4-40
Ambient operating temperature	-20 °C ... +55 °C
Storage temperature	-40 °C ... +70 °C
Standards/specifications	EN 60664

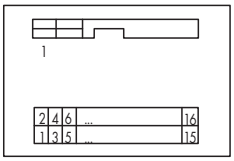
Interface Modules

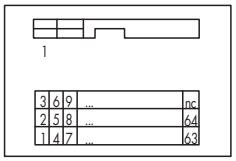
for Connectors acc. to DIN 41651

	Interface module for connectors acc. to DIN 41651 Mounting carrier for DIN 35 rail	Interface module for connectors acc. to DIN 41651 Mounting carrier for DIN 35 rail

Picture: 289-612
Drawing: 289-613

Picture: 289-616
Drawing: 289-619



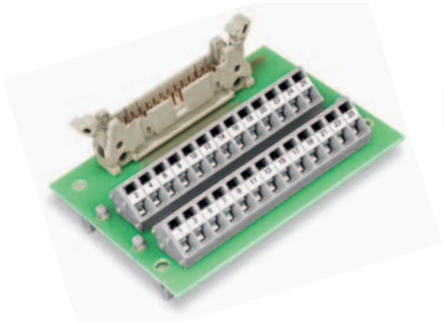


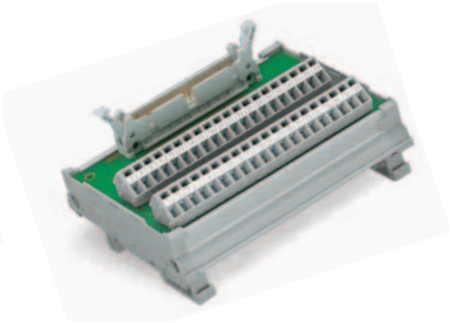
Description	No. of Poles	Width	Item No.	Pack. Unit	No. of Poles	Width	Item No.	Pack. Unit
Interface module	10	35	**289-611**	1	20	47	**289-614**	1
	14	40	**289-612**	1	26	55	**289-615**	1
	16	45	**289-613**	1	34	65	**289-616**	1
					40	74	**289-617**	1
					50	88	**289-618**	1
					64	114	**289-619**	1

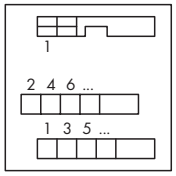
Technical Data

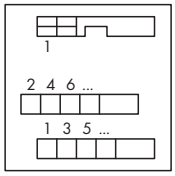
Operating voltage	125 V AC/DC	125 V AC/DC
Nominal current	1 A	1 A
Connector contact	Au over Ni	Au over Ni
Performance level	3 / 50 mating cycles	3 / 50 mating cycles
Nominal voltage to EN 60664-1	125 V / 0.8 kV / 2	125 V / 0.8 kV / 2
Mounting direction	vertical	vertical
Ambient operating temperature	-20 °C ... +55 °C	-20 °C ... +55 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L,	W x 48 x 85	W x 62 x 85
incl. mounting carrier or feet		
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (WAGO 736 Series)	CAGE CLAMP® (WAGO 737 Series)
Cross sections	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	5 ... 6 mm / 0.2 ... 0.24 in.
Standards/specifications	IEC 60603-1 / DIN 41651 Part 1 and 2	IEC 60603-1 / DIN 41651 Part 1 and 2
Accessories		
WMB Multi marking system for mounting carrier	see page 506	see page 506
Marker strips for mounting carrier	white 709-198 / transparent 709-197	white 709-198 / transparent 709-197

	Interface module for connectors acc. to DIN 41651 Mounting carrier for DIN 35 rail	Interface module for connectors acc. to DIN 41651 Mounting carrier for DIN 35 rail









Description	No. of Poles	Width	Item No.	Pack. Unit	No. of Poles	Width	Item No.	Pack. Unit
Interface module	10	41	**289-401**	1	10	38	**289-501**	1
	14	51.5	**289-402**	1	14	43	**289-502**	1
	16	56.5	**289-403**	1	16	46	**289-503**	1
	20	66.5	**289-404**	1	20	53.5	**289-504**	1
	26	81	**289-405**	1	26	71	**289-505**	1
	34	102	**289-406**	1	34	94	**289-506**	1
	40	126	**289-407**	1	40	114	**289-507**	1
	50	151	**289-408**	1	50	132	**289-508**	1
	64	187	**289-409**	1	64	170	**289-509**	1
					64	120	**289-510**	1

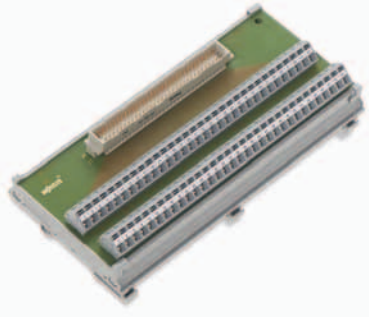
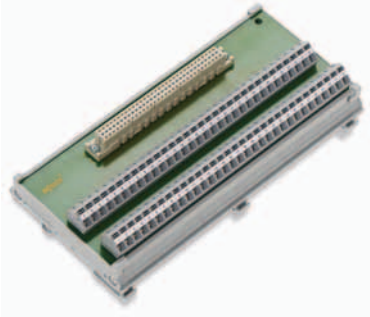
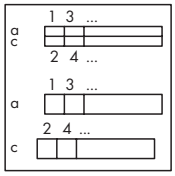
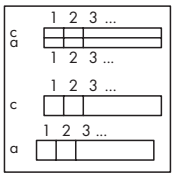
Technical Data

Operating voltage	125 V AC/DC	125 V AC/DC
Nominal current	1 A	1 A
Connector contact	Au over Ni	Au over Ni
Performance level	3 / 50 mating cycles	3 / 50 mating cycles
Nominal voltage to EN 60664-1	50 V / 0.8 kV / 2	125 V / 0.8 kV / 2
Dimensions (mm) W x H x L,	W x 28 x 63.5	W x 36 x 85
incl. mounting carrier or feet		
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (WAGO 236 Series)	CAGE CLAMP® (WAGO 236 Series)
Cross sections	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	5 ... 6 mm / 0.2 ... 0.24 in.

Accessories		
WMB Multi marking system for mounting carrier		see page 506
Marker strips for mounting carrier		white 709-198 / transparent 709-197

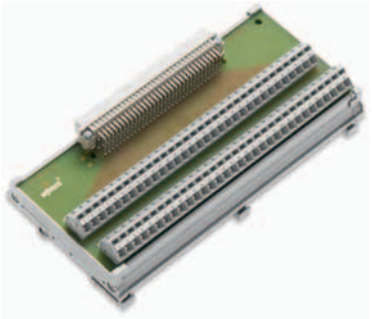
Interface Modules

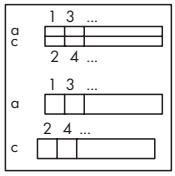
for Connectors acc. to DIN 41612

	Interface module for connectors acc. to DIN 41 612, with female connector, type C, mating direction vertical, for female connector with IDC connection Mounting carrier for DIN 35 rail	Interface module for connectors acc. to DIN 41 612, with female connector, type C, mating direction vertical, for male connector with solder contact Mounting carrier for DIN 35 rail
		
		

Description	No. of poles	Width	Item No.	Pack. Unit	No. of poles	Width	Item No.	Pack. Unit
Interface module	64	171	**289-522**	1	64	171	**289-531**	1
Technical Data								
Operating voltage	125 V AC/DC				125 V AC/DC			
Nominal current	1 A				1 A			
Connector contact	Copper alloy, gold plated				Copper alloy, gold plated			
Contact resistance	≤ 20 mΩ				≤ 20 mΩ			
Performance level	2 / 400 mating cycles				2 / 400 mating cycles			
Nominal voltage to EN 60664-1	125 V / 0.8 kV / 2				125 V / 0.8 kV / 2			
Dimensions (mm) W x H x L,	W x 34 x 85				W x 34 x 85			
incl. mounting carrier or feet								
	Height from upper-edge of DIN 35 rail				Height from upper-edge of DIN 35 rail			
Wire connection	CAGE CLAMP® (WAGO 236 Series)				CAGE CLAMP® (WAGO 236 Series)			
Cross sections	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG				0.08 mm² ... 2.5 mm² / 28 ... 12 AWG			
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.				5 ... 6 mm / 0.2 ... 0.24 in.			
Accessories								
WMB Multi marking system for mounting carrier	see page 506				see page 506			
Marker strips for mounting carrier	white 709-198 / transparent 709-197				white 709-198 / transparent 709-197			

	Interface module for connectors acc. to DIN 41 612, with female connector, type C, mating direction horizontal, for female connector with IDC connection Mounting carrier for DIN 35 rail	





Description	No. of poles	Width	Item No.	Pack. Unit	
Interface module	64	171	**289-523**	1	

Technical Data

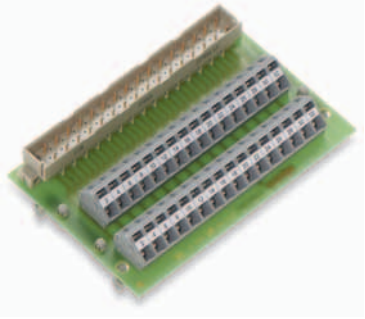
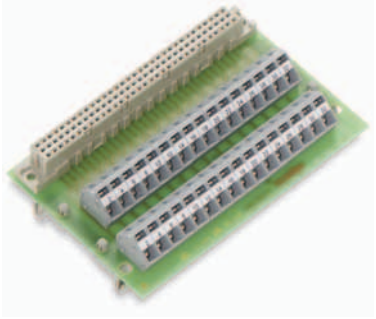
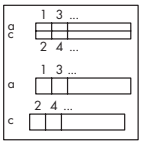
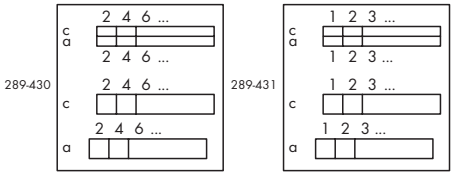
Operating voltage	125 V AC/DC	
Nominal current	1 A	
Connector contact	Copper alloy, gold plated	
Contact resistance	≤ 20 mΩ	
Performance level	2 / 400 mating cycles	
Nominal voltage to EN 60664-1	125 V / 0.8 kV / 2	
Dimensions (mm) W x H x L,	W x 34 x 85	
incl. mounting carrier or feet		
	Height from upper-edge of DIN 35 rail	
Wire connection	CAGE CLAMP® (WAGO 236 Series)	
Cross sections	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG	
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	

Accessories

WMB Multi marking system for mounting carrier	see page 506	
Marker strips for mounting carrier	white 709-198 / transparent 709-197	

Interface Modules

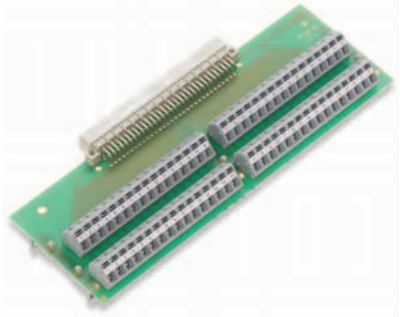
for Connectors acc. to DIN 41612

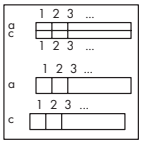
	Interface module for connectors acc. to DIN 41 612, with male connector, type C, mating direction vertical, for connector with IDC, Mounting carrier for DIN 35 rail	Interface module for connectors acc. to DIN 41 612, with female connector, type C, mating direction vertical, for male connector with solder contact Mounting carrier for DIN 35 rail
		
		

Description	No. of poles	Width	Item No.	Pack. Unit	No. of poles	Width	Item No.	Pack. Unit
Interface module	64	187	**289-422**	1	32	97	**289-430**	1
					64	187	**289-431**	1

Technical Data		
Operating voltage	125 V AC/DC	125 V AC/DC
Nominal current	1 A	1 A
Connector contact	Copper alloy, gold plated	Copper alloy, gold plated
Contact resistance	≤ 20 mΩ	≤ 20 mΩ
Performance level	2 / 400 mating cycles	2 / 400 mating cycles
Nominal voltage to EN 60664-1	50 V / 0.8 kV / 2	50 V / 0.8 kV / 2
Dimensions (mm) W x H x L,	W x 21 x 63.5	W x 21 x 63.5
incl. mounting carrier or feet		
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (WAGO 236 Series)	CAGE CLAMP® (WAGO 236 Series)
Cross sections	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	5 ... 6 mm / 0.2 ... 0.24 in.
Accessories		
WMB Multi marking system for mounting carrier		see page 506
Marker strips for mounting carrier		white 709-198 / transparent 709-197

	Interface module for connectors acc. to DIN 41 612, with male connector, type C, mating direction horizontal, for connector with solder contact, Mounting carrier for DIN 35 rail	





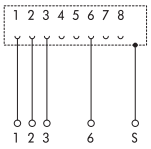
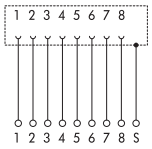
Description	No. of poles	Width	Item No.	Pack. Unit	
Interface module	64	187	**289-427**	1	

Technical Data

Operating voltage	125 V AC/DC	
Nominal current	1 A	
Connector contact	Copper alloy, gold plated	
Contact resistance	≤ 20 mΩ	
Performance level	2 / 400 mating cycles	
Nominal voltage to EN 60664-1	50 V / 0.8 kV / 2	
Dimensions (mm) W x H x L,	W x 21 x 63.5	
incl. mounting carrier or feet		
	Height from upper-edge of DIN 35 rail	
Wire connection	CAGE CLAMP® (WAGO 236 Series)	
Cross sections	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG	
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	

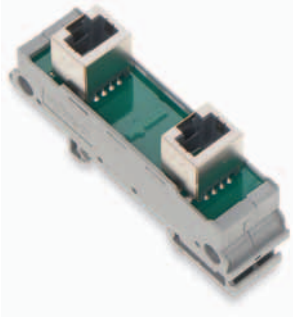
Interface Modules

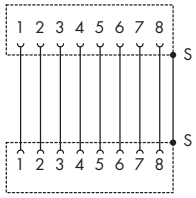
for RJ-45 Connectors

	RJ-45 interface module with shield clamping unit for WAGO shield (screen) clamping saddle Mounting carrier for DIN 35 rail	RJ-45 interface module with shield clamping unit for WAGO shield (screen) clamping saddle Mounting carrier for DIN 35 rail
		

Description	Item No.	Pack. Unit	Item No.	Pack. Unit
RJ-45 Interface module	**289-174**	1	**289-175**	1
Technical Data				
Connecting cable	min. CAT5		min. CAT5	
Max. transmission length	100 m		100 m	
Connector	RJ-45 shielded		RJ-45 shielded	
Min. mating cycles	500		500	
Current load	≤ 1.5 A		≤ 1.5 A	
Insulation resistance	> 500 MΩ		> 500 MΩ	
Dielectric strength contact-contact	1 kV_{rms}		1 kV_{rms}	
Contact resistance	typ. < 20 mΩ		typ. < 20 mΩ	
Ambient operating temperature	-40 °C ... +85 °C		-40 °C ... +85 °C	
	(actuation: -35 °C ... +85 °C)		(actuation: -35 °C ... +85 °C)	
Dimensions (mm) W x H x L,	24 x 40 x 85		24 x 40 x 85	
incl. mounting carrier or feet				
	Height from upper-edge of DIN 35 rail		Height from upper-edge of DIN 35 rail	
Wire connection	CAGE CLAMP® (WAGO 739 Series)		CAGE CLAMP® (WAGO 739 Series)	
Cross sections	0.08 mm² ... 1.5 mm² / 28 ... 14 AWG		0.08 mm² ... 1.5 mm² / 28 ... 14 AWG	
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.		5 ... 6 mm / 0.2 ... 0.24 in.	
Standards/specifications	ISO/IEC 11801: 2002-09; EN 55022		ISO/IEC 11801: 2002-09; EN 55022	
Accessories				
WMB Multi marking system for mounting carrier	see page 506		see page 506	
Marker strips for mounting carrier	white 709-198 / transparent 709-197		white 709-198 / transparent 709-197	
WAGO shield (screen) clamping saddle	790-108 (11 mm wide; cable diameter up to 8 mm)		790-108 (11 mm wide; cable diameter up to 8 mm)	

	RJ-45 interface module **Mounting carrier for DIN 35 rail**	





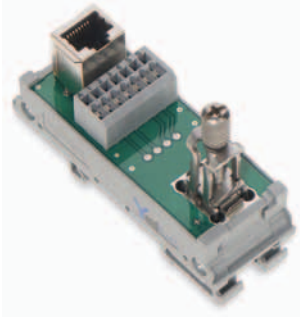
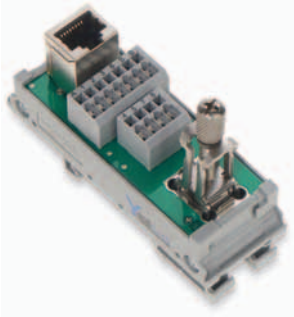
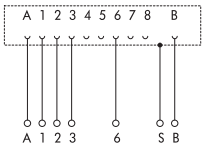
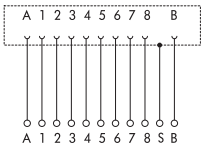
Description	Item No.	Pack. Unit	
RJ-45 Interface module	**289-172**	1	

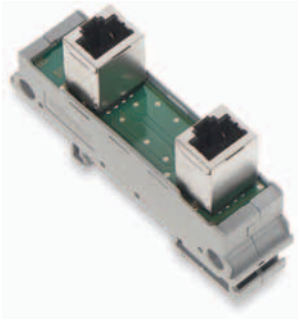
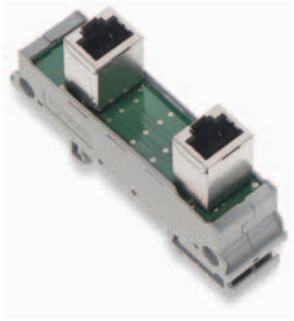
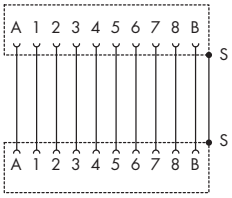
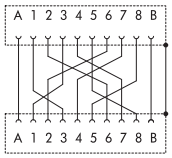
Technical Data

Connecting cable	min. CAT5	
Max. transmission length	100 m	
Connector	RJ-45 shielded	
Min. mating cycles	500	
Current load	≤ 1.5 A	
Voltage load	30VAC / 42 VDC	
Insulation resistance	> 500 MΩ	
Dielectric strength contact-contact	1 kV_{rms}	
Contact resistance typ.	< 20mΩ	
Ambient operating temperature	-40 °C ... +85 °C	
Dimensions (mm) W x H x L,	20.5 x 51 x 85	
incl. mounting carrier or feet		
	Height from upper-edge of DIN 35 rail	
Standards/specifications	ISO/IEC 11801: 2002-09; EN 55022	
Accessories		
WMB Multi marking system for mounting carrier	see page 506	
Marker strips for mounting carrier	white 709-198 / transparent 709-197	

Interface Modules

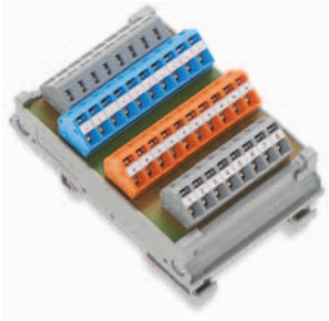
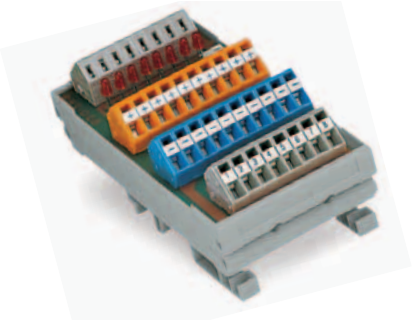
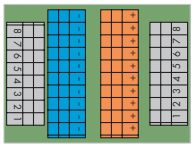
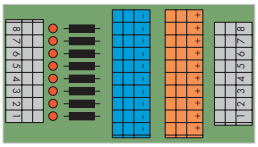
for RJ-45 Connectors

	RJ-45 interface module with power contacts and shield clamping unit with WAGO shield (screen) clamping saddle Mounting carrier for DIN 35 rail	RJ-45 interface module with power contacts and shield carrier with WAGO shield clamping saddle Mounting carrier for DIN 35 rail
		
		
Description	**Item No.** / **Pack. Unit**	**Item No.** / **Pack. Unit**
RJ-45 Interface module with power contacts	**289-178** / 1	**289-179** / 1
Technical Data		
Connecting cable	min. CAT5	min. CAT5
Max. transmission length	100 m	100 m
Connector	RJ-45 shielded, with 2 additional power contacts	RJ-45 shielded, with 2 additional power contacts
Min. mating cycles	1000	1000
Current load	≤ 2.1 A	≤ 2.1 A
Voltage load	35 VAC / 50 VDC	35 VAC / 50 VDC
Insulation resistance	> 500 MΩ	> 500 MΩ
Dielectric strength contact-contact	1 kV_{rms}	1 kV_{rms}
Contact resistance	typ. 40 mΩ	< 40 mΩ
WAGO shield (screen) clamping saddle	11 mm wide; cable diameter up to 8 mm	790-108 (11 mm wide; up to 8 mm cable diameter)
Ambient operating temperature	-40 °C ... +85 °C (actuation: -35 °C ... +85 °C)	-40 °C ... +85 °C (actuation: -35 °C ... +85 °C)
Dimensions (mm) W x H x L, incl. mounting carrier or feet	30 x 67 x 85 Height from upper-edge of DIN 35 rail	30 x 67 x 85 Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®	CAGE CLAMP® (WAGO 739 Series)
Cross sections	0.08 mm² ... 1.5 mm² / 28 ... 14 AWG	0.08 mm² ... 1.5 mm² / 28 ... 14 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	5 ... 6 mm / 0.2 ... 0.24 in.
Standards/specifications	ISO/IEC 11801: 2002-09; EN 55022	ISO/IEC 11801: 2002-09; EN 55022
Accessories		
WMB Multi marking system for mounting carrier	see page 506	see page 506
Marker strips for mounting carrier	white 709-198 / transparent 709-197	

	RJ-45 interface module with power contacts Mounting carrier for DIN 35 rail	RJ-45 interface module with power contacts cross-over connection Mounting carrier for DIN 35 rail
		
		
Description	**Item No.** / **Pack. Unit**	**Item No.** / **Pack. Unit**
RJ-45 Interface module with power contacts	**289-176** / 1	**289-177** / 1
Technical Data		
Connecting cable	min. CAT5	min. CAT5
Max. transmission length	100 m	100 m
Connector	RJ-45 shielded, with 2 additional power contacts	RJ-45 shielded, with 2 additional power contacts
Min. mating cycles	1000	1000
Current load	≤ 2.1 A	≤ 2.1 A
Voltage load	35 VAC / 50 VDC	35 VAC / 50 VDC
Insulation resistance	> 500 MΩ	> 500 MΩ
Dielectric strength contact-contact	1 kV_{rms}	1 kV_{rms}
Contact resistance typ.	< 40mΩ	typ. < 40 mΩ
Ambient operating temperature	-40 °C ... +85 °C	-40 °C ... +85 °C
Dimensions (mm) W x H x L, incl. mounting carrier or feet	30 x 51 x 85 Height from upper-edge of DIN 35 rail	30 x 51 x 85 Height from upper-edge of DIN 35 rail
Standards/specifications	ISO/IEC 11801: 2002-09; EN 55022	ISO/IEC 11801: 2002-09; EN 55022
Accessories		
WMB Multi marking system for mounting carrier	see page 506	see page 506
Marker strips for mounting carrier	white 709-198 / transparent 709-197	white 709-198 / transparent 709-197

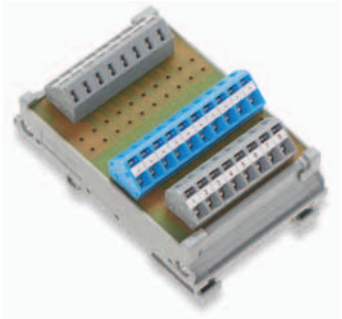
Interface Modules

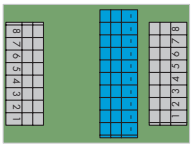
Connection Modules for Sensors and Actuators

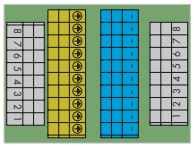
	Connection module for 8 x 3-conductor sensors	Connection module for 8 x 3-conductor sensors LED indicator for positive switching
		
		

Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Connection module	**289-664**	1	**289-665**	1
Technical Data				
Operating voltage	125 V AC/DC		24 VDC (± 10 %)	
Max. current per connection	1 A		1 A	
Max. total current	8 A		8 A	
Power consumption LED			5.2 mA	
Nominal voltage to EN 60664-1	125 V / 1.5 kV / 2			
Dimensions (mm) W x H x L,	56 x 34 x 85		56 x 34 x 105	
incl. mounting carrier or feet				
	Height from upper-edge of DIN 35 rail		Height from upper-edge of DIN 35 rail	
Wire connection	CAGE CLAMP® (WAGO 236 Series)		CAGE CLAMP® (WAGO 236 Series)	
Cross sections	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG		0.08 mm² ... 2.5 mm² / 28 ... 12 AWG	
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.		5 ... 6 mm / 0.2 ... 0.24 in.	
Accessories				
WMB Multi marking system for mounting carrier	see page 506		see page 506	
Marker strips for mounting carrier	white 709-198 / transparent 709-197		white 709-198 / transparent 709-197	

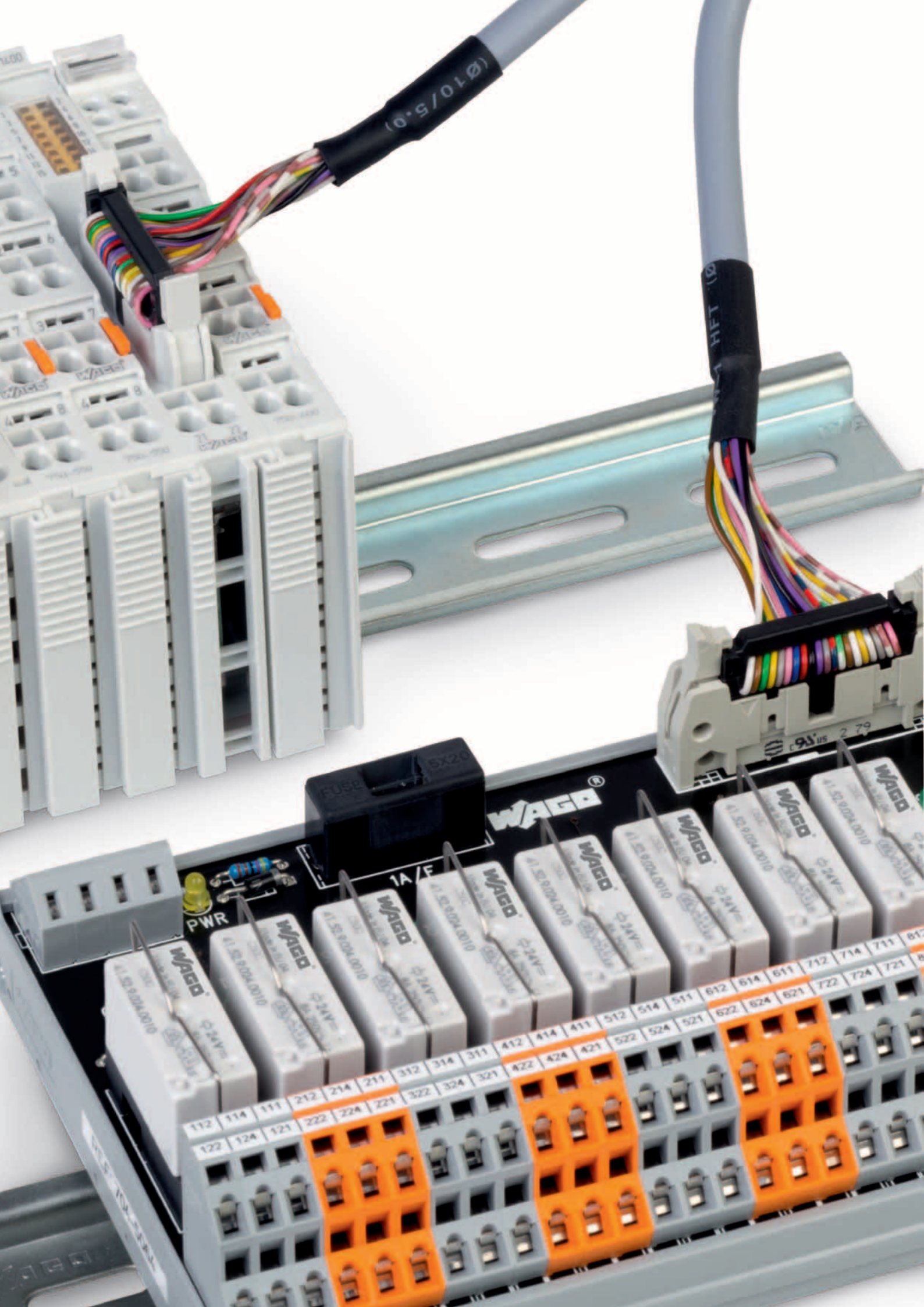
	Connection module for 8 actuators	Connection module for 8 actuators with shield (screen) connection



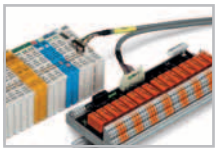




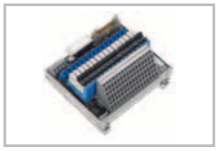
Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Connection module	**289-667**	1	**289-671**	1
Technical Data				
Operating voltage	125 V AC/DC		125 V AC/DC	
Max. current per connection	1 A		1 A	
Max. total current	8 A		8 A	
Nominal voltage to EN 60664-1	125 V / 1.5 kV / 2		125 V / 1.5 kV / 2	
Dimensions (mm) W x H x L,	56 x 34 x 85		56 x 34 x 85	
incl. mounting carrier or feet				
	Height from upper-edge of DIN 35 rail		Height from upper-edge of DIN 35 rail	
Wire connection	CAGE CLAMP® (WAGO 236 Series)		CAGE CLAMP® (WAGO 236 Series)	
Cross sections	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG		0.08 mm² ... 2.5 mm² / 28 ... 12 AWG	
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.		5 ... 6 mm / 0.2 ... 0.24 in.	
Accessories				
WMB Multi marking system for mounting carrier	see page 506		see page 506	
Marker strips for mounting carrier	white 709-198 / transparent 709-197		white 709-198 / transparent 709-197	


WAGO
PWR
FUSE
1A/F

Page



WAGO System Wiring
Overview and Application Examples 388



Interface Modules for System Wiring
704 Series 392
Interface Adapters, 857 Series 402

WAGO Interface Cables, 706 Series
for 289, 704 Series 404
for Interface Adapters, 857 Series 412

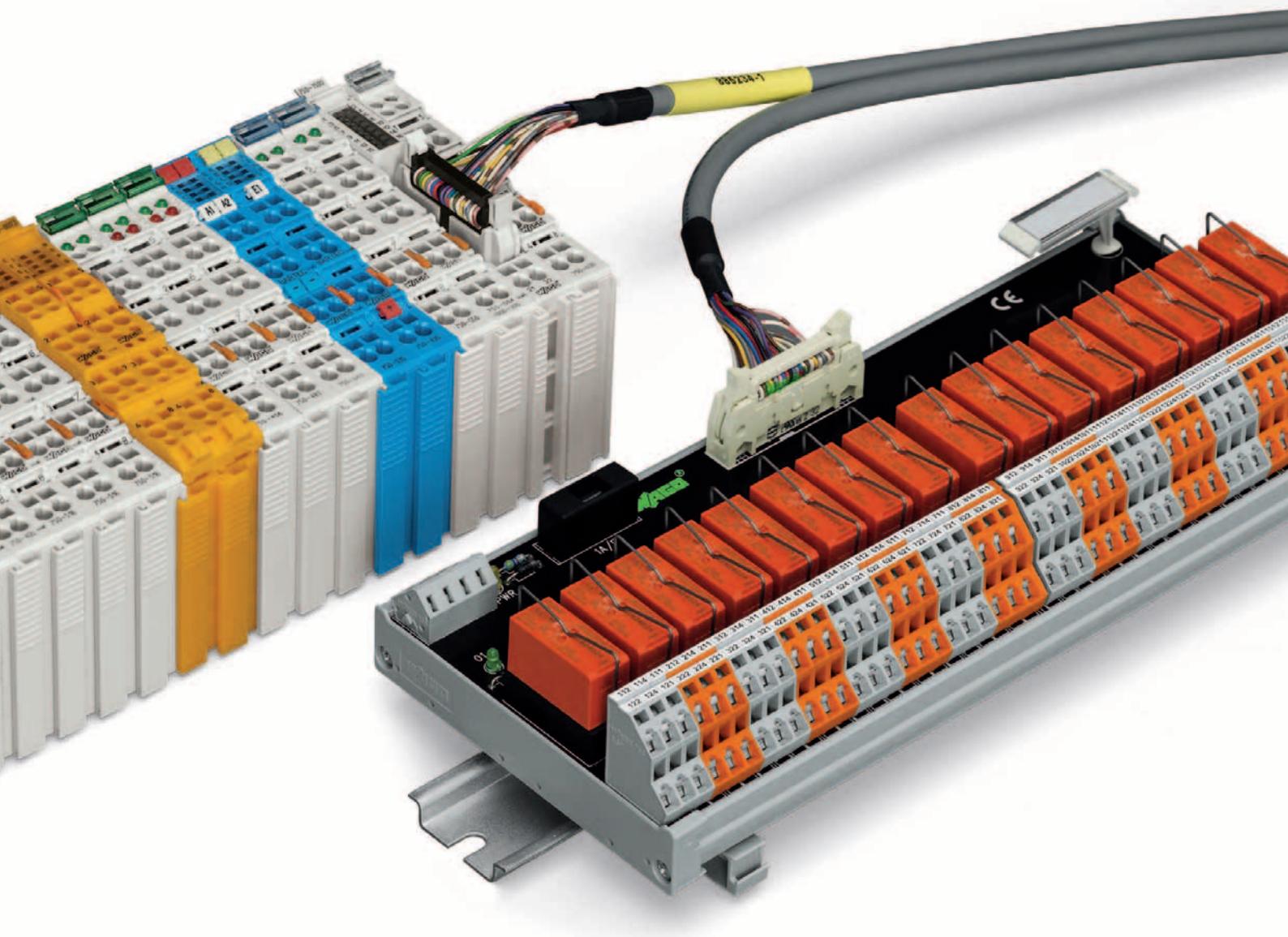
WAGO System Wiring

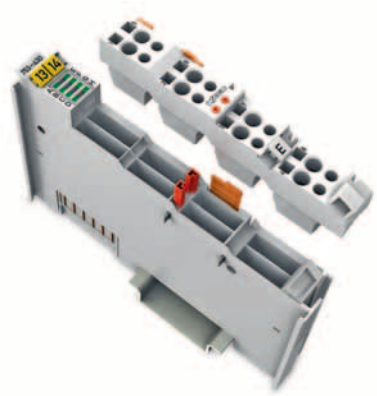
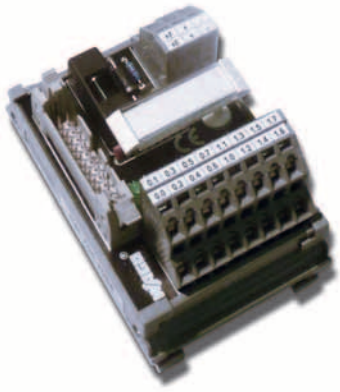
Overview and Application Examples

16-Channel I/O Module with Interface Module

The new 750-14xx and 750-15xx Series I/O Modules with cable connection acc to DIN 41651 offer 16 digital channels in a module less than 1⁄2 inch (12mm) wide. Offering quick connections and a space-efficient design, the DIN-rail mount interface modules simplify installation in confined areas and relocate the termination point. When combined with WAGO interface modules (e.g., item no. 289-614, 289-611), a switch cabinet can be pre-wired before install to minimize wiring time and errors. This is beneficial as wiring can be performed independently of a plant's construction. Pre-wired electronics can be installed right before start-up, saving valuable time during final stages of project completion. The modules are also ideal for connecting series machines or relay modules tasked with the higher loads common to buildings and industrial applications. The interface module also combines the advantages of relays (e.g., manual operation or rapid replacement with socked-mounted versions) with the benefits of a modern I/O system. Another ideal application would be the integration of pneumatic controllers into a fieldbus network.

Most pneumatic modules have an appropriate connector and can be controlled by the WAGO-I/O-SYSTEM. Five variants are available: two 16-channel input or output modules (one high-side and one low-side switching variant), as well as a version combining 8 inputs and 8 outputs.



Application Examples		
WAGO-I/O-SYSTEM 753	**WAGO Interface Cables**	**WAGO Interface Modules**
		
753-430 (x2), 16 DI	WAGO-753 T8ES, 2 m long 706-7753/301-200	T16ES 704-2004

WAGO-I/O-SYSTEM 753			WAGO Interface Cables		WAGO Interface Modules	
	I/O Modules		Item No.	pcs	Type	pcs
DI	753-430 (x1)	8 DI	**706-7753/300-XXX**	1	**T8ES**	1
	753-430 (x2)	16 DI	**706-7753/301-XXX**	1	**T16ES**	1
	753-431 (x1)	8 DI	**706-7753/300-XXX**	1	**T8ES**	1
	753-431 (x2)	16 DI	**706-7753/301-XXX**	1	**T16ES**	1
DO	753-530 (x1)	8 DO	**706-7753/300-XXX**	1	**T8ES/T8S**	1
	753-530 (x2)	16 DO	**706-7753/301-XXX**	1	**T16ES/T16S**	1

Overview over cables and interface modules see page 389

WAGO-I/O-SYSTEM 750			WAGO Interface Cables		WAGO Interface Modules	
	I/O Modules		Item No.	pcs	Type	pcs
DI	750-1400	16 DI	**706-3057/300-XXX**	1	**T16ES**	1
DO	750-1500	16 DO	**706-3057/300-XXX**	1	**T16ES**	1
DI/DO	750-1502	8 DI/8 DO	**706-7753/302-XXX**	1	**T8ES/T8S**	1/1
	750-1502	8 DI/8 DO	**706-3057/300-XXX**	1	**T16ES**	1

Overview over cables and interface modules see page 389

WAGO System Wiring

Overview and Application Examples

SIEMENS S7-300			WAGO Interface Cables		WAGO Interface Modules	
			Item No.	pcs	Type	pcs
CPU	6ES7 313-5BE01-0AB0	16 DI/16 DO	706-2300/301-XXX	1	T16ES/T16S	1/1
	6ES7 313-5BF03-0AB0	16 DI/16 DO	706-2300/301-XXX	1	T16ES/T16S	1/1
	6ES7 313-6BE01-0AB0	16 DI/16 DO	706-2300/301-XXX	1	T16ES/T16S	1/1
	6ES7 313-6BF03-0AB0	16 DI/16 DO	706-2300/301-XXX	1	T16ES/T16S	1/1
	6ES7 313-6CE01-0AB0	16 DI/16 DO	706-2300/301-XXX	1	T16ES/T16S	1/1
	6ES7 313-6CF03-0AB0	16 DI/16 DO	706-2300/301-XXX	1	T16ES/T16S	1/1
	6ES7 314-6BF01-0AB0	16 DI/16 DO	706-2300/301-XXX	1	T16ES/T16S	1/1
	6ES7 314-6BG03-0AB0	16 DI/16 DO	706-2300/301-XXX	1	T16ES/T16S	1/1
	6ES7 314-6CF01-0AB0	16 DI/16 DO	706-2300/301-XXX	1	T16ES/T16S	1/1
	6ES7 314-6CG03-0AB0	16 DI/16 DO	706-2300/301-XXX	1	T16ES/T16S	1/1
DI	6ES7 321-1BH02-0AA0	16 DI	706-2300/300-XXX	1	T16ES	1
	6ES7 321-1BH10-0AA0	16 DI	706-2300/300-XXX	1	T16ES	1
	6ES7 321-1BH80-0AA0	16 DI	706-2300/300-XXX	1	T16ES	1
	6ES7 321-1BL00-0AA0	32 DI	706-2300/301-XXX	1	T16ES	2
	6ES7 321-1BL80-0AA0	32 DI	706-2300/301-XXX	1	T16ES	2
	6ES7 321-1BP00-0AA0	64 DI	706-2300/100-XXX	2	T16ES	4
	6ES7 321-7BH01-0AA0	16 DI	706-2300/101-XXX	1	T16ES	1
	6ES7 321-7BH80-0AA0	16 DI	706-2300/101-XXX	1	T16ES	1
DO	6ES7 322-1BH01-0AA0	16 DO	706-2300/300-XXX	1	T16ES /T16S	1
	6ES7 322-1BH10-0AA0	16 DO	706-2300/300-XXX	1	T16ES /T16S	1
	6ES7 322-1BH80-0AA0	16 DO	706-2300/300-XXX	1	T16ES /T16S	1
	6ES7 322-1BL00-0AA0	32 DO	706-2300/301-XXX	1	T16ES /T16S	2
	6ES7 322-1BP00-0AA0	64 DO	706-2300/200-XXX	2	T16ES /T16S	4
	6ES7 322-1EH01-0AA0	16 D0	706-2300/300-XXX	1	T16ES /T16S	1
	6ES7 322-8BF00-0AB0	8 DO	706-2300/201-XXX	1	T8ES /T8S	1
AI	6ES7 331-7HF01-0AB0	8 AI	706-2300/400-XXX	1	A8ES	1
	6ES7 331-7KF02-0AB0	8 AI	706-2300/400-XXX	1	A8ES	1
	6ES7 331-7NF00-0AB0	8 AI	706-2300/404-XXX	1	A8ES	1
	6ES7 331-7NF10-0AB0	8 AI	706-2300/406-XXX	1	A8ES	1
	6ES7 331-7SF00-0AB0	8 AI	706-2300/400-XXX	1	A8ES	1
	6ES7 331-7TF00-0AB0	8 AI	706-2300/400-XXX	1	A8ES	1
AO	6ES7 332-5HB01-0AB0	2 AO	706-2300/400-XXX	1	A4ES	1
	6ES7 332-5HB81-0AB0	2 AO	706-2300/400-XXX	1	A4ES	1
	6ES7 332-5HD01-0AB0	4 AO	706-2300/404-XXX	1	A4ES	1
	6ES7 332-5HF00-0AB0	8 AO	706-2300/406-XXX	1	A8ES	1
	6ES7 332-7ND02-0AB0	4 AO	706-2300/400-XXX	1	A4ES	1
	6ES7 332-8TF00-0AB0	8 AO	706-2300/400-XXX	1	A8ES	1

System Wiring for

- GEFANUC 90-30 / ALSPA 80-35
- SCHNEIDER M340
- SCHNEIDER QUANTUM
- SCHNEIDER TSX 37 (Micro)
- SCHNEIDER TSX 57 (Premium)
- ROCKWELL COMPACT LOGIX (1769)
- ROCKWELL CONTROL LOGIX (1756)

– contact factory

WAGO Interface Modules

	Type	Item No.	
DI/DO	T8ES	289-611	see page 374
		704-2003	see page 392
	T8S	704-5003	see page 393
		704-5013	see page 393
	T16ES	289-614	see page 374
		704-2004	see page 394
		704-2024	see page 394
		704-2044	see page 395
		704-2054	see page 395
	T16S	704-5004	see page 397
		704-5014	see page 397
		704-5024	see page 396
		704-5034	see page 397
		704-5044	see page 396
		704-5054	see page 398
		704-5064	see page 399
		704-5074	see page 398
AI/AO	A4ES	704-8012	see page 400
	A8ES	704-8013	see page 400

WAGO Interface Cables

	Type	Item No.	
DI/DO	WAGO-753 T8ES	706-7753/300-XXX	see www.wago.com
	WAGO-753 T16ES	706-7753/301-XXX	see www.wago.com
	WAGO-750 HE T8E8S	706-7753/302-XXX	see page 402
	TSX T16ES	706-3057/300-XXX	see page 404
	S7-300 T16E	706-2300/101-XXX	see page 406
	S7-300 2 x T16E	706-2300/100-XXX	see page 406
	S7-300 T8S	706-2300/201-XXX	see page 407
	S7-300 2 x T16S	706-2300/200-XXX	see page 407
	S7-300 T16ES	706-2300/300-XXX	see page 408
	S7-300 2 x T16ES	706-2300/301-XXX	see page 408
AI/AO	S7-300 A8E	706-2300/400-XXX	see page 409
	S7-300 A8EI1	706-2300/404-XXX	see page 410
	S7-300 A8EI2	706-2300/406-XXX	see page 410
	S7-300 A4SI	706-2300/500-XXX	see page 411
	S7-300 A8SI	706-2300/502-XXX	see page 411

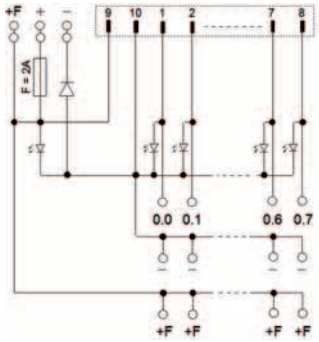
Cable Length Overview

Item No.	-XXX	Length	Example
706-2300/201-XXX	-100	1 m	706-2300/201-100
	-200	2 m	706-2300/201-200
	-300	3 m	706-2300/201-300

Interface Modules for System Wiring

704 Series

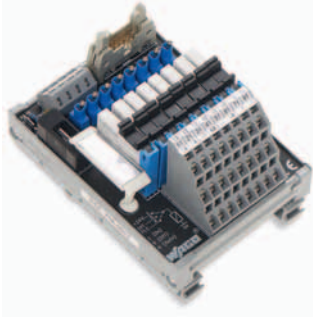
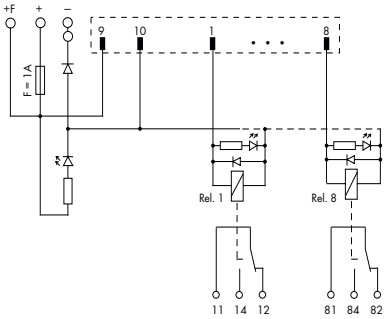
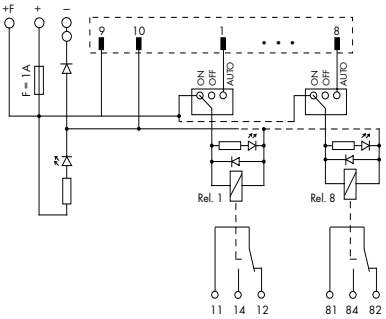
	Interface module for direct wiring (3 conductors) 8 channels with integrated status indication, 10-pole connector acc. to DIN 41651	



Description	Item No.	Pack. Unit	
Interface module, for DIN 35 rail	**704-2003**	1	

Technical Data

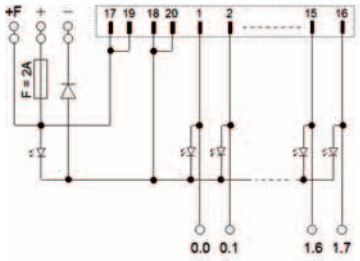
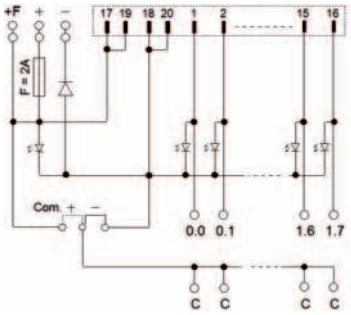
Operating voltage	24 VDC (± 10 %)	
Max. continuous current	1 A per channel	
Max. total current	2 A	
Fuse	2 A	
Status indication	LED green : Channel;	
	LED yellow : Power supply	
Power consumption LED	5 mA	
Nominal voltage to EN 60664-1	50 V / 0.8 kV / 2	
Ambient operating temperature	-20 °C ... +50 °C	
Storage temperature	-40 °C ... +70 °C	
Dimensions incl. mounting carrier		
(mm) W x H x L	56 x 63 x 85	
	Height from upper-edge of DIN 35 rail	
Wire connection	Inpu: 10-pole connector acc. to DIN 41651	
	Output: CAGE CLAMP®	
Cross sections	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG	
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	

	Relay output module with miniature switching relay for 8 channels, 1 changeover contact each (1 u) with integrated status indication, 10-pole connector acc. to DIN 41651	Relay output module with miniature switching relay for 8 channels, 1 changeover contact each (1 u) with integrated status indication and manual operation, 10-pole connector acc. to DIN 41651
		
		

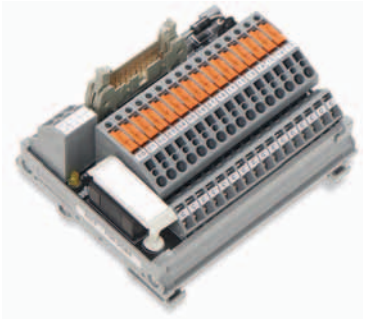
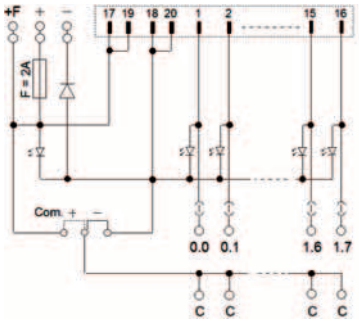
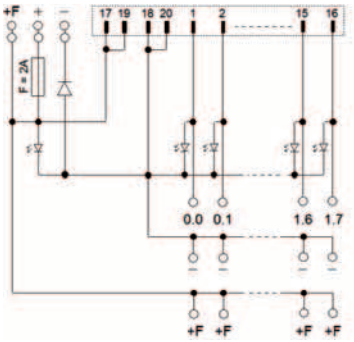
Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Switching relay module, for DIN 35 rail	**704-5003**	1	**704-5013**	1
Technical Data				
Contact material	AgNi 90/10		AgNi 90/10	
Contact type	1 changeover contact		1 changeover contact	
Operating voltage	24 VDC (± 10 %)		24 VDC (± 10 %)	
Max. switching voltage	250 VAC / 48 VDC		250 VAC / 48 VDC	
Max. continuous current	5 A		5 A	
Max. switching power (resistive)	1250VA / 50W		1250VA / 50W	
Status indication	LED green : Channel		LED green : Channel	
	LED yellow : Power supply		LED yellow : Power supply	
Mechanical life	10 x 10^6 switching operations		10 x 10^6 switching operations	
Dielectric strength contact-coil (AC, 1 min)	4 kV		4 kV	
Dielectric strength contact-contact	1 kV		1 kV	
Fuse	Supply: 1 A		Supply: 1 A	
	Relay output: –		Relay output: –	
Ambient operating temperature	-25 °C ... +40 °C		-25 °C ... +40 °C	
Storage temperature	-40 °C ... +70 °C		-40 °C ... +70 °C	
Dimensions (mm) L x W x H	70 x 65 x 105		70 x 65 x 105	
incl. mounting carrier and relay				
	Height from upper-edge of DIN 35 rail		Height from upper-edge of DIN 35 rail	
Wire connection	Inpu: 10-pole connector acc. to DIN 41651		Inpu: 10-pole connector acc. to DIN 41651	
	Output: CAGE CLAMP®		Output: CAGE CLAMP®	
Cross sections	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG		0.08 mm² ... 2.5 mm² / 28 ... 12 AWG	
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.		5 ... 6 mm / 0.2 ... 0.24 in.	
Accessories	Spare relay 857-152		Spare relay 857-152	

Interface Modules for System Wiring

704 Series

	Interface module for direct wiring (1 conductor) 16 channels with integrated status indication, 20-pole connector acc. to DIN 41651	Interface module for direct wiring (2 conductors) 16 channels with integrated status indication, 20-pole connector acc. to DIN 41651
		

Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Interface module, for DIN 35 rail	**704-2004**	1	**704-2024**	1
Technical Data				
Operating voltage	24 VDC (± 10 %)		24 VDC (± 10 %)	
Max. continuous current	1 A per channel		1 A per channel	
Max. total current	2 A		2 A	
Fuse	2 A		2 A	
Status indication	LED green : Channel;		LED green : Channel;	
	LED yellow : Power supply		LED yellow : Power supply	
Power consumption LED	5 mA		5 mA	
Nominal voltage to EN 60664-1	50 V / 0.8 kV / 2		50 V / 0.8 kV / 2	
Ambient operating temperature	-20 °C ... +50 °C		-20 °C ... +50 °C	
Storage temperature	-40 °C ... +70 °C		-40 °C ... +70 °C	
Dimensions incl. mounting carrier				
(mm) W x H x L	55 x 50 x 85		85 x 50 x 85	
	Height from upper-edge of DIN 35 rail		Height from upper-edge of DIN 35 rail	
Wire connection	Inpu: 20-pole connector acc. to DIN 41651		Inpu: 20-pole connector acc. to DIN 41651	
	Output: CAGE CLAMP®		Output: CAGE CLAMP®	
Cross sections	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG		0.08 mm² ... 2.5 mm² / 28 ... 12 AWG	
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.		5 ... 6 mm / 0.2 ... 0.24 in.	

	Interface module for direct wiring (2 conductors) 16 channels with integrated status indication and disconnection, 20-pole connector acc. to DIN 41651	Interface module for direct wiring (3 conductors) 16 channels with integrated status indication, 20-pole connector acc. to DIN 41651
		
		

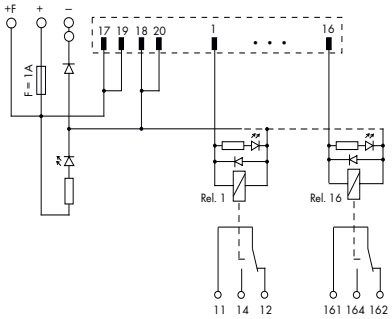
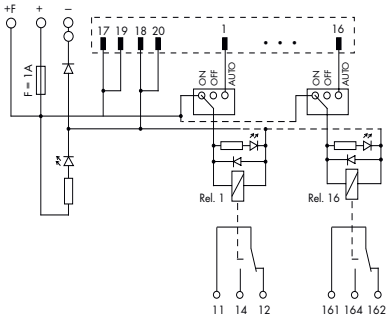
Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Interface module, for DIN 35 rail	**704-2044**	1	**704-2054**	1

Technical Data

Operating voltage	24 VDC (± 10 %)	24 VDC (± 10 %)
Max. continuous current	1 A per channel	1 A per channel
Max. total current	2 A	2 A
Fuse	2 A	2 A
Status indication	LED green : Channel;	LED green : Channel;
	LED yellow : Power supply	LED yellow : Power supply
Power consumption LED	5 mA	5 mA
Nominal voltage to EN 60664-1	50 V / 0.8 kV / 2	50 V / 0.8 kV / 2
Ambient operating temperature	-20 °C ... +50 °C	-20 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions incl. mounting carrier		
(mm) W x H x L	99 x 50 x 85	85 x 50 x 85
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	Inpu: 20-pole connector acc. to DIN 41651	Inpu: 20-pole connector acc. to DIN 41651
	Output: CAGE CLAMP®	Output: CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	5 ... 6 mm / 0.2 ... 0.24 in.

Interface Modules for System Wiring

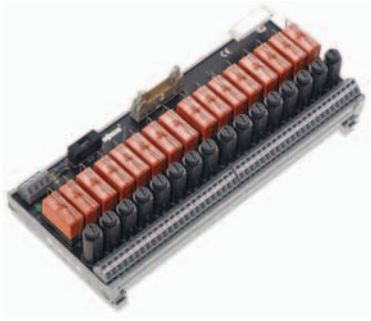
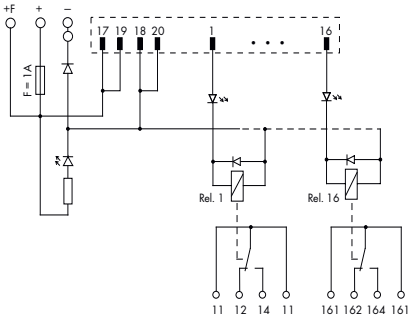
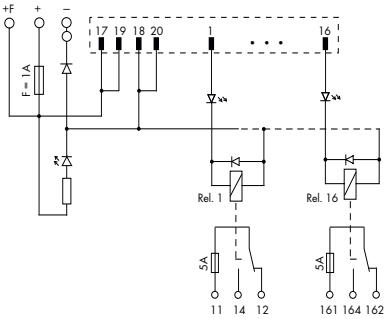
704 Series

	Relay output module with miniature switching relay for 16 channels, 1 changeover contact each (1 u) with integrated status indication, 20-pole connector acc. to DIN 41651	Relay output module with miniature switching relay for 16 channels, 1 changeover contact each (1 u) with integrated status indication and manual operation, 20-pole connector acc. to DIN 41651
		

Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Switching relay module, for DIN 35 rail	**704-5024**	1	**704-5044**	1

Technical Data

Contact material	AgNi 90/10	AgNi 90/10
Contact type	1 changeover contact	1 changeover contact
Operating voltage	24 VDC (± 10 %)	24 VDC (± 10 %)
Max. switching voltage	250 VAC / 48 VDC	250 VAC / 48 VDC
Max. continuous current	5 A	5 A
Max. switching power (resistive)	1250VA / 50W	1250VA / 50W
Status indication	LED green : Channel	LED green : Channel
	LED yellow : Power supply	LED yellow : Power supply
Mechanical life	10 x 10^6 switching operations	10 x 10^6 switching operations
Dielectric strength contact-coil (AC, 1 min)	4 kV	4 kV
Dielectric strength contact-contact	1 kV	1 kV
Fuse	Supply: 1 A	Supply: 1 A
	Relay output: –	Relay output: –
Ambient operating temperature	-25°C ... +40°C	-25°C ... +40°C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) L x W x H	111 x 65 x 105	111 x 65 x 105
incl. mounting carrier and relay		
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	Inpu: 20-pole connector acc. to DIN 41651	Inpu: 20-pole connector acc. to DIN 41651
	Output: CAGE CLAMP®	Output: CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	5 ... 6 mm / 0.2 ... 0.24 in.
Accessories	Spare relay 857-152	Spare relay 857-152

	Relay output module with miniature switching relay for 16 channels, 1 changeover contact each (1 u) with integrated status indication, 20-pole connector acc. to DIN 41651	Relay output module with miniature switching relay for 16 channels, 1 changeover contact each (1 u) with integrated status indication and output fuse, 20-pole connector acc. to DIN 41651
		
		

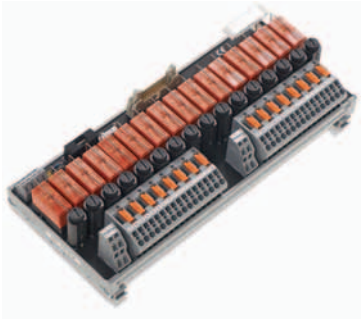
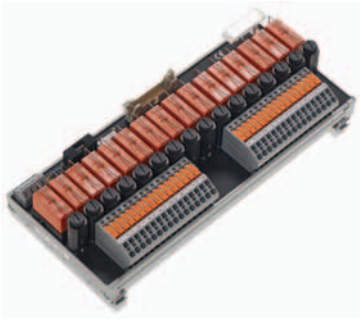
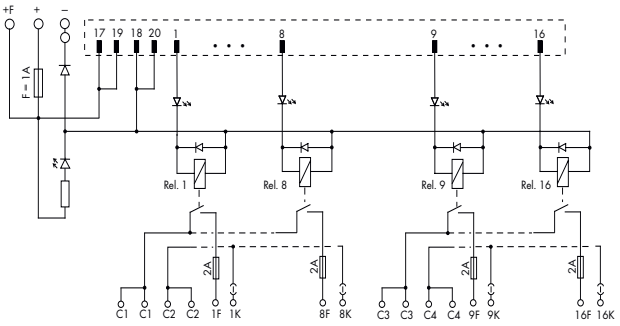
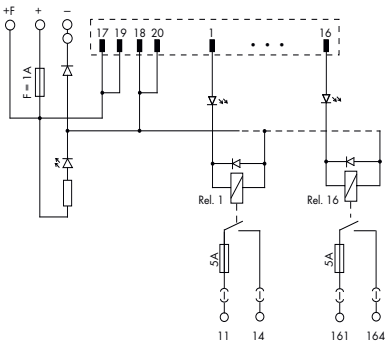
Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Switching relay module, for DIN 35 rail	**704-5004**	1	**704-5034**	1
Switching relay module without miniature switching relay, for DIN 35 rail	**704-5014**	1		

Technical Data

Contact material	AgNi 90/10	AgNi 90/10
Contact type	1 changeover contact	1 changeover contact
Operating voltage	24 VDC (± 10 %)	24 VDC (± 10 %)
Max. switching voltage	250 VAC / 48 VDC	250 VAC / 48 VDC
Max. continuous current	5 A	5 A
Inrush current	2s, 16A	2s, 16A
Max. switching power (resistive)	1250VA / 50W	1250VA / 50W
Status indication	LED green : Channel	LED green : Channel
	LED yellow : Power supply	LED yellow : Power supply
Mechanical life	30 x 10^6 switching operations	30 x 10^6 switching operations
Dielectric strength contact-coil (AC, 1 min)	3 kV	4 kV
Dielectric strength contact-contact	1 kV	1 kV
Fuse	Supply: 1 A	Supply: 1 A
	Relay output: –	Relay output: 5 A
Ambient operating temperature	-25 °C ... +50 °C	-25 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) L x W x H	180 x 50 x 105	247 x 55 x 105
incl. mounting carrier and relay		
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	Inpu: 20-pole connector acc. to DIN 41651	Inpu: 20-pole connector acc. to DIN 41651
	Output: CAGE CLAMP®	Output: CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	5 ... 6 mm / 0.2 ... 0.24 in.
Accessories	Spare relay 788-154	Spare relay 788-154

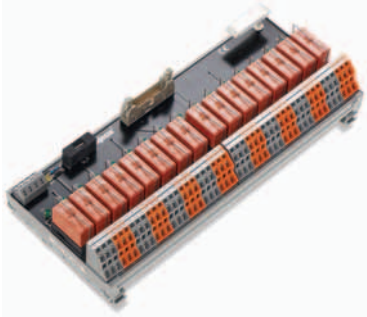
Interface Modules for System Wiring

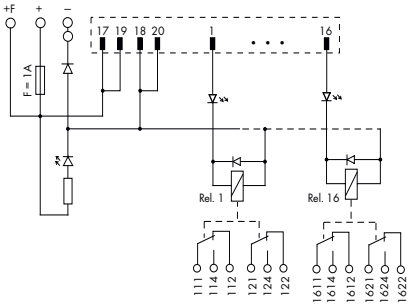
704 Series

	Relay output module with miniature switching relay for 16 channels, 1 make contact each (1 a) with integrated status indication, disconnect terminal block and output fuse, 20-pole connector acc. to DIN 41651	Relay output module with miniature switching relay for 16 channels, 1 make contact each (1 a) with integrated status indication, double disconnect terminal block and output fuse, 20-pole connector acc. to DIN 41651
		
		

Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Switching relay module, for DIN 35 rail	**704-5054**	1	**704-5074**	1
Technical Data				
Contact material	AgNi 90/10		AgNi 90/10	
Contact type	1 make contact		1 make contact	
Operating voltage	24 VDC (± 10 %)		24 VDC (± 10 %)	
Max. switching voltage	250 VAC / 48 VDC		250 VAC / 48 VDC	
Max. continuous current	2 A		5 A	
Max. switching power (resistive)	500VA / 50W		1250VA / 50W	
Status indication	LED green : Channel		LED green : Channel	
	LED yellow : Power supply		LED yellow : Power supply	
Mechanical life	30 x 10^6 switching operations		30 x 10^6 switching operations	
Dielectric strength contact-coil (AC, 1 min)	4 kV		4 kV	
Dielectric strength contact-contact	1 kV		1 kV	
Fuse	Supply: 1 A		Supply: 1 A	
	Relay output: 2 A		Relay output: 5 A	
Ambient operating temperature	-25°C ... +50°C		-25°C ... +50°C	
Storage temperature	-40 °C ... +70 °C		-40 °C ... +70 °C	
Dimensions (mm) L x W x H	240 x 55 x 105		240 x 55 x 105	
incl. mounting carrier and relay				
	Height from upper-edge of DIN 35 rail		Height from upper-edge of DIN 35 rail	
Wire connection	Inpu: 20-pole connector acc. to DIN 41651		Inpu: 20-pole connector acc. to DIN 41651	
	Output: CAGE CLAMP®		Output: CAGE CLAMP®	
Cross sections	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG		0.08 mm² ... 2.5 mm² / 28 ... 12 AWG	
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.		5 ... 6 mm / 0.2 ... 0.24 in.	
Accessories	Spare relay 788-154		Spare relay 788-154	

	Relay output module with miniature switching relay for 16 channels, 2 changeover contacts each (2 u) with integrated status indication, 20-pole connector acc. o DIN 41651	





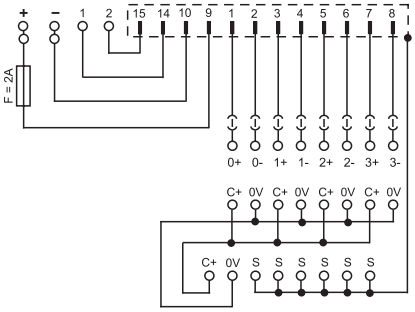
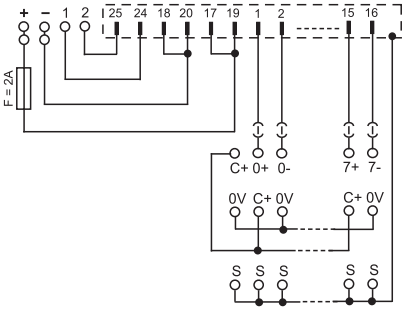
Description	Item No.	Pack. Unit	
Switching relay module, for DIN 35 rail	**704-5064**	1	

Technical Data

Contact material	AgNi 90/10	
Contact type	2 changeover contact	
Operating voltage	24 VDC (± 10 %)	
Max. switching voltage	250 VAC / 48 VDC	
Max. continuous current	5 A	
Inrush current	2s, 8A	
Max. switching power (resistive)	1000VA / 50W	
Status indication	LED green : Channel	
	LED yellow : Power supply	
Mechanical life	30 x 10^6 switching operations	
Dielectric strength contact-coil (AC, 1 min)	4 kV	
Dielectric strength contact-contact	1 kV	
Fuse	Supply: 1 A	
	Relay output: –	
Ambient operating temperature	-25 °C ... +50 °C	
Storage temperature	-40 °C ... +70 °C	
Dimensions (mm) L x W x H	247 x 50 x 105	
incl. mounting carrier and relay		
	Height from upper-edge of DIN 35 rail	
Wire connection	Inpu: 20-pole connector acc. to DIN 41651	
	Output: CAGE CLAMP®	
Cross sections	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG	
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	
Accessories	Spare relay 788-156	

Interface Modules for System Wiring

704 Series

	Interface module for analog sensors (2 and 4 conductors) 4 channels with integrated disconnection, 15-pole D-sub male connector	Interface module for analog sensors (2 and 4 conductors) 8 channels with integrated disconnection, 15-pole D-sub male connector
		

Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Interface module, for DIN 35 rail	**704-8012**	1	**704-8013**	1

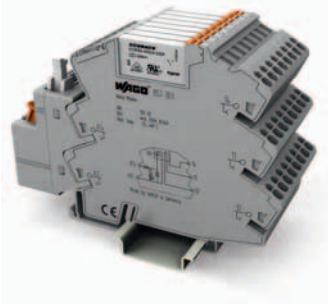
Technical Data

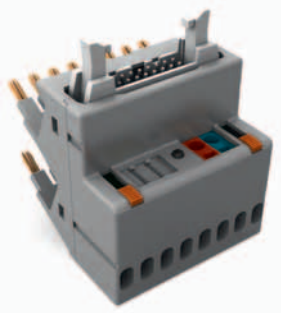
Operating voltage	max. 48 VDC	max. 48 VDC
Output current (per channel)	max. 1 A	max. 1 A
Fuse	2 A (supply)	2 A (supply)
Nominal voltage to EN 60664-1	50 V / 0.8 kV / 2	50 V / 0.8 kV / 2
Ambient operating temperature	-20 °C ... +50 °C	-20 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions incl. mounting carrier		
(mm) W x H x L	66 x 50 x 105	92 x 50 x 105
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	Inpu: 15-pin D-sub male connector	Inpu: 15-pin D-sub male connector
	Output: CAGE CLAMP®	Output: CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	5 ... 6 mm / 0.2 ... 0.24 in.

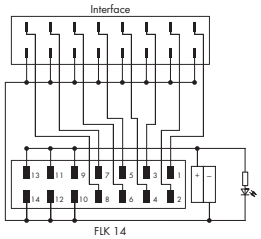
Interface Modules for System Wiring

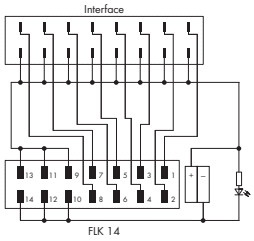
Interface Adapters, 857 Series

	8-channel adapter with 14-pin connector acc. to DIN 41651 Input, positive switching	8-channel adapter with 14-pin connector acc. to DIN 41651 Output, positive switching







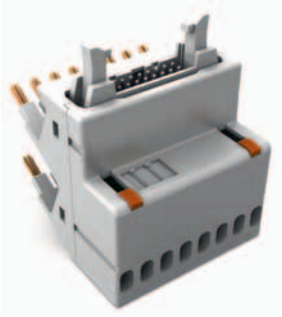


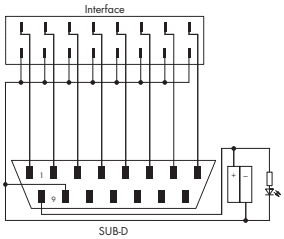
Description	Item No.	Pack. Unit	Item No.	Pack. Unit
8-channel adapter for system wiring	**857-981**	1	**857-982**	1

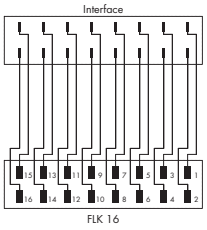
Technical Data

Connection type, signal level	14-pole connector acc. to DIN 41651	14-pin connector acc. to DIN 41651
Performance level	3	3
Contact resistance	≤ 20mΩ	≤ 20mΩ
Current carrying capacity	1A	1A
Test voltage	500 V / 50 Hz / 1 min.	500 V / 50 Hz / 1 min.
Nominal supply voltage V_S	24 VDC	24 VDC
Supply voltage range	16.8 V ... 31.2 V	16.8 V ... 31.2 V
Max. total current	3 A	3 A
Operational indication	LED, green	LED, green
Connection type, supply	231 Series with CAGE CLAMP®	231 Series with CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / 28 ... 14 AWG	0.08 mm² ... 2.5 mm² / 28 ... 14 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	5 ... 6 mm / 0.2 ... 0.24 in.

	8-channel adapter with D-sub male connector, Input, positive switching	8-channel adapter with 16-pin ribbon cable connector Analog







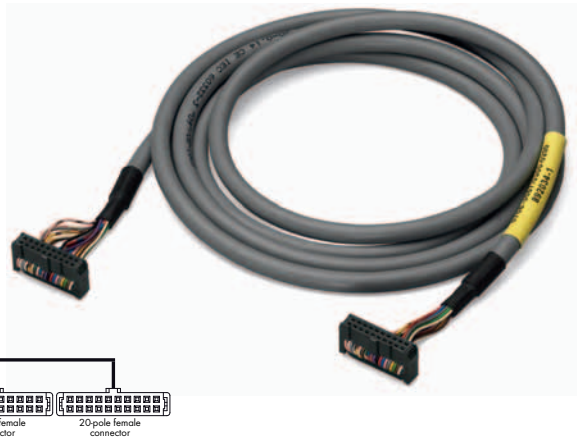
Description	Item No.	Pack. Unit	Item No.	Pack. Unit
8-channel adapter for system wiring	**857-986**	1	**857-980**	1

Technical Data

Connection type, signal level	15-pin D-sub male connector	16-pin ribbon cable connector acc. to DIN 41651
Performance level	2	3
Contact resistance	≤ 10mΩ	≤ 20mΩ
Current carrying capacity	1A	1A
Test voltage	500 V / 50 Hz / 1 min.	500 V / 50 Hz / 1 min.
Nominal supply voltage V_S	24 VDC	
Supply voltage range	16.8 V ... 31.2 V	
Max. total current	3 A	
Operational indication	LED, green	
Connection type, supply	231 Series with CAGE CLAMP®	
Cross sections	0.08 mm² ... 2.5 mm² / 28 ... 14 AWG	
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	
Overvoltage category		III
Degree of pollution		2

WAGO Interface Cables

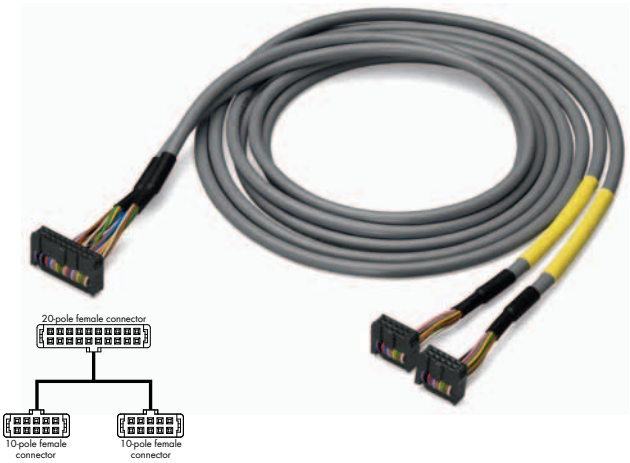
for 289, 704 Series, in connection with WAGO-I/O-SYSTEM 750



WAGO Interface Cables provide fast and easy connection of WAGO I/O modules equipped with a HE 10 connector (750-1400, -1402, -1500, -1501, 1502) to appropriate interface or relay modules (16-channel) featuring a 20-pole HE 10 connector. The cables are available in 1-, 2- and 3-meter lengths; each has one 20-pole connector at both ends.

Description	Item No.	Pack. Unit
WAGO Interface Cable 20/20, lenght 1 m	**706-3057/300-100**	1
WAGO Interface Cable 20/20, lenght 2 m	**706-3057/300-200**	1
WAGO Interface Cable 20/20, lenght 3 m	**706-3057/300-300**	1

Technical Data	
Ports	2 x 20-pole connector
	acc. to DIN 41651
Wire cross-section	0.14 mm² LiYY
Color coding	acc. to DIN VDE 47100
Current per channel	max. 1A
Operating temperature	-25°C ... +70°C
Degree of protection	IP20
Length	1 m (706-3057/300-100)
	2 m (706-3057/300-200)
	3 m (706-3057/300-300)



WAGO Interface Cables provide fast and easy connection of WAGO I/O modules equipped with a HE 10 connector (750-1400, -1402, -1500, -1501, 1502) to appropriate interface or relay modules featuring a 10-pole HE 10 connector. For example, this cable connects 2 relay modules (8-channel) to a WAGO I/O module. The cables are available in 1- and 2-meter lengths; each has one 20-pole and two 10-pole connectors on the ends.

Description	Item No.	Pack. Unit
WAGO Interface Cable 20/2x10, lenght 1 m	**706-7753/302-100**	1
WAGO Interface Cable 20/2x10, lenght 2 m	**706-7753/302-200**	1

Technical Data	
Ports	1 x 20-pole / 2 x 10-pole connector
	acc. to DIN 41651
Wire cross-section	0.14 mm² LiYY
Color coding	acc. to DIN VDE 47100
Current per channel	max. 1A
Operating temperature	-25°C ... +70°C
Degree of protection	IP20
Length	1 m (706-7753/302-100)
	2 m (706-7753/302-200)

Color coding acc. to DIN VDE 47100		HE 10 10-pole contact number
white		1
brown		2
green		3
yellow		4
grey		5
pink		6
blue		7
red		8
black		9
violet		10

Color coding acc. to DIN VDE 47100		HE 10 20-pole contact number
white		1
brown		2
green		3
yellow		4
grey		5
pink		6
blue		7
red		8
black		9
violet		10
grey/pink		11
red/blue		12
white/green		13
brown/green		14
white/yellow		15
yellow/brown		16
white/grey		17
grey/brown		18
white/pink		19
pink/brown		20

Description	Item No.	Pack. Unit
WAGO Interface Cable, 10-pole/ one free cable end, lenght 2 m	**706-100/1301-200**	1

Technical Data

Ports	10-pole HE 10 connector/ one free cable end
Wire cross-section	0.14 mm² LiYY
Color coding	acc. to DIN VDE 47100
Current per channel	max. 1 A
Operating temperature	-25 °C ... +70 °C
Degree of protection	IP20
Length	2 m

Description	Item No.	Pack. Unit
WAGO Interface Cable, 20-pole/ one free cable end, lenght 2 m	**706-100/1300-200**	1

Technical Data

Ports	20-pole HE 10 connector/ one free cable end
Wire cross-section	0.14 mm² LiYY
Color coding	acc. to DIN VDE 47100
Current per channel	max. 1 A
Operating temperature	-25 °C ... +70 °C
Degree of protection	IP20
Length	2 m

WAGO Interface Cables

for 289, 704 Series, in connection with Siemens S7-300

Description	Item No.	Pack. Unit
WAGO Interface Cable 2 x T16E, 1 m long	**706-2300/100-100**	1
WAGO Interface Cable 2 x T16E, 2 m long	**706-2300/100-200**	1
WAGO Interface Cable 2 x T16E, 3 m long	**706-2300/100-300**	1

Technical Data	
Ports	1 x Fujitsu FCN-367-J40
	2 x 20-pole connector acc. to DIN 41651
Wire cross-section	0.14 mm² LiYY
Color coding	acc. to DIN VDE 47100
Operating voltage	60 V
Current per channel	max. 1 A
Operating temperature	-20 °C ... +50 °C
Degree of protection	IP20
Length	1 m (706-2300/100-100)
	2 m (706-2300/100-200)
	3 m (706-2300/100-300)

Description	Item No.	Pack. Unit
WAGO Interface Cable T16E, 1 m long	**706-2300/101-100**	1
WAGO Interface Cable T16E, 2 m long	**706-2300/101-200**	1
WAGO Interface Cable T16E, 3 m long	**706-2300/101-300**	1

Technical Data	
Ports	1 x Siemens 6ES7-392-1BJ00-0AA0
	1 x 20-pole connector acc. to DIN 41651
Wire cross-section	0.14 mm² LiYY
Color coding	acc. to DIN VDE 47100
Operating voltage	60 V
Current per channel	max. 1 A
Operating temperature	-20 °C ... +50 °C
Degree of protection	IP20
Length	1 m (706-2300/101-100)
	2 m (706-2300/101-200)
	3 m (706-2300/101-300)

Similiar to picture

Description	Item No.	Pack. Unit
WAGO Interface Cable 2 x T16S, 1 m long	**706-2300/200-100**	1
WAGO Interface Cable 2 x T16S, 2 m long	**706-2300/200-200**	1
WAGO Interface Cable 2 x T16S, 3 m long	**706-2300/200-300**	1

Technical Data

Ports	1 x Fujitsu FCN-367-J40
	2 x 20-pole connector acc. to DIN 41651
Wire cross-section	0.14 mm² LiYY
Color coding	acc. to DIN VDE 47100
Operating voltage	60 V
Current per channel	max. 1 A
Operating temperature	-20 °C ... +50 °C
Degree of protection	IP20
Length	1 m (706-2300/200-100)
	2 m (706-2300/200-200)
	3 m (706-2300/200-300)

Description	Item No.	Pack. Unit
WAGO Interface Cable T8S, 1 m long	**706-2300/201-100**	1
WAGO Interface Cable T8S, 2 m long	**706-2300/201-200**	1
WAGO Interface Cable T8S, 3 m long	**706-2300/201-300**	1

Technical Data

Ports	1 x Siemens 6ES7-392-1BJ00-0AA0
	1 x 10-pole connector acc. to DIN 41651
Wire cross-section	0.14 mm² LiYY
Color coding	acc. to DIN VDE 47100
Operating voltage	60 V
Current per channel	max. 1 A
Operating temperature	-20 °C ... +50 °C
Degree of protection	IP20
Length	1 m (706-2300/201-100)
	2 m (706-2300/201-200)
	3 m (706-2300/201-300)

WAGO Interface Cables

for 289, 704 Series, in connection with Siemens S7-300

Description	Item No.	Pack. Unit
WAGO Interface Cable T16ES, 1 m long	**706-2300/300-100**	1
WAGO Interface Cable T16ES, 2 m long	**706-2300/300-200**	1
WAGO Interface Cable T16ES, 3 m long	**706-2300/300-300**	1

Technical Data	
Ports	1 x Siemens 6ES7-392-1BJ00-0AA0
	1 x 20-pole connector acc. to DIN 41651
Wire cross-section	0.14 mm² LiYY
Color coding	acc. to DIN VDE 47100
Operating voltage	60 V
Current per channel	max. 1 A
Operating temperature	-20 °C ... +50 °C
Degree of protection	IP20
Length	1 m (706-2300/300-100)
	2 m (706-2300/300-200)
	3 m (706-2300/300-300)

Description	Item No.	Pack. Unit
WAGO Interface Cable 2 x T16ES, 1 m long	**706-2300/301-100**	1
WAGO Interface Cable 2 x T16ES, 2 m long	**706-2300/301-200**	1
WAGO Interface Cable 2 x T16ES, 3 m long	**706-2300/301-300**	1

Technical Data	
Ports	1 x Siemens 6ES7-392-1BM00-0AA0
	2 x 20-pole connector acc. to DIN 41651
Wire cross-section	0.14 mm² LiYY
Color coding	acc. to DIN VDE 47100
Operating voltage	60 V
Current per channel	max. 1 A
Operating temperature	-20 °C ... +50 °C
Degree of protection	IP20
Length	1 m (706-2300/301-100)
	2 m (706-2300/301-200)
	3 m (706-2300/301-300)

Description	Item No.	Pack. Unit
WAGO Interface Cable A8E, 1 m long	**706-2300/400-100**	1
WAGO Interface Cable A8E, 2 m long	**706-2300/400-200**	1
WAGO Interface Cable A8E, 3 m long	**706-2300/400-300**	1

Technical Data

Ports	1 x Siemens 6ES7-392-1BJ00-0AA0
	1 x 25-pole D-sub female connector
Wire cross-section	0.25 mm^2 Li YCY
Color coding	acc. to DIN VDE 47100
Operating voltage	35 V
Current per channel	max. 2 A
Operating temperature	-20 °C ... +50 °C
Degree of protection	IP20
Length	1 m (706-2300/400-100)
	2 m (706-2300/400-200)
	3 m (706-2300/400-300)

WAGO Interface Cables

for 289, 704 Series, in connection with Siemens S7-300

Description	Item No.	Pack. Unit
WAGO Interface Cable A8EI1, 1 m long	**706-2300/404-100**	1
WAGO Interface Cable A8EI1, 2 m long	**706-2300/404-200**	1
WAGO Interface Cable A8EI1, 3 m long	**706-2300/404-300**	1

Technical Data	
Ports	1 x Siemens 6ES7-392-1BM00-0AA0
	1 x 25-pole D-sub female connector
Wire cross-section	0.25 mm² Li YCY
Color coding	acc. to DIN VDE 47100
Operating voltage	35 V
Current per channel	max. 2 A
Operating temperature	-20 °C ... +50 °C
Degree of protection	IP20
Length	1 m (706-2300/404-100)
	2 m (706-2300/404-200)
	3 m (706-2300/404-300)

Description	Item No.	Pack. Unit
WAGO Interface Cable A8EI2, 1 m long	**706-2300/406-100**	1
WAGO Interface Cable A8EI2, 2 m long	**706-2300/406-200**	1
WAGO Interface Cable A8EI2, 3 m long	**706-2300/406-300**	1

Technical Data	
Ports	1 x Siemens 6ES7-392-1BM00-0AA0
	1 x 25-pole D-sub female connector
Wire cross-section	0.25 mm² Li YCY
Color coding	acc. to DIN VDE 47100
Operating voltage	35 V
Current per channel	max. 2 A
Operating temperature	-20 °C ... +50 °C
Degree of protection	IP20
Length	1 m (706-2300/406-100)
	2 m (706-2300/406-200)
	3 m (706-2300/406-300)

Description	Item No.	Pack. Unit
WAGO Interface Cable A4SI, 1 m long	**706-2300/500-100**	1
WAGO Interface Cable A4SI, 2 m long	**706-2300/500-200**	1
WAGO Interface Cable A4SI, 3 m long	**706-2300/500-300**	1

Technical Data

Ports	1 x Siemens 6ES7-392-1BJ00-0AA0
	1 x 15-pole D-sub female connector
Wire cross-section	0.25 mm^2 Li YCY
Color coding	acc. to DIN VDE 47100
Operating voltage	35 V
Current per channel	max. 2 A
Operating temperature	-20 °C ... +50 °C
Degree of protection	IP20
Length	1 m (706-2300/500-100)
	2 m (706-2300/500-200)
	3 m (706-2300/500-300)

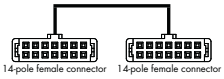
Description	Item No.	Pack. Unit
WAGO Interface Cable A8SI, 1 m long	**706-2300/502-100**	1
WAGO Interface Cable A8SI, 2 m long	**706-2300/502-200**	1
WAGO Interface Cable A8SI, 3 m long	**706-2300/502-300**	1

Technical Data

Ports	1 x Siemens 6ES7-392-1BM00-0AA0
	1 x 25-pole D-sub female connector
Wire cross-section	0.25 mm^2 Li YCY
Color coding	acc. to DIN VDE 47100
Operating voltage	35 V
Current per channel	max. 2 A
Operating temperature	-20 °C ... +50 °C
Degree of protection	IP20
Length	1 m (706-2300/502-100)
	2 m (706-2300/502-200)
	3 m (706-2300/502-300)

WAGO Interface Cables

for Interface Adapter, 857 Series

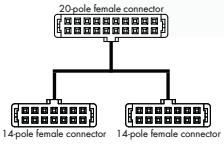


The 14-pin WAGO Interface Cables transmit signals one-to-one from the 14-pole connector and are available in 1-, 2- and 3-meter lengths.

Suitable for system wiring when combined with the Interface Adapters (Item No. 857-981 and 857-982)

Description	Item No.	Pack. Unit
WAGO Interface Cable 14/14, 1m long	**706-753/300-100**	1
WAGO Interface Cable 14/14, 2m long	**706-753/300-200**	1
WAGO Interface Cable 14/14, 3m long	**706-753/300-300**	1

Technical Data	
Ports	2 x 14-pole connector acc. to DIN 41651
Wire cross-section	0.14 mm² LiYY
Color coding	acc. to DIN VDE 47100
Current per channel	max. 1 A
Operating temperature	-25 °C ... +70 °C
Degree of protection	IP20
Length	1 m (706-753/300-100) 2 m (706-753/300-200) 3 m (706-753/300-300)

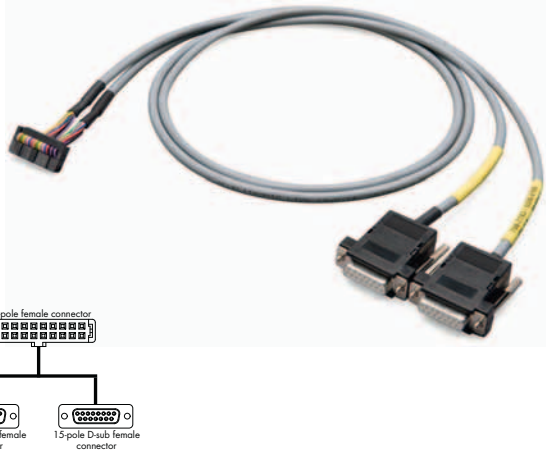


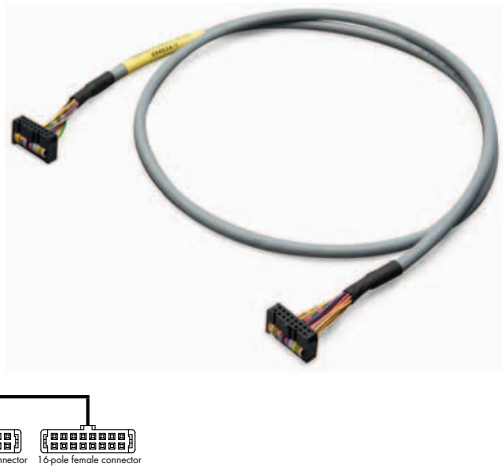
WAGO Interface Cables provide fast and easy connection of WAGO I/O modules featuring ribbon cable connectors. The following WAGO I/O modules and adapters are compatible:
750-1500 (16 DO) – > 857-981 (DO)
750-1502 (8 DO / 8 DI) –> 857-981 (DO) and 857-982 (DI)
The cables are available in 1-, 2- and 3-meter lengths – each has one 20-pole or two 14-pole connectors on the ends.

Suitable for system wiring when combined with Interface Adapters (Item No. 857-981 and 857-982)

Description	Item No.	Pack. Unit
WAGO Interface Cable 20/2x14, 1m long	**706-7753/304-100**	1
WAGO Interface Cable 20/2x14, 2m long	**706-7753/304-200**	1
WAGO Interface Cable 20/2x14, 3m long	**706-7753/304-300**	1

Technical Data	
Ports	1 x 20-pole connector / 2 x 14-pole connector acc. to DIN 41651
Wire cross-section	0.14 mm² LiYY
Color coding	acc. to DIN VDE 47100
Current per channel	max. 1 A
Operating temperature	-25 °C ... +70 °C
Degree of protection	IP20
Length	1 m (706-7753/304-100) 2 m (706-7753/304-200) 3 m (706-7753/304-300)





WAGO Interface Cables provide fast and easy connection of WAGO I/O modules featuring ribbon cable connectors. The following WAGO I/O modules and D-sub adapters are compatible:

750-1500 (16 DO) –> 857-986 (DO)

The cables are available in 1-, 2- and 3-meter lengths – each has one 20-pole or two 15-pole connectors on the ends.

The 16-pin WAGO Interface Cables transmit signals one-to-one from the 16-pole connector and are available in 1-, 2- and 3-meter lengths. Signal transmission from the 857-980 Interface Adapter is also possible.

Suitable for system wiring when combined with Interface Adapter (Item No. 857-986)

Description	Item No.	Pack. Unit
WAGO Interface Cable 20/2x15, 1m long	**706-7753/306-100**	1
WAGO Interface Cable 20/2x15, 2m long	**706-7753/306-200**	1
WAGO Interface Cable 20/2x15, 3m long	**706-7753/306-300**	1

Technical Data

Ports	1 x 20-pole connector to DIN 41651 / 2 x 15-pole D-sub female connector acc. to DIN 41652
Wire cross-section	0.14 mm² LiYY
Color coding	acc. to DIN VDE 47100
Current per channel	max. 1 A
Operating temperature	-25 °C ... +70 °C
Degree of protection	IP20
Length	1 m (706-7753/306-100) 2 m (706-7753/306-200) 3 m (706-7753/306-300)

Suitable for system wiring when combined with the Interface Adapter (Item No. 857-980)

Description	Item No.	Pack. Unit
WAGO Interface Cable 16/16, 1m long	**706-753/301-100**	1
WAGO Interface Cable 16/16, 2m long	**706-753/301-200**	1
WAGO Interface Cable 16/16, 3m long	**706-753/301-300**	1

Technical Data

Ports	2 x 16-pole connector acc. to DIN 41651
Wire cross-section	0.14 mm² LiYY
Color coding	acc. to DIN VDE 47100
Current per channel	max. 1 A
Operating temperature	-25 °C ... +70 °C
Degree of protection	IP20
Length	1 m (706-753/301-100) 2 m (706-753/301-200) 3 m (706-753/301-300)

WAGO Interface Cables

for Interface Adapters, 857 Series

Color coding acc. to DIN VDE 47100		HE 10 14-pole contact number
white		1
brown		2
green		3
yellow		4
grey		5
pink		6
blue		7
red		8
black		9
violet		10
grey/pink		11
red/blue		12
white/green		13
brown/green		14

Color coding acc. to DIN VDE 47100		HE 10 16-pole contact number
white		1
brown		2
green		3
yellow		4
grey		5
pink		6
blue		7
red		8
black		9
violet		10
grey/pink		11
red/blue		12
white/green		13
brown/green		14
white/yellow		15
yellow/brown		16

Description	Item No.	Pack. Unit
WAGO Interface Cable, 14-pole/ one free cable end, lenght 2 m	**706-100/1303-200**	1

Technical Data

Ports	14-pole HE 10 connector/ one free cable end
Wire cross-section	0.14 mm² LiYY
Color coding	acc. to DIN VDE 47100
Current per channel	max. 1 A
Operating temperature	-25 °C ... +70 °C
Degree of protection	IP20
Length	2 m

Description	Item No.	Pack. Unit
WAGO Interface Cable, 16-pole/ one free cable end, lenght 2 m	**706-100/1602-200**	1

Technical Data

Ports	16-pole HE 10 connector/ one free cable end
Wire cross-section	0.14 mm² LiYY
Color coding	acc. to DIN VDE 47100
Current per channel	max. 1 A
Operating temperature	-25 °C ... +70 °C
Degree of protection	IP20
Length	2 m

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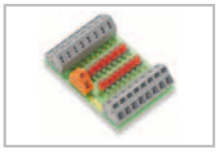
Interface Modules with Specialty Functions

Switching Modules

	Page
Switching Modules in DIN-Rail Mount Enclosure, 789 Series	418
Pluggable Modules – Switches, 286 Series	422

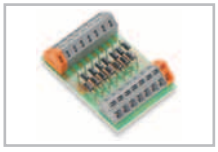
Rectifier Modules

	Page
Pluggable Modules – Bridge Rectifiers, 280, 286 Series	424



Indicator Modules

	Page
DIN-Rail-Mounted Modules - LED Gate Module, 289 Series	426
Pluggable Modules – LED Indicator, 286 Series	427



Component Modules

	Page
DIN-Rail-Mounted Modules - Diode Gates, 289 Series	428
Pluggable Modules – Diode Gates, 286 Series	432
DIN-Rail-Mounted Modules - Resistors, 289 Series	433
DIN-Rail-Mounted Modules for Building Custom Circuits, 289 Series	435

Potential Multiplication Modules

	Page
DIN-Rail Mount Potential Multiplication Modules, 288 Series	436

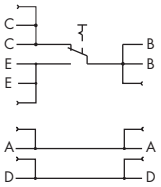
Modules with Additional Specialty Functions

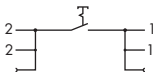
	Page
Pluggable Modules – Current Flow Monitoring, 286 Series	440
Pluggable Modules – Fuses, 286 Series	442
Manual Control Modules in DIN-Rail Mount Enclosure, 789 Series	444
Pluggable Modules – AND Gate, 286 Series	446
Pluggable Modules – Flip-Flop, 286 Series	447

Switching Modules in DIN-Rail Mounted Enclosure

	Switching module, changeover,1-pole	Switching module, breaker, 1-pole

Similiar to picture

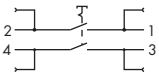


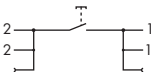


Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Switching module in DIN-rail mount enclosure, for DIN 35 rail	**789-800**	1	**789-801**	1

Technical Data	Accessories see page 115	Accessories see page 115
Contacts:		
Contact material	Ag alloy	Ag alloy
Operating voltage	250 VAC	250 VAC
Max. switching power (resistive)	10 A	16 A
Max. switching power (motor load)	4 A	4 A
Peak inrush current	100 A, capacitive	100 A, capacitive
Contact resistance	< 100 mΩ (12 V / 1A DC, new condition)	< 100 mΩ (12 V / 1A DC, new condition)
Insulation resistance	> 100 MΩ (500 VDC, new condition)	> 100 MΩ (500 VDC, new condition)
Contact gap	≥ 3 mm	≥ 3 mm
Mechanical life	1 x 10^5 switching operations	5 x 10^4 switching operations
Electrical life	1 x 10^4 switching operations	1 x 10^4 switching operations
General specifications:		
Dielectric strength open contact	1.25 kV	1.25 kV
Nominal voltage to EN 60664-1	250 V / 4 kV / 2	250 V / 4 kV / 2
Ambient operating temperature at V_N	-20 °C ... +55 °C	-20 °C ... +55 °C
Storage temperature	-40 °C ... +80 °C	-40 °C ... +80 °C
Dimensions (mm) W x H x L	17.5 x 55 x 90	17.5 x 55 x 90
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / 28 ... 14 AWG	0.08 mm² ... 2.5 mm² / 28 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 50178; EN 60664-1, EN 61058-1	EN 50178; EN 60664-1, EN 61058-1

	Switching module, breaker, 2-pole	Switching module, switch, 1-pole





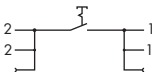
Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Switching module in DIN-rail mount enclosure, for DIN 35 rail	**789-802**	1	**789-803**	1

Technical Data

	Accessories see page 115	Accessories see page 115
Contacts:		
Contact material	Ag alloy	Ag alloy
Operating voltage	250 VAC	250 VAC
Max. switching power (resistive)	16 A	16 A
Max. switching power (motor load)	4 A	4 A
Peak inrush current	100 A, capacitive	100 A, capacitive
Contact resistance	< 100 mΩ (12 V / 1A DC, new condition)	< 100 mΩ (12 V / 1A DC, new condition)
Insulation resistance	> 100 MΩ (500 VDC, new condition)	> 100 MΩ (500 VDC, new condition)
Contact gap	≥ 3 mm	≥ 3 mm
Mechanical life	5 x 10^4 switching operations	5 x 10^4 switching operations
Electrical life	1 x 10^4 switching operations	1 x 10^4 switching operations
General specifications:		
Dielectric strength open contact	1.25 kV	1.25 kV
Nominal voltage to EN 60664-1	250 V / 4 kV / 2	250 V / 4 kV / 2
Ambient operating temperature at V_N	-20 °C ... +55 °C	-20 °C ... +55 °C
Storage temperature	-40 °C ... +80 °C	-40 °C ... +80 °C
Dimensions (mm) W x H x L	17.5 x 55 x 90	17.5 x 55 x 90
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / 28 ... 14 AWG	0.08 mm² ... 2.5 mm² / 28 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 50178; EN 60664-1, EN 61058-1	EN 50178; EN 60664-1, EN 61058-1

Switching Modules in DIN-Rail Mounted Enclosure

	Switching module, push-button switch, 1-pole	



Description	**Item No.**	**Pack. Unit**
Switching module in DIN-rail mount enclosure, for DIN 35 rail	**789-804**	1

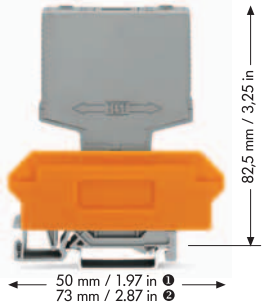
Technical Data

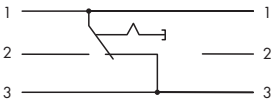
Accessories see page 115

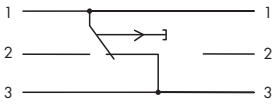
Contacts:	
Contact material	Ag alloy
Operating voltage	250 VAC
Max. switching power (resistive)	16 A
Max. switching power (motor load)	4 A
Peak inrush current	100 A, capacitive
Contact resistance	< 100 mΩ (12 V / 1A DC, new condition)
Insulation resistance	> 20 MΩ
Contact gap	≥ 3 mm
Mechanical life	5 x 10^4 switching operations
Electrical life	1 x 10^4 switching operations
General specifications:	
Dielectric strength open contact	1.25 kV
Nominal voltage to EN 60664-1	250 V / 4 kV / 2
Ambient operating temperature at V_N	-20 °C ... +55 °C
Storage temperature	-40 °C ... +80 °C
Dimensions (mm) W x H x L	17.5 x 55 x 90
	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / 28 ... 14 AWG
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.
Standards/specifications	EN 50178; EN 60664-1, EN 61058-1

Pluggable Modules - Switches

	1-pole changeover with changeover rocker switch Module width 15 mm / 0.591 in.	1-pole changeover with momentary switch Module width 15 mm / 0.591 in.







WSB marker card
- Marking S; Item No.: 209-682
- Marking 1 ... 10; Item No.: 209-702

5 cards, each containing 10 strips with 10 markers

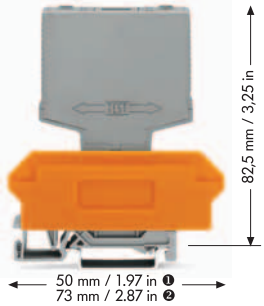
Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Switching module	**286-895**	1	**286-896**	1

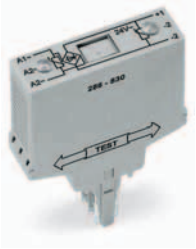
Technical Data	Accessories see page 99	Accessories see page 99
Max. switching voltage	24 VDC / 250 VAC	24 VDC / 250 VAC
Switching current, resistive	6 AAC	6 AAC
Switching current, inductive	4 AAC	4 AAC
Electrical life	≥ 50.000 switching operations	≥ 50.000 switching operations
Contact gap	≥ 3 mm	≥ 3 mm
Isolation voltage	1250 V	1250 V
Ambient operating temperature	-20 °C ... +40 °C	-20 °C ... +40 °C
Approvals	Switch tested acc. to EN 61058-1	Switch tested acc. to EN 61058-1

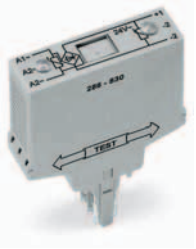
Accessories		Item No.	Pack. Unit		Item No.	Pack. Unit
Terminal block for pluggable modules,						
with 2-conductor terminal blocks, orange separator ❶	17 mm / 0.669 in. wide	**280-619**	1	17 mm / 0.669 in. wide	**280-619**	1
with 4-conductor terminal blocks, orange separator ❷	17 mm / 0.669 in. wide	**280-609**	1	17 mm / 0.669 in. wide	**280-609**	1
with 4-conductor terminal blocks, marker plate ❷	20 mm/ 0.787 in. wide	**280-763**	1	20 mm/ 0.787 in. wide	**280-763**	1
wire range 0.08 mm² ... 2.5 mm² / 28 ... 14 AWG;						
stripped length 8 ... 9 mm / 0.31 ... 0.35 in.						

Pluggable Modules - Bridge Rectifiers

	Bridge with varistor protection for input voltage 24 VAC/1 A Module width 15 mm / 0.591 in.	Bridge with varistor protection for input voltage 250 VAC/1 A Module width 15 mm / 0.591 in.

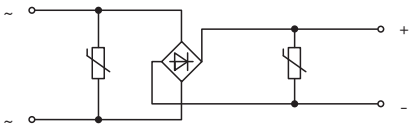


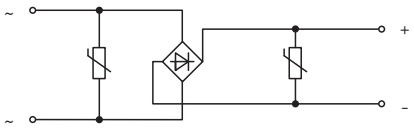




WSB marker card
- Marking V; Item No.: 209-784
- Marking 1 ... 10; Item No.: 209-702
- Marking +/-; Item No.: 209-652

5 cards, each containing 10 strips with 10 markers





Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Bridge rectifiers	**286-830**	1	**286-840**	1

Technical Data

Accessories see page 99

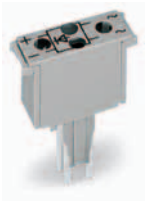
Accessories see page 99

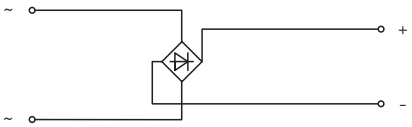
Input voltage	24 VAC	250 VAC
Nominal current	1 A	1 A
Current pulse limit	10 A (10 ms)	10 A (10 ms)
Max. charging capacitor	2200 µF	500 µF
Max. nominal operating voltage input (Varistor)	35 V	250 V
Max. nominal operating voltage output (Varistor)	60 V	300 V
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C

Accessories

		Item No.	Pack. Unit		Item No.	Pack. Unit
Terminal block for pluggable modules,						
with 2-conductor terminal blocks, orange separator ❶	17 mm / 0.669 in. wide	**280-619**	1	17 mm / 0.669 in. wide	**280-619**	1
with 4-conductor terminal blocks, orange separator ❷	17 mm / 0.669 in. wide	**280-609**	1	17 mm / 0.669 in. wide	**280-609**	1
with 4-conductor terminal blocks, marker plate ❷	20 mm/ 0.787 in. wide	**280-763**	1	20 mm/ 0.787 in. wide	**280-763**	1
wire range 0.08 mm² ... 2.5 mm² / 28 ... 14 AWG;						
stripped length 8 ... 9 mm / 0.31 ... 0.35 in.						

	Bridge rectifier for input voltage 250 VAC/1 A **Module width 10 mm / 0.394 in.**	





Description	Item No.	Pack. Unit	
Bridge rectifiers	**280-804/281-419**	1	

Technical Data

Accessories see page 99

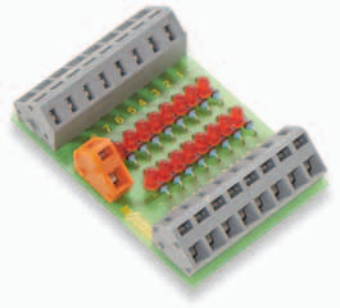
Input voltage	250 VAC
Nominal current	1 A
Max. charging capacitor	500 µF
Ambient operating temperature	-25 °C ... +40 °C

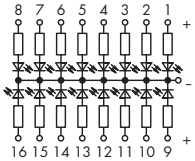
Accessories

		Item No.	Pack. Unit
Terminal block for pluggable modules,			
with 2-conductor terminal blocks, orange separator ❶	12 mm / 0.472 in. wide	**280-618**	1
with 4-conductor terminal blocks, orange separator ❷	12 mm / 0.472 in. wide	**280-608**	1
with 4-conductor terminal blocks, marker plate ❷	15 mm / 0.591 in. wide	**280-762**	1
wire range 0.08 mm² ... 2.5 mm² / 28 ... 14 AWG;			
stripped length 8 ... 9 mm / 0.31 ... 0.35 in.			

DIN-Rail-Mounted Modules - LED Gate Module

	LED gate module with 16 LEDs, common cathode	





Description	Item No.	Pack. Unit	
Gate module	**289-201**	1	

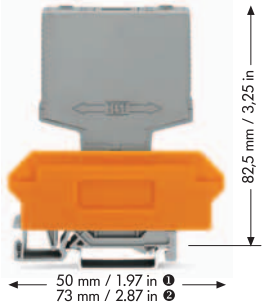
Technical Data

Operating voltage	24 VDC
Operating voltage range	20 V ... 26 V DC
Power consumption at V_N	5.6 mA each LED
Ambient operating temperature	-25 °C ... +40 °C
Dimensions (mm) W x H x L,	45.5 x 32 x 65.5
incl. mounting carrier or feet	
	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.

Accessories	Item No.	Pack. Unit
Mounting carrier, for screw-fixing or DIN-rail mounting (with snap-fit type universal mounting feet to be ordered separately)	**288-001**	1
Universal mounting foot; snap-fit type; suitable for DIN 15, 32 and 35 rails	**288-002**	10

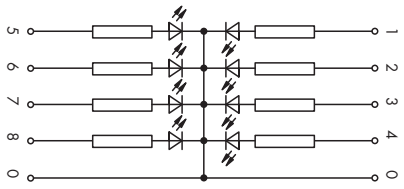
Pluggable Modules - LED Gate Module

	LED indicator module with 8 LED, common cathode Module width 25 mm / 0.984 in.	



WSB marker card
- Marking D; Item No.: 209-783
- Marking 1 ... 10; Item No.: 209-702
- Marking +, -, 1, 2, 3, 13, 14, 4, 5, 6; Item No.: 249-608

5 cards, each containing 10 strips with 10 markers



Description	Item No.	Pack. Unit	
AND gate module	**286-822**	1	

Technical Data

Accessories see page 99

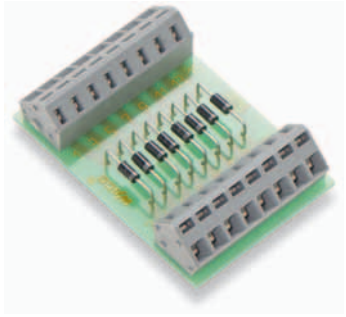
Operating voltage	24 VDC
Operating voltage range	20 V ... 26 V DC
Power consumption at V_N	5.1 mA each LED
Ambient operating temperature	-25 °C ... +40 °C

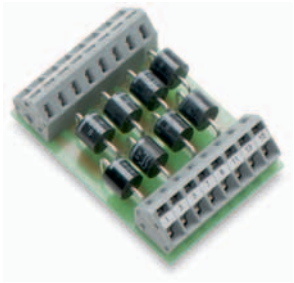
Accessories

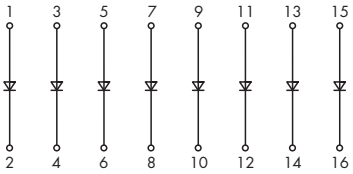
		Item No.	Pack. Unit
Terminal block for pluggable modules,			
with 2-conductor terminal blocks, orange separator ❶	27 mm / 1.063 in.	**280-639**	1
with 4-conductor terminal blocks, orange separator ❷	27 mm / 1.063 in.	**280-629**	1
with 4-conductor terminal blocks, marker plate ❷	30 mm / 1.181 in.	**280-765**	1
wire range 0.08 mm² ... 2.5 mm² / 28 ... 14 AWG;			
stripped length 8 ... 9 mm / 0.31 ... 0.35 in.			

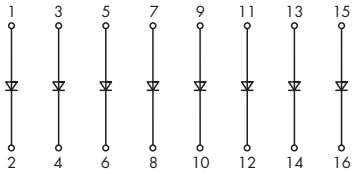
DIN-Rail Mounted Modules - Diode Gates

	Open diode gate **with 8 diodes 1 N 4007** **can be connected individually**	**Open diode gate** **with 8 diodes P 600 B** **can be connected individually**









* Max. admissible current acc. to the manufacter's data sheet. With all diodes loaded, the continuous current must be reduced.

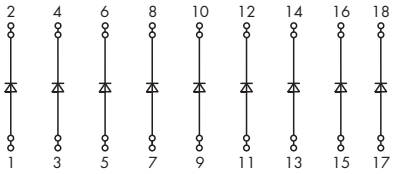
Description	**Item No.**	**Pack. Unit**	**Item No.**	**Pack. Unit**
Open diode gate	**289-101**	1	**289-103**	1

Technical Data

Operating voltage	250 V AC/DC	100 V AC/DC
Peak reverse voltage	1000 V	100 V
Rectified current for each diode *	1 A	6 A
Nominal voltage to EN 60664-1	250V / 4kV / 2	250V / 4kV / 2
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +30 °C
Dimensions (mm) L x W x H incl. mounting carrier and universal mounting feet	47x31.5x65.5	47x31.5x65.5
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	5 ... 6 mm / 0.2 ... 0.24 in.

Accessories	**Item No.**	**Pack. Unit**	**Item No.**	**Pack. Unit**
Mounting carrier, for screw-fixing or DIN-rail mounting (with snap-fit type universal mounting feet to be ordered separately)	**288-001**	1	**288-001**	1
Universal mounting foot; snap-fit type; suitable for DIN 15, 32 and 35 rails	**288-002**	10	**288-002**	10

	Open diode gate with 9 diodes 1 N 5408 can be connected individually 2 inputs/2 outputs per diode including Mounting carrier for DIN 35 rail	



* Max. admissible current acc. to the manufacter's data sheet. With all diodes loaded, the continuous current must be reduced.

Description	Item No.	Pack. Unit	
Open diode gate	**289-105**	1	

Technical Data

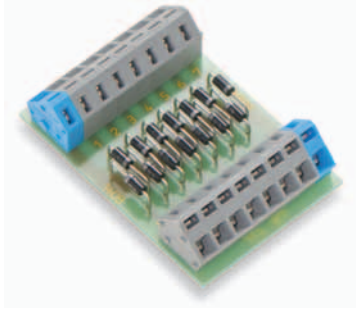
Operating voltage	250 VAC/DC	
Peak reverse voltage	1000 V	
Rectified current for each diode *	3 A	
Rectified current for each diode	10 µA	
Forward voltage for each Diode	1.3 V	
Forward current (resistent) for each diode	3 A	
Nominal voltage to EN 60664-1	250V / 4kV / 2	
Ambient operating temperature	-25 °C ... +40 °C	
Dimensions (mm) L x W x H incl. mounting carrier and universal mounting feet	51x48x85	
	Height from upper-edge of DIN 35 rail	
Wire connection	CAGE CLAMP®	
Cross sections	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG	
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	

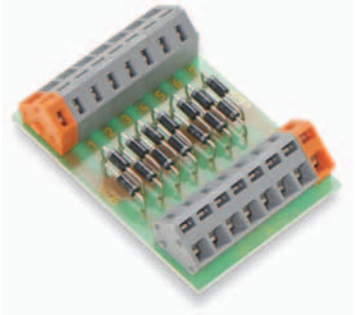
Accessories

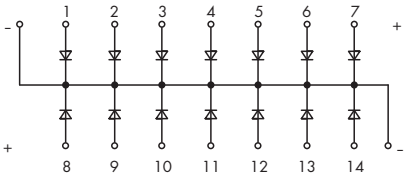
WMB Multi marking system for mounting carrier	see page 506
Marker strips for mounting carrier	white 709-198 / transparent 709-197

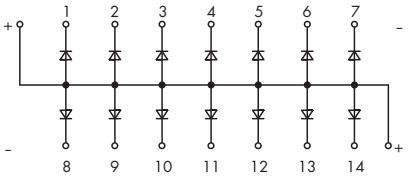
DIN-Rail Mounted Modules - Diode Gates

	Polarized diode gate with 14 diodes 1 N 4007 common cathode	Polarized diode gate with 14 diodes 1 N 4007 common anode









* Max. admissible current acc. to the manufacter's data sheet. With all diodes loaded, the continuous current must be reduced.

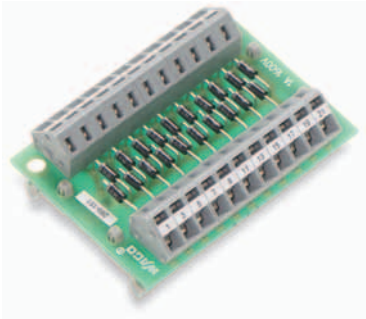
Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Polarized diode gate	**289-111**	1	**289-121**	1

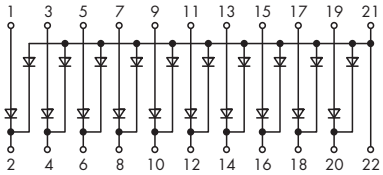
Technical Data

Operating voltage	250 V AC/DC	250 V AC/DC
Peak reverse voltage	1000 V	1000 V
Rectified current for each diode *	1 A	1 A
Nominal voltage to EN 60664-1	250V / 4kV / 2	250V / 4kV / 2
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C
Dimensions (mm) L x W x H incl. mounting carrier and universal mounting feet	47x31.5x65.5	47x31.5x65.5
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	5 ... 6 mm / 0.2 ... 0.24 in.

Accessories	Item No.	Pack. Unit	Item No.	Pack. Unit
Mounting carrier, for screw-fixing or DIN-rail mounting (with snap-fit type universal mounting feet to be ordered separately)	**288-001**	1	**288-001**	1
Universal mounting foot; snap-fit type; suitable for DIN 15, 32 and 35 rails	**288-002**	10	**288-002**	10

	Lamp test circuit module with 20 diodesEM 513 for testing 10 lamps with Mounting feet for DIN 35 rail	





* Max. admissible current acc. to the manufacter's data sheet. With all diodes loaded, the continuous current must be reduced.

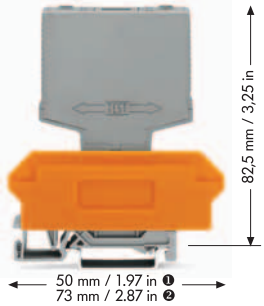
Description	Item No.	Pack. Unit	
Gate module	**289-151**	1	

Technical Data

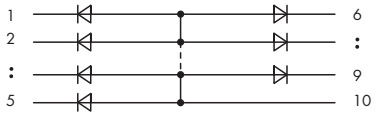
Operating voltage	250 V AC/DC	
Operating voltage range	0 V ... 250 V AC/DC	
Peak reverse voltage	1600 V	
Rectified current for each diode *	1 A	
Nominal voltage to EN 60664-1	250V / 4kV / 2	
Ambient operating temperature	-25 °C ... +40 °C	
Dimensions (mm) W x H x L,	69 x 21 x 50	
incl. mounting carrier or feet		
	Height from upper-edge of DIN 35 rail	
Wire connection	CAGE CLAMP®	
Cross sections	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG	
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	

Pluggable Modules - Diode Gates

Diode gate module
with 3, 5, 7 or 9 diodes 1 N 4007,
common anode
Module width see Item No.



* Max. admissible current acc. to the manufacter's data sheet. With all diodes loaded, the continuous current must be reduced.



WSB marker card
- Marking V; Item No.: 209-784
- Marking 1 ... 10; Item No.: 209-702
- Marking +/-; Item No.: 209-652

5 cards, each containing 10 strips with 10 markers

Description	Module width	Item No.	Pack. Unit
Diode gate module with 3 diodes	10 mm / 0.394 in.	**286-803**	1
with 5 diodes	15 mm / 0.591 in.	**286-805**	1
with 7 diodes	20 mm / 0.787 in.	**286-807**	1
with 9 diodes	25 mm / 0.984 in.	**286-809**	1

Technical Data

Accessories see page 99

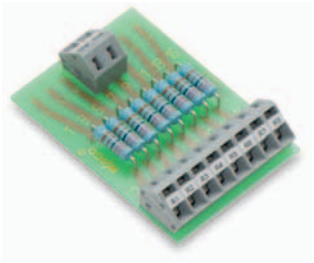
Operating voltage	250 V AC/DC
Peak reverse voltage	1000 V
Rectified current for each diode *	1 A
Nominal voltage to EN 60664-1	250 V / 4 kV / 2
Ambient operating temperature	-25 °C ... +40 °C

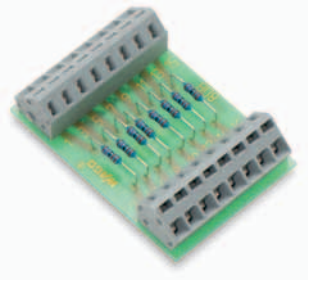
Accessories

		Item No.	Pack. Unit
Terminal block for pluggable modules,			
with 2-conductor terminal blocks, orange separator ❶	12 mm / 0.472 in.	**280-618**	1
with 4-conductor terminal blocks, orange separator ❷	12 mm / 0.472 in.	**280-608**	1
with 4-conductor terminal blocks, marker plate ❷	15 mm / 0.591 in.	**280-762**	1
Terminal block for pluggable modules,			
with 2-conductor terminal blocks, orange separator ❶	17 mm / 0.669 in.	**280-619**	1
with 4-conductor terminal blocks, orange separator ❷	17 mm / 0.669 in.	**280-609**	1
with 4-conductor terminal blocks, marker plate ❷	20 mm / 0.787 in.	**280-763**	1
Terminal block for pluggable modules,			
with 2-conductor terminal blocks, orange separator ❶	22 mm / 0.866 in.	**280-638**	1
with 4-conductor terminal blocks, orange separator ❷	22 mm / 0.866 in.	**280-628**	1
with 4-conductor terminal blocks, marker plate ❷	25 mm / 0.984 in.	**280-764**	1
Terminal block for pluggable modules,			
with 2-conductor terminal blocks, orange separator ❶	27 mm / 1.063 in.	**280-639**	1
with 4-conductor terminal blocks, orange separator ❷	27 mm / 1.063 in.	**280-629**	1
with 4-conductor terminal blocks, marker plate ❷	30 mm / 1.181 in.	**280-765**	1
wire range 0.08 mm² ... 2.5 mm² / 28 ... 14 AWG;			
stripped length 8 ... 9 mm / 0.31 ... 0.35 in.			

DIN-Rail-Mounted Modules - Resistors

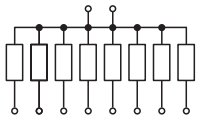
	Resistor gate with 1 end commoned, 8 resistors 2 k 2; 1 W	Open resistor gate with 8 resistors 2 k 7; 0.6 W individual connection possible

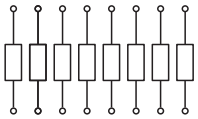




other resistors – contact factory

* Max. admissible power dissipation of a single resistor. With all resistors loaded, the max. admissible power dissipation must be reduced.





Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Resistor gate	**289-113**	1	**289-114**	1

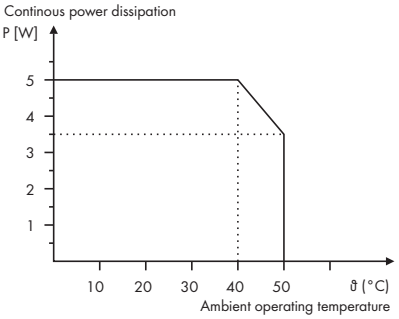
Technical Data

Operating voltage	40 V AC/DC	40 V AC/DC
Resistor type	DIN 0414	DIN 0207
Temperature coefficient	50 ppm	50 ppm
Tolerance	± 1%	± 1%
Power dissipation *	1 W	0.6 W
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C
Dimensions (mm) L x W x H incl. mounting carrier and universal mounting feet	47x31.5x65.5	47x31.5x65.5
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	5 ... 6 mm / 0.2 ... 0.24 in.

Accessories	Item No.	Pack. Unit	Item No.	Pack. Unit
Mounting carrier, for screw-fixing or DIN-rail mounting (with snap-fit type universal mounting feet to be ordered separately)	**288-001**	1	**288-001**	1
Universal mounting foot; snap-fit type; suitable for DIN 15, 32 and 35 rails	**288-002**	10	**288-002**	10

DIN-Rail-Mounted Modules - Resistors

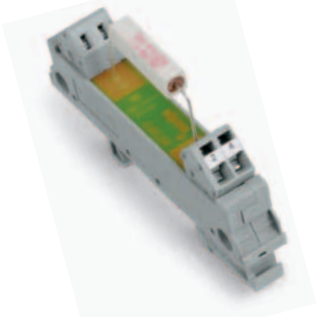
	Module with freely wirable resistor	



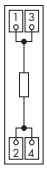
Derating

Depending on operating conditions, the components' temperature may exceed the limit temperature for accessible parts.

For other resistors, please contact factory.



Picture: 289-128/003-000

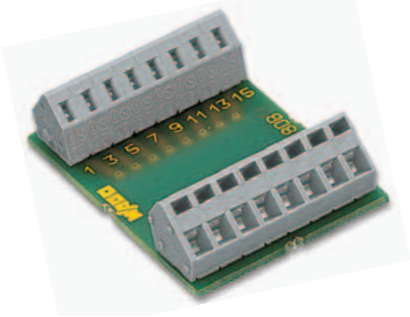
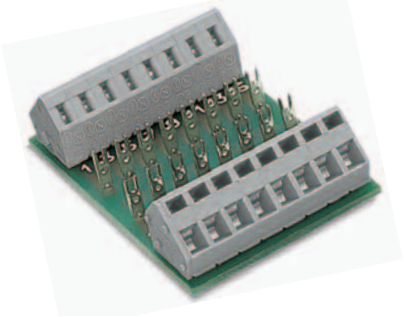
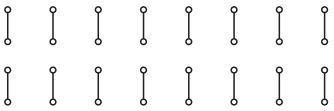
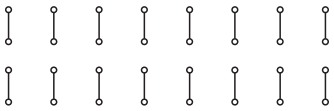


Description	**Resistor**	**Item No.**	**Pack. Unit**	
Resistor module	100R	**289-128/005-000**	1	
	270R	**289-128/006-000**	1	
	2K4	**289-128/001-000**	1	
	4K7	**289-128/002-000**	1	
	6K8	**289-128/003-000**	1	
	9K1	**289-128**	1	

Technical Data

Temperature coefficient	50 ppm
Tolerance	± 10 %
Power dissipation *	5 W
Ambient operating temperature	-20 °C ... +50 °C (Derating must be observed)
Storage temperature	-40 °C ... +70 °C
Dimensions (mm) W x H x L,	
incl. mounting carrier or feet	13x34x85
	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (WAGO 236 Series)
Cross sections	0.08 ... 2.5 mm² / 28 ... 12 AWG (12 AWG: THHN, THWN)
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.

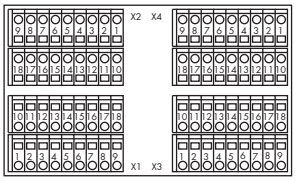
DIN-Rail-Mounted Modules for Building Custom Circuits

	Module with 2 x 8 drilled holes Diameter of drilled holes 1 mm, Pin spacing 3.83 mm x 16 mm	Module with 2 x 8 soldering points Pin spacing 5 mm x 12 mm
		
		

Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Module for building custom circuits	**289-102**	1	**289-131**	1
Technical Data				
Operating voltage	250 V AC/DC		250 V AC/DC	
Nominal current	3 A		3 A	
Ambient operating temperature	-25 °C ... +40 °C		-25 °C ... +40 °C	
Dimensions (mm) L x W x H incl. mounting carrier and universal mounting feet	45.5x31.5x65.5		45.5x32x62.5	
	Height from upper-edge of DIN 35 rail		Height from upper-edge of DIN 35 rail	
Wire connection	CAGE CLAMP®		CAGE CLAMP®	
Cross sections	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG		0.08 mm² ... 2.5 mm² / 28 ... 12 AWG	
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.		5 ... 6 mm / 0.2 ... 0.24 in.	
Accessories	**Item No.**	**Pack. Unit**	**Item No.**	**Pack. Unit**
Mounting carrier, for screw-fixing or DIN-rail mounting (with snap-fit type universal mounting feet to be ordered separately)	**288-001**	1	**288-001**	1
Universal mounting foot; snap-fit type; suitable for DIN 15, 32 and 35 rails	**288-002**	10	**288-002**	10

DIN-Rail Mount Potential Multiplication Modules

	DIN-rail mount potential multiplication module 4 potentials with each 18 connection points	

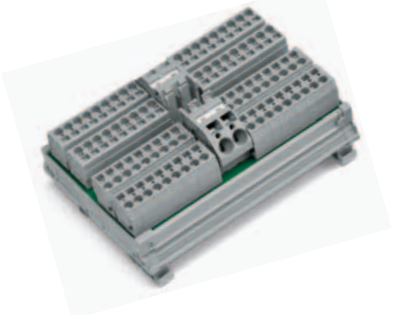


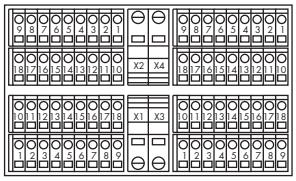
Description	Item No.	Pack. Unit	
Potential multiplication module	**288-825**	1	

Technical Data

Max. operating voltage per potential	250 V AC/DC	
Max. total current per potential	12 A	
Max. current per connection	12 A	
Nominal voltage to EN 60664-1	250 V / 4 kV / 2	
Ambient operating temperature	-20 °C ... +50 °C	
Storage temperature	-40 °C ... +80 °C	
Dimensions (mm) W x H x L		
incl. mounting feet or mounting carrier	85 x 45 x 115	
	Height from upper-edge of DIN 35 rail	
Wire connection	CAGE CLAMP® (WAGO 739 Series)	
Cross sections	0.08 ... 2.5 mm² / 28 ... 12 AWG	
	(12 AWG: THHN, THWN)	
Strip lengths	8 ... 9 mm / 0.31 ... 0.35 in.	

	DIN-rail mount potential multiplication module 4 potentials with each one power supply and 18 connection points, jumpable	





Description	Item No.	Pack. Unit	
Potential multiplication module	**288-837**	1	

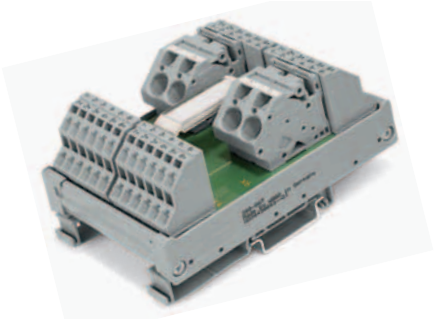
Technical Data

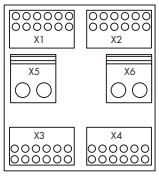
Max. operating voltage per potential	250 V AC/DC	
Max. total current per potential	32 A	
Max. current per connection	12 A	
Nominal voltage to EN 60664-1	250 V / 4 kV / 2	
Ambient operating temperature	-20 °C ... +50 °C	
Storage temperature	-40 °C ... +80 °C	
Dimensions (mm) W x H x L		
incl. mounting feet or mounting carrier	85 x 45 x 115	
	Height from upper-edge of DIN 35 rail	
Wire connection	Power supply: CAGE CLAMP® (WAGO 745 Series)	
	Connection points: CAGE CLAMP® (WAGO 739 Series)	
Cross sections	Power supply:	
	0.2 ... 6 mm² / 24 ... 10 AWG	
	Connection points:	
	0.08 ... 2.5 mm² / 28 ... 12 AWG	
	(12 AWG: THHN, THWN)	
Strip lengths	Power supply: 11 ... 12 mm / 0.43 ... 0.47 in.	
	Connection points:8 ... 9 mm / 0.31 ... 0.35 in.	
Accessories:		
Comb-style jumper bar, 2-pole	745-382	

DIN-Rail Mount Potential Multiplication Modules

	DIN-rail mount potential multiplication module 4 potential groups with 6 connection points each for plus and minus, jumper for common minus potential	

- May be used with electronic circuit breakers for 24 and 0 VDC power distribution, as a substitute for DIN-rail-mount terminal blocks
- 4 potential groups for 4 output circuits
- 6 connection points per potential group for plus and minus
- Features on-unit commoned minus potential with commoning option to adjacent modules via 745-682 comb-style jumper bar
- On-unit marker carrier





Description	Item No.	Pack. Unit	
Potential Multiplication Module	**288-867**	1	

Technical Data

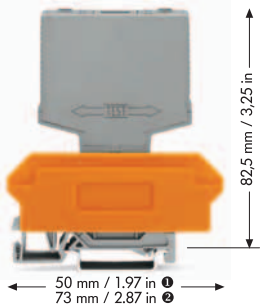
Operating voltage	24 VDC	
Number of potentials	4	
Max. total current per potential	10 A	
Max. current per connection	10 A	
Max. total current 0 V	40 A	
Nominal voltage to EN 60664-1	50 V / 0.8 kV / 2	
Ambient operating temperature	-20 °C ... +50 °C	
Storage temperature	-40 °C ... +70 °C	
Dimensions (mm) L x W x H incl. mounting carrier and		
universal mounting feet	70x50x105	
	Height from upper-edge of DIN 35 rail	
Type of mounting	DIN-rail mount (EN 60715)	
Wire connection	Connection points: CAGE CLAMP® (WAGO 736 Series)	
	Minus potential: CAGE CLAMP® (WAGO 745 Series)	
Cross sections	Connection points:	
	0.08 ... 2.5 mm² / 28 ... 12 AWG	
	(12 AWG: THHN, THWN)	
	Minus potential:	
	0.2 ... 16 mm² / 24 ... 6 AWG	
Strip lengths	Connection points: 5 ... 6 mm / 0.2 ... 0.24 in.	
	Minus potential: 12 ... 13 mm / 0.47 ... 0.51 in.	

Accessories		
Comb-style jumper bar, 2-pole	745-682	

Pluggable Modules - Current Flow Monitoring

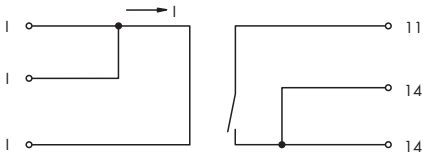
DC current flow monitoring module
0.4 A ... 3.5 A 1 make contact

Module width 15 mm / 0.591 in.



WSB marker card
- Marking U; Item No.: 209-789
- Marking 1 ... 10; Item No.: 209-702
- Marking Lin, Lin, Lout, 11, 14, 14, Lin, Lin, Lout; Item No.: 249-654
- Marking Lin, Lin, Lout, Lout, 24V, 11, 12, 14, 0V; Item No.: 209-997

5 cards, each containing 10 strips with 10 markers



Description	Item No.	Pack. Unit
Current flow monitoring module	**286-662**	1

Technical Data

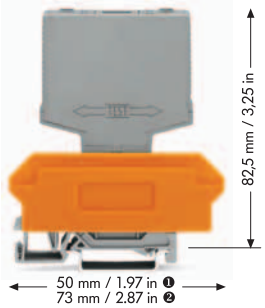
Accessories see page 99

Current monitoring range	0.4 A ... 3.5 ADC (-20 °C ... +40 °C);
	0.4 A ... 3 ADC (-20 °C ... +60 °C);
	0.4 A ... 2 ADC (-20 °C ... +70 °C)
Voltage range	12 V ... 28 V DC
Nominal power consumption min / max	45 mW / 630 mW
Turn on / off point	0.35 A / 0.07 A
Voltage drop	24 mV ... 210 mV
Response time	0.5 ms
Output	1 make contact
Switching current	0.5 A
Switching voltage	200 V DC
Switching power	10 W
Dielectric strength input / output	1.5 kV
Ambient operating temperature	-25 °C ... +40 °C

Accessories

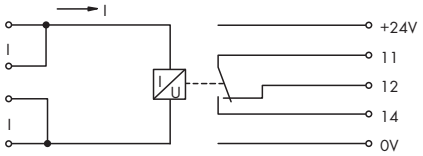
		Item No.	Pack. Unit
Terminal block for pluggable modules,			
with 2-conductor terminal blocks, orange separator ❶	17 mm / 0.669 in.	**280-619**	1
with 4-conductor terminal blocks, orange separator ❷	17 mm / 0.669 in.	**280-609**	1
with 4-conductor terminal blocks, marker plate ❷	20 mm/ 0.787 in.	**280-763**	1
wire range 0.08 mm² ... 2.5 mm² / 28 ... 14 AWG;			
stripped length 8 ... 9 mm / 0.31 ... 0.35 in.			

	AC current flow monitoring module **1 A ... 10 A, adjustable** **1 changeover contact (1 u)** **Module width 25 mm / 0.984 in.**	



WSB marker card
- Marking U; Item No.: 209-789
- Marking 1 ... 10; Item No.: 209-702
- Marking Lin, Lin, Lout, 11, 14, 14, Lin, Lin, Lout; Item No.: 249-654
- Marking Lin, Lin, Lout, Lout, 24V, 11, 12, 14, 0V; Item No.: 209-997

5 cards, each containing 10 strips with 10 markers



Description	Item No.	Pack. Unit	
Current flow monitoring module	**286-665**	1	

Technical Data

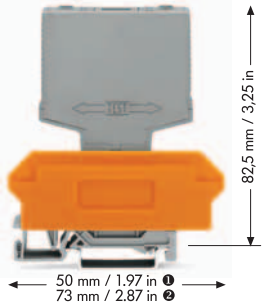
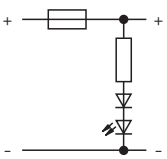
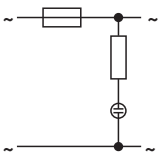
Accessories see page 99

Current monitoring range	1 A ... 10 A AC
Nominal power consumption min / max	23 mVA / 8.5 VA
Switching treshold	min. 1 A (adjustable)
Voltage drop	23 mV ... 850 mV
Response time	200 ms
Output	1 changeover contact
Operating voltage	24 VDC
Power consumption	28 mA
Switching current	5 A
Switching voltage	250 VAC
Switching power	1250 VA
Dielectric strength input / output	1.5 kV
Nominal voltage to EN 60664-1	250 V / 4 kV / 2
Ambient operating temperature	-25 °C ... +40 °C
Storage temperature	-40 °C ... +70 °C
Status indication	Current < switching treshold LED red, Relay switched

Accessories

		Item No.	Pack. Unit
Terminal block for pluggable modules,			
with 2-conductor terminal blocks, orange separator ❶	27 mm / 1.063 in.	**280-639**	1
with 4-conductor terminal blocks, orange separator ❷	27 mm / 1.063 in.	**280-629**	1
with 4-conductor terminal blocks, marker plate ❷	30 mm / 1.181 in.	**280-765**	1
wire range 0.08 mm² ... 2.5 mm² / 28 ... 14 AWG;			
stripped length 8 ... 9 mm / 0.31 ... 0.35 in.			

Pluggable Modules - Fuses

	Fuse modules for replaceable microfuses 5 x 20 mm; max. 6.3 A with blown fuse indication LED green 24 V AC/DC Module width 10 mm / 0.394 in.	Fuse modules for replaceable microfuses 5 x 20 mm; max. 6.3 A with blown fuse indication Neon lamp 230 V AC/DC Module width 10 mm / 0.394 in.
		
		
		

WSB marker card
- Marking F1 ... F10; Item No.: 209-787
- Marking 1 ... 10; Item No.: 209-702
- Marking +/-; Item No.: 209-652

5 cards, each containing 10 strips with 10 markers

Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Fuse module, with blown fuse indication	**286-890**	1	**286-891**	1

Technical Data

Accessories see page 99

Accessories see page 99

Operating voltage	24 V AC/DC	230 V AC/DC
Max. fuse capacity	6.3 A	6.3 A
Operating power	100 mW	100 mW
Nominal voltage to EN 60664-1	250 V / 4 kV / 3	250 V / 4 kV / 3
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C
Leakage current in case of blown fuse	5 mA	0.5 mA
Test voltage	2.5 kV	2.5 kV

Accessories

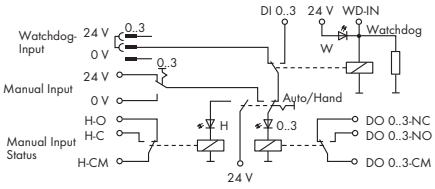
		Item No.	Pack. Unit		Item No.	Pack. Unit
Terminal block for pluggable modules,						
with 2-conductor terminal blocks, orange separator ❶	12 mm / 0.472 in. wide	**280-618**	1	12 mm / 0.472 in. wide	**280-618**	1
with 4-conductor terminal blocks, orange separator ❷	12 mm / 0.472 in. wide	**280-608**	1	12 mm / 0.472 in. wide	**280-608**	1
with 4-conductor terminal blocks, marker plate ❷	15 mm / 0.591 in. wide	**280-762**	1	15 mm / 0.591 in. wide	**280-762**	1
wire range 0.08 mm² ... 2.5 mm² / 28 ... 14 AWG;						
stripped length 8 ... 9 mm / 0.31 ... 0.35 in.						

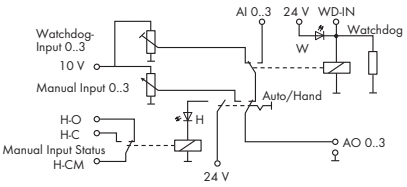
Manual Control Modules in DIN-Rail Mount Enclosure

	Manual control module, digital, 4 outputs	Manual control module, analog, 4 outputs

The digital manual control module 789-810 controls the different outputs 0 ... 3 and indicates their status via green LEDs and the changeover contact of the power relay. Depending on both the manual/automatic switch and watchdog input, the states 0 or 1 are transmitted in an electrically isolated from to the output via a relay.

The analog manual control module 789-811 controls the different analog outputs 0 ... 3.
Depending on both the manual/automatic switch and watchdog input, the voltages set between 0 ... 10 V are transmitted to the output.





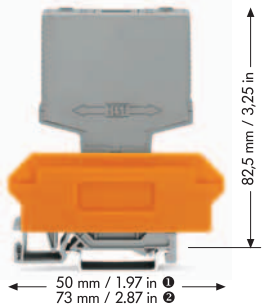
Description	Item No.	Pack. unit	Item No.	Pack. unit
Hand / Auto module	**789-810**	1	**789-811**	1

Technical Data

Voltage supply	24 VDC ± 20 %	24 VDC ± 20 %
Dielectric strength input / output	4 kV	
Ambient operating temperature	0 °C ... +50 °C	0 °C ... +50 °C
Storage temperature	-25 °C ... +70 °C	-25 °C ... +70 °C
Dimensions (mm) W x H x L	106 x 58 x 90	106 x 58 x 90
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (WAGO 734 and 231 Series)	CAGE CLAMP® (WAGO 734 and 231 Series)
Cross sections	0.08 mm² ... 1.5 mm² / 28 ... 14 AWG	0.08 mm² ... 1.5 mm² / 28 ... 14 AWG
	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Stripped lengths	7 mm / 0.28 in.	7 mm / 0.28 in.
	8 ... 9 mm / 0.31 ... 0.35 in.	8 ... 9 mm / 0.31 ... 0.35 in.
Approvals	VDE 0110 (corresponding parts)	VDE 0110 (corresponding parts)
Inputs		
No. 1/10	24 V Operating voltage supply	24 V Operating voltage supply
No. 2	GND ground	GND ground
No. 3 ... 6	DI-0 ... 3; Input 0 ... 3; 24 V/max. 20 mA	AI-0 ... 3; Input 0 ... 3; 0-10 V/max. 20 mA
No. 11	WD-IN; Watchdog input; 24 V/max. 20 mA	WD-IN; Watchdog input; 24 V/max. 20 mA
Outputs		
No. 7	H-C; Manual operation "closed"	H-C; Manual operation "closed"
No. 8	H-CM; Manual operation "common"	H-CM; Manual operation "common"
No. 9	H-O; Manual operation "open"	H-O; Manual operation "open"
No. 12/15/18/21	DO-0 ... 3-NC; Break contact; channel 0 ... 3	GND
No. 13/16/19/22	DO-0 ... 3-CM; Common; channel 0 ... 3	AO-0 ... 3; Output 0 ... 3; 0-10 V/max. 20 mA
No. 14/17/20/23	DO-0 ... 3-NO; Make contact; channel 0 ... 3	GND
Max. switching voltage channel nos. 12 ... 23	250 VAC / 30V DC	
Max. switching current channel nos. 12 ... 23	8 AAC / 8 ADC	

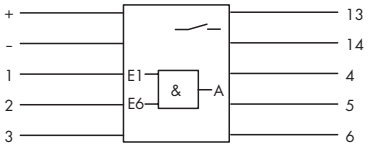
Pluggable Modules - AND Gate

	AND gate module **with 6 inputs** **Relay output with 1 make contact** **Module width 25 mm / 0.984 in.**	



WSB marker card
- Marking D; Item No.: 209-783
- Marking 1 ... 10; Item No.: 209-702
- Marking +, -, 1, 2, 3, 13, 14, 4, 5, 6; Item No.: 249-608

5 cards, each containing 10 strips with 10 markers



Description	Item No.	Pack. Unit	
Gate module	**286-826**	1	

Technical Data

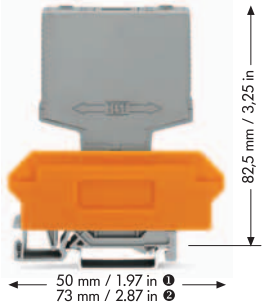
Accessories see page 99

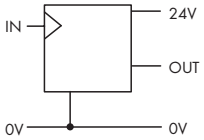
Operating voltage	24 VDC
Operating voltage range	24 V ... 27.5 V DC
Gate voltage - input	24 VDC
Power consumption at V_N	max. 34.6 mA
Relay output	1 make contact
Max. switching voltage	250 VAC / 120 VDC
Max. continuous current	3 A
Max. Switching power (resistive)	120 W / 750 VA
Dielectric strength input / output	2.5 kV
Nominal voltage to EN 60664-1	250 V / 4 kV / 2
Ambient operating temperature	-25 °C ... +40 °C

Accessories		Item No.	Pack. Unit
Terminal block for pluggable modules,			
with 2-conductor terminal blocks, orange separator ❶	27 mm / 1.063 in. wide	**280-639**	1
with 4-conductor terminal blocks, orange separator ❷	27 mm / 1.063 in. wide	**280-629**	1
with 4-conductor terminal blocks, marker plate ❷	30 mm / 1.181 in. wide	**280-765**	1
wire range 0.08 mm² ... 2.5 mm² / 28 ... 14 AWG;			
stripped length 8 ... 9 mm / 0.31 ... 0.35 in.			

Pluggable Modules - Flip-Flop

	Flip-Flop **Operating voltage 24 VDC** **Module width 15 mm / 0.591 in.**	





Description	Item No.	Pack. Unit	
Flip Flop module	**286-825**	1	

Technical Data

Accessories see page 99

Input voltage	24 VDC (± 10 %)
Input current	0.25 mA
Input voltage (High Signal)	> 7 V
Input voltage (Low Signal)	< 3 V
Pulse frequency	5 kHz
Min. output voltage	V_B - 1.5 V
Max. output current	0.5 A
Operating voltage	24 VDC
Operating voltage range	20 V ... 30 V DC
Power consumption	7.5 mA
Reverse voltage transistor	80 V
Test voltage input/output	2.5 kV
Nominal voltage to EN 60664-1	250 V / 4 kV / 2
Ambient operating temperature	0 °C ... +55 °C

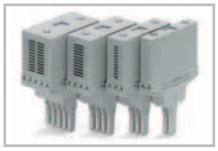
Accessories

		Item No.	Pack. Unit	
Terminal block for pluggable modules,				
with 2-conductor terminal blocks, orange separator ❶	17 mm / 0.669 in. wide	**280-619**	1	
with 4-conductor terminal blocks, orange separator ❷	17 mm / 0.669 in. wide	**280-609**	1	
with 4-conductor terminal blocks, marker plate ❷	20 mm/ 0.787 in. wide	**280-763**	1	
wire range 0.08 mm² ... 2.5 mm² / 28 ... 14 AWG;				
stripped length 8 ... 9 mm / 0.31 ... 0.35 in.				

Empty Housings

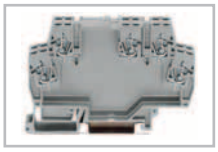
Empty Housings, 2857 Series

Overview and Configuration 450
Modular Empty Housings 452
Stripboards 454



Empty Component Plug Housings 280, 286, 786 Series

Empty Component Plug Housings for Building Custom Circuits 456
Empty Component Plug Housings for Building Custom Circuits 458

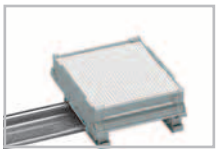


Empty Housings, 859 Series

Empty Electronic Terminal Block Housings 459

Empty Housings, 789 Series

DIN-Rail Mounted Enclosures 460
Accessories, 789 Series 461



Mounting Carriers, 209, 210, 288 Series

Mounting Carriers for DIN-Rail Mounting PCBs 462
Mounting Carriers and Feet for DIN-Rail Mounting PCBs 464

Modular Empty Housings, 2857 Series

Overview and Configuration

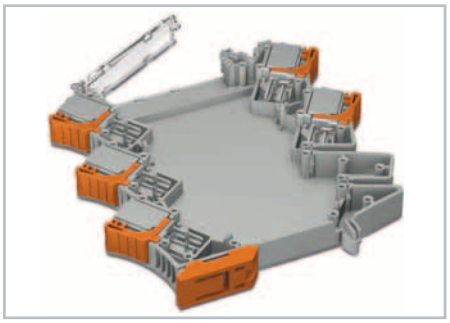
Pluggable connection with *picoMAX*®

Fixed connection with *picoMAX*®

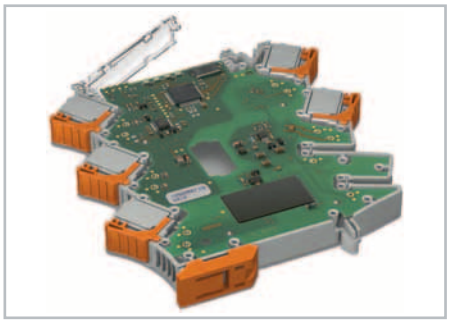
Empty slot without connection technology

... freely selectable at each connection point

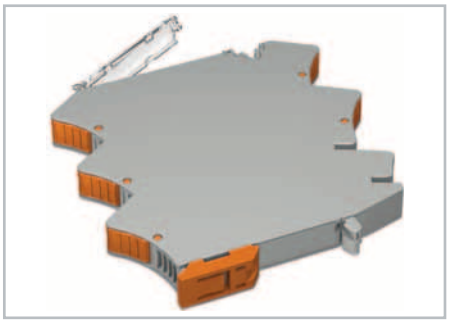
Supplied as a pre-assembled unit



1. Pre-assembled unit



2. Inserting and soldering the PCB.



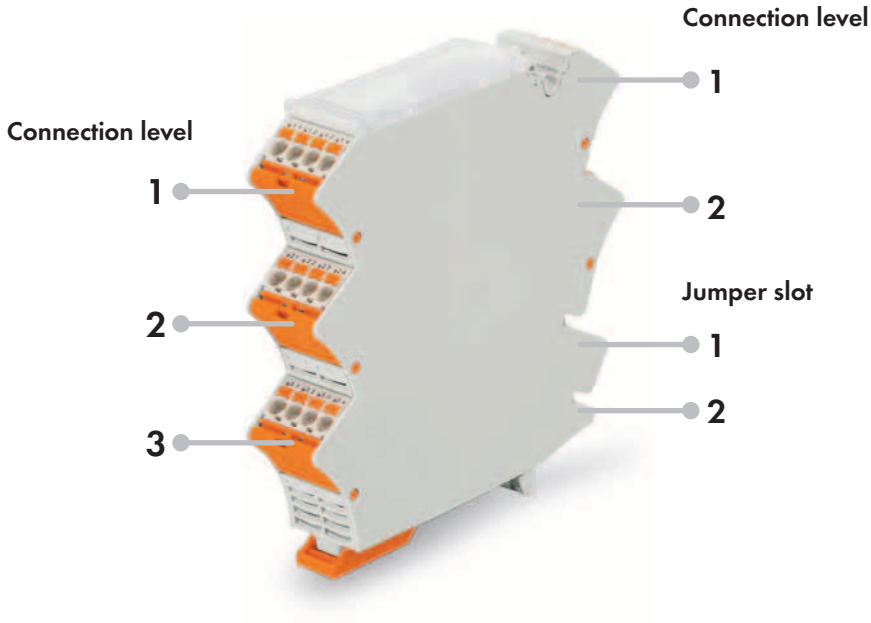
3. Snapping on side wall.

Housing configuration

Housing width: 12.5 mm	**2857-101**	**2857-102**	**2857-103**	–
Housing width: 22.5 mm	**2857-121**	**2857-122**	**2857-123**	**2857-124**
Connection levels	2-2	3-2	3-3	1-1
Jumper slots	2-2	0-2	0-0	2-2

Mixed configuration (fixed/removable/empty slot) upon request.

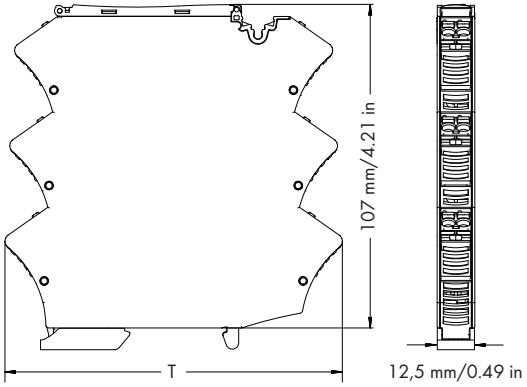
Example of connection level and jumper slot assignment:



Connection levels	3-2
Jumper slots	0-2

Modular Empty Housings

Housing width: 12.5 mm



Features:
- *picoMAX*® female connectors, with coding keys, 2-pole
- Pre-assembled unit
- Flexible conductor termination
- Customization of connection levels
- Various marking options available
- Sealable, transparent cover
- Commoning option via 859-402 jumpers

Description	Item No.	Pack. Unit
Modular empty housing, for DIN 35 rail		
Housing width: 12.5 mm		
2-2 connection levels, 2-2 jumper slots	**2857-101**	10
3-2 connection levels, 0-2 jumper slots	**2857-102**	10
3-3 connection levels, 0-0 jumper slots	**2857-103**	10

Technical Data: Empty Housing

Material Data:	
Housing material	PC
Flammability rating	V0
Environmental Requirements:	
Ambient operating temperature	-40 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Dimensions:	
Dimensions (mm) W x H x L	12.5 x 107 x 108 (2857-101)
	12.5 x 107 x 110 (2857-102)
	12.5 x 107 x 112 (2857-103)
	Height from upper-edge of DIN 35 rail
Technical Data:	
Power loss	2 W
Accessories	Coding key carrier: 2092-1610
	Jumpers: 859-402
	Marker strips, WMB and
	WMB Inline: see section 11

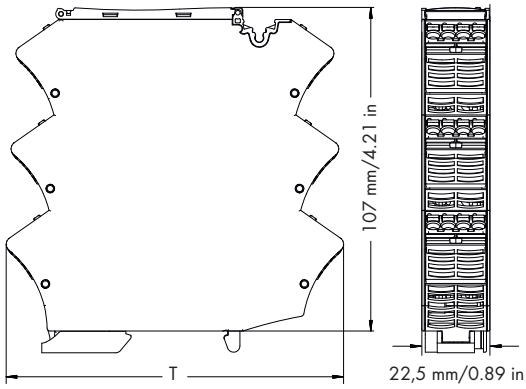
Technical Data: Female Connector with *picoMAX*® 5.0 Conductor Termination

Technical Data:			
Pin spacing	5 mm / 0.197 in		
Ratings per	IEC/EN 60664-1		
Overvoltage category EN	III	III	II
Pollution degree	3	2	2
Rated voltage EN	250 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV
Nominal current	16 A	16 A	16 A
Approvals per	UL/CSA		
Use Group UL 1059	B	C	D
Rated voltage	300 V	-	300 V
Nominal current UL	15 A	-	10 A
Conductor Data:			
Wire connection	Push-in CAGE CLAMP®		
Solid sizes	0.2 ... 2.5 mm² / 24 ... 12 AWG		
Fine-stranded wires	0.2 ... 2.5 mm² / 24 ... 12 AWG		
Fine-stranded wires with insulated ferrule	0.2 ... 1.5 mm² / 24 ... 16 AWG		
Fine-stranded wires with uninsulated ferrule	0.2 ... 2.5 mm² / 24 ... 14 AWG		
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.		
Material Data:			
Clamping spring material	Chrome nickel spring steel (CrNi)		
Contact material	Electrolytic copper (Ecu)		
Contact plating	Tin-plated		
Insulating material	Polyphtalamide (PPA GF)		
Flammability rating	V0		

For additional technical data, see WAGO's *picoMAX*® catalog.

Modular Empty Housings

Housing width: 22.5 mm



Features:
- *picoMAX*® female connectors, with coding keys, 4-pole
- Pre-assembled unit
- Flexible conductor termination
- Customization of connection levels
- Various marking options available
- Sealable, transparent cover
- Commoning option via 859-402 jumpers

Description	Item No.	Pack. Unit
Modular empty housing, for DIN 35 rail		
Housing width: 22.5 mm		
2-2 connection levels, 2-2 jumper slots	**2857-121**	5
3-2 connection levels, 0-2 jumper slots	**2857-122**	5
3-3 connection levels, 0-0 jumper slots	**2857-123**	5
1-1 connection levels, 2-2 jumper slots	**2857-124**	5

Technical Data: Empty Housing

Material Data:	
Housing material	PC
Flammability rating	V0
Environmental Requirements:	
Ambient operating temperature	-40 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Dimensions:	
Dimensions (mm) W x H x L	22.5 x 107 x 108 (2857-121)
	22.5 x 107 x 110 (2857-122)
	22.5 x 107 x 112 (2857-123)
	22.5 x 107 x 105 (2857-124)
	Height from upper-edge of DIN 35 rail
Technical Data:	
Power loss	3 W
Accessories	Coding key carrier: 2092-1610
	Jumpers: 859-402
	Marker strips, WMB and
	WMB Inline: see section 11

Technical Data: Female Connector with *picoMAX*® 5.0 Conductor Termination

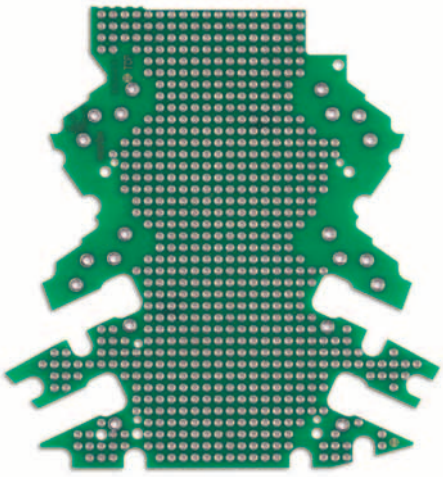
Technical Data:			
Pin spacing	5 mm / 0.197 in		
Ratings per	IEC/EN 60664-1		
Overvoltage category EN	III	III	II
Pollution degree	3	2	2
Rated voltage EN	250 V	320	630 V
Rated surge voltage	4 kV	4 kV	4 kV
Nominal current	16 A	16 A	16 A
Approvals per	UL/CSA		
Use Group UL 1059	B	C	D
Rated voltage	300 V	-	300 V
Nominal current UL	15 A	-	10 A
Conductor Data:			
Wire connection	Push-in CAGE CLAMP®		
Solid sizes	0.2 ... 2.5 mm² / 24 ... 12 AWG		
Fine-stranded wires	0.2 ... 2.5 mm² / 24 ... 12 AWG		
Fine-stranded wires with insulated ferrule	0.2 ... 1.5 mm² / 24 ... 16 AWG		
Fine-stranded wires with uninsulated ferrule	0.2 ... 2.5 mm² / 24 ... 14 AWG		
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in.		
Material Data:			
Clamping spring material	Chrome nickel spring steel (CrNi)		
Contact material	Electrolytic copper (Ecu)		
Contact plating	Tin-plated		
Insulating material	Polyphtalamide (PPA GF)		
Flammability rating	V0		

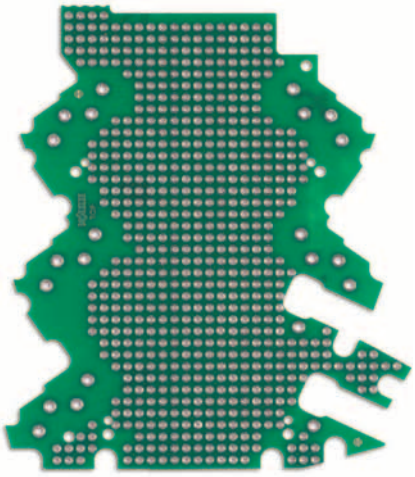
For additional technical data, see WAGO's *picoMAX*® catalog.

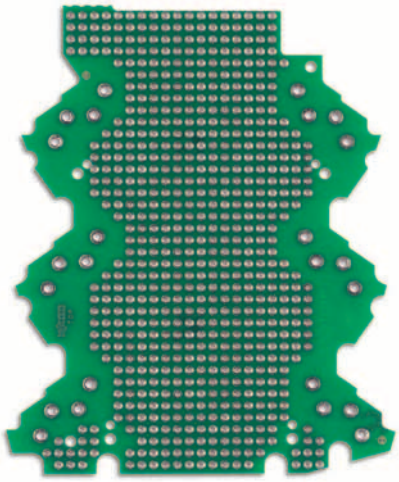
Stripboards, 2857 Series

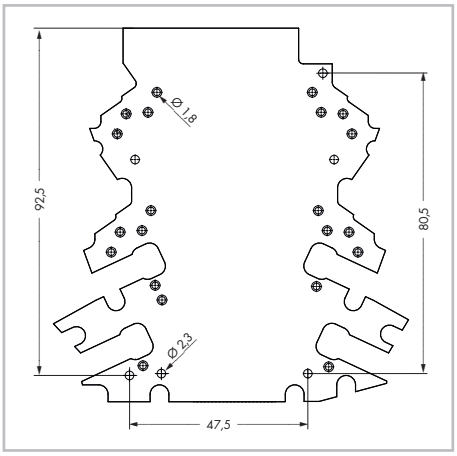
for Empty Housings

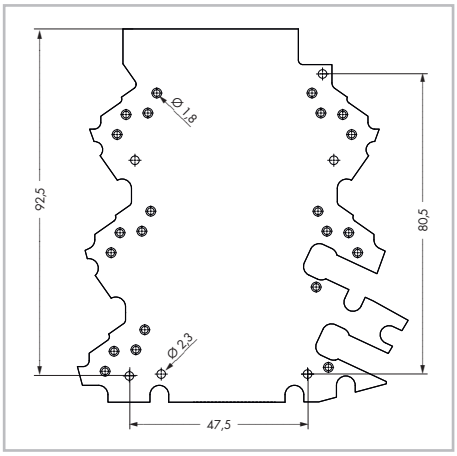
Stripboard 2–2 connection levels 2–2 jumper slots	**Stripboard** 3–2 connection levels 0–2 jumper slots	**Stripboard** 3–3 connection levels 0–0 jumper slots

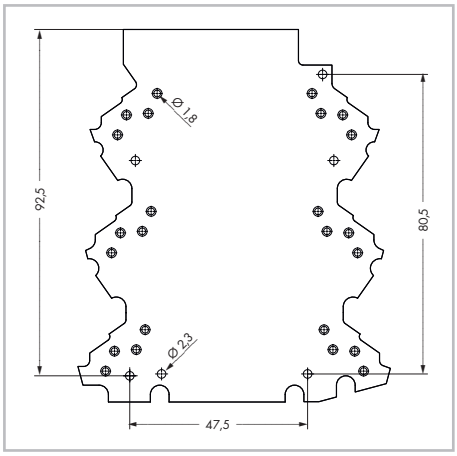






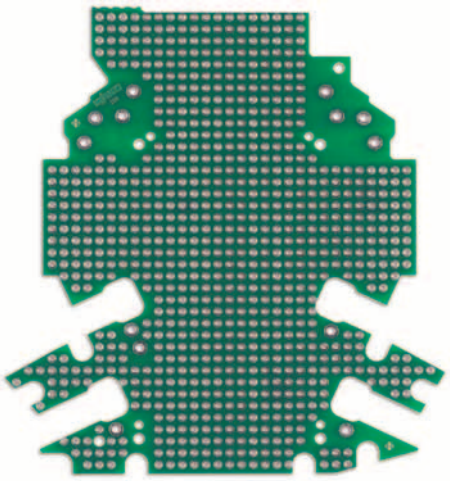


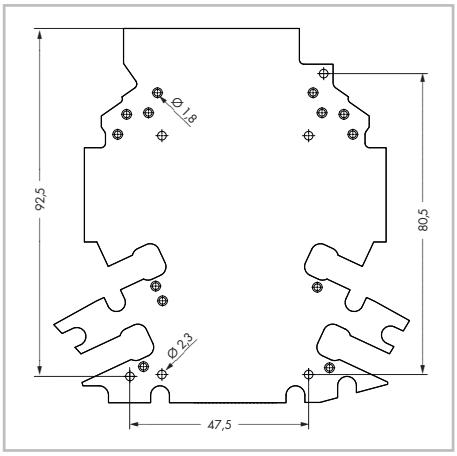




Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit
Stripboard, for installation in 12.5mm and 22.5mm empty housings		**Stripboard,** for installation in 12.5mm and 22.5mm empty housings		**Stripboard,** for installation in 12.5mm and 22.5mm empty housings	
2857-191/3140-000	5 (5 x 1)	**2857-192/3140-000**	5 (5 x 1)	**2857-193/3140-000**	5 (5 x 1)

Stripboard 1–1 connection levels 2–2 jumper slots		

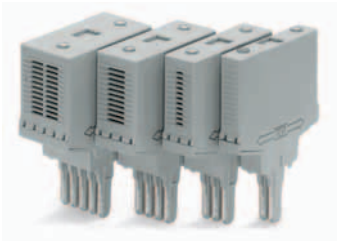




Item No.	Pack. Unit
Stripboard, for installation in 12.5mm and 22.5mm empty housings	
2857-194/3140-000	5 (5 x 1)

Empty Component Plug Housings for Building Custom Circuits

286 Series, empty component plug

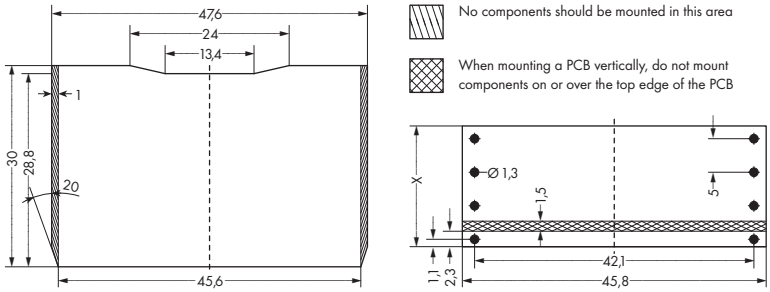


Description		Item No.	Pack. Unit
Empty component plug, type 9	4-pole, 10 mm / 0.394 in. wide	**286-110**	1
Empty component plug, type 10	6-pole, 15 mm / 0.591 in. wide	**286-111**	1
Empty component plug, type 11	8-pole, 20 mm / 0.787 in. wide	**286-112**	1
Empty component plug, type 12	10-pole, 25 mm / 0.984 in. wide	**286-113**	1

250 V/ 4 KV/ 3 (rated voltage/ rated surge voltage/ pollution degree);
6 A per contact;
Module height 82.5 mm/3.25 in. (from upper-edge of DIN 35 rail);
PCB dimensions and component height see drawing and table

PCB dimensions

Module width	10	15	20	25
Component height	4.2	9.2	14.2	19.2
X = total height of PCB	8	13	18	23



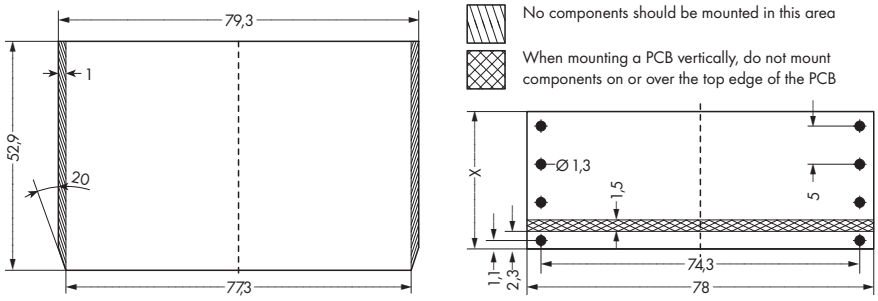
786 Series, empty component plug

Description		Item No.	Pack. Unit
Empty component plug, type 14	6-pole, 15 mm / 0.591 in. wide	**786-101**	1
Empty component plug, type 15	8-pole, 20 mm / 0.787 in. wide	**786-102**	1
Empty component plug, type 16	10-pole, 25 mm / 0.984 in. wide	**786-103**	1

250 V/ 4 KV/ 3 (rated voltage/ rated surge voltage/ pollution degree);
6 A per contact;
Module height 82.5 mm/3.25 in. (from upper-edge of DIN 35 rail);
PCB dimensions and component height see drawing and table

PCB dimensions

Module width	15	20	25
Component height	9.2	14.2	19.2
X = total height of PCB	13	18	23

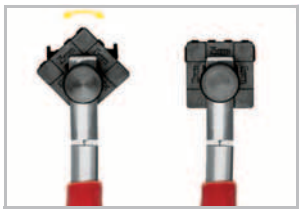


Accessories

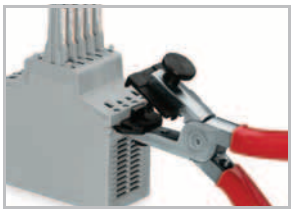
Unlocking pliers for component plug housing

WSB-marker cards

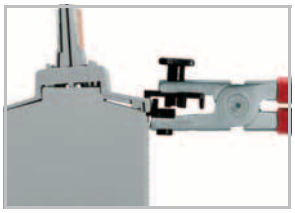
Description		Item No.	Pack. Unit
Unlocking pliers for component plug housing		**210-492**	1
WSB Quick marking system for module width 5 ...17.5 mm	**plain**	**209-501**	5 cards
Marking	**1 ... 10 (10 x)**	**209-702**	5 cards
10 strips with 10 markers, white with black printing			



Adjust the pliers to the proper housing width



Insert the pliers into the locking slots . . .



. . . by compressing the pliers . . .

. . . the cover is removed.

2-conductor terminal block

4-conductor terminal block

Description		Item No.	Pack. Unit
Terminal block for pluggable modules,			
with 2-conductor terminal blocks, orange separator	12 mm / 0.472 in. wide	**280-618**	1
with 4-conductor terminal blocks, orange separator	12 mm / 0.472 in. wide	**280-608**	1
Terminal block for pluggable modules,			
with 2-conductor terminal blocks, orange separator	17 mm / 0.669 in. wide	**280-619**	1
with 4-conductor terminal blocks, orange separator	17 mm / 0.669 in. wide	**280-609**	1
Terminal block for pluggable modules,			
with 2-conductor terminal blocks, orange separator	22 mm / 0.866 in. wide	**280-638**	1
with 4-conductor terminal blocks, orange separator	22 mm / 0.866 in. wide	**280-628**	1
Terminal block for pluggable modules,			
with 2-conductor terminal blocks, orange separator	27 mm / 1.063 in. wide	**280-639**	1
with 4-conductor terminal blocks, orange separator	27 mm / 1.063 in. wide	**280-629**	1

Wire range 0.08 mm² ... 2.5 mm² / 28 ... 14 AWG; Stripped lengths 8 ... 9 mm / 0.31 ... 0.35 in.

Other Terminal blocks see Full Line Catalog, Volume 1, Rail-Mounted Terminal Block Systems

Empty Component Plug Housings for Building Custom Circuits

280 Series, empty component plug housings for building custom circuits

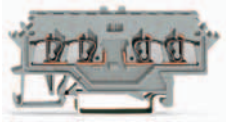
Description		Item No.	Pack. Unit
Empty component plug, type 1	2-pole, 5 mm / 0.197 in. wide; Inside dimensions of plug W/H/D 3.2/15/15 mm (0.126/0.591/0.591 in.)	**280-801**	100
Empty component plug, type 2	2-pole, 10 mm / 0.394 in. wide; Inside dimensions of plug W/H/D 8.2/15/15 mm (0.323/0.591/0.591 in.)	**280-802**	50
Empty component plug, type 3	4-pole, 10 mm / 0.394 in. wide; Inside dimensions of plug W/H/D 8.2/15/15 mm (0.323/0.591/0.591 in.)	**280-804**	50

250 V/ 4 KV/ 3 (rated voltage/ rated surge voltage/ pollution degree);

2-conductor terminal

3-conductor terminal

4-conductor terminal

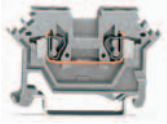


Description		Item No.	Pack. Unit
2-conductor terminal block	gray, terminal block width 5 mm /0.197 in., marking on both sides	**280-616**	100
2-conductor terminal block	gray, terminal block width 5 mm /0.197 in., marking in center position	**280-916**	100
3-conductor terminal block	gray, terminal block width 5 mm /0.197 in.	**280-610**	100
4-conductor terminal block	gray, terminal block width 5 mm /0.197 in., marking on both sides	**280-606**	100
4-conductor terminal block	gray, terminal block width 5 mm /0.197 in., marking in center position	**280-686**	100

Wire range 0.08 mm² ... 2.5 mm² / 28 ... 14 AWG; Stripped lengths 8 ... 9 mm / 0.31 ... 0.35 in.
For accessories like end plates, jumpers etc. see Full Line Catalog, Volume 1, Rail-Mounted Terminal Block Systems

Empty Component Plug Housings for Building Custom Circuits, 280 Series

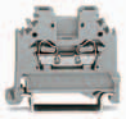
2-conductor terminal block



3-conductor terminal block

4-conductor terminal block

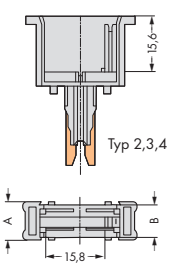
2-conductor terminal block

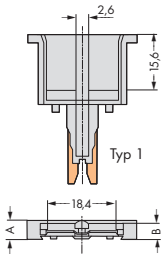


Description		Item No.	Pack. Unit
Empty component plug, type 4	2-pole, 10 mm / 0.394 in. wide; Inside dimensions of plug W/H/D 8.2/15/15 mm	**280-803**	50
250 V/ 4 KV/ 3 (rated voltage/ rated surge voltage/ pollution degree);			
6 A max.			
Front-entry 2-conductor terminal block	gray, terminal block width 5 mm /0.197 in., marking on both sides	**280-601**	100
Front-entry 2-conductor terminal block	gray, terminal block width 5 mm /0.197 in., marking in center position	**280-901**	100
Front-entry 3-conductor terminal block	gray, terminal block width 5 mm /0.197 in.	**280-681**	100
Wire range 0.08 mm² ... 2.5 mm² / 28 ... 12 AWG (12 AWG: THHN, THWN); Stripped lengths 8 ... 9 mm / 0.31 ... 0.35 in.			
Front-entry 4-conductor terminal block	gray, terminal block width 5 mm /0.197 in., marking on both sides	**280-621**	100
Front-entry 4-conductor terminal block	gray, terminal block width 5 mm /0.197 in., marking in center position	**280-833**	100
Side-entry 2-conductor terminal block	gray, terminal block width 5 mm /0.197 in.	**280-101**	100
Wire range .,08 mm² ... 2.5 mm² / 28 ... 14 AWG; Stripped lengths 8 ... 9 mm / 0.31 ... 0.35 in.,			
For accessories like end plates, jumpers etc. see Full Line Catalog, Volume 1, Rail-Mounted Terminal Block Systems			

Press screwdriver into appropriate slot (1) and remove cover with levering action (2).

Introduce cover in the outer groove of the plug and press completely down until snap-fit engaged.

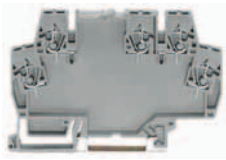




Typ	1	2	3	4
A	5	10	10	10
B	3,2	8,2	8,2	8,2

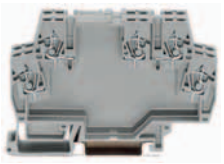
Empty Electronic Terminal Block Housings

859-110



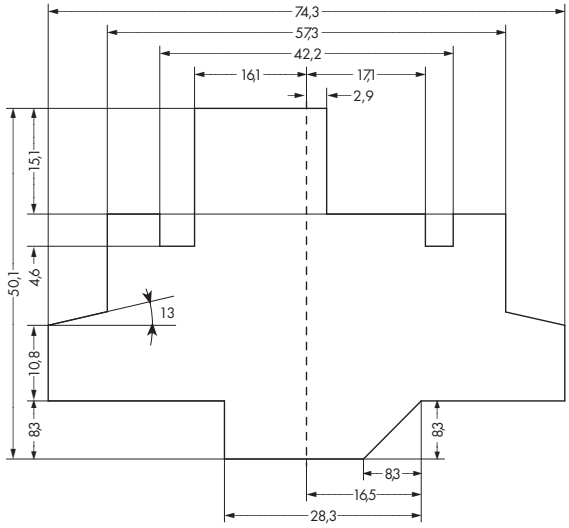
859-501

859-110 and 859-501

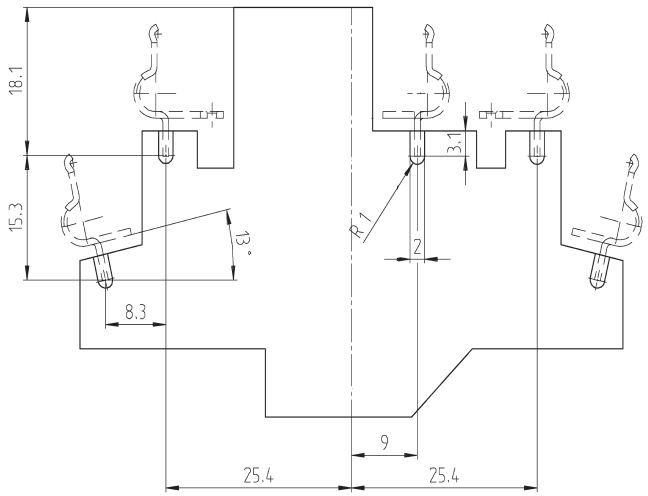


Description	Item No.	Pack. Unit	Technical Data
Modular housing for mounting electronic components in a rail-mounted terminal block	**859-110**	1	Housing material: PA 66
Frame to enlarge the terminal block width	**859-501**	1	Flammability rating: V0
			Color: gray (similar to RAL 7038)
			Degree of protection: IP20
			Perm. ambient temperature: -25 °C ... +70 °C
			Storage temperature: -40 °C ... +85 °C
			Width: 6 mm (859-110), 8 mm (859-501)
			Mounting position: any
			Dimensions (W x H x L): (6 x 56 x 91) mm Height from upper-edge of DIN 35 rail
			Wire connection: CAGE CLAMP®
			Cross sections: 0.08 mm² ... 2.5 mm² / 28 ... 14 AWG
			Stripped lenghts: 5 ... 6 mm / 0.2 ... 0.24 in.

PCB dimensions



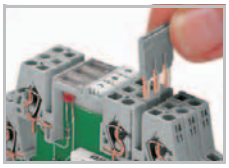
PCB dimensions



End and intermediate plate

Push-in type jumper bar

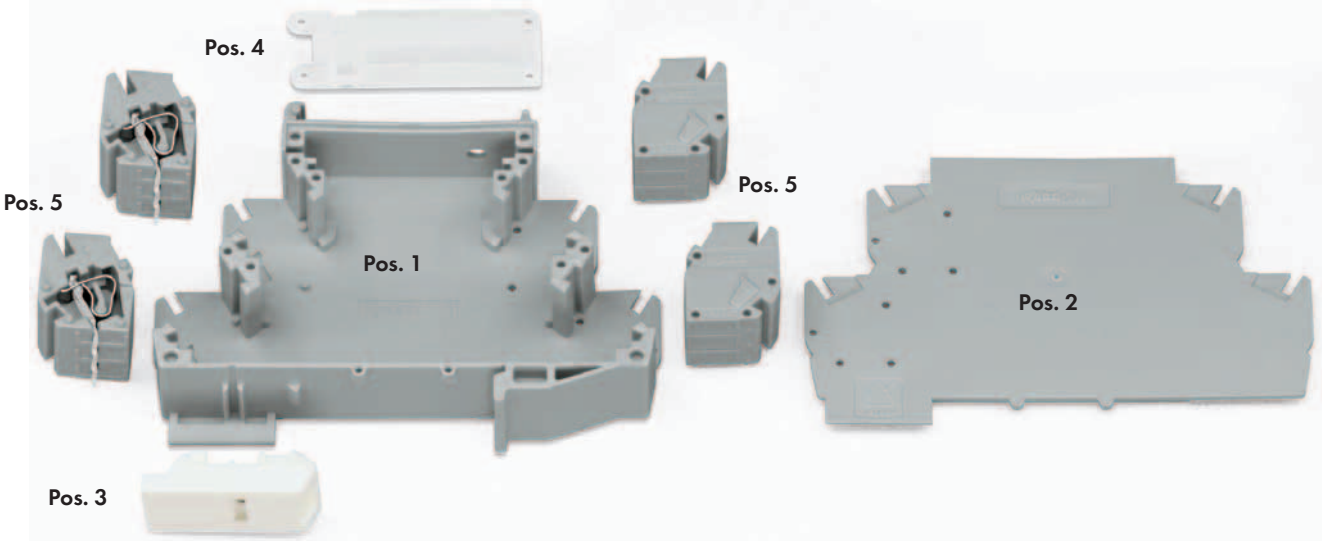
Commoning



Test pin

Description		Item No.	Pack. Unit
End and intermediate plate; 1 mm / 0.039 in. thick, gray		**859-525**	100 (4x25)
Push-in type jumper bars, light gray, insulated, 18 A	**2-way**	**859-402**	200 (8x25)
	3-way	**859-403**	200 (8x25)
	4-way	**859-404**	200 (8x25)
	5-way	**859-405**	200 (8x25)
	6-way	**859-406**	100 (4x25)
	7-way	**859-407**	100 (4x25)
	8-way	**859-408**	100 (4x25)
	9-way	**859-409**	100 (4x25)
	10-way	**859-410**	100 (4x25)
Item no. suffix for colored push-in type jumper bars	**yellow**	**... /000-029**	
	blue	**... /000-006**	
	red	**... /000-005**	
Test pin; Ø 1 mm / 0.039 in.; test wire for sold. onto test		**859-500**	1 (1x1)

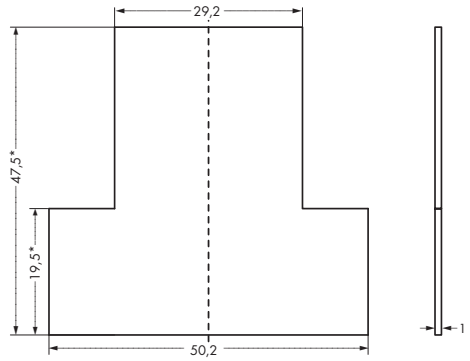
DIN-Rail Mounted Enclosures



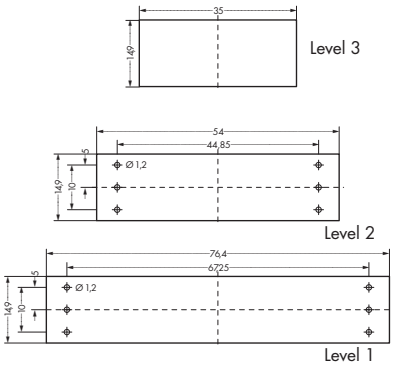
Description		Item No.	Pack. Unit	Technical Data
Housing 55 mm/2.17 in.	Pos. 1	**789-120**	1	Rated voltage acc. to VDE 0110 Part 1 /4.97 IEC 60664-1: 250 V /4 kV /3
Top cover 55 mm/2.17 in.	Pos. 2	**789-122**	1	Housing material: PA 66
Transparent cover	Pos. 4	**789-124**	1	Flammability rating: V0
Release mechanism	Pos. 3	**789-126**	1	Color: gray (similar to RAL 7038)
3-pole terminal block: CCC*	Pos. 5	**789-127**	1	Degree of protection: IP20
3-pole terminal block: COC*	Pos. 5	**789-128**	1	Perm. ambient temperature: -25 °C ... +70 °C
3-pole terminal block: CCO*	Pos. 5	**789-129**	1	Storage temperature: -40 °C ... +85 °C
3-pole terminal block: OCC*	Pos. 5	**789-130**	1	Mounting position: any
3-pole terminal block: OCO*	Pos. 5	**789-131**	1	Dimensions (W x H x L): (17.5 x 55 x 90) mm Hight from upper-edge of DIN 35 rail
3-pole terminal block: OOO*	Pos. 5	**789-132**	1	Wire connection: CAGE CLAMP®
3-pole terminal block: OOC*	Pos. 5	**789-133**	1	Cross sections: 0.08 mm² ... 2.5 mm² / 28 ... 14 AWG
3-pole terminal block: COO*	Pos. 5	**789-134**	1	Stripped lenghts: 9 ... 10 mm / 0.35 ... 0.39 in.

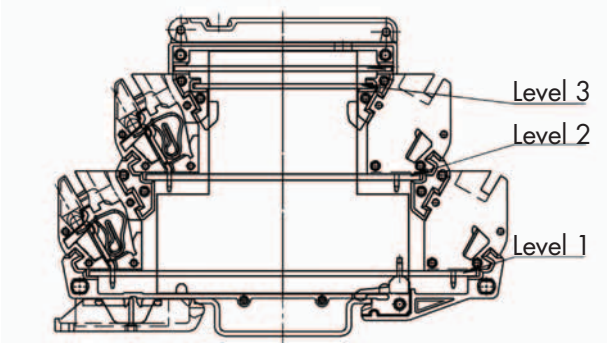
* C = with clamping spring, O = without clamping spring, enclosure open on the right side

PCB dimensions, horizontal mounting
*** less 4.5mm when mounting a vertical PCB on level 1**



PCB dimensions vertical mounting (max. PCB thickness 1.5 mm) in level 1; (max. PCB thickness 1 mm) in level 2 and 3





Accessories, 789 Series

Push-in type jumper bars

Commoning

Description		Item No.	Pack. Unit
Push-in type jumper bars	uninsulated, 12-way, to be cut to the required length	**789-112**	100 (4x25)

Operating tool

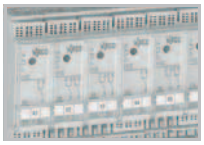
Wire connection

Marking pen with fiber tip

Description		Item No.	Pack. Unit
Operating tool, with partially insulated shaft	Type 2, blade (3.5 x 0.5) mm	**210-720**	1
Marking pen	for permanent marking	**210-110**	1

Miniature quick marking card

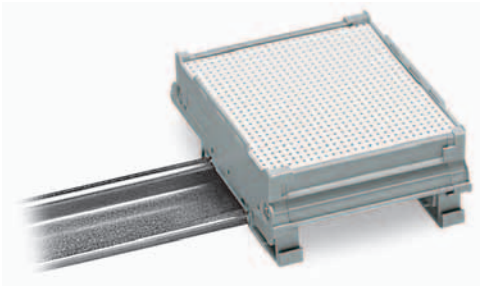
Marking

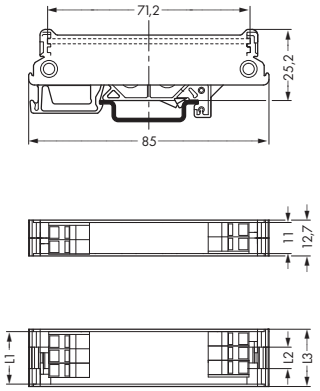


Description		Item No.	Pack. Unit
Miniature WSB Quick marking system	**plain**	**248-501**	5 cards
Marking software and printer/plotter see Section 11			
Marking	**1 ...10 (10 x)**	**248-502**	5 cards
	11 ... 20 (10x)	**248-503**	5 cards
	21 ... 30 (10x)	**248-504**	5 cards
	31 ... 40 (10x)	**248-505**	5 cards
	41 ... 50 (10 x)	**248-506**	5 cards
	1 ... 50 (2 x)	**248-566**	5 cards
	K 1 ... K 10 (10 x)	**248-450**	5 cards
	K 11 ... K 20 (10 x)	**248-451**	5 cards
	K 100 (10 x)	**248-452**	5 cards
	U 1 ... U 10 (10 x)	**248-453**	5 cards
	U 11 ... U 20 (10 x)	**248-454**	5 cards
	U 100 (10 x)	**248-455**	5 cards
10 strips with 10 markers, white with black printing			

Mounting Carriers for DIN-Rail Mounting PCBs

Mounting carrier size 1





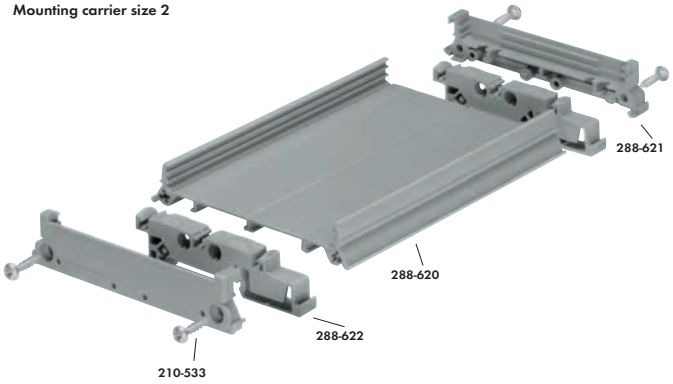
Description	Item No.	Pack. Unit
Lateral cover, size 1, small, 6.35 mm /0.25 in. thick	**288-601**	1
Fixing foot for mounting on DIN 35 rails	**288-602**	1
Track section, size 1, 1 m /3'3'' long	**288-600**	1

In order to determine the length of a complete mounting carrier:
Length of PCB: L1
Length of track section: L2 = L1 – 11 mm /0.433 in.
Length of mounting carrier: L3 = L1 + 1.7 mm/0.067 in.
with lateral cover size 1, 6.35 mm/0.25 in. thick.
Distance between PCB and upper groove of track section is 5 mm/0.197 in. PCB tolerances: thickness 1.5 mm ± 0.2 mm, length/width ± 0.2 mm; -0.1/+0.3 for milling contours

Marker strips

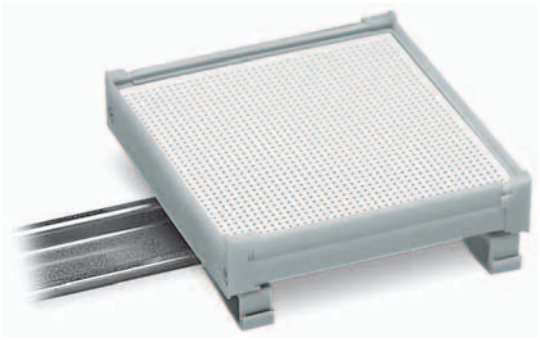
Description		Item No.	Pack. Unit
Phillips screw 2.9 x 13*	* To be used from a module length of 35 mm/1.378 in.. For smaller modules the lateral covers have to be riveted. Rivet length depends on module length. Rivets not in the WAGO product range.	**210-533**	25
7.5x0.5mm on roll 5x1m, white		**709-198**	1
7.5x0.5mm on roll 5x1m, translucent		**709-196**	1

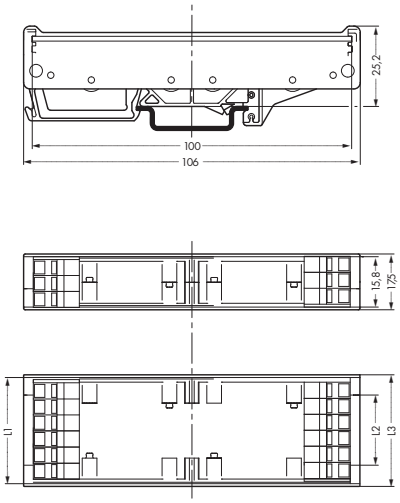
Mounting carrier size 2



Mounting Carriers for DIN-Rail Mounting PCBs

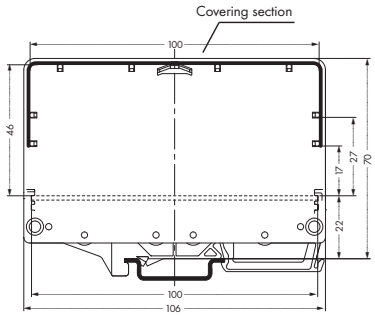
Mounting carrier size 2





Description	Item No.	Pack. Unit
Lateral cover, size 2, small*, 8.75 mm /0.344 in. thick	**288-621**	1
Fixing foot for mounting on DIN 35 rails	**288-622**	1
Track section, size 2, 1 m /3'3'' long	**288-620**	1

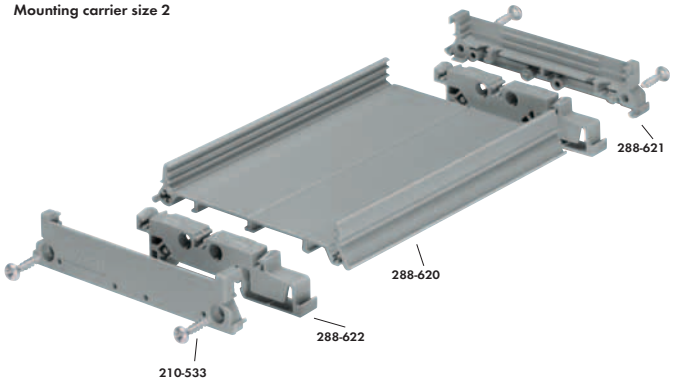
Mounting carrier size 2, with covering section



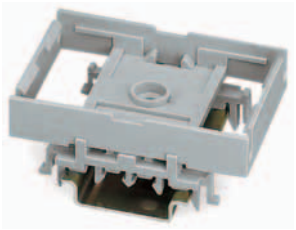
Description	Item No.	Pack. Unit
Lateral cover, size 2, big* 8.75 mm /0.344 in. thick	**288-626**	1
Covering section, size 2, 1 m /3'3'' long	**288-627**	1

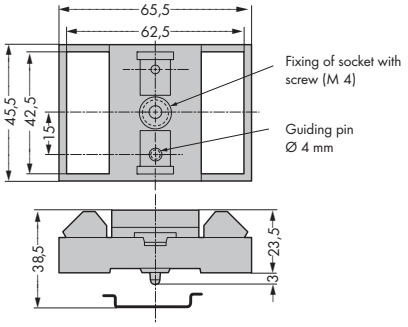
In order to determine the length of a complete mounting carrier:
Length of PCB: L1
Length of track section: L2 = L1 – 15,8 mm/0.622 in.
Length of mounting carrier: L3 = L1 + 1.7 mm/0.067 in.
Length of covering section: L4 = L1
with lateral cover, size 2, 8.75 mm/0.344 in. thick
Distance between PCB and upper groove of track section is 5 mm/0.197 in. PCB tolerances: thickness 1.5 mm ± 0.2 mm, length/width ± 0.2 mm; -0.1/+0.3 for milling contours

Mounting carrier size 2

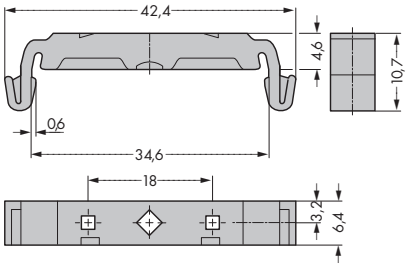


Mounting Carriers and Feet for DIN-Rail Mounting PCBs

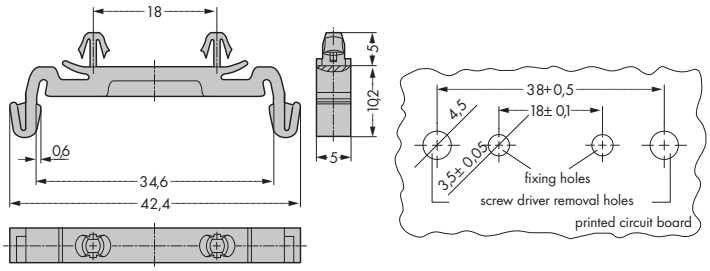




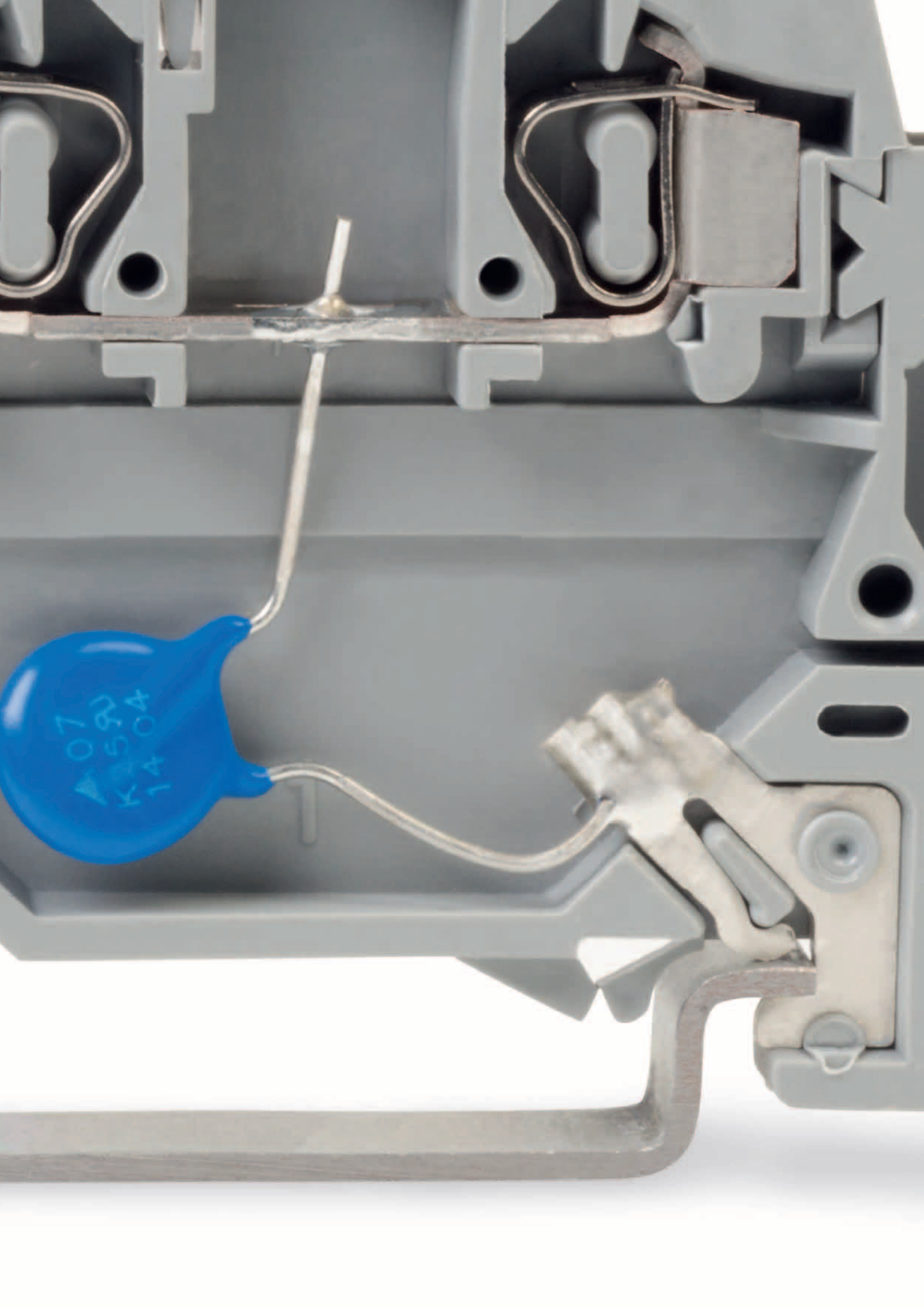
Description		Item No.	Pack. Unit
Mounting carrier	For screw-fixing or DIN-rail mounting with snap-fit type universal mounting feet		
	(then needs 2 x mounting feet)	**288-001**	1
Universal mounting foot	Snap-fit type, suitable for DIN 15, 32 and 35 rails	**288-002**	10
Universal mounting foot	Suitable for Europa card (100 x 160) mm	**288-003**	1



Description		Item No.	Pack. Unit
Mounting foot	For screw-fixing to relay modules, holes for fixing screws 2 mm/0.079 in.,		
	PCB hole Ø 3.2 mm/0.126 in., distance 18 mm/0.709 in.,	**209-120**	25
Fixing screw	For mounting foot 209-120	**209-119**	50

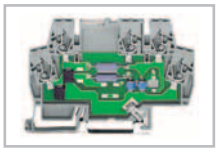


Description		Item No.	Pack. Unit
Mounting foot	For snap-fit mounting to relay modules, for fixing hole Ø 3.5 mm/0.138 in.,		
	distance 18 mm/0.709 in., for mounting on DIN 35 rail	**209-188**	25



Overvoltage Protection

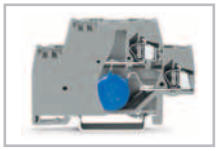
Page



Rail-Mounted Terminal Blocks with Overvoltage Protection

792 Series 468

Accessories, 792 Series 471



Rail-Mounted Terminal Blocks with Overvoltage Protection

280, 870 Series 472

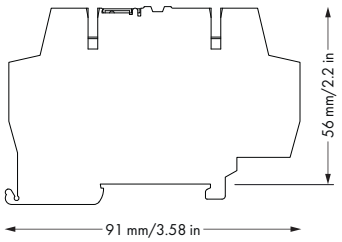
Pluggable Modules - Surge Suppression Devices

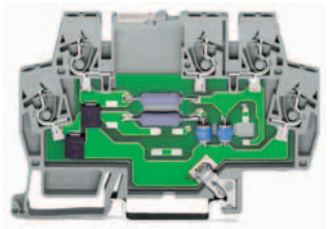
Pluggable Modules on Terminal Blocks - Surge Suppression Devices, 286 Series 477

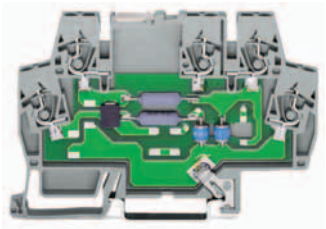
Pluggable Modules for Terminal Blocks - Surge Suppression Devices, 286 Series 479

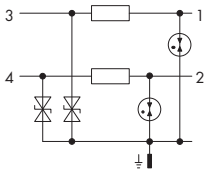
Rail-Mounted Terminal Blocks with Overvoltage Protection

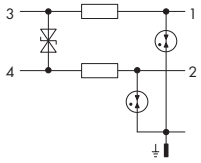
	Overvoltage protection for information technology systems ME24 24 VDC; for protection of 2 single lines (line/protected ground), unbalanced interfaces	Overvoltage protection for information technology systems MD24 24 VDC; for protection of balanced interfaces (line/line) with electrical isolation (telecommunications)









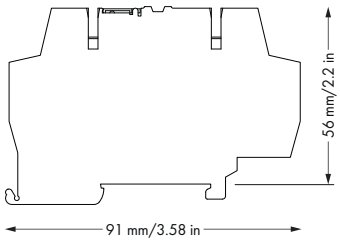


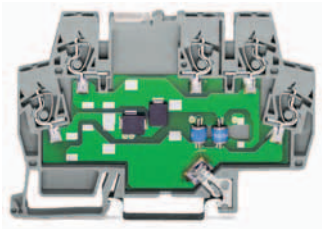
The coordination characteristics give information about the let-through energy of the overvoltage protector and the protection capacity.

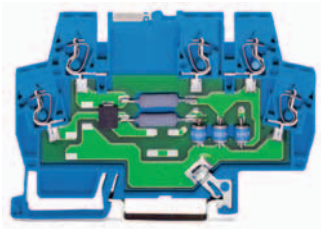
Description	Nominal voltage	Item No.	Pack. Unit	Nominal voltage	Item No.	Pack. Unit
Overvoltage protection in terminal block, for DIN 35 Rail	24 VDC	**792-800**	1	24 VDC	**792-801**	1

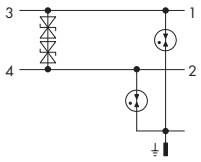
Technical Data	Accessories see page 471	Accessories see page 471
Nominal voltage	24 VDC	24 VDC
Max. cont. operating voltage	33 VDC / 23 VAC	33 VDC / 23 VAC
Nominal current	0.5 A	0.5 A
Nominal discharge current I_{SN} (8/20) µs	5 kA per line ; 10 kA total	5 kA per line ; 10 kA total
Voltage protection level at I_N category C2	≤ 65 V (line/protected ground); ≤ 110 V (line/line)	≤ 50 V (line/line); ≤ 750 V (line/protected ground)
Voltage protection level at 1 kV/µs category C3	≤ 45 V (line/protected ground); ≤ 90 V (line/line)	≤ 45 V (line/line); ≤ 650 V (line/protected ground)
Coordination characteristics	X / 1	X / 1
Series impedance R / line	1.8 Ω	1.8 Ω
Response time t_a	≤ 1 ns	≤ 100 ns (line/protected ground); ≤ 1 ns (line/line)
Limiting frequency	6 MHz line/protected ground	6 MHz line/protected ground
Capacitance C	≤ 1.0 nF (line/protected ground); ≤ 0.5 nF (line/line)	≤ 5 pF (line/protected ground); ≤ 1 nF (line/line)
Degree of protection	IP00	IP00
Degree of protection with end and intermediate plate	IP20	IP20
Operating temperature	-40 °C ... +80 °C	-40 °C ... +80 °C
Storage temperature	-40 °C ... +80 °C	-40 °C ... +80 °C
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / 28 ... 14 AWG	0.08 mm² ... 2.5 mm² / 28 ... 14 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	5 ... 6 mm / 0.2 ... 0.24 in.
Standards/specifications	IEC 61643-21	IEC 61643-21

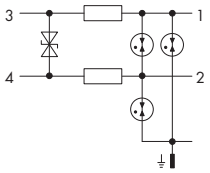
	Overvoltage protection for information technology systems SD24 24 VDC; for protection of supply lines (power supply units)	Overvoltage protection for information technology systems MDEX24 24 VDC; for protection in intrinsically safe circuits











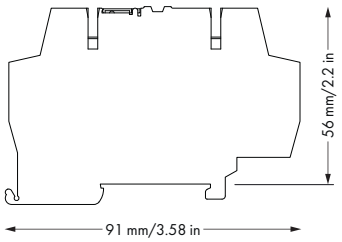
The coordination characteristics give information about the let-through energy of the overvoltage protector and the protection capacity.

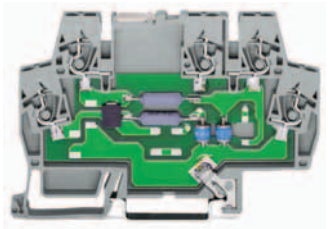
Description	Nominal voltage	Item No.	Pack. Unit	Nominal voltage	Item No.	Pack. Unit
Overvoltage protection in terminal block, for DIN 35 Rail	24 VDC	**792-802**	1	24 VDC	**792-803**	1

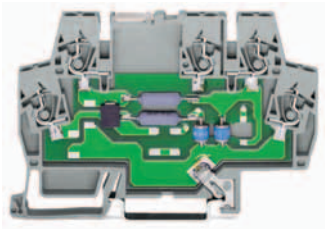
Technical Data	Accessories see page 471	Accessories see page 471
Nominal voltage	24 VDC	24 VDC
Max. cont. operating voltage	33 VDC / 23 VAC	33 VDC / 23 VAC
Max. Input voltage acc. to EN 50020 U_i		30 V
Max. input current acc. to EN 50020 I_i		0.5A
Nominal current	10 A	0.5 A
Nominal discharge current I_{SN} (8/20) µs	5 kA (line/protected ground); 300 A (line/line)	5 kA per line ; 10 kA total
Voltage protection level at I_N category C2	≤ 50 V (line/line); ≤ 750 V (line/protected ground)	≤ 1500 V (line/protected ground); ≤ 50 V (line/line)
Voltage protection level at 1 kV/µs category C3	≤ 45 V (line/line); ≤ 650 V (line/protected ground)	≤ 1400 V (line/protected ground); ≤ 45 V (line/line)
Coordination characteristics	X / 1	X / 1
Series impedance R / line		1.8 Ω
Response time t_a	≤ 100 ns (line/protected ground); ≤ 1 ns (line/line)	≤ 100 ns (line/protected ground); ≤ 1 ns (line/line)
Limiting frequency	7 MHz	6 MHz
Capacitance C	≤ 12 pF (line/protected ground); ≤ 1 nF (line/line)	≤ 6 pF (line/protected ground); ≤ 1 nF (line/line)
Degree of protection	IP00	IP00
Degree of protection with end and intermediate plate	IP20	IP20
Operating temperature	-40 °C ... +80 °C	-40 °C ... +80 °C
Storage temperature	-40 °C ... +80 °C	-40 °C ... +80 °C
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / 28 ... 14 AWG	0.08 mm² ... 2.5 mm² / 28 ... 14 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	5 ... 6 mm / 0.2 ... 0.24 in.
Standards/specifications	IEC 61643-21	IEC 61643-21

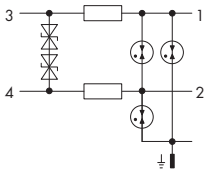
Rail-Mounted Terminal Blocks with Overvoltage Protection

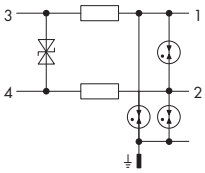
	Overvoltage protection for information technology systems MD48LON 48 24 VDC; for protection of LON networks (FTT 10 or LPT 10)	Overvoltage protection for MDHF5 5 VDC information technology systems; protects symmetric and asymmetric interfaces with high data rates, PROFIBUS or RS-485











The coordination characteristics give information about the let-through energy of the overvoltage protector and the protection capacity.

Description	Nominal voltage	Item No.	Pack. Unit	Nominal voltage	Item No.	Pack. Unit
Overvoltage protection in terminal block, for DIN 35 Rail	48 VDC	**792-804**	1	5 VDC	**792-805**	1

Technical Data	Accessories see page 471	Accessories see page 471
Nominal voltage	48 VDC	5 VDC
Max. cont. operating voltage	55 VDC / 38.5 VAC	6 VDC / 4.2 VAC
Nominal current	1.7 A	0.1 A
Nominal discharge current I_{SN} (8/20) µs	5 kA per line ; 10 kA total	5 kA per line ; 10 kA total
Voltage protection level at I_N category C2	≤ 100 V (line/line); ≤ 750 V (line/protected ground)	≤ 27 V (line/line); ≤ 50 V (line/protected ground)
Voltage protection level at 1 kV/µs category C3	≤ 70 V (line/line); ≤ 650 V (line/protected ground)	≤ 14 V (line/line); ≤ 14 V (line/protected ground)
Coordination characteristics	X / 1	X / 1
Series impedance R / line	0.4 Ω	1 Ω
Response time t_a	≤ 100 ns (line/lineound); ≤ 1 ns (line/protected ground)	≤ 1 ns
Limiting frequency	10 MHz	250 MHz / 180 MHz line/protected ground
Capacitance C	≤ 0.6 pF (line/protected ground); ≤ 10 pF (line/line)	≤ 16 pF (line/protected ground); ≤ 19 pF (line/line)
Degree of protection	IP00	IP00
Degree of protection with end and intermediate plate	IP20	IP20
Operating temperature	-40 °C ... +80 °C	-40 °C ... +80 °C
Storage temperature	-40 °C ... +80 °C	-40 °C ... +80 °C
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / 28 ... 14 AWG	0.08 mm² ... 2.5 mm² / 28 ... 14 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.	5 ... 6 mm / 0.2 ... 0.24 in.
Standards/specifications	IEC 61643-21	IEC 61131-3

Accessories, 792 Series

Operating tool

Marking pen with fiber tip

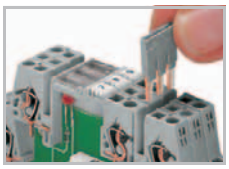
Test pin

End and intermediate plate

Description		Item No.	Pack. Unit
End and intermediate plate; 1 mm / 0.039 in. thick, gray		**859-525**	100 (4x25)
Test pin; Ø 1 mm / 0.039 in.; test wire for sold. onto test		**859-500**	1 (1x1)
Marking pen	for permanent marking	**210-110**	1
Operating tool, with partially insulated shaft	Type 2, blade (3.5 x 0.5) mm	**210-720**	1

Push-in type jumper bar

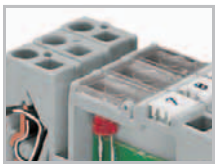
Commoning



Description		Item No.	Pack. Unit
Push-in type jumper bars, light gray, insulated, 18 A	**2-way**	**859-402**	200 (8x25)
	3-way	**859-403**	200 (8x25)
	4-way	**859-404**	200 (8x25)
	5-way	**859-405**	200 (8x25)
	6-way	**859-406**	100 (4x25)
	7-way	**859-407**	100 (4x25)
	8-way	**859-408**	100 (4x25)
	9-way	**859-409**	100 (4x25)
	10-way	**859-410**	100 (4x25)
Item no. suffix for colored push-in type jumper bars	**yellow**	**... /000-029**	
	red	**... /000-005**	
	blue	**... /000-006**	

Miniature quick marking card

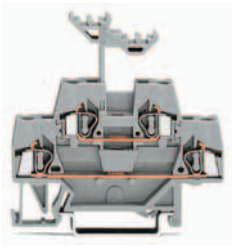
Marking

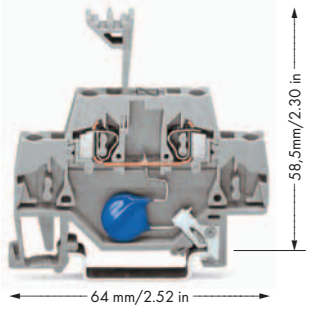


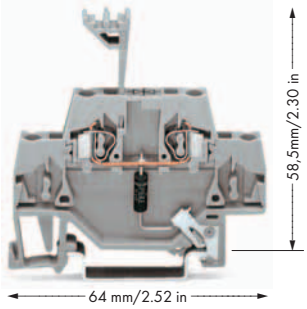
Description		Item No.	Pack. Unit
Miniature WSB Quick marking system	**plain**	**248-501**	5 cards
Marking software and printer/plotter see Section 11			
Marking	**1 ...10 (10 x)**	**248-502**	5 cards
	11 ... 20 (10x)	**248-503**	5 cards
	21 ... 30 (10x)	**248-504**	5 cards
	31 ... 40 (10x)	**248-505**	5 cards
	41 ... 50 (10 x)	**248-506**	5 cards
	1 ... 50 (2 x)	**248-566**	5 cards
	K 1 ... K 10 (10 x)	**248-450**	5 cards
	K 11 ... K 20 (10 x)	**248-451**	5 cards
	K 100 (10 x)	**248-452**	5 cards
	U 1 ... U 10 (10 x)	**248-453**	5 cards
	U 11 ... U 20 (10 x)	**248-454**	5 cards
	U 100 (10 x)	**248-455**	5 cards
10 strips with 10 markers, white with black printing			

Rail-Mounted Terminal Blocks with Overvoltage Protection

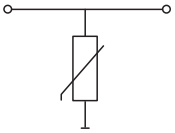
	With varistor V_{BN} 24 V ... 115 V AC/DC; I_N 60 A ... 300 A Terminal block width 5 mm/0.197 in.	With suppressor diode V_{BN} 24 V ... 230 V AC/DC; I_N 1.1 A ... 12 A Terminal block width 5 mm/0.197 in.

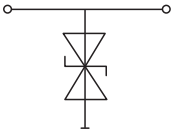






Through terminal blocks with the same shape see Full Line Catalog Volume 1





Description	V_{BN}	Item No.	Pack. Unit	V_{BN}	Item No.	Pack. Unit
Terminal block with surge suppression device and direct connection to DIN 35 rail	24 VDC	**280-502/281-609**	50	24 VDC	**280-502/281-602**	50
	48 VDC	**280-502/281-610**	50	48 VDC	**280-502/281-603**	50
	60 VDC	**280-502/281-611**	50	60 VDC	**280-502/281-604**	50
	110 VDC	**280-502/281-612**	50	110 VDC	**280-502/281-605**	50
	24 VAC	**280-502/281-613**	50	24 VAC	**280-502/281-606**	50
	115 VAC	**280-502/281-614**	50	115 VAC	**280-502/281-607**	50
				230 VAC	**280-502/281-608**	50

Technical Data	Nominal operating voltage V_{BN}	Max. cont. operating voltage V_C	Nominal discharge current (8/20 µs) per line I_N	Max. surge current (8/20 µs) $I_{max.}$	Capacity	Protection level (8/20 µs) V_P
Terminal blocks with varistor	24 VDC	31 VDC	60 A	250 A	≤ 1.25 nF	77 VDC
	48 VDC	65 VDC	300 A	1.2 kA	≤ 0.5 nF	135 VDC
	60 VDC	85 VDC	300 A	1.2 kA	≤ 0.48 nF	165 VDC
	110 VDC	150 VDC	300 A	1.2 kA	≤ 0.22 nF	300 VDC
	24 VAC	30 VAC	60 A	250 A	≤ 1.05 nF	93 VAC
	115 VAC	140 VAC	300 A	1.2 kA	≤ 0.18 nF	360 VAC

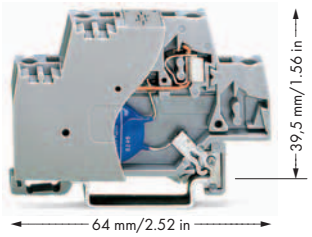
Technical Data	Nominal operating voltage V_{BN}	Max. cont. operating voltage V_C	Nominal discharge current (10/1000 µs) per line I_N	Capacity	Protection level (10/1000 µs) V_P
Terminal blocks with suppressor diode	24 VDC	30.8 VDC	12 A	≤ 1 nF	50 VDC
	48 VDC	58 VDC	6.5 A	≤ 0.63 nF	92 VDC
	60 VDC	77 VDC	4.8 A	≤ 0.55 nF	125 VDC
	110 VDC	136 VDC	2.7 A	≤ 0.4 nF	219 VDC
	24 VAC	28 VAC	9.3 A	≤ 0.8 nF	65 VAC
	115 VAC	133 VAC	1.7 A	≤ 0.35 nF	384 VAC
	230 VAC	253 VAC	1.1 A	≤ 0.36 nF	548 VAC

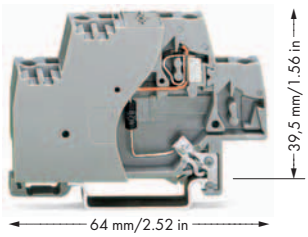
Technical Data

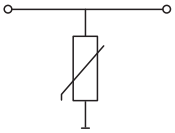
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / 28 ... 14 AWG	0.08 mm² ... 2.5 mm² / 28 ... 14 AWG
Strip lengths	8 ... 9 mm / 0.31 ... 0.35 in.	8 ... 9 mm / 0.31 ... 0.35 in.

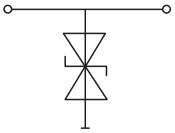
Accessories		Item No.	Pack. Unit		Item No.	Pack. Unit
End and Intermediate Plate, 2.5 mm/0.098 in thick	orange	**280-341**	100 (4*25)	orange	**280-341**	100 (4*25)
	gray	**280-340**	100 (4*25)	gray	**280-340**	100 (4*25)

	With varistor V_{BN} 24 V ... 230 V AC/DC; I_N 300 A ... 1 kA Terminal block width 10 mm/0.394 in.	With suppressor diode V_{BN} 24 V ... 230 V AC/DC I_N 14 A ... 169 A Terminal block width 10 mm/0.394 in.









Description	V_{BN}	Item No.	Pack. Unit	V_{BN}	Item No.	Pack. Unit
Terminal block with surge suppression device and direct connection to DIN 35 rail	24 VDC	280-502/281-582	25	24 VDC	280-502/281-589	25
	48 VDC	280-502/281-583	25	48 VDC	280-502/281-590	25
	60 VDC	280-502/281-584	25	60 VDC	280-502/281-591	25
	110 VDC	280-502/281-585	25	110 VDC	280-502/281-592	25
	24 VAC	280-502/281-586	25	24 VAC	280-502/281-593	25
	115 VAC	280-502/281-587	25	115 VAC	280-502/281-594	25
	230 VAC	280-502/281-588	25	230 VAC	280-502/281-595	25

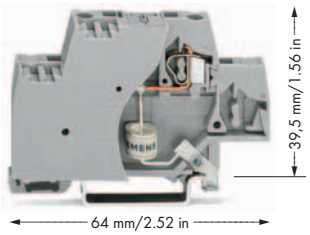
Technical Data	Nominal operating voltage V_{BN}	Max. cont. operating voltage V_C	Nominal discharge current (8/20 µs) per line I_N	Max. surge current (8/20 µs) $I_{max.}$	Capacity	Protection level (8/20 µs) V_P
Terminal blocks with varistor and end plate	24 VDC	31 VDC	300 A	1 kA	≤ 4.6 nF	77 VDC
	48 VDC	56 VDC	300 A	1 kA	≤ 2.8 nF	135 VDC
	60 VDC	85 VDC	1 kA	4.5 kA	≤ 1.7 nF	165 VDC
	110 VDC	150 VDC	1 kA	4.5 kA	≤ 0.8 nF	300 VDC
	24 VAC	30 VAC	300 A	1 kA	≤ 3.5 nF	93 VAC
	115 VAC	150 VAC	1 kA	4.5 kA	≤ 0.57 nF	395 VAC
	230 VAC	275 VAC	1 kA	4.5 kA	≤ 0.32 nF	710 VAC
Terminal blocks with varistor and end plate	24 VDC	28 VDC	169 A		≤ 2.7 nF	59 VDC
	48 VDC	53 VDC	90 A		≤ 1.7 nF	111 VDC
	60 VDC	70 VDC	69 A		≤ 1.35 nF	146 VDC
	110 VDC	128 VDC	38 A		≤ 0.85 nF	265 VDC
	24 VAC	26 VAC	143 A		≤ 2.4 nF	70 VAC
	115 VAC	133 VAC	26 A		≤ 0.63 nF	388 VAC
	230 VAC	253 VAC	14 A		≤ 0.4 nF	706 VAC

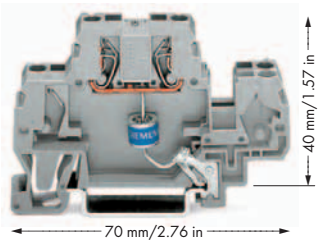
Technical Data

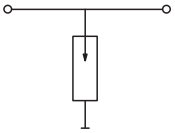
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / 28 ... 14 AWG	0.08 mm² ... 2.5 mm² / 28 ... 14 AWG
Strip lengths	8 ... 9 mm / 0.31 ... 0.35 in.	8 ... 9 mm / 0.31 ... 0.35 in.

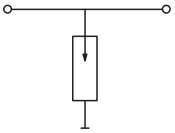
Rail-Mounted Terminal Blocks with Overvoltage Protection

	With gas filled surge arrester V_{BN} 24 V ... 230 V AC/DC; I_N 5 kA Terminal block width 10 mm/0.394 in.	With gas filled surge arrester V_{BN} 24 V ... 230 V AC/DC; I_N 5 kA Terminal block width 10 mm/0.394 in.









Description	V_{BN}	Item No.	Pack. Unit	V_{BN}	Item No.	Pack. Unit
Terminal block with surge suppression device and direct connection to DIN 35 rail	24 V AC/DC	**280-503/281-579**	25	24 V AC/DC	**870-523/281-579**	25
	115 V AC/DC	**280-503/281-580**	25	115 V AC/DC	**870-523/281-580**	25
	230 V AC/DC	**280-503/281-581**	25	230 V AC/DC	**870-523/281-581**	25

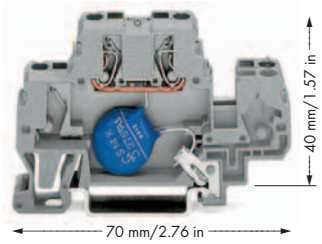
Technical Data

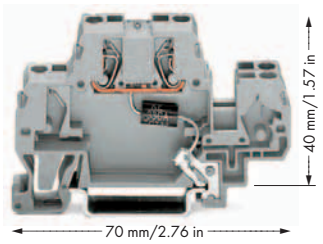
Max. cont. operating voltage V_C	70 VAC/90 VDC	70 VAC/90 VDC
	180 VAC/230 VDC	180 VAC/230 VDC
	450 VAC/600 VDC	450 VAC/600 VDC
Nominal discharge current (8/20 µs) per line I_N	5 kA	5 kA
Capacity	≤ 2pF	≤ 2pF
Protection level (8/20 µs) V_P	600 VAC	600 VAC
	650 VAC	650 VAC
	1100 VAC	1100 VAC
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / 28 ... 14 AWG	0.08 mm² ... 2.5 mm² / 4 mm² "f-st" / 28 ... 14 AWG
Strip lengths	8 ... 9 mm / 0.31 ... 0.35 in.	6 ... 7 mm / 0.26 in

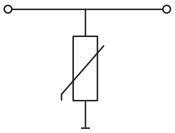
Accessories

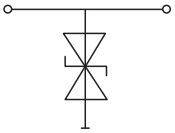
		Item No.	Pack. Unit
End and Intermediate Plate, 2 mm/0.079 in thick	gray	**870-518**	100 (4*25)
	orange	**870-519**	100 (4*25)

	With varistor V_{BN} 24 V ... 230 V AC/DC; I_N 300 A ... 1 kA Terminal block width 10 mm/0.394 in.	With suppressor diode V_{BN} 24 V ... 230 V AC/DC; I_N 14 A ... 169 A Terminal block width 10 mm/0.394 in.









Description	V_{BN}	Item No.	Pack. Unit	V_{BN}	Item No.	Pack. Unit
Terminal block with surge suppression device and direct connection to DIN 35 rail	24 VDC	**870-523/281-582**	25	24 VDC	**870-523/281-589**	25
	48 VDC	**870-523/281-583**	25	48 VDC	**870-523/281-590**	25
	60 VDC	**870-523/281-584**	25	60 VDC	**870-523/281-591**	25
	110 VDC	**870-523/281-585**	25	110 VDC	**870-523/281-592**	25
	24 VAC	**870-523/281-586**	25	24 VAC	**870-523/281-593**	25
	115 VAC	**870-523/281-587**	25	115 VAC	**870-523/281-594**	25
	230 VAC	**870-523/281-588**	25	230 VAC	**870-523/281-595**	25

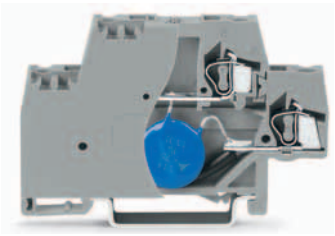
Technical Data	Nominal operating voltage V_{BN}	Max. cont. operating voltage V_C	Nominal discharge current (8/20 µs) per line I_N	Max. surge current (8/20 µs) $I_{max.}$	Capacity	Protection level (8/20 µs) V_P
	24 VDC	31 VDC	300 A	1 kA	≤ 4.6 nF	77 VDC
	48 VDC	56 VDC	300 A	1 kA	≤ 2.8 nF	135 VDC
	60 VDC	85 VDC	1 kA	4.5 kA	≤ 1.7 nF	165 VDC
	110 VDC	150 VDC	1 kA	4.5 kA	≤ 0.8 nF	300 VDC
	24 VAC	30 VAC	300 A	1 kA	≤ 3.5 nF	93 VAC
	115 VAC	150 VAC	1 kA	4.5 kA	≤ 0.57 nF	395 VAC
	230 VAC	275 VAC	1 kA	4.5 kA	≤ 0.32 nF	710 VAC
	24 VDC	28 VDC	169 A		≤ 2.7 nF	59 VDC
	48 VDC	53 VDC	90 A		≤ 1.7 nF	111 VDC
	60 VDC	70 VDC	69 A		≤ 1.35 nF	146 VDC
	110 VDC	128 VDC	38 A		≤ 0.85 nF	265 VDC
	24 VAC	26 VAC	143 A		≤ 2.4 nF	70 VAC
	115 VAC	133 VAC	26 A		≤ 0.63 nF	388 VAC
	230 VAC	253 VAC	14 A		≤ 0.4 nF	706 VAC

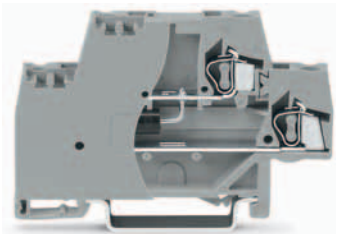
Technical Data

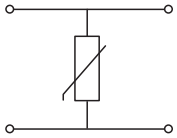
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / 4 mm² "s+f-st" / 28 ... 14 AWG	0.08 mm² ... 2.5 mm² / 4 mm² "s+f-st" / 28 ... 14 AWG
Strip lengths	6 ... 7 mm / 0.24 ... 0.28 in.	6 ... 7 mm / 0.24 ... 0.28 in.

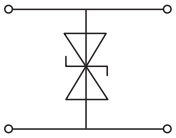
Rail-Mounted Terminal Blocks with Overvoltage Protection

	Varistor V_{BN} 24 V ... 230 V AC/DC; I_N 300 A ... 1 kA Terminal block width: 10 mm/0.394 in.	Suppressor diode V_{BN} 24 V ... 230 V AC/DC; I_N 14 ... 169 A Terminal block width: 10 mm/0.394 in.









Description	V_{BN}	Item No.	Pack. Unit	V_{BN}	Item No.	Pack. Unit
Double-deck terminal block with surge suppression device	24 VDC	280-504/281-582	25	24 VDC	280-944/281-589	25
	48 VDC	280-504/281-583	25	48 VDC	280-944/281-590	25
	60 VDC	280-504/281-584	25	60 VDC	280-944/281-591	25
	110 VDC	280-504/281-585	25	110 VDC	280-944/281-592	25
	24 VAC	280-504/281-586	25	24 VAC	280-944/281-593	25
	115 VAC	280-504/281-587	25	115 VAC	280-944/281-594	25
	230 VAC	280-504/281-588	25	230 VAC	280-944/281-595	25

Technical Data	Nominal operating voltage V_{BN}	Max. cont. operating voltage V_C	Nominal discharge current (8/20 µs) per line I_N	Max. surge current (8/20 µs) $I_{max.}$	Capacity	Protection level (8/20 µs) V_P
Terminal blocks with varistor and end plate	24 VDC	31 VDC	300 A	1 kA	≤ 4.6 nF	77 VDC
	48 VDC	56 VDC	300 A	1 kA	≤ 2.8 nF	135 VDC
	60 VDC	85 VDC	1 kA	4.5 kA	≤ 1.7 nF	165 VDC
	110 VDC	150 VDC	1 kA	4.5 kA	≤ 0.8 nF	300 VDC
	24 VAC	30 VAC	300 A	1 kA	≤ 3.5 nF	93 VAC
	115 VAC	150 VAC	1 kA	4.5 kA	≤ 0.57 nF	395 VAC
	230 VAC	275 VAC	1 kA	4.5 kA	≤ 0.32 nF	710 VAC
Terminal blocks with suppressor diode and end plate	24 VDC	28 VDC	169 A		≤ 2.7 nF	59 VDC
	48 VDC	53 VDC	90 A		≤ 1.7 nF	111 VDC
	60 VDC	70 VDC	69 A		≤ 1.35 nF	146 VDC
	110 VDC	128 VDC	38 A		≤ 0.85 nF	265 VDC
	24 VAC	26 VAC	143 A		≤ 2.4 nF	70 VAC
	115 VAC	133 VAC	26 A		≤ 0.63 nF	388 VAC
	230 VAC	253 VAC	14 A		≤ 0.4 nF	706 VAC

Technical Data

Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / 28 ... 14 AWG	0.08 mm² ... 2.5 mm² / 28 ... 14 AWG
Strip lengths	8 ... 9 mm / 0.31 ... 0.35 in.	8 ... 9 mm / 0.31 ... 0.35 in.

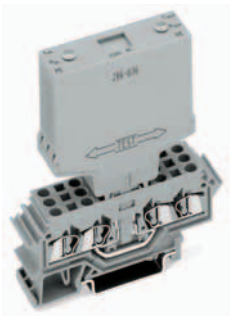
Pluggable Modules on Terminal Blocks - Surge Suppression Devices

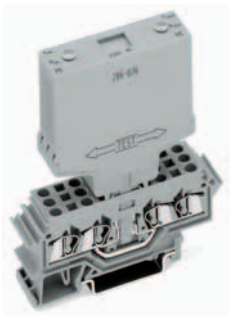
	Single stage suppression for 3-wire control, signal or power circuits No interruption of current flow when changing module 24 V AC/DC Module width 15 mm / 0.591 in.	Single stage suppression for 3-wire control, signal or power circuits No interruption of current flow when changing module 118 V, 230 V AC Module width 15 mm / 0.591 in.

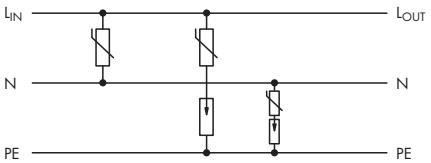
Note:
For isolation measurements the ground (earth) contact at the transient suppression module must be disconnected.

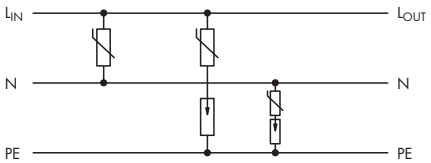
WSB marker card
- Marking F; Item No.: 209-791
- Marking 1 ... 10; Item No.: 209-702
- Marking Lin, N, PE Lout, N, PE, Lin, N, PE; Item No.: 249-655

5 cards, each containing 10 strips with 10 markers









Description	V_{BN}	Item No.	Pack. Unit	V_{BN}	Item No.	Pack. Unit
Surge suppression module	24 V AC/DC	**286-836**	1	230 VAC	**286-835**	1
				115 VAC	**286-835/115-000**	1

Technical Data	Accessories see page 99	Accessories see page 99
Nominal operating voltage V_{BN}	24 V AC/DC	230 VAC; 115 VAC
Operating voltage	35 VAC / 45 VDC	275 VAC; 150 VAC
Nominal current	10 A	10 A
Nominal discharge current between L/N and PE	300 A	1 kA
Nominal discharge current between L and N	300 A	1 kA
Max. surge current between L/N and PE	1 kA	4.5 kA
Max. surge current between L and N	1 kA	4.5 kA
Protection level between L/N and PE	700 V	1.3 kV; 1 kV
Protection level between L and N	100 V	700 V; 400 V
Response time between L/N and PE	1 µs	1 µs
Response time between L and N	25 ns	25 ns
Nominal voltage to EN 60664-1	250 V / 4 kV / 2	250 V / 4 kV / 2
Ambient operating temperature	-25 °C ... +85 °C	-25 °C ... +85 °C
Dimensions (mm) L x H x W incl. terminal block	17 x 82.5 x 73	17 x 82.5 x 73

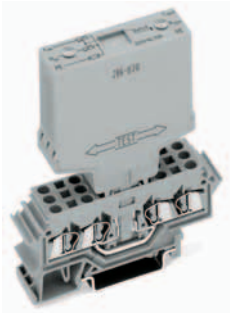
Pluggable Modules on Terminal Blocks - Surge Suppression Devices

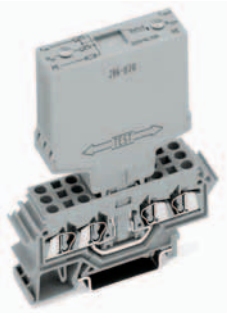
	Single stage suppression for 3-wire control, signal or power circuits No interruption of current flow when changing module with fault indication 230 VAC Module width 15 mm / 0.591 in.	Single stage suppression for 3-wire control, signal or power circuits No interruption of current flow when changing module with fault indication 115 VAC Module width 15 mm / 0.591 in.

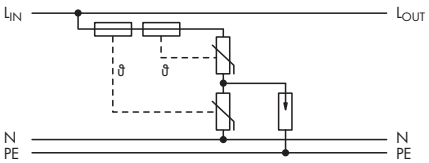
Note:
For isolation measurements the ground (earth) contact at the transient suppression module must be disconnected.

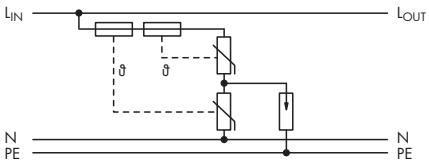
WSB marker card
- Marking F; Item No.: 209-791
- Marking 1 ... 10; Item No.: 209-702
- Marking Lin, N, PE Lout, N, PE, Lin, N, PE; Item No.: 249-655

5 cards, each containing 10 strips with 10 markers







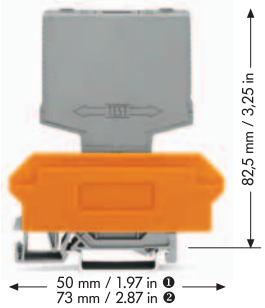


Description	V_{BN}	Item No.	Pack. Unit	V_{BN}	Item No.	Pack. Unit
Surge suppression module	230 VAC	**286-838**	1	115 VAC	**286-838/115-000**	1

Technical Data	Accessories see page 99	Accessories see page 99
Nominal operating voltage V_{BN}	230 VAC	115 VAC
Operating voltage	300 VAC	150 VAC
Nominal current	10 A	10 A
Nominal discharge current between L/N and PE	1 kA	1 kA
Nominal discharge current between L and N	1 kA	1 kA
Max. surge current between L/N and PE	2.5 kA	2.5 kA
Max. surge current between L and N	2.5 kA	2.5 kA
Protection level between L/N and PE	1 kV	800 V
Protection level between L and N	800 V	400 V
Response time between L/N and PE	1 µs	1 µs
Response time between L and N	25 ns	25 ns
Nominal voltage to EN 60664-1	250 V / 4 kV / 2	250 V / 4 kV / 2
Ambient operating temperature	-25 °C ... +85 °C	-25 °C ... +85 °C
Dimensions (mm) L x H x W incl. terminal block	17 x 82.5 x 73	17 x 82.5 x 73

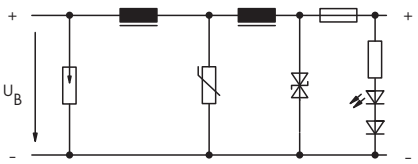
Pluggable Modules for Terminal Blocks - Surge Suppression Devices

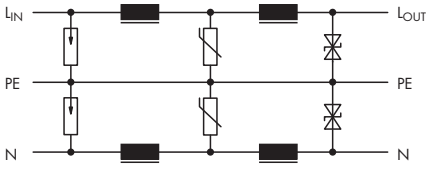
	Three-stage suppression for 2-wire data, measuring and control circuits 24 VDC Module width 20 mm / 0.787 in.	Three-stage suppression for 3-wire data, measuring and control circuits 12 VDC Module width 20 mm / 0.787 in.



Note:
For isolation measurements the ground (earth) contact at the transient suppression module must be disconnected.
WSB marker card
- Marking F; Item No.: 209-791
- Marking 1 ... 10; Item No.: 209-702
- Marking +/-; Item No.: 209-652
- Marking Lin, PE, PE, N, Lout, PE, PE, N; Item No.: 249-652

5 cards, each containing 10 strips with 10 markers





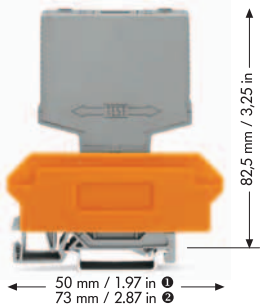
Description	V_{BN}	Item No.	Pack. Unit	V_{BN}	Item No.	Pack. Unit
Surge suppression module	24 VDC	**286-833**	1	12 VDC	**286-834**	1

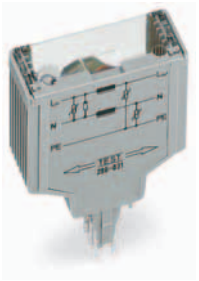
Technical Data	Accessories see page 99	Accessories see page 99
Nominal operating voltage V_{BN}	24 VDC	12 VDC
Operating voltage	30 VDC	14 VDC
Nominal current	0.1 A	6 A
Nominal discharge current between L/N and PE		1.5 kA
Nominal discharge current between L and N	5 kA	
Max. surge current between L/N and PE		1.5 kA
Max. surge current between L and N	5 kA	
Protection level between L/N and PE		≤ 22 V
Protection level between L and N	≤ 59 V	
Response time between L/N and PE		≤ 10 ns
Response time between L and N	≤ 10 ns	
Through resistance / inductivity	20 mΩ / 2 x 7 µH	50 mΩ / 14 µH
Ambient operating temperature	-25 °C ... +85 °C	-25 °C ... +85 °C

Accessories		Item No.	Pack. Unit		Item No.	Pack. Unit
Terminal block for pluggable modules,						
with 2-conductor terminal blocks, orange separator ❶	22 mm / 0.866 in.	**280-638**	1	22 mm / 0.866 in.	**280-638**	1
with 4-conductor terminal blocks, orange separator ❷	22 mm / 0.866 in.	**280-628**	1	22 mm / 0.866 in.	**280-628**	1
with 4-conductor terminal blocks, marker plate ❷	25 mm / 0.984 in.	**280-764**	1	25 mm / 0.984 in.	**280-764**	1
wire range 0.08 mm² ... 2.5 mm² / 28 ... 14 AWG;						
stripped length 8 ... 9 mm / 0.31 ... 0.35 in.						

Pluggable Modules for Terminal Blocks - Surge Suppression Devices

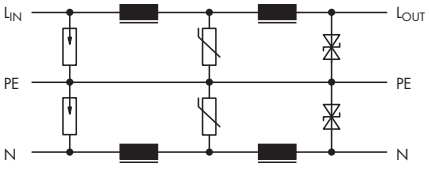
	Three-stage suppression for 3-wire data, measuring and control circuits 24 VDC Module width 20 mm / 0.787 in.	Two-stage suppression for 3-wire control, signal or power circuits 24 V AC/DC Module width 20 mm / 0.787 in.

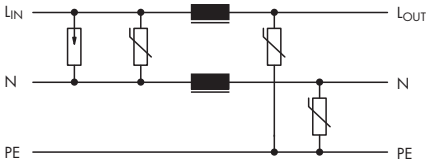




Note:
For isolation measurements the ground (earth) contact at the transient suppression module must be disconnected.
WSB marker card
- Marking F; Item No.: 209-791
- Marking 1 ... 10; Item No.: 209-702
- Marking Lin, PE, PE, N, Lout, PE, PE, N; Item No.: 249-652
- Marking PE, N, Lin, PE, N, Lout; Item No.: 209-911

5 cards, each containing 10 strips with 10 markers



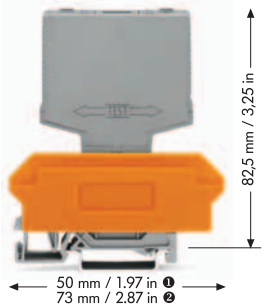


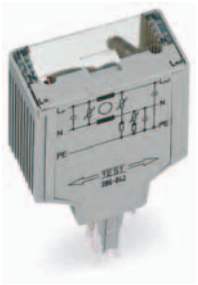
Description	V_{BN}	Item No.	Pack. Unit	V_{BN}	Item No.	Pack. Unit
Surge suppression module	24 VDC	**286-834/024-000**	1	24 V AC/DC	**286-831**	1

Technical Data	Accessories see page 99	Accessories see page 99
Nominal operating voltage V_{BN}	24 VDC	24 V AC/DC
Operating voltage	30 VDC	30 VAC / 38 VDC
Nominal current	6 A	6 A
Nominal discharge current between L/N and PE	1.5 kA	200 A
Nominal discharge current between L and N		1.5 kA
Max. surge current between L/N and PE	1.5 kA	500 A
Max. surge current between L and N		1.5 kA
Protection level between L/N and PE	≤ 59 V	≤ 93 V
Protection level between L and N		≤ 93 V
Response time between L/N and PE	≤ 10 ns	≤ 25 ns
Response time between L and N		≤ 25 ns
Through resistance / inductivity	50 mΩ / 14 µH	25 mΩ / 2 x 7 µH
Nominal voltage to EN 60664-1		250 V / 4 kV / 2
Ambient operating temperature	-25 °C ... +85 °C	-25 °C ... +85 °C

Accessories		Item No.	Pack. Unit		Item No.	Pack. Unit
Terminal block for pluggable modules,						
with 2-conductor terminal blocks, orange separator ❶	22 mm / 0.866 in.	**280-638**	1	22 mm / 0.866 in.	**280-638**	1
with 4-conductor terminal blocks, orange separator ❷	22 mm / 0.866 in.	**280-628**	1	22 mm / 0.866 in.	**280-628**	1
with 4-conductor terminal blocks, marker plate ❷	25 mm / 0.984 in.	**280-764**	1	25 mm / 0.984 in.	**280-764**	1
wire range 0.08 mm² ... 2.5 mm² / 28 ... 14 AWG;						
stripped length 8 ... 9 mm / 0.31 ... 0.35 in.						

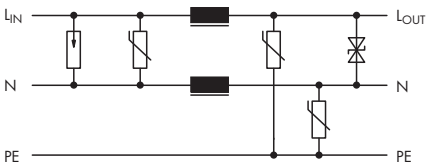
	Two-stage suppression for 3-wire control, signal or power circuits 24 V AC/DC Module width 20 mm / 0.787 in.	Two-stage suppression for 3-wire control, signal or power circuits with filter 110 VDC, 220 VDC, 115 VAC, 230 V AC/DC Module width 25 mm / 0.984 in.

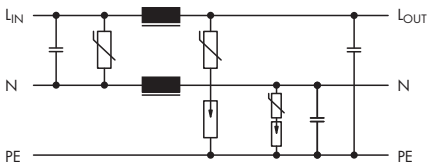




Note:
For isolation measurements the ground (earth) contact at the transient suppression module must be disconnected.
WSB marker card
- Marking F; Item No.: 209-791
- Marking 1 ... 10; Item No.: 209-702
- Marking PE, N, Lin, PE, N, Lout; Item No.: 209-911

5 cards, each containing 10 strips with 10 markers





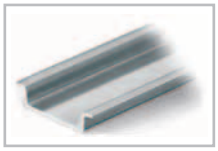
Description	U_{BN}	Item No.	Pack. Unit	U_{BN}	Item No.	Pack. Unit
Surge suppression module	24 V AC/DC	**286-832**	1	110 VDC	**286-844**	1
				115 VAC	**286-843**	1
				220 VDC	**286-841**	1
				230 VAC	**286-842**	1

Technical Data	Accessories see page 99	Accessories see page 99
Nominal operating voltage V_{BN}	24 V AC/DC	110 VDC; 115 VAC
		220 VDC; 230 VAC
Operating voltage	AC 30 V / 38 VDC	180 VDC; 140 VAC
		320 VDC; 250 VAC
Nominal current	6 A	6 A
Nominal discharge current between L/N and PE	200 A	600 A
Nominal discharge current between L and N	1.5 kA	600 A
Max. surge current between L/N and PE	500 A	1.5 kA
Max. surge current between L and N	1.5 kA	1.5 kA
Protection level between L/N and PE	≤ 93 V	≤ 900 V
Protection level between L and N	≤ 59 V	≤ 650 V
Response time between L/N and PE	≤ 25 ns	≤ 1 µs
Response time between L and N	≤ 5 ns	≤ 25 ns
Through resistance / inductivity	25 mΩ / 2 x 7 µH	- / 2 x 0.8 mH
Nominal voltage to EN 60664-1	250 V / 4 kV / 2	250 V / 4 kV / 2
Ambient operating temperature	-25 °C ... +85 °C	-25 °C ... +85 °C
Insertion loss		20 dB ... 40 dB / 0.15 MHz ... 30 MHz

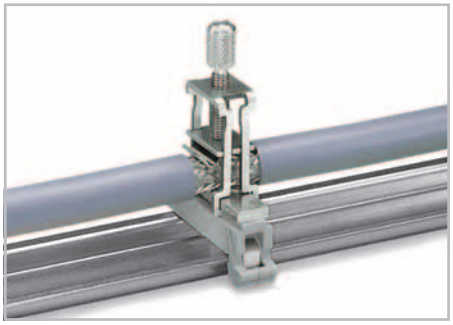
Accessories	Item No.	Pack. Unit	Item No.	Pack. Unit
Terminal block for pluggable modules,				
with 2-conductor terminal blocks, orange separator ❶	22 mm / 0.866 in. **280-638**	1	27 mm / 1.063 in. **280-639**	1
with 4-conductor terminal blocks, orange separator ❷	22 mm / 0.866 in. **280-628**	1	27 mm / 1.063 in. **280-629**	1
with 4-conductor terminal blocks, marker plate ❷	25 mm / 0.984 in. **280-764**	1	30 mm / 1.181 in. **280-765**	1
wire range 0.08 mm² ... 2.5 mm² / 28 ... 14 AWG;				
stripped length 8 ... 9 mm / 0.31 ... 0.35 in.				

WAGO
Block A
N
PE

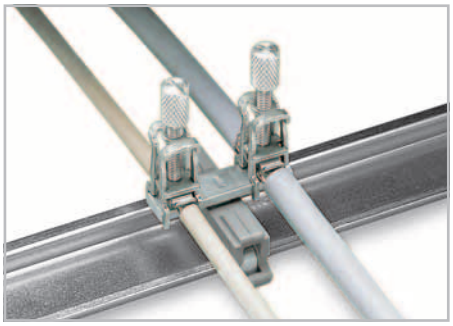
Accessories

		Page
	Shield Connecting System, 790 and 791 Series Series 790 and 791	484
	Marking Systems Smart Data Engineering Printer, Plotter and Accessories Marking Accessories	492 498 506
	End Stops for DIN 35 Rails	518
	Group Marker Carriers and Marker Cards with Self-Adhesive Marking Strip	519
	Wire Marking	526
	**Carrier Rails, Collective Carriers for Jumpers and Covers for Rail-Mounted Terminal Blocks**	532
	Operating Tools	538
	Stripping Tools, Crimping Tools for Ferrules, Cable Cutter	540
	Test and Measurement Tools	548

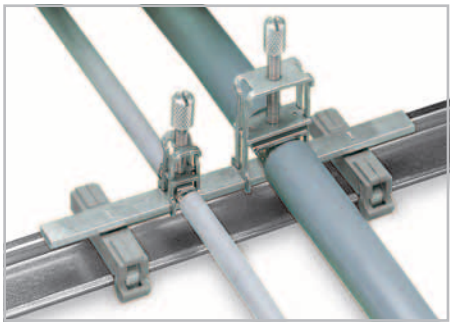
Shield Connection System, 790 Series
– Description and Handling –



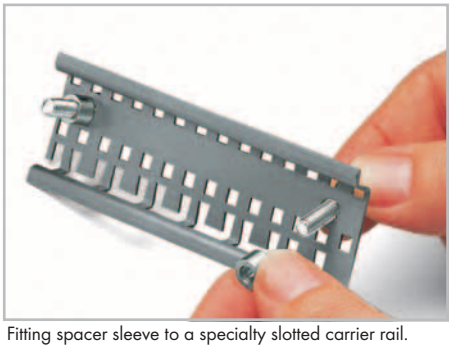
Carrier with grounding foot*
45 mm long, busbar 90° to the rail
Item No. 790-113



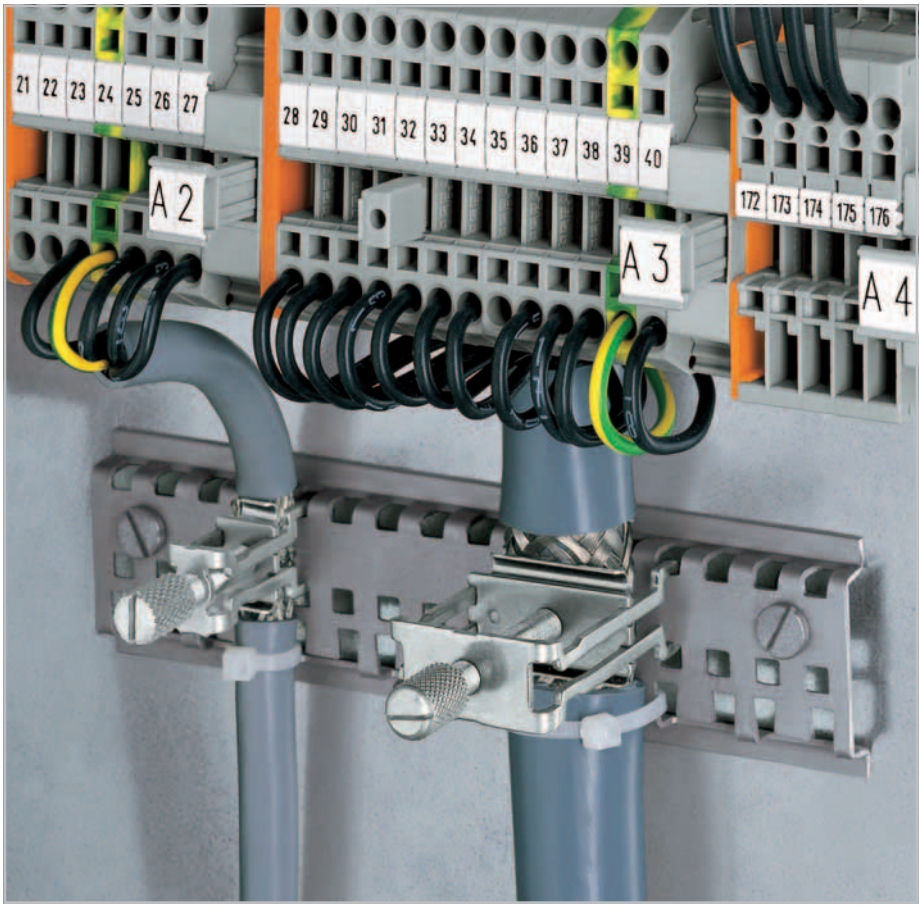
Carrier with grounding foot*
45 mm long, busbar parallel to the rail
Item No. 790-114

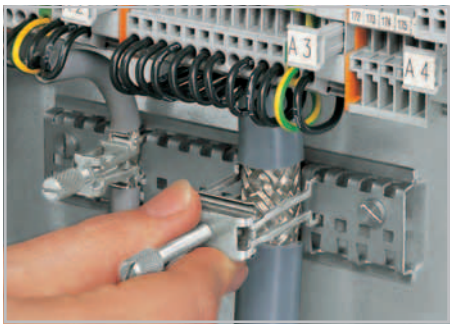


Carrier with 2 grounding feet*
125 mm long, busbar parallel to the rail
Item No. 790-115
* for all sizes of shield clamping saddles

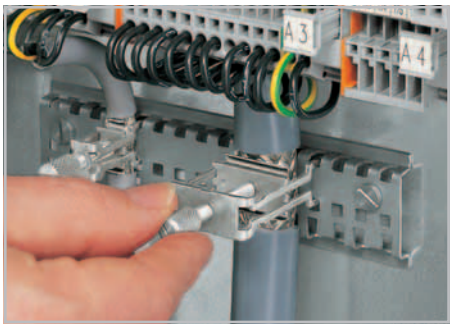


Fitting spacer sleeve to a specialty slotted carrier rail.

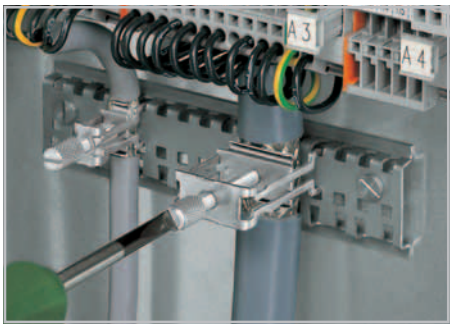




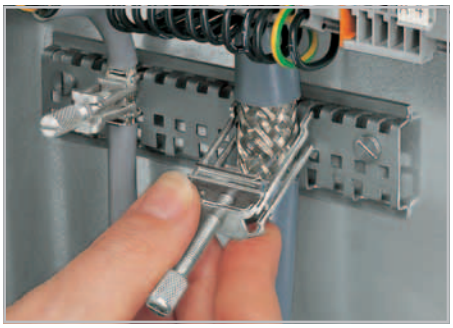
Fitting an additional clamping saddle.



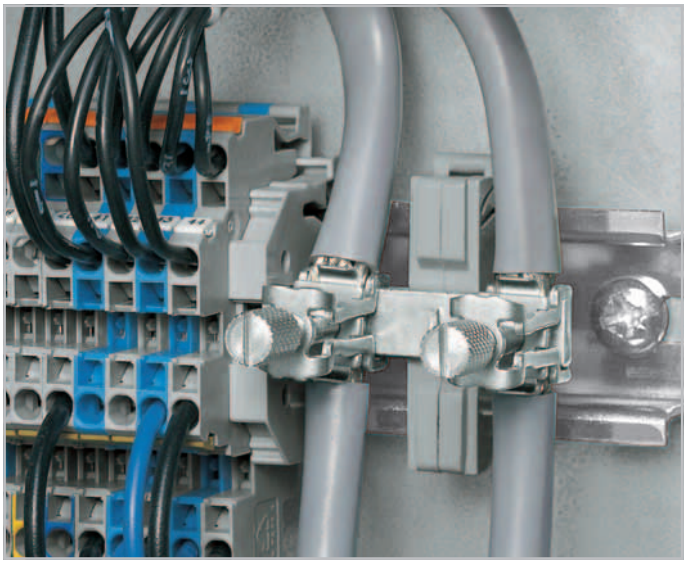
Tightening/Removing a clamping saddle.



After connection, tighten the knurled screw to complete the installation.
Recommended tightening torque: 0.5 Nm

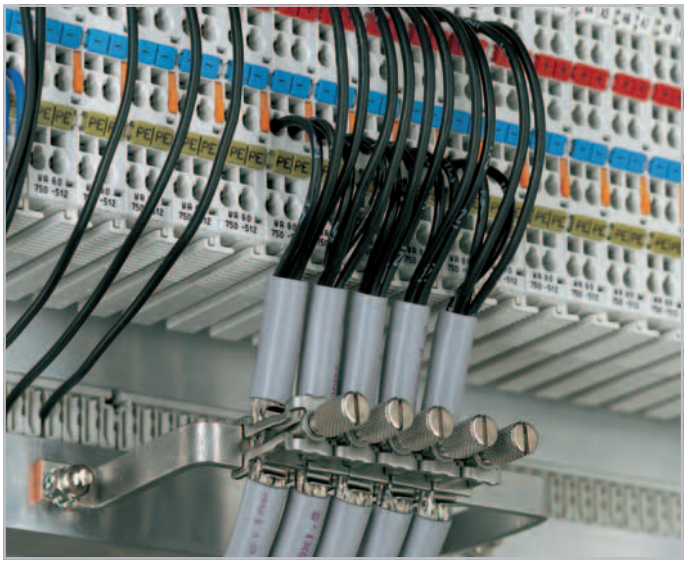


To remove the clamping saddle, unscrew until ratcheted mechanism is released, then slightly tip saddle and remove the clamping saddle.

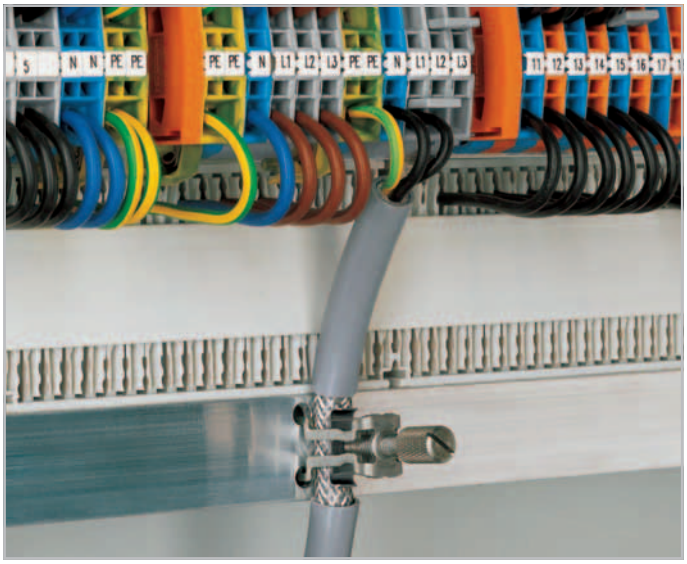


Carrier with grounding foot, busbar parallel to the rail.

Insulated mounting carriers for a common shield reference potential, independent of the housing potential.

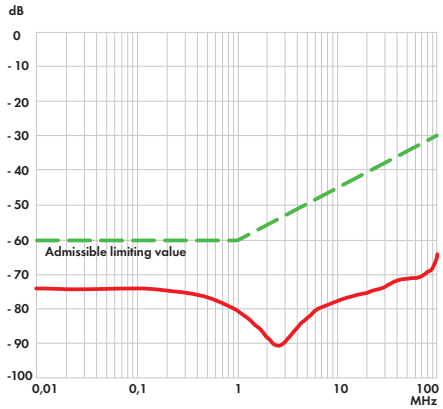


U-shaped copper busbar 10 mm x 3 mm.



Snap into any metal plate up to max. thickness 3 mm.

Negative shield attenuation

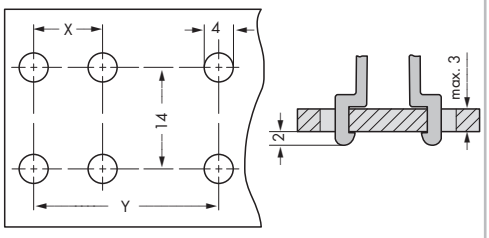


Hole dimensions for panel mounting
The WAGO shield connecting system is highly effective because the clamping unit can be brought very close to the unshielded part of the cable.

Hole dimensions for panel mounting

Shield (screen) clamping saddle size

Distance X	
11 mm	9.5 mm
Distance Y	
19 mm	17.5 mm
27 mm	25.5 mm
43 mm	41.5 mm



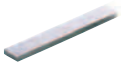
Additionally, the spring material is part of the clamping saddle, providing a good electrical connection (the system also acts as a partial strain relief). The spring element integrated in the shield clamping saddle compensates deformation and settling that results from a connected shield.

Shield Clamping Saddles

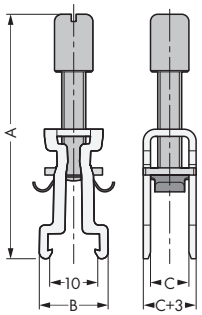
Shield clamping saddle diameter of compatible conductor up to 8 mm	Shield clamping saddle diameter of compatible conductor 7 ... 16 mm	Shield clamping saddle diameter of compatible conductor 6 ... 24 mm

Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit
Shield clamping saddle, 11 mm wide, Note: Cannot be used for connecting ground conductors.		**Shield clamping saddle,** 19 mm wide, Note: Cannot be used for connecting ground conductors.		**Shield clamping saddle,** 27 mm wide, Note: Cannot be used for connecting ground conductors.	
790-108	50 (5x10)	**790-116**	50 (5x10)	**790-124**	50 (5x10)

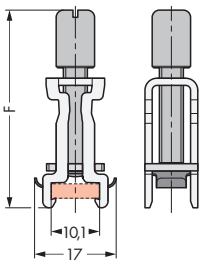
Accessories for Shield Clamping Saddles

Carrier with grounding foot, parallel to the rail, Cu 10 x 3 mm, 15 mm long, suitable for 790-108 shield clamping saddle **790-110** 25	**Carrier with grounding foot,** 90° to carrier rail, Cu 10 x 3 mm, 45 mm long, suitable for 790 Series shield clamping saddles **790-113** 25	**Carrier with 2 grounding feet,** parallel to the rail, Cu 10 x 3 mm, 125 mm long **790-115** 25
Carrier with grounding foot, parallel to the rail, Cu 10 x 3 mm, 25 mm long, suitable for 790-108 and 790-116 shield clamping saddles, as well as for 791-111 and 791-117 shield clamps **790-112** 25	**Carrier with grounding foot,** parallel to the rail, Cu 10 x 3 mm, 45 mm long, suitable for 790 Series shield clamping saddles and 791 Series shield clamps **790-114** 25	**Busbar,** tin-plated, Cu 10 x 3 mm, 1000 mm long **210-133** 1
		Busbar, tin-plated, Cu 10 x 3 mm, 30 mm long **790-133** 20
Carrier rail, with special perforations, tin-plated, 1000 mm long (Special lengths upon request) **790-145** 1	**Spacer sleeve,** for specialty slotted carrier rail, use M5-size screw **790-144** 200 (2x100)	**Busbar,** tin-plated,  Cu 10 x 3 mm, 50 mm long **790-134** 20

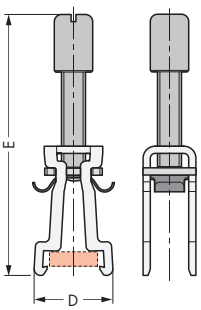
Installation position
delivery state



Closed position



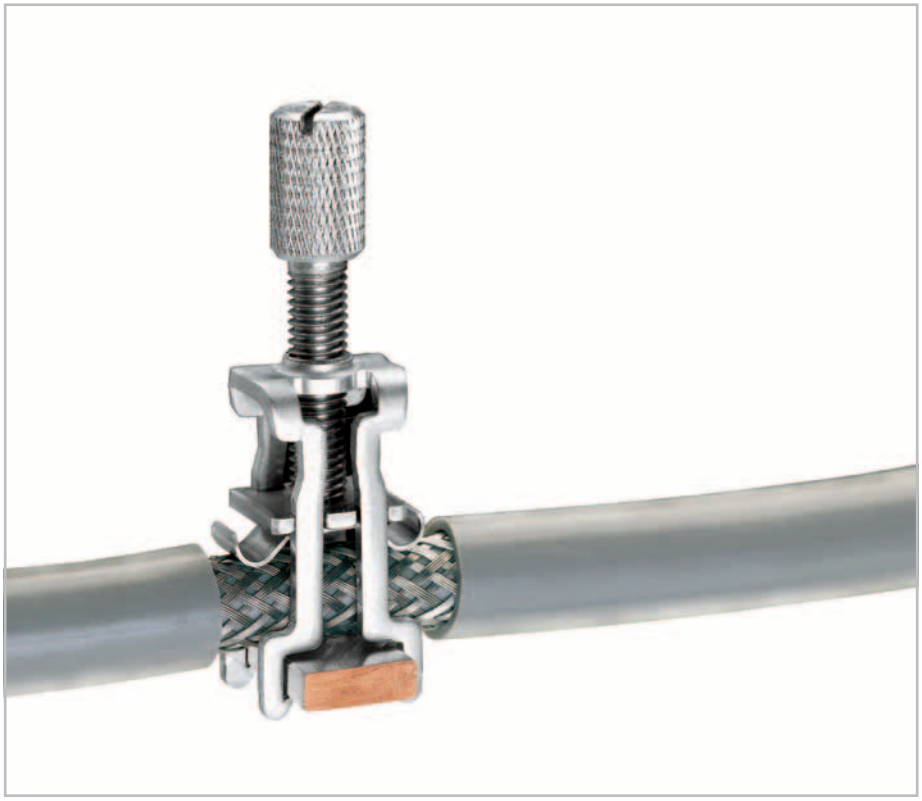
Removal position



Dimensions in mm

Item No.	A	B	C	D	E	F
790-108	51	15	8	16	55	42
790-116	53	15	16	16	57	45
790-124	78	15	24	16	83	58
790-140	97	15	40	16	100	73

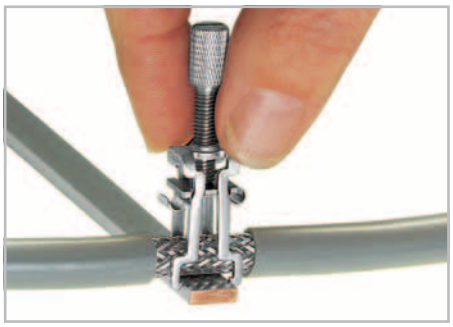
Shield clamping saddle
diameter of compatible conductor
22 ... 40 mm



Item No.		Pack. Unit
Shield clamping saddle,		
43 mm wide,		
Note: Cannot be used for connecting ground conductors.		
	790-140	50 (5x10)

Accessories for Shield Clamping Saddles

Insulated mounting foot,		
for busbar with screw M4 x 8 mm		
gray	**790-100**	50 (2x25)
Insulated mounting foot,		
for busbar with sheet metal screw (3.5 x 9) mm		
gray	**790-101**	50 (2x25)
U-shaped busbar,		
Cu 10 x 3 mm, suitable for 750 Series I/O modules		
for 5 I/O	**790-190**	25 (5x5)
U-shaped busbar,		
Cu 10 x 3 mm, suitable for 750 Series I/O modules		
for 8 I/O	**790-191**	25
U-shaped busbar,		
Cu 10 x 3 mm, suitable for 750 Series I/O modules		
for 5 I/O	**790-192**	25
U-shaped busbar,		
Cu 10 x 3 mm, suitable for 750 Series I/O modules		
for 8 I/O	**790-193**	25

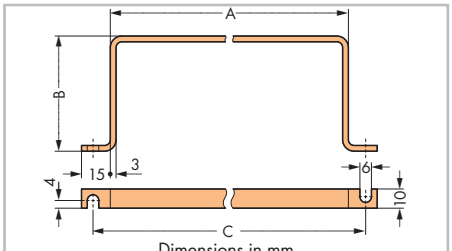


Assembly

The shield clamping saddle is shipped ready for direct connection to the busbar 10 mm x 3 mm or to a drilled mounting plate. After connection, tighten the knurled screw to complete the installation.
Maximum tightening torque: 0.5 Nm

Removal

To remove the clamping saddle, unscrew until ratcheted mechanism is released, then slightly tip saddle and remove the clamping saddle.



Dimensions in mm

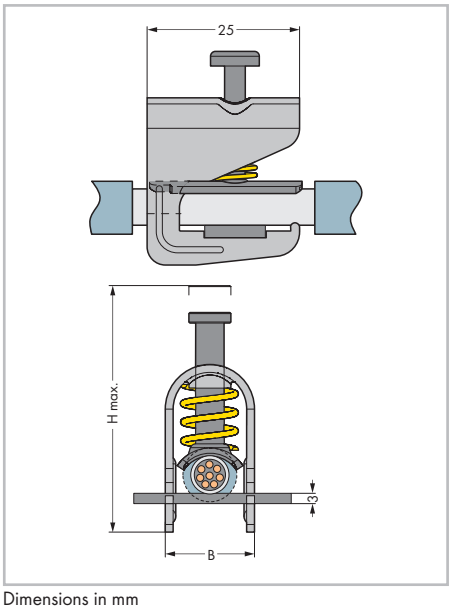
Item No.	A	B	C	Item No.	A	B	C
suitable for I/O module series 750 (5 E/A)							
790-190	63	60	83	**790-192**	63	35	83
suitable for I/O module series 750 (8 E/A)							
790-191	100	60	118	**790-193**	100	35	118

Dimensions in mm

Shield Clamps and Shield Termination
791 and 709 Series

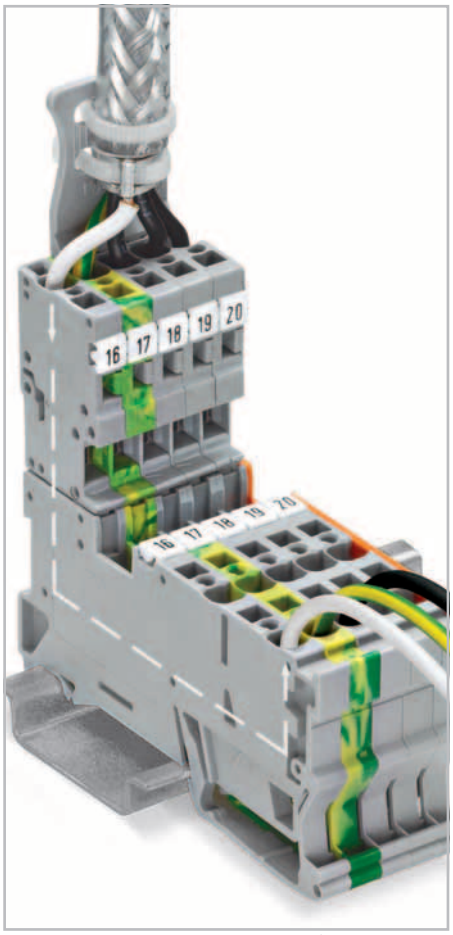
Shield clamp	Shield termination

Item No.	Pack. Unit
Shield clamp,	
diameter of compatible conductor 10 ... 17 mm, height	
max. 63 mm, 23 mm wide,	
Note: Cannot be used for connecting ground conductors.	
791-117	50
Shield clamp,	
diameter of compatible conductor 1.5 mm ... 6.5 mm,	
height max. 40 mm, 10 mm wide,	
Note: Cannot be used for connecting ground conductors.	
791-107	50
Shield clamp,	
diameter of compatible conductor 5 ... 11 mm, height	
max. 47 mm, 17 mm wide,	
Note: Cannot be used for connecting ground conductors.	
791-111	50
Shield clamp,	
diameter of compatible conductor 16 ... 24 mm, height	
max. 78 mm, 30 mm wide,	
Note: Cannot be used for connecting ground conductors.	
791-124	50



Dimensions in mm

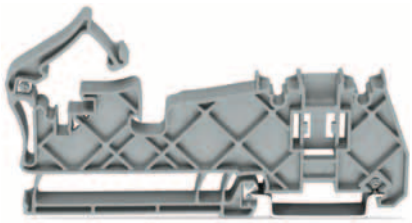
Item No.		Pack. Unit
Shield termination,		
includes cable ties for shield 5 mm and 10 mm Ø		
55 mm long	**709-350**	100 (4x25)
Shield termination,		
includes cable ties for shield 5 mm and 10 mm Ø		
150 mm long	**709-352**	100 (4x25)

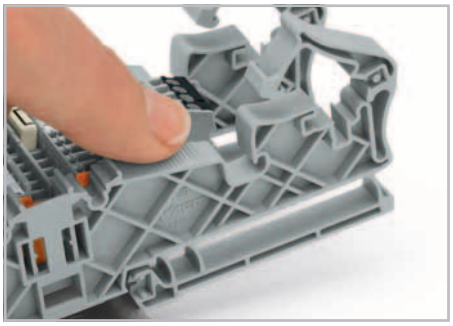


Shield termination (picture shows X-COM® connectors)

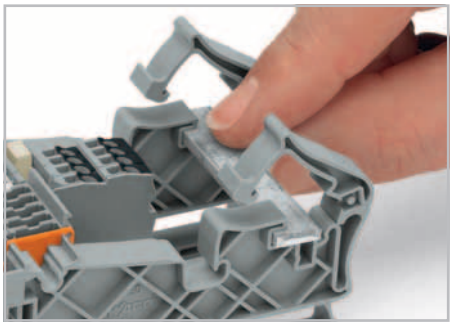
Busbar Carriers
790 Series

Busbar carrier



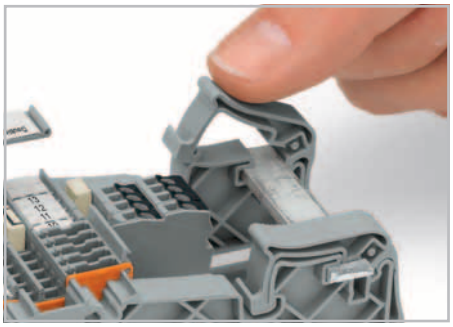


Snapping the busbar carrier onto DIN 35 rail.

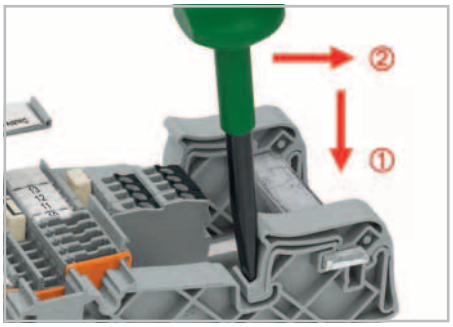


Placing the busbar in the carrier holder.

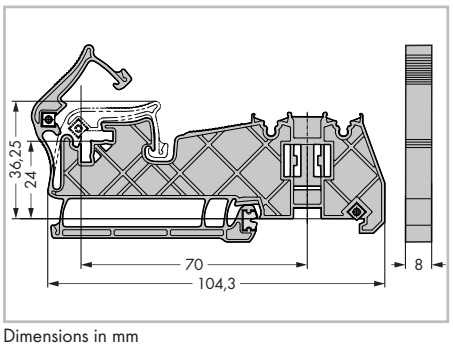
Item No.	Pack. Unit
Busbar carrier, insulated,	
for busbars Cu 10 mm x 3 mm,	
no contact to DIN rail	
790-400	20



Snapping the fixing bracket into position.



Release the fixing braket by pushing the operating tool down ① and then forward ②.



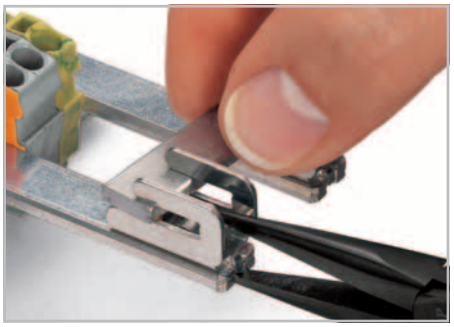
Dimensions in mm

Busbar Carriers
790 Series

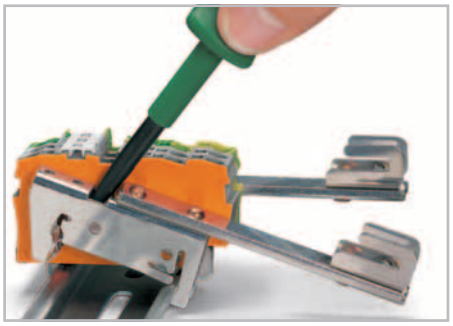
Busbar carrier	Busbar carrier

Item No.	Pack. Unit
Busbar carrier, single side, straight,	
for busbars Cu 10 mm x 3 mm,	
distance between center of DIN-rail and busbar carrier:	
70 mm	
790-300	10
Busbar carrier, single side, straight,	
for busbars Cu 10 mm x 3 mm,	
distance between center of DIN-rail and busbar carrier:	
80 mm	
790-302	10

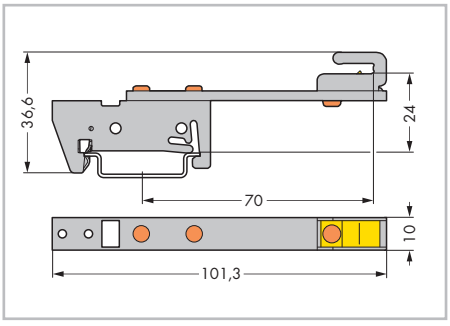
Item No.	Pack. Unit
Busbar carrier, single side, angled,	
for busbars Cu 10 mm x 3 mm,	
distance between center of DIN-rail and busbar carrier:	
70 mm	
790-301	10



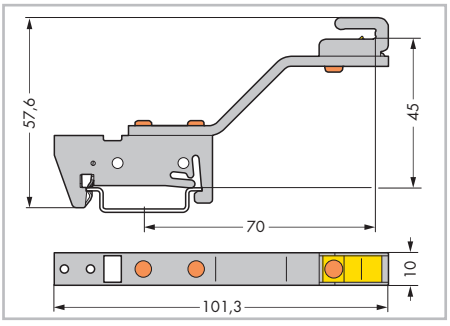
To remove the busbar, compress the spring using pliers.



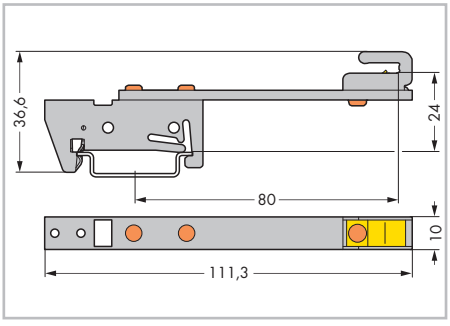
Remove the busbar carrier using an operating tool, type 3, blade (5.5 x 0.8) mm.



Dimensions in mm



Dimensions in mm



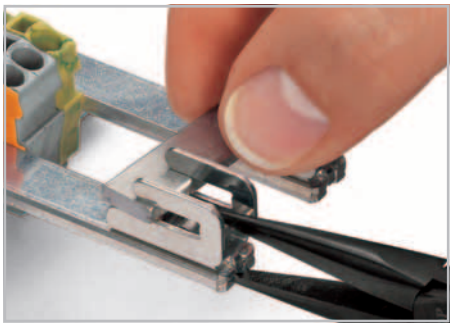
Dimensions in mm

Busbar Carriers
790 Series

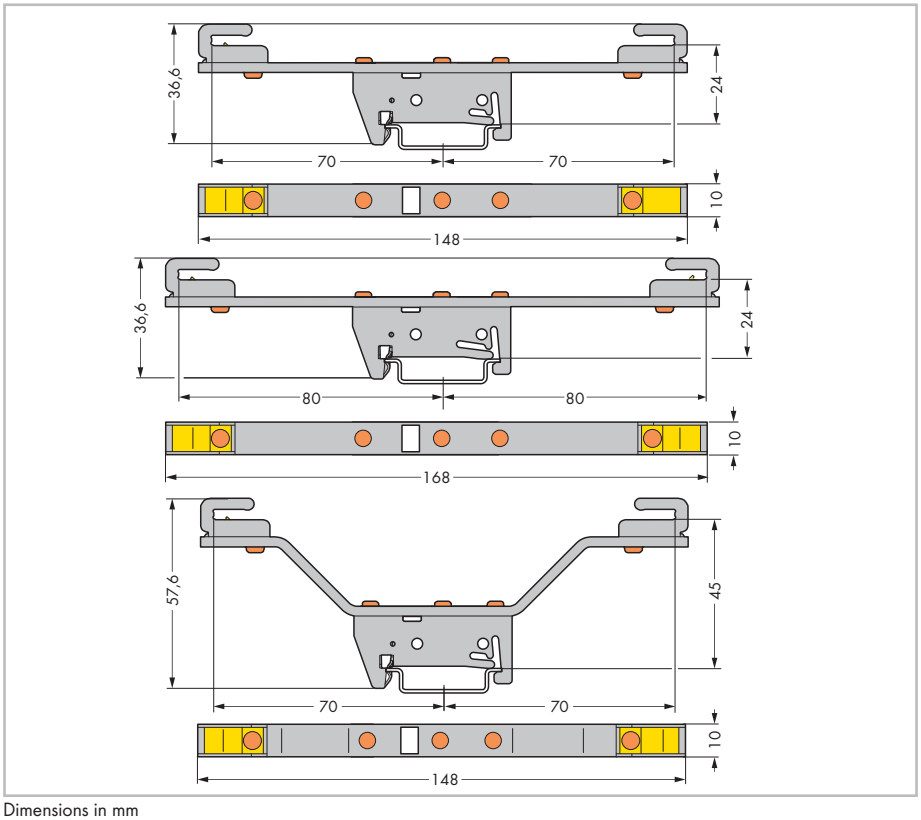
Busbar carrier	Busbar carrier

Item No.	Pack. Unit
Busbar carrier, both sides, straight, for busbars Cu 10 mm x 3 mm, distance between center of DIN-rail and busbar carrier: 70 mm	
790-310	10
Busbar carrier, both sides, straight, for busbars Cu 10 mm x 3 mm, distance between center of DIN-rail and busbar carrier: 80 mm	
790-312	10

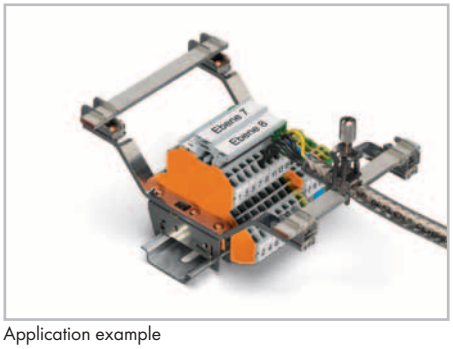
Item No.	Pack. Unit
Busbar carrier, both sides, angled, for busbars Cu 10 mm x 3 mm, distance between center of DIN-rail and busbar carrier: 70 mm	
790-311	10



To remove the busbar, compress the spring using pliers.



Dimensions in mm

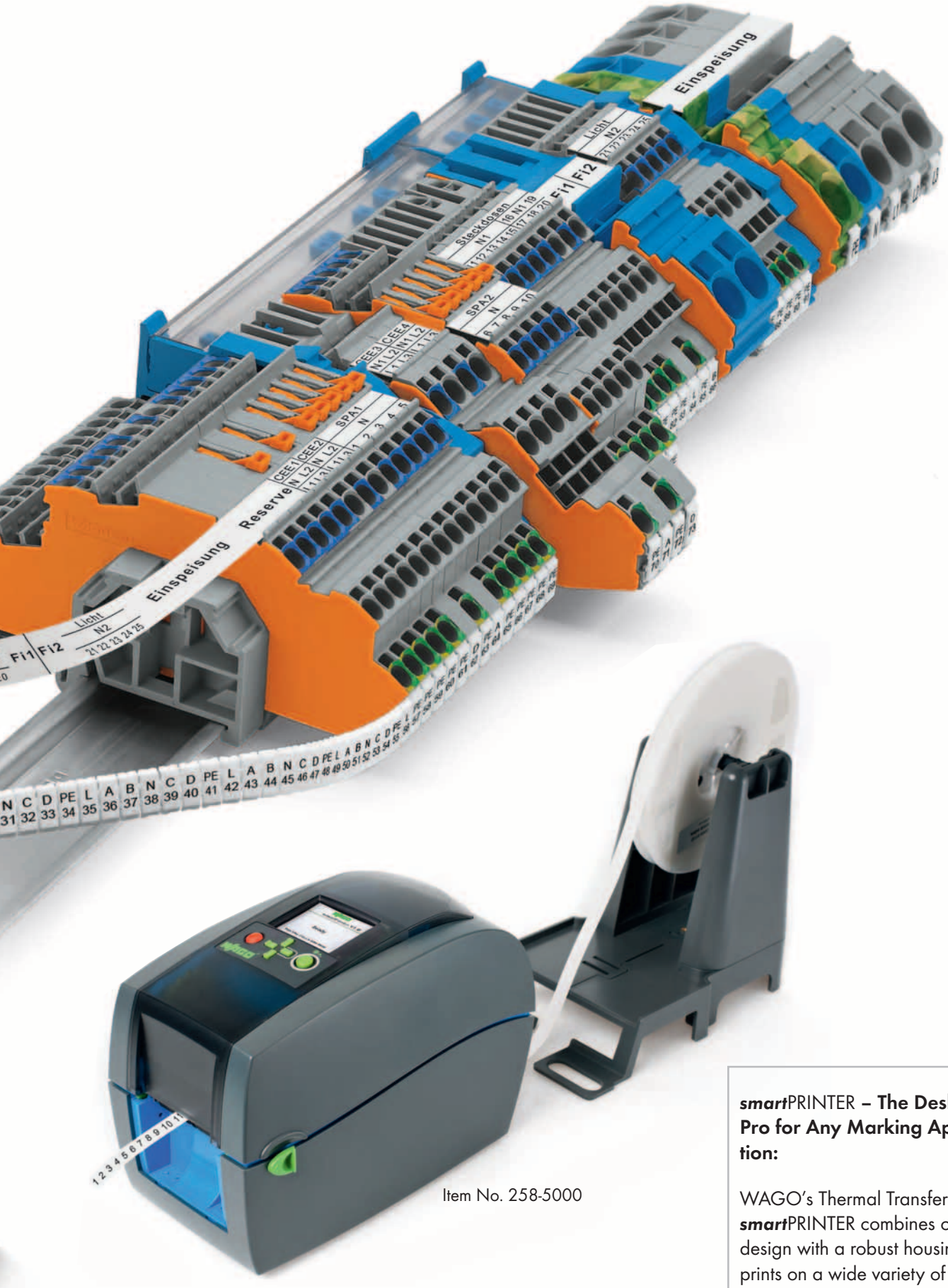


Application example

WAGO Takes Marking to the Next Level – Industry's Fastest Marking System Lowers Costs

- The upper marker slot allows fast, customized marking via:
  1. Marking strips
  2. WMB Inline markers
- Three-line marking is easier to scan/read
- Versatile, separable WMB Inline markers can be used on all marking levels

- Easily readable terminal block markings when connected – for all levels
- Easy-to mount marking strip and WMB Inline markers provide significant time savings
- Simple, easy-to-use design



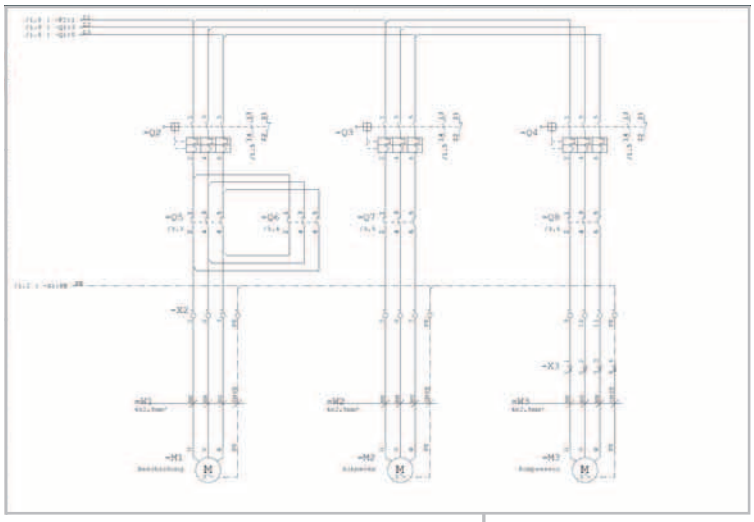
Item No. 258-5000

smartPRINTER **– The Desktop Pro for Any Marking Application:**

WAGO's Thermal Transfer ***smart***PRINTER combines compact design with a robust housing and prints on a wide variety of materials.

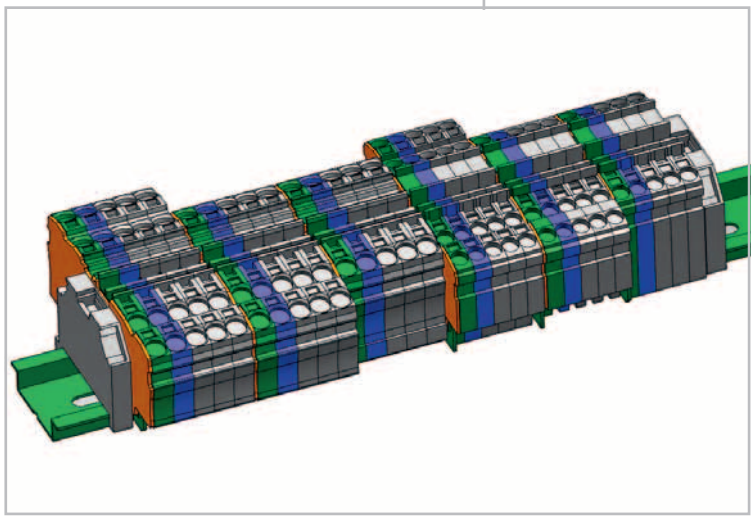
Smart Data Engineering
Supports Workflow from Control Cabinet up to installation

Electrical Engineering
Directly import data from the CAE circuit diagram into the ***smart***DESIGNER engineering software



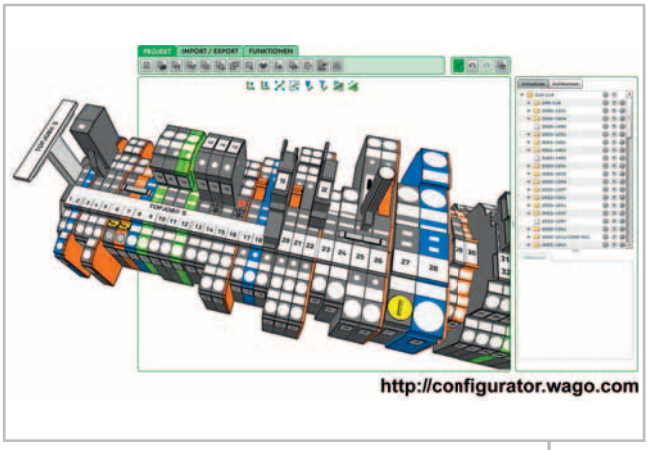
Technical and Commercial Item Data:
Classification by ETIM and ecl@ss – also in Advanced Format

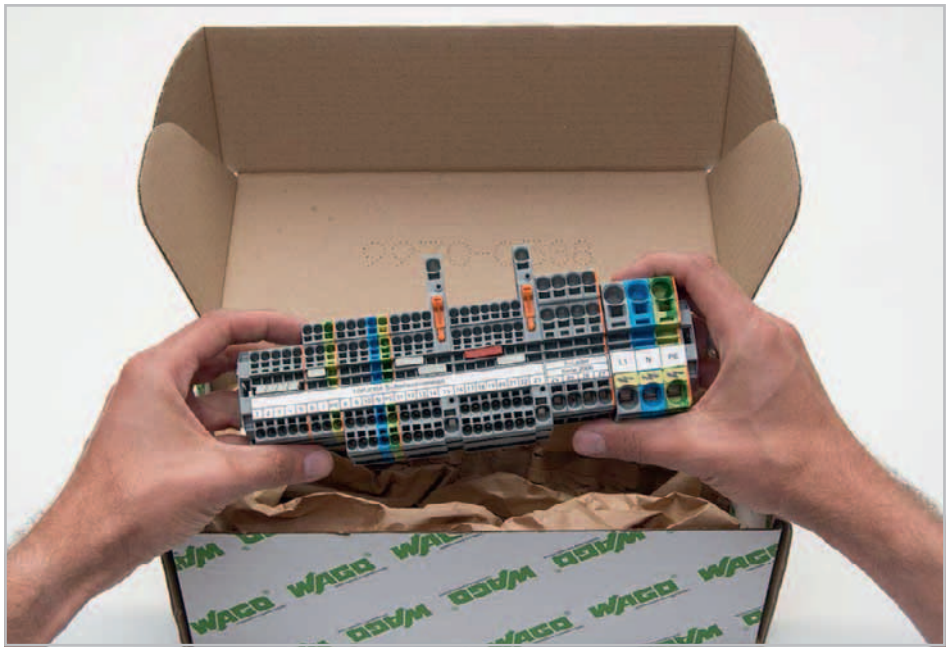
Mechanical Engineering
CAD export into all standard CAD formats of different granularity



***smart*DESIGNER**

- Free online configuration and ordering software for all electrical interconnect and automation components
- No installation
- Available worldwide 24 hours a day
- Current item data
- Edit via WAGO expert knowledge
- Design in full 3D



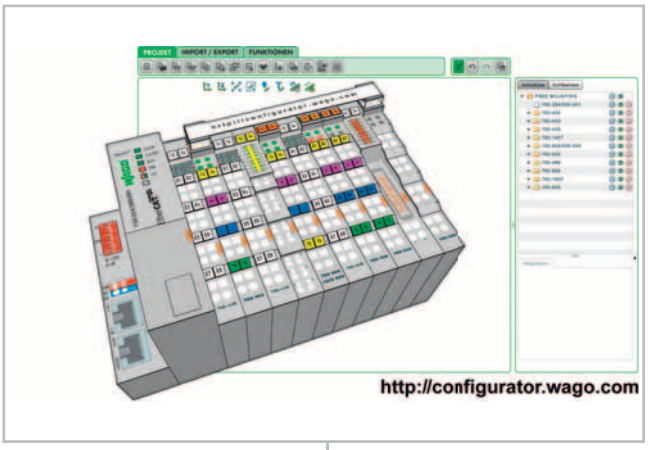


***smart*SCRIPT**

- XML-based software for all WAGO marking materials
- Data import from CAE systems
- Font size check
- Material selection wizard

Configuration made easy – http://configurator.wago.com

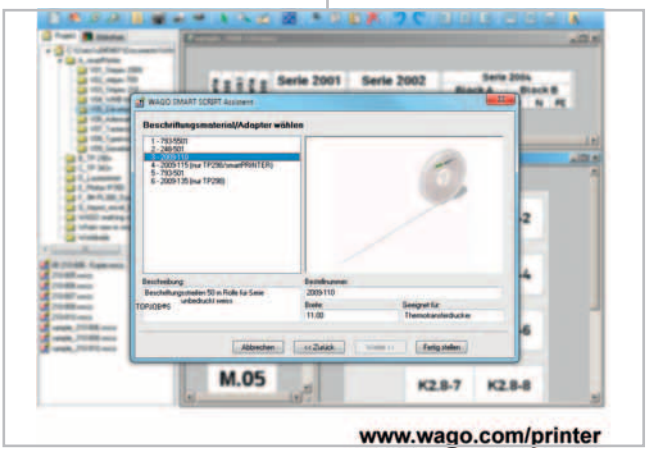
Smart Data Engineering
Fast and Easy Control Cabinet Marking



smartDESIGNER
After designing, print labeling materials directly out of the project via ***smart***PRINTER

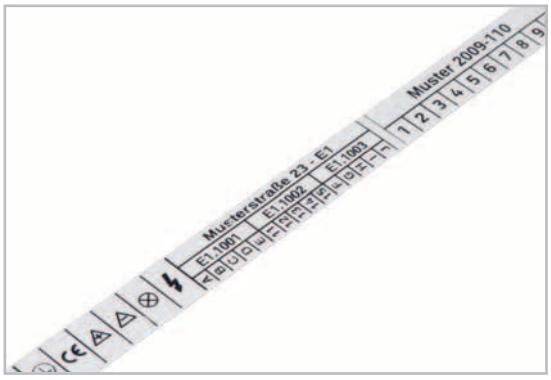
smartPRINTER
Thermal transfer printer quickly and easily labels the entire control cabinet:

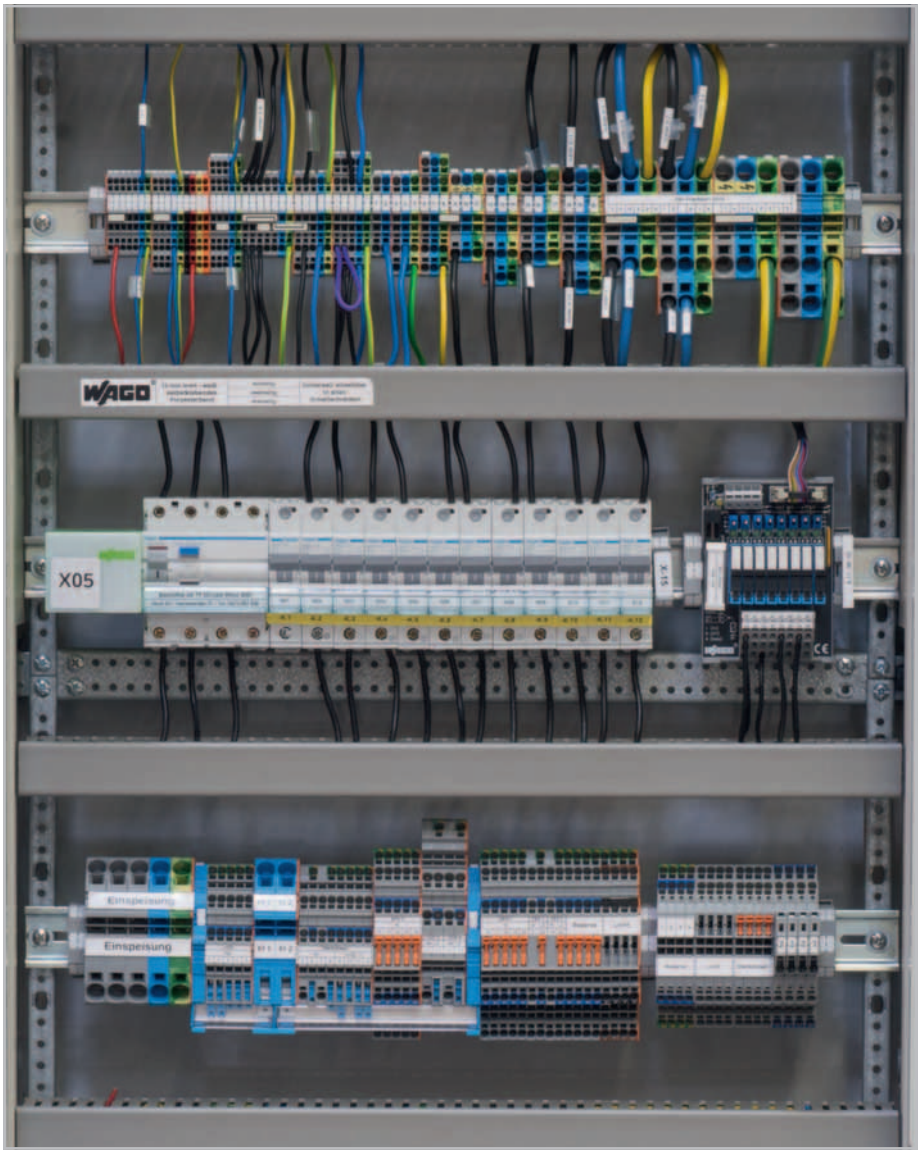
- WAGO marking strips and markers
- Type plates
- Push-button markers
- Labels
- Cable and wire markers

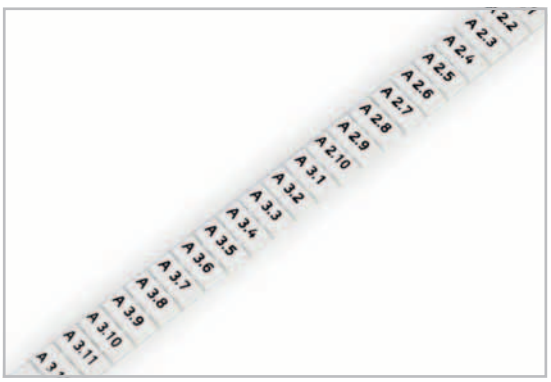


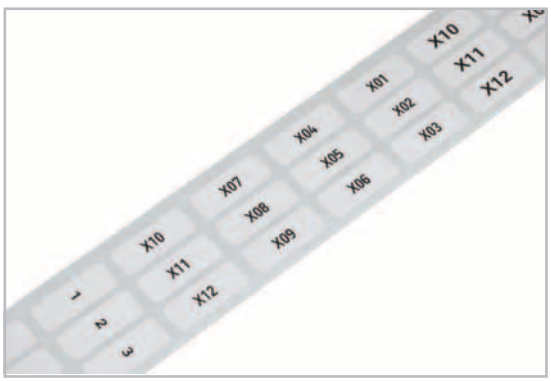
smartSCRIPT

- Import from CAE systems or create customized marking
- Print directly on ***smart***PRINTER



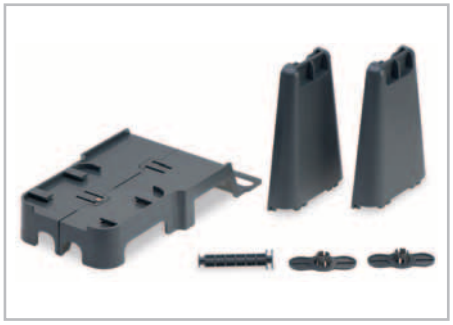






For more information, visit www.wago.com/printer or call us at +49-571-887-630

Printer upon delivery

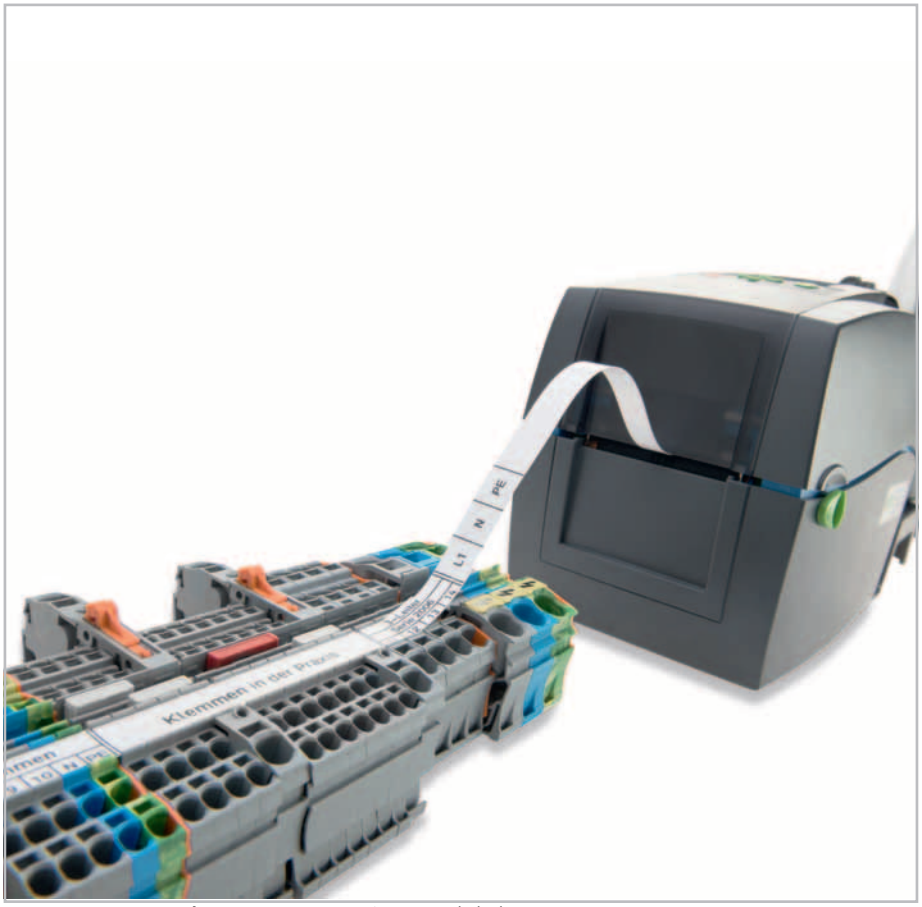


Accessories for material unwinding

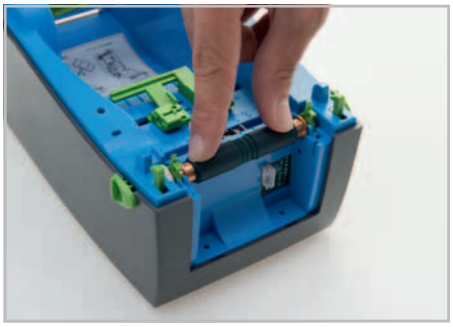
Open the printer.

Insert the ink ribbon.

Prepare the marking material.



Printing 2009-110 Marking Strips on TOPJOB® S Terminal Blocks via smartPRINTER.



Insert and secure the suitable roller into the printer.

Printer has several interfaces.

Fast, cost-effective and easy to use – Printing WMB Inline markers via ***smart***PRINTER

Thermal Transfer Printer
*smart*PRINTER

Description	Item No.	Pack. Unit
smartPRINTER		
Includes:		
- Power supply and cable		
- USB cable		
- 1 reel each for marking strips and WMB Inline markers		
- 2 rollers		
- 1 reel holder		
- 1 ink ribbon		
- ***smart***SCRIPT marking software and driver		
	258-5000	1

Accessories

Ink ribbon for *smart*PRINTER		
	258-5005	1
Roller for *marking*STRIP		
	258-5006	1
Roller for WMB Inline		
	258-5007	1
Roller for Mini-WSB Inline		
	258-5008	1
Carrying case for *smart*PRINTER		
Light gray, with foam padding for printer		
Dimensions (W x H x D): 50 x 26 x 33 cm		
	258-5015	1

Technical Data

Printing method	Thermal transfer
Print head	Glass layer, spring-mounted
Print speed	max. 127 mm/s
	(WAGO recommends 50.8 mm/s)
Print width (max.)	47 mm
Print length (max.)	762 mm
Print resolution	300 dpi (12 pixels/mm)
Transmissive/reflective sensor	Yes, centrally mounted
Operating display	Color TFT LCD with navigation button
Memory	8 MB Flash, 16 MB SDRAM
Interfaces	USB, RS-232, ETHERNET 10/100 Mbps
Operating voltage	100 ... 240 VAC, 50 ... 60 Hz
	(automatic adjustment)
Dimensions (mm) W x H x L	135 x 175 x 245
Weight	2000 g (without printing material)
Operating temperature	5 °C ... 40 °C (41 °F ... 104 °F)
Storage temperature	-20 °C ... 50 °C (-4 °F ... 122 °F)
Safety approvals	CE (EMC)
Ink ribbon	External roll diameter: 40 mm;
	Internal core diameter: 0.5" (12.7 mm);
	Max. length: 110 m; Max. width: 58 mm

Thermal Transfer Printer
WAGO TP 298+

Description	Item No.	Pack. Unit
Thermal Transfer Printer TP 298+		
Resolution: 300 dpi		
Includes software and print roller (258-178)		
for WMB Inline markers and marking strips (2009 and 709 Series)		
	258-298	1

Technical Data	
Printing method	Thermal/thermal transfer
Print head	Thick-film transfer head
Print resolution	300 dpi
Print speed	100 mm/sec.
Print width (max.)	108.4 mm
Transmissive/reflective sensor	Default
Processor (32-bit, ColdFire)/clock rate	64 MHz
Memory	8 MB RAM
Program memory (ROM)	4 MB Flash
Slot for memory card	CompactFlash, Type 1
Interfaces	ETHERNET 10/100 Base T,
	RS-232 (COM), USB
Accessories (optional)	Cutter, external winder, external unwinder,
	CompactFlash memory card (16–512 MB)
Operating voltage	100 V ... 240 VAC /
	50 Hz ... 60 Hz, PFC
Dimensions (mm) W x H x L	242 x 274 x 446
Weight	10,000 g
Operating temperature	10 °C ... 35 °C
Relative humidity	30 % ... 85 %
Safety approvals	CE, FCC Class 1
Accessories	1 x USB cable; 1 x serial cable;
	Marking strips (1 x 2009-110);
	Ink ribbon (1 x 258-149)

Application Table for Ink Ribbon/Marking Material/Printer

Item No.	Width	Ink ribbon	Marking Material	Printer
258-143	60 mm	Resin/wax	Labels (paper)	All types
258-144	100 mm	Resin/wax	Labels (paper) for cable marking (211-155/211-156)	All types
258-145	38 mm	Resin	Marking strips, 2009 Series (2009-xxx) Marking strips, 709 Series (709-xxx) WMB Inline markers	TP 298+
258-149	50 mm	Resin	Marking strips, 2009 Series (2009-xxx) Marking strips, 709 Series (709-xxx) WMB Inline markers	TP 298+
258-150	76 mm	Resin	Wire labels (211-111/211-121) (polyester) up to 76 mm	All types
258-157	100 mm	Resin	Labels (polyester) up to 100 mm	All types

Plotter
IP 200

- Robust, aluminum design
- Plotting area, DIN A4: 220 mm x 305 mm
- Easy-to-replace marker receptacles
- Automatic calibration
- Up to 10.5 mm high markers can be plotted
- Special solutions for up to 15 mm high markers are available
- Universal power supply ranging from 100 ... 240 VAC
- Smudge-free plotting right from the very first marker
- PC interfaces: USB ports
- Control language: HPGL
- IP 200 firmware can be updated via PC and Internet

Description	Item No.	Pack. Unit
Flatbed Plotter IP 200	**258-200**	1

Technical Data	
Maximum plot area	200 mm x 305 mm
Interfaces	USB 1.1
Control language	Based on HP-GL 7475A
Data buffer	16 MB
Speed	max. 40 mm/sec.
Drive system	Two-phase stepper motor
Plotter pen	Special plotter pens with HP receptacle
Addressable resolution	0.01 mm
Repeat accuracy	0.05 mm
Repeat accuracy after pen change	0.05 mm with optimum pen
Voltage supply	Separate power supply with exchangeable plug adapters
Operating voltage	100 V ... 240 V / 50 Hz ... 60 Hz
Current consumption (internal)	0.7 A max. at 220 VAC
Dimensions (mm) W x H x L	125 x 440 x 440
Operating temperature	10 °C ... 35 °C
Relative humidity	35 % ... 75 %
Safety approvals	EN 60950-1
Immunity to interference	EN 55022 B
Included:	IP 200 Plotter
	power supply
	USB data cable
	operating manual and software

Accessories

Ink ribbon for labels

Ink ribbon for marking strips

Description		Item No.
Ink ribbon for marking strips and WMB Inline markers	Resin, 38 mm x 300 m	**258-145**
	Resin, 50 mm x 300 m	**258-149**
Ink ribbon for wire markers (211 Series) and polyester labels	76 mm wide x 300 m	**258-150**
	100 mm wide x 300 m	**258-157**
Ink ribbon for paper labels	Resin/wax, 60 x 300 mm wide	**258-143**
	Resin/wax, 100 x 300 mm wide	**258-144**

All ink ribbons are suitable for TP 298. For detailed ordering information, please refer to the **"Application Table for Ink Ribbon/Marking Material/Printer."**

External coil mounting system

Cutter (TP 298)

Spare roller (TP 298)

Description		Item No.
External coil mounting system	for 2009-135 WMB Inline (8,000 markers)	**258-169**
Cutter (TP 298)		**258-161**
Spare roller (TP 298) for labels	(up to device series no. 40,000)	**258-162**
Spare roller (TP 298) for labels	(from device series no. 40,000)	**258-177**
Spare roller (TP 298) for WMB Inline markers	(up to device series no. 40,000)	**258-166**
Spare roller (TP 298) for WMB Inline markers	(from device series no. 40,000)	**258-178**
Carrying case for TP 298		**258-171**
Retractable handle for carrying case (TP 298)		**258-173**

WMB Inline markers

Marking strips

Description		Item No.
WMB Inline, 4 mm pitch, stretchable from 4 ... 4.2 mm, on roll	White, 2,000 markers	**2009-114**
WMB Inline, 5 mm pitch, stretchable from 5 ... 5.2 mm, on roll	White, 1,500 markers	**2009-115**
WMB Inline, 5 mm pitch, stretchable from 5 ... 5.2 mm, on roll	White, 8,000 markers	**2009-135**
Marking strip for TOPJOB® S,		
white, plain, 11 mm wide	50 m roll	**2009-110**
Marking strip for 870, 869, 862 and 270 Series,		
white, plain, 7.5 mm wide	50 m roll	**709-178**
Marking strip for 870, 869, 862 and 270 Series,		
translucent, plain, 7.5 mm wide	50 m roll	**709-177**

Accessories

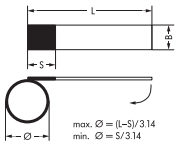
Marker card (12 mm) for thermal transfer printer

Marker card (12 mm) for plotter

Labels on roll

Labels on DIN A4 sheets

Dimensions of self-laminating label



Description		Item No.
Marker card for thermal transfer printer	12 mm	**211-111**
	23 mm	**211-121**
Marker card for plotter	12 mm	**211-110**
(requires 258-370 Carrier Plate for plotting)	23 mm	**211-120**
Labels on roll for thermal transfer printer	Label surface: "S"=8 mm, "B"=18 mm, "L"=35 mm, for max. 9 mm cable diameter, 9,000 labels per roll	**211-155**
	Label surface: "S"=13 mm, "B"=23 mm, "L"=51 mm, for max. 12 mm cable diameter, 5,000 labels per roll	**211-156**
Labels on DIN A4 sheets for laser printer	Label surface: "S"=9 mm, "B"=17 mm, "L"=35 mm,	**211-150**
(requires 258-383 Carrier Plate for plotting)	for max. 14 mm cable diameter, 70 labels per sheet	
	Label surface "S"=13 mm, "B"=21 mm, "L"=56 mm,	**211-151**
	for max. 14 mm cable diameter, 32 labels per sheet	
Marking sleeve, 12 mm long, for wire diameter	1.6 mm ... 3.2 mm or 0.25 mm² ... 1.5 mm²	**211-112**
	2.2 mm ... 4.5 mm or 0.5 mm² ... 4 mm²	**211-113**
	3.7 mm ... 5.9 mm or 2.5 mm² ... 6 mm²	**211-114**
	4.8 mm ... 7.5 mm or 6 mm² ... 16 mm²	**211-115**
Marking sleeve, 23 mm long, for wire diameter	1.6 mm ... 3.2 mm or 0.25 mm² ... 1.5 mm²	**211-122**
	2.2 mm ... 4.5 mm or 0.5 mm² ... 4 mm²	**211-123**
	3.7 mm ... 5.9 mm or 2.5 mm² ... 6 mm²	**211-124**
	4.8 mm ... 7.5 mm or 6 mm² ... 16 mm²	**211-125**
Marking sleeve for cable tie	23 mm, for 10 mm² wires and larger	**211-129**
Cable tie (2.5 x 100) mm		**807-090/101-100**
Marker for I/O components	Plotter, 12 x 7 mm	**211-211**
(requires 258-371 Carrier Plate for plotting)		
Marking strips	15 mm, white, 50 m roll	**210-701**
Carrier for marking strips	Transparent, 1 m long	**709-120**
Carrier through element	Adjustable in height	**709-118**
Carrier end element	Adjustable in height	**709-119**
Continuous label	3 mm, white, 12 lengths at 25 m	**210-732**
Label roll	70 x 100 mm, white, 500 pcs/roll	**210-703**
Label roll	70 x 100 mm, silver, 500 pcs/roll	**210-704**
Label roll	6 x 15 mm, white, 3,000 pcs/roll	**210-705**
Label roll	6 x 15 mm, yellow, 3,000 pcs/roll	**210-705/000-002**
Label roll	9 x 15 mm, white, 3,000 pcs/roll	**210-706**
Label roll	9 x 15 mm, yellow, 3,000 pcs/roll	**210-706/000-002**
Label roll	8 x 20 mm, white, 3,000 pcs/roll	**210-707**
Label roll	8 x 20 mm, yellow, 3,000 pcs/roll	**210-707/000-002**
Label roll	9.5 x 25 mm, white, 3,000 pcs/roll	**210-708**
Label roll	35 x 5 mm, white, 4,000 pcs/roll	**210-710**

More labels at www.marschall-pw.de

Accessories

WAGO plotter pen (disposable)
Line width: 0.18 mm

WAGO plotter pen (disposable)
Line width: 0.25 mm

WAGO plotter pen (disposable)
Line width: 0.35 mm

Engraver set

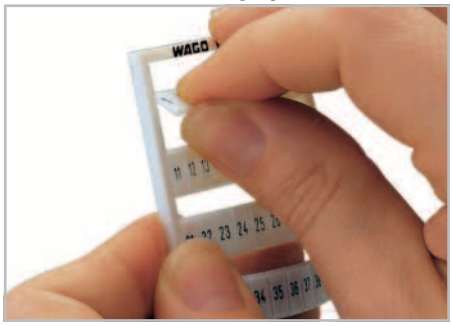
Description		Item No.
WAGO plotter pen (disposable)	Line width: 0.18 mm	**258-326**
	Line width: 0.25 mm	**258-327**
	Line width: 0.35 mm	**258-328**
	Line width: 0.5 mm	**258-329**
Calibration aid		**258-453**
Engraver set	Engraver sizes: 0.2/0.3/0.4/0.5/0.7/1 mm	**258-452**
Engraver	Engraver size: 0.2 mm	**258-452/000-002**
	Engraver size: 0.3 mm	**258-452/000-003**
	Engraver size: 0.4 mm	**258-452/000-004**
	Engraver size: 0.5 mm	**258-452/000-005**
	Engraver size: 0.7 mm	**258-452/000-007**
	Engraver size: 1 mm	**258-452/000-010**
Engraver (stainless steel)	Engraver size: 0.2 mm	**258-458/000-002**
	Engraver size: 0.4 mm	**258-458/000-004**
Vacuum cleaner bag for EG 450 Engraver		**258-457**

Accessories

Description		Item No.
Carrier plates for WAGO	WSB 5 mm (209-501)	**258-361**
	WSB 4 mm (209-701)	**258-362**
	Miniature WSB (248-501)	**258-363**
	WCB (249-200)	**258-366**
	WMB 5/5.2 mm (793-5501); WMB 4/4.2 mm (793-4501); WMB 3.5 mm (793-3501)	**258-368**
	T-marking strips (209-290)	**258-365**
	Marking strips (2009-110 + 2009-130 and 790-...)	**258-410**
	WTB (799-501)	**258-367**
	Group marker carrier (209-112)	**258-364**
	Marker tags (210-199 + 209-200)	**258-369**
Carrier plates for Murrplastik	MP-400; KS 4/12, 4/18, 4/23, 4/30	**258-370**
	MP-401; KES, KLG, KMR, KPX, KS 15x17/27/49/67, KSA, KSF, KSI, KSK, KSO, KSS, KTE,	**258-371**
	KWI, SKS, WGO, KAB	
	BS 5/6	**258-397**
	KSEX; 10/500	**258-470**
	KPX	**258-396**
	KSEX; 18/500	**258-471**
Universal engraver and plotter carrier plates	90 mm x 100 mm x 3	**258-454**
	60 mm x 100 mm x 4	**258-455**
	30 mm x 100 mm x 9	**258-456**
Carrier plates for Phoenix	ZBM	**258-372**
	ZB	**258-373**
	ZBN	**258-374**
	ZBFM	**258-375**
	BNZ	**258-377**
	BN-ZB	**258-378**
	SS-ZB	**258-379**
	LBHZ	**258-380**
	PAB	**258-381**
	GPE	**258-382**
Universal engraver and plotter carrier plates	DIN A4	**258-383**
	DIN A3	**258-472**
Carrier plates for Weidmüller	MC Universal	**258-387**
	MC SF4-6	**258-388**
Carrier plate for Wörtz/Allen Bradley	Universal	**258-389**
Carrier plates for Möller	XB M22-XST	**258-390**
Carrier plates for Partex	PA+1	**258-391**
	PA+2	**258-392**
Carrier plates for ABB Entrelec	Universal	**258-394**
	Siemens PLC	**258-473**
Carrier plates for Contra-Clip	Universal	**258-398**
	PK2 PVC	**258-393**
	PA+ 2	**258-399**

Marking Accessories
– Description and Handling –

WMB Multi marking system

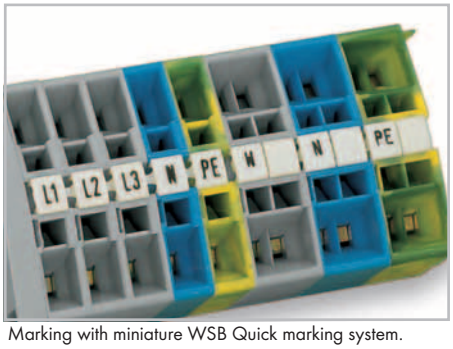


Separating a strip from the WMB or WMB marker card.

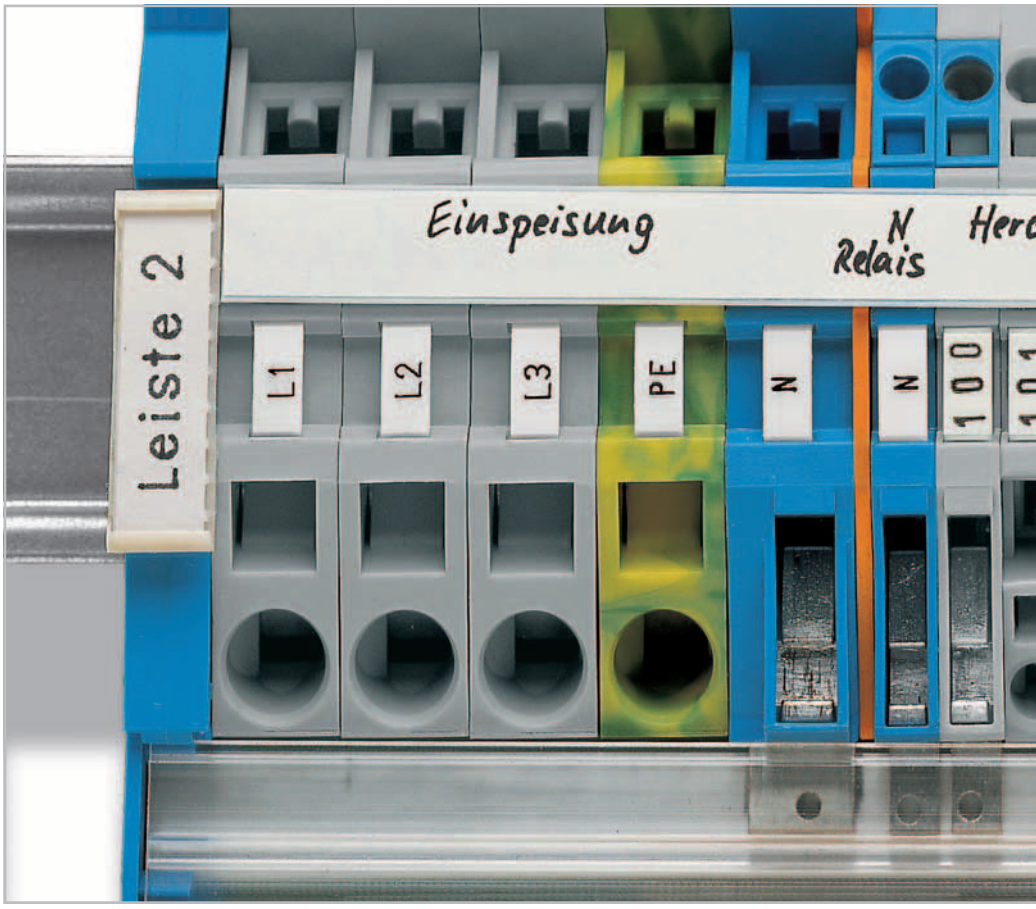
Stretching a strip.

Separating an individual marker from the strip, for larger terminal blocks.

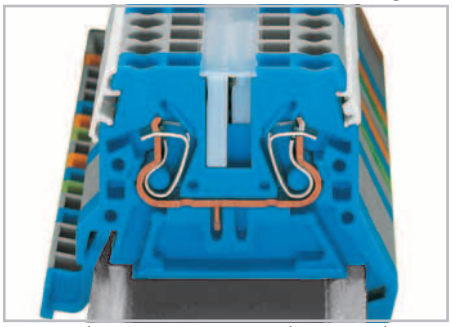
Miniature WSB (WAGO Quick marking system)



Marking with miniature WSB Quick marking system.



Miniature WSB or WMB marking



WMB markers in miniature WSB marker receptacles
Marking strips, translucent
Miniature WSB markers

WFB (WAGO continuous marking strips)

Customized ink pen marking

Carrier for WFB Continuous marking strip; to be secures every 10th terminal block.

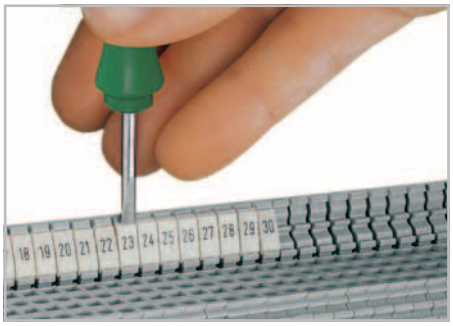
Group marking

Group marking on N-busbar carrier used as end stop

WMB Multi marking system

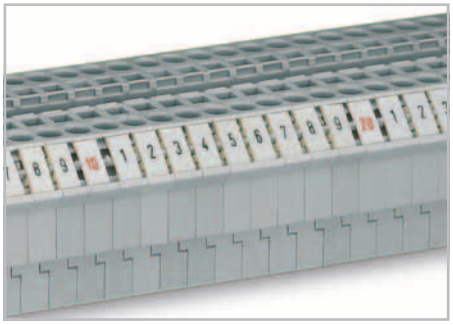
Snapping a strip into the marker slot.

Double marker carrier

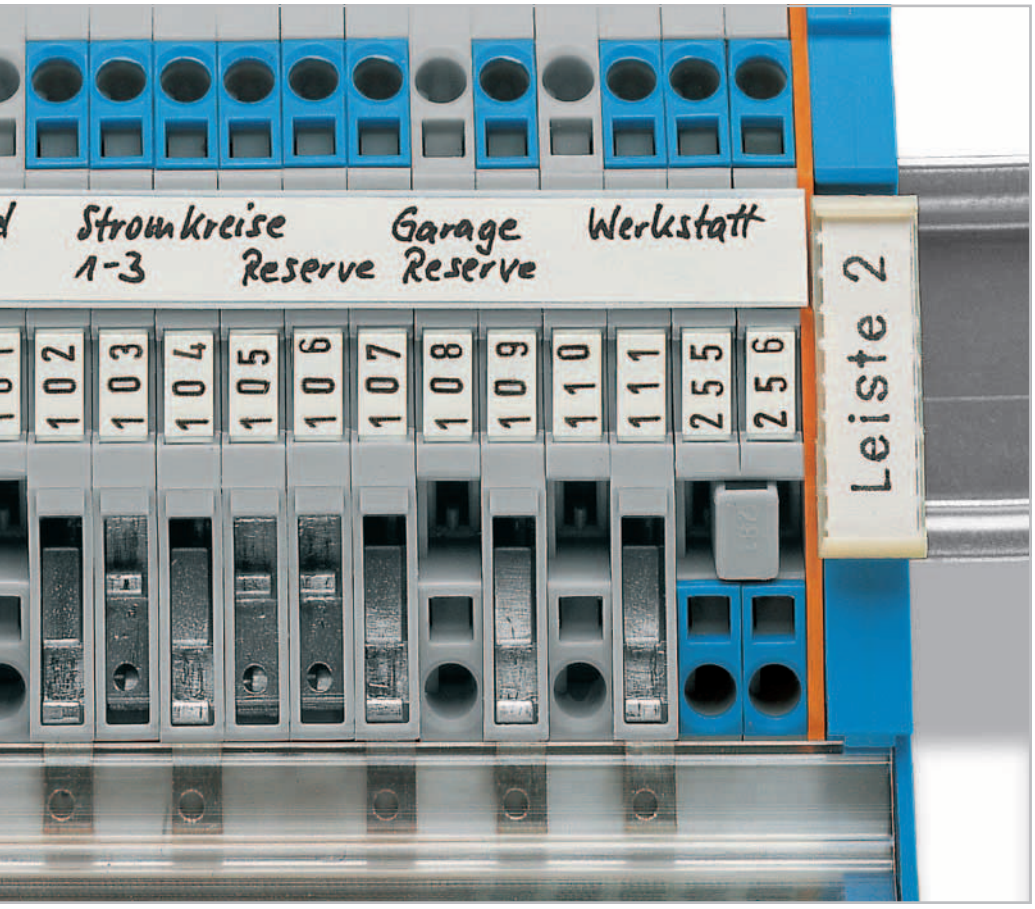


Snapping a strip into the marker slot of the double marker carrier.

"Decade" marking

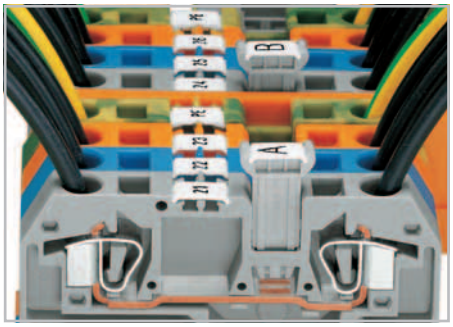


WMB "decade" marking



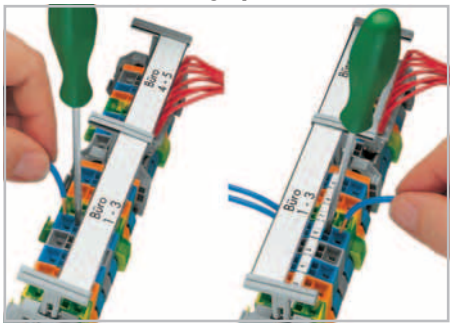
Group marker carriers

Group marker carrier adjustable in height



Additional group marking

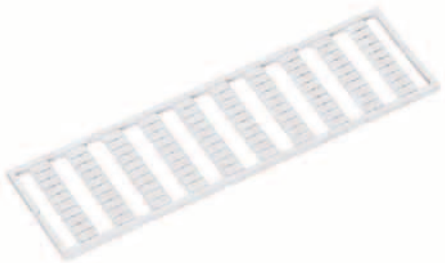
Movable marking system

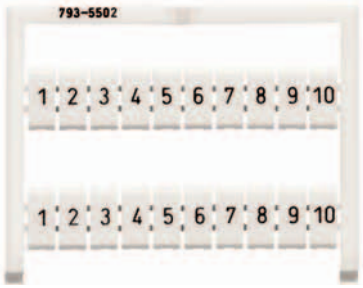


Additional continuous marking strips

WAGO WMB Multi Marking System
for Terminal Block Width 3.5 mm, 4 … 4.2 mm, 5 mm and Higher

	horizontal marking **consecutive numbers on each strip** **10 strips with 10 markers per card** **for terminal widths 5 … 17.5 mm and** **5 … 5.2 mm and 4 … 4.2 mm and 3.5 mm**



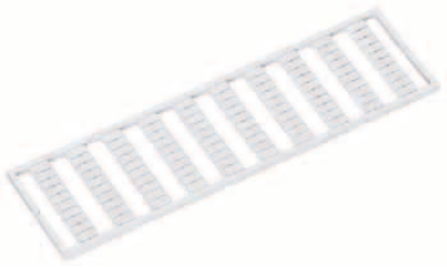


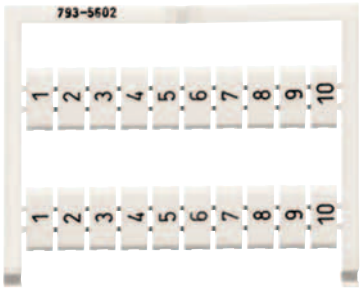
❶ For continuous marking of 270, 280, 780, 869, 870 and 880 Series terminal blocks
Individual marking of 281 … 285, 781 … 785, 2002, 2003, 2022, 2004, 2006, 2010 and 2016 Series terminal blocks
❷ For continuous marking of 270, 280, 780, 869, 870, 880, 2002, 2003 and 2022 Series terminal blocks
Individual marking of terminal blocks larger than 5 / 5.2 mm
❸ For continuous marking of 279 and 2001 Series terminal blocks
❹ For continuous marking of 2000 and 2020 Series terminal blocks

Marking	Marker Width 5 mm ❶	Marker Width 5 … 5.2 mm ❷	Marker Width 4 … 4.2 mm ❸	Marker Width 3.5 mm ❹
1 … 10 (10x)	**793-502**	**793-5502**	**793-4502**	**793-3502**
11 … 20 (10x)	**793-503**	**793-5503**	**793-4503**	**793-3503**
21 … 30 (10x)	**793-504**	**793-5504**	**793-4504**	**793-3504**
31 … 40 (10x)	**793-505**	**793-5505**	**793-4505**	**793-3505**
41 … 50 (10x)	**793-506**	**793-5506**	**793-4506**	**793-3506**
51 … 60 (10x)	**793-569**	**793-5569**	**793-4569**	
61 … 70 (10x)	**793-570**	**793-5570**	**793-4570**	
71 … 80 (10x)	**793-571**	**793-5571**	**793-4571**	
81 … 90 (10x)	**793-572**	**793-5572**	**793-4572**	
91 … 100 (10x)	**793-573**	**793-5573**	**793-4573**	
1 … 50 (2x)	**793-566**	**793-5566**	**793-4566**	**793-3566**
51 … 100 (2x)	**793-507**	**793-5507**	**793-4507**	**793-3507**
101 … 150 (2x)	**793-508**	**793-5508**	**793-4508**	**793-3508**
151 … 200 (2x)	**793-509**	**793-5509**	**793-4509**	**793-3509**
201 … 300 (1x)	**793-510**	**793-5510**	**793-4510**	**793-3510**
301 … 400 (1x)	**793-511**	**793-5511**	**793-4511**	
401 … 500 (1x)	**793-512**	**793-5512**	**793-4512**	
501 … 600 (1x)	**793-513**	**793-5513**	**793-4513**	
601 … 700 (1x)	**793-514**	**793-5514**	**793-4514**	
701 … 800 (1x)	**793-515**	**793-5515**	**793-4515**	
801 … 900 (1x)	**793-516**	**793-5516**	**793-4516**	
901 … 1000 (1x)	**793-517**	**793-5517**	**793-4517**	
1 … 9 (10x)	**793-565**	**793-5565**	**793-4565**	**793-3565**
for double-deck terminal blocks,				
1, 3, 5, ..., 99 and 2, 4, 6, ..., 100 (1x)	**793-599**	**793-5599**	**793-4599**	**793-3599**
for triple-deck terminal blocks,				
1, 4, 7, … , 88 and 2, 5, 8, … , 89 and 3, 6, 9, … , 90 and 91, 94, 97, 92, 95, 98, 93, 96, 99, ; (1x)	**794-557**	**794-5557**		
100, 103, 106, … , 187 and 101, 104, 107, … , 188 and 102, 105, 108, … , 189 and 190, 193, 196, 191, 194, 197, 192, 195, 198, ; (1x)	**794-558**	**794-5558**		

WAGO WMB Multi Marking System
for Terminal Block Width 3.5 mm, 4 … 4.2 mm, 5 mm and Higher

	vertical marking **consecutive numbers on each strip** **10 strips with 10 markers per card** **for terminal widths 5 … 17.5 mm and** **5 … 5.2 mm and 4 … 4.2 mm and 3.5 mm**



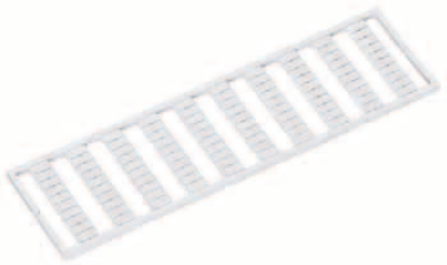


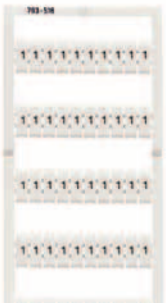
❶ For continuous marking of 270, 280, 780, 869, 870 and 880 Series terminal blocks
Individual marking of 281 … 285, 781 … 785, 2002, 2003, 2022, 2004, 2006, 2010 and 2016 Series terminal blocks
❷ For continuous marking of 270, 280, 780, 869, 870, 880, 2002, 2003 and 2022 Series terminal blocks
Individual marking of terminal blocks larger than 5 / 5.2 mm
❸ For continuous marking of 279 and 2001 Series terminal blocks
❹ For continuous marking of 2000 and 2020 Series terminal blocks

Marking	Marker Width 5 mm ❶	Marker Width 5 … 5.2 mm ❷	Marker Width 4 … 4.2 mm ❸	Marker Width 3.5 mm ❹
1 … 10 (10x)	**793-602**	**793-5602**	**793-4602**	upon request
11 … 20 (10x)	**793-603**	**793-5603**	**793-4603**	
21 … 30 (10x)	**793-604**	**793-5604**	**793-4604**	
31 … 40 (10x)	**793-605**	**793-5605**	**793-4605**	
41 … 50 (10x)	**793-606**	**793-5606**	**793-4606**	
51 … 60 (10x)	**794-601**	**794-5601**	**794-4601**	
61 … 70 (10x)	**794-602**	**794-5602**	**794-4602**	
71 … 80 (10x)	**794-603**	**794-5603**	**794-4603**	
81 … 90 (10x)	**794-604**	**794-5604**	**794-4604**	
91 … 100 (10x)	**794-605**	**794-5605**	**794-4605**	
1 … 50 (2x)	**793-666**	**793-5666**	**793-4666**	
51 … 100 (2x)	**793-607**	**793-5607**	**793-4607**	
101 … 150 (2x)	**793-608**	**793-5608**	**793-4608**	
151 … 200 (2x)	**793-609**	**793-5609**	**793-4609**	
201 … 300 (1x)	**793-610**	**793-5610**	**793-4610**	
301 … 400 (1x)	**793-611**	**793-5611**	**793-4611**	
401 … 500 (1x)	**793-612**	**793-5612**	**793-4612**	
501 … 600 (1x)	**793-613**	**793-5613**	**793-4613**	
601 … 700 (1x)	**793-614**	**793-5614**	**793-4614**	
701 … 800 (1x)	**793-615**	**793-5615**	**793-4615**	
801 … 900 (1x)	**793-616**	**793-5616**	**793-4616**	
901 … 1000 (1x)	**793-617**	**793-5617**	**793-4617**	
1001 … 1100 (1x)	**793-688**	**793-5688**	**793-4688**	
1101 … 1200 (1x)	**793-669**	**793-5669**	**793-4669**	
1201 … 1300 (1x)	**793-670**	**793-5670**	**793-4670**	
1301 … 1400 (1x)	**793-671**	**793-5671**	**793-4671**	
1401 … 1500 (1x)	**793-672**	**793-5672**	**793-4672**	
1501 … 1600 (1x)	**793-901**	**793-5901**	**793-4901**	
1601 … 1700 (1x)	**793-902**	**793-5902**	**793-4902**	
1701 … 1800 (1x)	**793-903**	**793-5903**	**793-4903**	
1801 … 1900 (1x)	**793-912**	**793-5912**	**793-4912**	
1901 … 2000 (1x)	**793-913**	**793-5913**	**793-4913**	
101, 101, 101, 102, …, 130, 130, 130 (1x)	**793-667**	**793-5667**	**793-4667**	
131, 131, 131, 132, …, 160, 160, 160 (1x)	**793-668**	**793-5668**	**793-4668**	
for double-deck terminal blocks,				
1, 3, 5, …, 99 and 2, 4, 6, …, 100 (1x)	**793-699**	**793-5699**	**793-4699**	
101, 103, 105, …, 149 and 102, 104, 106, …, 150 (2x)	**793-900**	**793-5900**	**793-4900**	
for triple-deck terminal blocks,				
1, 4, 7, … , 88 and 2, 5, 8, … , 89 and 3, 6, 9, … , 90 and 91, 94, 97, 92, 95, 98, 93, 96, 99, ; (1x)	**794-657**	**794-5657**		
100, 103, 106, … , 187 and 101, 104, 107, … , 188 and 102, 105, 108, … , 189 and 190, 193, 196, 191, 194, 197, 192, 195, 198, ; (1x)	**794-658**	**794-5658**		

WAGO WMB Multi Marking System
for Terminal Block Width 3.5 mm, 4 … 4.2 mm, 5 mm and Higher

	horizontal marking **same numbers per strip** **10 strips with 10 markers per card** **for terminal widths 5 … 17.5 mm and** **5 … 5.2 mm and 4 … 4.2 mm and 3.5 mm**



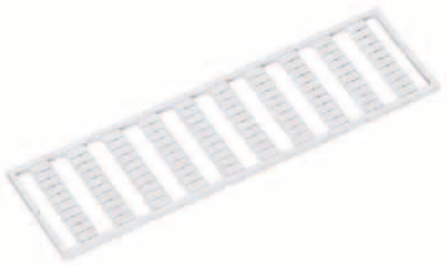


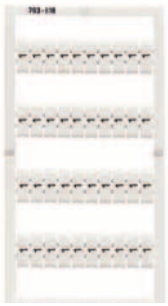
❶ For continuous marking of 270, 280, 780, 869, 870 and 880 Series terminal blocks
Individual marking of 281 … 285, 781 … 785, 2002, 2003, 2022, 2004, 2006, 2010 and 2016 Series terminal blocks
❷ For continuous marking of 270, 280, 780, 869, 870, 880, 2002, 2003 and 2022 Series terminal blocks
Individual marking of terminal blocks larger than 5 / 5.2 mm
❸ For continuous marking of 279 and 2001 Series terminal blocks
❹ For continuous marking of 2000 and 2020 Series terminal blocks

Marking	Marker Width 5 mm ❶	Marker Width 5 … 5.2 mm ❷	Marker Width 4 … 4.2 mm ❸	Marker Width 3.5 mm ❹
1/2 (50 each)	**793-518**	**793-5518**	**793-4518**	upon request
3/4 (50 each)	**793-519**	**793-5519**	**793-4519**	
5/6 (50 each)	**793-520**	**793-5520**	**793-4520**	
7/8 (50 each)	**793-521**	**793-5521**	**793-4521**	
9/10 (50 each)	**793-522**	**793-5522**	**793-4522**	
11/12 (50 each)	**793-523**	**793-5523**	**793-4523**	
13/14 (50 each)	**793-524**	**793-5524**	**793-4524**	
15/16 (50 each)	**793-525**	**793-5525**	**793-4525**	
17/18 (50 each)	**793-526**	**793-5526**	**793-4526**	
19/20 (50 each)	**793-527**	**793-5527**	**793-4527**	
21/22 (50 each)	**793-528**	**793-5528**	**793-4528**	
23/24 (50 each)	**793-529**	**793-5529**	**793-4529**	
25/26 (50 each)	**793-530**	**793-5530**	**793-4530**	
27/28 (50 each)	**793-531**	**793-5531**	**793-4531**	
29/30 (50 each)	**793-532**	**793-5532**	**793-4532**	
31/32 (50 each)	**793-533**	**793-5533**	**793-4533**	
33/34 (50 each)	**793-534**	**793-5534**	**793-4534**	
35/36 (50 each)	**793-535**	**793-5535**	**793-4535**	
37/38 (50 each)	**793-536**	**793-5536**	**793-4536**	
39/40 (50 each)	**793-537**	**793-5537**	**793-4537**	
41/42 (50 each)	**793-538**	**793-5538**	**793-4538**	
43/44 (50 each)	**793-539**	**793-5539**	**793-4539**	
45/46 (50 each)	**793-540**	**793-5540**	**793-4540**	
47/48 (50 each)	**793-541**	**793-5541**	**793-4541**	
49/50 (50 each)	**793-542**	**793-5542**	**793-4542**	
51/52 (50 each)	**793-400**	**793-5400**	**793-4400**	
53/54 (50 each)	**793-401**	**793-5401**	**793-4401**	
55/56 (50 each)	**793-402**	**793-5402**	**793-4402**	
57/58 (50 each)	**793-403**	**793-5403**	**793-4403**	
59/60 (50 each)	**793-404**	**793-5404**	**793-4404**	
61/62 (50 each)	**793-405**	**793-5405**	**793-4405**	
63/64 (50 each)	**793-406**	**793-5406**	**793-4406**	
65/66 (50 each)	**793-407**	**793-5407**	**793-4407**	
67/68 (50 each)	**793-408**	**793-5408**	**793-4408**	
69/70 (50 each)	**793-409**	**793-5409**	**793-4409**	
71/72 (50 each)	**793-410**	**793-5410**	**793-4410**	
73/74 (50 each)	**793-411**	**793-5411**	**793-4411**	
75/76 (50 each)	**793-412**	**793-5412**	**793-4412**	
77/78 (50 each)	**793-413**	**793-5413**	**793-4413**	
79/80 (50 each)	**793-414**	**793-5414**	**793-4414**	
81/82 (50 each)	**793-415**	**793-5415**	**793-4415**	
83/84 (50 each)	**793-416**	**793-5416**	**793-4416**	
85/86 (50 each)	**793-417**	**793-5417**	**793-4417**	
87/88 (50 each)	**793-418**	**793-5418**	**793-4418**	
89/90 (50 each)	**793-419**	**793-5419**	**793-4419**	
91/92 (50 each)	**793-420**	**793-5420**	**793-4420**	
93/94 (50 each)	**793-421**	**793-5421**	**793-4421**	
95/96 (50 each)	**793-422**	**793-5422**	**793-4422**	
97/98 (50 each)	**793-423**	**793-5423**	**793-4423**	
99/100 (50 each)	**793-424**	**793-5424**	**793-4424**	

WAGO WMB Multi Marking System
for Terminal Block Width 3.5 mm, 4 … 4.2 mm, 5 mm and Higher

	vertical marking **same numbers per strip** **10 strips with 10 markers per card** **for terminal widths 5 … 17.5 mm and** **5 … 5.2 mm and 4 … 4.2 mm and 3.5 mm**





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Individual marking of 281 … 285, 781 … 785, 2002, 2003, 2022, 2004, 2006, 2010 and 2016 Series terminal blocks
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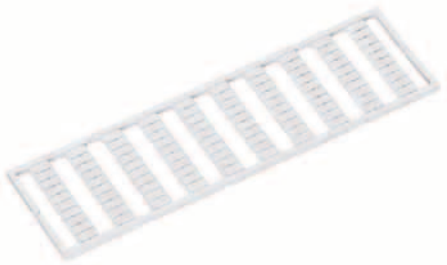
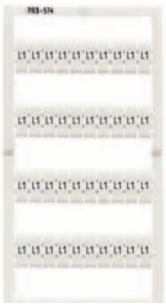
Marking	Marker Width 5 mm ❶	Marker Width 5 … 5.2 mm ❷	Marker Width 4 … 4.2 mm ❸	Marker Width 3.5 mm ❹
1/2 (50 each)	**793-618**	**793-5618**	**793-4618**	upon request
3/4 (50 each)	**793-619**	**793-5619**	**793-4619**	
5/6 (50 each)	**793-620**	**793-5620**	**793-4620**	
7/8 (50 each)	**793-621**	**793-5621**	**793-4621**	
9/10 (50 each)	**793-622**	**793-5622**	**793-4622**	
11/12 (50 each)	**793-623**	**793-5623**	**793-4623**	
13/14 (50 each)	**793-624**	**793-5624**	**793-4624**	
15/16 (50 each)	**793-625**	**793-5625**	**793-4625**	
17/18 (50 each)	**793-626**	**793-5626**	**793-4626**	
19/20 (50 each)	**793-627**	**793-5627**	**793-4627**	
21/22 (50 each)	**793-628**	**793-5628**	**793-4628**	
23/24 (50 each)	**793-629**	**793-5629**	**793-4629**	
25/26 (50 each)	**793-630**	**793-5630**	**793-4630**	
27/28 (50 each)	**793-631**	**793-5631**	**793-4631**	
29/30 (50 each)	**793-632**	**793-5632**	**793-4632**	
31/32 (50 each)	**793-633**	**793-5633**	**793-4633**	
33/34 (50 each)	**793-634**	**793-5634**	**793-4634**	
35/36 (50 each)	**793-635**	**793-5635**	**793-4635**	
37/38 (50 each)	**793-636**	**793-5636**	**793-4636**	
39/40 (50 each)	**793-637**	**793-5637**	**793-4637**	
41/42 (50 each)	**793-638**	**793-5638**	**793-4638**	
43/44 (50 each)	**793-639**	**793-5639**	**793-4639**	
45/46 (50 each)	**793-640**	**793-5640**	**793-4640**	
47/48 (50 each)	**793-641**	**793-5641**	**793-4641**	
49/50 (50 each)	**793-642**	**793-5642**	**793-4642**	

WAGO WMB Multi Marking System for Terminal Block Width 3.5 mm, 4 … 4.2 mm, 5 mm and Higher

	horizontal marking same letters/symbols each strip 10 strips with 10 markers per card for terminal widths 5 … 17.5 mm and 5 … 5.2 mm and 4 … 4.2 mm and 3.5 mm



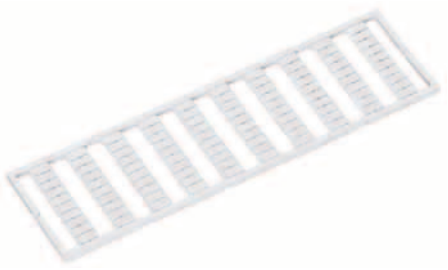


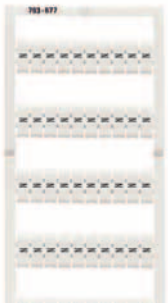
❶ For continuous marking of 270, 280, 780, 869, 870 and 880 Series terminal blocks
Individual marking of 281 … 285, 781 … 785, 2002, 2003, 2022, 2004, 2006, 2010 and 2016 Series terminal blocks
❷ For continuous marking of 270, 280, 780, 869, 870, 880, 2002, 2003 and 2022 Series terminal blocks
Individual marking of terminal blocks larger than 5 / 5.2 mm
❸ For continuous marking of 279 and 2001 Series terminal blocks
❹ For continuous marking of 2000 and 2020 Series terminal blocks

Marking	Marker Width 5 mm ❶	Marker Width 5 … 5.2 mm ❷	Marker Width 4 … 4.2 mm ❸	Marker Width 3.5 mm ❹
L1 (100x)	**793-574**	**793-5574**	**793-4574**	upon request
L2 (100x)	**793-575**	**793-5575**	**793-4575**	
L3 (100x)	**793-576**	**793-5576**	**793-4576**	
N (100x)	**793-577**	**793-5577**	**793-4577**	
PE (100x)	**793-578**	**793-5578**	**793-4578**	
PEN (100x)	**793-579**	**793-5579**	**793-4579**	
Ground (100x)	**793-580**	**793-5580**	**793-4580**	
R (100x)	**793-581**	**793-5581**	**793-4581**	
S (100x)	**793-582**	**793-5582**	**793-4582**	
T (100x)	**793-583**	**793-5583**	**793-4583**	
+/- (50x)	**793-552**	**793-5552**	**793-4552**	
a, b, c, e, u, v, w, x, y, z (10x)	**793-543**	**793-5543**	**793-4543**	
R, S, T, U, V, W, X, Y, Z, Mp (10x)	**793-544**	**793-5544**	**793-4544**	**793-3544**
A, B, P, N, PE, PEN, L1, L2, L3, Ground (10x)	**793-545**	**793-5545**	**793-4545**	**793-3545**
U, V, W, N, PE, U, V, W, N, PE (10x)	**793-474**	**793-5474**	**793-4474**	
L1, L2, L3, N, PE, L1, L2, L3, N, PE (10x)	**793-472**	**793-5472**	**793-4472**	
U1, V1, W1, U1, V1, W1, U1, V1, W1,... (10x)	**793-487**	**793-5487**	**793-4487**	
U2, V2, W2, U2, V2, W2, U2, V2, W2,... (10x)	**793-494**	**793-5494**	**793-4494**	
U3, V3, W3, U3, V3, W3, U3, V3, W3,... (10x)	**793-495**	**793-5495**	**793-4495**	
U4, V4, W4, U4, V4, W4, U4, V4, W4,... (10x)	**793-496**	**793-5496**	**793-4496**	
U5, V5, W5, U5, V5, W5, U5, V5, W5,... (10x)	**793-497**	**793-5497**	**793-4497**	
U6, V6, W6, ..., U6, V6, W6,... to U9, V9, W9, ..., U9, V9, W9, (2 each)	**793-498**	**793-5498**	**793-4498**	
R1, S1, T1, U1, V1, W1, X1, Y1, Z1,SL (10x)	**793-546**	**793-5546**	**793-4546**	
R2, S2, T2, U2, V2, W2, X2, Y2, Z2,SL (10x)	**793-547**	**793-5547**	**793-4547**	
R3, S3, T3, U3, V3, W3, X3, Y3, Z3,SL (10x)	**793-548**	**793-5548**	**793-4548**	
R4, S4, T4, ..., Y4, Z4, SL and R5, S5, T5, ..., Y5, Z5, SL (5 each)	**793-549**	**793-5549**	**793-4549**	
R6, S6, T6, ..., Y6, Z6, SL to R10, S10, T10, ..., Y10, Z10, SL (2 each)	**793-550**	**793-5550**	**793-4550**	
"decade" marking with red printing,				
2 strips, with same numbers				
10, 20 ... 50 (20 each)	**793-553**	**793-5553**	**793-4553**	
60, 70 ... 100 (20 each)	**793-554**	**793-5554**	**793-4554**	
110, 120 ... 150 (20 each)	**793-555**	**793-5555**	**793-4555**	
160, 170 ... 200 (20 each)	**793-556**	**793-5556**	**793-4556**	
1 strip, each with same numbers				
210, 220 ... 300 (10 each)	**793-557**	**793-5557**	**793-4557**	
310, 320 ... 400 (10 each)	**793-558**	**793-5558**	**793-4558**	
410, 420 ... 500 (10 each)	**793-559**	**793-5559**	**793-4559**	
510, 520 ... 600 (10 each)	**793-560**	**793-5560**	**793-4560**	
610, 620 ... 700 (10 each)	**793-561**	**793-5561**	**793-4561**	
710, 720 ... 800 (10 each)	**793-562**	**793-5562**	**793-4562**	
810, 820 ... 900 (10 each)	**793-563**	**793-5563**	**793-4563**	
910, 920 ... 1000 (10 each)	**793-564**	**793-5564**	**793-4564**	

WAGO WMB Multi Marking System
for Terminal Block Width 3.5 mm, 4 … 4.2 mm, 5 mm and Higher

	vertical marking **same letters/symbols each strip** **10 strips with 10 markers per card** **for terminal widths 5 … 17.5 mm and** **5 … 5.2 mm and 4 … 4.2 mm and 3.5 mm**



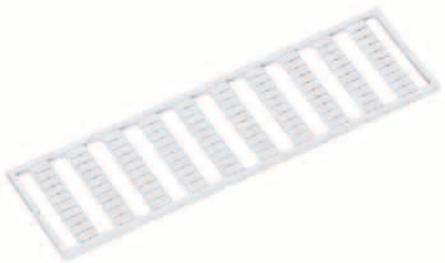


❶ For continuous marking of 270, 280, 780, 869, 870 and 880 Series terminal blocks
Individual marking of 281 … 285, 781 … 785, 2002, 2003, 2022, 2004, 2006, 2010 and 2016 Series terminal blocks
❷ For continuous marking of 270, 280, 780, 869, 870, 880, 2002, 2003 and 2022 Series terminal blocks
Individual marking of terminal blocks larger than 5 / 5.2 mm
❸ For continuous marking of 279 and 2001 Series terminal blocks
❹ For continuous marking of 2000 and 2020 Series terminal blocks

Marking	Marker Width 5 mm ❶	Marker Width 5 … 5.2 mm ❷	Marker Width 4 … 4.2 mm ❸	Marker Width 3.5 mm ❹
L1 (100x)	**793-674**	**793-5674**	**793-4674**	upon request
L2 (100x)	**793-675**	**793-5675**	**793-4675**	
L3 (100x)	**793-676**	**793-5676**	**793-4676**	
N (100x)	**793-677**	**793-5677**	**793-4677**	
PE (100x)	**793-678**	**793-5678**	**793-4678**	
PEN (100x)	**793-679**	**793-5679**	**793-4679**	
Erde (100x)	**793-580**	**793-5680**	**793-4680**	
R (100x)	**793-681**	**793-5681**	**793-4681**	
S (100x)	**793-682**	**793-5682**	**793-4682**	
T (100x)	**793-683**	**793-5683**	**793-4683**	
+/- (50x)	**793-652**	**793-5652**	**793-4652**	
a, b, c, e, u, v, w, x, y, z (10x)	**793-643**	**793-5643**	**793-4643**	
R, S, T, U, V, W, X, Y, Z, Mp (10x)	**793-644**	**793-5644**	**793-4644**	
A, B, P, N, PE, PEN, L1, L2, L3, Ground (10x)	**793-645**	**793-5645**	**793-4645**	
U, V, W, N, PE, U, V, W, N, PE (10x)	**794-674**	**794-5674**	**794-4674**	
L1, L2, L3, N, PE, L1, L2, L3, N, PE (10x)	**794-672**	**794-5672**	**794-4672**	
U1, V1, W1, U1, V1, W1, U1, V1, W1,... (10x)	**793-687**	**793-5687**	**793-4687**	
U2, V2, W2, U2, V2, W2, U2, V2, W2,... (10x)	**793-694**	**793-5694**	**793-4694**	
U3, V3, W3, U3, V3, W3, U3, V3, W3,... (10x)	**793-695**	**793-5695**	**793-4695**	
U4, V4, W4, U4, V4, W4, U4, V4, W4,... (10x)	**793-696**	**793-5696**	**793-4696**	
U5, V5, W5, U5, V5, W5, U5, V5, W5,... (10x)	**793-697**	**793-5697**	**793-4697**	
U6, V6, W6, ..., U6, V6, W6,... to U9, V9, W9, ..., U9, V9, W9, (2 each)	**793-698**	**793-5698**	**793-4698**	
R1, S1, T1, U1, V1, W1, X1, Y1, Z1,SL (10x)	**793-646**	**793-5646**	**793-4646**	
R2, S2, T2, U2, V2, W2, X2, Y2, Z2,SL (10x)	**793-647**	**793-5647**	**793-4647**	
R3, S3, T3, U3, V3, W3, X3, Y3, Z3,SL (10x)	**793-648**	**793-5648**	**793-4648**	
R4, S4, T4, ..., Y4, Z4, SL and R5, S5, T5, ..., Y5, Z5, SL (5 each)	**793-649**	**793-5649**	**793-4649**	
R6, S6, T6, ..., Y6, Z6, SL to R10, S10, T10, ..., Y10, Z10, SL (2 each)	**793-650**	**793-5650**	**793-4650**	
"decade" marking with red printing,				
2 strips, with same numbers				
10, 20 ... 50 (20 each)	**793-653**	**793-5653**	**793-4653**	
60, 70 ... 100 (20 each)	**793-654**	**793-5654**	**793-4654**	
110, 120 ... 150 (20 each)	**793-655**	**793-5655**	**793-4655**	
160, 170 ... 200 (20 each)	**793-656**	**793-5656**	**793-4656**	
1 strip, each with same numbers				
210, 220 ... 300 (10 each)	**793-657**	**793-5657**	**793-4657**	
310, 320 ... 400 (10 each)	**793-658**	**793-5658**	**793-4658**	
410, 420 ... 500 (10 each)	**793-659**	**793-5659**	**793-4659**	
510, 520 ... 600 (10 each)	**793-660**	**793-5660**	**793-4660**	
610, 620 ... 700 (10 each)	**793-661**	**793-5661**	**793-4661**	
710, 720 ... 800 (10 each)	**793-662**	**793-5662**	**793-4662**	
810, 820 ... 900 (10 each)	**793-663**	**793-5663**	**793-4663**	
910, 920 ... 1000 (10 each)	**793-664**	**793-5664**	**793-4664**	

WAGO WMB Multi Marking System for Terminal Block Width 3.5 mm, 4 … 4.2 mm, 5 mm and Higher

	horizontal marking 10 strips with 10 markers per card for terminal widths 5 … 17.5 mm and 5 … 5.2 mm and 4 … 4.2 mm and 3.5 mm



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Individual marking of 281 … 285, 781 … 785, 2002, 2003, 2022, 2004, 2006, 2010 and 2016 Series terminal blocks
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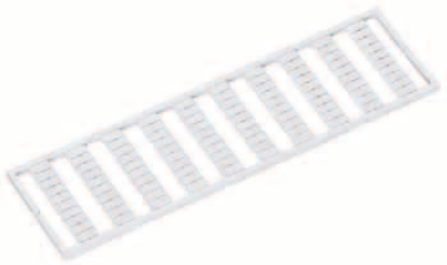
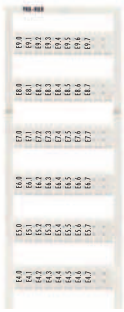
Marking	Marker Width 5 mm ❶	Marker Width 5 … 5.2 mm ❷	Marker Width 4 … 4.2 mm ❸	Marker Width 3.5 mm ❹
for subdistribution boxes (power stations),				
horizontal marking				
1A, 1B, ..., 1G, 1H, ... to 10A, 10B, ..., 10G, 10H, , ; (1				
each)	**793-458**	**793-5458**	**793-4458**	upon request
0, 2, 4, 6, , , 0, 2, 4, 6; (5x)/1, 3, 5, 7, , ,1, 3, 5, 7; (5x)				
vertical marking	**793-500/793-134**			
1A, 1B, ..., 1G, 1H, ... to 10A, 10B, ..., 10G, 10H, , ; (1				
each)				
0, 2, 4, 6, , , 0, 2, 4, 6; (5x)/1, 3, 5, 7, , ,1, 3, 5, 7; (5x)	**793-958**	**793-5958**	**793-4958**	
Symbol for shield terminal blocks per DIN 40771 (10x)	**793-600/793-073**			
for relay	**793-993**	**793-5993**	**793-5993**	
A1, A2, A2, 11, 12, 14, A1, A2, A2,; (5x)				
12, A1, A2, 24, 11, 14, 21, 22, , ;(10x)				
A1, A1, A2, A2, 12, 11, 11, 14, ; (10x)	**793-994**	**793-5994**	**793-5994**	
lin, lin, , Iout, Iout, 24V, 11, 12, 14, 0V; (10x)	**793-995**	**793-5995**	**793-5995**	
A1, A2, A1, A2, RL, - , RL, -, , ; (10x)	**793-996**	**793-5996**	**793-5996**	
	793-997	**793-5997**	**793-5997**	
for fuse terminal blocks 281-6..,	**793-998**	**793-5998**	**793-5998**	
vertical marking				
F1, ..., F10 (10x)				
F11, ..., F20 (10x)				
F21, ..., F30 (10x)				
F31, ..., F40 (10x)	**794-615**	**794-5615**	**794-4615**	
F41, ..., F50 (10x)	**794-616**	**794-5616**	**794-4616**	
	794-617	**794-5617**	**794-4617**	
	794-618	**794-5618**	**794-4618**	
	794-619	**794-5619**	**794-4619**	

WAGO WMB Multi Marking System
for Terminal Block Width 3.5 mm, 4 … 4.2 mm, 5 mm and Higher

	vertical marking **for PLC input and output marking** **10 strips with 10 markers per card** **for terminal widths 5 … 17.5 mm and** **5 … 5.2 mm and 4 … 4.2 mm and 3.5 mm**





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Individual marking of 281 … 285, 781 … 785, 2002, 2003, 2022, 2004, 2006, 2010 and 2016 Series terminal blocks
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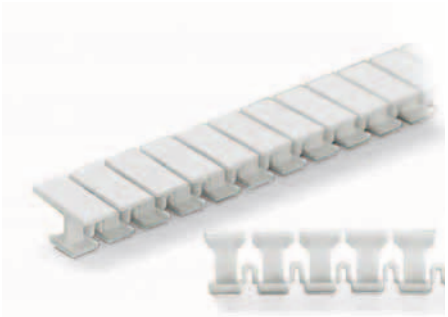
Individual marking of terminal blocks larger than 5 / 5.2 mm
❸ For continuous marking of 279 and 2001 Series terminal blocks
❹ For continuous marking of 2000 and 2020 Series terminal blocks

Marking	Marker Width 5 mm ❶	Marker Width 5 … 5.2 mm ❷	Marker Width 4 … 4.2 mm ❸	Marker Width 3.5 mm ❹
for PLC input marking				
E0.0, E0.1, …, E9.6, E9.7 (1 each)	**793-933**	**793-5933**	**793-4933**	upon request
E10.0, E10.1, …, E19.6, E19.7 (1 each)	**793-934**	**793-5934**	**793-4934**	
E20.0, E20.1, …, E29.6, E29.7 (1 each)	**793-935**	**793-5935**	**793-4935**	
E30.0, E30.1, …, E39.6, E39.7 (1 each)	**793-936**	**793-5936**	**793-4936**	
E40.0, E40.1, …, E49.6, E49.7 (1 each)	**793-937**	**793-5937**	**793-4937**	
E50.0, E50.1, …, E59.6, E59.7 (1 each)	**793-938**	**793-5938**	**793-4938**	
E60.0, E60.1, …, E69.6, E69.7 (1 each)	**793-939**	**793-5939**	**793-4939**	
E70.0, E70.1, …, E79.6, E79.7 (1 each)	**793-940**	**793-5940**	**793-4940**	
E80.0, E80.1, …, E89.6, E89.7 (1 each)	**793-941**	**793-5941**	**793-4941**	
E90.0, E90.1, …, E99.6, E99.7 (1 each)	**793-942**	**793-5942**	**793-4942**	
E100.0, E100.1, …, E109.6, E109.7 (1 each)	**793-943**	**793-5943**		
E110.0, E110.1, …, E119.6, E119.7 (1 each)	**793-944**	**793-5944**	**793-4944**	
E120.0, E120.1, …, E129.6, E129.7 (1 each)	**793-945**	**793-5945**	**793-4945**	
E130.0, E130.1, …, E139.6, E139.7 (1 each)	**793-946**	**793-5946**	**793-4946**	
E140.0, E140.1, …, E149.6, E149.7 (1 each)	**793-947**	**793-5947**	**793-4947**	
E150.0, E150.1, …, E159.6, E159.7 (1 each)	**793-948**	**793-5948**	**793-4948**	
E160.0, E160.1, …, E169.6, E169.7 (1 each)	**793-949**	**793-5949**	**793-4949**	
E170.0, E170.1, …, E179.6, E179.7 (1 each)	**793-950**	**793-5950**	**793-4950**	
E180.0, E180.1, …, E189.6, E189.7 (1 each)	**793-959**	**793-5959**	**793-4959**	
E190.0, E190.1, …, E199.6, E199.7 (1 each)	**793-960**	**793-5960**	**793-4960**	
E200.0, E200.1, …, E209.6, E209.7 (1 each)	**793-961**	**793-5961**	**793-4961**	
for PLC output marking				
A0.0, A0.1, …, A9.6, A9.7 (1 each)	**793-967**	**793-5967**	**793-4967**	
A10.0, A10.1, …, A19.6, A19.7 (1 each)	**793-968**	**793-5968**	**793-4968**	
A20.0, A20.1, …, A29.6, A29.7 (1 each)	**793-969**	**793-5969**	**793-4969**	
A30.0, A30.1, …, A39.6, A39.7 (1 each)	**793-970**	**793-5970**	**793-4970**	
A40.0, A40.1, …, A49.6, A49.7 (1 each)	**793-971**	**793-5971**	**793-4971**	
A50.0, A50.1, …, A59.6, A59.7 (1 each)	**793-972**	**793-5972**	**793-4972**	
A60.0, A60.1, …, A69.6, A69.7 (1 each)	**793-973**	**793-5973**	**793-4973**	
A60.0, A60.1, …, A69.6, A69.7 (1 each)	**793-974**	**793-5974**	**793-4974**	
A80.0, A80.1, …, A89.6, A89.7 (1 each)	**793-975**	**793-5975**	**793-4975**	
A90.0, A90.1, …, A99.6, A99.7 (1 each)	**793-976**	**793-5976**	**793-4976**	
A100.0, A100.1, …, A109.6, A109.7 (1 each)	**793-977**	**793-5977**	**793-4977**	
A110.0, A110.1, …, A119.6, A119.7 (1 each)	**793-978**	**793-5978**	**793-4978**	
A120.0, A120.1, …, A129.6, A129.7 (1 each)	**793-979**	**793-5979**	**793-4979**	
A130.0, A130.1, …, A139.6, A139.7 (1 each)	**793-980**	**793-5980**	**793-4980**	
A140.0, A140.1, …, A149.6, A149.7 (1 each)	**793-981**	**793-5981**	**793-4981**	
A150.0, A150.1, …, A159.6, A159.7 (1 each)	**793-982**	**793-5982**	**793-4982**	
A160.0, A160.1, …, A169.6, A169.7 (1 each)	**793-983**	**793-5983**	**793-4983**	
A170.0, A170.1, …, A179.6, A179.7 (1 each)	**793-984**	**793-5984**	**793-4984**	
A180.0, A180.1, …, A189.6, A189.7 (1 each)	**793-985**	-	**793-4985**	
A190.0, A190.1, …, A199.6, A199.7 (1 each)	**793-986**	**793-5986**	**793-4986**	
A200.0, A200.1, …, A209.6, A209.7 (1 each)	**793-987**	**793-5987**	**793-4987**	
A210.0, A210.1, …, A219.6, A219.7 (1 each)	**793-988**	**793-5988**	**793-4988**	
A220.0, A220.1, …, A229.6, A229.7 (1 each)	**793-989**	**793-5989**	**793-4989**	
A230.0, A230.1, …, A239.6, A239.7 (1each)	**793-990**	**793-5990**	**793-4990**	
A240.0, A240.1, …, A249.6, A249.7 (1 each)	**793-991**	**793-5991**	**793-4991**	
A250.0, A250.1, …, A259.6, A259.7 (1 each)	**793-992**	**793-5992**	**793-4992**	

WAGO Miniature WSB Quick Marking System and T Marker Tag for Terminal Blocks with Miniature WSB Marker Slots

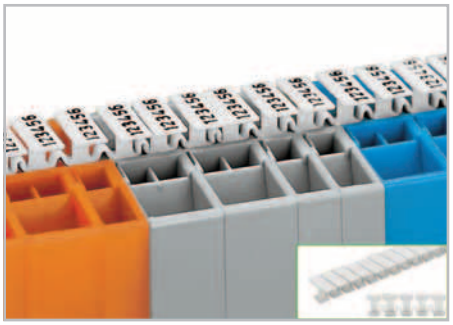
Miniature WSB Quick marking system horizontal marking 10 strips with 10 markers per card		T marker tag plain



	Item No.	Pack. Unit
Miniature WSB Quick marking system		
◯ 1 ... 10 (10x)	**248-502**	5
◯ 11 ... 20 (10x)	**248-503**	5
◯ 21 ... 30 (10x)	**248-504**	5
◯ 31 ... 40 (10x)	**248-505**	5
◯ 41 ... 50 (10x)	**248-506**	5
◯ 51 ... 60 (10x)	**248-569**	5
◯ 61 ... 70 (10x)	**248-570**	5
◯ 71 ... 80 (10x)	**248-571**	5
◯ 81 ... 90 (10x)	**248-572**	5
◯ 91 ... 100 (10x)	**248-573**	5
Miniature WSB Quick marking system		
◯ 1 ... 50 (2x)	**248-566**	5
Miniature WSB Quick marking system		
◯ U, V, W, N, PE, U, V, W, N, PE (10x)	**248-474**	5
Miniature WSB Quick marking system		
◯ L1, L2, L3, N, PE, L1, L2, L3, N, PE (10x)	**248-472**	5
Miniature WSB Quick marking system		
◯ 1, , 2, , 3, , 4, , 5, ; to 46, , 47, , 48, , 49, , 50, ; (1 each)	**264-900**	5
◯ U, , V, , W, , N, , PE, ; (10x)	**264-901**	5
◯ L1, , L2, , L3, , N, , PE, ; (10x)	**264-902**	5
◯ 1, , 1, , 1, , 1, , 1, ; (10x)	**264-903**	5
◯ 2, , 2, , 2, , 2, , 2, ; (10x)	**264-904**	5
◯ 3, , 3, , 3, , 3, , 3, ; (10x)	**264-905**	5

	Item No.	Pack. Unit
Mini-WSB Inline, plain, stretchable 5 ... 5.2 mm, 1,700 WMB markers, 5 mm, on roll		
◯ white	**2009-145**	1

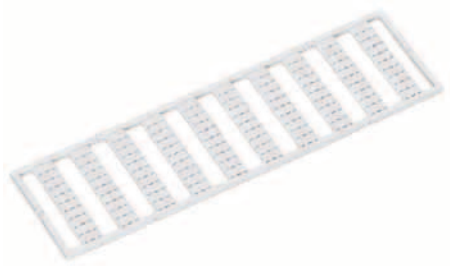
	Item No.	Pack. Unit
T marker tag, 30 markers each tag, up to 6 characters per marker , stretchable from 5 mm ... 6 mm, factory inkjet marking upon request		
◯ plain	**209-290**	50

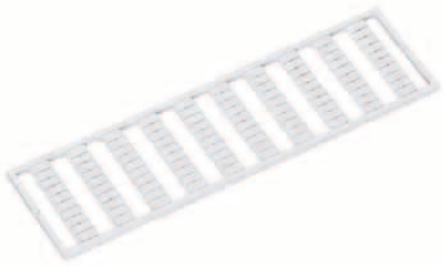


6 characters per marker
The T marker tag fulfills customer requests for larger marking areas for 264 Series terminal strips.
The T marker can be marked with up to 6 characters per marker and is snapped into the miniature WSB marker slot.
Terminal strips in any combination of 2- and 4-conductor terminal blocks can be marked easily by stretching the tag.

Marker Cards, Plain
Marking Strips

WMB Multi marking system	WMB Multi marking system	WMB Inline and marking strips

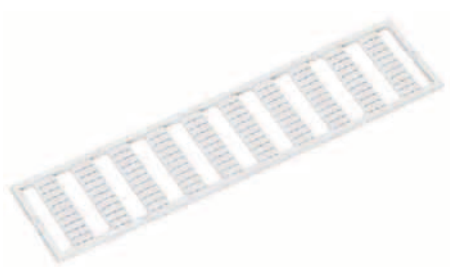


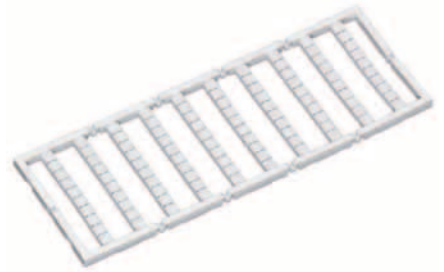


	Item No.	Pack. Unit
WMB Multi marking system,		
for terminal widths 5 ... 17.5 mm, 10 strips with		
10 markers per card		
◯ plain	**793-501**	5
Marker cards in different colors:		
yellow	**793-501/000-002**	5
red	**793-501/000-005**	5
blue	**793-501/000-006**	5
gray	**793-501/000-007**	5
orange	**793-501/000-012**	5
light green	**793-501/000-017**	5
green	**793-501/000-023**	5
violet	**793-501/000-024**	5

	Item No.	Pack. Unit
WMB Multi marking system,		
stretchable 5 ... 5.2 mm, 10 strips with		
10 markers per card		
◯ plain	**793-5501**	5
Marker cards in different colors:		
yellow	**793-5501/000-002**	5
red	**793-5501/000-005**	5
blue	**793-5501/000-006**	5
gray	**793-5501/000-007**	5
orange	**793-5501/000-012**	5
light green	**793-5501/000-017**	5
green	**793-5501/000-023**	5
violet	**793-5501/000-024**	5

	Item No.	Pack. Unit
WMB Inline, plain,		
stretchable 5 ... 5.2 mm,		
1,500 WMB markers, 5 mm, on roll		
◯ white	**2009-115**	1
WMB Inline, plain,		
stretchable 5 ... 5.2 mm,		
8,000 WMB markers, 5 mm, on roll		
◯ white	**2009-135**	1
WMB Inline, plain,		
stretchable 4 ... 4.2 mm,		
2,000 WMB markers, 4 mm, on roll		
◯ white	**2009-114**	1





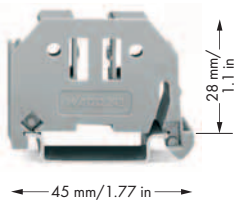
	Item No.	Pack. Unit
WMB Multi marking system,		
stretchable 4 ... 4.2 mm, 10 strips with		
10 markers per card		
◯ plain	**793-4501**	5
Marker cards in different colors:		
yellow	**793-4501/000-002**	5
red	**793-4501/000-005**	5
blue	**793-4501/000-006**	5
gray	**793-4501/000-007**	5
orange	**793-4501/000-012**	5
light green	**793-4501/000-017**	5
green	**793-4501/000-023**	5
violet	**793-4501/000-024**	5

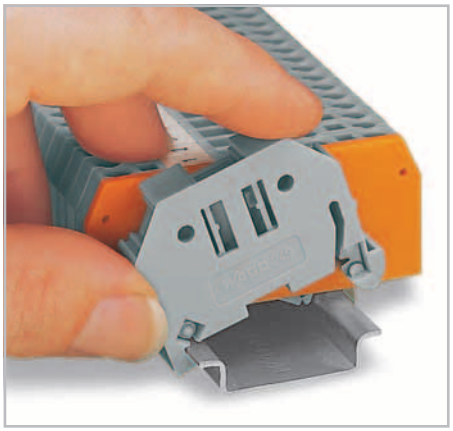
	Item No.	Pack. Unit
Miniature WSB Quick marking system,		
5 mm wide markers, 10 strips with		
10 markers per card		
◯ plain	**248-501**	5
Marker cards in different colors:		
yellow	**248-501/000-002**	5
red	**248-501/000-005**	5
blue	**248-501/000-006**	5
gray	**248-501/000-007**	5
orange	**248-501/000-012**	5
light green	**248-501/000-017**	5
green	**248-501/000-023**	5
violet	**248-501/000-024**	5

	Item No.	Pack. Unit
Marking strip, plain,		
11 mm wide,		
white		
◯ 50 m roll	**2009-110**	1

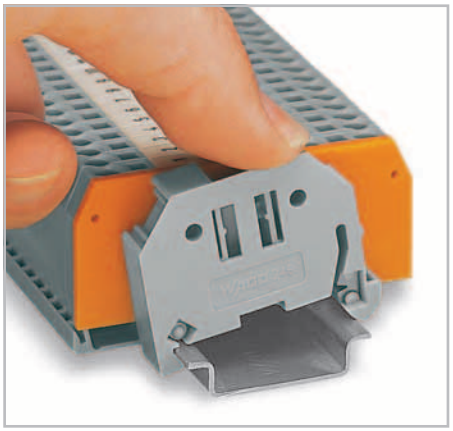
End Stops for DIN 35 Rail

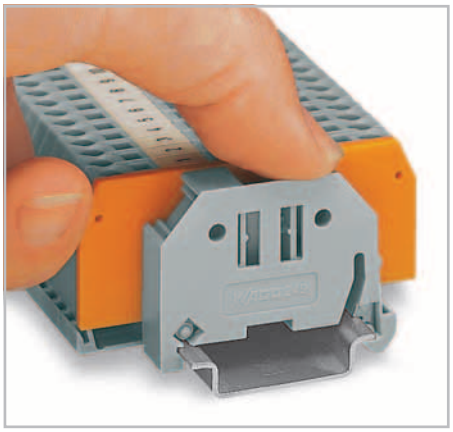
Screwless end stop



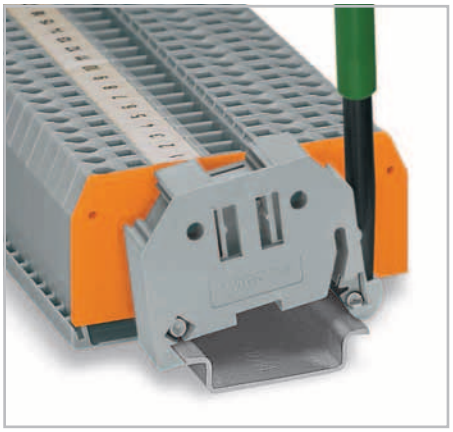


Snap on



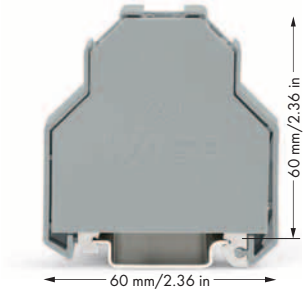


That's it!



Remove a end stop from the rail.

	Item No.	Pack. Unit
Screwless end stop, for DIN 35 rail, 6 mm wide		
gray	**249-116**	100 (4x25)
Screwless end stop, for DIN 35 rail, 10 mm wide		
gray	**249-117**	50 (2x25)



	Item No.	Pack. Unit
Screwless end stop, for DIN 35 rail, 14 mm wide		
gray	**249-197**	10

Fit – and forget! Assembling the new WAGO screwless end stop is as simple and quick as snapping a WAGO rail-mount terminal block onto the rail.

Without any tools!

This allows rail-mount terminal blocks to be safely secured, at low cost, against any movement on all DIN 35 carrier rails acc. to DIN EN 50022 (35 x 7.5 mm; 35 x 15 mm).

Entirely without screws!

The "secret" of the excellent tight fit lies in the two small clamping plates which keep the end stop in position, even if the rails are mounted vertically.

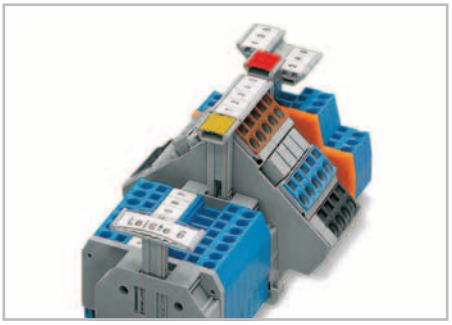
Simply snap on and forget!

In addition, costs are significantly reduced when using large numbers of end stops.

Additional benefit: Three marker slots for all WAGO rail-mount terminal block markers and one snap-in hole for WAGO adjustable height group marker carriers offer individual marking options.

Group Marker Carriers (Height-Adjustable) and Movable Marking System

Height-adjustable group marker carrier	Carrier-through element



Receptacles for:
1 x marker
2 x WMB (Multi marking) or
3 x WCB (Combi marking) or
1 x WFB (Continuous marking strips)

	Item No.	Pack. Unit
Height-adjustable group marker carrier,		
snap-on type and height-adjustable from 43.5 mm ...		
59.5 mm in 249-116 and 249-117 end stops,		
for 1 marker or self-adhesive label and transparent protection covers,		
10 mm wide		
gray	**249-119**	50 (2x25)
snap-on type and height-adjustable from 43.5 mm ...		
59.5 mm in 249-116 and 249-117 end stops,		
for 2 WMB markers or 1 x continuous strip,		
10 mm wide		
gray	**249-118**	100 (4x25)
snap-on type and height-adjustable from 42.2 mm ...		
58.2 mm in 249-116 and 249-117 end stops,		
with marker surface,		
6 mm wide		
white	**249-120**	50 (2x25)
snap-on type and height-adjustable from 45 mm ... 61 mm		
in 249-116 and 249-117 end stops,		
for 2 WMB markers or 1 x TOPJOB®S marking strips,		
12.2 mm wide		
gray	**2009-163**	50 (2x25)

	Item No.	Pack. Unit
Carrier-through element,		
height-adjustable		
gray	**709-118**	50 (2x25)
Carrier-end element,		
height-adjustable		
gray	**709-119**	50 (2x25)

Item-Specific Accessories

Marking strip carrier,

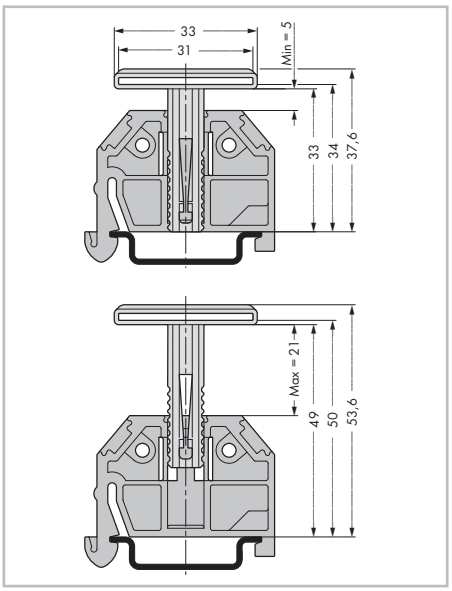
folded, 1 m long, 16 mm wide, 1.7 mm thick, transparent — **709-120** — 1

Marking card,

with 14 marking strips, DIN A4, plain — **709-193** — 1

This system can be used as an additional group marker carrier or continuous marking strip carrier for terminal strips or single-deck rail-mount terminal blocks, for example:

- 264 Series terminal strips for DIN 35 rails
- 279 ... 284 Series single-deck rail-mount terminal blocks, with a maximum height of 49 mm from the upper edge of the carrier rail (please observe conductor radius).



Dimensions in mm

Height-adjustable group marker carrier for TOPJOB®S marking strips

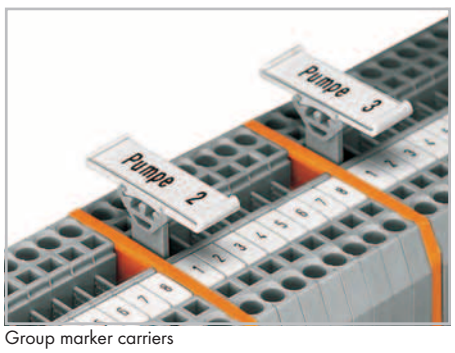
Group Marker Carriers

Group marker carrier	Group marker carrier	Group marker carrier

	Item No.	Pack. Unit
Group marker carrier,		
to insert into jumper slots of terminal blocks, for terminal block width of 4 ... 6 mm, for up to 3 WMB markers or 8 marker tags, 15 mm wide		
◯ gray	**209-140**	50 (2x25)
for up to 2 WMB markers or 5 marker tags, 10 mm wide		
◯ gray	**209-141**	50 (2x25)
for up to 1 WMB marker or 2 marker tags, 5 mm wide		
◯ gray	**209-142**	50 (2x25)

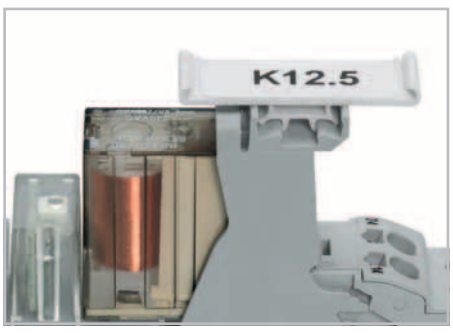
	Item No.	Pack. Unit
Group marker carrier,		
for snapping into screwless end stops; for center or side mounting, 10 mm wide		
◯ white	**209-112**	100 (2x50)
Marker,		
from white cardboard, for self-marking, 100 markers per sheet		
◯ white	**209-113**	1
Self-adhesive label,		
for self-marking, 7 x 25 labels per sheet		
◯ white	**210-345**	1
Protection cover		
transparent	**209-114**	50

	Item No.	Pack. Unit
Group marker carrier,		
for WMB and miniature WSB marker receptacles, 10 mm wide		
◯ white	**209-145**	100 (2x50)



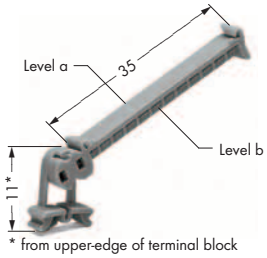
Group marker carriers

Group marker carrier with marker and protection cover



Group Marker Carrier (Pivoting)
WFB Continuous Marking Strip
Mounting Carrier

Pivoting group marker carrier	WFB continuous marking strip	Mounting carrier



	Item No.	Pack. Unit
Pivoting group marker carrier		
gray	**249-105**	50 (2x25)
Marker card, 4 x 30 markers per sheet		
white	**209-183**	1
Protection cover		
transparent	**209-184**	50

	Item No.	Pack. Unit
WFB continuous marking strip,		
for self-marking, e.g., with felt-tip pen,		
1000 mm long		
transparent	**210-612**	10
Carrier for WFB continuous marking strip,		
to be snapped into the marker slot		
gray	**209-185**	200 (8x25)

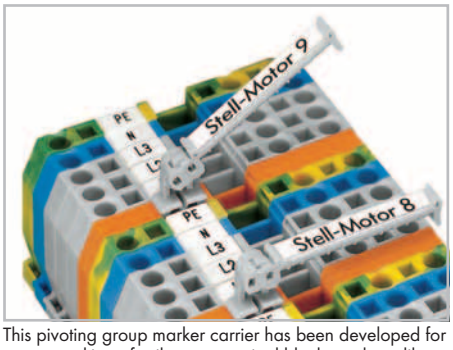
Item-Specific Accessories

Felt-tip pen,

for permanent marking

210-110 1

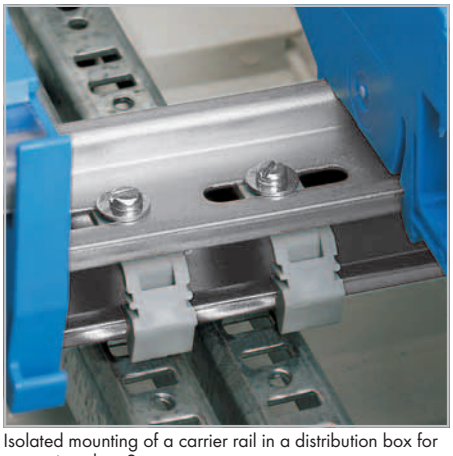
	Item No.	Pack. Unit
Mounting carrier,		
for isolated mounting on DIN 35 rails		
gray	**209-106**	25



This pivoting group marker carrier has been developed for group marking of rail-mount terminal blocks and readily satisfies several customer requirements.

- Can be used in all multiprofile marker slots for rail-mount terminal bocks from 5 mm/0.197 in. on or in spacer housings as shown in the picture
- Can be pivoted in 7 different stable positions, providing the best visual angle in case of difficult mounting conditions
- Two levels for different marking systems
  Level a: for marker (4 x 34) mm (see picture)
  Level b: for 12 WCB-Combi markers
  (see www.wagocatalog.com)

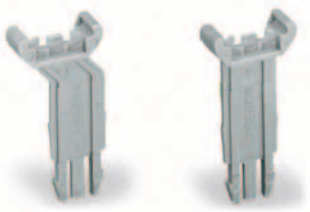
Carrier for WFB Continuous marking strip; to be secures every 10th terminal block.



Isolated mounting of a carrier rail in a distribution box for protection class 2.

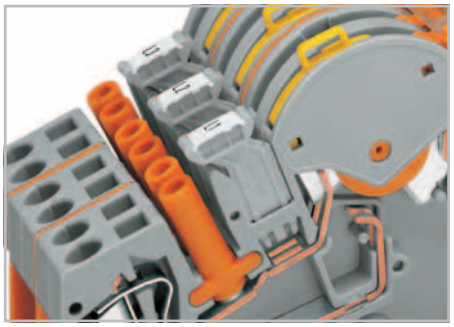
Marker Branches and Double Marker Carrier

Group marker carrier	Double marker carrier

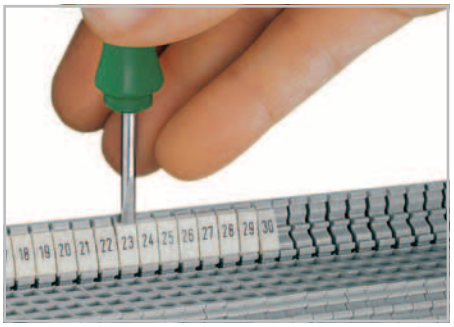


	Item No.	Pack. Unit
Group marker carrier,		
angled, e.g., for 282 Series transformer terminal blocks		
◯ gray	**209-144**	50 (2x25)
Group marker carrier,		
straight, e.g., for 282 Series 2- and 3-conductor terminal blocks		
◯ gray	**209-143**	50 (2x25)

	Item No.	Pack. Unit
Double marker carrier,		
suitable for WSB and WMB markers, for I/O markings in the terminal block center,		
4 mm wide		
◯ gray	**209-128**	200 (2x100)



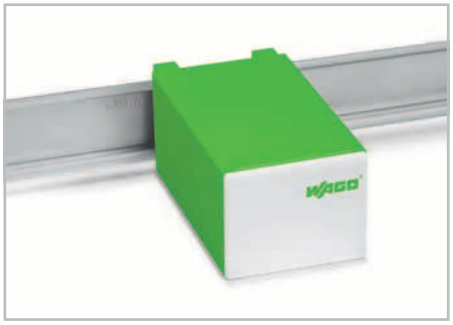
Group marker carriers make it possible to mark subgroups in confined spaces.
They can be snapped into the jumper slots of the terminal blocks.
Marking system: WMB markers



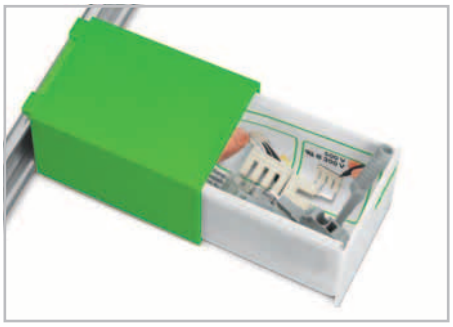
Snapping a strip into the marker slot of the double marker carrier.

Switchgear Cabinet Drawer

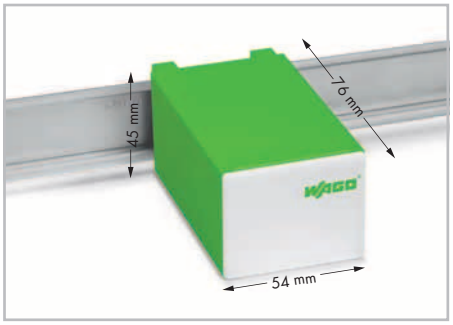
Switchgear cabinet drawer	



Item No.	Pack. Unit	
Switchgear cabinet drawer,		
DIN 35-rail mount drawer		
709-591	1	



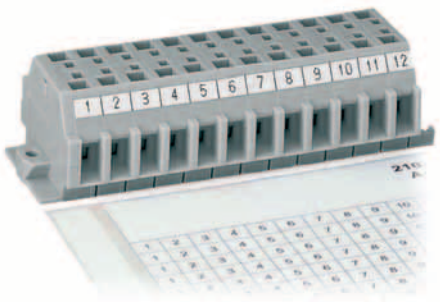
The switchgear cabinet drawer is the ideal place to store small parts that are not constantly used (e.g., instructions, test plug adapters, jumpers, spare fuses).

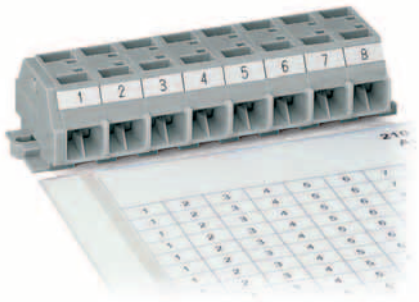


Dimensions in mm
Height from upper-edge of DIN 35 rail

Marker Cards – Self-Adhesive Marking Strips

Self-adhesive marker strips computer-marked 40 self-adhesive strips per card Height of marking strip: 6 mm	Self-adhesive marker strips computer-marked 40 self-adhesive strips per card Height of marking strip: 6 mm	Self-adhesive marker strips computer-marked 40 self-adhesive strips per card Height of marking strip: 6 mm





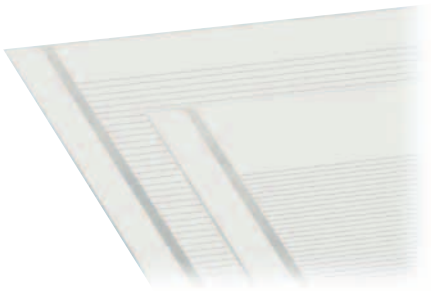
Marking	Item No.	Pack. Unit
for 260 Series 2-conductor terminal strips		
1 ... 10 (120x)	**210-333/500-002**	1
11 ... 20 (120x)	**210-333/500-003**	1
21 ... 30 (120x)	**210-333/500-004**	1
31 ... 40 (120x)	**210-333/500-005**	1
41 ... 50 (120x)	**210-333/500-006**	1
51 ... 60 (120x)	**210-333/500-007**	1
61 ... 70 (120x)	**210-333/500-008**	1
71 ... 80 (120x)	**210-333/500-009**	1
81 ... 90 (120x)	**210-333/500-010**	1
91 ... 100 (120x)	**210-333/500-011**	1
1 ... 50 (20x)	**210-333/500-021**	1
L1 (1440x)	**210-333/500-074**	1
L2 (1440x)	**210-333/500-075**	1
L3 (1440x)	**210-333/500-076**	1
N (1440x)	**210-333/500-077**	1
PE (1440x)	**210-333/500-078**	1
PEN (1440x)	**210-333/500-079**	1
only with grid spacing	**210-333/500-001**	1
for 260 Series 4-conductor terminal strips		
1 ... 10 (80x)	**210-333/800-002**	1
11 ... 20 (80x)	**210-333/800-003**	1
21 ... 30 (80x)	**210-333/800-004**	1
31 ... 40 (80x)	**210-333/800-005**	1
41 ... 50 (80x)	**210-333/800-006**	1
51 ... 60 (80x)	**210-333/800-007**	1
61 ... 70 (80x)	**210-333/800-008**	1
71 ... 80 (80x)	**210-333/800-009**	1
81 ... 90 (80x)	**210-333/800-010**	1
91 ... 100 (80x)	**210-333/800-011**	1
1 ... 40 (20x)	**210-333/800-209**	1
L1 (880x)	**210-333/800-074**	1
L2 (880x)	**210-333/800-075**	1
L3 (880x)	**210-333/800-076**	1
N (880x)	**210-333/800-077**	1
PE (880x)	**210-333/800-078**	1
PEN (880x)	**210-333/800-079**	1
only with grid spacing	**210-333/800-001**	1

Marking	Item No.	Pack. Unit
for 261 Series 2-conductor terminal strips		
1 ... 12 (80x)	**210-333/600-103**	1
13 ... 24 (80x)	**210-333/600-104**	1
25 ... 36 (80x)	**210-333/600-105**	1
37 ... 48 (80x)	**210-333/600-106**	1
41 ... 50 (80x)	**210-333/600-006**	1
51 ... 60 (80x)	**210-333/600-007**	1
61 ... 70 (80x)	**210-333/600-008**	1
71 ... 80 (80x)	**210-333/600-009**	1
81 ... 90 (80x)	**210-333/600-010**	1
91 ... 100 (80x)	**210-333/600-011**	1
1 ... 50 (20x)	**210-333/600-021**	1
L1 (1200x)	**210-333/600-074**	1
L2 (1200x)	**210-333/600-075**	1
L3 (1200x)	**210-333/600-076**	1
N (1200x)	**210-333/600-077**	1
PE (1200x)	**210-333/600-078**	1
PEN (1200x)	**210-333/600-079**	1
only with grid spacing	**210-333/600-001**	1
for 261 Series 4-conductor terminal strips		
1 ... 16 (40x)	**210-333/1000-202**	1
17 ... 32 (40x)	**210-333/1000-204**	1
33 ... 48 (40x)	**210-333/1000-206**	1
49 ... 64 (40x)	**210-333/1000-110**	1
65 ... 80 (40x)	**210-333/1000-111**	1
81 ... 96 (40x)	**210-333/1000-112**	1
97 ... 112 (40x)	**210-333/1000-113**	1
1 ... 36 (20x)	**210-333/1000-208**	1
L1 (720x)	**210-333/1000-074**	1
L2 (720x)	**210-333/1000-075**	1
L3 (720x)	**210-333/1000-076**	1
N (720x)	**210-333/1000-077**	1
PE (720x)	**210-333/1000-078**	1
PEN (720x)	**210-333/1000-079**	1
only with grid spacing	**210-333/1000-001**	1

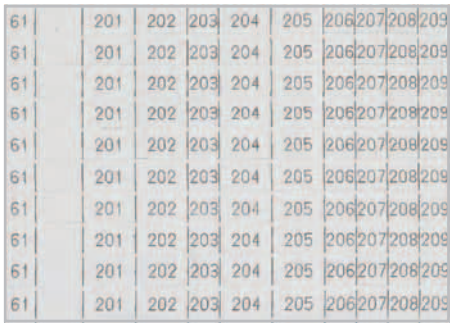
Marking	Item No.	Pack. Unit
for 262 Series 2-conductor terminal strips		
1 ... 20 (40x)	**210-333/700-020**	1
21 ... 40 (40x)	**210-333/700-108**	1
41 ... 60 (40x)	**210-333/700-109**	1
1 ... 50 (20x)	**210-333/700-021**	1
L1 (1040x)	**210-333/700-074**	1
L2 (1040x)	**210-333/700-075**	1
L3 (1040x)	**210-333/700-076**	1
N (1040x)	**210-333/700-077**	1
PE (1040x)	**210-333/700-078**	1
PEN (1040x)	**210-333/700-079**	1
only with grid spacing	**210-333/700-001**	1
for 262 Series 4-conductor terminal strips		
1 ... 12 (40x)	**210-333/1200-103**	1
13 ... 24 (40x)	**210-333/1200-104**	1
25 ... 36 (40x)	**210-333/1200-105**	1
37 ... 48 (40x)	**210-333/1200-106**	1
49 ... 60 (40x)	**210-333/1200-107**	1
1 ... 24 (20x)	**210-333/1200-203**	1
L1 (600x)	**210-333/1200-074**	1
L2 (600x)	**210-333/1200-075**	1
L3 (600x)	**210-333/1200-076**	1
N (600x)	**210-333/1200-077**	1
PE (600x)	**210-333/1200-078**	1
PEN (600x)	**210-333/1200-079**	1
only with grid spacing	**210-333/1200-001**	1

Marker Cards – Self-Adhesive Marking Strips
Plain

Self-adhesive marking strips



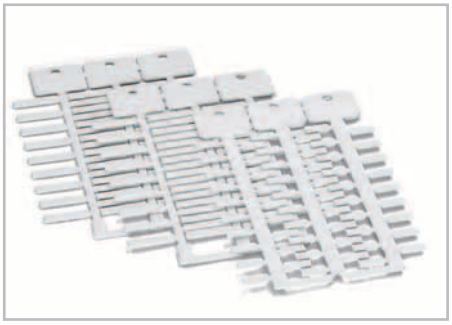
	Item No.	Pack. Unit
Self-adhesive marking strips,		
plain,		
grid adjustable,		
Length of marking strip: 182 mm,		
Height of marking strip: 2.3 mm,		
100 self-adhesive strips per card		
◯	**210-331**	1
Height of marking strip: 3 mm,		
80 self-adhesive strips per card		
◯	**210-332**	1
Height of marking strip: 5 mm,		
48 self-adhesive strips per card		
◯	**210-334**	1
Height of marking strip: 9 mm,		
25 self-adhesive strips per card		
◯	**210-335**	1
Height of marking strip: 6 mm,		
40 self-adhesive strips per card		
◯	**210-333**	1



Other markings with different spacings for 2- and 4-conductor terminal blocks are available upon request.

Wire and Cable Marking
– Description and Handling –

Wire marking

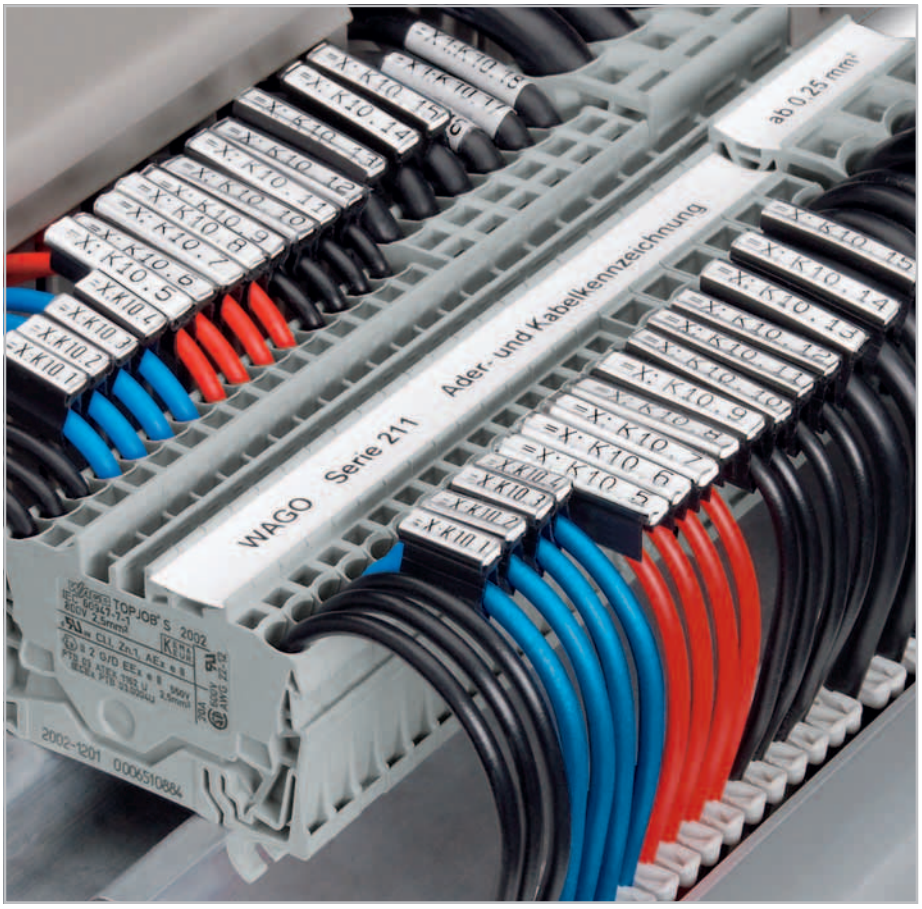


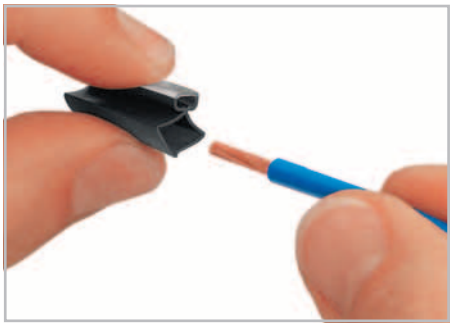
The following markers are available:
Markers for plotter marking.

Markers on roll for thermal transfer printing.

Remove the printed marker from the roll.

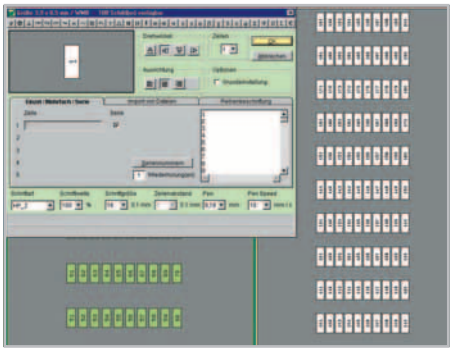
Slide the plotted marker into the marking sleeve receptacle. Exchanging the marker is also possible after the conductor has been terminated.





Compress the sleeve and slide it onto the conductor to be marked.

smartPrinter

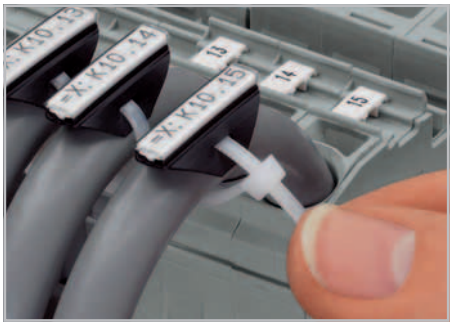


WAGO smartMarking Software

TP 298+ Thermal Transfer Printer

Slide it through the marker receptacle up to the end of the sleeve.

Then remove the rest of the marker by twisting it off.

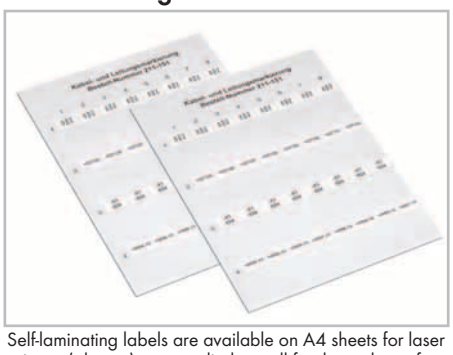


Attach the 211-129 marking sleeve to individual cables or conductors via cable ties.

Wire marking

Wire marker for thread-on mounting for 2.5 … 6 mm²

Wire marking



Self-laminating labels are available on A4 sheets for laser printers (plotters) are supplied on roll for thermal transfer printers.

Remove the printed label from the sheet or roll.

Wrap it around the conductor or cable.

The transparent laminate protects the marking.

Wire and Cable Marking
for Conductors from 0.25 ... 25 mm²

Marking sleeve

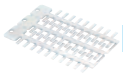
Item No.	Pack. Unit
Marking sleeve, 12 mm long, halogene-free, for one marker, to be fitted prior to conductor termination, for wire Ø 1.6 ... 3.2 mm or 0.25 ... 1.5 mm²	
211-112	2000
for wire Ø 2.2 ... 4.5 mm or 0.5 ... 4 mm²	
211-113	2000
for wire Ø 3.7 ... 5.9 mm or 2.5 ... 6 mm²	
211-114	1000
for wire Ø 5.5 ... 10 mm or 10 ... 25 mm²	
211-115	1000

Item-Specific Accessories

Markers on roll, for thermal transfer printer,

3,000 markers per roll, 12 mm long, white **211-111** 1

Marker card, for plotter,



57 markers per card, 12 mm long, white **211-110** 18

Marking sleeve

Item No.	Pack. Unit
Marking sleeve, 23 mm long, halogene-free, for one marker, to be fitted prior to conductor termination, for wire Ø 1.6 ... 3.2 mm or 0.25 ... 1.5 mm²	
211-122	2000
for wire Ø 2.2 ... 4.5 mm or 0.5 ... 4 mm²	
211-123	2000
for wire Ø 3.7 ... 5.9 mm or 2.5 ... 6 mm²	
211-124	1000
for wire Ø 5.5 ... 10 mm or 10 ... 25 mm²	
211-125	1000

Item-Specific Accessories

Markers on roll, for thermal transfer printer,

3,000 markers per roll, 23 mm long, white **211-121** 1

Marker card, for plotter,

34 markers per card, 23 mm long, white **211-120** 30

Marking sleeve

Item No.	Pack. Unit
Marking sleeve, 23 mm long, halogene-free, for cable tie, can also be fitted after install, for one marker, for wires from 10 mm²	
211-129	1000

Item-Specific Accessories

Markers on roll, for thermal transfer printer,

3,000 markers per roll, 23 mm long, white **211-121** 1

Marker card, for plotter,

34 markers per card, 23 mm long, white **211-120** 30

Cable tie,

2.5 mm x 100 mm **807-090/101-100** 1

211 Series Accessories

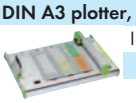
TP 298+ Thermal Transfer Printer,

300 dpi print resolution **258-298** 1

Ink ribbon for wire marker,

76 mm wide x 300 m **258-150** 1

DIN A3 plotter,



IP 350 (110 V/230 V) **258-350** 1

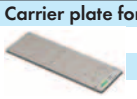
Ink pen,

0.35 mm line width **258-228** 1

WAGO disposable plotter pen,

0.35 mm line width **258-328** 1

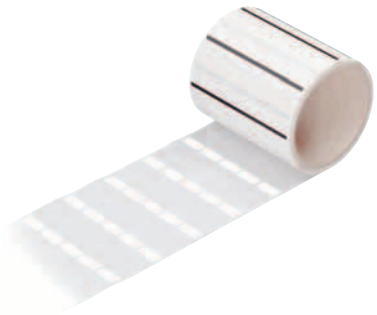
Carrier plate for marker cards for IP350 plotter



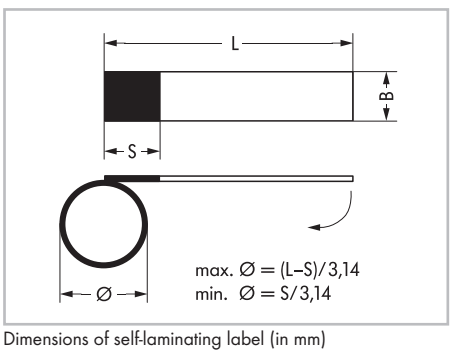
258-370 1

Self-Laminating Labels for Cable Marking
Wire Marker for Thread-On Mounting

Labels on DIN A4 sheets	Labels on roll	Wire marker for thread-on mounting



Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit
Labels on DIN A4 sheets,		**Labels on roll,**		**Wire marker for thread-on mounting,**	
for laser printer		for thermal transfer printer		for 0.75 … 1.5 mm²,	
Marking surface: S = 9 mm B = 17 mm L = 35 mm,		Marking surface: S = 8 mm B = 18 mm L = 35 mm,		2,000 markers per roll	
for max. cable diameter 8 mm,		for max. cable diameter 9 mm,			
70 labels per sheet		9,000 labels per roll			
211-150	20	**211-155**	1	white **211-161**	1
Marking surface: S = 13 mm B = 21 mm L = 56 mm,		Marking surface: S = 13 mm B = 23 mm L = 51 mm,		**Wire marker for thread-on mounting,**	
for max. cable diameter 14 mm,		for max. cable diameter 12 mm,		for 2.5 … 6 mm²,	
32 labels per sheet		5,000 labels per roll		2,000 markers per roll	
211-151	25	**211-156**	1	white **211-162**	1



Dimensions of self-laminating label (in mm)

Self-laminating labels are supplied on roll for thermal transfer printers.

Wire marker for thread-on mounting

Markers, Cable Marking and Lables

Cable Marking

Cable Marking

Label Rolls and Type Plates

Similiar to picture

	Item No.	Pack. Unit
Marker for marking sleeve		
12 x 4 mm		
2,500 pieces per roll		
white	**211-811**	1
Marking sleeve		
Sleeve length: 12 mm		
500 pcs		
for 1.4–5 mm wire diameter		
transparent	**211-812**	1
for 5–11 mm wire diameter		
transparent	**211-813**	1
Marker for marking sleeve		
23 x 4 mm		
2,500 pieces per roll		
white	**211-821**	1
Marking sleeve		
Sleeve length: 23 mm		
500 pcs		
for 1.4–5 mm wire diameter		
transparent	**211-823**	1
200 pcs		
for 5–11 mm wire diameter		
transparent	**211-824**	1
Marking sleeve		
Sleeve length: 23 mm		
Mounting via cable tie		
200 pcs		
transparent	**211-829**	1

	Item No.	Pack. Unit
Cable tie marker		
500 pieces per roll		
25 x 20 mm		
25 x 10 mm write-on surface		
white	**211-835**	1
800 pieces per roll		
Inner wrap (write-on surface on the inner side)		
117.5 x 15 mm		
100 x 15 mm write-on surface		
white	**211-836**	1
Self-laminating labels (no illustration)		
1,000 pieces per roll		
9 x 18 mm write-on surface		
white	**211-855**	1
Self-laminating labels (no illustration)		
1,000 pieces per roll		
15 x 22 mm write-on surface		
white	**211-856**	1
500 pieces per roll		
18 x 14 mm write-on surface		
white	**211-857**	1
Wire marker for thread-on mounting		
1,000 pieces per roll		
0.75 ... 1.5 mm²		
white	**211-861**	1
2.5 ... 6 mm²		
white	**211-862**	1
6 ... 16 mm²		
white	**211-863**	1

	Item No.	Pack. Unit
Label roll		
Polyester, self-adhesive		
3,000 labels per roll		
15 x 6 mm		
white	**210-805**	1
yellow	**210-805/000-002**	1
15 x 9 mm		
white	**210-806**	1
yellow	**210-806/000-002**	1
20 x 8 mm		
white	**210-807**	1
yellow	**210-807/000-002**	1
9.5 x 25 mm		
white	**210-808**	1
5 x 35 mm		
white	**210-810**	1
Type plates		
Polyester		
500 markers per roll		
44 x 99 mm		
white	**210-801**	1
silver	**210-802**	1
44 x 99 mm		
white	**210-803**	1
silver	**210-804**	1
Label roll		
Fabric, self-adhesive		
3,000 labels per roll		
20 x 7 mm		
white	**210-811**	1
yellow	**210-811/000-002**	1

Continuous Labels

	Item No.	Pack. Unit
Continuous labels		
Polyester, self-adhesive		
9 lengths at 25 m		
Width: 2.3 mm		
white	**210-831**	1
Width: 3 mm		
white	**210-832**	1
5 lengths at 25 m		
Width: 5 mm		
white	**210-834**	1
Width: 6 mm		
white	**210-833**	1

Push-Button Markers

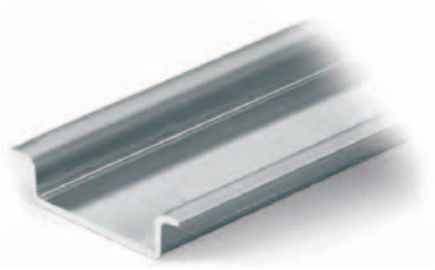
	Item No.	Pack. Unit
Push-button markers		
semi-permanent adhesive		
1000 markers per roll		
26.5 x 18 mm		
silver	**210-850**	1
Plastic cover		
100 covers		
26.5 x 18 mm		
transparent	**210-851**	1
Push-button markers		
semi-permanent adhesive		
1000 markers per roll		
27.5 x 17.5 mm		
silver	**210-856**	1
Plastic cover		
100 covers		
27.5 x 17.5 mm		
transparent	**210-857**	1
Push-button markers		
semi-permanent adhesive		
1000 markers per roll		
22 x 22 mm		
silver	**210-858**	1
Plastic cover		
100 covers		
22 x 22 mm		
transparent	**210-859**	1
Push-button markers		
semi-permanent adhesive		
1000 markers per roll		
27 x 27 mm		
silver	**210-860**	1
Plastic cover		
100 covers		
27 x 27 mm		
transparent	**210-861**	1

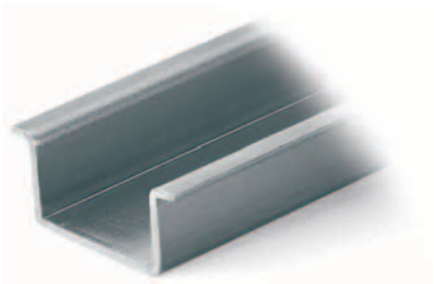
Push-Button Markers

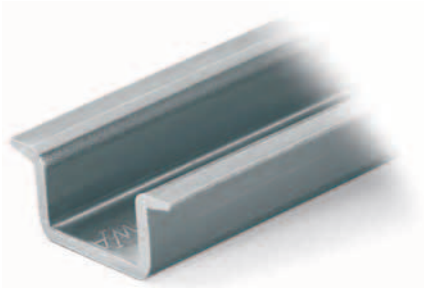
	Item No.	Pack. Unit
Push-button markers		
semi-permanent adhesive		
1000 markers per roll		
27 x 12.5 mm		
silver	**210-862**	1
Plastic cover		
100 covers		
27 x 12.5 mm		
transparent	**210-863**	1
Push-button markers		
permanent adhesive		
350 markers per roll		
27 x 19 mm		
silver	**210-852**	1
Universal push-button frame		
for 210-852 and 210-855		
100 pcs per bag		
27 x 19 mm		
black	**210-853**	1
Push-button markers		
permanent adhesive		
350 markers per roll		
27 x 18 mm		
silver	**210-855**	1
Label roll DD (device designation)		
Polyester		
500 labels per roll		
28 x 28 mm		
175 µm thick		
silver	**210-854**	1

Mounting Accessories
Carrier Rails, Rail End Cap, Angled Support Brackets and Collective Carriers

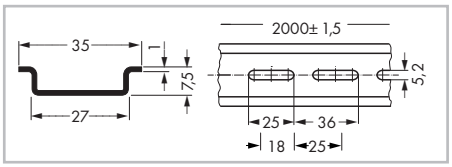
Carrier rail acc. to EN 60715	Carrier rail	Carrier rail acc. to EN 60715





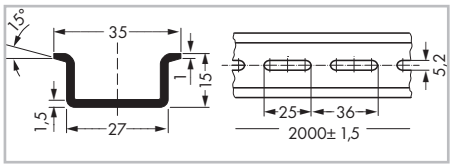


	Item No.	Pack. Unit
Steel carrier rail, I_N 76 A (reference length of 1m/3'3"), 35 x 7.5 mm, 1 mm, 2 m/6'6" long		
unslotted	**210-113**	10
Hole width 25 mm; hole spacing 36 mm		
slotted	**210-112**	10 (10x1)
Hole width 18 mm; hole spacing 25 mm		
slotted	**210-115**	1



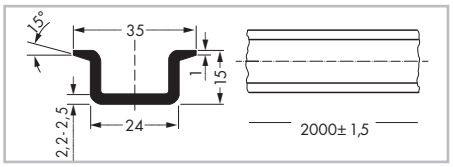
Dimensions in mm

	Item No.	Pack. Unit
Steel carrier rail, I_N 125 A (reference length of 1m/3'3"), 35 x 15 mm, 1.5 mm, 2 m/6'6" long		
unslotted	**210-114**	10
slotted	**210-197**	10

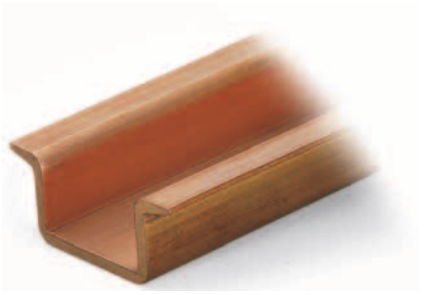


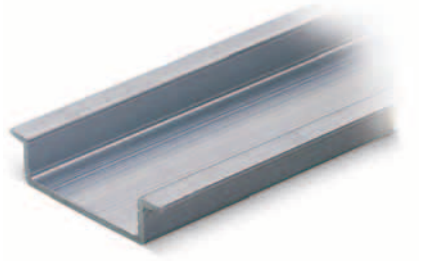
Dimensions in mm

	Item No.	Pack. Unit
Steel carrier rail, I_N 125 A (reference length of 1m/3'3"), 35 x 15 mm, 2.3 mm, 2 m/6'6" long		
unslotted	**210-118**	10

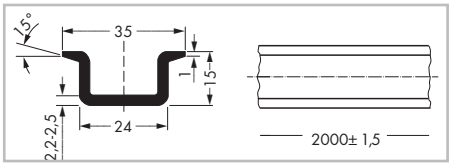


Dimensions in mm



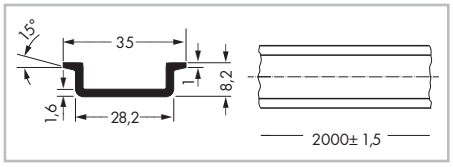


	Item No.	Pack. Unit
Copper carrier rail, I_N 309 A (reference length of 1m/3'3"), 35 x 15 mm, 2.3 mm, 2 m/6'6" long		
unslotted	**210-198**	10



Dimensions in mm

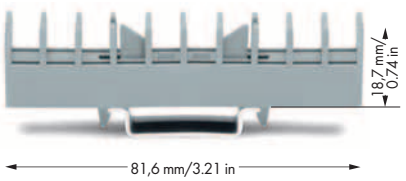
	Item No.	Pack. Unit
Aluminum carrier rail, I_N 76 A (reference length of 1m/3'3"), 35 x 8.2 mm, 1.6 mm, 2 m/6'6" long		
unslotted	**210-196**	10



Dimensions in mm

	Item No.	Pack. Unit
Rail end cap, for DIN 35 rail (7.5 mm high)		
gray	**209-109**	50 (2x25)

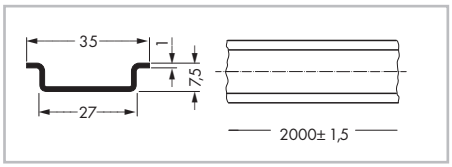
Carrier rail acc. to EN 60715	Angled support bracket	Collective carrier for jumpers



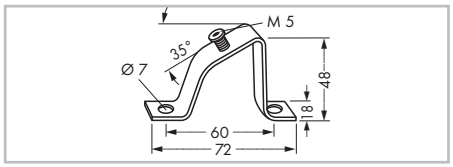
Item No.		Pack. Unit
Steel carrier rail, I_N 76 A (reference length of 1m/3'3"), 35 x 7.5 mm, 1 mm, 2 m/6'6" long		
unslotted	**210-505**	1
slotted	**210-504**	1

Item No.		Pack. Unit
Angled support bracket, without screw		
	210-148	10
Screw M 5 x 8		
	210-149	100 (5x20)

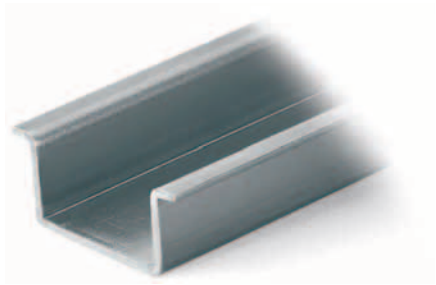
Item No.		Pack. Unit
Collective carrier for jumpers, for DIN 35 rail, for jumpers for transverse switching terminal block (282-811) and longitudinal switching disconnect terminal block (282-821)		
gray	**282-369**	25
The collective carrier can be snapped onto DIN 35 rails. It holds jumpers, e. g., during maintenance.		

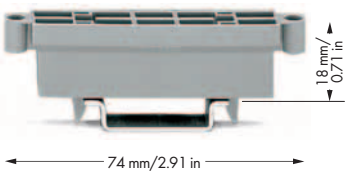


Dimensions in mm



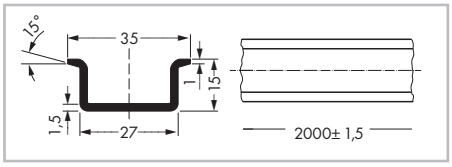
Dimensions in mm





Item No.		Pack. Unit
Steel carrier rail, I_N 125 A (reference length of 1m/3'3"), 35 x 15 mm, 1.5 mm, 2 m/6'6" long		
unslotted	**210-506**	1
slotted	**210-508**	1

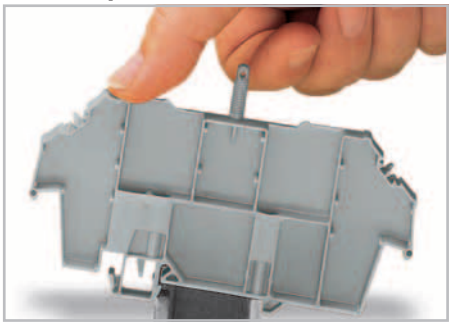
Item No.		Pack. Unit
Collective carrier for adjacent jumpers, for DIN 35 rail, suitable for 279 ... 284 Series adjacent jumpers, 215 Series banana plugs		
gray	**209-100**	50 (2x25)
The collective carrier can be snapped onto DIN 35 rails. It holds adjacent jumpers and banana plugs, e. g., during maintenance.		



Dimensions in mm

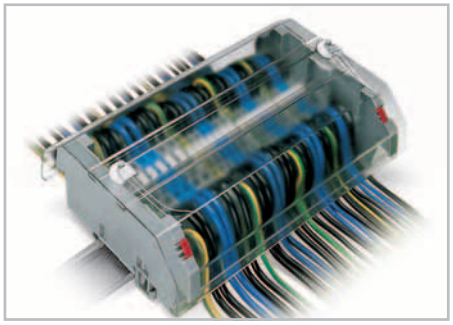
Transparent Covers for Rail-Mounted Terminal Blocks, Usable with Lead Seals – Description and Handling –

Assembly



Snapping a cover carrier onto the carrier rail.

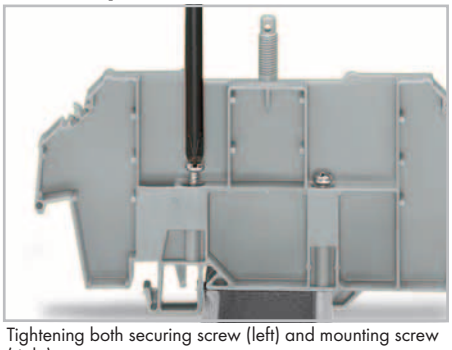
Application



Application examples:
cover (Type 1) without safety warning and lead seals.

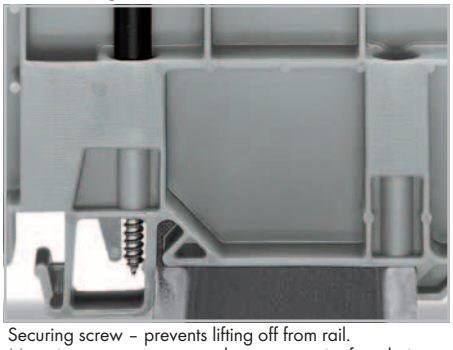
Cover with safety warning and lead seals.

Assembly



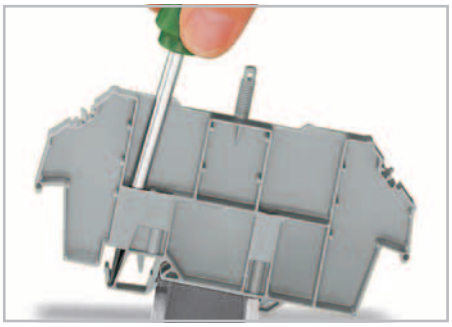
Tightening both securing screw (left) and mounting screw (right).

Assembly



Securing screw – prevents lifting off from rail.
Mounting screw – prevents the cover carrier from being moved on the rail.

Removal



Removing a cover carrier from the carrier rail.

Marking

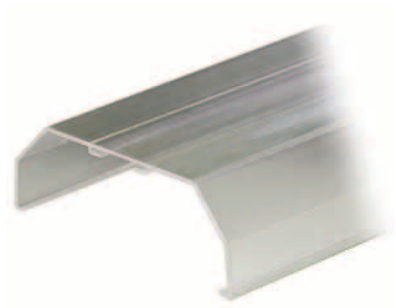
Inserting a marking strip into the cover.

Lead seal

Cover with lead seals.
Using covers without lead seals, the thread dome-head can be broken off.

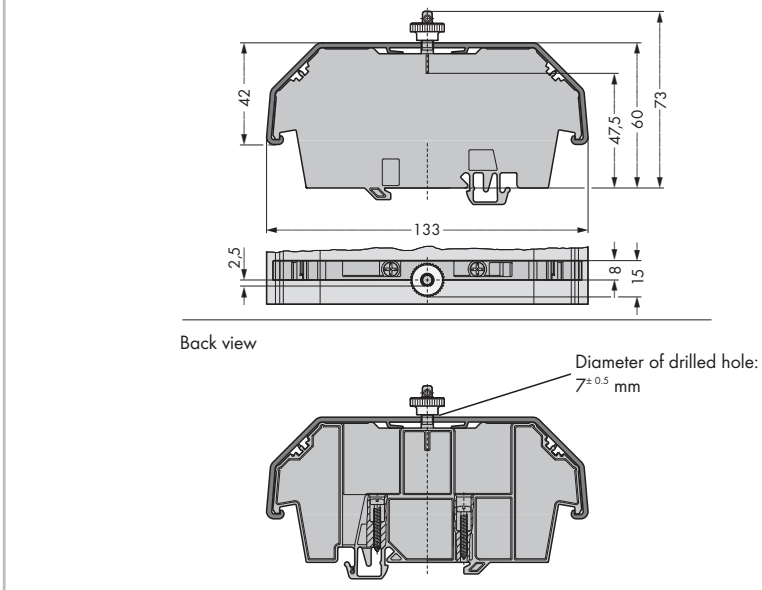
Transparent Covers for Rail-Mounted Terminal Blocks, Usable with Lead Seals
709 Series

Cover and cover carrier, type 1



	Item No.	Pack. Unit
Cover, type 1,		
suitable for cover carrier, type 1,		
1 m/3'3'' long		
transparent	**709-153**	10

	Item No.	Pack. Unit
Cover carrier, type 1,		
incl. mounting/securing screws and knurled nut,		
for 279 ... 282 Series and 880 Series rail-mount terminal blocks,		
for 264 Series miniature terminal blocks,		
for 270 Series sensor and acuator blocks		
gray	**709-167**	10



Dimensions in mm

Accessories

Marking card with 6 marking strips,			
	for group marking or safety instructions		
	plain	**709-183**	1
Spare mounting/securing screw,			
	for cover		
		209-196	200 (8x25)
Spare knurled nut,			
	for cover		
		210-549	100 (4x25)

Transparent Covers for Rail-Mounted Terminal Blocks, Usable with Lead Seals 709 Series

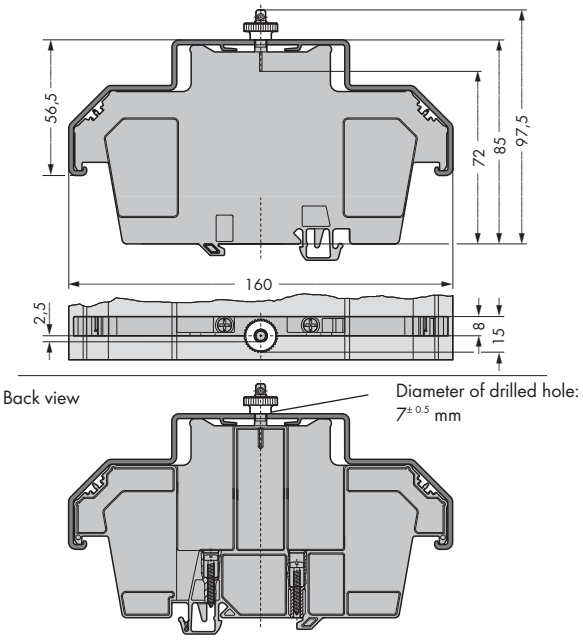
Cover and cover carrier, type 2

	Item No.	Pack. Unit
Cover, type 2,		
suitable for cover carrier, type 2,		
1 m/3'3'' long		
transparent	**709-154**	1

	Item No.	Pack. Unit
Cover carrier, type 2,		
incl. mounting/securing screws and knurled nut,		
for 283 ... 285 Series rail-mount terminal blocks,		
for 279 ... 281 Series double- and triple-deck blocks,		
for 780 ... 785, 775, 776 and 777 Series TOPJOB® terminals,		
for 280 Series sensor and actuator blocks,		
for 282 Series disconnect terminals for test and measurement for transformer circuits		
gray	**709-168**	10

Accessories

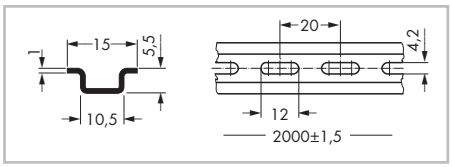
Marking card with 6 marking strips,			
	for group marking or safety instructions		
	plain	**709-183**	1
Spare mounting/securing screw,			
	for cover		
		209-196	200 (8x25)
Spare knurled nut,			
	for cover		
		210-549	100 (4x25)



Dimensions in mm

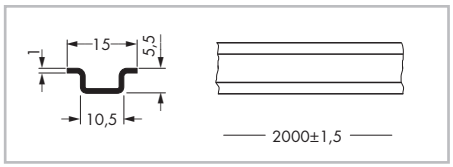
Carrier rail acc. to EN 60715	Carrier rail acc. to EN 60715	Screwless end stop

Item No.	Pack. Unit
Steel carrier rail, I_N 57 A (reference length of 1m/3'3"), 15 x 5.5 mm, 1 mm, 2 m/6'6" long	
slotted **210-111**	1



Dimensions in mm

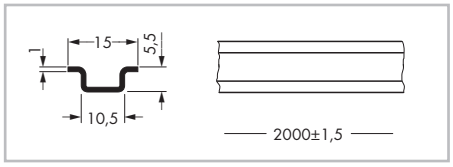
Item No.	Pack. Unit
Steel carrier rail, I_N 57 A (reference length of 1m/3'3"), 15 x 5.5 mm, 1 mm, 2 m/6'6" long	
unslotted **210-295**	1



Dimensions in mm

Item No.	Pack. Unit
Screwless end stop, for DIN 15 rail, 6 mm wide	
gray **249-101**	25

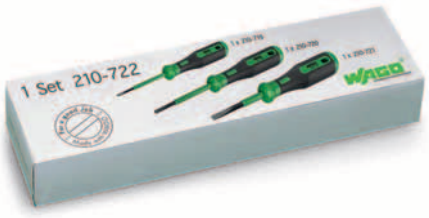
Item No.	Pack. Unit
Aluminum carrier rail, I_N 57 A (reference length of 1m/3'3"), 15 x 5.5 mm, 1 mm, 2 m/6'6" long	
unslotted **210-296**	10



Dimensions in mm

Operating Tools

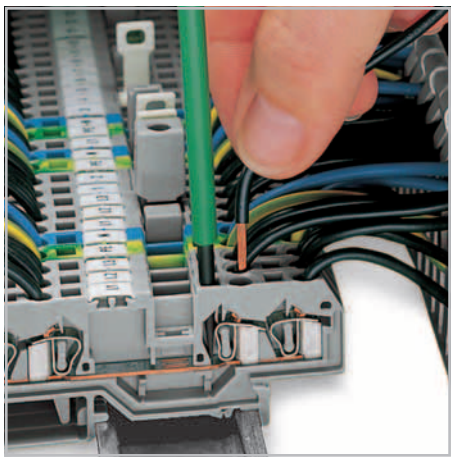
Operating tool with a partially insulated shaft	Operating tool set with a partially insulated shafts	Operating tool with a partially insulated shaft



Item No.	Pack. Unit
Operating tool with a partially insulated shaft,	
type 1, (2.5 x 0.4) mm blade,	
for 279, 726, 727, 2000, 2001 and 2020 Series	
210-719	1
Operating tool with a partially insulated shaft,	
type 2, (3.5 x 0.5) mm blade,	
for 260, 261, 262, 264, 270, 280, 281, 290, 775,	
776, 777, 769, 780, 781, 869, 870, 880, 2002, 2003,	
2004, 2005 and 2022 Series	
210-720	1
Operating tool with a partially insulated shaft,	
type 3, (5.5 x 0.8) mm blade,	
for 282, 283, 284, 285, 782, 783, 784, 785, 2006,	
2010 and 2016 Series	
210-721	1

Item No.	Pack. Unit
Operating tool set with a partially insulated shafts,	
type 1, (2.5 x 0.4) mm blade, type 2, (3.5 x 0.5) mm	
blade, type 3, (5.5 x 0.8) mm blade	
210-722	1

Item No.	Pack. Unit
Operating tool with a partially insulated shaft,	
(2.5 x 0.4) mm blade, short,	
for 279, 726, 727, 2000, 2001 and 2020 Series	
210-647	1
Operating tool with a partially insulated shaft,	
(2.5 x 0.4) mm blade, short angled,	
for 279, 2000, 2001 and 2020 Series	
210-648	1



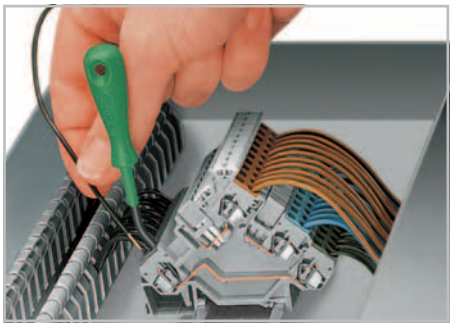
The blade dimensions of the above-listed operating tools with a partially insulated shaft are ideal for easy operation of front-entry terminal blocks.

Set of operating tools

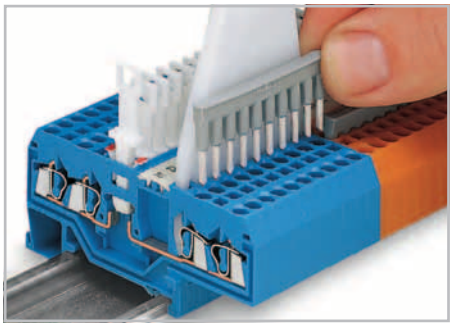
Operating Tools

Operating tool with a partially insulated shaft	Operating tool	Operating pliers

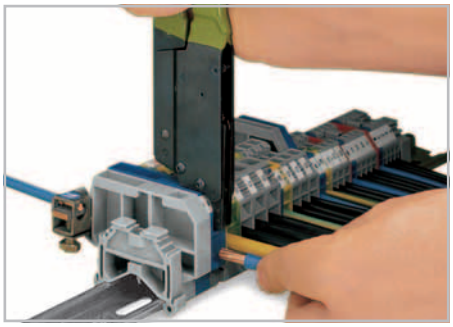
Item No.	Pack. Unit	Item No.		Pack. Unit	Item No.	Pack. Unit
Operating tool with a partially insulated shaft,		**Operating tool,** of insulating material,			**Operating pliers,**	
(3.5 x 0.5) mm blade, short,		for 279 Series rail-mounted terminal blocks			for 279 and 280 Series rail-mounted terminal blocks for	
for 260, 261, 262, 264, 270, 280, 281, 869, 870, 880					side-entry	
Series						
210-657	1	1-way	**209-129**	1	**210-143**	1
		2-way	**279-432**	1		
		3-way	**279-433**	1		
		10-way	**279-440**	1		
Operating tool with a partially insulated shaft,		**Operating tool,** of insulating material,			**Operating pliers,**	
(3.5 x 0.5) mm blade, short angled,		for 264 (1- and 2-way only), 280, 281 (up to 3-way only)			for 281, 282, 283 and 284 Series rail-mounted terminal	
ideal for 280 Series actuator and sensor terminal blocks,		Series rail-mounted terminal blocks			blocks for side-entry	
along with 260, 261, 262, 264, 280, 281, 869, 870,						
880, 2002 and 2004 Series						
210-658	1	1-way	**209-130**	1	**210-141**	1
		2-way	**280-432**	1		
		3-way	**280-433**	1		
		4-way	**280-434**	1		
		5-way	**280-435**	1		
		6-way	**280-436**	1		
		7-way	**280-437**	1		
		8-way	**280-438**	1		
		9-way	**280-439**	1		
		10-way	**280-440**	1		
		for 281 Series rail-mounted terminal blocks			The operating pliers is placed into the upper operating slot	
		5-way	**281-440**	1	of the side-entry rail-mount terminal block and the clamp is	
					hooked into the lateral operating slot. The contact is fully	
					opened by pressing the handles together until they	
					engage – both hands are then free for conductor prepara-	
					tion and insertion into the terminal block.	



The blade dimensions of the above-listed operating tool (DIN 5264) are ideal for easy operation of 280 Series front-entry sensor and actuator terminal blocks.



Commoning front-entry disconnect terminal blocks with comb-style jumper bars via 10-way operating tool.

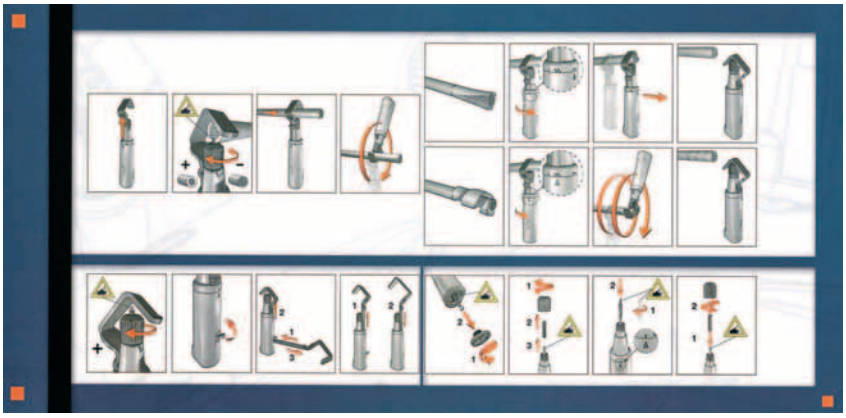


When operating the handles beyond the locked position, the ratchet allows the tool to open and be removed from the terminal block.

Cable Strippers

Cable stripper for round cables with an outer Ø from 2.5 mm ... 11 mm	Cable stripper for round cables with an outer Ø from 4.5 mm ... 45 mm

Item No.	Pack. Unit	Item No.	Pack. Unit
Cable stripper,		**Cable stripper,**	
for round cables with an outer Ø 2.5 mm ... 11 mm		for round cables with an outer Ø 4.5 mm ... 45 mm	
206-171	1	**206-174**	1
Item-Specific Accessories		**Item-Specific Accessories**	
Replacement blade,		**Replacement blade,**	
2.5 mm ... 11 mm **206-170**	1	4.5 mm ... 45 mm **206-173**	1



Operating instructions for 206-171 cable stripper (top) and 206-174 cable stripper (bottom)

206-171 Cable Stripper
- 10-position adjustment wheel ensures repeatable stripping results
- Fine adjustability via 10-position blade cutting depth adjustment
- Strips the sheath from multi-core and fiber optic cables up to 11 mm diameter
- Safe and easy to use through closed stripping cavity

206-174 Cable Stripper
- Safe and easy to use: Three locking positions for circular, longitudinal and spiral cuts
- High cable stripping capacity of up to 40 mm diameter
- Well balanced, ergonomic design features rests for thumb, index and pinky fingers to ease raising of the cable retention hook.
- Spare blades can be stored within the tool body

Stripping Tools

“Quickstrip 10” wire stripper 0.02 mm² ... 10 mm² “f-st” (6 mm² “s”) Cutter for conductors up to 10 mm² “f-st” (1.5 mm² “s”)	“Quickstrip 16” wire stripper 4 mm² ... 16 mm² Cutter for conductors up to 10 mm² “f-st” (1.5 mm² “s”)	

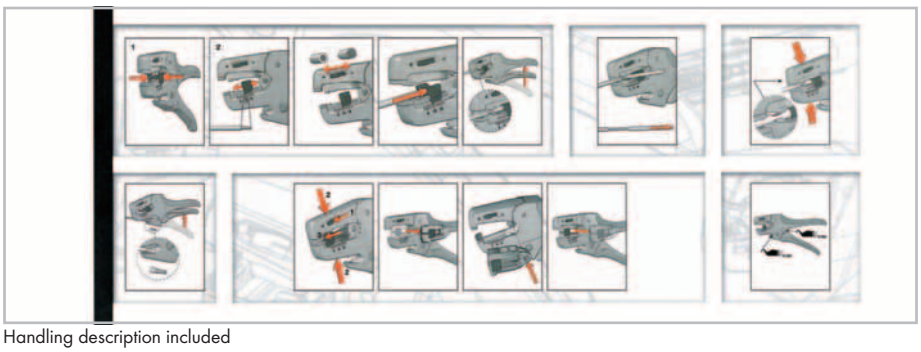
Item No.	Pack. Unit	Item No.	Pack. Unit	
“Quickstrip 10” wire stripper		“Quickstrip 16” wire stripper		
206-124	1	206-125	1	
Item-Specific Accessories		**Item-Specific Accessories**		
“Standard” blade cassette,		“Standard” blade cassette,		
0.02 mm² ... 10 mm²		4 mm² ... 16 mm²		
206-126	1	206-128	1	
“V” blade cassette,				
0.1 mm² ... 4 mm² for PTFE				
206-127	1			

Cutting

Stripping

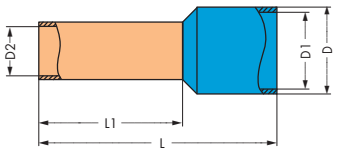
- Automatically adjusts to conductor size.
- No damage to conductor strands.
- Gripping pressure of jaws automatically adjusts to conductor insulation diameter.
- Clamping jaws and stripping blades automatically open once the stripping process is completed, ensuring no damage to the conductor strands.
- Exact strip length may be set by sliding red setting stop.
- Stripping blades can be replaced.
- Self-sharpening, fully protected cutter, also replaceable.*
- The complete body is made of glass fiber-reinforced polyamide.

* applies for Microstrip


Handling description included

Insulated Ferrules and Crimping Tools

Ferrule, insulated, tin plated, electrolytic copper, gastight crimped	Variocrimp 4 crimping tool for insulated and uninsulated ferrules 0.25 mm² ... 4 mm²/AWG 24 ... 12	Variocrimp 16 crimping tool for insulated and uninsulated ferrules 6 mm² ... 16 mm²/AWG 10 ... 6



	Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit
Ferrule, insulated,			**Variocrimp 4 crimping tool,**		**Variocrimp 16 crimping tool,**	
according to DIN 46228, part 4/09.90			0.25 mm² ... 4 mm²/AWG 24 ... 12		6 mm² ... 16 mm²/AWG 10 ... 6	
yellow	**216-321**	1000	**206-204**	1	**206-216**	1
yellow	**216-301**	1000				
green	**216-322**	1000				
green	**216-302**	1000				
white	**216-221**	1000				
white	**216-201**	1000				
gray	**216-222**	1000				
gray	**216-202**	1000				
red	**216-223**	1000				
red	**216-203**	1000				
black	**216-224**	1000				
black	**216-204**	1000				
yellow	**216-205**	1000				
blue	**216-206**	1000				
gray	**216-207**	1000				
yellow	**216-208**	100				
red	**216-209**	100				
blue	**216-210**	100				

Ferrules

Technical Data

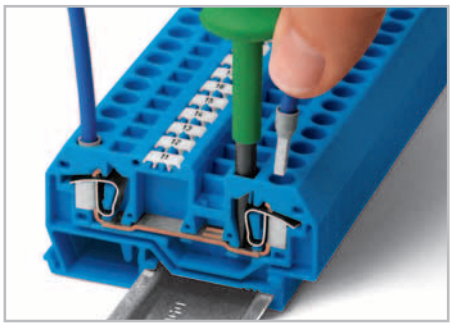
Ferrule, insulated,	**Ferrule, insulated,**	**Ferrule, insulated,**
sleeve for 0.25 mm²/AWG 24, 7 mm strip length, L: 10.5 mm, L1: 6 mm, D: 2.5 mm, D1: 2 mm, D2: 0.8 mm yellow **216-321**	sleeve for 0.34 mm²/AWG 24, 9 mm strip length, L: 12.5 mm, L1: 8 mm, D: 2.5 mm, D1: 2 mm, D2: 0.8 mm green **216-302**	sleeve for 0.75 mm²/AWG 20, 8 mm strip length, L: 12 mm, L1: 6 mm, D: 3.3 mm, D1: 2.8 mm, D2: 1.3 mm gray **216-222**
Ferrule, insulated,	**Ferrule, insulated,**	**Ferrule, insulated,**
sleeve for 0.25 mm²/AWG 24, 9 mm strip length, L: 12.5 mm, L1: 8 mm, D: 2.5 mm, D1: 2 mm, D2: 0.8 mm yellow **216-301**	sleeve for 0.5 mm²/AWG 22, 7 mm strip length, L: 11.5 mm, L1: 6 mm, D: 3 mm, D1: 2.5 mm, D2: 1.1 mm white **216-221**	sleeve for 0.75 mm²/AWG 20, 10 mm strip length, L: 14 mm, L1: 8 mm, D: 3.3 mm, D1: 2.8 mm, D2: 1.3 mm gray **216-202**
Ferrule, insulated,	**Ferrule, insulated,**	**Ferrule, insulated,**
sleeve for 0.34 mm²/AWG 24, 7 mm strip length, L: 10.5 mm, L1: 6 mm, D: 2.5 mm, D1: 2 mm, D2: 0.8 mm green **216-322**	sleeve for 0.5 mm²/AWG 22, 9 mm strip length, L: 13.5 mm, L1: 8 mm, D: 3 mm, D1: 2.5 mm, D2: 1.1 mm white **216-201**	sleeve for 1 mm²/AWG 18, 8 mm strip length, L: 12 mm, L1: 6 mm, D: 3.6 mm, D1: 3 mm, D2: 1.5 mm red **216-223**

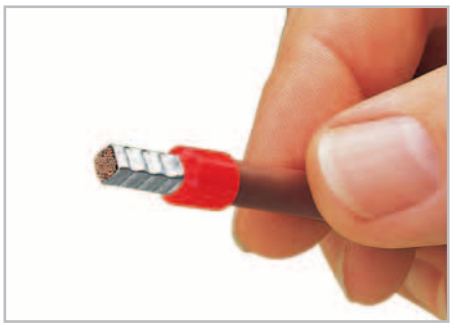
Application notes:
- With "Variocrimp 4," the built-in crimping pressure control automatically adjusts force to the conductor cross section used. With "Variocrimp 16," it is necessary to select the wire gauge on the tool before crimping.
- Only one crimping station is needed to handle the specified conductor size range.
- Uniform compact crimping from all four sides for high conductor retention.
- No need to center the conductor into the ferrule.
- Conductor and ferrule insertion possible from both sides (for left- and right-handers).
- Built-in ratchet mechanism ensures gastight crimp connection.
- Crimping tools open automatically after crimping operation is complete.
- Comfortable handles for operator.

Ferrules

Technical Data

Ferrule, insulated, sleeve for 1 mm²/AWG 18, 10 mm strip length, L: 14 mm, L1: 8 mm, D: 3.6 mm, D1: 3 mm, D2: 1.5 mm red **216-203**	**Ferrule, insulated,** sleeve for 6 mm²/AWG 10, 14 mm strip length, L: 20 mm, L1: 12 mm, D: 6.8 mm, D1: 6.2 mm, D2: 3.5 mm yellow **216-208**
Ferrule, insulated, sleeve for 1.5 mm²/AWG 16, 8 mm strip length, L: 12 mm, L1: 6 mm, D: 4 mm, D1: 3.4 mm, D2: 1.8 mm black **216-224**	**Ferrule, insulated,** sleeve for 10 mm²/AWG 8, 16 mm strip length, L: 21 mm, L1: 12 mm, D: 8.1 mm, D1: 7.5 mm, D2: 4.6 mm red **216-209**
Ferrule, insulated, sleeve for 1.5 mm²/AWG 16, 10 mm strip length, L: 14 mm, L1: 8 mm, D: 4 mm, D1: 3.4 mm, D2: 1.8 mm black **216-204**	**Ferrule, insulated,** sleeve for 16 mm²/AWG 6, 23 mm strip length, L: 29 mm, L1: 18 mm, D: 9.6 mm, D1: 8.8 mm, D2: 5.8 mm blue **216-210**
Ferrule, insulated, sleeve for 2.08 mm²/AWG 14, 10 mm strip length, L: 14.5 mm, L1: 8 mm, D: 4.2 mm, D1: 3.6 mm, D2: 2.05 mm yellow **216-205**	
Ferrule, insulated, sleeve for 2.5 mm²/AWG 14, 10 mm strip length, L: 15 mm, L1: 8 mm, D: 4.8 mm, D1: 4.2 mm, D2: 2.3 mm blue **216-206**	
Ferrule, insulated, sleeve for 4 mm²/AWG 12, 12 mm strip length, L: 16.8 mm, L1: 9.5 mm, D: 5.4 mm, D1: 4.8 mm, D2: 2.9 mm gray **216-207**	

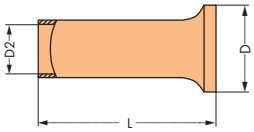




A perfect gastight crimp, both electrically and mechanically reliable.

Uninsulated Ferrules

Ferrule, uninsulated,
tin plated,
electrolytic copper,
gastight crimped



Item No.	Pack. Unit
Ferrule, uninsulated, according to DIN 46228, part 1/08.92	
216-151	1000
216-131	1000
216-152	1000
216-132	1000
216-121	1000
216-101	1000
216-122	1000
216-102	1000
216-123	1000
216-103	1000
216-124	1000
216-104	1000
216-106	1000
216-107	1000
216-108	250
216-109	250
216-110	250

Ferrules

Technical Data

Ferrule, uninsulated,
sleeve for 0.25 mm²/AWG 24,
5 mm strip length,
L: 5 mm,
D: 1.7 mm, D2: 0.75 mm
216-151

Ferrule, uninsulated,
sleeve for 0.25 mm²/AWG 24,
7 mm strip length,
L: 7 mm,
D: 1.7 mm, D2: 0.75 mm
216-131

Ferrule, uninsulated,
sleeve for 0.34 mm²/AWG 24,
5 mm strip length,
L: 5 mm,
D: 1.7 mm, D2: 0.85 mm
216-152

Ferrules

Technical Data

Ferrule, uninsulated,
sleeve for 0.34 mm²/AWG 24,
7 mm strip length,
L: 7 mm,
D: 1.7 mm, D2: 0.85 mm
216-132

Ferrule, uninsulated,
sleeve for 0.5 mm²/AWG 22,
6 mm strip length,
L: 6 mm,
D: 2.1 mm, D2: 1 mm
216-121

Ferrule, uninsulated,
sleeve for 0.5 mm²/AWG 22,
8 mm strip length,
L: 8 mm,
D: 2.1 mm, D2: 1 mm
216-101

Ferrule, uninsulated,
sleeve for 0.75 mm²/AWG 20,
6 mm strip length,
L: 6 mm,
D: 2.3 mm, D2: 1.2 mm
216-122

Ferrule, uninsulated,
sleeve for 0.75 mm²/AWG 20,
8 mm strip length,
L: 8 mm,
D: 2.3 mm, D2: 1.2 mm
216-102

Ferrule, uninsulated,
sleeve for 1 mm²/AWG 18,
6 mm strip length,
L: 6 mm,
D: 2.5 mm, D2: 1.4 mm
216-123

Ferrule, uninsulated,
sleeve for 1 mm²/AWG 18,
8 mm strip length,
L: 8 mm,
D: 2.5 mm, D2: 1.4 mm
216-103

Ferrule, uninsulated,
sleeve for 1.5 mm²/AWG 16,
6 mm strip length,
L: 6 mm,
D: 2.8 mm, D2: 1.7 mm
216-124

Ferrule, uninsulated,
sleeve for 1.5 mm²/AWG 16,
8 mm strip length,
L: 8 mm,
D: 2.8 mm, D2: 1.7 mm
216-104

Ferrule, uninsulated,
sleeve for 2.5 mm²/AWG 14,
10 mm strip length,
L: 10 mm,
D: 3.4 mm, D2: 2.2 mm
216-106

Ferrule, uninsulated,
sleeve for 4 mm²/AWG 12,
10 mm strip length,
L: 10 mm,
D: 4 mm, D2: 2.8 mm
216-107

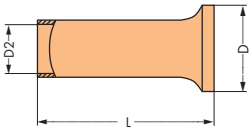
Ferrule, uninsulated,
sleeve for 6 mm²/AWG 10,
12 mm strip length,
L: 12 mm,
D: 4.7 mm, D2: 3.5 mm
216-108

Ferrules

Technical Data

Ferrule, uninsulated,	Ferrule, uninsulated,
sleeve for 10 mm²/AWG 8,	sleeve for 16 mm²/AWG 6,
12 mm strip length,	12 mm strip length,
L: 12 mm,	L: 15 mm,
D: 5.8 mm, D2: 4.5 mm	D: 7.5 mm, D2: 5.8 mm
216-109	**216-110**

Only for "Variocrimp 16":
Adjust conductor cross section with crimping tool in open position.



For dimensions of uninsulated ferrules, see technical data.

Crimping Tools

Crimping tool 25 for insulated and uninsulated ferrules crimping range: 10 mm²/AWG 8, 16 mm²/AWG 6 and 25 mm²/AWG 4	Crimping tool 50 for insulated and uninsulated ferrules crimping range: 35 mm²/AWG 2 and 50 mm²/AWG 1/0

Application notes
- Improved crimping for higher conductor retention
- The crimping can be done from either side (for left- or right-handed users)
- Built-in ratchet mechanism ensures gastight crimp connection
- The crimping tool automatically opens once the crimping process is completed
- Ergonomically designed handles

Item No.	Pack. Unit	Item No.	Pack. Unit
Crimping tool 25,		**Crimping tool 50,**	
crimping range: 10 mm²/AWG 8, 16 mm²/AWG 6 and 25 mm²/AWG 4		crimping range: 35 mm²/AWG 2 and 50 mm²/AWG 1/0	
206-225	1	**206-250**	1

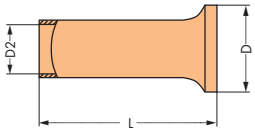
Insert ferruled conductor into crimping station.

Squeeze handles until ratchet mechanism is released.

What is “gas-tight?”
In a gas-tight connection, the conductor and the ferrule are compressed together, eliminating all spaces. Under normal atmospheric conditions, neither a liquid nor a gaseous medium can penetrate into the crimped connection.
Oxidation between crimped single conductors is prevented, ruling out nearly any increase in the crimped connection resistance.
In some exceptional cases, minute, isolated spaces may be present.
These instances can be considered as closed off due to twisted wires, however.
Inadequate crimping can allow the conductor to be pulled out of the connection. Hollow spaces also remain in which oxidation can form and lead to an increase in contact resistance.
Elevated resistance is detrimental for signal transmission, as the signal flow is damped (weakened), and for power transmission, as power loss and, hence a temperature increase due to contact (risk of fire) can result.
Crimping tools with built-in ratchets are recommended, such as the WAGO Variocrimp tools.
These tools only open after the crimping process has been fully completed. Space-saving crimping from all four sides is ideal for spring clamp termination.
Cross section data for ferruled conductors indicated for WAGO products is based on this crimping method.

Cable Cutter and Uninsulated Ferrules

Cable cutter	Ferrule, uninsulated, tin plated, electrolytic copper, gastight crimped



Item No.	Pack. Unit
Cable cutter,	
cutting Cu and Al conductors up to 35 mm²	
206-118	1

Item No.	Pack. Unit
Ferrule, uninsulated	
216-413	50
216-414	50
216-424	50
216-425	50
216-435	50

Ferrules

Technical Data

Ferrule, uninsulated,
sleeve for 25 mm²/AWG 4,
25 mm strip length,
L: 25 mm,
D: 9.5 mm, D2: 7.3 mm
216-413

Ferrule, uninsulated,
sleeve for 35 mm²/AWG 2,
25 mm strip length,
L: 25 mm,
D: 11 mm, D2: 8.3 mm
216-414

Ferrule, uninsulated,
sleeve for 35 mm²/AWG 2,
30 mm strip length,
L: 30 mm,
D: 11 mm, D2: 8.3 mm
216-424

Ferrule, uninsulated,
sleeve for 50 mm²/AWG 1,
30 mm strip length,
L: 30 mm,
D: 13 mm, D2: 10.3 mm
216-425

Ferrule, uninsulated,
sleeve for 50 mm²/AWG 1,
35 mm strip length,
L: 35 mm,
D: 13 mm, D2: 10.3 mm
216-435

Cutting a conductor.

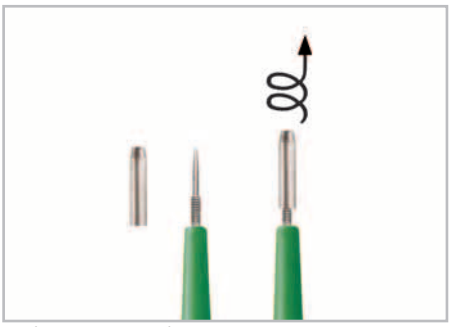
A perfect gastight crimp, both electrically and mechanically reliable.

Test and Measurement Tools

Profi LCD+	Profi LED+

Item No.	Pack. Unit
Profi LCD+,	
2-pole voltage tester with LCD display,	
removable test probes, 4 mm Ø	
Measuring range: 6 V ... 1000 V AC/DC	
Degree of protection: IP65	
Resistance measurement: up to 2000 Ω	
206-807	1
Item-Specific Accessories	
Spare test probes,	
4 mm Ø (2 pieces)	
206-808	25

Item No.	Pack. Unit
Profi LED+,	
2-pole voltage tester with LED display,	
removable test probes, 4 mm Ø	
Measuring range: 6 V ... 1000 V AC/DC	
Degree of protection: IP65	
Resistance measurement: up to 2000 Ω	
206-806	1
Item-Specific Accessories	
Spare test probes,	
4 mm Ø (2 pieces)	
206-808	25



Profi LCD+ and Profi LED+
- Improved socket contact via 4 mm Ø test probes
- Removable test probes for small test ports (suitable for all WAGO terminal blocks)

Additional product features for Profi LCD+:
- Automatic measurement range selection
- Single-pole phase testing AC >100 V
- Two-pole sequence testing (R and L)
- Continuity testing
- FI/RCD testing (30 mA) via buttons
- One-hand operation for SCHUKO and CEE sockets
- LED torch lamp function
- Automatic backlight
- Auto power-Off function
- CAT IV 1000 V
- IEC/EN 61243-3 (DIN VDE 0682-401)

Additional product features for Profi LED+:
- Automatic measurement range selection
- Single-pole phase testing AC >100 V
- Two-pole sequence testing (R and L)
- Continuity testing
- FI/RCD testing (30 mA) via buttons
- One-hand operation for SCHUKO and CEE sockets
- LED torch lamp function
- CAT IV 1000 V
- TÜV/GS tested and approved
- IEC/EN 61243-3 (DIN VDE 0682-401)

Test and Measurement Tools and Testboy

Multi-Tester	Clamp-Multi-Tester	Testboy

Item No.	Pack. Unit
Multi-Tester,	
Digital multimeter with contact-less voltage tester,	
Includes: carrying case	
Measuring range: AC/DC 600 V AC/DC 10 A	
Resistance measurement: up to 20 MΩ	
206-810	1

Item No.	Pack. Unit
Clamp-Multi-Tester, digital clamp meter	
DC and AC current up to 600 A	
- True RMS and min./max. value measurement	
- DC and AC voltage up to 600 V	
- Manual or automatic selection of measurement range	
- Resistance up to 60 MΩ, Capacitance measurement	
- Acoustical continuity test	
- Diode test, Data hold function	
- Large LCD with backlight, LED measuring point lighting	
- CAT III 600 V overvoltage protection, IEC/EN 61010-1 (DIN VDE 0411)	
- Including batteries	
- measurement leads and carrying bag	
206-816	1

Item No.	Pack. Unit
Testboy, with integrated flashlight	
Voltage range: 12 ... 1000 V AC	
206-804	1

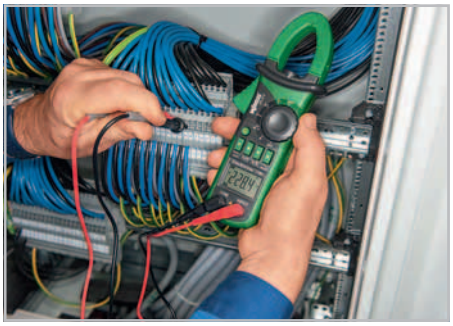
Item-Specific Accessories

Replacement test leads,

red/black

206-811 1

Additional product features for Multi Tester:
- Contact-less voltage test AC >100 V (optical and acoustical)
- Resistance measurement up to 20 MΩ
- Acoustical continuity test
- Diode test
- Data hold function
- Auto power-off function
- LED torch lamp function
- CAT IV 600 V
- TÜV/GS tested and approved
- IEC/EN 61010-1 (DIN VDE 0411)



Voltage testing in switchgear cabinet

Current measurement in switchgear cabinet

A device that will reliably detect AC voltage in cables, sockets, fuses, switches, outlets, etc.

Testboy can detect the following:
- live conductors
- cable breaks
- blown fuses (in cartridge or holder)
- defective switches
- defective lamps

DAkkS
Deutsche
Akkreditierungsstelle

Deutsche Akkreditierungsstelle GmbH

Beliehene gemäß § 8 Absatz 1 AkkStelleG i.V.m. § 1 Absatz 1 AkkStelleGBV
Unterzeichnerin der Multilateralen Abkommen
von EA, ILAC und IAF zur gegenseitigen Anerkennung

Akkreditierung

Die Deutsche Akkreditierungsstelle GmbH bestätigt hiermit, dass das Prüflaboratorium

WAGO Kontakttechnik GmbH & Co. KG
Hansastraße 27, 32423 Minden

die Kompetenz nach DIN EN ISO/IEC 17025:2005 besitzt, Prüfungen in folgenden Bereichen durchzuführen:

Elektrische und mechanische Prüfungen an Klemmen und Steckverbinder sowie Umweltsimulation

WAGO®
Seminare

CE

	Page
Technical Support	552
CE Marking and EC Directives	554
General Technical Information for Electrical Equipment in Hazardous Environments	555
Electromagnetic Compatibility and Mechanical Strength (Industrial- and Residential Areas)	556
Electromagnetic Compatibility and Mechanical Strength (Ship Building Area)	557
Specifications and Test Results	558
Electrical Engineering Laboratory: Product Safety for Our Customers	562
WAGO online and eBooks	564
WAGO Seminars	566

Product Support From

Consulting Services

- Selection of the fieldbus
- Use of components
- Combination of components
- Cooperation with other suppliers

Contact

Your national WAGO company or distributor.

The Very Beginning...

Experienced

- Trained staff
- PLC & PC control
- Multiple fieldbuses
- Programming languages
- Projects:
  - Automotive industry
  - Machine building
  - Chemical industry
  - Food processing
  - Building automation
  - Process engineering
  - Process control
  - and many more

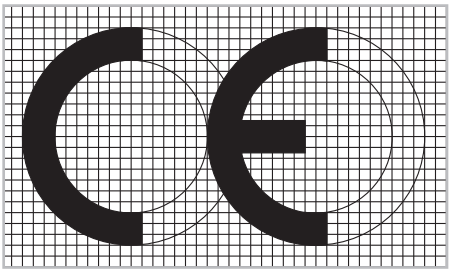
We will help you

- Product documentation
- Manuals
- Application notes
- By telephone
- On-site

CE Marking and EC Directives

CE conformity marking:

The CE conformity marking consists of the characters "CE", with the following script:



Communauté Européenne (European Community)

The CE marking shall be affixed to the electrical equipment, or if that is not possible, to the smallest packing unit. With the CE marking, manufacturers attest conformity of their products to the relevant directives.

In addition to the CE marking, the manufacturer provides an EC "Declaration of Conformity" for the product. This EC "Declaration of Conformity" must be retained and submitted to a national surveillance authority upon request. EC directives are binding legal regulations of the European Community. Their goal is the harmonization of legal and administrative regulations in the various EC member states, in order to prevent trade obstructions due to different national regulations.
In order to "market" a product, it must comply with the relevant directives. The product may be subject to several directives, e.g. the EMC and the low voltage directives.

The **EC directives** are legally binding specifications of the European Union. Their aim is the alignment of legal and administrative specifications in the various EC member states, in order to prevent trading hindrances arising from different national specifications.
In order to launch a product on the market it has to comply with the relevant directives. Several directives may apply to a product, for example the EMC and the low voltage directives.

Low Voltage Directive
The safety of electrical equipment is guaranteed by the Low Voltage Directive. This directive covers 'complete' electrical equipment designed for use with a voltage rating of between 50 and 1000V for alternating current and between 75 and 1500V for direct current. Products falling within the scope of the Low Voltage Directive that are designed in such a way that they can be used in other electrical devices and whose safety, for the most part, is dependant on how these components were built into the end product and what features the end product has are defined as basic components in accordance with the Low Voltage Directive.* The Low Voltage Directive doesn't apply to basic components.

EMC Directive
The EMC Directive implies that a product must meet the limits of the radiated electromagnetic disturbance and also requires that a product must be immune to electromagnetic interference. Electromagnetic passive components or components with no direct function, like resistors, diodes, capacitors, switching relays or cables (in the form of passive printed circuit boards) are not considered as apparatus within the meaning of the EMC Directive.

Machinery Directive
The Machinery Directive does not apply to WAGO products.

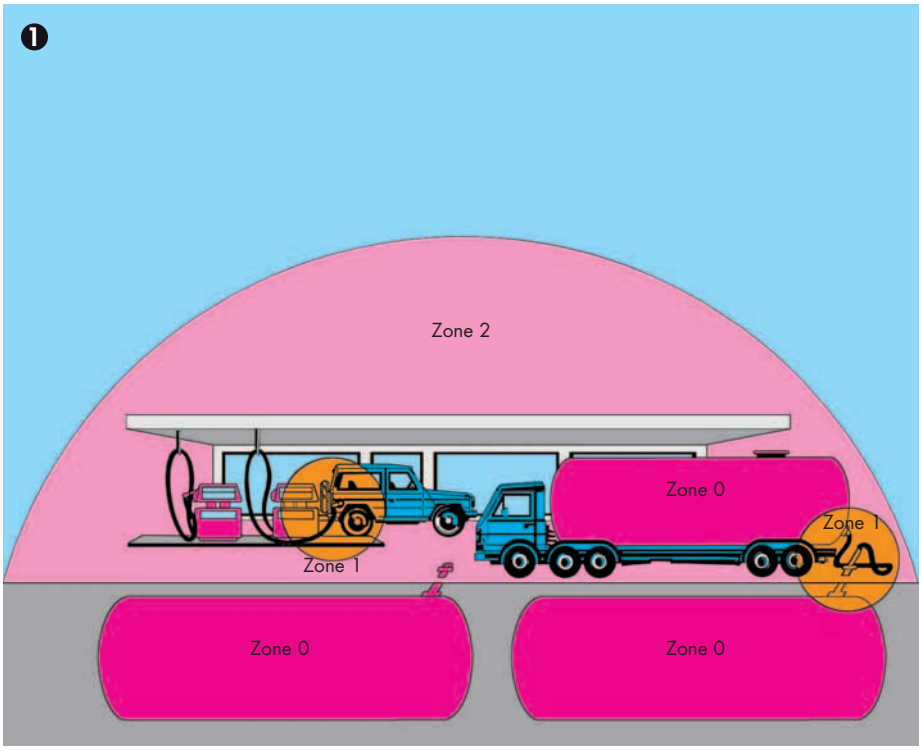
Explosive Atmospheres Directive (ATEX)
Directive for devices and protective systems intended for use in hazardous locations.

Radio Equipment Directive
A device or relevant component thereof, capable of communication by emitting and/or receiving radio waves utilizing the spectrum allocated to terrestrial/space radio communication, falls within the scope of the Radio Equipment Directive. As such, these devices and components are tested and labeled accordingly. This label implicitly includes both Low Voltage and EMC Directives, since the Radio Equipment Directive also encompasses the safety targets for both of these directives.

General Technical Information for Electrical Equipment in Hazardous Environments

Harzardous Environments
Hazardous environments are areas in which the atmosphere may become explosive. Explosive atmosphere is defined as a mixture of ignitable substances in the form of gases, vapors or mixtures with air under atmospheric conditions in critically mixed ratios such that excessive high temperature, arcs or sparks may cause an explosion.

DIN EN 1127-1 and all other related standards that are commonly known divide up hazardous areas according to the likelihood of the occurrence of an explosive atmosphere into the following zones:

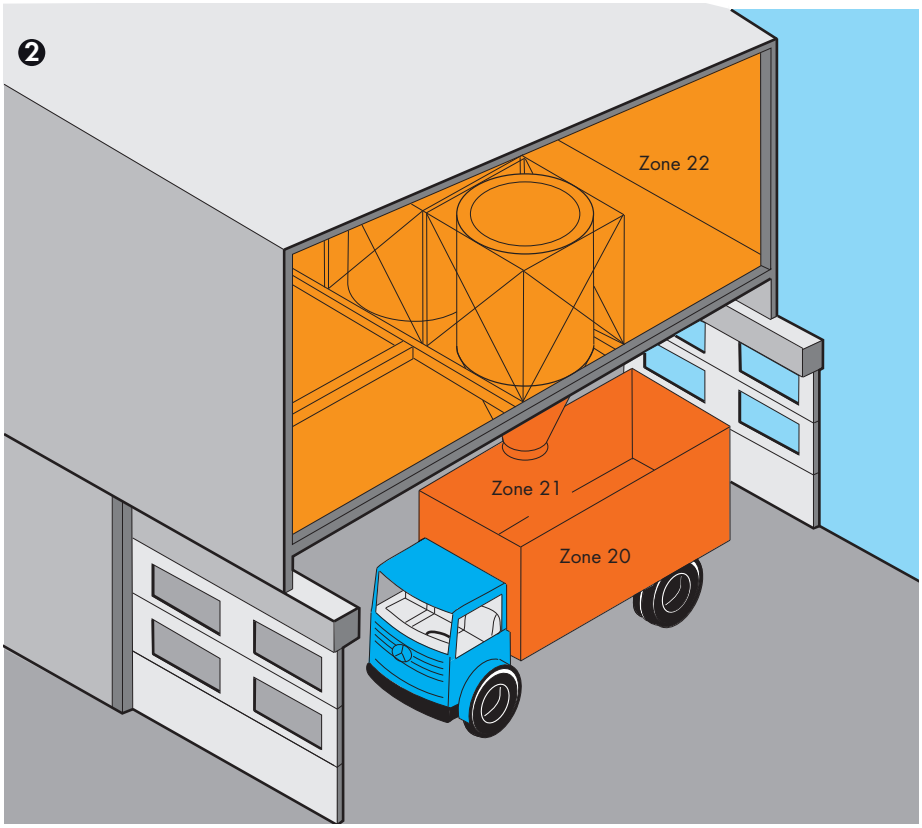


❶ Hazardous environments as a result of combustible gases, vapors or mist.

Zone 0:
Area in which an explosive gas/air mixture is continuously present or present for long periods.

Zone 1:
Area in which an explosive atmosphere can occur during normal operation.

Zone 2:
Area in which an explosive atmosphere is unlikely to occur under normal operation and if it does it will be for a short period.



❷ Hazardous areas caused by combustible dust

Zone 20:
Area in which an explosive dusty atmosphere is present "permanently", for "long periods" or "frequently" and in which deposits of combustible dust of unknown or excessive thickness may be formed. Dust deposits alone are not grounds for classification as Zone 20.

Zone 21:
Area in which an explosive dusty atmosphere is present "occasionally" under normal operating conditions and in which deposits or layers of combustible dust can generally be present.

Zone 22:
Area in which an explosive dusty atmosphere is not likely to occur during normal operation and, if it occurs, will only exist for a "short period", or in which accumulations or layers of combustible dust are present.

Please refer to the manuals for more information on explosion protection.

Electromagnetic Compatibility and Mechanical Strength (Industrial and Residential Areas)

Immunity to interference for industrial areas acc. to EN 61000-6-2

Test Specification		Test Values	Evaluation Criteria *)
EN 61000-4-2	ESD	4 kV/8 kV (contact/air)	B
EN 61000-4-3	electromagnetic fields	10 V/m: 80 MHz ... 1 GHz	A
		3V/m: 1.4 GHz ... 2.0 GHz	A
		1V/m: 2.0 GHz ... 2.7 GHz	A
EN 61000-4-4	burst	1 kV/2 kV (data/supply)	B
EN 61000-4-5	surge	Data: - / 1 kV (line : line / line : earth)	B
		DC supply: 0.5 kV / 0.5 kV (line : line / line : earth)	B
		AC supply: 1 kV / 2 kV (line : line / line : earth)	B
EN 61000-4-6	RF distrurbances	10 V/m, 80 % AM (0.15 MHz ... 80 MHz)	A
EN 61000-4-8	Magnetic field	30 A/m, 50/60Hz	A
*)	Criteria A: The device must work in accordance with the regulations during and after the test. Criteria B: The device must work in accordance with the regulations after the test.		

Emission of interference for residential areas acc. to EN 61000-6-3

Test Specification		Limit Values/ Quasi Peak	Frequency Range	Distance
EN 55016-2-1	AC supply, conducted	66 ... 56 dB(µV)	150 kHz ... 500 kHz	
		56 dB(µV)	500 kHz ... 5 MHz	
		60 dB(µV)	5 MHz ... 30 MHz	
EN 55016-2-1	DC supply/data line	79 dB(µV)	150 kHz ... 500 kHz	
	conducted	73 dB(µV)	500 kHz ... 30 MHz	
EN 55016-2-3	radiated	30 dB(µV/m)	30 MHz ... 230 MHz	10 m
		37 dB(µV/m)	230 MHz ... 1 GHz	10 m
EN 55022	Telecommunications/	84 ... 74 dB(µV)	150 kHz ... 500 kHz	
	Mains connection, conducted	74 dB(µV)	500 kHz ... 30 MHz	

Emission of interference for industrial areas acc. to EN 61000-6-4

Test Specification		Limit Values/ Quasi Peak	Frequency Range	Distance
EN 55016-2-1	AC supply, conducted	79 dB(µV)	150 kHz ... 500 kHz	
EN 55016-1-2		73 dB(µV)	500 kHz ... 30 MHz	
EN 55016-2-3	radiated	40 dB(µV/m)	30 MHz ... 230 MHz	10 m
		47 dB(µV/m)	230 MHz ... 1 GHz	10 m
EN 55022	Telecommunications/	97 ... 87 dB(µV)	150 kHz ... 500 kHz	
	Mains connection, conducted	87 dB(µV)	500 kHz ... 30 MHz	

Mechanical strength acc. to EN 61131-2

Test Specification		Frequency Range	Limit Values
IEC 60068-2-6	vibration	5 Hz ≤ f < 9 Hz	1.75 mm amplitude (permanent)
			3.5 mm amplitude (short term)
		9 Hz ≤ f < 150 Hz	0.5 g (permanent)
			1 g (short term)
		Note on vibration test:	
		a) Frequency change: max. 1 octave/minute	
		b) Vibration direction: 3 axes	
IEC 60068-2-27	shock		15 g
		Note on shock test:	
		a) Type of shock: half sine	
		b) Shock duration: 11 ms	
		c) Shock direction: 3x in positve and 3x in negative direction for each of the three mutually perpendicular axes of the test specimen	

Electromagnetic Compatibility and Mechanical Strength (Ship Building Area)

Immunity to interference acc. to Germanischer Lloyd

Test Specification		Test Values	Evaluation Criteria *)
IEC 61000-4-2	ESD	6 kV/8 kV (contact/air)	B
IEC 61000-4-3	electromagnetic fields	10 V/m, 80 MHz ... 2 GHz	A
IEC 61000-4-4	burst	1 kV /2 kV (data/supply)	A
IEC 61000-4-5	surge	0,5 kV /1 kV (line : line / line : earth)	A
IEC 61000-4-6	RF distrurbances	10 V, 80 % AM (0.15 ... 80 MHz)	A
Type Test	AF distrurbances (harmonic waves)	3 V, 2 W	A
Type Test	high voltage	755 V DC	-
		1500 V AC	-
*)	Criteria A: The device must work in accordance with the regulations during and after the test. Criteria B: The device must work in accordance with the regulations after the test.		

Emission of interference acc. to Germanischer Lloyd

Test Specification		Limit Values/ Quasi Peak	Frequency Range	Distance
Type Test	EMC 1, conducted	96 ... 50 dB(µV)	10 kHz ... 150 kHz	
	(allows for ship bridge	60 ... 50 dB(µV)	150 kHz ... 350 kHz	
	control applications)	50 dB(µV)	350 kHz ... 30 MHz	
Type Test	EMC 1, radiated	80 ... 52 dB(µV/m)	150 kHz ... 300 kHz	3 m
	(allows for ship bridge	52 ... 34 dB(µV/m)	300 kHz ... 30 MHz	3 m
	control applications)	54 dB(µV/m)	30 MHz ... 2 GHz	3 m
	except for:	24 dB(µV/m)	156 MHz ... 165 MHz	3 m
Type Test	EMC 2, conducted	120 ... 69 dB(µV)	10 kHz ... 150 kHz	
	(allows for machine room	79 dB(µV)	150 kHz ... 500 kHz	
	applications)	73 dB(µV)	500 kHz ... 30 MHz	
Type Test	EMC 2, radiated	80 ... 50 dB(µV/m)	150 kHz ... 30 MHz	3 m
	(allows for machine room	60 ... 54 dB(µV/m)	30 MHz ... 100 MHz	3 m
	applications)	54 dB(µV/m)	100 MHz ... 2 GHz	3 m
	except for:	24 dB(µV/m)	156 MHz ... 165 MHz	3 m

Mechanical strength acc. to Germanischer Lloyd

Test Specification		Frequency Range	Limit Values
IEC 60068-2-6	vibration (category A, C)	2 Hz ≤ f < 13,2 Hz	±1.0 mm Amplitude (permanent)
		13.2 Hz ≤ f < 100 Hz	0.7 g (permanent)
		Note on vibration test:	
		a) Frequency change: max. 1 octave/minute	
		b) Vibration direction: 3 axes	
IEC 60068-2-6	vibration (category A-D)	2 Hz ≤ f < 25 Hz	±1.6 mm Amplitude (permanent)
		25 Hz ≤ f < 100 Hz	4 g (permanent)
		Note on vibration test:	
		a) Frequency change: max. 1 octave/minute	
		b) Vibration direction: 3 axes	

Specifications and Test Results

In particular the following standards apply to the design and the application of the terminal blocks and connectors contained in this catalog:

DIN VDE 0100
Construction of high current installations with nominal voltages up to 1000V

EN 50110-1
VDE 0105-1
Operation of electrical installations

IEC 61140
EN 61140
VDE 0140-1
Protection against electric shock - Common aspects for installation and equipment

IEC 60664-1
EN 60664-1
VDE 0110-1
Insulation coordination for equipment within low-voltage systems - Part 1: Principles, requirements and tests

IEC 60204-1
EN 60204-1
VDE 0113-1
Safety of machinery - Electrical equipment of machines - Part 1: General requirements

EN 50178
VDE 0160
Electronic equipment for use in power installations

IEC 62305-1
EN 62305-1
VDE 0185-305-1
Protection against lightning - Part 1: General principles

IEC 60060-1
HD 588.1 S1
VDE 0432-1
High voltage test techniques; part 1: general specifications and test requirements

IEC 60085
EN 60085
VDE 0301-1
Electrical insulation - Thermal evaluation and designation

IEC 60529
EN 60529
VDE 0470-1
Degrees of protection provided by enclosures (IP code)

IEC 60603-1
EN 60603-1
Connectors for frequencies below 3 MHz for use with printed boards - Part 1: Generic specification: General requirements and guide for the preparation of detail specifications, with assessed quality

IEC 61984
EN 61984
VDE 0627
Connectors - Safety requirements and tests

IEC 60999-1
EN 60999-1
VDE 0609-1
Connecting devices - Electrical copper conductors; Safety requirements for screw-type and screwless-type clamping units - Part 1: General requirements and particular requirements for clamping units for conductors 0.2 mm^2 up to 35 mm^2

IEC 60617-2
EN 60617-2
Graphical symbols for diagrams - Part 2: Symbol elements, qualifying symbols and other symbols having general application

IEC 61558-1
EN 61558-1
VDE 0570-1
Safety of power transformers, power supplies, reactors and similar products - Part 1: General requirements and tests

IEC 60669-2-1
EN 60669-2-1
VDE 0632-2-1
Switches for household and similar fixed electrical installations - Part 2-1: Particular requirements - Electronic switches

IEC 60947-7-1
EN 60947-7-1
VDE 0611-1
Low-voltage switchgear and controlgear - Part 7-1: Ancillary equipment - Terminal blocks for copper conductors

IEC 60998-2-2
EN 60998-2-2
VDE 0613-2-2
Connecting devices for low-voltage circuits for household and similar purposes - Part 2-2: Particular requirements for connecting devices as separate entities with screwless-type clamping units

IEC 60947-1
EN 60947-1
VDE 0660-100
Low-voltage switchgear and controlgear - Part 1: General rules

IEC 60947-5-6
EN 60947-5-6
VDE 0660-212
Low-voltage switchgear and controlgear - Part 5-6: Control circuit devices and switching elements, DC interface for proximity sensors and switching amplifiers (NAMUR)

IEC 60439-1
EN 60439-1
VDE 0660-500
Low-voltage switchgear and controlgear assemblies - Part 1: Type-tested and partially type-tested assemblies

IEC 60555-1
EN 60555 part 1
VDE 0838-1
Disturbances in supply systems caused by household appliances and similar electrical equipment; part 1: definitions

IEC 60715
EN 60715
Dimensions of low-voltage switchgear and controlgear - Standardized mounting on rails for mechanical support of electrical devices in switchgear and controlgear installations

IEC 60950-1
EN 60950-1
VDE 0805-1
Information technology equipment - Safety - Part 1: General requirements

IEC 60127-6
EN 60127-6
VDE 0820-6
Miniature fuses - Part 6: Fuse-holders for miniature fuse-links

EN 50155
VDE 0115-200
Railway applications - Electronic equipment used on rolling stock

EN 50090-2-2
VDE 0829-2-2
Home and Building Electronic Systems (HBES) - Part 2-2: System overview - General technical requirements; German version

IEC 60099-1
EN 60099-1
VDE 0675-1
Surge arresters - Part 1: Non-linear resistor type gapped surge arresters for a.c. systems

IEC 61643-1
EN 61643-11
VDE 0675-6-11
Low-voltage surge protective devices - Part 11: Surge protective devices connected to low-voltage power systems - Requirements and tests

IEC 61643-21
EN 61643-21
VDE 0845-3-1
Low voltage surge protective devices - Part 21: Surge protective devices connected to telecommunications and signalling networks; Performance requirements and testing methods

IEC 61508-1
EN 61508-1
VDE 0803-1
Functional safety of electrical/electronic/programmable electronic safety-related systems - Part 1: General requirements

IEC 62061
EN 62061
VDE 0113-50
Safety of machinery - Functional safety of safety-related electrical, electronic and programmable electronic control systems

Interfaces - Fieldbuses

DIN 66259-1
Electrical characteristics for unbalanced double-current interchange circuits

EN 50325-1
Industrial communications subsystem based on ISO 11898 (CAN) for controller-device interfaces - Part 1: General requirements

IEC 61784-1
EN 61784-1
Industrial communication networks - Profiles - Part 1: Fieldbus profiles

IEC 61158-2
EN 61158-2
Industrial communication networks - Fieldbus specifications - Part 2: Physical layer specification and service definition

IEC 61158-6-x
EN 61158-6-x
DIN EN 61158-6-x
Industrial communication networks - Fieldbus specifications - Part 6-x

Explosion Protection

IEC 60079-0
EN 60079-0
VDE 0170-1
Electrical apparatus for explosive gas atmospheres - Part 0: General requirements

IEC 60079-7
EN 60079-7
VDE 0170-6
Explosive atmospheres - Part 7: Equipment protection by increased safety "e"

IEC 60079-11
EN 60079-11
VDE 0170-7
Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"

IEC 60079-14
EN 60079-14
VDE 0165-1
Explosive atmospheres - Part 14: Electrical installations design, selection and erection

IEC 60079-15
EN 60079-15
VDE 0170-16
Electrical apparatus for explosive gas atmospheres - Part 15: Construction, test and marking of type of protection "n" electrical apparatus

IEC 61241-0
EN 61241-0
VDE 0170-15-0
Electrical apparatus for use in the presence of combustible dust - Part 0: General requirements

IEC 61241-1
EN 61241-1
VDE 0170-15-1
Electrical apparatus for use in the presence of combustible dust - Part 1: Protection by enclosures "tD"

IEC 61241-11
EN 61241-11
VDE 0170-15-11
Electrical apparatus for use in the presence of combustible dust - Part 11: Protection by intrinsic safety "iD"

Specifications and Test Results (continued)

Environmental Testing

IEC 60068-2-6
EN 60068-2-6
VDE 0468-2-6
Environmental testing - Part 2-6: Tests - Test Fc: Vibration (sinusoidal)

IEC 60068-2-27
EN 60068-2-27
Basic environmental testing procedures - Part 2: Tests; test Ea and guidance: Shock

IEC 60068-2-42
EN 60068-2-42
Environmental testing - Part 2-42: Tests - Test Kc: Sulphur dioxide test for contacts and connections

IEC 60068-2-43
EN 60068-2-43
Environmental testing - Part 2-43: Tests - Test Kd: Hydrogen sulphide test for contacts and connections

EMC Requirements

IEC 61000-6-1
EN 61000-6-1
VDE 0839-6-1
Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments

IEC 61000-6-2
EN 61000-6-2
VDE 0839-6-2
Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments

IEC 61000-6-3
EN 61000-6-3
VDE 0839-6-3
Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments

IEC 61000-6-4
EN 61000-6-4
VDE 0839-6-4
Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments

IEC 61000-3-2
EN 61000-3-2
VDE 0838-2
Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)

IEC/CISPR 11
EN 55011
VDE 0875-11
Industrial scientific and medical (ISM) radio-frequency equipment - Electromagnetic disturbance characteristics - Limits and methods of measurement

IEC/CISPR 22
EN 55022
VDE 0878-22
Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement

IEC/CISPR 24
EN 55024
VDE 0878-24
Information technology equipment - Immunity characteristics - Limits and methods of measurement

IEC 61326-3-1
EN 61326-3-1
VDE 0843-20-3-1
Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 3-1: Immunity requirements for safety-related systems and for equipment intended to perform safety-related functions (functional safety) - General industrial applications

PLC

IEC 61131-1
EN 61131-1
Programmable controllers -
Part 1: General information

IEC 61131-2
EN 61131-2
VDE 0411-500
Programmable controllers -
Part 2: Equipment requirements and tests

IEC 61131-3
EN 61131-3
Programmable controllers -
Part 3: Programming languages

Relays

IEC 61810-1
EN 61810-1
VDE 0435-201
Electromechanical elementary relays -
Part 1: General requirements

IEC 61810-2
EN 61810-2
VDE 0435-120
Electromechanical elementary relays -
Part 2: Reliability

IEC 61810-5
EN 50205
VDE 0435-2022
Electromechanical non-specified time all-or-nothing relays - Part 5: Insulation coordination

IEC 60255-5
EN 60255-5
VDE 0435-130
Electrical relays - Part 5: Insulation coordination for measuring relays and protection equipment - Requirements and tests

UL Directives

UL 1059; ANSI 1059
Terminal blocks

UL 486E
Equipment wiring terminals for use with aluminum and/or copper conductors

UL 508
Industrial control equipment

ANSI/ISA12.12.01
Nonincendive electrical equipment for use in Class I and Class II, Division 2 and Class III, Divisions 1 and 2 hazardous (classified) locations

Ship Classifications

ABS (American Bureau of Shipping)
Steel Vessels
Part 4: Vessel Systems and Machinery

BV (Bureau Veritas)
Rules for the classification of steel ships and offshore units

DNV (Det Norsk Veritas)
Det Norsk Veritas' Rules for Classification of Ships, High Speed & Light Craft and
Det Norsk Veritas' Offshore Standards

GL (Germanischer Lloyd)
Rules for Classification and Construction
VI Additional Rules and Guidelines
7 Guidelines for the Performance of Type Test
2 Test Requirements for Electrical/Electronic Devices and Systems

LR (Lloyds Register)
Type Approval System
Test Specification Number1

RINA (Registro Italiano Navale)
Rules for the classification of ships
Part C – Machinery, systems and fire protection Ch.3, Sect.6, Table1

BSH (Federal Maritime and Hydrographic Agency)
Certificate on measurement of safe distance to the standard magnetic and steering magnetic compass in accordance with ISO R 695 and DIN EN 60945 Section 11.2

KR (Korean Register of Shipping)
List of Approved Manufacturers and Type Approved Equipment; Pt. 6, Ch. 1, Sec. 3 of the Rules for Classification of Steel Ships

NKK (Nippon Kaiji Kyokai)
Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use

PRS (Polski Rejestr Statkow)
Publication No. 11/P
Enviromental Tests on Marine Equipment

Electrical Engineering Laboratory: Product Safety for Our Customers

The WAGO laboratory in Minden is an "accredited test lab for electrical and mechanical tests on terminal blocks and connectors, as well as for environment simulations."

Accreditation, as ISO/IEC 17011:2004 defines, is a third party-attestation related to a conformity assessment body conveying formal demonstration of its competence to carry out specific conformity assessment tasks.

Accreditation, according to DIN EN ISO/IEC 17025, is granted by the Deutsche Akkreditierungsstelle GmbH DAkkS (German Accreditation Office GmbH DAkkS). This national accreditation office, which was established by the German Federal Ministry for Economics and Technology (BMWi), certifies that our test laboratory is officially recognized as possessing the necessary expertise to conduct defined tests and types of tests independently and objectively.

Through obtaining the accreditation, the following objectives were achieved:

- Customer requirements
- Workflow optimization
- Clearly defined processes
- Clear organization and structure
- Greater transparency
- Consistent, high-quality laboratory testing
- Maximum traceability
- Traceable measurement results
- Sustainable quality awareness

High-voltage test

Visitor center

Conductor retention force testing

Vibration- and shock-resistance testing

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Unterzeichnerin der Multilateralen Abkommen
von EA, ILAC und IAF zur gegenseitigen Anerkennung

Akkreditierung

Die Deutsche Akkreditierungsstelle GmbH bestätigt hiermit, dass das Prüflaboratorium

WAGO Kontakttechnik GmbH & Co. KG
Hansastraße 27, 32423 Minden

die Kompetenz nach DIN EN ISO/IEC 17025:2005 besitzt, Prüfungen in folgenden Bereichen durchzuführen:

Elektrische und mechanische Prüfungen an Klemmen und Steckverbinder sowie Umweltsimulation

Die Akkreditierungsurkunde gilt nur in Verbindung mit dem Bescheid vom 18.12.2014 mit der Akkreditierungsnummer D-PL-19704-01 und ist gültig bis 17.12.2019. Sie besteht aus diesem Deckblatt, der Rückseite des Deckblatts und der folgenden Anlage mit insgesamt 5 Seiten.

Registrierungsnummer der Urkunde: **D-PL-19704-01-00**

Frankfurt am Main, 18.12.2014

Im Auftrag Dipl.-Ing. (FH) Ralf Egner
Abteilungsleiter

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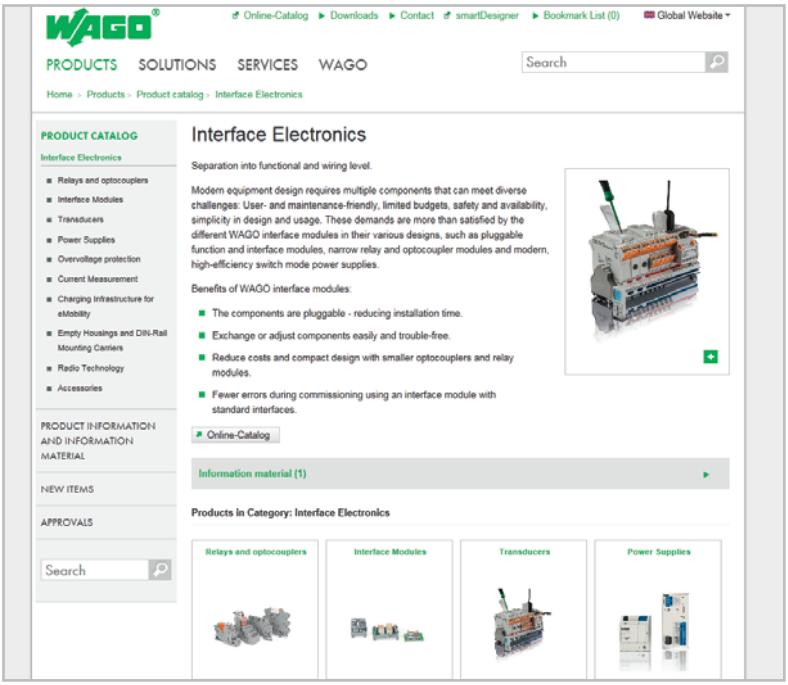

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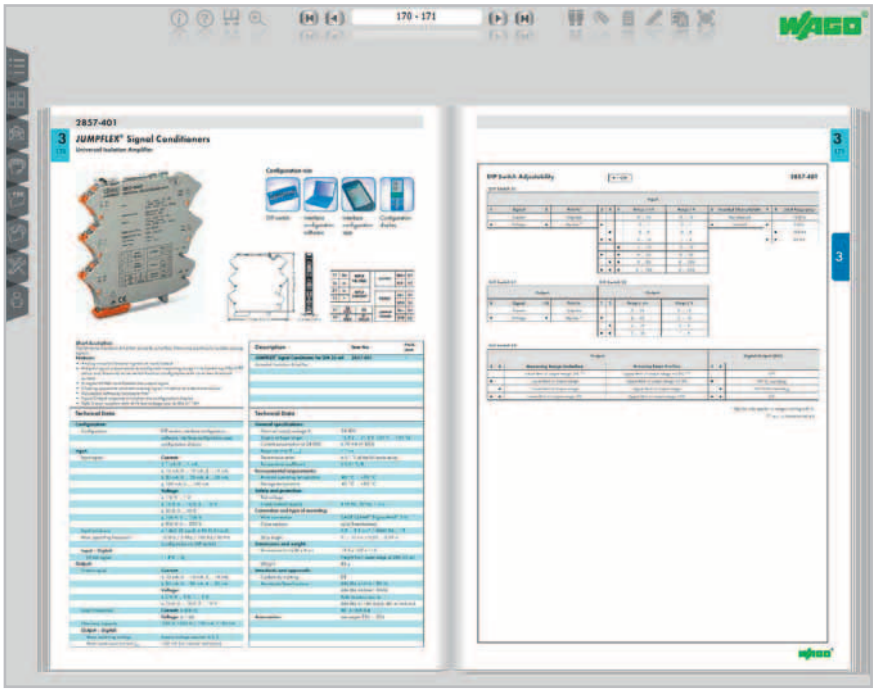

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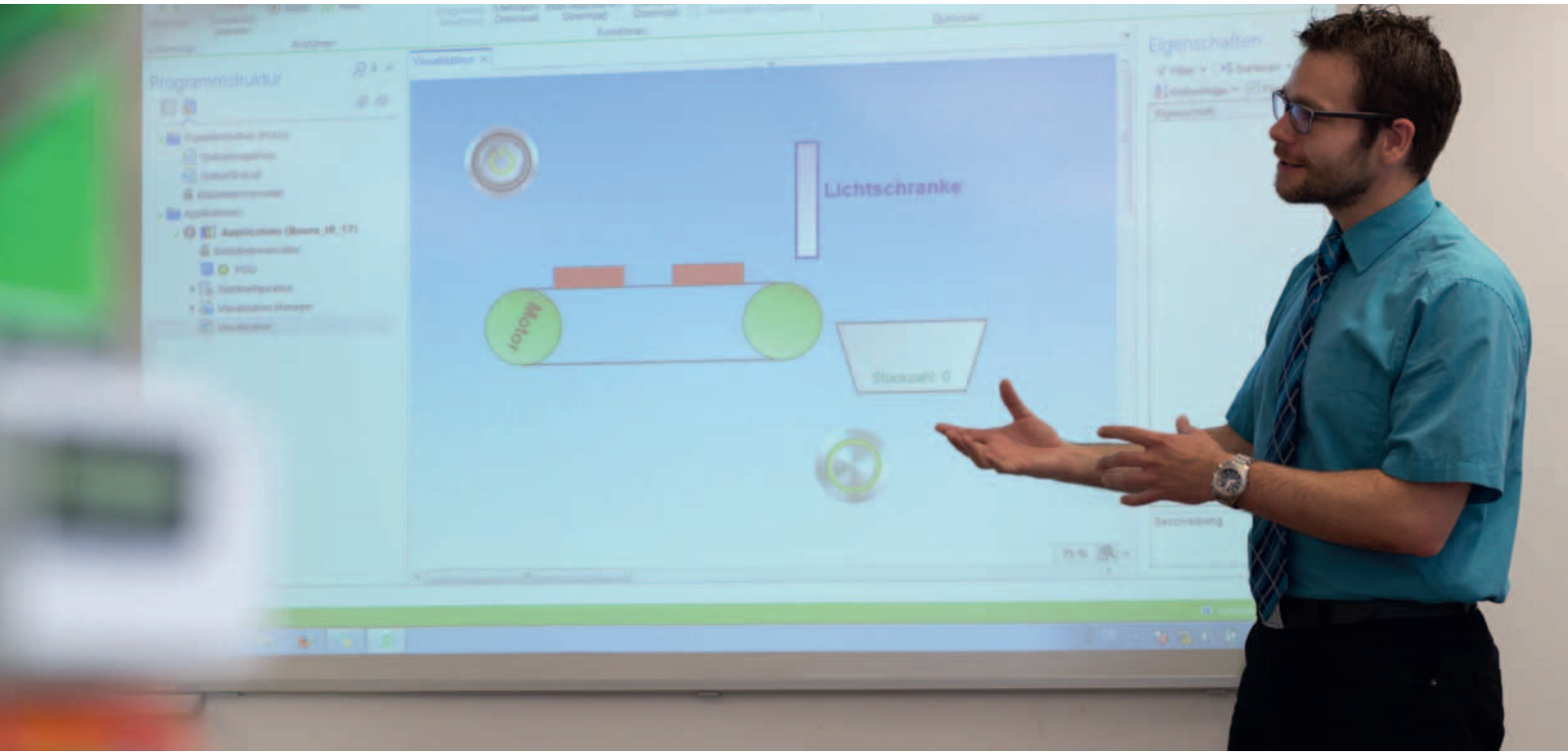

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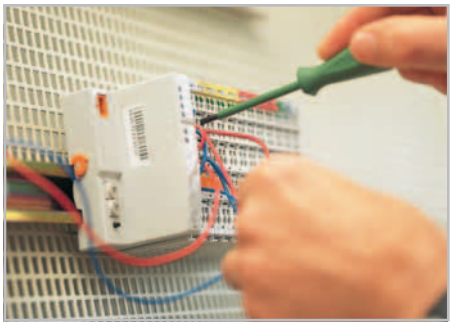

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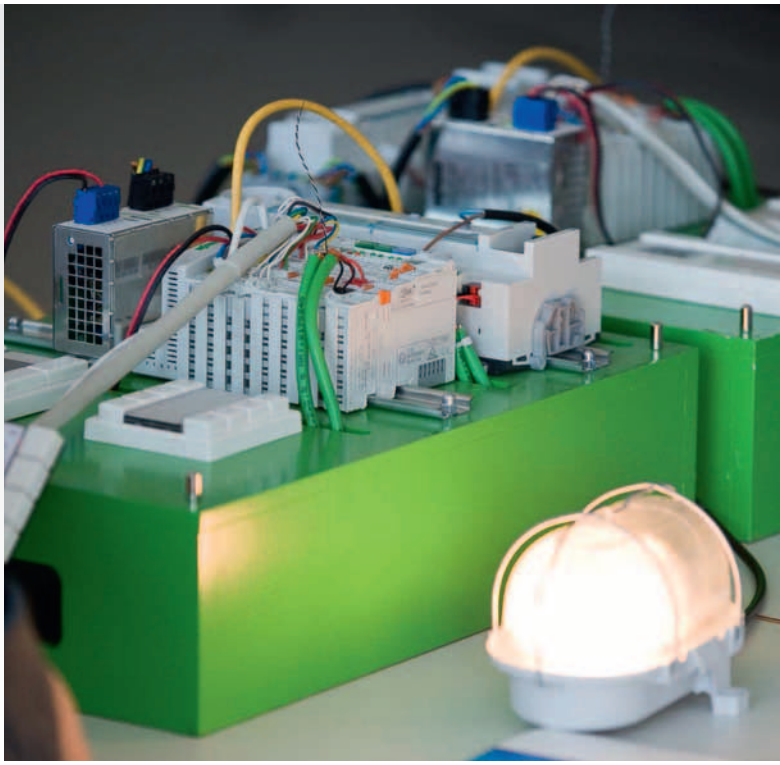

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	Page
Item Number Index	570
WAGO Locations – Worldwide	578

Item Number Index

Item no.	Page
206 Series	
206-118	546
206-124	541
206-125	541
206-126	541
206-127	541
206-128	541
206-170	540
206-171	540
206-173	540
206-174	540
206-204	542
206-216	542
206-225	546
206-250	546
206-804	549
206-806	548
206-807	548
206-808	548
206-810	549
206-811	549
206-816	549
209 Series	
209-100	533
209-106	521
209-109	532
209-112	520
209-113	520
209-114	520
209-119	464
209-120	464
209-128	522
209-129	539
209-130	539
209-140	520
209-141	520
209-142	520
209-143	522
209-144	522
209-145	520
209-183	521
209-184	521
209-185	521
209-188	464
209-196	535
209-290	516
209-501	457
209-552	100
209-601	100
209-682	100
209-685	100
209-686	100
209-690	100
209-691	100
209-692	100
209-693	100
209-701	100
209-701/000-002	100
209-701/000-005	100
209-701/000-006	100
209-701/000-007	100
209-701/000-012	100
209-701/000-017	100
209-701/000-023	100
209-701/000-024	100
209-702	100
209-782	100
209-783	100
209-784	100
209-787	100
209-789	100
209-951	100
209-952	100
209-953	100
209-954	100
209-955	100
209-957	100
209-994	100
209-995	100
209-996	100
209-997	100
210 Series	
210-110	521
210-111	537
210-112	532
210-113	532
210-114	532
210-115	532
210-118	532
210-133	486
210-141	539
210-143	539
210-148	533
210-149	533
210-196	532
210-197	532
210-198	532
210-295	537
210-296	537
210-331	525
210-332	525
210-333	525
210-333/1000-001	524
210-333/1000-074	524
210-333/1000-075	524
210-333/1000-076	524
210-333/1000-077	524
210-333/1000-078	524
210-333/1000-079	524
210-333/1000-110	524
210-333/1000-111	524
210-333/1000-112	524
210-333/1000-113	524
210-333/1000-202	524
210-333/1000-204	524
210-333/1000-206	524
210-333/1000-208	524
210-333/1200-001	524
210-333/1200-074	524
210-333/1200-075	524
210-333/1200-076	524
210-333/1200-077	524
210-333/1200-078	524
210-333/1200-079	524
210-333/1200-103	524
210-333/1200-104	524
210-333/1200-105	524
210-333/1200-106	524
210-333/1200-107	524
210-333/1200-203	524
210-333/500-001	524
210-333/500-002	524
210-333/500-003	524
210-333/500-004	524
210-333/500-005	524
210-333/500-006	524
210-333/500-007	524
210-333/500-008	524
210-333/500-009	524
210-333/500-010	524
210-333/500-011	524
210-333/500-021	524
210-333/500-074	524
210-333/500-075	524
210-333/500-076	524
210-333/500-077	524
210-333/500-078	524
210-333/500-079	524
210-333/600-001	524
210-333/600-006	524
210-333/600-007	524
210-333/600-008	524
210-333/600-009	524
210-333/600-010	524
210-333/600-011	524
210-333/600-021	524
210-333/600-074	524
210-333/600-075	524
210-333/600-076	524
210-333/600-077	524
210-333/600-078	524
210-333/600-079	524
210-333/600-103	524
210-333/600-104	524
210-333/600-105	524
210-333/600-106	524
210-333/700-001	524
210-333/700-020	524
210-333/700-021	524
210-333/700-074	524
210-333/700-075	524
210-333/700-076	524
210-333/700-077	524
210-333/700-078	524
210-333/700-079	524
210-333/700-108	524
210-333/700-109	524
210-333/800-001	524
210-333/800-002	524
210-333/800-003	524
210-333/800-004	524
210-333/800-005	524
210-333/800-006	524
210-333/800-007	524
210-333/800-008	524
210-333/800-009	524
210-333/800-010	524
210-333/800-011	524
210-333/800-074	524
210-333/800-075	524
210-333/800-076	524
210-333/800-077	524
210-333/800-078	524
210-333/800-079	524
210-333/800-209	524
210-334	525
210-335	525
210-345	520
210-492	457
210-504	533
210-505	533
210-506	533
210-508	533
210-533	462
210-549	535
210-612	521
210-620	461
210-647	538
210-648	538
210-657	539
210-658	539
210-719	538
210-720	538
210-721	538
210-722	538
210-801	530
210-802	530
210-803	530
210-804	530
210-805	530
210-805/000-002	530
210-806	530
210-806/000-002	530
210-807	530
210-807/000-002	530
210-808	530
210-810	530
210-811	530
210-811/000-002	530
210-831	531
210-832	531
210-833	531
210-834	531
210-850	531
210-851	531
210-852	531
210-853	531
210-854	531
210-855	531
210-856	531
210-857	531
210-858	531
210-859	531
210-860	531
210-861	531
210-862	531
210-863	531
211 Series	
211-110	528
211-111	528
211-112	528
211-113	528
211-114	528
211-115	528
211-120	528
211-121	528
211-123	528
211-124	528
211-125	528
211-129	528
211-150	529
211-151	529
211-155	529
211-156	529
211-161	529
211-162	529
211-811	530
211-812	530
211-813	530
211-821	530
211-823	530
211-824	530
211-829	530
211-835	530
211-836	530
211-855	530
211-856	530
211-857	530
211-861	530
211-862	530
211-863	530

Item no.	Page
216 Series	
216-101	544
216-102	544
216-103	544
216-104	544
216-106	544
216-107	544
216-108	544
216-109	544
216-110	544
216-121	544
216-122	544
216-123	544
216-124	544
216-131	544
216-132	544
216-151	544
216-152	544
216-201	542
216-202	542
216-203	542
216-204	542
216-205	542
216-206	542
216-207	542
216-208	542
216-209	542
216-210	542
216-221	542
216-222	542
216-223	542
216-224	542
216-301	542
216-302	542
216-321	542
216-322	542
216-413	546
216-414	546
216-424	546
216-425	546
216-435	546
216-542	55
248 Series	
248-450	72
248-451	72
248-452	72
248-453	72
248-454	72
248-455	72
248-472	516
248-474	516
248-501	517
248-501/000-002	517
248-501/000-005	517
248-501/000-006	517
248-501/000-007	517
248-501/000-012	517
248-501/000-017	517
248-501/000-023	517
248-501/000-024	517
248-502	516
248-503	516
248-504	516
248-505	516
248-506	516
248-566	516
248-569	516
248-570	516
248-571	516
248-572	516
248-573	516

Item no.	Page
249 Series	
249-101	537
249-105	521
249-116	518
249-117	518
249-118	519
249-119	519
249-120	519
249-197	518
249-606	100
249-607	100
249-608	100
249-622	100
249-623	100
249-651	100
249-653	100
249-654	100
249-656	100
258 Series	
258-150	528
258-200	501
258-298	500
258-328	528
258-350	528
258-370	528
258-5000	499
258-5005	499
258-5006	499
258-5007	499
258-5008	499
258-5015	499
264 Series	
264-900	516
264-901	516
264-902	516
264-903	516
264-904	516
264-905	516
279 Series	
279-432	539
279-433	539
279-440	539
280 Series	
280-101	458
280-340	472
280-341	472
280-432	539
280-433	539
280-434	539
280-435	539
280-436	539
280-437	539
280-438	539
280-439	539
280-440	539
280-502/281-582	473
280-502/281-583	473
280-502/281-584	473
280-502/281-585	473
280-502/281-586	473
280-502/281-587	473
280-502/281-588	473
280-502/281-589	473
280-502/281-590	473
280-502/281-591	473
280-502/281-592	473
280-502/281-593	473
280-502/281-594	473
280-502/281-595	473

Item no.	Page
280-502/281-602	472
280-502/281-603	472
280-502/281-604	472
280-502/281-605	472
280-502/281-606	472
280-502/281-607	472
280-502/281-608	472
280-502/281-609	472
280-502/281-610	472
280-502/281-611	472
280-502/281-612	472
280-502/281-613	472
280-502/281-614	472
280-503/281-579	474
280-503/281-580	474
280-503/281-581	474
280-504/281-582	476
280-504/281-583	476
280-504/281-584	476
280-504/281-585	476
280-504/281-586	476
280-504/281-587	476
280-504/281-588	476
280-601	458
280-606	458
280-608	82
280-609	83
280-610	458
280-616	458
280-618	82
280-619	83
280-621	458
280-628	85
280-629	87
280-636	88
280-638	85
280-639	87
280-681	458
280-686	458
280-762	82
280-763	83
280-764	85
280-765	87
280-801	458
280-802	458
280-803	458
280-804	458
280-833	458
280-901	458
280-916	458
280-944/281-589	476
280-944/281-590	476
280-944/281-591	476
280-944/281-592	476
280-944/281-593	476
280-944/281-594	476
280-944/281-595	476
281 Series	
281-440	539
281-482	35
282 Series	
282-369	533
286 Series	
286-110	456
286-111	456
286-112	456
286-113	456

Item no.	Page
286-304	83
286-304/004-000	92
286-307/004-000	92
286-312	84
286-312/004-000	92
286-315	84
286-316	84
286-320	86
286-320/004-000	92
286-328	86
286-328/004-000	92
286-336/001-000	92
286-344/004-000	92
286-352/004-000	92
286-364	82
286-364/004-000	92
286-368	82
286-370	82
286-376	89
286-380	90
286-381	90
286-394/004-000	92
286-507	83
286-508	83
286-512	85
286-513	85
286-516	85
286-573	94
286-574	95
286-575	96
286-579	88
286-604/004-000	92
286-640	98
286-640/004-000	92
286-662	440
286-665	441
286-721	160
286-723	162
286-752	158
286-752/002-000	161
286-790	165
286-791	163
286-792	164
286-794	164
286-803	432
286-805	432
286-807	432
286-809	432
286-822	427
286-825	447
286-826	446
286-830	424
286-831	480
286-832	481
286-833	479
286-834	479
286-834/024-000	480
286-835	477
286-835/115-000	477
286-836	477
286-838	478
286-838/115-000	478
286-840	424
286-841	481
286-842	481
286-843	481
286-844	481
286-890	442
286-891	442
286-895	422
286-896	422

Item Number Index

Item no.	Page
288 Series	
288-001	426
288-002	426
288-003	464
288-304	75
288-312	76
288-320	78
288-364	74
288-368	74
288-380	79
288-414	81
288-418	81
288-435	80
288-437	80
288-504	75
288-508	75
288-512	76
288-564	74
288-567	74
288-600	462
288-601	462
288-602	462
288-620	463
288-621	463
288-622	463
288-626	463
288-627	463
288-758	77
288-800	352
288-801	353
288-808	355
288-809	354
288-810	354
288-812	356
288-813	355
288-814	356
288-815	356
288-816	357
288-824	333
288-825	436
288-837	437
288-867	438
288-895	322
289 Series	
289-101	428
289-102	435
289-103	428
289-105	429
289-111	430
289-113	433
289-114	433
289-121	430
289-128	434
289-128/001-000	434
289-128/002-000	434
289-128/003-000	434
289-128/005-000	434
289-128/006-000	434
289-131	435
289-151	431
289-172	381
289-174	380
289-175	380
289-176	383
289-177	383
289-178	382
289-179	382
289-201	426
289-401	375
289-402	375
289-403	375
289-404	375
289-405	375
289-406	375
289-407	375
289-408	375
289-409	375
289-422	378
289-427	379
289-430	378
289-431	378
289-440	364
289-441	364
289-442	364
289-443	364
289-444	364
289-445	364
289-446	364
289-447	364
289-448	364
289-449	364
289-450	366
289-451	366
289-452	366
289-453	366
289-454	366
289-455	366
289-456	366
289-457	366
289-458	366
289-459	366
289-501	375
289-502	375
289-503	375
289-504	375
289-505	375
289-506	375
289-507	375
289-508	375
289-509	375
289-510	375
289-522	376
289-523	377
289-531	376
289-540	365
289-541	365
289-542	365
289-543	365
289-544	365
289-545	365
289-546	365
289-547	365
289-548	365
289-549	365
289-550	367
289-551	367
289-552	367
289-553	367
289-554	367
289-555	367
289-556	367
289-557	367
289-558	367
289-559	367
289-575	368
289-576	368
289-577	368
289-578	368
289-585	368
289-586	368
289-587	368
289-588	368
289-611	374
289-612	374
289-613	374
289-614	374
289-615	374
289-616	374
289-617	374
289-618	374
289-619	374
289-620	369
289-621	369
289-623	369
289-624	369
289-650	370
289-652	370
289-664	384
289-665	384
289-667	385
289-671	385
289-707	372
289-708	372
289-710	372
289-713	372
289-714	372
289-720	371
289-721	371
289-725	371
289-726	371
289-822	373
289-907	352
289-965	260
289-966	260
704 Series	
704-2003	392
704-2004	394
704-2024	394
704-2044	395
704-2054	395
704-5003	393
704-5004	397
704-5013	393
704-5014	397
704-5024	396
704-5034	397
704-5044	396
704-5054	398
704-5064	399
704-5074	398
704-8012	400
704-8013	400
706 Series	
706-100/1300-200	405
706-100/1301-200	405
706-100/1303-200	414
706-100/1602-200	414
706-753/300-100	412
706-753/300-200	412
706-753/300-300	412
706-753/301-100	413
706-753/301-200	413
706-753/301-300	413
706-2300/100-100	406
706-2300/100-200	406
706-2300/100-300	406
706-2300/101-100	406
706-2300/101-200	406
706-2300/101-300	406
706-2300/200-100	407
706-2300/200-200	407
706-2300/200-300	407
706-2300/201-100	407
706-2300/201-200	407
706-2300/201-300	407
706-2300/300-100	408
706-2300/300-200	408
706-2300/300-300	408
706-2300/301-100	408
706-2300/301-200	408
706-2300/301-300	408
7062300/400-100	409
706-2300/400-200	409
706-2300/400-300	409
706-2300/404-100	410
706-2300/404-200	410
706-2300/404-300	410
706-2300/406-100	410
706-2300/406-200	410
706-2300/406-300	410
706-2300/500-100	411
706-2300/500-200	411
706-2300/500-300	411
706-2300/502-100	411
706-2300/502-200	411
706-2300/502-300	411
706-3057/300-100	404
706-3057/300-200	404
706-3057/300-300	404
706-7753/302-100	404
706-7753/302-200	404
706-7753/304-100	412
706-7753/304-200	412
706-7753/304-300	412
706-7753/306-100	413
706-7753/306-200	413
706-7753/306-300	413
709 Series	
709-118	519
709-119	519
709-120	519
709-153	535
709-154	536
709-167	535
709-168	536
709-183	535
709-193	519
709-196	462
709-198	462
709-350	488
709-352	488
709-591	523
750 Series	
750-494	256
750-921	230
750-923	231
750-923/000-001	231
750-975	267
786 Series	
786-101	456
786-102	456
786-103	456

Item no.	Page
787 Series	
787-712	302
787-722	303
787-732	304
787-734	305
787-736	306
787-738	307
787-740	308
787-742	309
787-783	336
787-785	337
787-818	273
787-819	270
787-821	271
787-822	274
787-831	272
787-832	275
787-833	277
787-834	276
787-835	278
787-840	279
787-842	280
787-844	281
787-844/000-002	281
787-845	282
787-847	283
787-850	284
787-852	285
787-854	286
787-860	339
787-861	340
787-862	338
787-870	324
787-871	328
787-872	329
787-873	330
787-875	325
787-876	327
787-880	331
787-881	332
787-885	334
787-886	335
787-890	358
787-895	359
787-896	360
787-897	361
787-1001	311
787-1002	314
787-1011	312
787-1012	315
787-1014	320
787-1017	317
787-1020	310
787-1021	313
787-1022	316
787-1601	287
787-1602	291
787-1606	292
787-1611	288
787-1616	293
787-1616/000-1000	294
787-1621	289
787-1622	295
787-1623	299
787-1631	290
787-1632	297
787-1633	300
787-1634	298
787-1635	301

Item no.	Page
787-1662	341
787-1662/006-1000	343
787-1662/106-000	342
787-1664	344
787-1664/000-004	345
787-1664/006-1000	347
787-1664/106-000	346
787-1668	348
787-1668/000-004	349
787-1668/006-1000	351
787-1668/106-000	350
787-1675	326
787-2852	229
788 Series	
788-100	53
788-101	53
788-102	53
788-103	53
788-113	54
788-114	54
788-115	54
788-116	54
788-117	54
788-120	54
788-121	54
788-122	54
788-123	54
788-124	54
788-125	54
788-148	52
788-150	50
788-152	50
788-154	50
788-155	51
788-156	50
788-157	51
788-158	50
788-160	50
788-162	50
788-164	50
788-166	50
788-168	50
788-170	50
788-172	50
788-174	50
788-175	51
788-176	50
788-177	51
788-178	50
788-179	51
788-180	50
788-181	51
788-303	36
788-304	36
788-305	36
788-306	36
788-307	36
788-311	37
788-312	37
788-313	37
788-314	37
788-315	37
788-341	46
788-342	46
788-344	46
788-346	47
788-347	47
788-349	47
788-353	40
788-354	40
788-355	43
788-356	41
788-357	42
788-384	44
788-390	47
788-391	46

Item no.	Page
788-404	38
788-412	39
788-506	36
788-507	36
788-508	36
788-512	37
788-515	37
788-516	37
788-541	48
788-543	48
788-544	48
788-546	49
788-548	49
788-549	49
788-607	38
788-608	38
788-615	39
788-616	39
788-700	132
788-701	132
788-720	133
788-721	133
788-906	45
789 Series	
789-112	115
789-120	460
789-122	460
789-124	460
789-126	460
789-127	460
789-128	460
789-129	460
789-130	460
789-131	460
789-132	460
789-133	460
789-134	460
789-304	101
789-312	102
789-320	103
789-323	109
789-324	110
789-325	111
789-326	112
789-329	113
789-508	101
789-512	102
789-516	102
789-520	104
789-535	106
789-536	106
789-552	105
789-570	114
789-571	114
789-620	260
789-621	262
789-622	264
789-652	256
789-654	258
789-800	418
789-801	418
789-802	419
789-803	419
789-804	420
789-810	444
789-811	444
789-1341	107
789-1346	107
789-1544	108
789-1549	108

Item no.	Page
790 Series	
790-100	487
790-101	487
790-108	486
790-110	486
790-112	486
790-113	486
790-114	486
790-115	486
790-116	486
790-124	486
790-133	486
790-134	486
790-140	487
790-144	486
790-145	486
790-190	487
790-191	487
790-192	487
790-193	487
790-300	490
790-301	490
790-302	490
790-310	491
790-311	491
790-312	491
790-400	489
791 Series	
791-107	488
791-111	488
791-117	488
791-124	488
792 Series	
792-800	468
792-801	468
792-802	469
792-803	469
792-804	470
792-805	470
793 Series	
793-400	510
793-401	510
793-402	510
793-403	510
793-404	510
793-405	510
793-406	510
793-407	510
793-408	510
793-409	510
793-410	510
793-411	510
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793-420	510
793-421	510
793-422	510
793-423	510
793-424	510
793-458	514
793-472	512
793-474	512

Item Number Index

Item no.	Page
793 Series	
793-487	512
793-494	512
793-495	512
793-496	512
793-497	512
793-498	512
793-500/793-134	514
793-501	517
793-501/000-002	517
793-501/000-005	517
793-501/000-006	517
793-501/000-007	517
793-501/000-012	517
793-501/000-017	517
793-501/000-023	517
793-501/000-024	517
793-502	508
793-503	508
793-504	508
793-505	508
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793-507	508
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793-579	512
793-580	512
793-582	512
793-583	512
793-599	508
793-600/793-073	514
793-602	509
793-603	509
793-604	509
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793-913	509
793-933	515
793-934	515
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793-937	515
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793-940	515
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793-993	514
793-994	514
793-995	514
793-996	514
793-997	514
793-998	514
793-3502	508
793-3503	508
793-3504	508
793-3505	508
793-3506	508
793-3507	508
793-3508	508
793-3509	508
793-3510	508
793-3544	512
793-3545	512
793-3565	508
793-3566	508
793-3599	508
793-4400	510
793-4401	510
793-4402	510
793-4403	510
793-4404	510
793-4405	510
793-4406	510
793-4407	510
793-4408	510
793-4409	510
793-4410	510
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793-4420	510
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793-4422	510
793-4423	510
793-4424	510
793-4458	514
793-4472	512
793-4474	512
793-4487	512
793-4494	512
793-4495	512
793-4496	512
793-4497	512
793-4498	512
793-4501	517
793-4501/000-002	517
793-4501/000-005	517
793-4501/000-006	517
793-4501/000-007	517
793-4501/000-012	517
793-4501/000-017	517
793-4501/000-023	517
793-4501/000-024	517

Item no.	Page
793-4502	508
793-4503	508
793-4504	508
793-4505	508
793-4506	508
793-4507	508
793-4508	508
793-4509	508
793-4510	508
793-4511	508
793-4512	508
793-4513	508
793-4514	508
793-4515	508
793-4516	508
793-4517	508
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793-4539	510
793-4540	510
793-4541	510
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793-4543	512
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793-4546	512
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793-4548	512
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793-4561	512
793-4562	512
793-4563	512
793-4564	512
793-4565	508
793-4566	508
793-4569	508
793-4570	508
793-4571	508
793-4572	508
793-4573	508
793-4574	512
793-4575	512
793-4576	512
793-4577	512
793-4578	512
793-4579	512
793-4580	512
793-4581	512
793-4582	512
793-4583	512
793-4599	508

Item no.	Page
793-4602	509
793-4603	509
793-4604	509
793-4605	509
793-4606	509
793-4607	509
793-4608	509
793-4609	509
793-4610	509
793-4611	509
793-4612	509
793-4613	509
793-4614	509
793-4615	509
793-4616	509
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793-4641	511
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793-4650	513
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793-4659	513
793-4660	513
793-4661	513
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793-4667	509
793-4668	509
793-4669	509
793-4670	509
793-4671	509
793-4672	509
793-4674	513
793-4675	513
793-4676	513
793-4677	513
793-4678	513
793-4679	513

Item no.	Page
793-4680	513
793-4681	513
793-4682	513
793-4683	513
793-4687	513
793-4688	509
793-4694	513
793-4695	513
793-4696	513
793-4697	513
793-4698	513
793-4699	509
793-4900	509
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793-5406	510
793-5407	510
793-5408	510
793-5409	510
793-5410	510
793-5411	510
793-5412	510

Item no.	Page
793-5413	510
793-5414	510
793-5415	510
793-5416	510
793-5417	510
793-5418	510
793-5419	510
793-5420	510
793-5421	510
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793-5424	510
793-5458	514
793-5472	512
793-5474	512
793-5487	512
793-5494	512
793-5495	512
793-5496	512
793-5497	512
793-5498	512
793-5501	517
793-5501/000-002	517
793-5501/000-005	517
793-5501/000-006	517
793-5501/000-007	517
793-5501/000-012	517
793-5501/000-017	517
793-5501/000-023	517
793-5501/000-024	517
793-5502	508
793-5503	508
793-5504	508
793-5505	508
793-5506	508
793-5507	508
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793-5532	510
793-5533	510
793-5534	510
793-5535	510
793-5536	510
793-5537	510
793-5538	510
793-5539	510

Item Number Index

Item no.	Page
793 Series	
793-5540	510
793-5541	510
793-5542	510
793-5543	512
793-5544	512
793-5545	512
793-5546	512
793-5547	512
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793-5630	511
793-5631	511
793-5632	511
793-5633	511
793-5634	511
793-5635	511
793-5636	511
793-5637	511

Item no.	Page
793-5638	511
793-5639	511
793-5640	511
793-5641	511
793-5642	511
793-5643	513
793-5644	513
793-5645	513
793-5646	513
793-5647	513
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793-5944	515
793-5945	515
793-5946	515
793-5947	515
793-5948	515
793-5949	515
793-5950	515
793-5958	514
793-5959	515

Item no.	Page
793-5960	515
793-5961	515
793-5967	515
793-5968	515
793-5969	515
793-5970	515
793-5971	515
793-5972	515
793-5973	515
793-5974	515
793-5975	515
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793-5992	515
793-5993	514
793-5994	514
793-5995	514
793-5996	514
793-5997	514
793-5998	514
794 Series	
794-557	508
794-558	508
794-601	509
794-602	509
794-603	509
794-604	509
794-605	509
794-615	514
794-616	514
794-617	514
794-618	514
794-619	514
794-657	509
794-658	509
794-672	513
794-674	513
794-4601	509
794-4602	509
794-4603	509
794-4604	509
794-4605	509
794-4615	514
794-4616	514
794-4617	514
794-4618	514
794-4619	514
794-4672	513
794-4674	513
794-5557	508
794-5558	508
794-5601	509
794-5602	509
794-5603	509
794-5604	509
794-5605	509
794-5615	514
794-5616	514
794-5617	514
794-5618	514
794-5619	514

Item no.	Page
794-5657	509
794-5658	509
794-5674	513
807 Series	
807-090/101-100	528
855 Series	
855-301/050-103	248
855-301/060-101	248
855-301/075-201	248
855-301/100-201	248
855-301/150-501	248
855-301/200-501	248
855-301/250-501	248
855-301/400-1001	248
855-301/600-1001	248
855-305/050-103	248
855-305/060-101	248
855-305/075-201	248
855-305/100-201	248
855-305/150-501	248
855-305/200-501	248
855-305/250-501	248
855-305/400-1001	248
855-305/600-1001	248
855-401/400-501	248
855-405/400-501	248
855-501/1000-1001	248
855-505/1000-1001	248
855-2701/035-001	250
855-2701/064-001	250
855-3001/060-003	253
855-3001/100-003	253
855-3001/200-001	253
855-3001/250-001	253
855-4001/100-001	253
855-4001/150-001	253
855-4001/200-001	253
855-4005/150-101	253
855-4101/200-001	253
855-4101/250-001	253
855-4101/400-001	253
855-4105/250-101	253
855-4105/400-101	253
855-5001/250-001	253
855-5001/400-000	253
855-5001/600-000	253
855-5001/1000-000	253
855-5005/400-001	253
855-5005/600-000	253
855-5005/1000-000	253
855-5101/1000-000	253
855-5105/1000-000	253
855-9100/500-000	254
855-9100/2000-000	255
855-9300/500-000	254
855-9300/2000-000	255
855-9900	248
855-9910	248
855-9927	250
857 Series	
857-104	34
857-107	34
857-108	34

Item no.	Page
857-150	33
857-152	33
857-153	33
857-154	33
857-155	33
857-157	33
857-161	128
857-162	128
857-164	128
857-165	128
857-167	128
857-168	128
857-303	26
857-304	26
857-305	26
857-306	26
857-314	27
857-354	26
857-357	26
857-358	26
857-358/006-000	28
857-364	27
857-367	27
857-368	27
857-368/006-000	28
857-400	172
857-401	174
857-402	176
857-409	178
857-411	180
857-412	180
857-413	180
857-414	180
857-415	180
857-416	180
857-420	182
857-421	184
857-423	186
857-450	188
857-451	190
857-452	191
857-500	222
857-531	204
857-550	194
857-552	196
857-604	30
857-624	126
857-634	127
857-640	31
857-642	32
857-704	118
857-707	118
857-708	119
857-714	120
857-717	120
857-718	121
857-724	122
857-727	122
857-728	123
857-800	206
857-801	208
857-809	218
857-810	210
857-811	212
857-818	214
857-819	198
857-820	216
857-979	232
857-980	403
857-981	402
857-982	402
857-986	403

Item no.	Page
857-1330	29
857-1430	124
857-1432	125
857-1494	124
858 Series	
858-100	64
858-110	65
858-150	61
858-151	61
858-152	62
858-153	62
858-154	61
858-304	56
858-305	56
858-307	56
858-308	56
858-314	56
858-324	60
858-325	60
858-327	60
858-328	60
858-354	58
858-355	58
858-390	59
858-391	59
858-392	59
858-402	65
858-504	57
858-507	57
858-508	57
858-514	57
858-517	57
858-518	57
858-528	60
859 Series	
859-110	459
859-302	66
859-303	66
859-304	66
859-305	66
859-306	66
859-307	66
859-308	66
859-312	67
859-314	67
859-317	68
859-318	67
859-353	66
859-354	66
859-355	66
859-356	66
859-357	66
859-358	66
859-359	67
859-360	67
859-367	70
859-368	70
859-384	68
859-386	68
859-390	68
859-391	69
859-392	68
859-393	71
859-394	71
859-397	69
859-398	69
859-399	69

Item no.	Page
859-402	35
859-403	35
859-404	35
859-405	35
859-406	35
859-407	35
859-408	35
859-409	35
859-410	35
859-500	72
859-501	459
859-525	72
859-702	147
859-706	149
859-708	147
859-712	146
859-720	141
859-730	141
859-732	153
859-734	154
859-737	144
859-738	144
859-739	145
859-740	142
859-744	143
859-750	148
859-751	148
859-752	150
859-753	150
859-755	149
859-756	151
859-758	152
859-759	151
859-761	142
859-762	143
859-772	146
859-791	138
859-793	138
859-794	140
859-795	139
859-796	139
859-798	140
859-801	318
859-802	318
859-804	319
859-805	319
859-902	153
870 Series	
870-518	474
870-519	474
870-523/281-579	474
870-523/281-580	474
870-523/281-581	474
870-523/281-582	475
870-523/281-583	475
870-523/281-584	475
870-523/281-585	475
870-523/281-586	475
870-523/281-587	475
870-523/281-588	475
870-523/281-589	475
870-523/281-590	475
870-523/281-591	475
870-523/281-592	475
870-523/281-593	475
870-523/281-594	475
870-523/281-595	475

Item no.	Page
2007 Series	
2007-8873	248
2009 Series	
2009-110	517
2009-114	517
2009-115	517
2009-135	517
2009-145	516
2009-163	519
2857 Series	
2857-101	452
2857-102	452
2857-103	452
2857-121	453
2857-122	453
2857-123	453
2857-124	453
2857-191/3140-000	454
2857-192/3140-000	454
2857-193/3140-000	454
2857-194/3140-000	455
2857-401	170
2857-533	200
2857-534	202
2857-550	192
2857-900	228

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