PC and panel systems
Scalable. Rugged. Powerful.

B&R

PC technology – Made by B&R

Contents

Scalable.

B&R systems adapt flexibly
to any requirement.

Rugged.

Uncompromising quality for long-term
operation in harsh industrial environments.

Powerful.

The absolute highest performance classes
with Intel processors: Core i3 / i5 / i7.

PC and panel systems

Compact power
Maximum graphics performance
Fanless

Your bonus package

PC and panel systems from B&R are designed and built to meet industrial customers' demands for maximum robustness, reliability and long-term availability.

Decision-makers in a wide range of industries select B&R Industrial PCs because they know that PCs that may appear cheap at first glance are the most expensive in the long run. After all, it's the total cost over a product's life cycle that matters, and that's where the cost advantages of B&R Industrial PCs really shine. Their uncompromising quality ensures many years of trouble-free operation, even in the harshest industrial conditions. "Made by B&R" represents the highest standards in development and production – from circuit board engineering to logistics for replacement parts.

The advantages

→ Powerful
→ Energy efficient
→ Rugged
→ Reliable
→ Customized
→ Ready to use
→ Long-term availability

Powerful

Automation PC and Panel PC systems from B&R pack plenty of power. Using the latest technology, including the latest generation of Intel Core i-series processors, the Automation PC 910 and Panel PC 900 are the perfect choice for mastering highly demanding applications. USB 3.0 interfaces provide the optimal connection for integrating machine vision systems. And there are the obvious cost advantages of replacing several weaker PCs with a single high-performance unit. The Automation PC 2100 and Panel PC 2100 are based on the latest Intel Atom technology. With minimal dimensions, these systems deliver performance up to the Core i-series range.

Energy-efficient

Another advantage of the latest generation of Core i-series and Atom processors from Intel is their considerably higher performance yet lower power consumption – maximized energy efficiency across the board. This makes it possible to do away with internal fans in many cases, an advantage already exploited by the passively cooled Automation PC 2100 and Panel PC 2100 systems.

Rugged

The robust design of the Automation PC and Panel PC is perfectly suited for operation in the harshest environments – even continuous 24-hour operation is no problem for these workhorses. Many variants of the PC systems have no internal cable connections whatsoever, let alone rotating parts.

Reliable

Each PC and panel undergoes comprehensive function testing prior to shipping. All system properties and interfaces are fully inspected. After years of reliable operation, your bottom line will notice the difference.

Customized

Automation PCs can be adapted perfectly to each application's unique requirements. This starts by selecting the necessary processor performance and housing size and then scaling everything else – memory capacity and storage media such as CFast, HDD or SSD, for example – as needed.

Ready to use

These industrial PCs are delivered completely ready to use. OEM machine manufacturers can have the Automation PC sent directly to their control cabinet supplier with all software fully installed. Upon request, B&R can freeze versions of BIOS and firmware for guaranteed long-term consistency – a huge advantage for individually certified machines and systems.

Long-term availability

Both the Automation PC 910 and Panel PC 900 as well as the Automation PC 2100 and Panel PC 2100 will be available over the long haul. Once the PC has been integrated into a machine, maintenance is complete for the machine manufacturer. The machine enters series production and can continue to be manufactured for over a decade.

A cool design
for maximum performance

Fanless operation that meets the highest demands

Many variants of the Automation PC 910 provide the option of operation without the use of fans. When this feature is combined with CFast cards and SSDs, the PC system is completely free of rotating parts – a huge advantage when it comes to maintenance-free operation. The Automation PC 910 cooling system has been completely revamped for optimal heat transfer out of the housing. To maximize convection for fanless operation, the Automation PC 910 heat sink design was optimized through an extensive evaluation process using simulated models.

On high-end systems with fans, air current is directed through the integrated cooling fins. As processors shrink in size, heat is generated on a smaller and smaller surface area. To deal with this, heat pipes are the best way to provide maximum heat dissipation.

Optimized air circulation

The new honeycomb openings on the housing panels provide the perfect combination of air circulation and structural rigidity. Celeron processors and select Core i-series processors are able to operate without fans. Yet even without fans, the Automation PC 910 is able to achieve performance results that previous PC generations required fans to achieve. In the high-end range, quad-core CPUs can be used with fan cooling to achieve performance values that not too long ago would have been inconceivable for such a compact form factor.

Maximum operational safety

Automation PCs are designed and built for continuous operation in harsh industrial environments over a period of many years. They are encased in a robust welded housing that shields the electronics from the external environment and easily endures even the roughest handling.

A heavy-duty industrial coating protects the housing against aggressive conditions and keeps the Automation PC 910 looking new, even after years of use. Circuit boards are connected using screw-in connectors, with extra resistance to vibration and shock provided by the elimination of all internal cable connections.

Fanless operation over several performance ranges was extremely important during development; in addition to most Celeron processors, the Core i3 and Core i7 processors have also eliminated active cooling. Replacing hard disks with SSDs results in a PC with no rotating parts at all.

Maintenance tasks such as regularly changing out fan filters have been completely eliminated. In fact, all components have been selected with maximum reliability in mind. These components have been designed specifically for use in industrial environments, can withstand high ambient temperatures and enjoy long-term availability.

Modular PC and panel systems

Smart Display Link 3

Panel PC 2100

Panel PC 900

Smart Display Link / DVI

Smart Display Link 3
up to 100 m

Automation PC 2100

Automation PC 910

Automation PC 910

Automation PC 2100
Panel PC 2100

Latest Intel Atom technology

With an ultracompact housing that corresponds to the dimensions of a Smart Display Link receiver, the Panel PC 2100 is an extremely powerful PC system that can handle virtually any application. The control cabinet variant of the Automation PC 2100 also provides a complete PC system with minimized dimensions.

This innovative PC design is based on Intel Bay Trail architecture, whose single-, dual- and quad-core processor technology represents a milestone for embedded systems – all while offering an optimal price/performance ratio. The quad-core processor achieves a higher performance level than the Core i3 3217UE processor used in the Panel PC 900. All Automation PC 2100 and Panel PC 2100 variants have done away with internal fans.

Communication in all directions
The Panel PC 2100 integrates the most important interfaces, including 2x gigabit Ethernet as well as 1x USB 2.0 and 1x USB 3.0. Interface modules can also be added in order to take advantage of fieldbus technology such as POWERLINK and CAN. For data storage, MLC-based CFast cards are available that can store up to 60 GB or more.

Maximum flexibility
All 2nd generation Automation Panels – whether single- or multi-touch – can be transformed into a complete PC system with the Panel PC 2100. Since the Panel PC 2100 is no larger than the Smart Display Link receiver, it does not in-

crease the system's physical depth. Connecting cables to the Ethernet and fieldbus interfaces is also extremely user-friendly since they are all accessible on one side of the Panel PC 2100.

Maximum graphics performance
The graphics engine used by Intel Atom processors is derived from Core i technology and provides powerful processing. This is also the first time that support for DirectX 11 has been provided in this segment, opening up even more possibilities for enhanced graphic capabilities in SCADA and other HMI systems. All resolutions and screen sizes up to 24.0" Full HD are supported.

Operating systems
Automation PC 2100 and Panel PC 2100 technology closes the gap between open and real-time operating systems. In addition to Windows 7 Professional and Ultimate, it is also possible to run Windows Embedded Standard 7 and Windows Embedded Standard 7 Premium. Windows 8.1 is also supported. Whether 32- or 64-bit, all operating system versions can be used. The real-time operating system Automation Runtime turns PC systems into fully-fledged high-performance industrial controllers. The combination of Automation Runtime and Windows unites the open PC world with applications that require hard real time. Based on multi-core processor architecture, the real-time operating system runs on one core while the other cores are reserved for Windows.

Highlights

→ Intel Atom E3800 processors
→ Up to quad-core CPU performance
→ Extremely powerful graphics
→ Compact dimensions
→ 2x gigabit Ethernet
→ SDL/DVI (Automation PC 2100)
→ Fanless

Automation PC 2100

Optional interfaces

ETHERNET
POWERLINK
RS232
CAN
FRAM

Smart Display Link
Single cable to easily connect
operator panels, compatible with
all Automation Panels in the field

CFast
Combines the shape and dimen-
sions of CompactFlash cards with
the faster SATA interface

Operating systems

→ Windows 7 Professional 32/64-bit
→ Windows 7 Ultimate 32/64-bit
→ Windows Embedded Standard 7 32/64-bit
→ Windows Embedded Standard 7 Premium
   32/64-bit
→ Windows 8.1 Industry 32/64-bit
→ Linux
→ Automation Runtime Embedded
→ Automation Runtime Windows

Ethernet
10/100/1000

Fanless
Fanless design for maximum robustness in industrial applications

Ethernet
10/100/1000

1x USB 3.0
1x USB 2.0

24 VDC
power supply
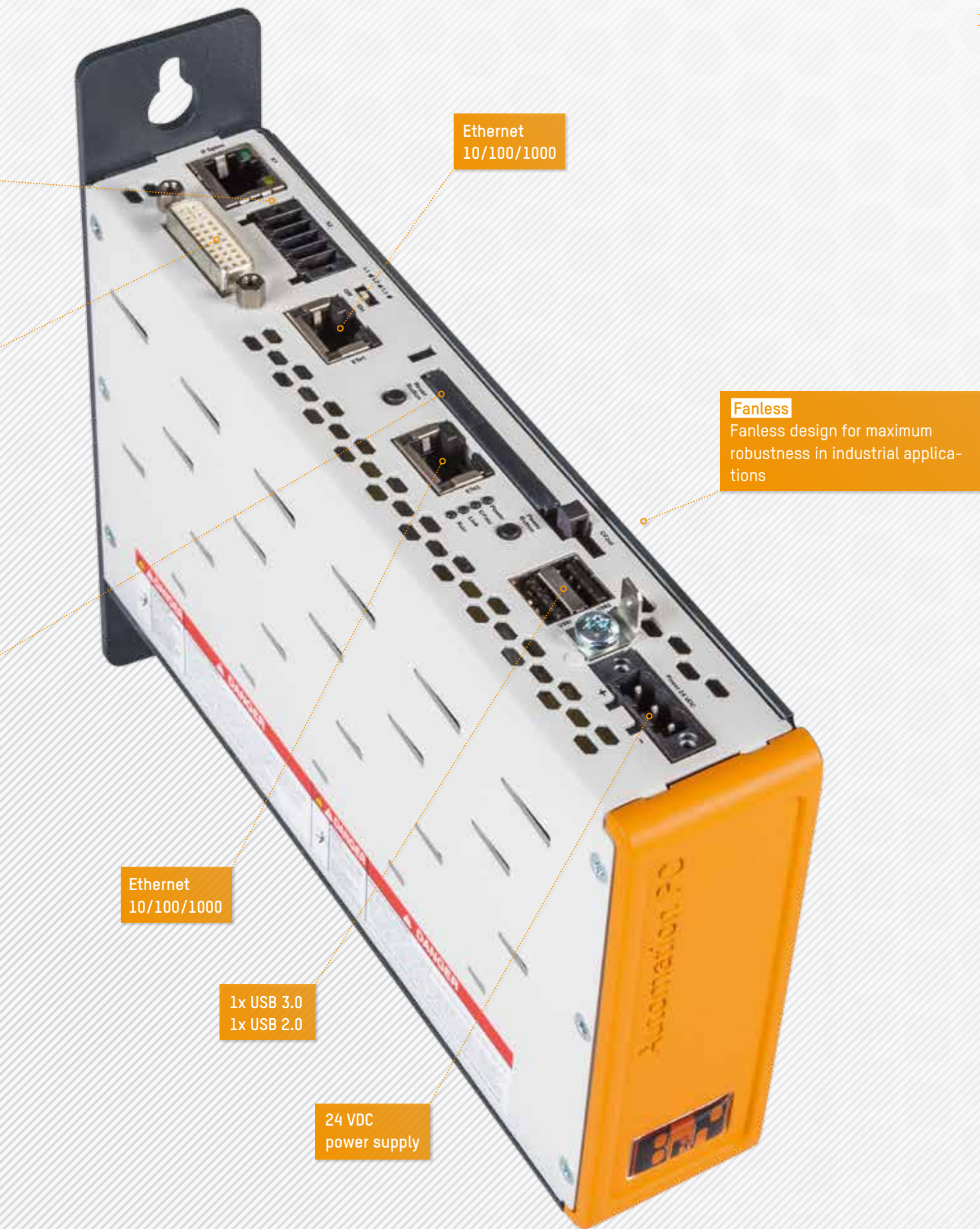
Panel PC 2100

Optional interfaces

ETHERNET
POWERLINK
RS232
CAN
FRAM

Automation Panel
5.7" VGA to 24" Full HD with
single- or multi-touch

Operating systems

→ Windows 7 Professional 32/64-bit
→ Windows 7 Ultimate 32/64-bit
→ Windows Embedded Standard 7 32/64-bit
→ Windows Embedded Standard 7 Premium 32/64-bit
→ Windows 8.1 Industry 32/64-bit
→ Linux
→ Automation Runtime Embedded
→ Automation Runtime Windows

CFast
Combines the shape and dimensions of CompactFlash cards with the faster SATA interface
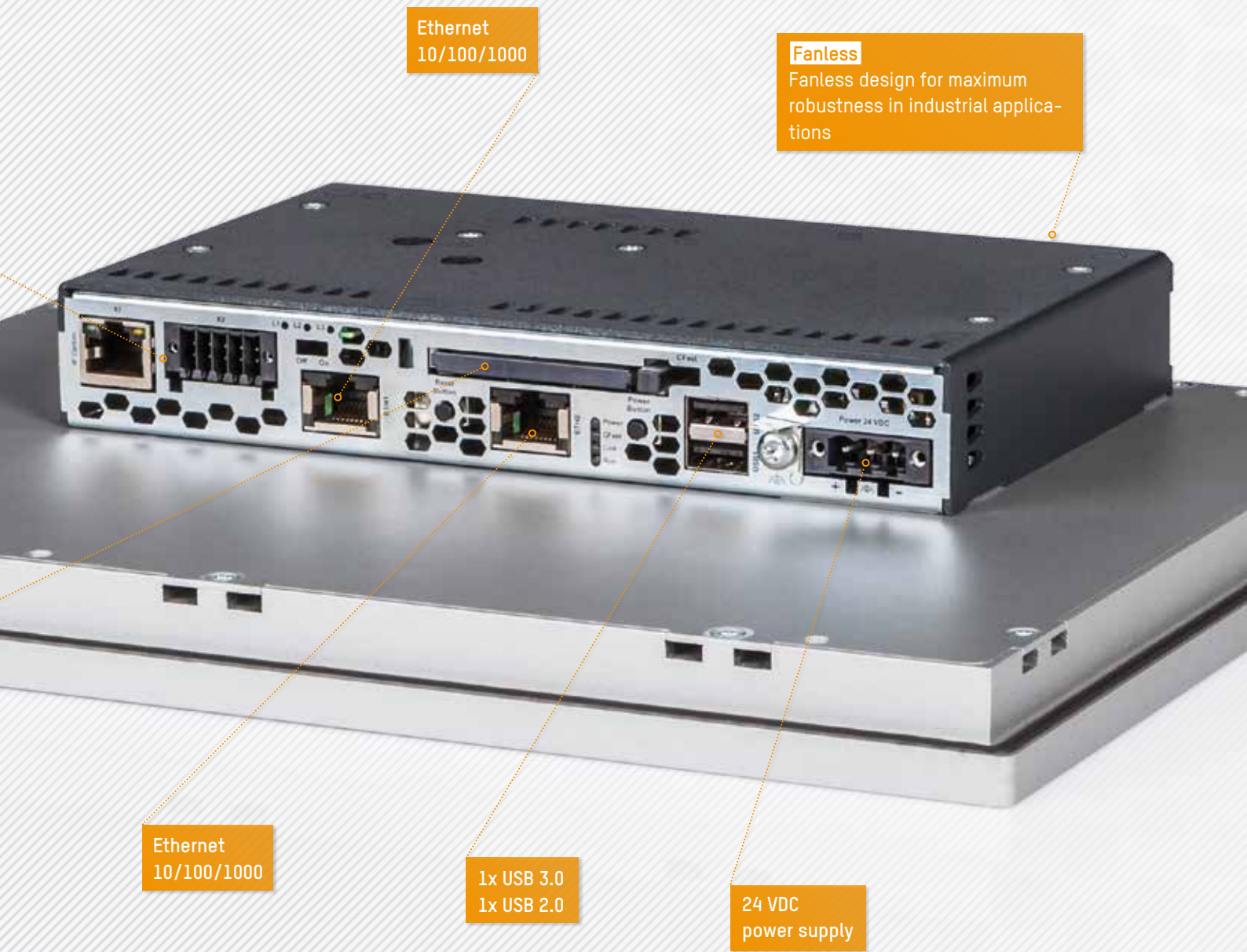
Ethernet
10/100/1000

Fanless
Fanless design for maximum robustness in industrial applications

Ethernet
10/100/1000

1x USB 3.0
1x USB 2.0

24 VDC
power supply

Compact performance

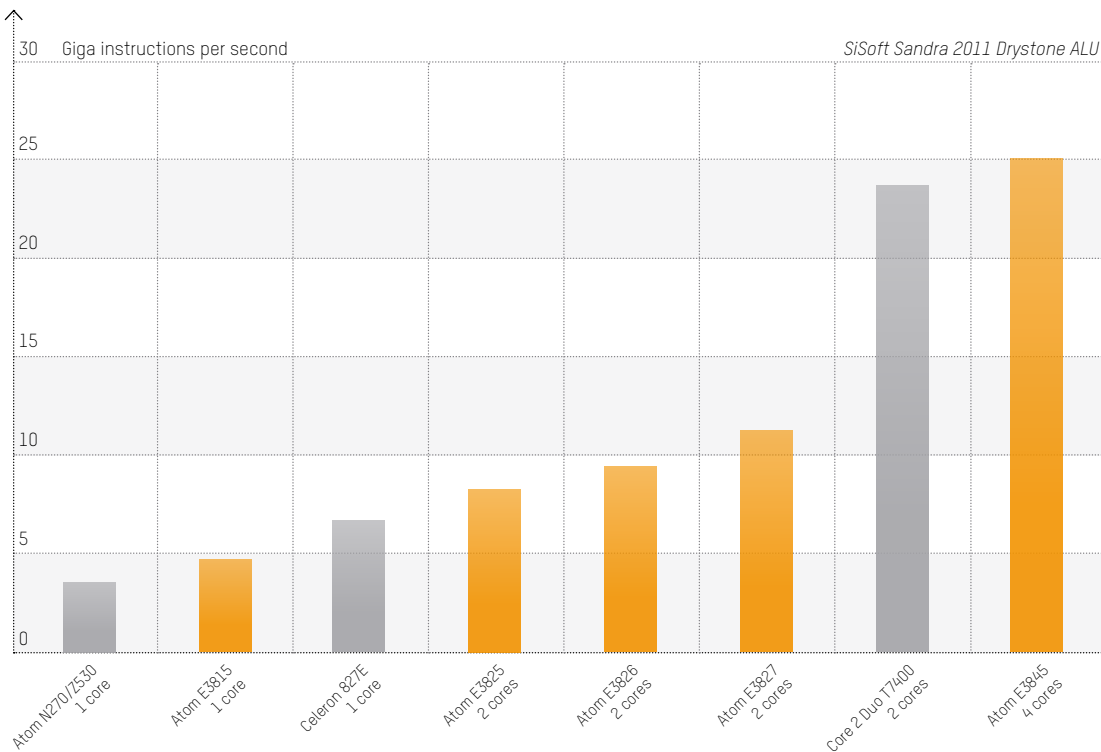**Equipped with Intel Atom processors, Automation PC 2100 and Panel PC 2100 systems offer scaled processing power up to APC910 performance levels.**

The Atom processors themselves are available in five designs, from single- and dual-core all the way to quad-core processors. This guarantees the perfect match between CPU power and any application. The integrated graphics engine also delivers performance above and beyond anything possible with Core2 Duo processors. Another supported feature is DirectX 11, which makes it pos-

sible to design even more demanding HMI software.

Fanless

The PC architecture is designed as an extremely efficient "system on a chip" (SoC) solution. Because this technology does away with additional components such as the chipset, it is able to reduce heat dissipation to a minimum and eliminate the need for extensive cooling systems. The result? Compact PC systems that can be operated with no fans whatsoever over a wide temperature range.

Giga instructions per second · *SiSoft Sandra 2011 Drystone ALU*

Atom N270/Z530 1 core	~3
Atom E3815 1 core	~4
Celeron 827E 1 core	~6
Atom E3825 2 cores	~8
Atom E3826 2 cores	~9
Atom E3827 2 cores	~10.5
Core 2 Duo T7400 2 cores	~23
Atom E3845 4 cores	~24.5

Automation PC 910
Panel PC 900

PC and panel systems
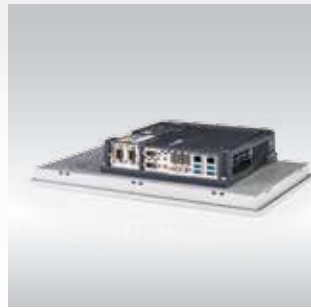
High-performance PC technology

Scalable performance

The entire line of processors used in Automation PC 910 and Panel PC 900 systems – from single-core Celeron up to Core i7 quad-core – covers a broad spectrum of CPU performance. Even without fans, both of these PC systems are the perfect platform for any application.

Future-proof

Both the Automation PC 910 and Panel PC 900 system platforms have a completely modular design that allows them to be individually adapted to an unlimited number of applications. With data storage options ranging from SSD to CFast, slots for both PCI and PCI Express and an integrated UPS, there are virtually no limits to what you can do.

Add to that the fact that these PC systems will be available over the long term, with reliable updates well into the future. It is not necessary to make continuous adjustments to the PC hardware over time, which adds up to its own cost advantages.

Modular panels

Whereas the Automation PC 910 is designed to control remote panels, the Panel PC 900 combines a PC and display into a single system. Automation Panels provide a uniform platform for both variants: One and the same panel can be operated with an Automation PC using a corresponding display link (SDL/DVI or Smart Display Link 3) or set up as a Panel PC through the use of the PC unit. This turns the Automation Panel and PC into a fully integrated system.

The front of the Automation Panel is a premium quality projected capacitive touch screen. The edge-to-edge, anti-glare glass surface and brilliant, high-resolution display represent the ultimate in sophisticated operating panel technology. This new series is available with mounting options for a control cabinet cutout or swing arm.

Displays are equipped with a long-lasting, power-saving LED backlight. Classic 4:3 displays have also been enhanced by this advanced system design. Featuring an analog resistive touch screen and display sizes up to 19", the latest line of Automation Panels is fully compatible with the previous device generation not just with respect to resolution, but to the shape of the displays as well.

Fanless

Many Panel PCs variants can be operated without fans. Together with SSD drives and/or CFast cards, the system completely eliminates rotating components, making maintenance work such as regularly replacing the air filter a thing of the past.

Highlights

→ Intel Core i3/i5/i7 processors
→ Intel Celeron processors
→ Manufactured using state-of-the-art 22 nm process
→ Maximum CPU performance
→ Minimum power consumption
→ Up to 4 cores
→ Maximum graphics performance
→ DirectX 11, OpenGL 3.1, OpenCL 1.1
→ Intel Turbo Boost Technology
→ Intel Hyper-Threading Technology
→ Highly efficient energy management
→ Multi-touch panels (projected capacitive)
→ Single-touch panels (analog resistive)

Automation PC 910

1 PCI / PCI Express slot

2nd panel option

2 PCI / PCI Express slots

2nd panel option

5 PCI / PCI Express slots
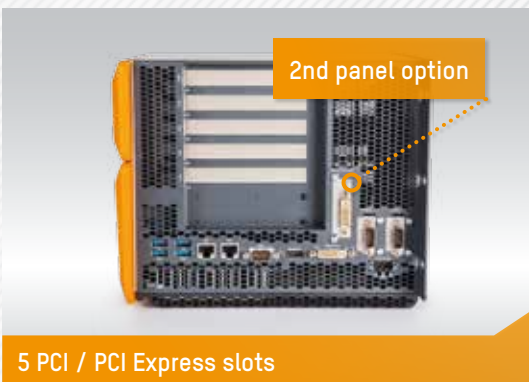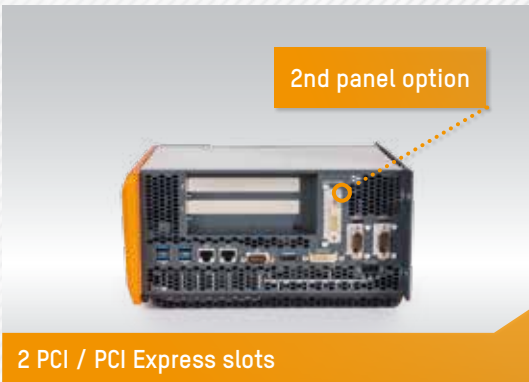
2 modular interfaces
ETHERNET
POWERLINK
RS232/422/485
CAN/UPS/Audio/SRAM

Fanless
Same base device can be
operated with or without a fan
– maximum flexibility for all users

HDD & SSD
More than enough storage space
with hard disk and solid-state
drives

CFast
Combines the shape and dimen-
sions of CompactFlash cards with
the faster SATA interface

Smart Display Link
Single cable to easily connect operator panels, compatible with all Automation Panels in the field

SDL/DVI/Monitor

DisplayPort

RS232

2x Ethernet 10/100/1000

4x USB 3.0

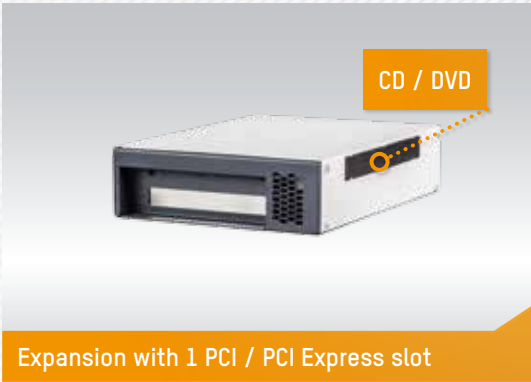Up to 5 PCI / PCI Express slots

Automation PC

Panel PC 900

85 - 264 VAC power supply

CD / DVD

Expansion with 1 PCI / PCI Express slot

CD / DVD
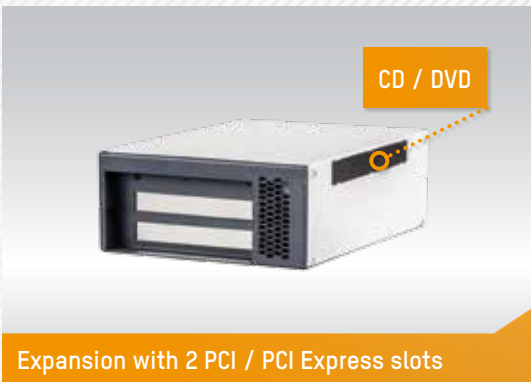
Expansion with 2 PCI / PCI Express slots

Automation Panel
Up to 24" Full HD with single- or multi-touch
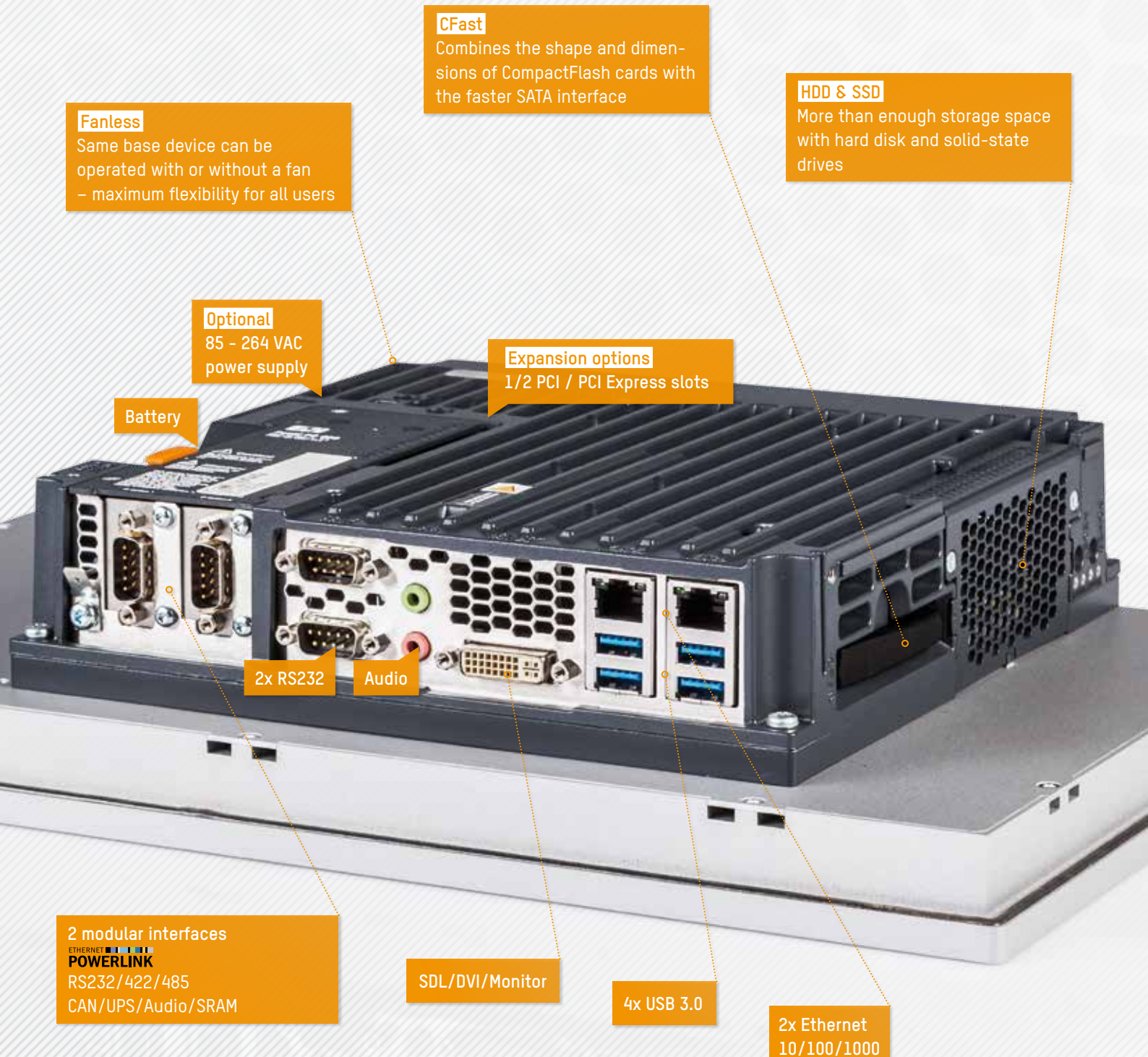
CFast
Combines the shape and dimensions of CompactFlash cards with the faster SATA interface

HDD & SSD
More than enough storage space with hard disk and solid-state drives

Fanless
Same base device can be operated with or without a fan – maximum flexibility for all users

Optional
85 - 264 VAC power supply

Battery

Expansion options
1/2 PCI / PCI Express slots

2x RS232

Audio

2 modular interfaces
ETHERNET **POWERLINK**
RS232/422/485
CAN/UPS/Audio/SRAM

SDL/DVI/Monitor

4x USB 3.0

2x Ethernet
10/100/1000

In the fast lane with the Automation PC 910

The Automation PC 910 offers maximum computing power for the most complex tasks, such as sophisticated machine vision systems. It is based on the latest generation of Core i-series processors – the benchmark for top-performing PC architectures.

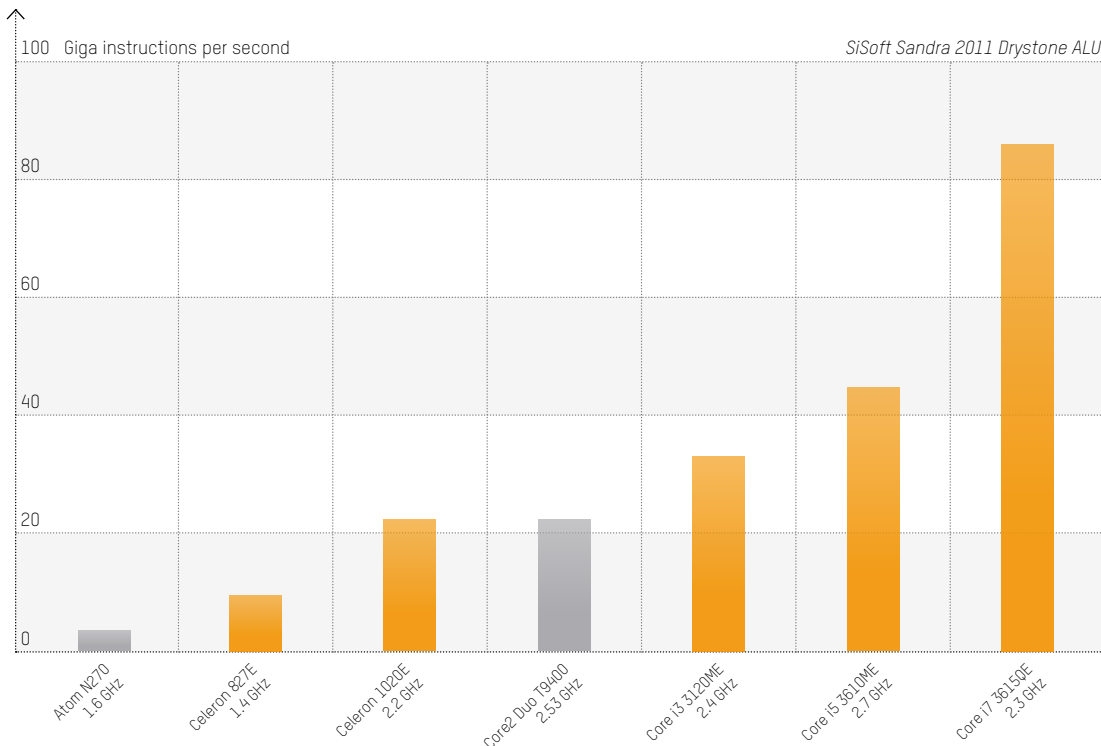Intel® has reduced the size of the chip to an impressive 22 nm. A new microarchitecture with the graphics unit integrated directly in the CPU provides a considerable leap in performance over the previous generation of Core i processors, not to mention compared to Core 2 Duo processors. Cele-

ron, Core i3, Core i5 and Core i7 CPUs with up to four cores represent the maximum performance currently available on the industrial PC market – all while keeping power consumption to a minimum.

Turbo boost
When the situation calls for it, the processor automatically shifts into high gear with Intel's Turbo Boost Technology. This dynamically increases the processor frequency beyond the base operating frequency when the workload demands additional performance. CPU power can therefore be increased temporarily when necessary.

100 Giga instructions per second   *SiSoft Sandra 2011 Drystone ALU*

80	
60	
40	
20	
0	

Atom N270 1.6 GHz · Celeron 827E 1.4 GHz · Celeron 1020E 2.2 GHz · Core2 Duo T9400 2.53 GHz · Core i3 3120ME 2.4 GHz · Core i5 3610ME 2.7 GHz · Core i7 3615QE 2.3 GHz
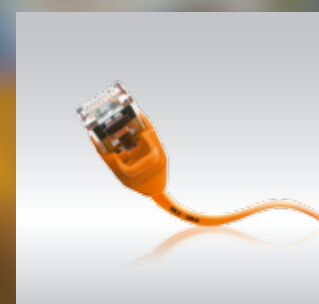
Heat pipes for heat dissipation

Quad-core for top performance

Hyper-Threading

→ Simultaneous processing of
two tasks per core
→ Efficient utilization of processor resources
→ Higher overall system performance
→ Optimal for memory intensive applications
→ Maximum performance for programs run-
ning in parallel

Panel systems

PC and panel systems

Versatile panel technology

B&R's extensive line of Automation Panel systems can cover every possible application, making it the ideal visualization platform for any situation. From classic built-in variants to swing arm systems, whether used as a monitor or set up as a Panel PC, the potential areas of use are practically unlimited.

Optimized placement

As the complexity of machine and system topologies continues to increase, finding the optimal place for visualization panels within the overall design concept is becoming more and more important. After all, these are the locations where manufacturing processes are monitored and controlled. B&R meets this challenge by offering an extensive and flexible line of products that can either be mounted in the control cabinet or installed on swing arm systems.

Enough performance for any application

Each panel variant offers two possibilities: operation with an integrated PC system or a flexible connection to remote Automation PCs. With powerful Atom processors, the built-in and swing arm variants of the Panel PC 2100 deliver processing power comparable to that of Core i3 processors – all while doing away with fans and keeping power consumption to a minimum. The Panel PC 900 can also be used as a built-in device, delivering processing power all the way up to Core i7 quad-core levels.

Intelligent panel communication

Providing a flexible connection to remote operator panels sets Automation Panel systems apart from the competition. For the many panels in the field, the Automation PC 910 is equipped with the proven Smart Display Link (SDL) interface, which can also be operated as a standard DVI interface. SDL makes connecting PCs and displays as simple as hooking up as single cable – the ideal solution for short distances.

The strengths of Smart Display Link 3 come to the fore when it comes to bridging larger distances. It can be used to operate Automation Panels up to 100 meters aways from the Automation PC. Thanks to CAT 6 and CAT 7 cables and a slim RJ45 connector, installing these devices on swing arm systems is virtually effortless.

For every industry

In addition to their standard variants, Automation Panels are also available in various industry-specific designs. They can therefore be used to cover special hygienic- or safety-related requirements in the food industry or even individual operating elements generally limited to the automotive industry.

Intuitive single- and multi-touch operation

Windows 7

Windows 8

Linux

VxWorks

Automation Studio

OPC FOUNDATION MEMBER

Touch panels have been used for many years to provide a way for operators to control systems and machines. Many devices previously operated using buttons and keys have since been replaced by more versatile touch screens.

The advantages are clear: Whereas function keys must be retagged with slide-in labels when they are reassigned, this is possible on touch screen displays with by simpling configuring the software. At the same time, HMI applications have developed over the years to provide much more logical and intuitive operation. This not only makes interaction much faster, it also helps avoid operating errors through the clear organization of buttons and the ability to provide much more detailed information.

Single-touch panels
For all applications that need to be compatible with existing systems, 4:3 panels with analog resistive touch screens are also available. This makes it possible to continue using HMI applications at their current resolution with the latest PC platform without having to modify the software a single bit.

Optimized operation
Multi-touch panels open up new dimensions for innovative HMI design. Numerous gestures are available for potential use in an application. These include enlarging or shrinking objects using two fingers, scrolling through lists or switching over to the next screen with a quick swipe. The main advantage of multi-touch technology is how it makes operation more intuitive. At the same time, two-hand gestures for critical or potentially dangerous operations provide an effective way of preventing unintentional operator errors. This increases both the safety and efficiency of a machine.

Operating gestures

Multi-touch technology

→ New dimensions when designing innovative user interactions
→ Much more intuitive operator guidance
→ Zoom function to aid commissioning and service personnel
→ Avoidance of false tripping with two-hand operation
→ Reduction of operator levels
→ Improved ergonomics

Automation Panels

The second generation of Automation Panels also serves as the technical basis for B&R's Panel PC devices. This modular platform strategy results in a product portfolio with extraordinary flexibility.

The core component is the panel itself, which is transformed into an Automation Panel by adding a modular Smart Display Link receiver. Alternatively, using Smart Display Link 3 opens up additional possibilities for spanning longer distances and even easier cabling. Adding the PC unit turns the same panel into a full-fledged Panel PC with scalable processing performance. Using the same front-side platform reduces the amount of warehouse space required for replacement parts. Custom variants using Automation Panels and Panel PCs require only a single base unit.

Uniform system platform

Dividing the system into a panel, Smart Display Link (SDL/SDL3) and a Panel PC brings considerable benefits in the field. A damaged display can be replaced quickly, for example, without having to exchange the entire Panel PC. In this way, B&R has created a uniform interface that establishes a flexible system platform for all future PC architectures. Separating the panel from the PC architecture allows users to take advantage of advance-

ments in PC technology with much less cost and effort by simply replacing the Panel PC with the next generation and continuing to use the existing display unit.

Wide range of variants

With an extensive product portfolio, the Automation Panel is able to handle just about any application requirement whatsoever. Whether new avenues of usability are opened up with widescreen multi-touch panels or tried and true 4:3 displays are used, the most important features of this product line are its long-term availability and maximum quality for industrial usage.

Highlights

→ Projected capacitive multi-touch
→ Analog resistive single-touch
→ Widescreen formats from 7" WVGA to 24" Full HD
→ 4:3 formats from 5.7" VGA to 19" SXGA
→ Connections for DVI, SDL and SDL3
→ Slim design
→ Flexible mounting
→ Anti-glare surface

Modular swing arm systems

Fully enclosed panels with IP65 protection are at their most advantageous when it comes to placement at the most optimal positions on the machine.

The continuing reduction of control cabinets in particular is increasing the need for input stations that can be installed flexibly. For this reason, completely enclosed Automation Panel and Panel PC variants are available for mounting on swing arm systems.
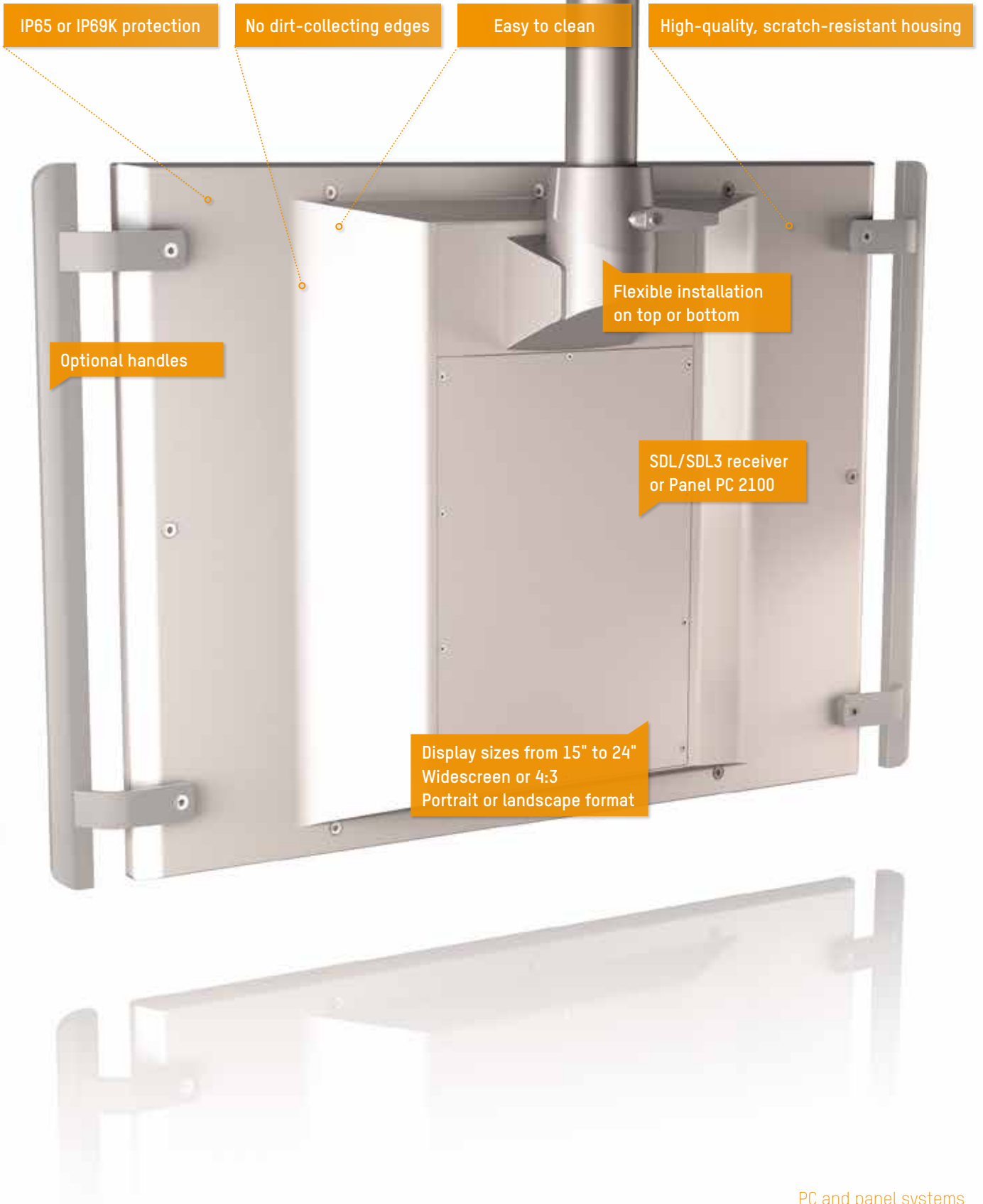
Simple cabling

Cables are installed through the swing arm system and connected to an easily accessible area with IP65 protection, which makes it possible to use inexpensive standard cables. To facilitate extremely simple handling, an installed panel can be wired directly on the swing arm. Setting up the device is done in the same modular way as mounted devices. Customers who opt for Smart Display Link 3, the latest generation of B&R display transmission technology, benefit from slim RJ45 connectors. They are the perfect choice when it comes to feeding through cables in extremely tight spaces, including the limited openings on swing arms.

Powerful processor technology

Systems in the Panel PC 2100 series are equipped with high energy-saving processors that cover a wide performance spectrum ranging from single-core processors all the way up to quad-core. This provides the same computing power that used to only be available for mounted devices. Graphics performance isn't lagging behind, either; features such as DirectX 11 are also supported. Even on a swing arm, the Panel PC 2100 is perfectly suited for the absolute latest SCADA systems with sophisticated graphics.

Easy operation

Swing arm devices are available in two variants: with touch screen and with other additional control elements. Buttons, selector switches, key switches and an integrated E-stop button provide exceptional user comfort. Also included is an integrated RFID reader, which allows the assignment of individual access rights. Jotting down passwords on small scraps of paper has been relegated to the past – right where it belongs. Multi-touch screens provide a simple and intuitive operator interface. The implementation of two-hand operation for critical tasks prevents operations from being carried out unintentionally.

IP65 or IP69K protection

No dirt-collecting edges

Easy to clean

High-quality, scratch-resistant housing

Flexible installation on top or bottom

Optional handles

SDL/SDL3 receiver or Panel PC 2100

Display sizes from 15" to 24"
Widescreen or 4:3
Portrait or landscape format

Revolutionary cabling – Smart Display Link 3

New Smart Display Link 3 transmission technology offers clear advantages for constructing modular machines and systems.

The third generation of this digital display transmission technology represents a new chapter in the success story that is Smart Display Link. Smart Display Link's unsurpassed convenience is owed to two key advantages: complete independence from the operating system and the ability to connect the PC to the operator panel using only a single cable.

Up to 100 m

What's new about Smart Display Link (abbreviated as SDL3) is its ability to span much greater distances. This allows for optimal placement of Automation PCs and operator panels even on more expansive systems. A second highlight of SDL3 is its use of standard Ethernet cables, which drastically reduces cable costs over longer distances.

The thin cable and slim RJ45 connector are a perfect fit in tight situations such as feed-through openings and swing arm systems.

Simple cabling

These types of solutions used to require a thin client with a complete PC design. This not only took up more space, but was also dependent on the software and operating system being used. On top of that were the added costs of the PC architecture. The modular design of the Automation PC 910 and Automation Panel

SDL3 technology

→ All communication channels between the PC and panel transferred by SDL3 via a standard Ethernet cable
→ Up to 100 m
→ Independent of operating system and software
→ Simplified cabling
→ Small connector – also suitable for tight feed-throughs
→ No need for a CPU in the panel
→ No load on the PC system
→ Maximum graphics performance
→ Long-term availability

Display
Touch screen
USB
Keys
LEDs
Service data
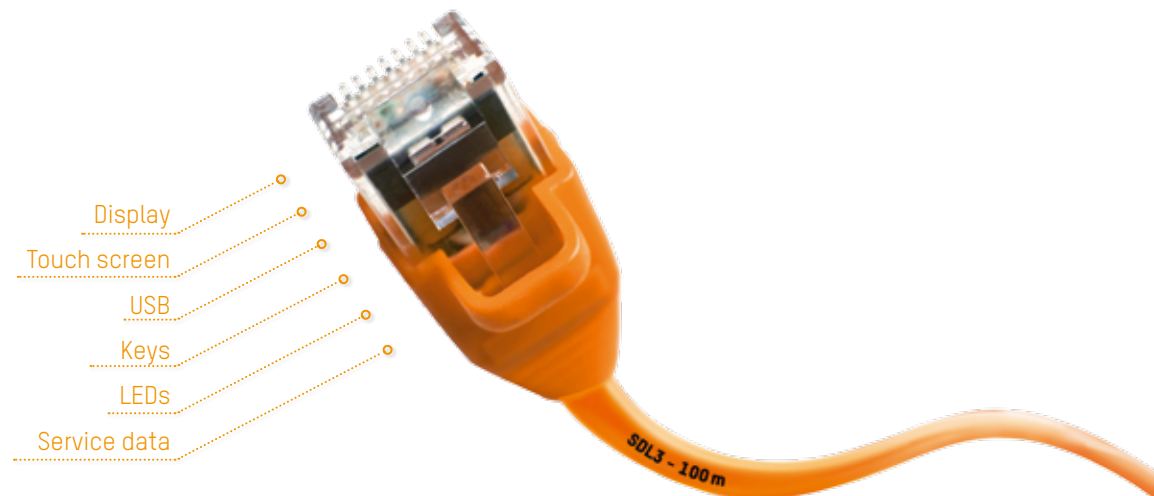
allows them to be equipped with an optional SDL3 interface.

Continuity over many years
This modularity, which can be traced back to the very first Automation Panels introduced to the market ten years ago, makes it easy to even upgrade existing machines and systems to SDL3, for example during retrofitting. An optional SDL3

converter is also available on the PC side so that the SDL interface on the Automation PC 810 or Panel PCs can be upgraded to SDL3. It doesn't matter which type of touch screen technology is used, because Automation Panels with either analog resistive single-touch screens or projected capacitive multi-touch screens can both be operated via SDL3. This kind of flexibility is unique on the market.

100 m

Flexible topologies with Smart Display Link 3

Smart Display Link 3 offers additional advantages when used together with an external converter. For example, it can be used to connect Automation Panels to all Automation PC 910, Automation PC 620 and Automation PC 810 devices as well as to all Panel PCs. Upgrading systems to SDL3 in the course of retrofitting or modifications is extremely easy.

The data for all of the Automation Panel's operating and display elements, such as keys and LEDs, are also transmitted via SDL3. Using the integrated SDL3 interface, two Automation Panels can be connected to an Automation PC 910 in dual independent display mode.

Flexible use with all product series

The modular design of Automation Panels provides the necessary flexibility for SDL and SDL3 to be used with all product generations. Another bottom line advantage is that SDL3 can even be used with existing swing arm systems and customer-specific models.

SDL3   24 VDC

Automation PC 910
with Smart Display Link 3

Automation Panel
with Smart Display Link 3

Automation PC 910 with optional integrated Smart Display Link 3 transmitter

➜ Connected via SDL3 to the Automation Panel (single- and multi-touch)

USB 2.0 | SDL3 | 24 VDC

SDL

Automation PC 910 | SDL3 converter | Automation Panel with Smart Display Link 3

Automation PC 910 with external SDL3 converter

➔ Connected via SDL3 to the Automation Panel (single-touch and multi-touch)

24 VDC | SDL3 | USB 2.0 | SDL3 | 24 VDC

SDL

Automation Panel with Smart Display Link 3 | Automation PC 910 with Smart Display Link 3 | SDL3 converter | Automation Panel with Smart Display Link 3

Automation PC 910 with integrated Smart Display Link 3 and external SDL3 converter

➔ Connected via SDL3 to two Automation Panels (single- and multi-touch)

Hygienic
stainless steel panels

When used in environments with stringent hygienic requirements, display units are subject to frequent and aggressive cleaning. Design and material requirements are particularly high in the food and beverage and pharmaceutical industries. In these areas, display units are operated continuously and must have a robust and seamless construction.

Stainless steel panels for special applications

This series has a compact design that makes the panels not only visually appealing, but also suitable for use in even the most sensitive areas. The stainless steel series is certified with protection ratings up to IP69K in accordance with DIN 40050 and designed to meet the requirements of DIN EN 1672-2 – Food processing machinery (Basic concepts - Part 2: Hygiene requirements). Molded seamlessly with the housing, the operator panel can be directly connected to conventional swing arm systems.

Highlights

→ Projected capacitive multi-touch screen with splinter protection
→ IP69K protection
→ Integrated RFID
→ Integrated illuminated ring keys and E-stop button
→ Non-rusting stainless steel (1.4301)
→ Minimal gaps and edges to collect dirt
→ Satisfies DIN EN 1672-2 "Food processing machinery - Basic concepts, Part 2: Hygiene requirements"
→ Protection against shattering through laminated front overlay that covers the entire surface
→ Physiologically harmless materials

The face
of your machine

Video: Panel Designer

Design is becoming an increasingly important factor in the capital goods industry. Especially important is a uniform appearance across all products – the corporate design. In the eyes of the user, this begins with the human-machine interface.

A custom design can be accomplished quickly and easily by simply integrating your company's logo onto the device or by adapting key tags, symbols and slide-in labels to the needs of the application. Operator panels can also be given a custom printed overlay to match your color requirements. Since the overlay is the only difference compared to a standard device, these customizations are available quickly and guarantee full compatibility with B&R's entire product portfolio.

Customizing the appearance

With the Panel Designer (paneldesigner.br-automation.com), you can create an impressive custom design with just a few mouse clicks. Further on in the process, you can modify the number of keys and their layout. It is also possible to customize the dimensions of the panel. You can select any of B&R's standard touch screen or display products and integrate additional components such as an E-stop button, key switch or RFID reader. A custom panel can be constructed either as an Automation Panel or a Panel PC.

Highlights

→ Custom company logos and colors
→ Custom keys, symbols and slide-in labels
→ Additional components (E-stop, key switch, etc.)
→ Complete integration of connections, swing arm flange, etc.
→ Hygiene-oriented design
→ Various touch screen technologies
→ Stainless steel design
→ Protection up to IP69K

Optimize your system

B&R offers an extensive range of products for integrated automation solutions based on the Automation PC 910 platform.
For a complete overview of all B&R system components, visit www.br-automation.com.

Box PCs / Panel PCs

→ Automation PC 910 / Panel PC 900
→ Powerful Intel Core i3/i5/i7 processors
→ Fanless operation
→ Windows 7, Windows 8, Windows Embedded, Linux, real-time
→ Uncompromising quality for operation over many years
→ Direct fieldbus connection

Automation Panels

→ Automation Panel 900
→ Widescreen from 7" to 24" Full HD
→ 4:3 from 12.1" XGA to 19" SXGA
→ Projected capacitive multi-touch and analog resistive single-touch
→ Hygienic design (IP69K)
→ Swing arm or cabinet mounting
→ Remote operation up to 100 m with SDL3

Ultrafast automation

→ reACTION TECHNOLOGY
→ 1 μs response time
→ Cost-effective due to standard hardware
→ IEC 61131 programming
→ Significant reduction of CPU load
→ Digital and analog signal preprocessing
→ Comprehensive diagnostics and simulation
→ Extensive function library
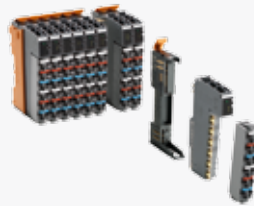
Modular I/O system

→ X20 I/O
→ Open for all fieldbus systems
→ Removable terminal blocks
→ Hot-pluggable
→ Unequaled component density: 16 channels in just 12.5 mm
→ No-risk hardware replacement due to centralized management of firmware/configurations

IP67 I/O system

→ X67 I/O
→ Open for all fieldbus systems
→ Seamless integration
→ Excellent EMC properties
→ Diagnostics via PLC program and web interface
→ Simple cabling
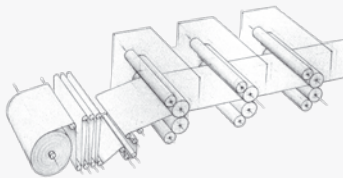
Technology Solutions

→ Integrated closed-loop control
→ Hydraulics, temperature, winders, printing
→ Profile generators, controllers, system identification, autotuning
→ Virtual sensors
→ Simulation models
→ Model Predictive Control (MPC), Advanced Process Control (APC)

IP20 motion control

→ ACOPOS/ACOPOSmulti/ACOPOSmicro
→ Power range from 500 W to 120 kW
→ Regeneration-capable and energy-saving
→ Integrated drive sizing
→ Easy programming with standardized PLCopen function blocks
→ Maximum dynamics and precision with a perfectly orchestrated complete system

IP65 motion control

→ ACOPOSmotor/ACOPOSremote
→ Seamless integration in the ACOPOSmulti drive system
→ Integrated safety technology and SafeMOTION
→ High continuous power up to 4 kW
→ Integrated drive sizing
→ Easy programming with standardized PLCopen function blocks

HMI terminals

→ Power Panel T-series
→ Portrait and landscape
→ 4.3" to 10.1"
→ Widescreen and 4:3
→ Integrated VNC terminal and web client
→ Compact, fanless and maintenance-free
→ IP65 protection
→ Daisy chain connections

Power Panels

→ Power Panel C-series
→ Control and HMI in a single device
→ Easy programming in IEC 61131-3, CFC, ANSI C, C++, PLCopen
→ 5.7" to 10.1"
→ Widescreen and 4:3
→ Open communication (FTP, VNC, OPC, web server, POWERLINK)

Scalable PLC platform

→ X20 controller
→ Easy programming in IEC 61131-3, CFC, ANSI C, C++, PLCopen
→ Open fieldbus options (POWERLINK, CANopen, DeviceNet, PROFIBUS, PROFINET, etc.)
→ Intel Atom performance
→ Fanless and maintenance-free
→ Integrated CNC and robotics

Safe control platform

→ SafeLOGIC
→ Safety in accordance with CAT 4 / PL e / SIL 3
→ PLCopen-certified function blocks
→ Virtual wiring
→ Management of machine options
→ Easy IEC 61131 programming
→ Openness through openSAFETY
→ Integrated diagnostics

Safe I/O system

→ X20 SafeIO / X67 SafeIO
→ Digital inputs/outputs
→ Relay outputs
→ Analog inputs
→ Temperature inputs
→ Use of I/O data in both standard and safe applications
→ Safety in accordance with CAT 4 / PL e / SIL 3

Safe motion control

→ SafeMOTION
→ Fastest reaction times
→ STO, STO1, SBC, SOS, SS1, SS2, SLS, SDI, SLI, SMS, SLP, SMP, Safe Homing, SBT, SafeROBOTICS
→ Safety in accordance with CAT 4 / PL e / SIL 3
→ Network-based safety technology
→ Safe parameter transfer with SafeLOGIC

CNC / Robotics

→ Generic Motion Control
→ CNC functions for all technologies
→ Ready-to-use robotics solutions
→ Any kinematic transformations
→ Motion profiles optimized for power consumption and timing
→ Support for servos, steppers and hydraulics
→ Interpretation of NC dialects

Motors / Gears

→ Power range up to 140 kW
→ Synchronous motors, stepper motors, direct drives
→ Direct gearbox mounting
→ Integrated diagnostics down to the motor
→ Integrated sizing with speed-torque chart
→ Embedded parameter chip

Mobile automation

→ MA170 system
→ Modular control and I/O system
→ Extremely robust housing and hardware
→ -40 to +85°C temperature range (housing surface)
→ 8 to 32 VDC power supply
→ Extreme shock and vibration resistance
→ POWERLINK & CANopen

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For every industry

PC and panel systems "Made by B&R" represent the epitome of premium quality, robust strength and long-term availability. These virtues shine brightest when put to the hardest test – a decisive advantage for all industries and applications.

Automation PCs are unfazed by even the most adverse environmental conditions. They serve reliably on ships in stormy seas, in offshore wind turbines and, of course, in the most demanding machines and systems.

Automation PCs can be found in successful applications far beneath the earth's surface and above ground in traffic monitoring stations. B&R's robust and powerful industrial PCs are also perfectly suited for applications in any other industry, including packaging, printing and textile machinery. Automation PCs have had plenty of opportunities to demonstrate their exceptional versatility in the semiconductor and plastics industries as well.

Even the metal and wood processing industries have come to rely on their extraordinary all-round performance. Decision-makers in the automotive industry have also discovered the benefits of the Automation PC – especially its long-term availability and outstanding performance.

With their ability to adapt to applications of any size, they are just as valued in the process industry as they are in building automation systems.

Special hygiene-oriented designs satisfy the most stringent requirements of the foodstuffs industry.

The long list of potential applications would not be complete without mentioning the fields of robotics and handling. Automation PCs are the ultimate all-rounders – whatever test you put them to, they pass with flying colors.

PC technology for all industries:

01 Packaging **02** Infrastructure **03** Metal **04** Handling & Robotics **05** Print **06** Wind power **07** Maritime & Offshore **08** Tobacco **09** Commercial vehicles **10** Environment & Recycling **11** Chemicals & Pharmaceuticals **12** Food & Beverages **13** Semiconductors **14** Oil & Gas **15** Measurement and testing technology **16** Energy **17** Wood **18** Biomedical engineering **19** Plastics **20** Textiles **21** Automotive

Integrated automation
Global presence
Solid partnership

ETHERNET **POWERLINK**

open **SAFETY**