

PIONEERING AUTOMATION TECHNOLOGY

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# PRODUCT CATALOG 2024

## BERGHOF AUTOMATION

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-  Safety Control System
-  Raspberry Pi PC
-  Compact Control System
-  Display Control System
-  Touch Panels
-  Hardware and Software Options
-  Accessory Components
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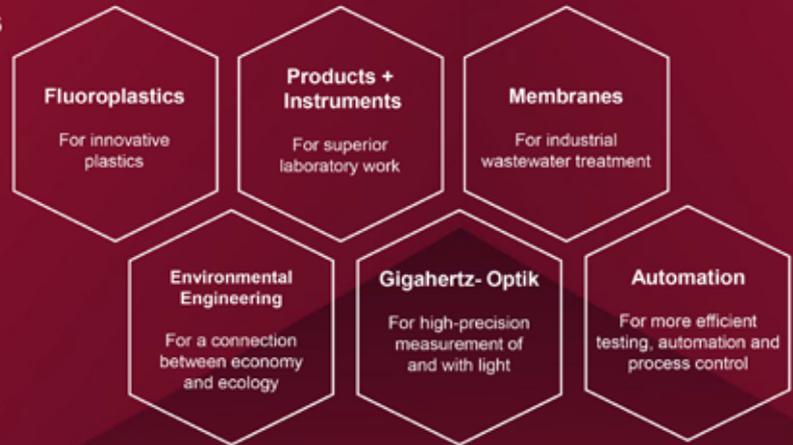
# BERGHOF **GROUP**

AS A LEARNING, GROWING COMPANY AND  
NETWORK OF STRONG PARTNERS, WE COMBINE  
BERGHOF KNOWLEDGE, TECHNOLOGIES AND  
RESOURCES IN FIRST-CLASS PERFORMANCE

# BERGHOF YOUR INNOVATION HUB

## Diversity is one of our strengths

Innovative products and services – the Berghof Group offers multiple competencies for a wide variety of industry sectors.



**Berghof Automation GmbH** is a continuously growing subsidiary company of the Berghof Group, a family-owned company that has been developing and producing advanced technologies at the highest level in Germany for over 50 years. To ensure optimum quality at all times, we have not outsourced the entire process chain - from brainstorming and development to careful product testing and certification - but have combined it at our headquarters in Eningen u.A..

**Founded in 1966 by Prof. Dr. Georg Zundel** as a research institute, Berghof quickly made a name for itself as one of the most renowned physical-technical institutes in Germany. Following the successful transformation into a technology company, the Berghof Group today supplies the market with an extraordinary variety of technologies and products, in line with the common motto „Your Innovation Hub“.

The group of companies comprises - in addition to Berghof Automation GmbH - the subsidiaries Berghof Fluoroplastic Technology GmbH, Berghof Membrane Technology GmbH, Berghof Products + Instruments GmbH, Berghof Umweltengineering GmbH and Gigahertz-Optik GmbH.

**Mutual sharing of knowledge**, the sensible use of synergies between the individual business units, long-term cooperation and versatility - all this is the fertile ground for value-creating innovations. That's why Berghof maintains a cooperative relationship with each other and, above all, with its customers. with each other and, above all, with its customers.

Around half of all employees in the Berghof Group are members of the Berghof Automation business unit, distributed among the areas of automation technology, test and inspection technology, and process control and logistics.

BERGHOF **AUTOMATION**

FOR CHALLENGING PROJECTS IN MACHINE AND  
PLANT CONSTRUCTION AND FOR WORLDWIDE  
INITIAL EQUIPPING

# THE STRONG PARTNER AT YOUR SIDE

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The automation technology division of **Berghof Automation GmbH** realizes customized individual solutions based on a highly flexible standard portfolio by means of a highly specialized team. In this way, we meet our customers' requirements to the maximum - and at the same time ensure maximum qualitative product safety.

And for customers this offers even more: all products benefit from every tailor-made solution through its integration into the standard, so that all customers - even when using the standard portfolio - benefit from the innovative ideas of the entire industry.

Berghof control solutions have proven themselves in a wide variety of industries across all sectors. Machine tools, special machines, the food industry, mining, oil & gas, crane systems or agriculture - the usability of Berghof controls and components is individually tested in each case.

For example, Berghof components withstand extreme weather and operating conditions in shipping, on offshore platforms and in underground mining. This special heavy-duty line demonstrates Berghof's indestructible control technology on a daily basis, which can be optimally operated even in exceptional temperatures and heavy soiling and guarantees perfect function.

But Berghof's portfolio is not only represented at extremes. The products demonstrate their 24/7 usability in intralogistics as well. Thanks to the flexible system, Berghof is able to

ideally adapt the automation, networking and visualization of all material flows to logistics requirements.

Industry 4.0 is not just a buzzword for Berghof - it is a living reality. Numerous customers rely on the broad communication capabilities of our products and network these with superimposed systems or Smartphones to keep the process optimally in view at all times.

**Berghof Automation** accomplishes this with highly qualified and optimally coordinated teams, sophisticated process flows, close coordination of all process flows with short decision-making paths and implementation times, and all this with in-house production.

The basis of all activities is the wealth of experience and expertise gained from countless projects with know-how in operational processes and product requirements in a wide range of industries in almost all fields of application.

In order to be able to guarantee such a high standard, Berghof places high demands on both itself and its suppliers in terms of quality, reliability and interpersonal cooperation. The goal: an all-round successful project - from the task definition to software migration or product integration, from commissioning to maintenance.

According to the motto:  
**Berghof will take care of it for you.**

# BERGHOF IN USE ACROSS THE BOARD

**Repeatable and scalable** solutions based on a proven product portfolio despite the diversity of requirements and applications of different industries - this calls for an equally flexible manufacturer.

With products from Berghof, you rely on valuable experience from over 40 years in automation technology with special product solutions and almost all application areas. We focus on the well-being of our customers: tailor-made products on the basis of a qualitatively mature, high-value portfolio and know-how, which is constantly expanded via specially established knowledge databases. The result: we already fulfill special market and application requirements as standard.

Integration into superimposed systems, guaranteed spare parts availability according to specifications, special communication protocols, safety in operation, protection of your realization against unauthorized persons, predictive maintenance, remote access, easy service - our interest is always focused on the functioning ghost system, tailored to the respective individual requirements.

Longevity, reliability and a maximum MTBF are kept in mind as well as the possibility of expandability and renewal of the running system.

**Your advantage:** The Berghof portfolio continuously integrates the innovative, forward-looking accents from all applications into the standardized complete solutions.

The Berghof automation experts work with you in partnership to create a solution tailored to your process flows and support you during integration, commissioning and maintenance. Reliable and competent support throughout the entire life cycle, uninterruptedly available if required, is a matter of course for us. In addition to our control technology, we also supply automation software tailored to your needs.

Shortening the time-to-market is becoming the most important competitive factor in order to survive in the industry environment. Our suitable system solutions help you to flexibly optimize your processes. The range of applications for Berghof products is as diverse as the industries.

**Made in Germany.**

## Flexible automation solutions for all industries:

**01** Intralogistics, **02** Building Automation, **03** Machine tools,  
**04** Special machines, **05** Packaging machines

# BERGHOF INDUSTRIES & APPLICATIONS



# CODESYS AN OPTIMAL BASIS

## CODESYS offers you as a user numerous advantages

The experts at Berghof know from many years of experience that compatibility and openness are particularly important criteria for customers. This is why Berghof Automation & Control Solutions has been consistently relying on the open automation software CODESYS for many years.

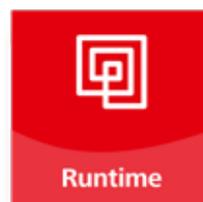
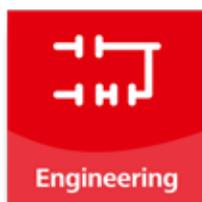
CODESYS convinces by its unique flexibility and functionality and belongs rightly to one of the most frequently used programming tools worldwide. The IEC 61131-3 programming software „CODESYS Development System“ forms the basis for this. This programming language improves the life cycle of the software and significantly facilitates requirements analysis, design, construction, testing, validation, installation, operation and maintenance. CODESYS allows the programming languages IL, LD, FBD, ST, AS and CFC. This makes it easy to implement applications with complex, distributed architectures.

As an internationally proven engineering tool, CODESYS has meanwhile established itself as a worldwide standard for a large number of manufacturers. But there are big differences in the application.

Berghof Automation uses the **open standard of CODESYS**, which offers you numerous advantages as a user. Linux is used as the platform for our controllers, so that a wide variety of software modules can be easily combined.

### Your advantages with the Berghof solution:

- No need for proprietary solutions – Use of 3S Standard-Solutions and Functions
- CODESYS is free of charge – one-time purchase of the company target license further standard updates of 3S are free of charge
- Simple up- and downgrading between the different CODESYS versions as required
- No restrictions for devices to be used
- No restrictions when using third-party libraries
- Very easy changeover from other standard V3 platforms to the Berghof system
- Unrestricted use of the software available in the CODESYS Store
- Compatibility with various plug-ins and extensions



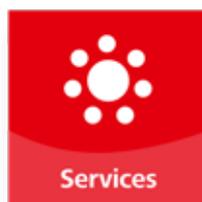
# CODESYS AN OPTIMAL BASIS

## The Berghof CODESYS standard offers a variety of free software options:

- Unit-related analog inputs without necessary conversion
- Application protection through binding to hardware
- Configurable bootlogo, weblogo & operator buttons
- Operating hours counter
- CODESYS Security Manager for Encryption and Certificates
- DHCP client for automatic IP configuration
- HTTPS Webconfig
- Internal diagnostic memory (diagnostic log for offline error analysis)
- IP configuration via display menu
- Configuration option 2nd IP address on Ethernet interfaces
- Multi-Touch function
- Screenshot function
- Target visualization
- Temperature sensor
- Web-based configuration interface
- Additional Fonts
- Time zone support including summer / winter time
- Certificate-based security
- CODESYS Runtime License

## Benefit from our extensive experience with CODESYS. We offer you numerous supports for the software.

- Consulting and conception for automation requirements
- Creation of the software application
- Porting CODESYS versions to each other and migrating other PLC platforms to CODESYS
- Optimization of realizations with CODESYS
- Training courses / workshops on software in general or specially tailored to your needs, for example on system operation or service



# BERGHOF CERTIFIED PARTNER

**We are always close at hand.** Represented by qualified and certified Solution Partners, we offer optimal support for all tasks worldwide. Our partner companies are proven experts in special technologies and industries with excellent product and system know-how as well as many years of experience in the use of Berghof technology starting with project conception, product selection, application creation and customizing support, right through to sound training programs or after-sales support, the Solution Partners offer the competent support and know-how of Berghof control technology - **and all this at your site.**





[www.astor.com.pl](http://www.astor.com.pl)



[www.kyma-automation.gr](http://www.kyma-automation.gr)



[www.hoautom.com](http://www.hoautom.com)



[www.sinotek-control.com](http://www.sinotek-control.com)



[www.pmacontrols.in](http://www.pmacontrols.in)



[www.maestrotek-innovation.com](http://www.maestrotek-innovation.com)



[www.ti2.com.au](http://www.ti2.com.au)



[www.fcrmotion.com.au](http://www.fcrmotion.com.au)

If you cannot find a certified Berghof Solution partner in your country, the headquarter in Eningen is responsible for you.

# BERGHOF SYSTEM





**CODESYS V3.5**



**Remote**



**B-Primis ET-Touch Panels**



**Softwareengineering**



**B-Fortis CC-Compact Control System**



**Migration CODESYS V2-V3**



**B-Nimis MC-Modular Control System**



**Commissioning**



**B-Primis DC-Dialog Control System**



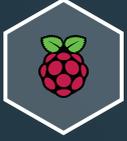
**Maintenance**



**B-Nimis SC-Safety Control System**



**Certification**



**Raspberry Pi for Industry**



**24h Support**



**Dualcore**



**Training CODESYS & Berghof**



**B-Veris Motion**



**Support**



**Router**



**Express Delivery**



**Retrofit**



**Repair Service**



**Options**



**Project Documentation**



**Industrial PC**



**Frequently Asked Questions**

# BERGHOF CUSTOMIZING

For Berghof, it is a matter of course that your requirements for a product can go beyond the standard range..

We offer customized product adaptations to ensure that your control system exactly meets your specific requirements. Whether it's customizing your control with your company logo, integrating a special control keypad, implementing an individual design, or perfectly adapting the dimensions to your plant - we have the solution.

Our experts are specialized in optimizing not only the function, but also the design and integration of your control into your plant. We also offer the option of adapting the control design exactly to your corporate design to ensure a uniform appearance.

And the best part? Our standardized customization options allow us to implement individual product adaptations in the shortest possible time. Our wide range of options includes:

- Customized front foils
- Individual color design of the plastic carcass
- A hood imprint specified by you
- Your logo as sticker
- Customized nameplates
- Customized mounting devices
- Individual device configurations
- Pre-installation of customer applications
- Personalized boot screen
- Customized weblogos

Your requirements are our priority, and we are ready to customize our products to meet your exact needs. Contact us today to find out how we can realize your individual product customizations.



INDIVIDUALITY IS STANDARD WITH US



# MORE POWER WITH BERGHOF **MULTICORE**

## **The strongest Berghof controllers of all time**

The already above-average Berghof controllers now with even more power.

If the basic equipment of the high-performance Berghof controllers is not sufficient for your versatile automation tasks, you now have the option to order these controllers as multicore units.

You can expect quad core performance with up to 1.5 GHz as well as new expansion variants with even more RAM for a high-performance flow of the two cores.

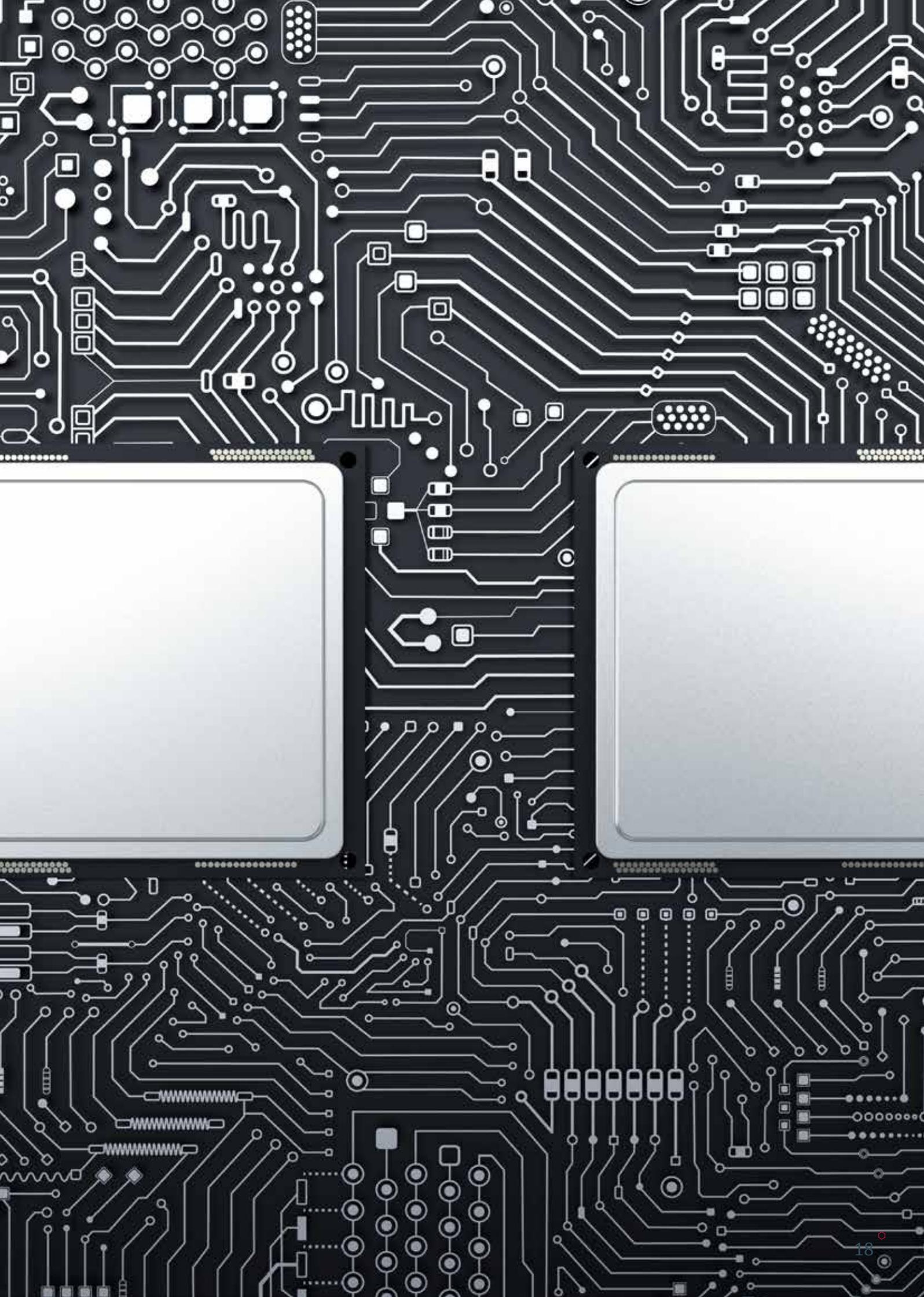
You benefit not only from more computing power, but also from all the advantages of the CODESYS multi-core runtime and the Berghof operating system designed for multicore.

Berghof thus offers you a fully comprehensive and true multicore system.

By distributing your application to different cores which take over dedicated tasks, not only a higher not only a higher availability of the individual components but also even better real-time properties are guaranteed.

### **Your advantages at a glance:**

- Improved real-time performance via independent cores
- Significant performance increase of the overall system
- Higher availability of the components
- Clearly improved visual performance
- SoftMotion applications with more drives
- Significantly more RAM
- Perfectly integrated into the standard device series
- Available for all Berghof display controllers of the B-Primis series  
and all Berghof compact controllers of the B-Fortis series



PIONEERING AUTOMATION TECHNOLOGY

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## **MODULAR CONTROL SYSTEM**

B-NIMIS MC-PI PRO

B-NIMIS MC-PI PRIME

B-NIMIS MC-PI PLUS

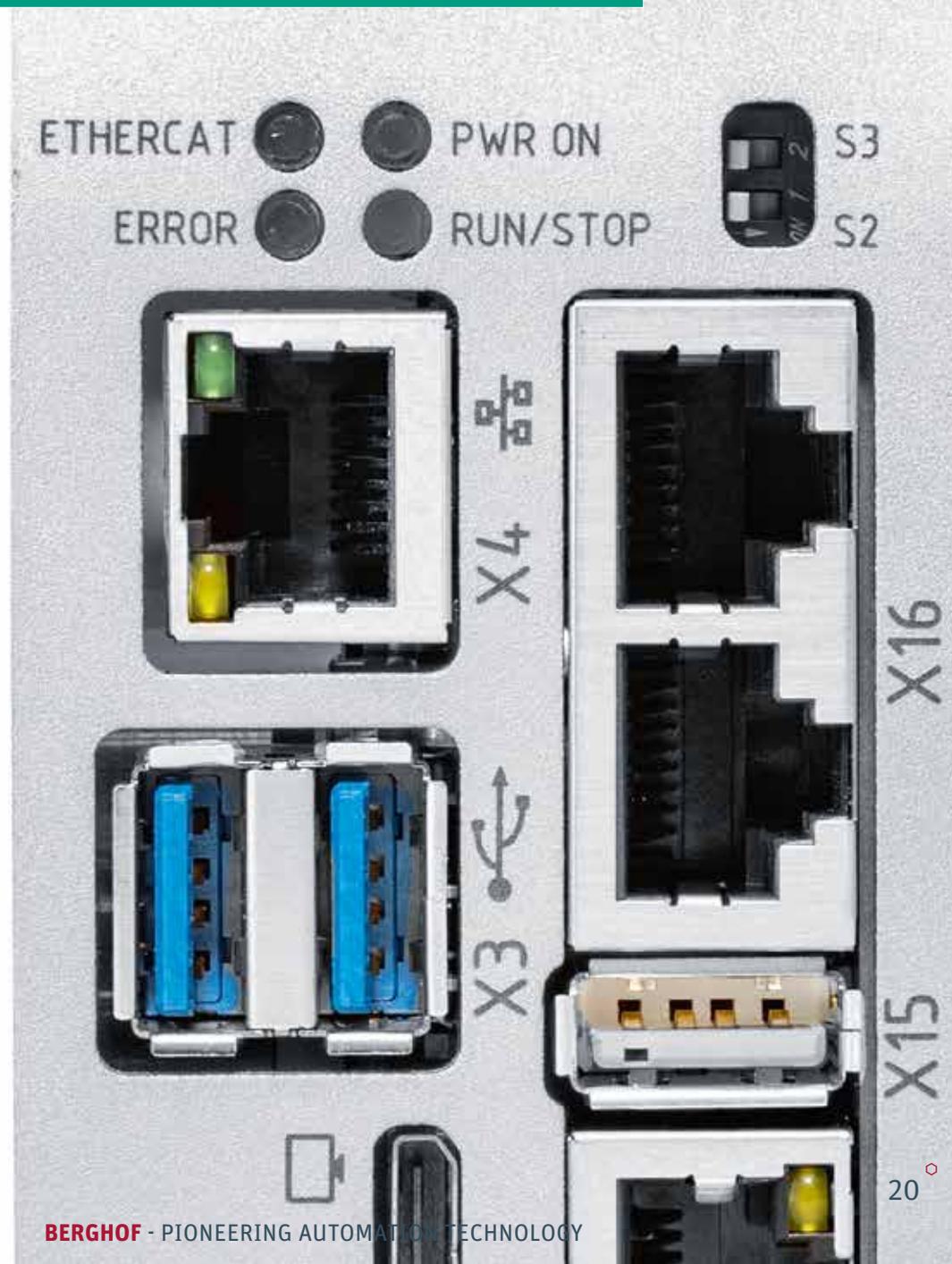
B-NIMIS MC-I/O

# B-NIMIS MC-MODULAR CONTROL SYSTEM

BERGHOF AUTOMATION AND CONTROL SOLUTIONS

- Complete range of services
- Same form factor for all assemblies
- Universal parity of parts
- SD card slot and USB port included as standard
- Extraordinary combinability
- Integrated web server
- Buffered, maintenance-free real-time clock

Modular CODESYS Control System & I/O-Expansions



# B-NIMIS MC

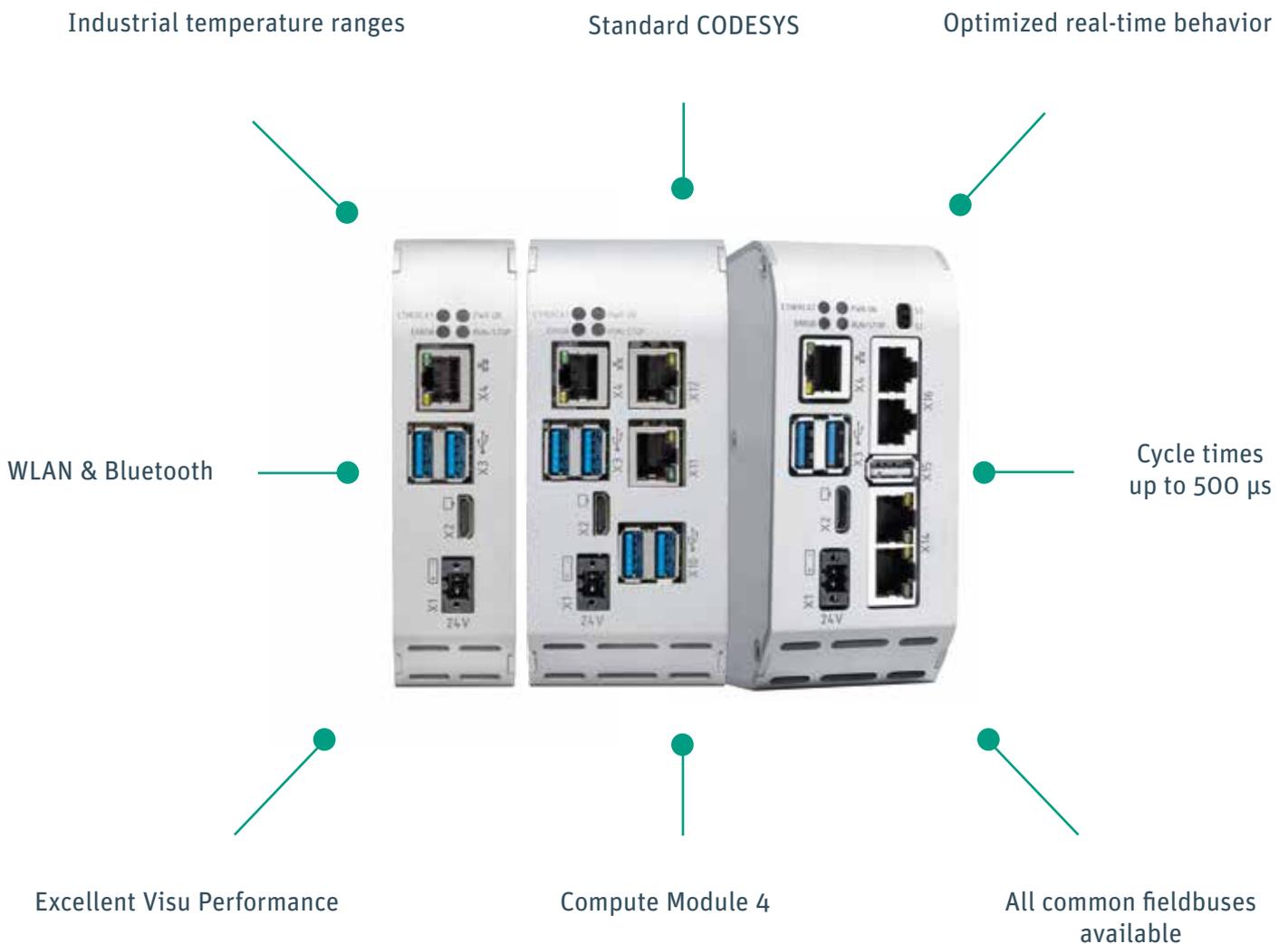
## Modular CODESYS PLC based on Raspberry Pi with EtherCAT I/O system

With the Raspberry-based B-Nimis MC-Pi Pro and B-Nimis MC-Pi Prime series, Berghof launches high-performance CODESYS quadcore controllers for the realization of your IIOT, motion and automation projects. The real-time CODESYS quadcore controller B-Nimis MC-Pi offers an optimal ratio between computing power and cost with up to 500  $\mu$ s cycle times.

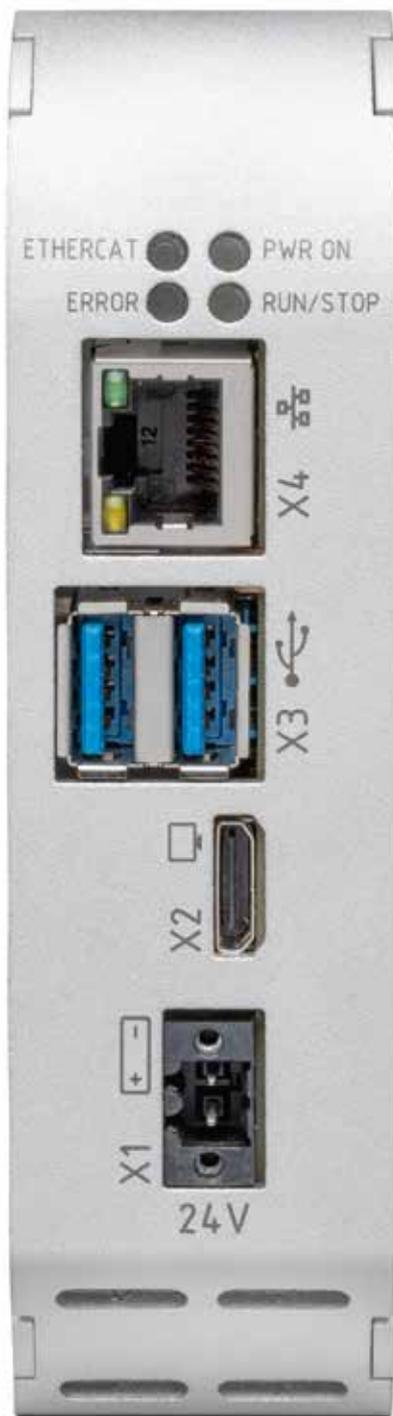
We have perfectly integrated the MC-Pi product family into the Berghof I/O portfolio by means of EtherCAT standard fieldbus and plug & play expandability, providing you with numerous expansion modules to choose from.

The uncompromising adherence to general standards is not only expressed in the interfaces and connectable options, even internal mechanisms are oriented to them, such as with an internal communication system based on EtherCAT® as a uniform concept throughout.

This allows you, the user, full control of all influencing variables. Furthermore, the devices can be easily installed and combined with other control components such as the standardized Berghof Primis or Fortis system.



# B-NIMIS MC PI-PRO



## Easy visualization

via VNC and web interface as well as additional digital display interface

## State-of-the-art - maximum performance

through the use of the Compute Module 4 and thus the latest Raspberry technology

## Powerful complement

to the B-Nimis MC-Pro, of course with continuation of its features

## Excellent real-time performance

thanks to quadcore and perfect harmony between hardware and software

## No limits for your applications

due to more than enough memory (8GB) which can still be expanded

## Future-proof control system

thanks to great flexibility in the configuration and standardization of the CPU module

## Perfectly integrated into the Berghof I/O portfolio

by means of EtherCAT standard fieldbus and modular expandability - plug & play

## No service costs

due to maintenance-free control concept

## Wide range of applications

thanks to industrial temperature ranges

## Secured communication

via internal bus system, between modules with guaranteed vibration-proof connection

## Best protection

by a consistent EMC concept with Line shielding and internal grounding

## Prepared for worldwide use

thanks to availability of all required certificates (CE, UL, EAC, CCC, etc.)



# B-NIMIS MC-PI PRIME

## Powerful complement

to the B-Nimis MC-Pi Pro, of course with continuation of its features

## Unsurpassed flexibility

thanks to modular expandability and arbitrary partitioning within the plant control system, open for all fieldbuses

## Easy data management

thanks to more than enough retain memory

## Optimally evaluated, analyzed or exchanged

by means of storage or backup of data or project planning on the SD card of the PLC

## Extended basic equipment

with additive features compared to the B-Nimis MC-Pi Pro

- 4 x Host USB 3.0 / USB-plug type A
- 1 x uSD (SDXC)

## Sophisticated update concept

with time-saving update processes via USB or SD card for firmware and customer applications in the field

## Simple and fast commissioning

through preconfigured devices or automatic configuration via USB stick

## Time-optimized fault analysis

using a tried-and-tested diagnostic concept



## Future-proof connection

via state-of-the-art communication interfaces such as USB 3.0, Gigabit Ethernet and WLAN

## State-of-the-art - maximum performance

through the use of the Compute Module 4 and thus the latest Raspberry technology



# B-NIMIS MC-PI PLUS



## Easy visualization

via VNC and web interface as well as additional digital display interface

## State-of-the-art - maximum performance

through the use of the Compute Module 4 and thus the latest Raspberry technology

## Powerful complement

to the B-Nimis MC-Pi Prime, of course with continuation of its features

## Excellent connectivity

due to WLAN & Bluetooth

## Perfectly suited for Softmotion CNC

thanks to excellent real-time properties with the MC-Pi Plus now also via CAN

## Unsurpassed flexibility

thanks to modular expandability and arbitrary partitioning within the plant control system, open for all fieldbuses

## Perfectly integrated into the Berghof I/O portfolio

by means of EtherCAT standard fieldbus and modular expandability - plug & play

## No service costs

due to maintenance-free control concept

## Wide range of applications

thanks to industrial temperature ranges

## Secured communication

via internal bus system, between modules with guaranteed vibration-proof connection

## Simple and fast commissioning

through preconfigured devices or automatic configuration via USB stick

## Prepared for worldwide use

thanks to availability of all required certificates (CE, UL, EAC, CCC, etc.)



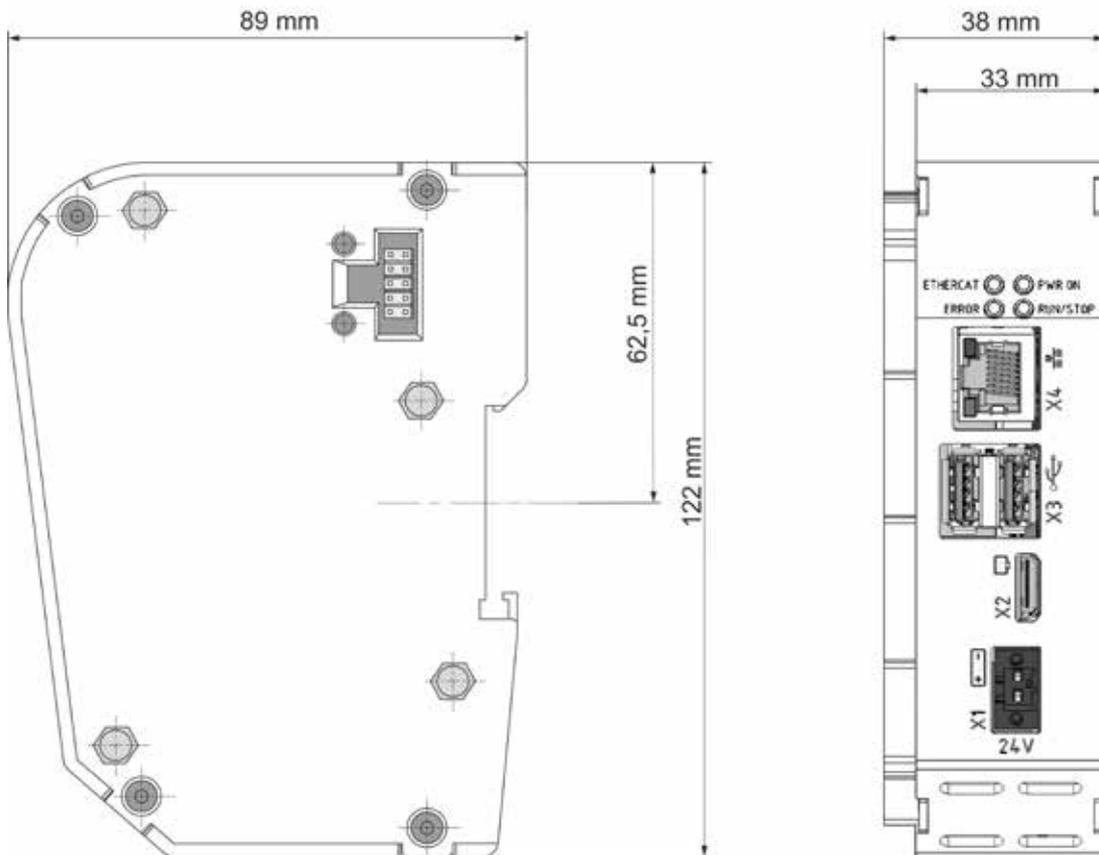
# B-NIMIS MC PI-PRO

## INFORMATION TECHNICAL DATA

B-Nimis MC Pi-Pro	Specification	
Description	MC Pi-Pro S01	MC Pi-Pro S02
Order number	<b>S-01030301-0100</b>	<b>S-01030301-0200</b>
Dimensions WxHxD [mm]	33 x 122 x 89	
Mounting	Rail mounting NS 35/7,5 EN 50022	
Certification	CE (EN 61131-2)	
Development environment	CODESYS V3 (IEC61131-3)	
CPU	BCM2711, 1,5 GHz Quad Core	
RAM /Flash /Retain	1GB RAM / 8GB Flash / 100 kB Retain	2GB RAM / 8GB Flash / 100 kB Retain
Communication interfaces	1x Ethernet 10/100/1000 Base, RJ45	
	1x EtherCAT LVDS	
	WiFi / Bluetooth (optional)	
Protocols	Standard: EtherCAT Master, NTP, FTP Optional: Modbus TCP, SNMP, OPCuA, Ethernet/IP, PROFINET, BACnet, KNX, IoT CANOpen Master and J1939 with additional MC-IO Module	
Visualization	WebVisu (Web Server, HTML5) over digital display interface (integrated web browser) or external web browser	
Additional features	2x Host USB 3.0 / USB plug type A	
	1x Digital display interface	
	1x 2 Pin for optional cooling fan (5V)	
	1x Real Time Clock, 30 days puffer	
Extensions	Extended heat sink (optional)	
	B-Nimis MC-IO EtherCAT Expansion modules (DIO, AIO, temperature, counter, Realais Multi, communication)	
Supply voltage	+24 VDC (-15% / +20%) SELV max. AC voltage component 5% with reverse voltage protection	
Current consumption	Typ. 0.3 A, max. 1.5 A at +24 VDC	
Operating conditions Transport / storage	Ambient temperature: : Operational: 0 °C to 40 °C / Transport -20 °C to +70 °C Relative humidity: max. 85%, non-condensing	
Emitted interference	EN 61131-2; EN 61000-6-4, industrial area	
Immunity to interference	EN 61131-2; EN 61000-6-2, industrial area	
Protection class	III	
Insulation strength	EN 61131-2	
Protection type	IP20	

# B-NIMIS MC PI-PRO

## INFORMATION TECHNICAL DATA / DIMENSIONS



Dimensions B-NIMIS MC-Pi Pro

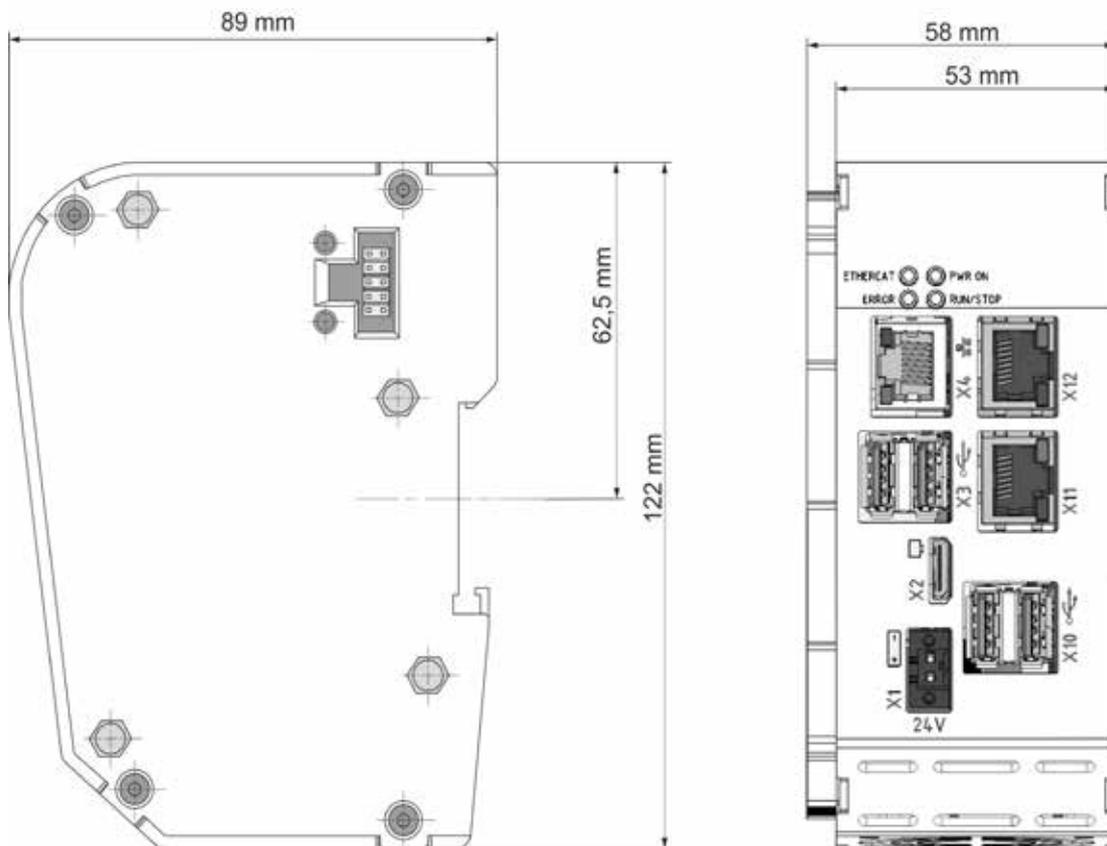
# B-NIMIS MC PI-PRIME

## INFORMATION TECHNICAL DATEN

B-Nimis MC Pi-Prime	Specification	
	MC Pi-Prime S01	MC Pi-Prime S02
Order number	<b>S-01030302-0100</b>	<b>S-01030302-0200</b>
Dimensions WxHxD [mm]	53 x 122 x 89	
Mounting	Rail mounting NS 35/7,5 EN 50022	
Certification	CE (EN 61131-2)	
Development environment	CODESYS V3 (IEC61131-3)	
CPU	BCM2711, 1,5 GHz Quad Core	
RAM /Flash /Retain	1GB RAM / 8GB Flash / 200 kB Retain	2GB RAM / 8GB Flash / 200 kB Retain
Communication interfaces	1x Ethernet 10/100/1000 Base, RJ45	
	1x Ethernet 10/100 Base 2-Port Switch, RJ45	
	1x Ethercat, LVDS	
	WiFi / Bluetooth (Optional)	
Protocols	Standard: EtherCAT Master, NTP, FTP Optional: Modbus TCP, SNMP, OPCuA, Ethernet/IP, PROFINET, BACnet, KNX, IoT CANOpen Master and J1939 with additional MC-IO Module	
Visualization	WebVisu (Web Server, HTML5) over digital display interface (integrated web browser) or external web browser	
Additional features	4x Host USB 3.0 / USB plug type A	
	1x uSD (SDXC)	
	1x Digitale display interface	
	1x 2 Pin for optional cooling fan (5V)	
	1x Real Time Clock, 30 days puffer	
Extensions	Extended heat sink (optional)	
	B-Nimis MC-IO EtherCAT Expansion modules (DIO, AIO, temperature, counter, Relais Multi, communication)	
Supply voltage	+24 VDC (-15% / +20%) SELV max. AC voltage component 5% with reverse voltage protection	
Current consumption	Typ. 0.5 A, max. 2 A at +24 VDC	
Operating conditions Transport / storage	Ambient temperature: : Operational: 0 °C to 40 °C / Transport -20 °C to +70 °C Relative humidity: max. 85%, non-condensing	
Emitted interference	EN 61131-2; EN 61000-6-4, industrial area	
Immunity to interference	EN 61131-2; EN 61000-6-2, industrial area	
Protection class	III	
Insulation strength	EN 61131-2	
Protection type	IP20	

# B-NIMIS **MC PI-PRIME**

## INFORMATION **TECHNICAL DATA/DIMENSIONS**



Dimensions B-NIMIS MC-Pi Prime

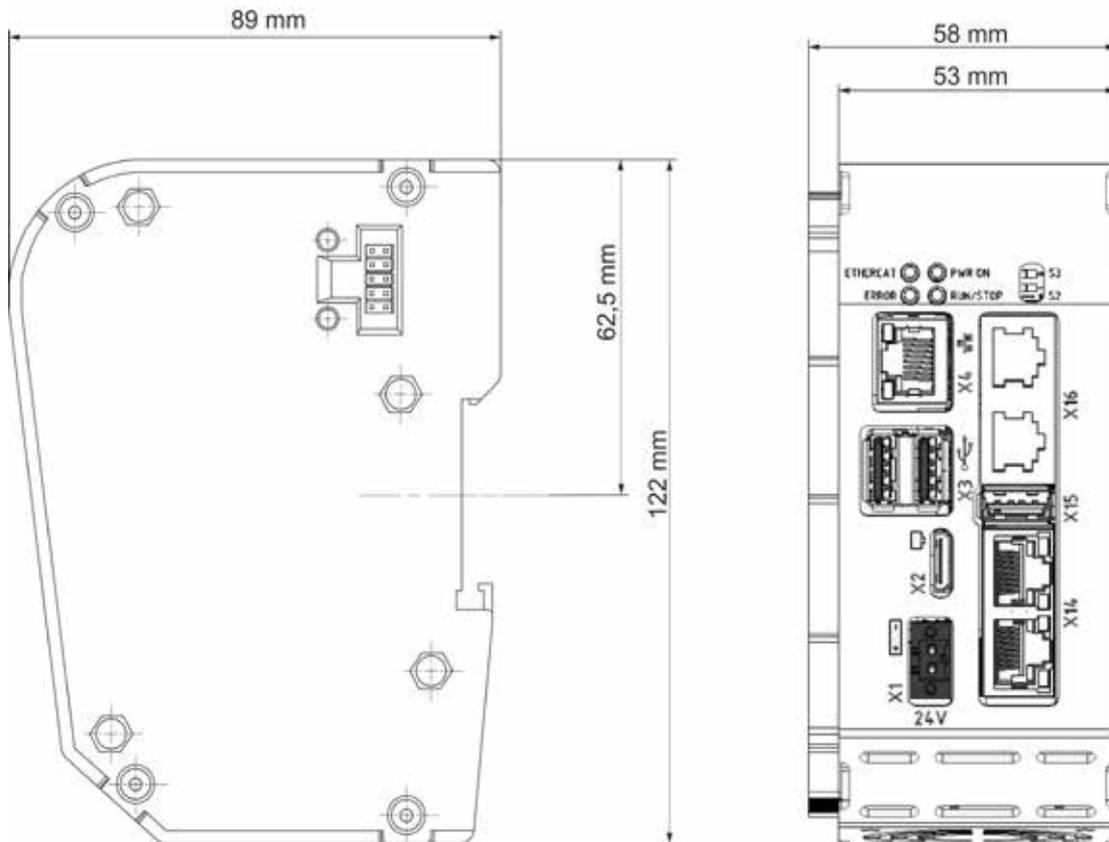
# B-NIMIS MC PI-PLUS

## INFORMATION TECHNICAL DATEN

B-Nimis MC Pi-Plus	Specification	
Description	MC Pi-Plus S01	MC Pi-Plus S02
Order number	<b>S-01030303-0100</b>	<b>S-01030303-0200</b>
Dimensions WxHxD [mm]	53 x 122 x 89	
Mounting	Rail mounting NS 35/7,5 EN 50022	
Certification	CE (EN 61131-2)	
Development environment	CODESYS V3 (IEC61131-3)	
CPU	BCM2711, 1,5 GHz Quad Core	
RAM /Flash /Retain	1GB RAM / 8GB Flash / 200 kB Retain	2GB RAM / 8GB Flash / 200 kB Retain
Communication interfaces	1x Ethernet 10/100/1000 Base, RJ45	
	1x Ethernet 10/100 Base 2-Port Switch, RJ45	
	1x Ethercat, LVDS	
	WiFi/Bluetooth (Optional)	
Protocols	Standard: EtherCAT Master, NTP, FTP Optional: Modbus TCP, SNMP, OPCuA, Ethernet/IP, PROFINET, BACnet, KNX, IoT CANOpen Master and J1939 with additional MC-IO Module	
Visualization	WebVisu (Web Server, HTML5) over digital display interface (integrated web browser) or external web browser	
Additional features	3x Host USB 3.0 / USB plug type A	
	1x CAN Bus, RJ45	
	1 x RS232 and 1 x RS485 not usable in parallel, RJ45	
	1x uSD (SDXC)	
	1x Digitale display interface	
	1x 2 Pin for optional cooling fan (5V)	
	1x Real Time Clock, 30 days puffer	
Extensions	Extended heat sink (optional)	
	B-Nimis MC-IO EtherCAT Expansion modules (DIO, AIO, temperature, counter, Relais Multi, communication)	
Supply voltage	+24 VDC (-15% / +20%) SELV max. AC voltage component 5% with reverse voltage protection	
Current consumption	Typ. 0.5 A, max. 2 A at +24 VDC	
Operating conditions Transport / storage	Ambient temperature: : Operational: 0 °C to 40 °C / Transport -20 °C to +70 °C Relative humidity: max. 85%, non-condensing	
Emitted interference	EN 61131-2; EN 61000-6-4, industrial area	
Immunity to interference	EN 61131-2; EN 61000-6-2, industrial area	
Protection class	III	
Insulation strength	EN 61131-2	
Protection type	IP20	

# B-NIMIS MC PI-PLUS

## INFORMATION TECHNICAL DATA/DIMENSIONS



Dimensions B-NIMIS MC-Pi Plus

# B-NIMIS MC-I/O

## INFORMATION TECHNICAL DATA

B-Nimis MC-I/O				
Description	MC-Bus coupler 3A	MC-BK Di 16/DO16	MC-Extender 2 Port	MC-CAN
Order number	<b>S-01030203-0100</b>	<b>S-01030203-0200</b>	<b>S-01030203-0300</b>	<b>S-01030203-0500</b>
Dimensions WxHxD [mm]	25 x 124 x 83	42 x 120 x 92	25 x 124 x 83	25 x 124 x 83
Weight	approx. 150 g			
Mounting	Rail mounting NS 35/7,5 EN 50022			
Certification	CE (EN 61131-2) / $cUL_{us}$ (UL 61010-2-201)			
Development environment	CODESYS V3 (IEC61131-3)			
Communication interfaces	1x EtherCAT In, RJ45 1x EtherCAT Out, RJ 45 1x EtherCAT, LVDS		2x EtherCAT out, RJ45 1x EtherCAT, LVDS	1x CAN
Protocols	EtherCAT Slave			
Digital I/O´s	-	16x digital In 16x digital Out 1ms / 0,5A	-	-
Supply voltage	+24 VDC (-20% / +25%) SELV max. AC voltage component 5% with reverse voltage protection		Via Fieldbus	
Current consumption fieldbus	0,2 A		0,16 A for Out1 0,21 A for Out1+Out2	0,33 A
Supply current fieldbus	max. 3 A (approx. 20 modules)	max. 2 A (approx. 11 Modules)	-	-
Current consumption I/Os	-	Protection de- pending on I/O load max. 8 A	-	-
Operating conditions transport / storage	Ambient temperature: operational: 0 °C to 50 °C / transport -25 °C to +70 °C Relative humidity: max. 95%, non-condensing			
<b>EMC, protection type</b>				
Emitted interference	EN 61000-6-4, industrial area			
Immunity to interference	EN 61000-6-2, industrial area			
Protection class	III			
Insulation strength	EN 61131-2			
Protection type	IP20			
Vibration	Sinusoidal (EN 60068-2-6) test: Fc; 10 ... 150 Hz, 1 G (Operation mode)			
Shock resistance	15 G (ca. 150 m/s <sup>2</sup> ), 10 ms duration, half-sine (EN 60068-2-27) test: Ea			

# B-NIMIS MC-I/O

## INFORMATION TECHNICAL DATA

B-Nimis MC-I/O				
Description	MC-DI 16 1ms	MC-DI 32 1ms	MC-DO 16 0,5A	MC-DI/DO 16/16
Order number	<b>S-01030201-0100</b>	<b>S-01030201-0200</b>	<b>S-01030201-0300</b>	<b>S-01030201-0400</b>
Dimensions WxHxD [mm]	25 x 124 x 92			
Weight	approx. 150 g			
Mounting	Rail mounting NS 35/7,5 EN 50022			
Certification	CE (EN 61131-2) / $c_{UL_{us}}$ (UL 61010-2-201)			
Development environment	CODESYS V3 (IEC61131-3)			
Communication interfaces	1x EtherCAT, LVDS			
Protocols	EtherCAT Slave			
Digital I/O's	16x digital In	32x digital In	16x digital Out	16x digital In 16x digital Out
	1 ms	1 ms	0,5 A	1ms / 0,5A
Supply voltage	+24 VDC (-20% / +25%) SELV max. AC voltage component 5% with reverse voltage protection			
Current consumption fieldbus	0,1 A		0,13 A	0,14 A
Current consumption I/Os	-	-	Protection depending on I/O load max. 12 A	
Operating conditions transport / storage	Ambient temperature: operational: 0 °C to 50 °C / transport -25 °C to +70 °C Relative humidity: max. 95%, non-condensing			
<b>EMC, protection type</b>				
Emitted interference	EN 61000-6-4, industrial area			
Immunity to interference	EN 61000-6-2, industrial area			
Protection class	III			
Insulation strength	EN 61131-2			
Protection type	IP20			
Vibration	Sinusoidal (EN 60068-2-6) test: Fc; 10 ... 150 Hz, 1 G (operation mode)			
Shock resistance	15 G (approx. 150 m/s <sup>2</sup> ), 10 ms duration, half-sine (EN 60068-2-27) test: Ea			

# B-NIMIS MC-I/O

## INFORMATION TECHNICAL DATA

B-Nimis MC-I/O				
Description	MC-Relais No 24V	MC-Relais No 230VAC	MC-AI4-I 12 Bit CoE	MC-AI8-I 12 Bit CoE
Order number	<b>S-01030205-0100</b>	<b>S-01030205-0200</b>	<b>S-01030202-0100</b>	<b>S-01030202-0200</b>
Dimensions WxHxD [mm]	25 x 124 x 92			
Weight	approx. 150 g			
Mounting	Rail mounting NS 35/7,5 EN 50022			
Certification	CE (EN 61131-2) / $c_{UL_{us}}$ (UL 61010-2-201)			
Development environment	CODESYS V3 (IEC61131-3)			
Communication interfaces	1x EtherCAT, LVDS			
Protocols	EtherCAT Slave			
Digital I/O's	8x Relais Out NO (lockable)		-	-
	Switching voltage: max. 24VAC / 24 VDC	Switching voltage: max. 230VAC / 24VDC	-	-
Analog I/O's	-	-	4x analog In Current 0(4)...20mA Resolution: 12 Bit	8x analog In Current 0(4)...20mA Resolution: 12 Bit
Supply voltage	+24 VDC (-20% / +25%) SELV max. AC voltage component 5% with reverse voltage protection			
Current consumption fieldbus	0,13 A		0,2 A	
Current consumption I/Os	Switching current: Resistive: max. 5.0 A per output Inductive: max. 2 A per output		-	
Operating conditions transport / storage	Ambient temperature: operational: 0 °C to 50 °C / transport -25 °C to +70 °C Relative humidity: max. 95%, non-condensing			
<b>EMC, protection type</b>				
Emitted interference	EN 61000-6-4, industrial area			
Immunity to interference	EN 61000-6-2, industrial area			
Protection class	III			
Insulation strength	EN 61131-2			
Protection type	IP20			
Vibration	Sinusoidal (EN 60068-2-6) test: Fc; 10 ... 150 Hz, 1 G (operation mode)			
Shock resistance	15 G (ca. 150 m/s <sup>2</sup> ), 10 ms duration, half-sine (EN 60068-2-27) test: Ea			

# B-NIMIS MC-I/O

## INFORMATION TECHNICAL DATA

B-Nimis MC-I/O				
Description	MC-AI4/8-U 13 Bit CoE	MC-AI 8/16-U 13 Bit CoE	MC-AI4-Thermo 16 Bit CoE	MC-AI8-Thermo 16 Bit CoE
Order number	<b>S-01030202-0300</b>	<b>S-01030202-0400</b>	<b>S-01030204-0200</b>	<b>S-01030204-0100</b>
Dimensions WxHxD [mm]	25 x 124 x 92			
Weight	approx. 150 g			
Mounting	Rail mounting NS 35/7,5 EN 50022			
Certification	CE (EN 61131-2) / $c_{UL_{us}}$ (UL 61010-2-201)			
Development environment	CODESYS V3 (IEC61131-3)			
Communication interfaces	1x EtherCAT, LVDS			
Protocols	EtherCAT Slave			
Analog I/O's	4x differential or 8x single ended analog In	8x differential or 16x single ended analog In	4x Temperature In	8x Temperature In
	Voltage 0(-10)...10V; -5...5V; -2,5...2,5V Resolution: 13 Bit		PT100 / Ni100 oder PT1000 / Ni1000 or Thermo / Typ J, K or mV Resolution: 16 Bit	
Supply voltage	+24 VDC (-20% / +25%) SELV max. AC voltage component 5% with reverse voltage protection			
Current consumption fieldbus	0,2 A		0,17 A	
Operating conditions transport / storage	Ambient temperature: operational: 0 °C to 50 °C / transport -25 °C to +70 °C Relative humidity: max. 95%, non-condensing			
<b>EMC, protection type</b>				
Emitted interference	EN 61000-6-4, industrial area			
Immunity to interference	EN 61000-6-2, industrial area			
Protection class	III			
Insulation strength	EN 61131-2			
Protection type	IP20			
Vibration	Sinusoidal (EN 60068-2-6) test: Fc; 10 ... 150 Hz, 1 G (operation mode)			
Shock resistance	15 G (ca. 150 m/s <sup>2</sup> ), 10 ms duration, half-sine (EN 60068-2-27) test: Ea			

# B-NIMIS MC-I/O

## INFORMATION TECHNICAL DATA

B-Nimis MC-I/O		
Description	MC-A04-U/I 16 Bit CoE	OC AI4-U/I 12 Bit CoE
Order number	<b>S-01030202-0500</b>	<b>S-01030202-0600</b>
Dimensions WxHxD [mm]	25 x 124 x 92	
Weight	approx. 150 g	
Mounting	Rail mounting NS 35/7,5 EN 50022	
Certification	CE (EN 61131-2) / $c_{UL_{us}}$ (UL 61010-2-201)	
Development environment	CODESYS V3 (IEC61131-3)	
Communication interfaces	1x EtherCAT, LVDS	
Protocols	EtherCAT Slave	
Digital I/Os	-	Analog data is additionally transmitted via a protected telegram and can thus be used in conjunction with the Berghof Safety PLC in a safety application for safe measured data monitoring.
Analog I/Os	4x universal analog Out	4x analog In
	0(-10)...10V 0(4)...20mA	0(4)..20mA, 0..10V
	Resolution Outputs: 16 Bit	Resolution In: 12 Bit
Supply voltage	+24 VDC (-20% / +25%) SELV max. AC voltage component 5% with reverse voltage protection	
Current consumption Fieldbus	0,15 A	
Operating conditions transport / storage	Ambient temperature: operational: 0 °C to 50 °C / transport -25 °C to +70 °C Relative humidity: max. 95%, non-condensing	
<b>EMC, Protection type</b>		
Emitted interference	EN 61000-6-4, industrial area	
Immunity to interference	EN 61000-6-2, industrial area	
Protection class	III	
Insulation strength	EN 61131-2	
Protection type	IP20	
Vibration	Sinusoidal (EN 60068-2-6) test: Fc; 10 ... 150 Hz, 1 G (operation mode)	
Schock resistance	15 G (ca. 150 m/s <sup>2</sup> ), 10 ms duration, half-sine (EN 60068-2-27) test: Ea	

# B-NIMIS MC-I/O

## INFORMATION TECHNICAL DATA

B-Nimis MC-I/O		
Description	MC-XR01	MC-XR02
Order number	<b>S-01030207-0100</b>	<b>S-01030207-0200</b>
Dimensions WxHxD [mm]	25 x 124 x 92	
Weight	approx. 150 g	
Mounting	Rail mounting NS 35/7,5 EN 50022	
Certification	CE (EN 61131-2) / <sub>c</sub> UL <sub>us</sub> (UL 61010-2-201)	
Development environment	CODESYS V3 (IEC61131-3)	
Communication interfaces	1x EtherCAT, LVDS	
Protocols	EtherCAT Slave	
Digital I/Os	8x digital In or Out (4x capture in) 8x digital In (configurable as up/ down counter or quadratur encoder)	8x digital In or Out (4x capture In) 8x digital In (2x up/down counter and 2x quadratur encoder)
	1ms / 0,5A max. 10 kHz counter frequency per counter In (yields a counting frequency of 40 kHz for quadrature encoders)	
Analog I/Os	4x analog In 4x universal analog In-/Out	-
	- 10..10V   -20..20mA	-
	Resolution In: 22 Bit Resolution Out: 16 Bit	-
Supply voltage	+24 VDC (-20% / +25%) SELV max. AC voltage component 5% with reverse voltage protection	
Current consumption fieldbus	0,13 A	
Current consumption I/Os	Protection depending on I/O load max. 12 A	
Operating conditions transport / storage	Ambient temperature: operational: 0 °C to 50 °C / transport -25 °C to +70 °C Relative humidity: max. 95%, non-condensing	
<b>EMC, Protection type</b>		
Emitted interference	EN 61000-6-4, industrial area	
Immunity to interference	EN 61000-6-2, industrial area	
Protection class	III	
Insulation strength	EN 61131-2	
Protection type	IP20	
Vibration	Sinusodial (EN 60068-2-6) test: Fc; 10 ... 150 Hz, 1 G (operation mode)	
Schock resistance	15 G (ca. 150 m/s <sup>2</sup> ), 10 ms duration, half-sine (EN 60068-2-27) test: Ea	

# B-NIMIS MC-I/O

## INFORMATION TECHNICAL DATA

B-Nimis MC-I/O		
Description	MC-Counter/Posi 2 5V	OC Counter/Encoder
Order number	<b>S-01030206-0100</b>	<b>S-01030206-0200</b>
Dimensions WxHxD [mm]	25 x 124 x 92	
Weight	approx. 150 g	
Mounting	Rail mounting NS 35/7,5 EN 50022	
Certification	CE (EN 61131-2) / <sub>c</sub> UL <sub>us</sub> (UL 61010-2-201)	
Development environment	CODESYS V3 (IEC61131-3)	
Communication interfaces	1x EtherCAT, LVDS	
Protocols	EtherCAT Slave	
Safety Protocols	-	Encoder data is also transmitted via a protected telegram and can thus be used in conjunction with the Berghof Safety PLC in a safety application for speed monitoring to implement safe position (SP) and safe speed (SLS).
Digital I/Os	8x digital In 2x digital Out 2x Counter In (A, B, Ref)  1ms 2,0A Encodertype: RS422, 24 VDC max. 200 KHz	2 x Counter In (A, B, Z/Ref, CLK, DAT)  Encodertype: 2x RS422, 32 Bit, max. 5 Mhz 2x 5/24 VDC, 32 Bit, max. 400 kHz 2x Six-Step, 32 Bit, max. 8 kHz 2x HTL/TTL, 32 Bit, max. 400 kHz (channel 0,3) 4x HTL/TTL, 32 Bit, max. 5 kHz (channel 1,2,4,5) 2x SSI, 18..32 Bit, 80..1000 Kbit/s 2x EnDat 2.1, 16..40 Bit, 100..2000 kHz
Analog I/Os	2x analog Out 10...10V Resolution Out: 12 Bit	-
Supply voltage	+24 VDC (-20% / +25%) SELV max. AC voltage component 5% with reverse voltage protection	
Current consumption Fieldbus	0,3 A	0,1 A
Current consumption I/Os	Protection depending on I/O load max. 4 A	Encoder supply: 5V / 0.15 A
Operating conditions transport / storage	Ambient temperature: operational: 0 °C to 50 °C / transport -25 °C to +70 °C Relative humidity: max. 95%, non-condensing	
<b>EMC, Protection type</b>		
Emitted interference	EN 61000-6-4, industrial area	
Immunity to interference	EN 61000-6-2, industrial area	
Protection class	III	
Insulation strength	EN 61131-2	
Protection type	IP20	
Vibration	Sinusoidal (EN 60068-2-6) test: Fc; 10 ... 150 Hz, 1 G (operation mode)	
Schock resistance	15 G (ca. 150 m/s <sup>2</sup> ), 10 ms duration, half-sine (EN 60068-2-27) test: Ea	



PIONEERING AUTOMATION TECHNOLOGY

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# **SAFETY CONTROL SYSTEM**

B-NIMIS **SC-1000**

B-NIMIS **SC-I/O**

# B-NIMIS **SC-SAFETY CONTROL SYSTEM**

BERGHOF AUTOMATION AND CONTROL SOLUTIONS

- Certified in compliance with the CODESYS standard
- Can be combined with standard products
- Fail Safe over EtherCAT (FSoE)
- Safety software package merged into CODESYS
- Online monitoring of secure and insecure data
- SIL3 according to IEC 61508
- PLe according to DIN EN ISO 13849

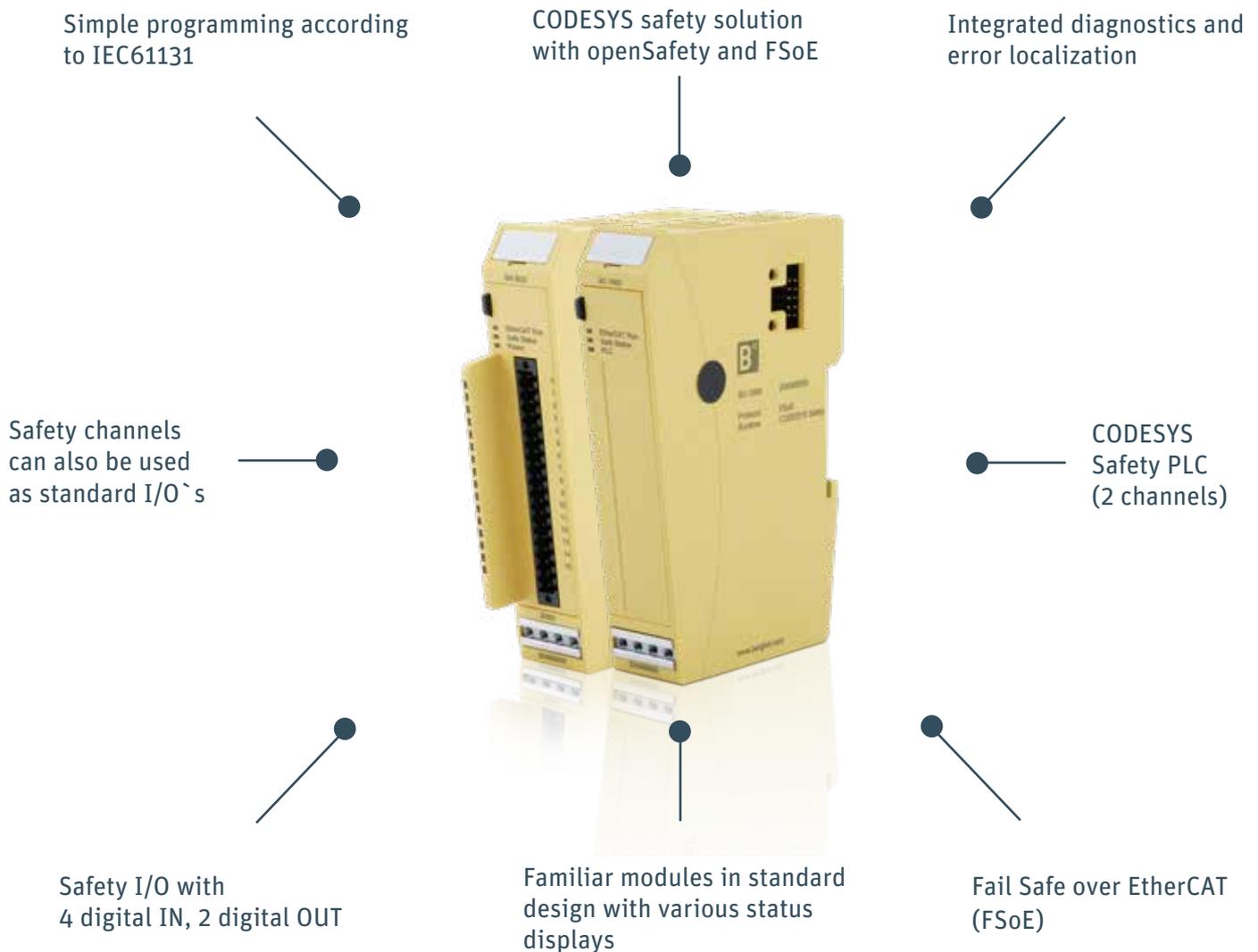
Integrated and CODESYS programmable safety solution.



# B-NIMIS SC-1000, SC-I/O

## Safety technology under control

The innovative and integrated safety solution from Berghof comprises a freely programmable CODESYS Safety PLC and a Safety I/O module in accordance with the requirements of the safety standards IEC 61508 SIL 3 and DIN ISO 13849-1 PLe. The core of the Safety PLC consists of two microprocessors that implement the safety functions and communicate with each other in order to exchange process data and monitor each other. A third microprocessor manages the external communication. The Safety I/O module has 4 digital inputs and 2 digital outputs and allows the connection of common safety devices. The outputs of the module ensure safe connection of actuators such as contactors, signal lamps or drives. As add-on standard modules with integrated bus system, the devices can be easily installed and combined with other control components such as the standardized Berghof MC-system.



# B-NIMIS SC-1000, SC-I/O



## Best possible control

through exchangeability of information for diagnosis or status as well as interconnection of signals between all levels

## Optimally secured

with the help of additional functions for safeguarding the safety function, e.g. change tracking, safe signal flow, safe versioning, separation of safe operation

## Safety technology under control

with certified PLCopen function blocks in Basic and Extended Level as well as certified hardware

## Maximum system solution

through modular implementation and easy interaction with all Berghof standard products

## Unsurpassed flexibility

thanks to modular expandability and any division within the plant control system

## Excellent plant integration

due to simple connection of any FSoE slaves (e.g. safety I/O modules, drive controllers)

## No limits

due to limitation of the number of usable safety modules only by the device memory

## Ideal operation

by integrating the safety software into the CODESYS standard and graphically interconnecting all elements

## Intuitive project planning and programming

with the Berghof Safety Package, which allows the user to feel no boundaries between safety and non-safety components



# B-NIMIS SC-1000, SC-I/O

## INFORMATION TECHNICAL DATA

B-Nimis SC-1000, SC-I/O			
Description	SC-1000	S-DI4 S-D02	S-DI8 S-D02
Order number	<b>S-01060101-0000</b>	<b>S-01060201-0100</b>	<b>S-01060201-0200</b>
Dimensions (WxHxD) [mm]	25 x 124 x 83	25 x 124 x 92	
Weight	ca. 150 g		
Mounting	Rail mounting NS 35/7,5 EN 50022		
Certification	CE (EN 61131-2) / <sub>c</sub> UL <sub>us</sub> (UL 61010-2-201)		
Safety standard	IEC 61508 SIL 3 and DIN EN ISO 13849-1 PL e		
Development environment	CODESYS V3 (IEC61131-3) with Safety Plug in		
Communication interfaces	1x EtherCAT, LVDS		
Safety protocol	Safety over EtherCAT (FSoE)		
Digital I/Os	-	4x failsafe digital In 2x failsafe digital Out	8x failsafe digital In 2x failsafe digital Out
Realizable safety functions	4x emergency stop 4x contact detector 2x light grids 2x single-hand operation 2x independent		
Supply voltage	Via fieldbus	+24 VDC (-15% / +20%) SELV max. AC voltage component 5% with reverse polarity protection	
Current consumption fieldbus	Type 0,24 A	Type 0,3 A	
Current consumption I/O	-	Depending on output load max. 4A on duration	
Operating conditions transport / storage	Ambient temperature: Operating: 0 °C to 55 °C / Transport -25 °C to +70 °C Relative humidity: 5...95%, non-condensing		
<b>EMC, Protection type</b>			
Immunity of interference	Installation in zone B according to 61000-6-2, in accordance with EN61131-2, installation on earthed top-hat rail in earthed switch cabinet. Install the earthing according to the operating conditions.	Zone B according to EN 61131-2:2007, Installation on earthed rail in earthed switch cabinet	
Overvoltage category	Category II according to IEC 60664-1, in accordance with EN 61131-2	Categories II and II of Annex I EN 61131-2:2007	
Protection type	IP20		
Vibration	5...8,4 Hz: ±3,5 mm Amplitude, 8,4...150 Hz: 10 m/s <sup>2</sup> (1g), nach IEC 60068-2-6, Prüfung Fc		
Schock resistance	150 m/s <sup>2</sup> (15g), 11 ms half-sine, after IEC 60068-2-27		

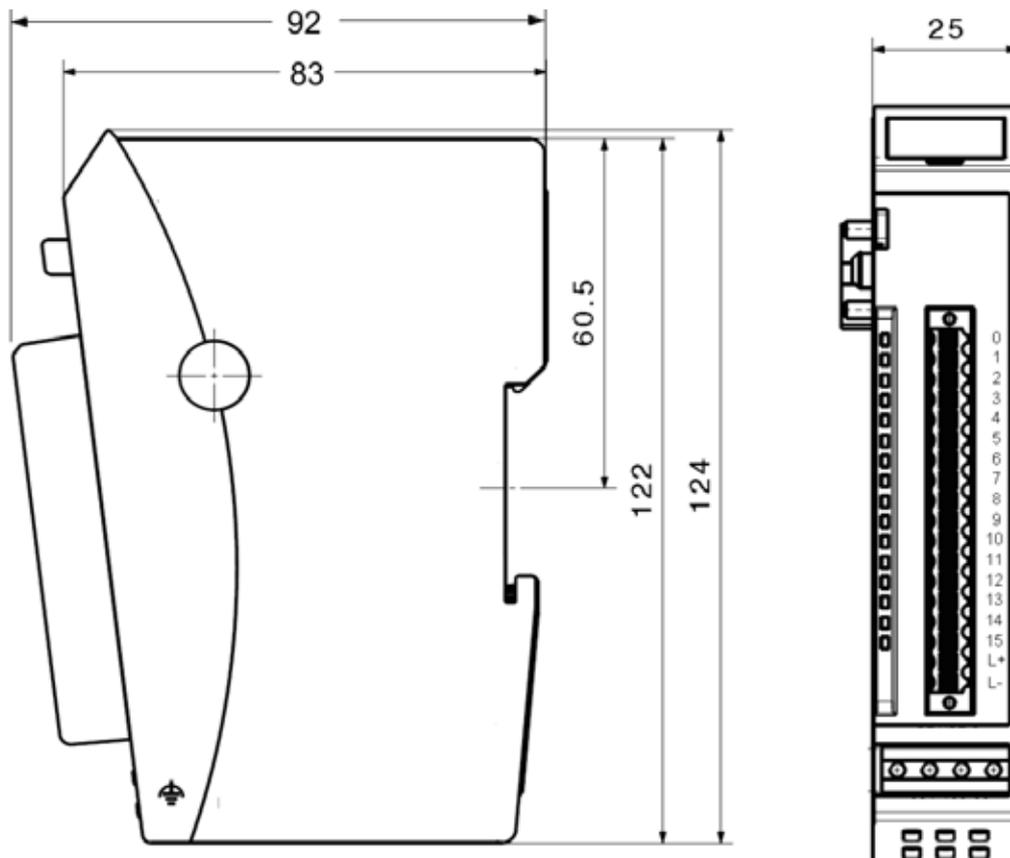
# B-NIMIS SC-1000, SC-I/O

## INFORMATION DIMENSIONS

B-Nimis SC-I/O		
Description	S-DI16 S-D04	S-DI16
Order number	<b>S-01060201-0300</b>	<b>S-01060201-0400</b>
Dimensions (WxHxD) [mm]	25 x 124 x 92	
Weight	ca. 150 g	
Mounting	Rail mounting NS 35/7,5 EN 50022	
Certification	CE (EN 61131-2) / $c_{UL_{us}}$ (UL 61010-2-201)	
Safety standard	IEC 61508 SIL 3 and DIN EN ISO 13849-1 PL e	
Development environment	CODESYS V3 (IEC61131-3) with Safety Plug in	
Communication interfaces	1x EtherCAT, LVDS	
Safety protocol	Safety over EtherCAT (FSoE)	
Digital I/O's	16x failsafe digital In 4x failsafe digital Out	16x failsafe digital In
Supply voltage	+24 VDC (-15% / +20%) SELV max. AC voltage component 5% with reverse polarity protection	
Current consumption fieldbus	Type 0,3 A	
Current consumption I/O	Depending on output load max. 8A	-
Operating conditions transport / storage	Ambient temperature: Operating: 0 °C to 55 °C / Transport -25 °C to +70 °C Relative humidity: 5...95%, non-condensing	
<b>EMC, Protection type</b>		
Immunity of interference	Zone B according to EN 61131-2:2007, Installation on earthed rail in earthed switch cabinet	
Overvoltage category	Category II according to EN 61131-2:2007	
Protection type	IP20	
Vibration	5...8,4 Hz: ±3,5 mm Amplitude, 8,4...150 Hz: 10 m/s <sup>2</sup> (1g), nach IEC 60068-2-6, Prüfung Fc	
Schock resistance	150 m/s <sup>2</sup> (15g), 11 ms half-sine, after IEC 60068-2-27	

# B-NIMIS SC-1000, SC-I/O

## INFORMATION DIMENSIONS



Dimensions B-Nimis SC-System



PIONEERING AUTOMATION TECHNOLOGY

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# **RASPBERRY PI BOX-PC**

B-NIMIS BC-PI PRO

B-NIMIS BC-PI PRIME

B-NIMIS BC-PI PLUS

# B-NIMIS BC-PI

BERGHOF AUTOMATION AND CONTROL SOLUTIONS

- Industrial CM4 based Raspberry BoxPC
- Comprehensive I/O extensions through seamless integration into the B-Nimis MC series
- Raspian OS
- Extraordinary combinability
- Buffered, maintenance-free real-time clock
- Future-proof control system

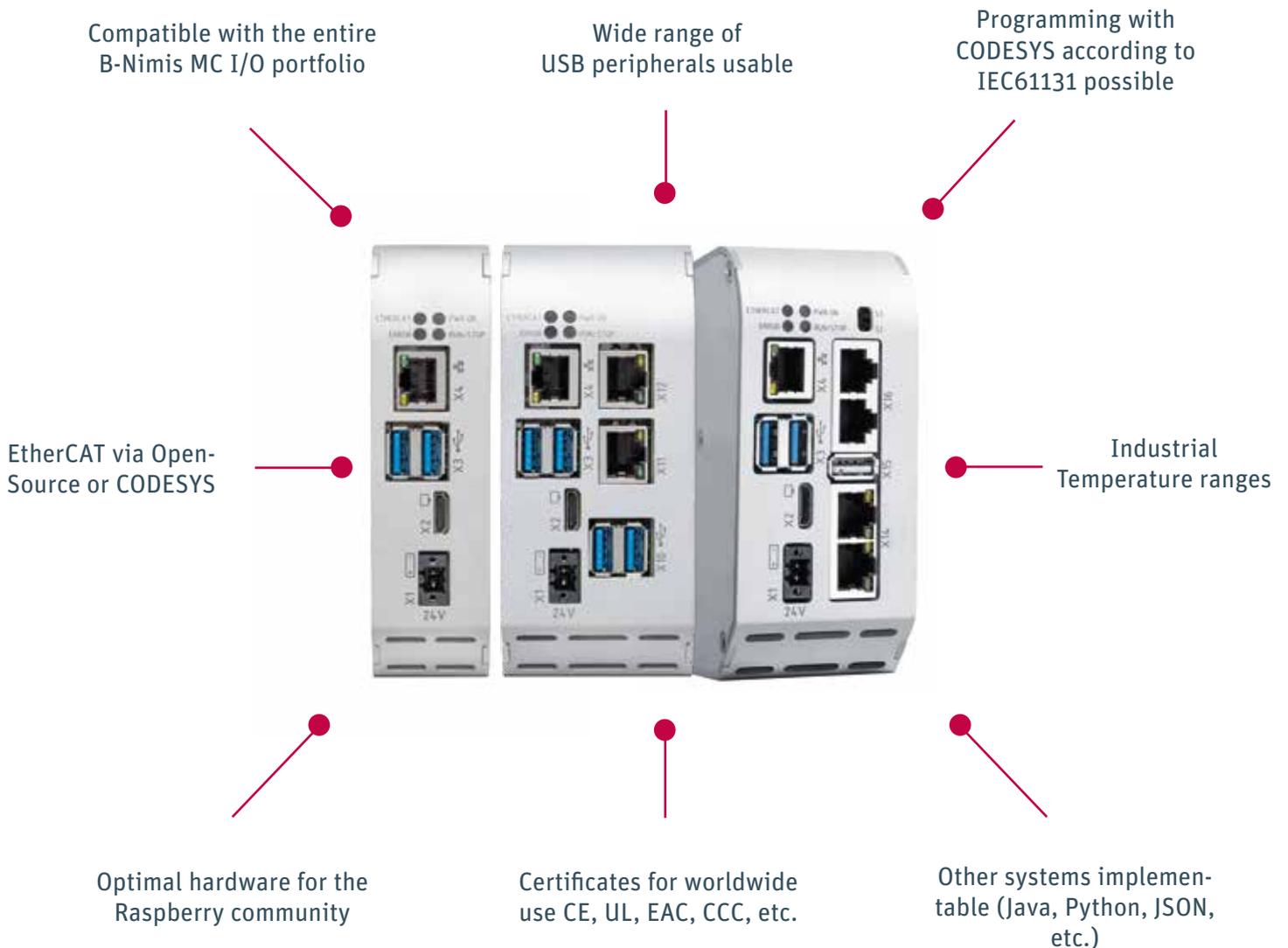
Industrial Box PC with Raspberry Pi OS



# B-NIMIS BC-PI

## Industrial Box PC with Raspberry OS

Berghof goes Raspberry Pi. With this sophisticated hybrid of an industrial PC and a PLC, Berghof introduces the first truly industrial-grade, high-performance Raspberry Pi solution to the market. The versions available as a single slot module and as a double slot module with additional interfaces and optional heat sink not only impress with their compact design based on the B-Nimis MC series, but above all with the open system and thus the use of synergy with the Raspberry community. As a Berghof customer, you benefit not only from seamless integration into the entire Berghof portfolio, but also from the special know-how of our specialists and thus comprehensive support. Due to the high software compatibility and the flexibility of the MC series, the box PC can also be used for various IOT and industrial control tasks without any problems. Not only in terms of functionality, the B-Nimis BC-Pi proves to be extremely flexible, because customized solutions according to your requirements are also easy to realize.



# B-NIMIS BC-PI PRO

## **Adaptable**

as required, for use as an industrial PC or control system with Berghof CODESYS

## **State of the art - maximum performance**

by using the Compute Module 4 and thus the latest Raspberry technology with optional 1 to 4 GB RAM

## **Wide range of applications**

thanks to industrial temperature ranges

## **Cost-efficient**

thanks to particularly low starting price and low-priced entry module

## **Secured communication**

by means of internal bus system, between the modules with guaranteed vibration-proof connection

## **Unsurpassed flexibility**

due to modular expandability and arbitrary partitioning within the plant control system

## **Best protection**

due to a consistent EMC concept with line shielding and internal grounding

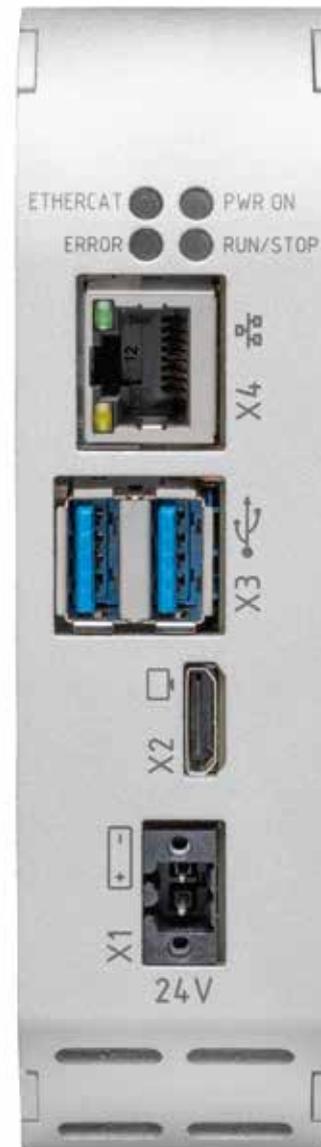
## **Cleverly supported**

by connecting the following peripherals:

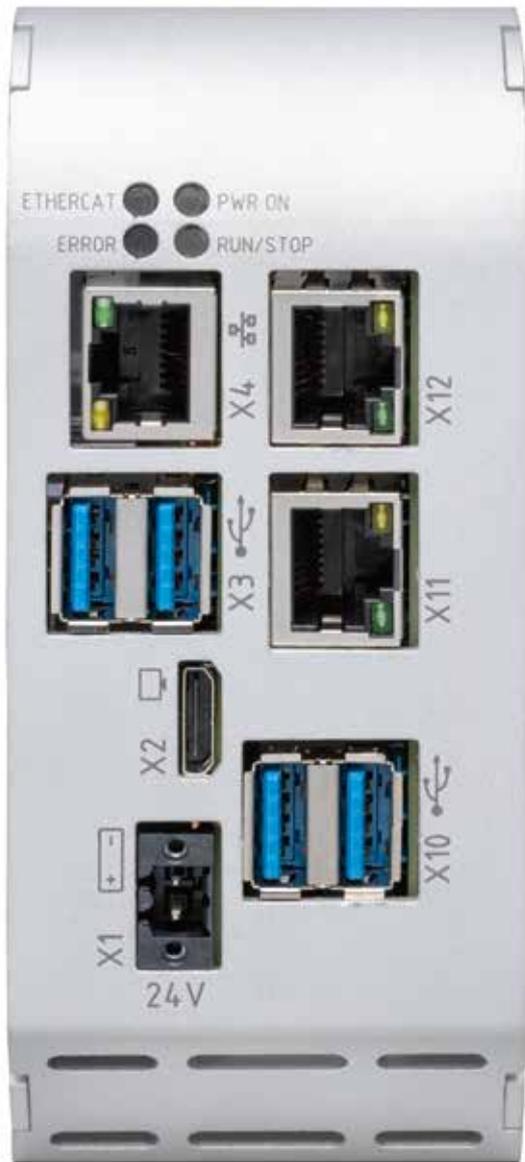
- External monitors up to 4K60
- Standard EtherCAT Module
- Berghof B-Nimis MC-I/O via standardized interface
- Wide range of USB peripherals

## **Well thought-out software concept**

with container packages for easy extension of the software



# B-NIMIS BC-PI PRIME



## Powerful complement

of the B-Nimi BC-Pi Pro with continuation of its features

## Extended temperature ranges

due to recess in the housing for an optional heat sink

## Flexible in use

thanks to interfaces already integrated in the standard:

- 2x Ethernet
- 1x EtherCAT
- 1x Display interface
- 4x USB 3.0

## Optimally evaluated, analyzed or exchanged

due to storage or backup of data or project planning on the SD card

## Maximum performance

with sufficient space for interfaces and functions in the smallest possible space

## Sufficiently dimensioned

in RAM and Flash and room for more

## Highly flexible connection

due to the realization of countless communication paths using full bandwidths

## State of the art - maximum performance

by using the Compute Module 4 and thus the latest Raspberry technology with 1 to 8 GB RAM

## Environmentally friendly across the board

through energy-saving components and software functions and appropriate packaging

# B-NIMIS BC-PI PLUS

## Excellent connectivity

due to WLAN & Bluetooth

## Ideally suited for IPC CAN applications

due to native CAN interface

## Wide range of applications

thanks to industrial temperature ranges

## Convenient data handling

thanks to more than sufficient retain memory

## Secured communication

by means of internal bus system, between the modules with guaranteed vibration-proof connection

## Unsurpassed flexibility

due to modular expandability and arbitrary partitioning within the plant control system

## Best protection

due to a consistent EMC concept with line shielding and internal grounding

## Flexible in use

thanks to interfaces already integrated in the standard:

- 2x Ethernet
- 1x EtherCAT
- 1x Display interace
- 2x USB 3.0
- 1x USB 2.0
- 1 CAN, RJ45
- 1 x RS232/485, RJ45

## Well thought-out software concept

with container packages for easy extension of the software

## State of the art - maximum performance

by using the Compute Module 4 and thus the latest Raspberry technology with optional 1 to 4 GB RAM



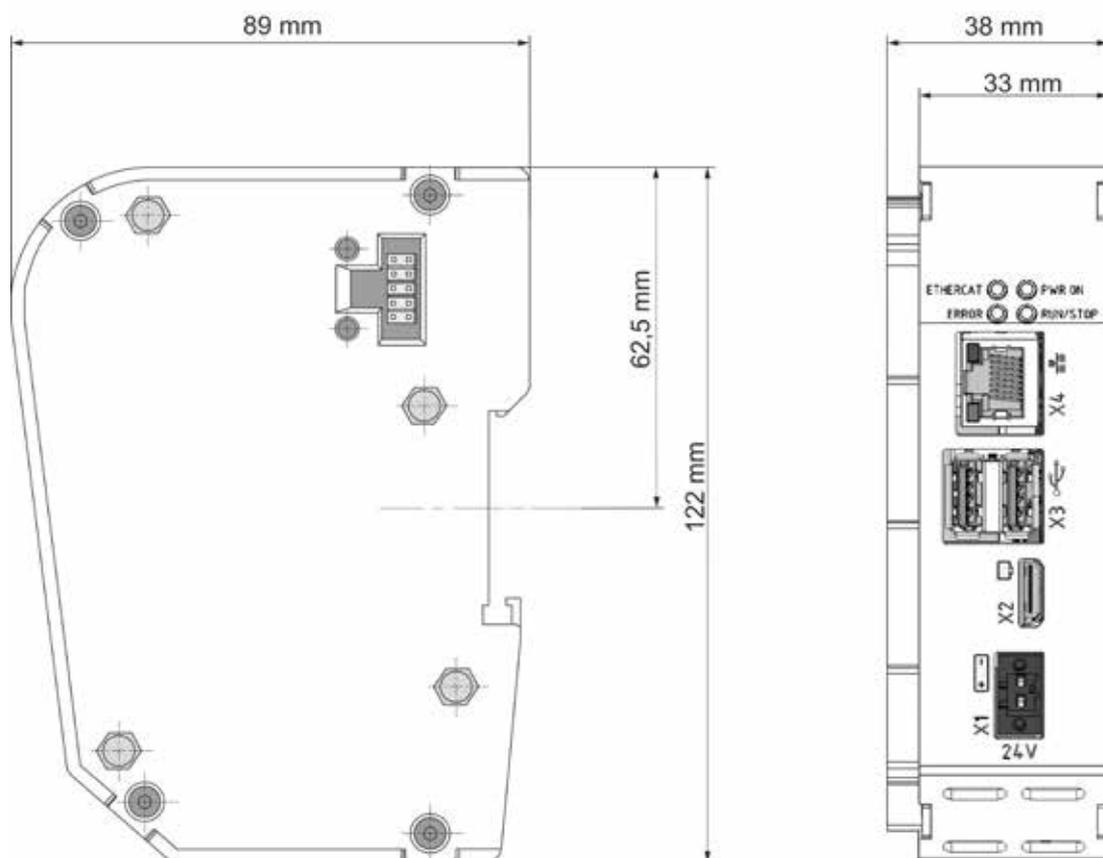
# B-NIMIS **BC-PI PRO**

## INFORMATION **TECHNICAL DATA**

B-Nimis BC-Pi Pro	Specification			
	Description	BC-Pi Pro S01	BC-Pi Pro S02	BC-Pi Pro S03
Order number	<b>S-01080101-0100</b>	<b>S-01080101-0200</b>	<b>S-01080101-0300</b>	
Dimensions WxHxD [mm]	33 x 122 x 89			
Mounting	Rail mounting NS 35/7,5 EN 50022			
Certification	CE (EN 61131-2)			
Development environment	Raspberry Pi OS			
	Compatible with Raspberry community softwarepool			
CPU	BCM 2711, 1,5 GHz Quadcore			
RAM / Flash	1GB RAM / 8GB Flash	2 GB RAM / 8 GB Flash	4 GB RAM / 32 GB Flash	
Communication interfaces	1x Ethernet 10/100/1000 Base, RJ45			
	1x EtherCAT LVDS			
	WiFi / Bluetooth (optional)			
Protokolle	EtherCAT Master and others available via third party suppliers			
Visualization	via display interface			
Additional features	2x Host USB 3.0 / USB plug type A			
	1x digital display interface			
	1x 2 Pin for optional cooling fan (5V)			
	1x Real Time Clock, 30 days Puffer			
	Extension: heat sink (Option: H002)			
Supply voltage	Extension: Fan (Option: H003)			
	+24 VDC (-15% / +20%) SELV max. AC voltage component 5% with reverse voltage protection			
Current consumption	Type 0.3 A, max. 1.5A at +24 VDC			
Operating conditions Transport / storage	Ambient temperature: : Operational: 0 °C to 40 °C (without additional cooling) / Transport -20 °C to +70 °C Relative humidity: max. 85%, non-condensing			
Emitted interference	EN 61000-6-4, industrial area			
Immunity to interference	EN 61000-6-2, industrial area			
Protection class	III			
Insulation strength	EN 61131-2			
Protection type	IP20			

# B-NIMIS **BC-PI PRO**

## INFORMATION **DIMENSIONS**



Dimensions B-NIMIS BC-Pi Pro

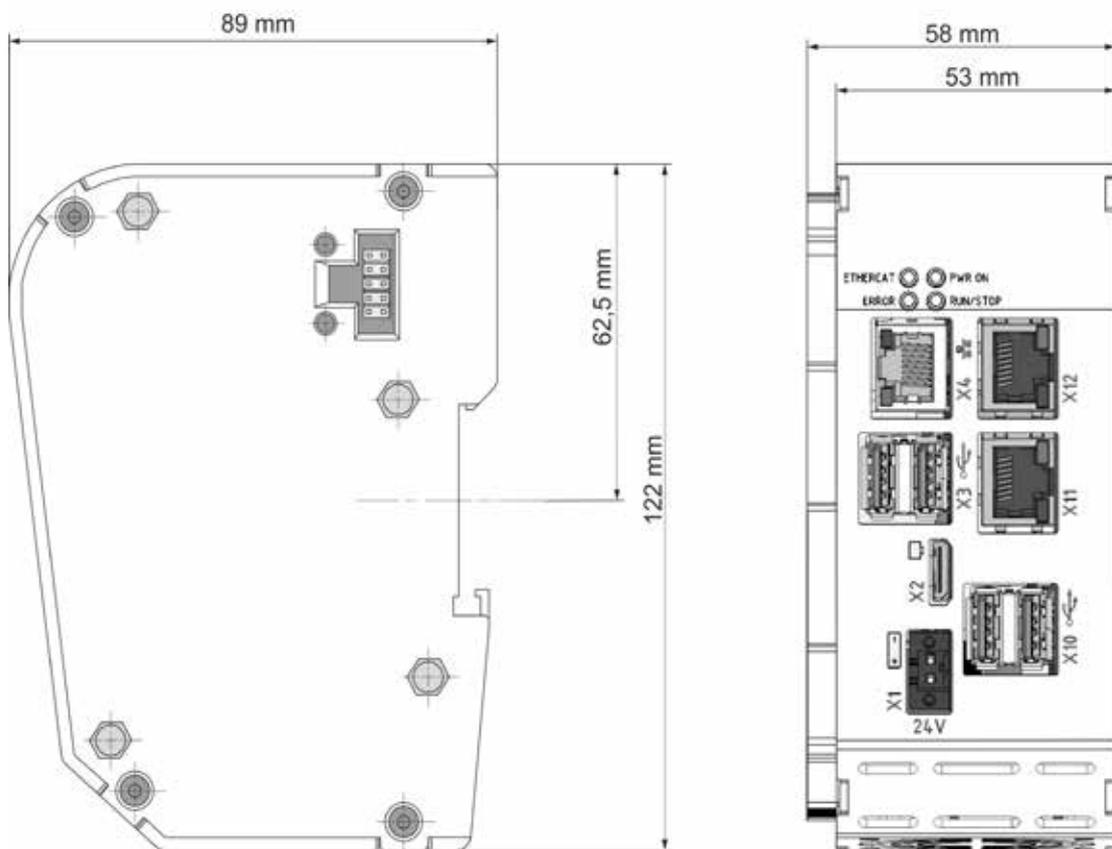
# B-NIMIS **BC-PI PRIME**

## INFORMATION **TECHNICAL DATA**

B-Nimis BC-Pi Prime	Specification			
	Description	BC-Pi Prime S01	BC-Pi Prime S02	BC-Pi Prime S03
Order number	<b>S-01080102-0100</b>	<b>S-01080102-0200</b>	<b>S-01080102-0300</b>	
Dimensions WxHxD [mm]	53 x 122 x 89			
Mounting	Rail mounting NS 35/7,5 EN 50022			
Certification	CE (EN 61131-2)			
Development environment	Raspberry Pi OS			
	Compatible with Raspberry community softwarepool			
CPU	BCM 2711, 1,5 GHz Quadcore			
RAM / Flash	1GB RAM / 8GB Flash	2 GB RAM / 8 GB Flash	4 GB RAM / 32 GB Flash	
Communication interfaces	1x Ethernet 10/100/1000 Base, RJ45			
	1x EtherCAT LVDS			
	WiFi / Bluetooth (optional)			
Protocols	EtherCAT Master and others available via third party suppliers			
Visualization	via display interface			
Additional features	4x Host USB 3.0 / USB plug type A			
	1x digital display interface			
	1x 2 Pin for optional cooling fan (5V)			
	1x uSD (SDXC)			
	1x Real Time Clock, 30 days puffer			
	Extension: Heat sink (Option: H002)			
Supply voltage	+24 VDC (-15% / +20%) SELV max. AC voltage component 5% with reverse voltage protection			
	Type 0.5A, max. 2A at +24 VDC			
Operating conditions Transport / storage	Ambient temperature: : Operational: 0 °C to 40 °C / Transport -20 °C to +70 °C Relative humidity: max. 85%, non-condensing			
Emitted interference	EN 61000-6-4, industrial area			
Immunity to interference	EN 61000-6-2, industrial area			
Protection class	III			
Insulation strength	EN 61131-2			
Protection type	IP20			

# B-NIMIS **BC-PI PRIME**

## INFORMATION **DIMENSION**



Dimensions B-NIMIS BC-Pi Prime

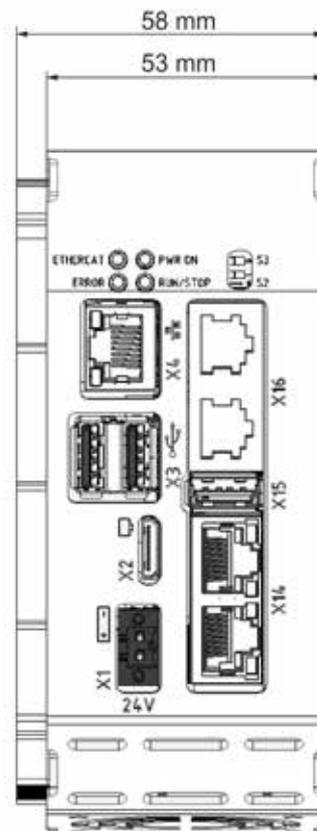
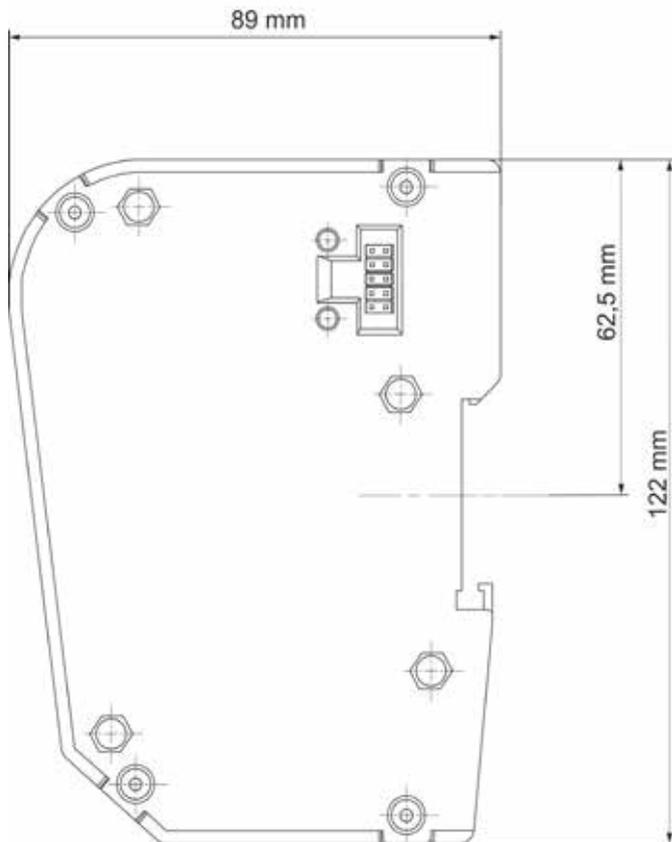
# B-NIMIS **BC-PI PLUS**

## INFORMATION **TECHNICAL DATA**

B-Nimis BC-Pi Plus	Specification		
	BC-Pi Plus S01	BC-Pi Plus S02	BC-Pi Plus S03
Order number	<b>S-01080103-0100</b>	<b>S-01080103-0200</b>	<b>S-01080103-0300</b>
Dimensions WxHxD [mm]	53 x 122 x 89		
Mounting	Rail mounting NS 35/7,5 EN 50022		
Certification	CE (EN 61131-2)		
Development environment	Raspberry Pi OS		
	Compatible with Raspberry community softwarepool		
CPU	BCM 2711, 1,5 GHz Quadcore		
RAM / Flash	1GB RAM / 8GB Flash	2 GB RAM / 8 GB Flash	4 GB RAM / 32 GB Flash
Communication interfaces	1x Ethernet 10/100/1000 Base, RJ45		
	1x EtherCAT LVDS		
	WiFi / Bluetooth (optional)		
Protocols	EtherCAT Master and others available via third party suppliers		
Visualization	via display interface		
Additional features	3x Host USB 3.0 / USB plug type A		
	1x CAN Bus, RJ45		
	1 x RS232 and 1 x RS485 not usable in parallel, RJ45		
	1x digital display interface		
	1x 2 Pin for optional cooling fan (5V)		
	1x uSD (SDXC)		
	1x Real Time Clock, 30 days puffer		
Supply voltage	+24 VDC (-15% / +20%) SELV max. AC voltage component 5% with reverse voltage protection		
	Type 0.5A, max. 2A at +24 VDC		
Operating conditions Transport / storage	Ambient temperature: : Operational: 0 °C to 40 °C / Transport -20 °C to +70 °C Relative humidity: max. 85%, non-condensing		
Emitted interference	EN 61000-6-4, industrial area		
Immunity to interference	EN 61000-6-2, industrial area		
Protection class	III		
Insulation strength	EN 61131-2		
Protection type	IP20		

# B-NIMIS **BC-PI PLUS**

## INFORMATION **DIMENSION**



Dimensions B-NIMIS BC-Pi Plus

PIONEERING AUTOMATION TECHNOLOGY

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## **COMPACT CONTROL SYSTEM**

B-FORTIS CC-LITE

B-FORTIS CC-SLIM

B-FORTIS CC-PRIME

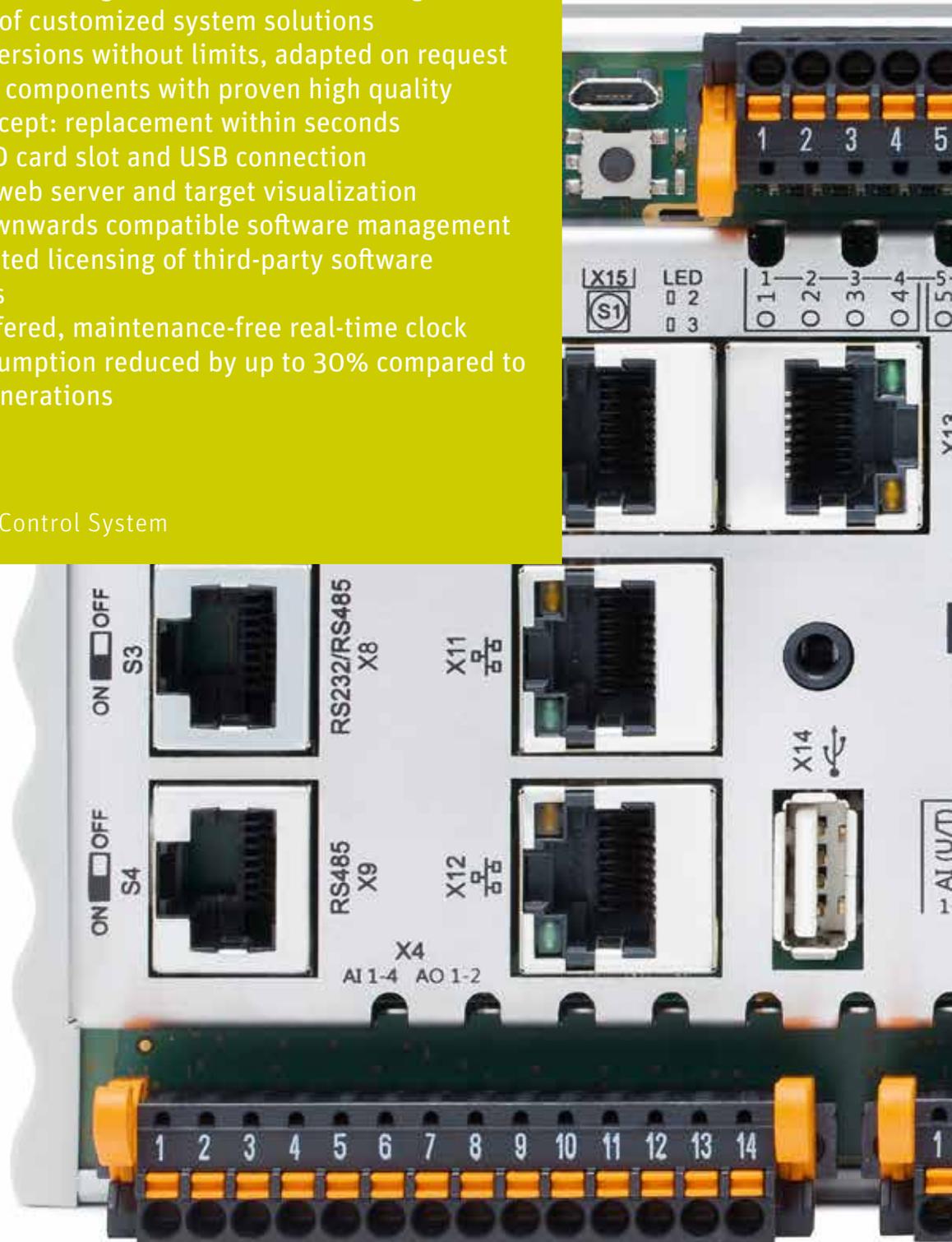
B-FORTIS CC-I/O

# B-FORTIS CC - COMPACT CONTROL SYSTEM

BERGHOF AUTOMATION AND CONTROL SOLUTIONS

- High number of integrated features due to long experience of customized system solutions
- Hardware versions without limits, adapted on request
- Very robust components with proven high quality
- Service concept: replacement within seconds
- Standard SD card slot and USB connection
- Integrated web server and target visualization
- Up- and downwards compatible software management
- Uncomplicated licensing of third-party software components
- Battery-buffered, maintenance-free real-time clock
- Power consumption reduced by up to 30% compared to previous generations

Compact CODESYS Control System



# B-FORTIS CC

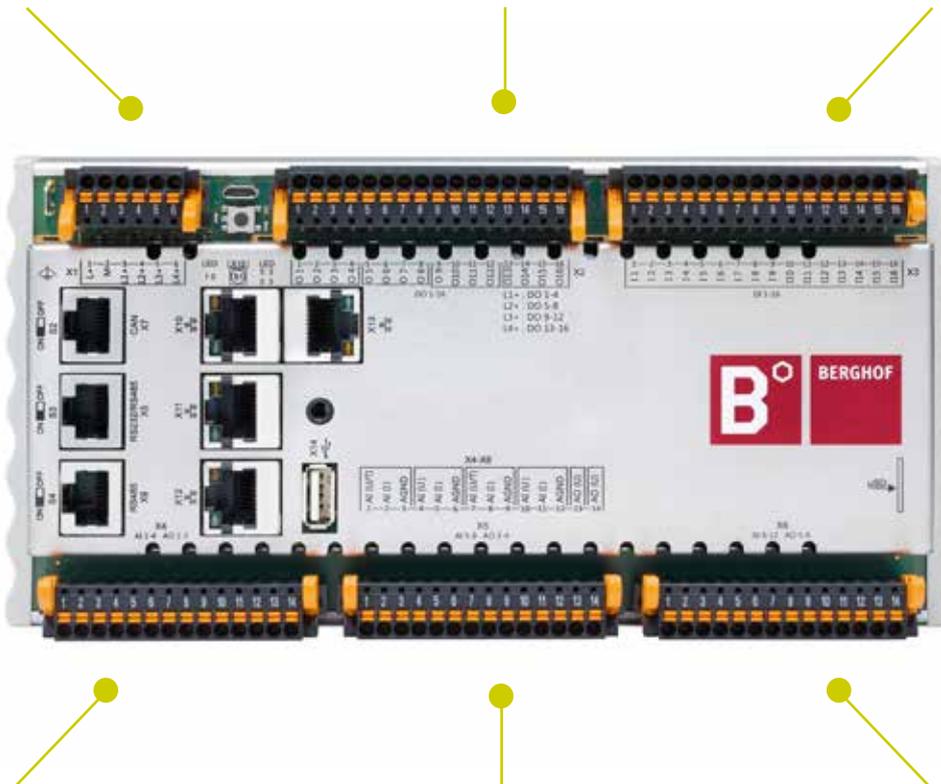
## Compact CODESYS PLC in All-In-One-Design

The B-Fortis CC series meets every requirement for compact CODESYS high-performance controllers. It replaces numerous individual components with a function-integrated device. With on-board peripherals and countless technological functions, you save additional investments in additional modules. Compared to modular product solutions, you do not only save on logistics costs. For example, B-Fortis CC, as an integrated unit, increases functional reliability with faster data communication and easy project planning and programming. There are no functional limitations with the help of a layout tailored to your requirements. Three versions are sufficient to meet all requirements. If this is not enough, expansion modules are available. Furthermore, the devices can be easily combined with other control components such as the standardized Berghof MC or ET system. Extensive effort has been put on the equipment also with the inner values: for example, the devices can only be exchanged by changing the SD card – which is just one outstanding example of many possibilities.

Powerful compact CODESYS control platform

Modules in fanless standard design, available with approvals for worldwide use

Simple programming according to IEC61131



Maximum product density with integration of many interfaces and indicator

Standard plug, safe in connection, with ejection technology, compatible across various manufacturers

Very robust versions with up to 1mm stainless steel housing

# B-FORTIS CC-LITE



## Unsurpassed ratio

from performance to price

## Performance in plenty

through the use of state of the art components

## Unrivalled upgrade capability

open to any idea, e.g. replacing the single core with a dual or quad core processor

## Ideal as central controller

for remote units or applications such as Motion

## Highly flexible connection

thanks to the realization of countless communication channels using full bandwidths

## Sophisticated handling

with service and update concepts, tool-free installation and much more

## Impressive basic equipment

which at this point only allows a rudimentary excerpt:

- Overload, short-circuit, reverse polarity and overvoltage proof, wiring faults without danger
- Living area approval
- Application update via USB
- Application protection via tamper-proof HW identification
- Reduction of the PLC cycle time optionally up to 500  $\mu$ s
- Versatile fonts
- VNC + HTML5 web browser universally applicable
- OpenVPN

## Environmentally friendly across the board

through energy-saving components and software functions as well as appropriate packaging

# B-FORTIS CC-SLIM



## Extended basic equipment

with features that are additive to the B-Fortis CC-Lite (exemplary excerpt):

- Inputs configurable to counter and encoder
- Operating buttons for resetting / stopping/ starting the PLC application
- switchable terminating resistors of the interfaces integrated
- External two-stage HW-Watchdog
- Analog inputs PT100/ PT1000 capable
- Separate power supply of the digital outputs in groups
- serial 9bit Multi-Drop Mode
- Operating hours counter

## Vocal

due to buzzer and optional sound chip for mp3 playback

## Powerful supplement

of the B-Fortis CC-LITE, of course with continuation of its features

## Superior hardware concept

not only by mere interface expansion, but beyond that by its designs, for example with independent Ethernet interfaces

## Safe application

thanks to practical solutions for practical use:

- remanent hardware memory independent of the battery
- Integrated temperature sensor monitoring, e.g. for the control cabinet
- potential-separated interfaces, etc.

## Can be used across industries

by means of adaptations to specific markets, e.g. I/O with N circuit

## Highly accurate information

through analog I/O with up to 24-bit resolution



# B-FORTIS CC-PRIME



## Extraordinary completion

of the portfolio of compact controllers, including the capabilities of B-Fortis CC-LITE and CC-SLIM

## Unsurpassed versatility

thanks to various expansion stages, due to sophisticated design easily supplemented by required variants on request

## Maximum performance

with sufficient room for interfaces and functions in a minimum of space

## Sufficiently dimensioned

with RAM, Flash and Retain and room for more

## Reduced costs and time requirements

proven by numerous special customer executions and the use of always uniform standard components and development templates

## Easy to configure, error-reducing, easy to install, easy to service

due to always the same form factor and uniform interface arrangements

## Unique basic equipment

in addition on the features of the B-Fortis CC-SLIM (exemplary excerpt):

- Interrupt / event inputs integrated
- Ethernet switch included as standard
- Current capability of the digital outputs optionally up to 1A
- suitable for multimaster operation

## Optimally analyzed

through mature implementation of status LED's

## Widely positioned application

with the extremes, e.g. from harsh outdoor use to building automation with the BACnet network protocol

## Highly accurate information

through analog I/O with up to 24-bit resolution



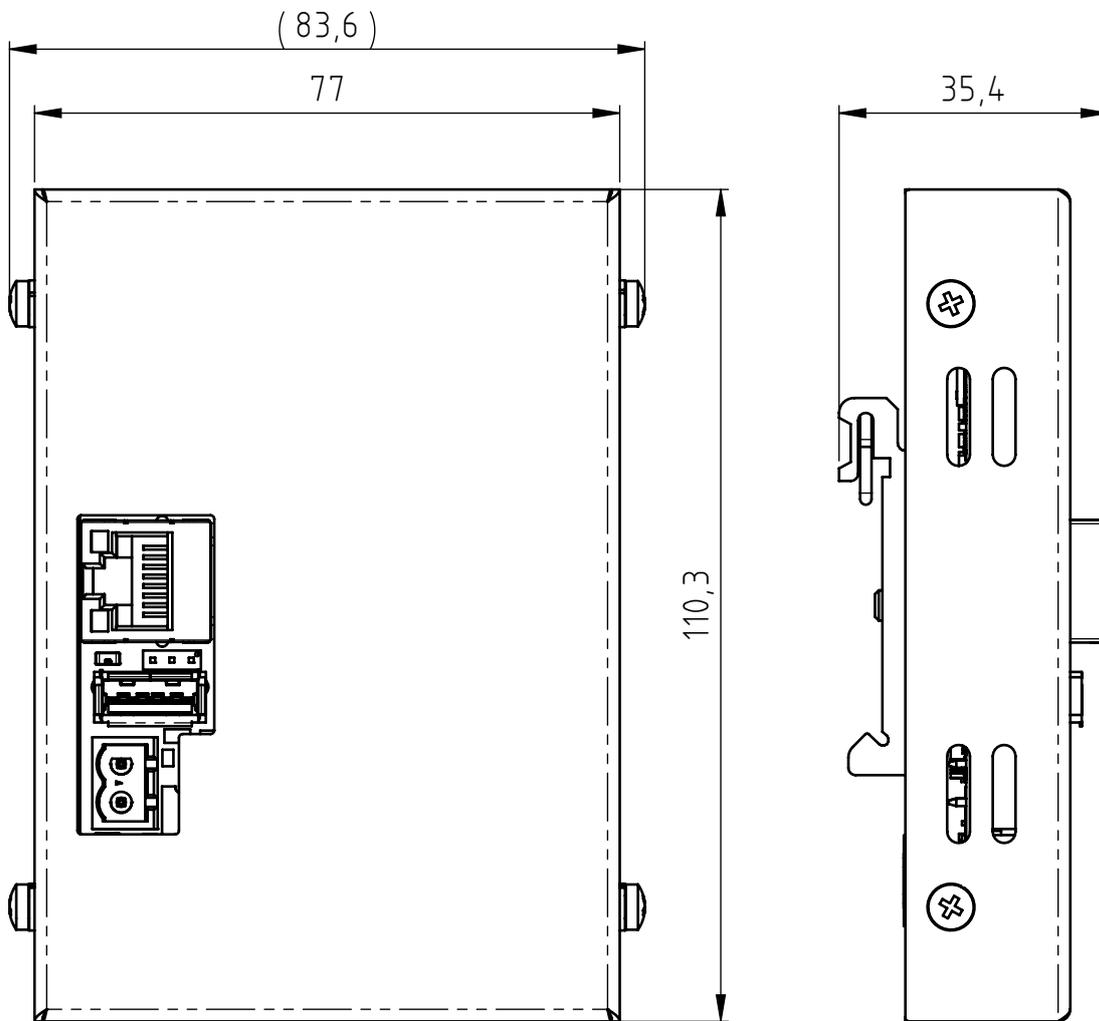
# B-FORTIS CC-LITE

## INFORMATION TECHNICAL DATA

B-Fortis CC-Lite	Ausprägungen
Description	CC-Lite S03
Order number	<b>S-01020101-0300</b>
Dimensions WxHxD [mm]	83,6 x 110,3 x 35,4
Weight	approx. 250 g
Mounting	Rail mounting DIN EN 60715:2001, 35 x 7,5 mm
Development environment	CODESYS V3 (IEC 61131-3)
CPU	800 MHz ARM CPU mit Cortex™-A9 Single Core
RAM /Flash / Retain Storage	256 MB RAM / 2 GB Flash Retain replaced by CODESYS Persistence Manager
Certification	CE (EN 61131-2)
Communication interfaces	1x Ethernet, 10/100 Base, RJ45
Protocols	Standard: NTP, FTP Optional: EtherCAT Master, Modbus TCP, SNMP, OPCuA, Ethernet/IP, PROFINET, BACnet, KNX, IoT
Visualization	Target Visu (VNC-Server), Optional : CODESYS WebVisu (Web Server, HTML 5)
Additional features	1x Host USB 2.0 / USB plug type A
Supply voltage	+24 VDC (-15% / +20%) SELV max. AC voltage component 5% with reverse voltage protection
Current consumptopn	Typ. 0,1 A, max. 0,2 A at +24 VDC
Operating conditions Transport / storage	Ambient temperature: operational: 0 °C to 55 °C / transport -20 °C to +70 °C Relative humidity: max. 85%, non-condensing
<b>EMC, protection type</b>	
Emitted interference	EN 61000-6-4, industrial area
Immunity to interference	EN 61000-6-2, industrial area
Protection class	III
Insulation strength	EN 61131-2
Protection type	IP20
Vibration	Sinusodial (EN 60068-2-6) test: Fc; 10 ... 150 Hz, 1 G (operation mode)
Schock resistance	15 G (ca. 150 m/s <sup>2</sup> ), 11 ms duration, half-sine (EN 60068-2-27) test: Ea

# B-FORTIS **CC-LITE**

## INFORMATION **DIMENSIONS**



Dimensions B-Fortis CC-Lite

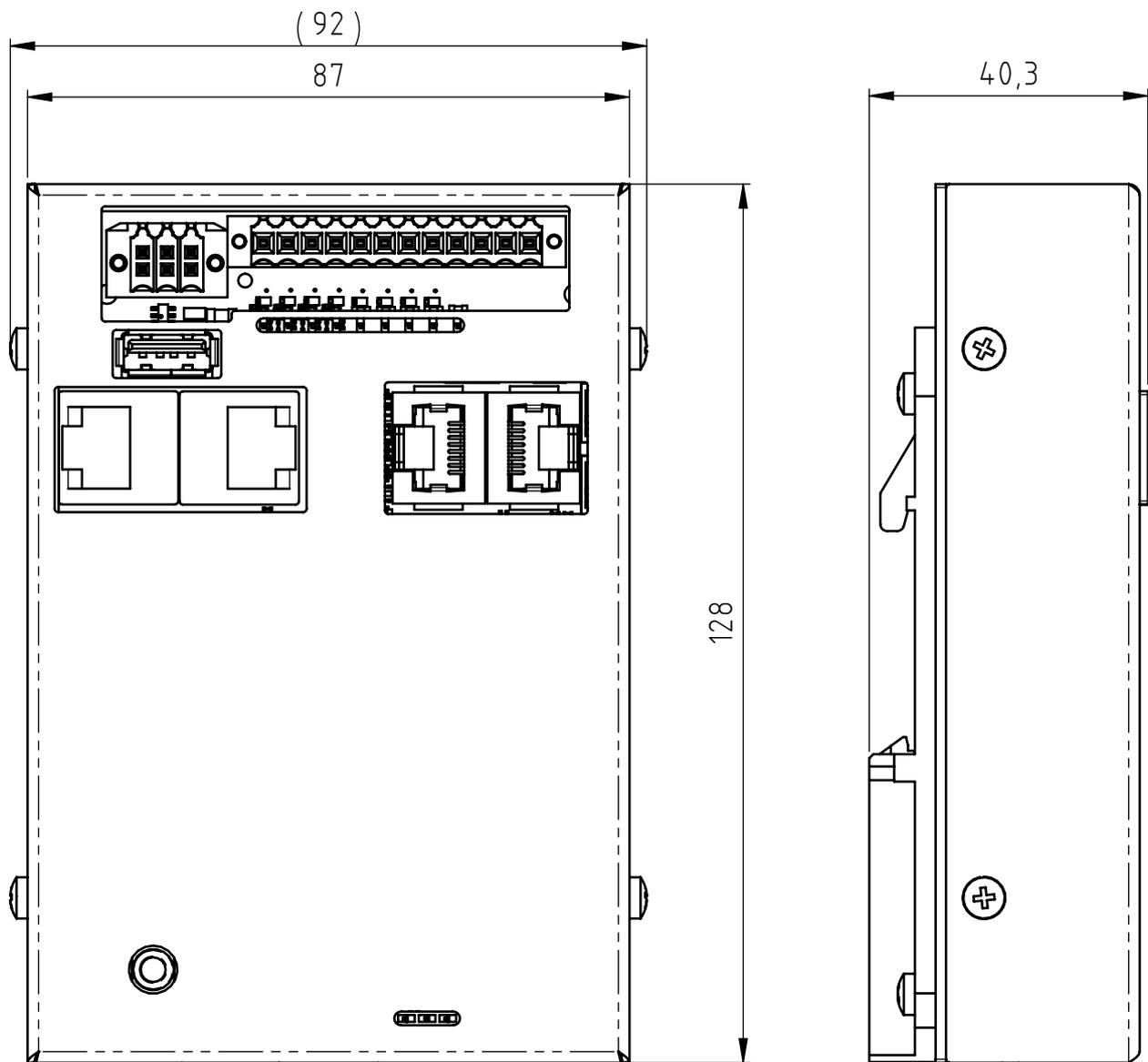
# B-FORTIS CC-SLIM

## INFORMATION TECHNICAL DATA

B-Fortis CC-Slim	Specification			
	CC-Slim S01	CC-Slim S02	CC-Slim S04	CC-Slim S05
Order number	<b>S-01020102-0100</b>	<b>S-01020102-0200</b>	<b>S-01020102-0400</b>	<b>S-01020102-0500</b>
Order number Dualcore	-	-	<b>S-01020102-2400</b>	<b>S-01020102-2500</b>
Dimensions WxHxD [mm]	92 x 128 x 40,3			
Weight	approx. 550 g			
Mounting	Rail mounting NS 35/7,5 EN 50022			
Development environment	CODESYS V3 (IEC 61131-3)			
CPU	800 MHz ARM® CPU Cortex™- A9 single Core / Dualcore: 2x 800 MHz ARM® CPU Cortex™- A9			
RAM /Flash / Retain storage	256 MB RAM / 256 MB Flash / 100 kB Retain			
Dualcore	512 MB RAM / 256 MB Flash / 100 kB Retain			
Certification	CE (EN 61131-2) / cULus (UL 61010-2-201)			
Communication interfaces	1x Ethernet, 10/100 Base, RJ45			
	1x EtherCAT, RJ45			
	-	1x CAN Bus, RJ45		2x CAN Bus, RJ45
	-	1x RS232/485 combo, RJ45		
Protocols	Standard: EtherCAT Master, CANOpen Master, NTP, FTP Optional: Modbus RTU/TCP, SNMP, OPCuA, J1939, Ethernet/IP, PROFINET, BACnet, KNX, IoT			
Visualization	Target Visu (VNC-Server), Optional : CODESYS WebVisu (Web Server, HTML 5)			
Additional features	1x Host USB 2.0 / USB plug type A			
	1x RTC, battery buffered			
Digital I/O`s	-	-	4x digital input, 4x digital output (0,5 A)	
Analogue I/O`s	-	-	4 x analogue Input (-10V..+10V, 2x PT100/ PT1000) Resolution: 24 Bit	
Supply voltage	+24 VDC (-15% / +20%) SELV max. AC voltage component 5% with reverse voltage protection			
Current consumption device	Typ. 0,3 A, max. 1,2 A at +24 VDC			
Current consumption dig. outputs	depending on output load, continuous max. 2A			
Operating conditions Transport / storage	Ambient temperature: operational: 0 °C to 55 °C / transport -20 °C to +70 °C Ambient temperature: operational Dualcore: 0 °C to 50 °C / transport -20 °C to +70 °C Relative humidity: max. 85%, non-condensing			
<b>EMC, protection type</b>				
Emitted interference	EN 61131-2; EN 61000-6-3, living area			
Immunity to interference	EN 61131-2; EN 61000-6-2, industrial area			
Protection class	III			
Insulation strength	EN 61131-2			
Protection type	IP20			
Vibration	Sinusoidal (EN 60068-2-6) test: Fc; 10 ... 150 Hz, 1 G (operation mode)			
Schock resistance	15 G (approx. 150 m/s <sup>2</sup> ), 10 ms duration, half-sine (EN 60068-2-27) test: Ea			

# B-FORTIS **CC-SLIM**

## INFORMATION **DIMENSIONS**



Dimensions B-Fortis CC-Slim

# B-FORTIS CC-PRIME

## INFORMATION TECHNICAL DATA

B-Fortis CC-Prime	Specification			
	CC-Prime S01	CC-Prime S02	CC-Prime S03	CC-Prime S04
Order number	<b>S-01020103-0100</b>	<b>S-01020103-0200</b>	<b>S-01020103-0300</b>	<b>S-01020103-0400</b>
Dimensions WxHxD [mm]	212 x 105 x 46,5			
Weight	approx. 750 g			
Mounting	Rail mounting NS 35/7,5 EN 50022			
Certification	CE (EN 61131-2) / UL <sub>us</sub> (UL 61010-2-201)			
Development environment	CODESYS V3 (IEC61131-3)			
CPU	800 MHz ARM® CPU with Cortex™-A9 Single Core			
RAM /Flash /Retain storage	256 MB RAM /256 MB Flash /100 KB Retain			
Communication interfaces	1x Ethernet, 10/100 Base with 3x RJ45 (integrated switch)			
	1x EtherCAT , RJ45			
	-			1x CAN Bus, RJ45 (opto-isolated)
	-			1x Rs232/485 combo, RJ45
Protocols	Standard: EtherCAT Master, CANOpen Master, NTP, FTP Optional: Modbus RTU/TCP, SNMP, OPCuA, J1939, Ethernet/IP, PROFINET, BACnet, KNX, IoT			
Visualization	Target Visu (VNC Server), Optional: Web Visu (Web Server, HTML 5)			
Additional features	1x Host USB 2.0 / USB plug type A			
	-	-	1x MicroSD-Card Slot (SDHC standard up to 32 GB)	
Digital I/O`s	1x RTC, battery buffered			
	8x digital input	12x digital input	16x digital input	
Analogue I/O`s (-10 V..+10V, -20mA..+20mA, 6x PT100/PT1000)	8x digital output (0,5 A)	12x digital output (0,5 A)	16x digital output (0,5 A)	
	4x analog input Resolution: 24 Bit	4x analog input, Resolution: 24 Bit		8x analog input Resolution: 24 Bit
	2x analog input, Resolution: 12 Bit			4x analog input Resolution: 12 Bit

# B-FORTIS **CC-PRIME**

## INFORMATION **TECHNICAL DATA**

B-Fortis CC-Prime	Specification			
	CC-Prime S01	CC-Prime S02	CC-Prime S03	CC-Prime S04
Description				
Supply voltage	+24 VDC (-15% / +20%) SELV max. AC voltage component 5% with reverse voltage protection			
Current consumption device	Typ. 0,3 A, max. 1,0 A at +24 VDC			
Current consumption dig. outputs	depending on output load, continuous 4x max. 2A			
Operating conditions	Ambient temperature: operational: 0 °C to 55 °C / transport -20 °C to +70 °C			
Transport / storage	Relative humidity: max. 85%, non-condensing			
<b>EMC, protection type</b>				
Emitted interference	EN 61131-2; EN 61000-6-3, living area			
Immunity to interference	EN 61131-2; EN 61000-6-2, industrial area			
Protection class	III			
Insulation strength	EN 61131-2			
Protection type	IP20			
Vibration	Sinusoidal (EN 60068-2-6) test: Fc; 10 ... 150 Hz, 1 G (operation mode)			
Schock resistance	15 G (approx. 150 m/s <sup>2</sup> ), 10 ms duration, half-sine (EN 60068-2-27) test: Ea			

# B-FORTIS CC-PRIME

## INFORMATION TECHNICAL DATA

B-Fortis CC-Prime	Specification			
Description	CC-Prime S05	CC-Prime S06	CC-Prime S07	CC-Prime S08
Order number	<b>S-01020103-0500</b>	<b>S-01020103-0600</b>	<b>S-01020103-0700</b>	<b>S-01020103-0800</b>
Order number Dualcore	<b>S-01020103-2500</b>	-	-	<b>S-01020103-2800</b>
Dimensions WxHxD [mm]	212 x 105 x 46,5			
Weight	approx. 750 g			
Mounting	Rail mounting NS 35/7,5 EN 50022			
Certification	CE (EN 61131-2) / UL <sub>us</sub> (UL 61010-2-201)			
Development environment	CODESYS V3 (IEC61131-3)			
CPU	800 MHz ARM® CPU with Cortex™-A9 Single Core / Dualcore: 800 MHz ARM® CPU mit Cortex™-A9			
RAM /Flash /Retain storage	256 MB RAM / 256 MB Flash / 100 KB Retain			1 GB RAM 1GB Flash 100 KB Retain
Dualcore	512 MB RAM 256 MB Flash 100 KB Retain	-	-	1 GB RAM 1GB Flash 100 KB Retain
Communication interfaces	1x Ethernet, 10/100 Base mit 3x RJ45 (integrated switch)			
	1x EtherCAT , RJ45			
	1x CAN Bus, RJ45 (opto-isolated)			
	2x RS485, RJ45 (opto-isolated, 1x together with RS232)			2x RS485, RJ45 (opto-isolated, 1x together with RS232 without Bias resistance, with 5V on pin7)
Protocols	1x RS232, RJ45 (opto-isolated together with RS485)			
	Standard: EtherCAT Master, CANOpen Master, NTP, FTP Optional: Modbus RTU/TCP, SNMP, OPCuA, J1939, Ethernet/IP, PROFINET, BACnet, KNX, IoT			
Visualization	Target Visu (VNC Server), Optional: Web Visu (Web Server, HTML 5)			
Additional features	1x Host USB 2.0 / USB plug type A			
	1x MicroSD-Card slot (SDHC standard up to 32 GB)			
	1x RTC, battery buffered			
Digital I/O`s	16x digital Input			
	16x digital Output (0,5 A)			

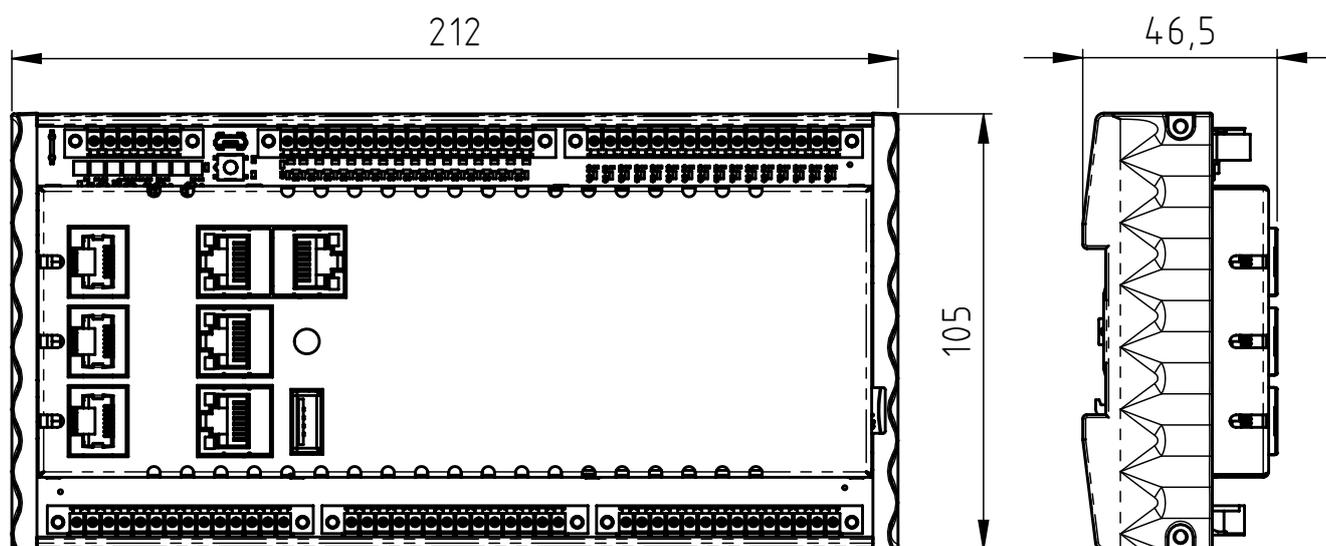
# B-FORTIS CC-PRIME

## INFORMATION TECHNICAL DATA

B-Fortis CC-Prime	Specification			
	Description	CC-Prime S05	CC-Prime S06	CC-Prime S07
Analogue I/O`s (-10 V..+10V, -20mA..+20mA, 6x PT100/PT1000)	12x analog Input Resolution: 24 Bit	-	4x analog Input Resolution: 24 Bit	12x analog Input Resolution: 24 Bit
	6x analog Output Resolution: 12 Bit	-	2x analog Output Resolution: 12 Bit	6x analog Output Resolution: 12 Bit
Supply voltage	+24 VDC (-15% / +20%) SELV max. AC voltage component 5% with reverse voltage protection			
Current consumption device	Typ. 0,3 A, max. 1,0 A at +24 VDC			
Current consumption dig. outputs	depending on output load, continuous 4x max. 2A			
Operating conditions Transport / storage	Ambient temperature: operational: 0 °C to 55 °C / transport -20 °C to +70 °C			
	Ambient temperature: operational Dualcore: 0 °C to 50 °C / transport -20 °C to +70 °C			
	Relative humidity: max. 85%, non-condensing			
<b>EMC, protection type</b>				
Emitted interference	EN 61131-2; EN 61000-6-3, living area			
Immunity to interference	EN 61131-2; EN 61000-6-2, industrial area			
Protection class	III			
Insulation strength	EN 61131-2			
Protection type	IP20			
Vibration	Sinusodial (EN 60068-2-6) test: Fc; 10 ... 150 Hz, 1 G (operation mode)			
Schock resistance	15 G (approx. 150 m/s <sup>2</sup> ), 10 ms duration, half-sine (EN 60068-2-27) test: Ea			

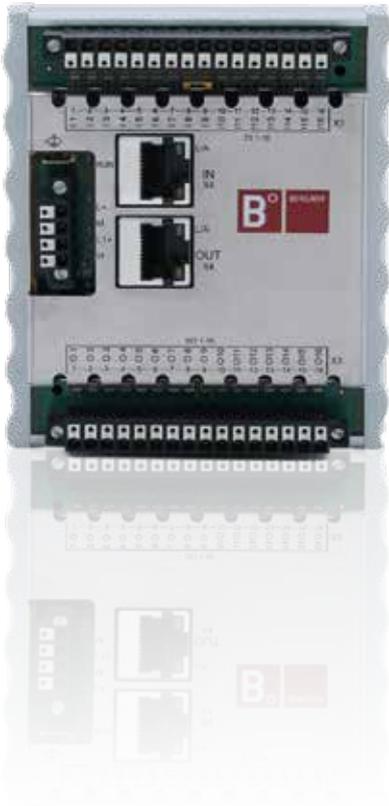
# B-FORTIS **CC-PRIME**

## INFORMATION **DIMENSIONS**



Dimensions B-Fortis CC-Prime

# B-FORTIS CC-I/O



## B-Fortis CC-DIO 16/16

Remote EtherCAT digital I/O extension with integrated bus coupler

- Compact EtherCAT I/O extension
- Integrated bus coupler
- Integrated extender
- Connection with Ethernet cables up to 100m
- 16 digital inputs
- 16 digital outputs



## B-Fortis CC-AIO 12/6

Remote EtherCAT analog I/O expansion with integrated bus coupler

- Compact EtherCAT I/O extension
- Integrated bus coupler
- Integrated extender
- Connection with Ethernet cables up to 100m
- Inputs adjustable to voltage, current or temperature
- Simple configuration
- 12 analog multifunction inputs
- 6 analog voltage outputs

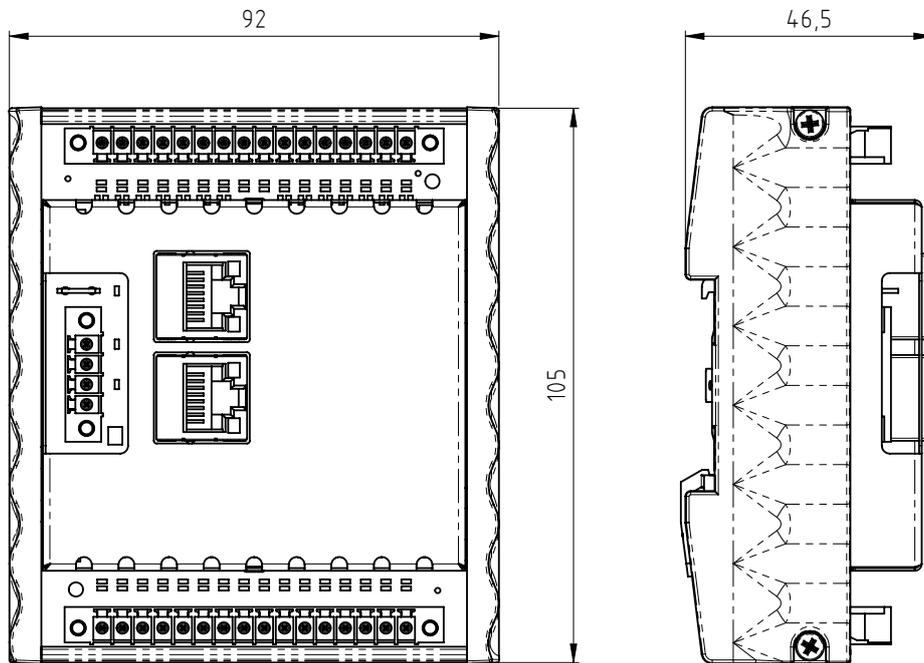
# B-FORTIS CC-I/O

## INFORMATION TECHNICAL DATA

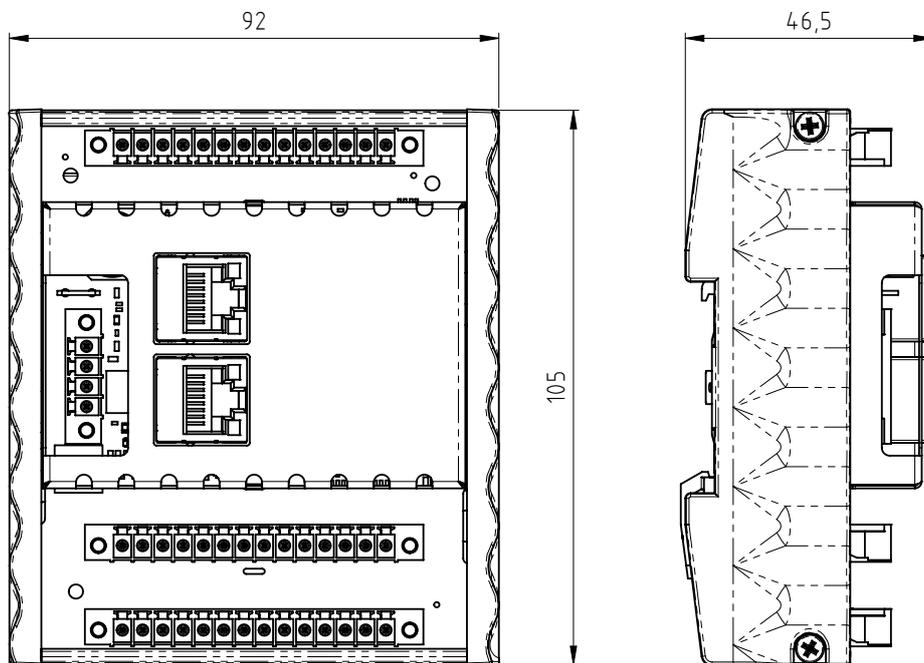
B-Fortis CC-I/O	Specification	
Description	CC-DIO 16/16 P	CC-AIO 12/6
Order number	<b>S-01020201-0100</b>	<b>S-01020202-0100</b>
Dimensions WxHxD [mm]	92 x 105 x 46,5	
Weight	approx. 200 g	
Mounting	Rail mounting NS 35/7,5 EN 50022	
Development environment	CODESYS V3 (IEC 61131-3)	
Certification	CE (EN 61131-2) / cULus (UL 61010-2-201)	
Communication interfaces	1x EtherCAT In, RJ45 (integrated bus coupler)	
	1x EtherCAT Out, RJ45 (integrated bus coupler)	
Protokolle	EtherCAT Slave	
Digital I/O´s	16x digital input 16x digital output positive switching	-
Analogue I/O´s	-	12 x universal analog input (-10V..+10V, -20mA..+20mA, 6x PT100/PT1000) Resolution: 24 Bit
	-	6 x analog output (0V..+10V) Resolution: 12 Bit
Supply voltage	+24 VDC (-15% / +20%) SELV max. AC voltage component 5% with reverse voltage protection	
Current consumption module	Typ. 0,05 A, max. 0,25 A at +24 VDC	
Current consumption dig. outputs	depending on output load, continuous 4x max. 2A	-
Operating conditions Transport / storage	Ambient temperature: operational: 0 °C to 55 °C / transport -20 °C to +70 °C Relative humidity: max. 85%, non-condensing	
<b>EMC, protection type</b>		
Emitted interference	EN 61000-6-3, living area	EN 61000-6-4, industrial area
Immunity to interference	EN 61000-6-2, industrial area	EN 61000-6-2, industrial area
Protection class	III	
Insulation strength	EN 61131-2	
Protection type	IP20	
Vibration	Sinusoidal (EN 60068-2-6) test: Fc; 10 ... 150 Hz, 1 G (operation mode)	
Schock resistance	15 G (approx. 150 m/s <sup>2</sup> ), 10 ms duration, half-sine (EN 60068-2-27) test: Ea	

# B-FORTIS CC-I/O

## INFORMATION DIMENSIONS



Dimensions B-Fortis CC-DIO 16/16



Dimensions B-Fortis CC-AIO 12/6

PIONEERING AUTOMATION TECHNOLOGY

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# **DIALOG CONTROL SYSTEM**

B-PRIMIS DC-PRO

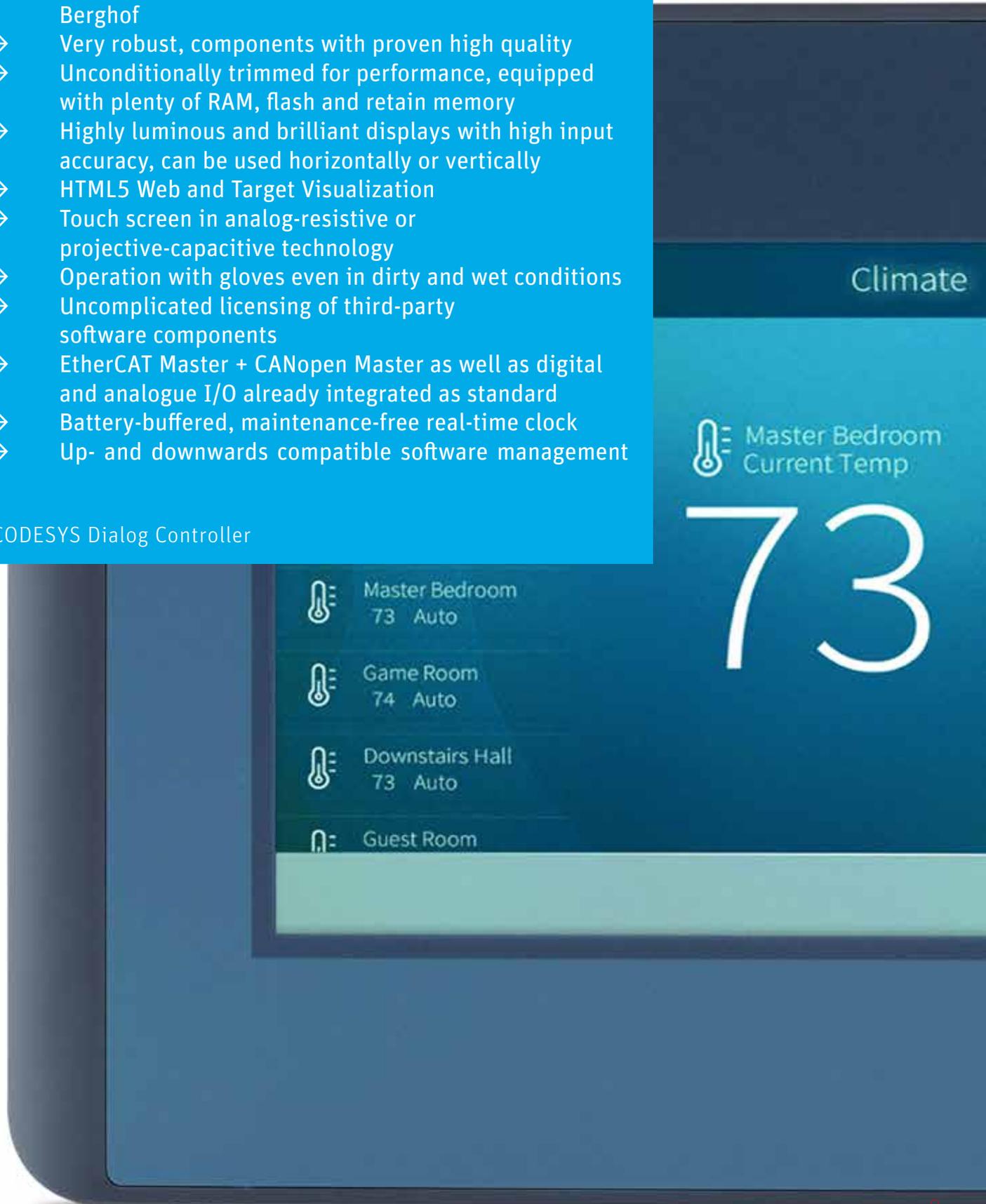
B-PRIMIS DC-PRIME

# B-PRIMIS DC-DIALOG CONTROL SYSTEM

## BERGHOF AUTOMATION AND CONTROL SOLUTIONS

- Exceptionally high-quality design, only available from Berghof
- Very robust, components with proven high quality
- Unconditionally trimmed for performance, equipped with plenty of RAM, flash and retain memory
- Highly luminous and brilliant displays with high input accuracy, can be used horizontally or vertically
- HTML5 Web and Target Visualization
- Touch screen in analog-resistive or projective-capacitive technology
- Operation with gloves even in dirty and wet conditions
- Uncomplicated licensing of third-party software components
- EtherCAT Master + CANopen Master as well as digital and analogue I/O already integrated as standard
- Battery-buffered, maintenance-free real-time clock
- Up- and downwards compatible software management

CODESYS Dialog Controller



# B-PRIMIS DC

## Display control in high-end segment

With the CANtrol DC series, Berghof Automation once introduced the combination of controllers and HMI terminals into the automation market. The design of the B-Primis DC series display controller was based not only on this experience, but also on the knowledge gained from the realization of numerous projects with consistent suggestions and helpful customer requests in order to implement the respective application extraordinarily well. It all depends on the small details – B-Primis DC contains many features in the standard that are unparalleled in the performance class, and it is constantly becoming more and more. The device series combines the products of the B-Primis ET / control panel and B-Fortis CC-Slim / compact control series and automatically benefits from all the extensions we work on every day. All functions and features, including the extensive basic equipment of the two excellent product series, are combined in the current HMI controller: extremely powerful and proven high-quality fail-safe components, extensive on-board peripherals, countless technological functions or clean fronts. With the Classic version, resistive touch panels are available, equipped with a high-quality frame. The Prime version consists of frameless capacitive displays.

Powerful compact CODESYS control platform, easy programming according to IEC61131

On request without logo, in your corporate design or completely customized

Protection up to IP65, matched components offer operation even with water and dirt



Maximum product density with integration of many interfaces and indicator LEDs

Maintenance-free units in fanless standard design, available with approvals for worldwide use

FullHD, widescreen, wide viewing angle 85° – selected details of the B-Primis DC-Prime

# B-PRIMIS DC-PRO



## Secure application

thanks to practical solutions for practical use:

- Remanent hardware memory independent of the battery of the real-time clock
- Integrated temperature sensor monitoring e.g. for the control cabinet
- Potential-separated interfaces, etc.

## Environmentally friendly across the board

through energy-saving components and software functions as well as appropriate packaging

## Exceptionally clean

by means of continuous, nicheless clean front without edges

## Robust throughout

due to a multi-layer front foil construction with high resistance to many chemicals and a particularly torsion-resistant design of the mechanics in the metal housing

## Easy and safe to assemble

due to integrated retaining clips and twist locks, tool-less / snap-in installation

## Impressive in consideration

by means of bright and brilliant displays (> 400 Cd/m<sup>2</sup>) as well as brightness centrally adjustable from the control unit

## Impressive basic equipment

which at this point only allows a rudimentary excerpt:

- Overload, short-circuit, reverse polarity and overvoltage proof, wiring faults without danger
- Living area approval
- Application update via USB
- Application protection via tamper-proof HW identification
- Downgrading of the PLC cycle time optionally up to 500µs
- Diverse fonts
- Three-wire measurement for compensation of line resistances
- OpenVPN
- VNC + HTML5 web browser universally applicable
- Inputs configurable to counter and encoder
- Operating buttons for resetting / stopping / starting the PLC application
- Switchable terminating resistors integrated to interfaces
- External two-stage HW watchdog
- Analog inputs PT100/PT1000 capable
- Separate power supply of the digital outputs in groups
- Serial 9bit Multi-Drop Mode
- Operating hours counter
- Buzzer and optional sound chip for mp3 playback

# B-PRIMIS DC-PRIME



## Professional future

from combinatorics of performance and properties

## Powerful supplement

of the B-Primis DC-PRO, of course with continuation of its features

## Uniquely engineered

without frame, which means full flexibility in installation

## Brilliant visualization

due to a high-class display with 85° viewing angle in all directions and particularly clear colour reproduction

## Strong appearance

through chemically hardened glass in the extraordinarily stable 2mm version

## Optimal image

with widescreen resolutions and up to Full-HD at 1920x1080 pixels

## Outstanding operation

also with gloves on a surface exposed to water and dirt

## Versatile prepared

due to Multi-Touch and enabled gesture control

## Variable in use

with panel mounting as well as prepared for narrow cut operating housings also with support arm and lift system



# B-PRIMIS DC-RACK 7



The B-Primis DC-Rack 7 is based on the Berghof B-Primis DC-Pro display controllers, which have been tried and tested thousands of times in industrial environments.  
display controllers B-Primis DC-Pro.

Thanks to the seamless metal front and housing, you get a robust display controller suitable for mounting in 19" rack systems. The B-Primis DC-Rack 7 is mainly used in control cabinets or as a server cabinet controller.

We use a display with high brightness, perfect contrast and resistive touch.

Available as single core and dual core device with up to 512 MB RAM, 256 MB Flash, 100 kB Retain as well as 2x 800 MHz ARM® CPU with Cortex™-A9.

## **Superior hardware design**

not only by mere interface expansion, but beyond that by its designs, for example with independent Ethernet interfaces

## **Secure application**

thanks to practical solutions for practical use:

- Remanent hardware memory independent of the battery of the real-time clock
- Integrated temperature sensor monitoring e.g. for the control cabinet
- Potential-separated interfaces, etc.

## **Can be used across borders**

thanks to certificates for worldwide use

## **Highly accurate information**

through analog I/O with up to 24-bit resolution

# B-PRIMIS DC-PRO 4

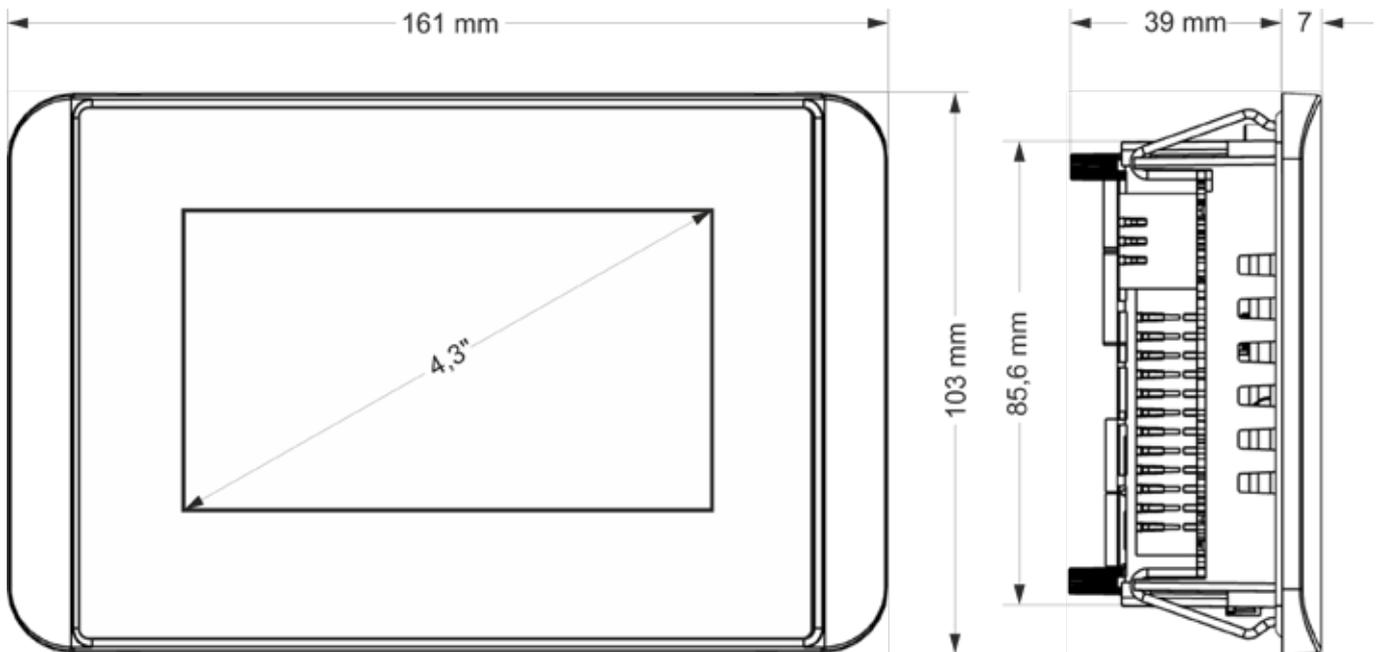
## INFORMATION TECHNICAL DATA

B-Primis DC-Pro 4	Specification			
	DC-Pro 4 S01	DC-Pro 4 S02	DC-Pro 4 S04	DC-Pro 4 S05
Order number	<b>S-01010103-0101</b>	<b>S-01010103-0201</b>	<b>S-01010103-0401</b>	<b>S-01010103-0501</b>
Order number Dualcore	-	-	<b>S-01010103-2401</b>	<b>S-01010103-2501</b>
Dimensions WxHxD [mm]	161 x 103 x 42			
Display diagonals/resolution	4,3" Display / 480 x 272 (WQVGA)			
Touch operation	Resistive			
Colours	TFT: 16,7 M (24 Bit/Pixels)			
Weight	approx. 450 g			
Mounting	Integrated securing clips			
Certification	CE (EN 61131-2) / <sub>c</sub> UL <sub>us</sub> (UL 61010-2-201)			
CPU	800 MHz ARM® CPU with Cortex™-A9 Single Core / Dualcore: 2x 800 MHz ARM® CPU with Cortex™-A9			
RAM / Flash / Retain	256 MB RAM / 256 MB Flash / 100 kB Retain			
Dualcore	-	-	512 MB RAM / 256 MB Flash / 100 kB Retain	
Communication interfaces	1x Ethernet, 10/100 Base, RJ45			
	1x EtherCAT, RJ45			
	-	1x CAN Bus, RJ45		2x CAN Bus, RJ45
	-	1x RS232/485 Combo		
Protocols	Standard: EtherCAT Master, CANOpen Master, NTP, FTP Optional: Modbus RTU/TCP, SNMP, OPCuA, J1939, Ethernet/IP, PROFINET, BACnet, KNX, IoT			
Visualization	Target Visu (VNC Server), Optional: Web Visu (Web Server, HTML5)			
Additional features	1x Host USB 2.0 / USB plug type A			
	1x RTC, battery buffered			
Digital I/O´s	-	-	4x digital inputs, 4x digital outputs (0,5A)	
Analogue I/O´s	-	-	4x analog input (-10V..+10V, 2x PT100/PT1000) Resolution: 24 Bit	
Supply voltage	+24 VDC (-15% / +20%) SELV max. AC voltage component 5% with reverse voltage protection			
Current consumption device	Typ. 0,3 A, max. 1,2 A at +24 VDC			
Current consumption dig. outputs	depending on output load, continuous max. 2A			
Operating conditions Transport / storage	Ambient temperature: operational: 0 °C to 55 °C / transport -20 °C to +70 °C Ambient temperature: operational Dualcore: 0 °C to 50 °C / transport -20 °C to +70 °C Relative humidity: max. 85%, non-condensing			

# B-PRIMIS DC-PRO 4

## INFORMATION TECHNICAL DATA / DIMENSIONS

B-Primis DC-Pro 4,3	Specification			
Description	DC-Pro 4 S01	DC-Pro 4 S02	DC-Pro 4 S04	DC-Pro 4 S05
<b>EMC, Protection type</b>				
Emitted interference	EN 61131-2; EN 61000-6-3, living area			
Immunity to interference	EN 61131-2; EN 61000-6-2, industrial area			
Protection class	III			
Insulation strength	EN 61131-2			
Protection type	IP20, Front IP54 (IP65 only with twist locks catches tightened)			
Vibration	Sinusoidal (EN 60068-2-6) test: Fc; 10 ... 150 Hz, 1 G (operation mode)			
Schock resistance	15 G (ca. 150 m/s <sup>2</sup> ), 11 ms duration, half-sine (EN 60068-2-27) test: Ea			



Dimensions B-Primis DC-Pro 4

# B-PRIMIS DC-PRO 7

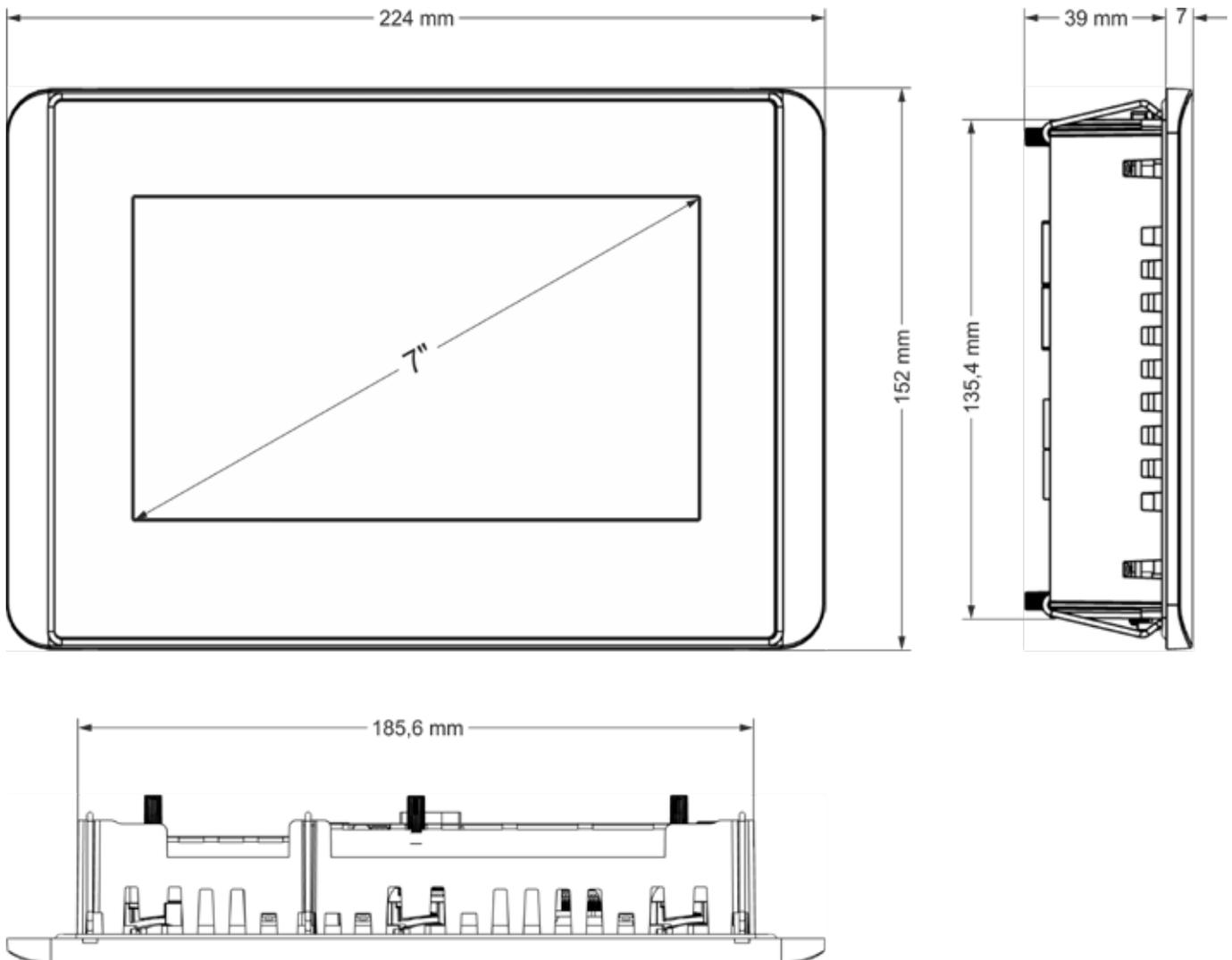
## INFORMATION TECHNICAL DATA

B-Primis DC-Pro 7	Specification			
Description	DC-PRO 7 S01	DC-PRO 7 S02	DC-PRO 7 S04	DC-PRO 7 S05
Order number	<b>S-01010103-0104</b>	<b>S-01010103-0204</b>	<b>S-01010103-0404</b>	<b>S-01010103-0504</b>
Order number Dualcore	-	-	<b>S-01010103-2404</b>	<b>S-01010103-2504</b>
Dimensions WxHxD [mm]	224 x 152 x 45			
Display diagonals/resolution	7" Display / 800 x 480 (WVGA)			
Touch operation	Resistive			
Colours	TFT: 16,7 M (24 Bit/Pixels)			
Weight	approx. 600 g			
Mounting	Integrated securing clips			
Certification	CE (EN 61131-2) / UL <sub>us</sub> (UL 61010-2-201)			
CPU	800 MHz ARM® CPU with Cortex™-A9 Single Core / Dualcore: 800 MHz ARM® CPU with Cortex™-A9			
RAM / Flash / Retain	256 MB RAM / 256 MB Flash / 100 kb Retain			
Dualcore	-	-	512 MB RAM / 256 MB Flash / 100 kB Retain	
Communication interfaces	1x Ethernet, 10/100 Base, RJ45			
	1x EtherCAT, RJ45			
	-	1x CAN Bus, RJ45		2x CAN Bus, RJ45
	-	1x RS232/485 Combo		
Protocols	Standard: EtherCAT Master, CANOpen Master, NTP, FTP Optional: Modbus RTU/TCP, SNMP, OPCuA, J1939, Ethernet/IP, PROFINET, BACnet, KNX, IoT			
Visualization	Target Visu (VNC Server), Optional: Web Visu (Web Server, HTML5)			
Additional features	1x Host USB 2.0 / USB plug type A			
	1x RTC, battery buffered			
Digital I/O's	-	-	4x digital input, 4x digital output (0,5A)	
Analogue I/O's	-	-	4x analog input (-10V..+10V, 2x PT100/PT1000) Resolution: 24 Bit	
Supply voltage	+24 VDC (-15% / +20%) SELV max. AC voltage component 5% with reverse voltage protection			
Current consumption device	Typ. 0,3 A, max. 1,2 A at +24 VDC			
Current consumption dig. outputs	depending on output load, continuous max. 2A			
Operating conditions Transport / storage	Ambient temperature: operational: 0 °C to 55 °C / transport -20 °C to +70 °C Ambient temperature: operational Dualcore: 0 °C to 50 °C / transport -20 °C to +70 °C Relative humidity: max. 85%, non-condensing			

# B-PRIMIS DC-PRO 7

## INFORMATION TECHNISCHE DATA / DIMENSIONS

B-Primis DC-Pro 7	Specification			
	DC-PRO 7 S01	DC-PRO 7 S02	DC-PRO 7 S04	DC-PRO 7 S05
Description				
<b>EMC, protection type</b>				
Emitted interference	EN 61131-2; EN 61000-6-3, living area			
Immunity to interference	EN 61131-2; EN 61000-6-2, industrial area			
Protection class	III			
Insulation strength	EN 61131-2			
Protection type	IP20, Front IP54 (IP65 only with twist locks catches tightened)			
Vibration	Sinusoidal (EN 60068-2-6) test: Fc;10 ... 150 Hz, 1 G (operation mode)			
Schock resistance	15 G (approx. 150 m/s <sup>2</sup> ), 10 ms duration, half-sine (EN 60068-2-27) test: Ea			



Dimensions B-Primis DC-Pro 7

# B-PRIMIS DC-PRO 10

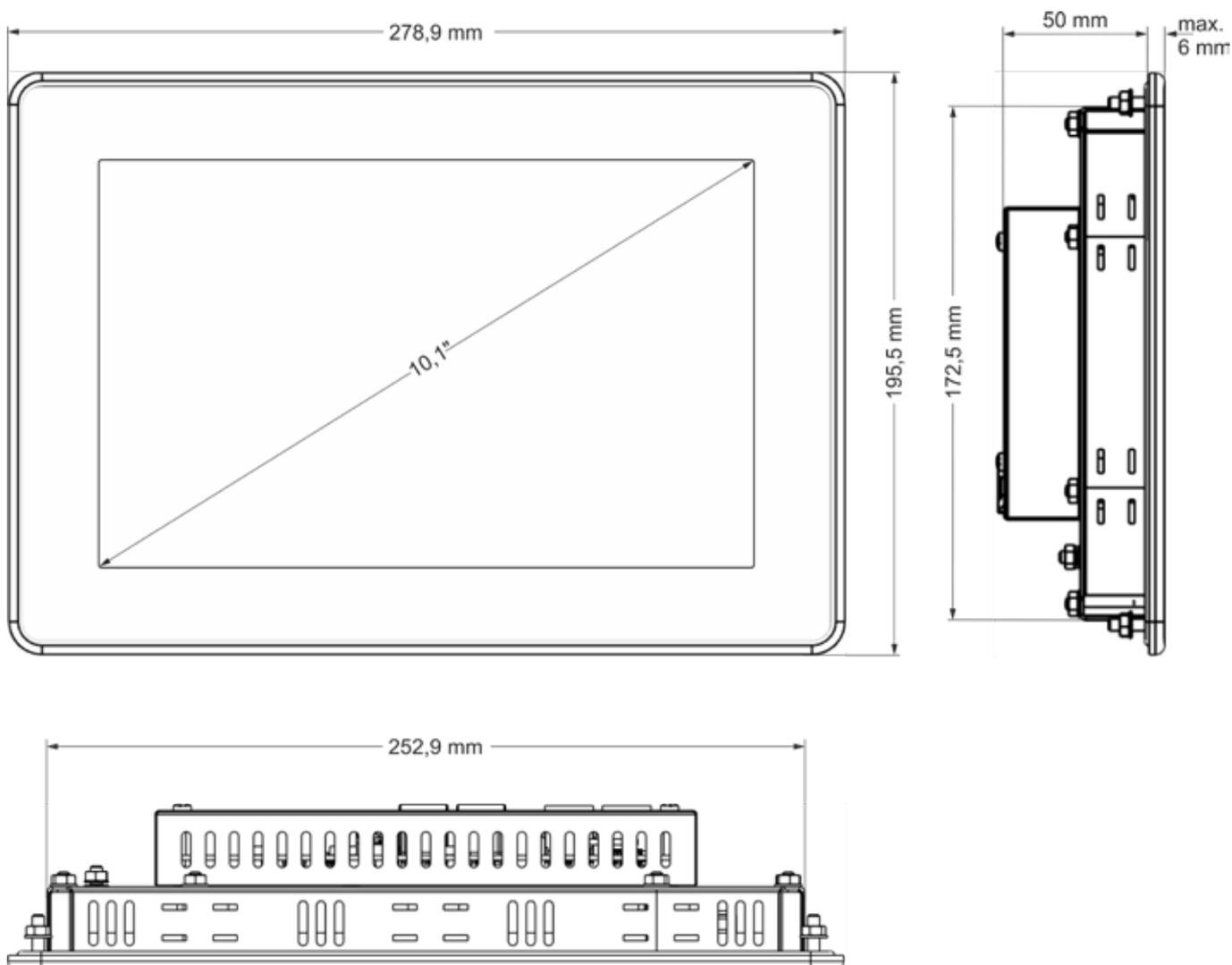
## INFORMATION TECHNICAL DATA

B-Primis DC-Pro 10	Specification				
	DC-Pro 10 S01	DC-Pro 10 S02	DC-Pro 10 S03	DC-Pro 10 S04	DC-Pro 10 S05
Order number	<b>S-01010103-0105</b>	<b>S-01010103-0205</b>	<b>S-01010103-0305</b>	<b>S-01010103-0405</b>	<b>S-01010103-0505</b>
Order number Dualcore	-	-	-	<b>S-01010103-2405</b>	<b>S-01010103-2505</b>
Dimensions WxHxD [mm]	278,9 x 195,5 x 56				
Display diagonals/resolution	10,1" Display / 1280 x 800 (WXGA)				
Touch operation	Resistive				
Colours	TFT: 16,7 M (24 Bit/Pixels)				
Weight	approx. 2,5 Kg				
Mounting	bolt mounting, additional option with securing clips for front IP65				
Certification	CE (EN 61131-2)				
CPU	800 MHz ARM® CPU with Cortex™-A9 Single Core / Dualcore: 800 MHz ARM® CPU mit Cortex™-A9				
RAM / Flash / Retain	512 MB RAM 512 MB Flash 100 kB Retain		512 MB RAM 1 GB Flash 100 kB Retain	512 MB RAM 2 GB Flash 100 kB Retain	
Dualcore	-	-	-	1 GB RAM 2 GB Flash 100 kb FRAM	1 GB RAM 2 GB Flash 100 kb FRAM
Communication interfaces	1x Ethernet, 10/100 Base, RJ45				
	1x EtherCAT, RJ45				
	-	-	1x CAN Bus, RJ45	2x CAN Bus, RJ45	
	-	-	-	1x RS232/485 combo	
Protocols	Standard: EtherCAT Master, CANOpen Master, NTP, FTP Optional: Modbus RTU/TCP, SNMP, OPCuA, J1939, Ethernet/IP, PROFINET, BACnet, KNX, IoT				
Visualization	Target Visu (VNC Server), Optional: Web Visu (Web Server, HTML5)				
Additional features	2x Host USB 2.0 / USB plug type A				
	1x RTC, battery buffered				
	- - 1x Micro SD-Card slot up to 32 GB				
Digital I/O´s	4x digital input, 4x digital output (0,5A)				
Analogue I/O´s	- 4x analog input (-10V..+10V, 2x PT100/PT1000) Resolution: 24 Bit				
Supply voltage	+24 VDC (-15% / +20%) SELV max. AC voltage component 5% with reverse voltage protection				
Current consumption device	Typ. 0,8 A, max. 1,2 A at +24 VDC				
Current consumption dig. outputs	depending on output load, continuous max. 2A				
Operating conditions Transport / storage	Ambient temperature: operational: 0 °C to 55 °C / transport -20 °C to +70 °C Ambient temperature: operational Dualcore: 0 °C to 50 °C / transport -20 °C to +70 °C Relative humidity: max. 85%, non-condensing				

# B-PRIMIS DC-PRO 10

## INFORMATION TECHNICAL DATA / DIMENSIONS

B-Primis DC-Pro 10	Specification				
Description	DC-Pro 10 S01	DC-Pro 10 S02	DC-Pro 10 S03	DC-Pro 10 S04	DC-Pro 10 S05
<b>EMC, Protection type</b>					
Emitted interference	EN 61131-2; EN 61000-6-4, industrial area				
Immunity to interference	EN 61131-2; EN 61000-6-2, industrial area				
Protection class	III				
Insulation strength	EN 61131-2				
Protection type	IP20, front IP54 (IP65 only with all securing clips attached)				
Vibration	Sinusoidal (EN 60068-2-6) test: Fc; 10 ... 150 Hz, 1 G (operation mode)				
Schock resistance	15 G (ca. 150 m/s <sup>2</sup> ), 11 ms duration, half-sine (EN 60068-2-27) test: Ea				



Dimensions B-Primis DC-Pro 10

# B-PRIMIS DC-PRO 15

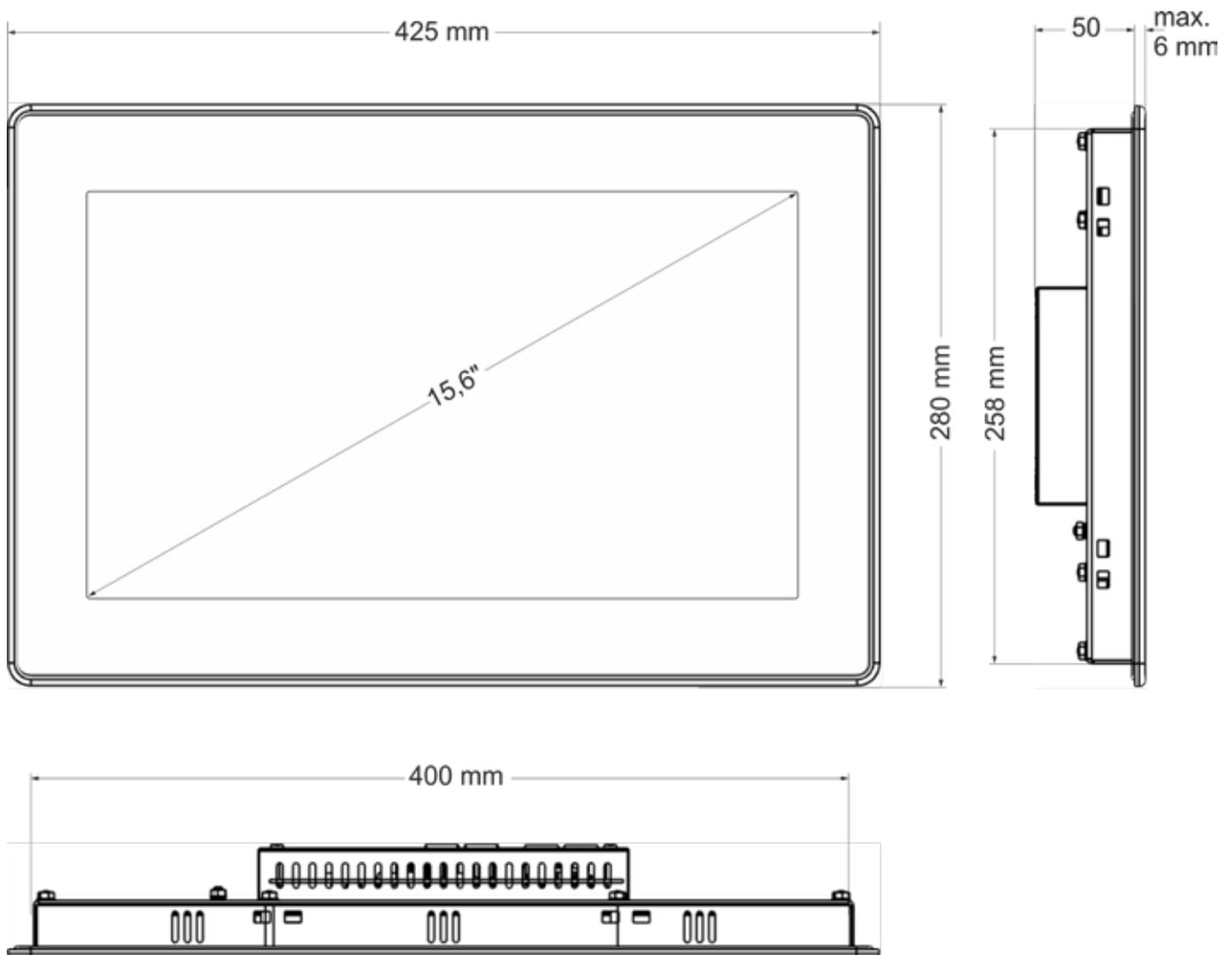
## INFORMATION TECHNICAL DATA

B-Primis DC-PRO 15	Specification				
	DC-PRO 15 S01	DC-PRO 15 S02	DC-PRO 15 S03	DC-PRO 15 S04	DC-PRO 15 S05
Order number	<b>S-01010103-0108</b>	<b>S-01010103-0208</b>	<b>S-01010103-0308</b>	<b>S-01010103-0408</b>	<b>S-01010103-0508</b>
Order number Dualcore	-	-	-	<b>S-01010103-2408</b>	<b>S-01010103-2508</b>
Dimensions WxHxD [mm]	425 x 280 x 55				
Display diagonals/resolution	15,6" Display / 1366 x 768 (WXGA)				
Touch operation	Resistive				
Colours	TFT: 16,7 M (24 Bit/Pixels)				
Weight	approx. 3 Kg				
Mounting	removable securing clips				
Certification	CE (EN 61131-2) / <sub>c</sub> UL <sub>us</sub> (UL 61010-2-201)				
CPU	800 MHz ARM® CPU with Cortex™-A9 Single Core / Dualcore: 2x 800 MHz ARM® CPU mit Cortex™-A9				
RAM / Flash / Retain	512 MB RAM 512 MB Flash 100 kB Retain		512 MB RAM 1 GB Flash 100 kB Retain	512 MB RAM 2 GB Flash 100 kB Retain	
Dualcore	-	-	-	1 GB RAM 2 GB Flash 100 kB Retain	
Communication interfaces	1x Ethernet, 10/100 Base, RJ45				
	1x EtherCAT, RJ45				
	-	-	1x CAN Bus, RJ45	2x CAN Bus, RJ45	
	-	-	-	1x RS232/485 combo	
Protocols	Standard: EtherCAT Master, CANOpen Master, NTP, FTP Optional: Modbus RTU/TCP, SNMP, OPCuA, J1939, Ethernet/IP, PROFINET, BACnet, KNX, IoT				
Visualization	Target Visu (VNC Server), Optional: Web Visu (Web Server, HTML5)				
Additional features	2x Host USB 2.0 / USB plug type A				
	1x RTC, battery buffered				
	-	-	1x Micro SD-Card slot up to 32 GB		
Digital I/O´s	4x digital input, 4x digital output (0,5A)				
Analogue I/O´s	- 4x analog input (-10V..+10V, 2x PT100/PT1000) Resolution: 24 Bit				
Supply voltage	+24 VDC (-15% / +20%) SELV max. AC voltage component 5% with reverse voltage protection				
Current consumption device	Typ. 0,8 A, max. 1,2 A at +24 VDC				
Current consumption dig. outputs	depending on output load, continuous max. 2A				
Operating conditions Transport / storage	Ambient temperature: operational: 0 °C to 55 °C / transport -20 °C to +70 °C Ambient temperature: operational Dualcore: 0 °C to 50 °C / transport -20 °C to +70 °C Relative humidity: max. 85%, non-condensing				

# B-PRIMIS DC-PRO 15

## INFORMATION TECHNICAL DATA / DIMENSIONS

B-Primis DC-Pro 15	Specification				
Description	DC-Pro 15 S01	DC-Pro 15 S02	DC-Pro 15 S03	DC-Pro 15 S04	DC-Pro 15 S05
<b>EMC, Protection type</b>					
Emitted interference	EN 61131-2; EN 61000-6-4, industrial area				
Immunity to interference	EN 61131-2; EN 61000-6-2, industrial area				
Protection class	III				
Insulation strength	EN 61131-2				
Protection type	IP20, front IP54 (IP65 only with all securing clips attached)				
Vibration	Sinusoidal (EN 60068-2-6) test: Fc; 10 ... 150 Hz, 1 G (operation mode)				
Schock resistance	15 G (ca. 150 m/s <sup>2</sup> ), 11 ms duration, half-sine (EN 60068-2-27) test: Ea				



Dimensions B-Primis DC-Classic 15

# B-PRIMIS DC-PRIME 7

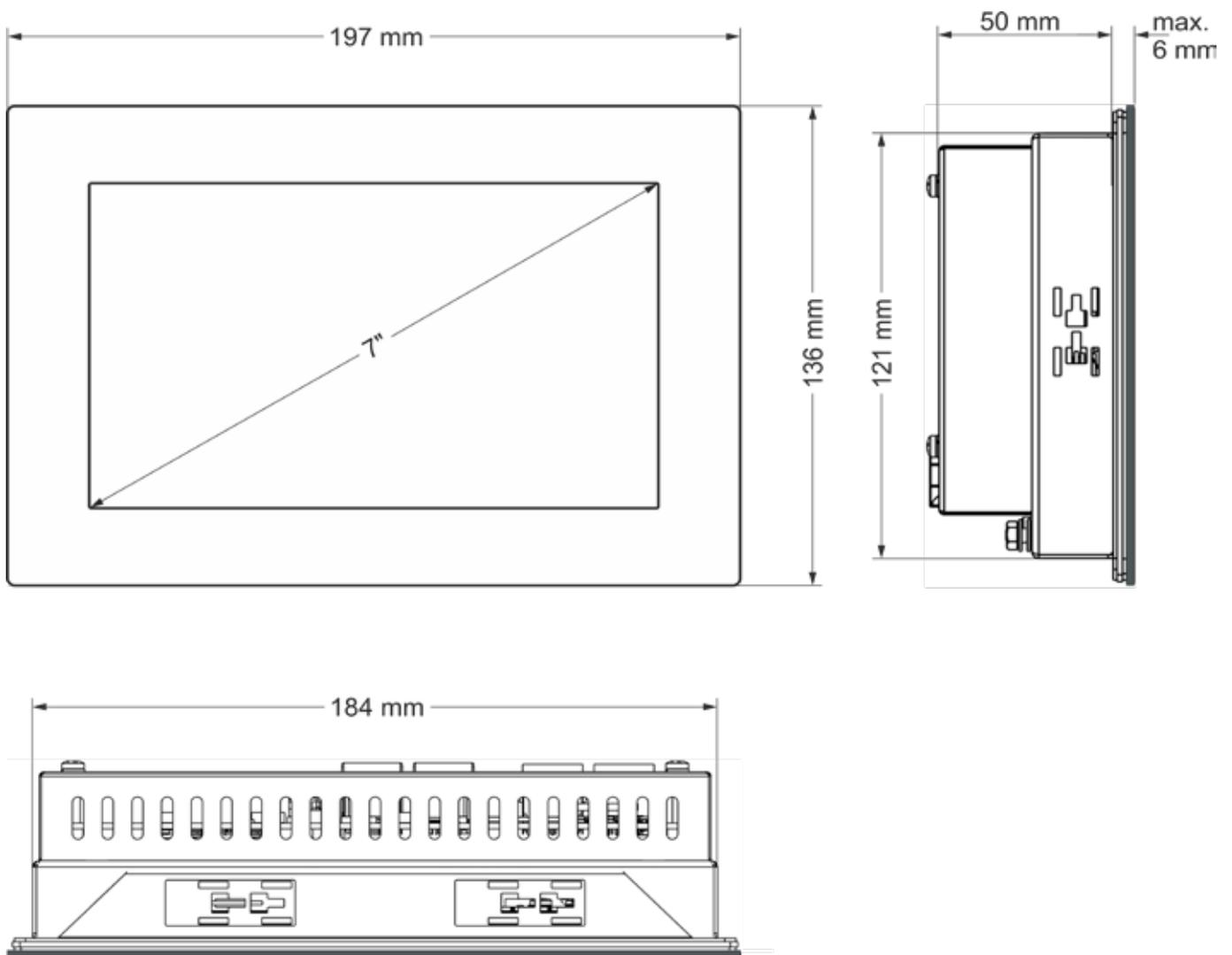
## INFORMATION TECHNICAL DATA

B-Primis DC-Prime 7	Specification				
	DC-Prime 7 S01	DC-Prime 7 S02	DC-Prime 7 S03	DC-Prime 7 S04	DC-Prime 7 S05
Order number	<b>S-01010104-0104</b>	<b>S-01010104-0204</b>	<b>S-01010104-0304</b>	<b>S-01010104-0404</b>	<b>S-01010104-0504</b>
Order number Dualcore	-	-	-	<b>S-01010104-2404</b>	<b>S-01010104-2504</b>
Dimensions WxHxD [mm]	197 x 136 x 56				
Display diagonals/resolution	7" Display / 800 x 480 (WVGA)				
Touch operation	Capacitive, multitouch				
Colours	TFT: 16,7 M (24 Bit/Pixels)				
Weight	approx. 2,5 Kg				
Mounting	removable securing clips				
Certification	CE (EN 61131-2)				
CPU	800 MHz ARM® CPU with Cortex™-A9 Single Core / Dualcore: 800 MHz ARM® CPU mit Cortex™-A9				
RAM / Flash / Retain	512 MB RAM 512 MB Flash 100 kB Retain		512 MB RAM / 1 GB Flash / 100 kB Retain		512 MB RAM / 2 GB Flash / 100 kB Retain
Dualcore	-	-	-	1 GB RAM / 2 GB Flash / 100 kB Retain	
Communication interfaces	1x Ethernet, 10/100 Base, RJ4				
	1x EtherCAT, RJ45				
	-	-	1x CAN Bus, RJ45		2x CAN Bus, RJ45
	-	-	-	1x RS232/485 combo	
Protocols	Standard: EtherCAT Master, CANOpen Master, NTP, FTP Optional: Modbus RTU/TCP, SNMP, OPCuA, J1939, Ethernet/IP, PROFINET, BACnet, KNX, IoT				
Visualization	Target Visu (VNC Server), Optional: Web Visu (Web Server, HTML5)				
Additional features	2x Host USB 2.0 / USB plug type A				
	1x RTC, battery buffered				
Digital I/O´s	- - - - 1x Micro SD-Card slot up to 32 GB				
Analogue I/O´s	4x digital inputs, 4x digital outputs (0,5A)				
Supply voltage	- - - - 4x analog input (-10V..+10V, 2x PT100/PT1000) Resolution: 24 Bit				
Current consumption device	+24 VDC (-15% / +20%) SELV max. AC voltage component 5% with reverse voltage protection				
Current consumption dig. outputs	Typ. 0,8 A, max. 1,2 A at +24 VDC				
Operating conditions Transport / storage	depending on output load, continuous max. 2A				
	Ambient temperature: operational: 0 °C to 55 °C / transport -20 °C to +70 °C Ambient temperature: operational Dualcore: 0 °C to 50 °C / transport -20 °C to +70 °C Relative humidity: max. 85%, non-condensing				

# B-PRIMIS DC-PRIME 7

## INFORMATION TECHNICAL DATA / DIMENSIONS

B-Primis DC-Prime 7	Specification				
Description	DC-Prime 7 S01	DC-Prime 7 S02	DC-Prime 7 S03	DC-Prime 7 S04	DC-Prime 7 S05
<b>EMC, Protection type</b>					
Emitted interference	EN 61131-2; EN 61000-6-4, industrial area				
Immunity to interference	EN 61131-2; EN 61000-6-2, industrial area				
Protection class	III				
Insulation strength	EN 61131-2				
Protection type	IP20, Front IP55				
Vibration	Sinusoidal (EN 60068-2-6) test: Fc; 10 ... 150 Hz, 1 G (operation mode)				
Schock resistance	15 G (ca. 150 m/s <sup>2</sup> ), 11 ms duration, half-sine (EN 60068-2-27) test: Ea				



Dimensions B-Primis DC-Prime 7

# B-PRIMIS DC-PRIME 10

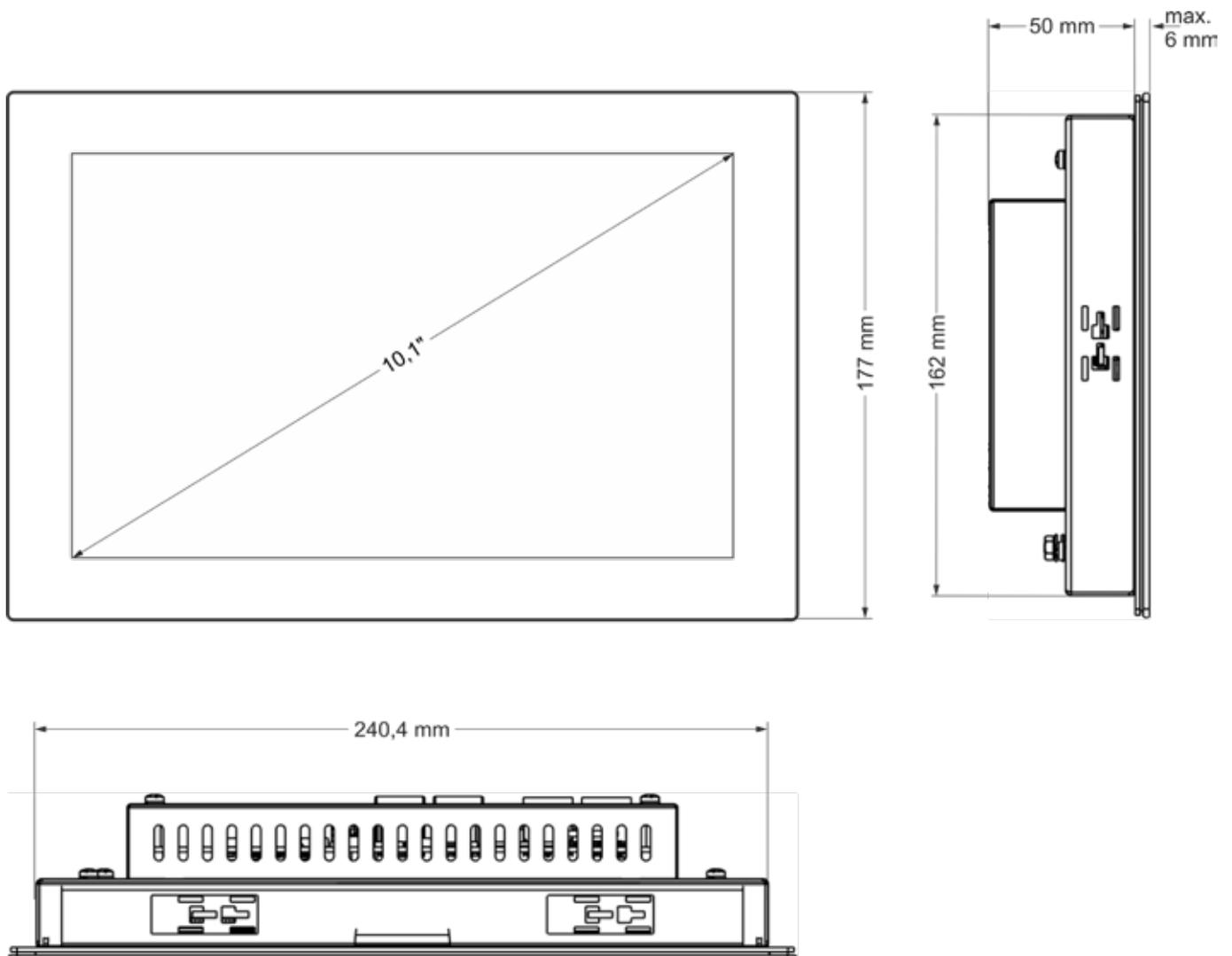
## INFORMATION TECHNICAL DATA

B-Primis DC-Prime 10	Specification					
	Description	DC-Prime 10 S01	DC-Prime 10 S02	DC-Prime10 S03	DC-Prime 10 S04	DC-Prime 10 S05
Order number	<b>S-01010104-0105</b>	<b>S-01010104-0205</b>	<b>S-01010104-0305</b>	<b>S-01010104-0405</b>	<b>S-01010104-0505</b>	
Order number Dualcore	-	-	-	<b>S-01010104-2405</b>	<b>S-01010104-2505</b>	
Dimensions WxHxD [mm]	259 x 177 x 55					
Display diagonals/resolution	10,1" Display / 1280 x 800 (WXGA)					
Touch operation	Capacitive, multitouch					
Colours	TFT: 16,7 M (24 Bit/Pixels)					
Weight	approx. 2,5 Kg					
Mounting	removable securing clips					
Certification	CE (EN 61131-2)					
CPU	800 MHz ARM® CPU with Cortex™-A9 Single Core / Dualcore: 2x 800 MHz ARM® CPU mit Cortex™-A9					
RAM / Flash / Retain	512 MB RAM		512 MB RAM	512 MB RAM		
	512 MB Flash		1 GB Flash	2 GB Flash		
Dualcore	100 kB Retain		100 kB Retain	100 kB Retain		
	-	-	-	1 GB RAM	2 GB Flash	
Communication interfaces	1x Ethernet, 10/100 Base, RJ45					
	1x EtherCAT, RJ45					
	-	-	1x CAN Bus, RJ45	2x CAN Bus, RJ45		
	-	-	-	1x RS232/485 combo		
Protocols	Standard: EtherCAT Master, CANOpen Master, NTP, FTP Optional: Modbus RTU/TCP, SNMP, OPCuA, J1939, Ethernet/IP, PROFINET, BACnet, KNX, IoT					
Visualization	Target Visu (VNC Server),Optional: Web Visu (Web Server, HTML5)					
Additional features	2x Host USB 2.0 / USB plug type A					
	1x RTC, battery buffered					
Digital I/O´s	- 1x Micro SD-Card slot up to 32 GB					
Analogue I/O´s	4x digital inputs, 4x digital outputs (0,5A)					
Supply voltage	- 4x analog input (-10V..+10V, 2x PT100/PT1000) Resolution: 24 Bit					
Current consumption device	+24 VDC (-15% / +20%) SELV max. AC voltage component 5% with reverse voltage protection					
Current consumption dig. outputs	Typ. 0,8 A, max. 1,2 A at +24 VDC					
Operating conditions Transport / storage	depending on output load, continuous max. 2A					
	Ambient temperature: operational: 0 °C to 55 °C / transport -20 °C to +70 °C Ambient temperature: operational Dualcore: 0 °C to 50 °C / transport -20 °C to +70 °C Relative humidity: max. 85%, non-condensing					

# B-PRIMIS DC-PRIME 10

## INFORMATION TECHNICAL DATA / DIMENSIONS

B-Primis DC-Prime 10	Specification				
Description	DC-Prime 10 S01	DC-Prime 10 S02	DC-Prime 10 S03	DC-Prime 10 S04	DC-Prime 10 S05
<b>EMC, Protection type</b>					
Emitted interference	EN 61131-2; EN 61000-6-4, industrial area				
Immunity to interference	EN 61131-2; EN 61000-6-2, industrial area				
Protection class	III				
Insulation strength	EN 61131-2				
Protection type	IP20, front IP55				
Vibration	Sinusoidal (EN 60068-2-6) test: Fc; 10 ... 150 Hz, 1 G (operation mode)				
Schock resistance	15 G (approx. 150 m/s <sup>2</sup> ), 10 ms duration, half-sine (EN 60068-2-27) test: Ea				



Dimensions B-Primis DC-Prime 10

# B-PRIMIS DC-PRIME 15

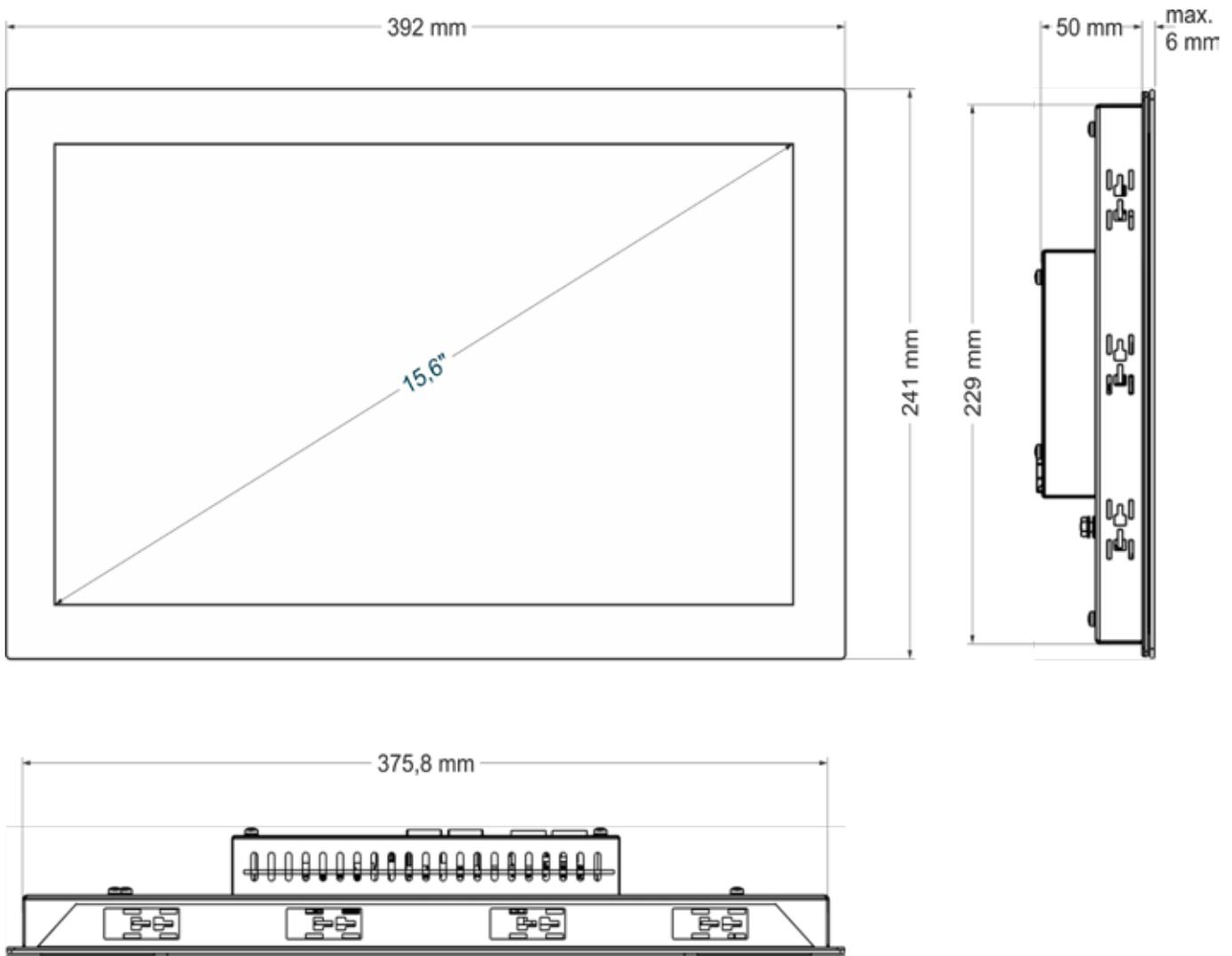
## INFORMATION TECHNICAL DATA

B-Primis DC-Prime 15	Specification				
Description	DC-Prime 15 S01	DC-Prime 15 S02	DC-Prime 15 S03	DC-Prime 15 S04	DC-Prime 15 S05
Order number	<b>S-01010104-0108</b>	<b>S-01010104-0208</b>	<b>S-01010104-0308</b>	<b>S-01010104-0408</b>	<b>S-01010104-0508</b>
Order number Dualcore	-	-	-	<b>S-01010104-2408</b>	<b>S-01010104-2508</b>
Dimensions WxHxD [mm]	391 x 241 x 55				
Display diagonals/resolution	15,6" Display / 1920 x 1080 Full HD				
Touch operation	Capacitive, multitouch				
Colours	TFT: 16,7 M (24 Bit/Pixels)				
Weight	approx. 3 Kg				
Mounting	removable securing clips				
Certification	CE (EN 61131-2)				
CPU	800 MHz ARM® CPU with Cortex™-A9 Single Core / Dualcore: 2x 800 MHz ARM® CPU mit Cortex™-A9				
RAM / Flash / Retain	512 MB RAM		512 MB RAM	512 MB RAM	
	512 MB Flash		1 GB Flash	2 GB Flash	
Dualcore	100 kB Retain		100 kB Retain	100 kB Retain	
	-	-	-	1 GB RAM	2 GB Flash
Communication interfaces	1x Ethernet, 10/100 Base, RJ45				
	1x EtherCAT, RJ45				
	-	-	1x CAN Bus, RJ45		2x CAN Bus, RJ45
	-	-	-	1x RS232/485 combo	1x RS232/485 combo
Protocols	Standard: EtherCAT Master, CANOpen Master, NTP, FTP Optional: Modbus RTU/TCP, SNMP, OPCuA, J1939, Ethernet/IP, PROFINET, BACnet, KNX, IoT				
Visualization	Target Visu (VNC Server), Optional: Web Visu (Web Server, HTML5)				
Additional features	2x Host USB 2.0 / USB plug type A				
	1x RTC, battery buffered				
	-	-	1x Micro SD-Card Slot bis 32 GB		
Digital I/O´s	4x digital Inputs, 4x digitaler outputs (0,5A)				
Analogue I/O´s	- 4x analog input (-10V..+10V, 2x PT100/PT1000) Resolution: 24 Bit				
Supply voltage	+24 VDC (-15% / +20%) SELV max. AC voltage component 5% with reverse voltage protection				
Current consumption device	Typ. 0,8 A, max. 1,2 A at +24 VDC				
Current consumption dig. outputs	depending on output load, continuous max. 2A				
Operating conditions Transport / storage	Ambient temperature: operational: 0 °C to 55 °C / transport -20 °C to +70 °C Ambient temperature: operational Dualcore: 0 °C to 50 °C / transport -20 °C to +70 °C Relative humidity: max. 85%, non-condensing				

# B-PRIMIS DC-PRIME 15

## INFORMATION TECHNICAL DATA / DIMENSIONS

B-Primis DC-Prime 15	Specification				
Description	DC-Prime 15 S01	DC-Prime 15 S02	DC-Prime 15 S03	DC-Prime 15 S04	DC-Prime 15 S05
<b>EMC; protection type</b>					
Emitted interference	EN 61131-2; EN 61000-6-4, industrial area				
Immunity to interference	EN 61131-2; EN 61000-6-2, industrial area				
Protection class	III				
Insulation strength	EN 61131-2				
Protection type	IP20, Front IP55				
Vibration	Sinusoidal (EN 60068-2-6) test: Fc;10 ... 150 Hz, 1 G (operation mode)				
Schock resistance	15 G (approx. 150 m/s <sup>2</sup> ), 10 ms duration, half-sine (EN 60068-2-27) test: Ea				



Dimensions B-Primis DC-Prime 15

# B-PRIMIS DC-RACK 7

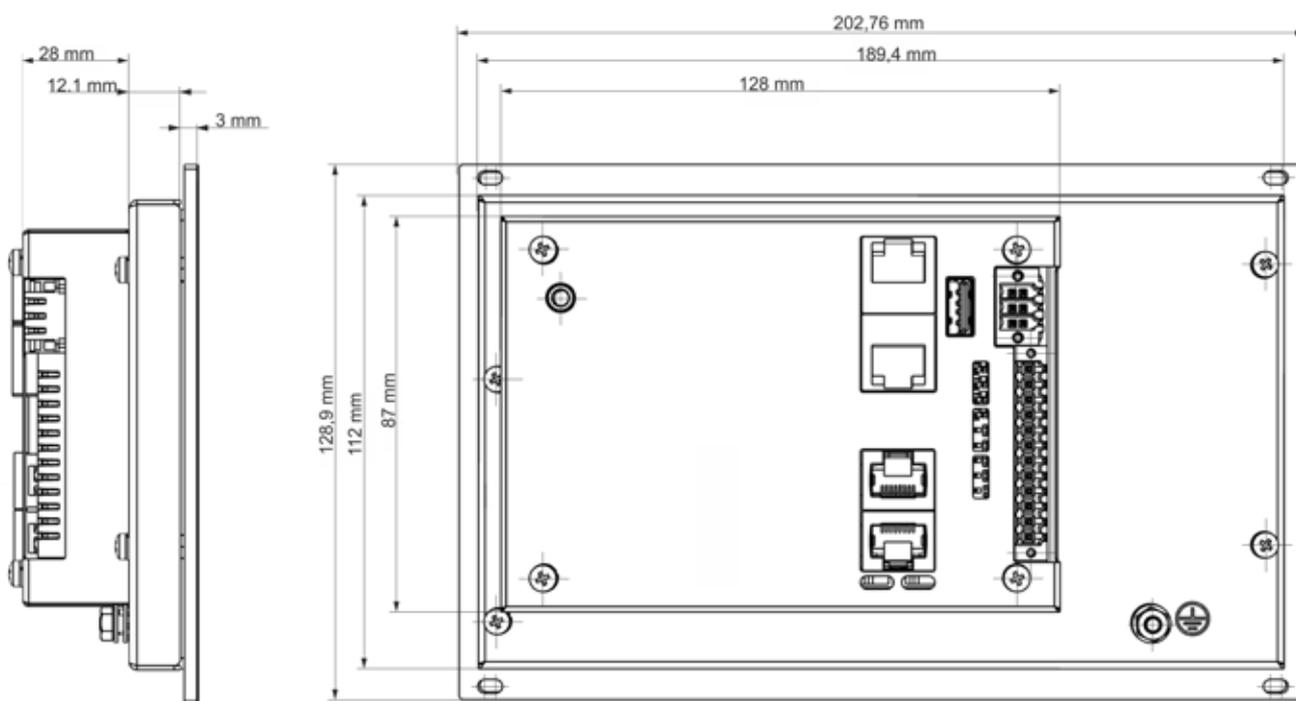
## INFORMATION TECHNICAL DATA

B-Primis DC-Rack 7	Specification			
	DC-Rack 7 S01	DC-Rack 7 S02	DC-Rack 7 S04	DC-Rack 7 S05
Order number	<b>S-01010106-0104</b>	<b>S-01010106-0204</b>	<b>S-01010106-0404</b>	<b>S-01010106-0504</b>
Order number Dualcore	-	-	<b>S-01010106-2404</b>	<b>S-01010106-2504</b>
Dimensions WxHxD [mm]	202,76 x 128,9 x 43,1 (3 HE)			
Display diagonals/ Resolution	7" Display / 800 x 480 (WVGA)			
Touch operation	Resistive			
Colours	TFT: 16,7 M (24 Bit/Pixels)			
Weight	approx. 600 g			
Mounting	Geschraubt			
Certification	CE (EN 61131-2) / $\ul_{us}$ (UL 61010-2-201)			
CPU	800 MHz ARM® CPU with Cortex™-A9 Single Core / Dualcore: 800 MHz ARM® CPU with Cortex™-A9			
RAM / Flash / Retain	256 MB RAM / 256 MB Flash / 100 kb Retain			
Dualcore	-	-	512 MB RAM / 256 MB Flash/ 100 kB Retain	
Communication interfaces	1x Ethernet, 10/100 Base, RJ45			
	1x EtherCAT, RJ45			
	-	-	2x CAN Bus, RJ45	
	-	-	1x RS232/485 Combo	
Protocols	Standard: EtherCAT Master, CANOpen Master, NTP, FTP Optional: Modbus RTU/TCP, SNMP, OPCuA, J1939, Ethernet/IP, PROFINET, BACnet, KNX, IoT			
Visualization	Target Visu (VNC Server), Optional: Web Visu (Web Server, HTML5)			
Additional features	1x Host USB 2.0 / USB plug type A			
	1x RTC, battery buffered			
Digital I/O's	4x digital input, 4x digital output (0,5A)			
Analogue I/O's	- 4x analog input (-10V..+10V, 2x PT100/PT1000) Resolution: 24 Bit			
Supply voltage	+24 VDC (-15% / +20%) SELV max. AC voltage component 5% with reverse voltage protection			
Current consumption device	Typ. 0,3 A, max. 1,2 A at +24 VDC			
Current consumption dig. outputs	depending on output load, continuous max. 2A			
Operating conditions Transport / storage	Ambient temperature: operational: 0 °C to 55 °C / transport -20 °C to +70 °C Ambient temperature: operational Dualcore: 0 °C to 50 °C / transport -20 °C to +70 °C Relative humidity: max. 85%, non-condensing			

# B-PRIMIS DC-RACK 7

## INFORMATION TECHNISCHE DATA / DIMENSIONS

B-Primis DC-Rack 7	Specification			
Description	DC-Rack 7 S01	DC-Rack 7 S02	DC-Rack 7 S04	DC-Rack 7 S05
<b>EMC, protection type</b>				
Emitted interference	EN 61131-2; EN 61000-6-3, living area			
Immunity to interference	EN 61131-2; EN 61000-6-2, industrial area			
Protection class	III			
Insulation strength	EN 61131-2			
Protection type	IP20, Front IP54			
Vibration	Sinusoidal (EN 60068-2-6) test: Fc;10 ... 150 Hz, 1 G (operation mode)			
Schock resistance	15 G (approx. 150 m/s <sup>2</sup> ), 10 ms duration, half-sine (EN 60068-2-27) test: Ea			



Dimensions B-Primis DC-Rack 7

PIONEERING AUTOMATION TECHNOLOGY

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# TOUCH PANELS

B-PRIMIS ET-PRO

B-PRIMIS ET-PRIME

# B-PRIMIS ET - TOUCH PANELS

BERGHOF AUTOMATION AND CONTROL SOLUTIONS

- Exceptionally high-quality design, only available from Berghof
- Bright and brilliant displays
- HTML 5 Web and Target Visualization
- Unconditionally trimmed for performance
- High input accuracy
- Touchscreen in analog-resistive or projective-capacitive technology
- Operation with gloves even in dirty and wet conditions
- Horizontal and vertical application
- Support of various mounting options
- Ethernet, SD card slot, USB connection and LED displays integrated as standard

Touch panels

# B-PRIMIS ET

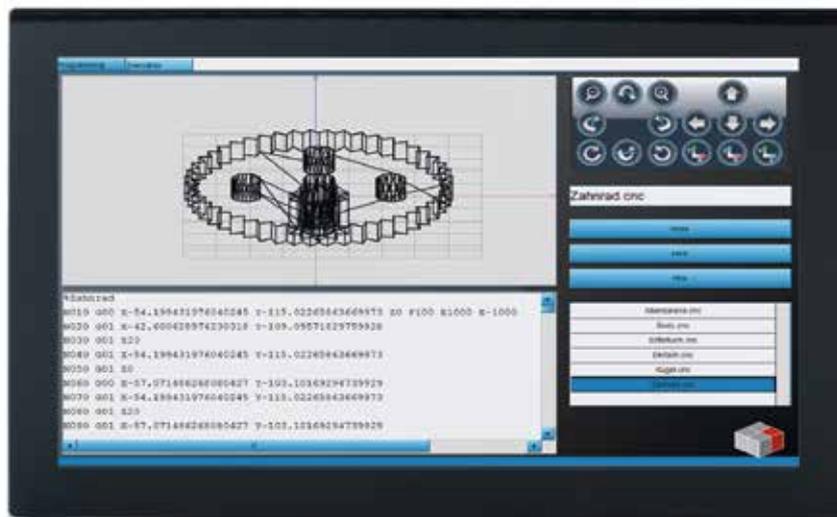
## Extra-class touch panels

The Panel Series B-Primis continues the successful previous generation with new possibilities, including its hereditary traits and with respect for the already existing characteristics. With the PRO series resistive touch panels are available, the PRIME series includes operator terminals in capacitive design. The devices already show their inside on the outside: With a high-quality frame, B-Primis PRO impress at every installation location and characterise the exclusivity of the machine, whereas B-Primis PRIME shines without a frame – a novelty in the market. Products with clean front are a matter of course for us. High-performance hardware ensures smooth operation and a data-secure connection to attached systems. Ethernet as communication interface as well as USB host and SD card slot are not common in this class, but allow a multitude of supporting functions and are integrated in the Berghof standard. The devices can be easily connected to other control components such as the Berghof CC- or MC- system or control systems from other manufacturers due to the unconditional compliance with general regulations.

Touch panel on request without logo, in your corporate design or completely customized

Protection up to IP65, matched components offer operation even with water and dirt on it

Mounting brackets in various designs, already integrated depending on model



Maintenance-free units in fan-less standard design, available with approvals for worldwide use

FullHD, widescreen, wide viewing angle 85° – selected details of the B-Primis PRIME

System integration ideally implemented via standardized interfaces and matched software

# B-PRIMIS ET-PRO



## Exceptionally clean

by means of continuous, nicheless clean front without edges

## Robust throughout

due to a multi-layer front foil construction with high resistance to many chemicals and a particularly torsion-resistant design of the mechanics in the metal housing

## Easy and safe to assemble

due to integrated retaining clamps, tool-less / snap-in installation; as well as overload, short-circuit, reverse polarity and overvoltage-proof design, wiring errors are no danger

## Logical in commissioning

including a central service welcome page, which starts without further installation effort and offers the possibility to set all required configurations directly on the device

## Wide range of applications

thanks to approval in the „Basic electromagnetic environment“ according to EN 61326-1/ Residential, small business, laboratory, etc.

## Performance in plenty

through the use of state of the art components with 800 MHz ARM®CPU A9 single core (optional dual or quad core) and up to 4GB RAM / 512MB Flash / 64bit Bus onboard

## Impressive visualization

by means of bright and brilliant displays (> 400 Cd/m<sup>2</sup>) and also centrally adjustable brightness from the control system

## Sovereign in use

due to the universally applicable HTML 5 web browser, target visualization via VNC protocol

## Well thought-out equipment

with possible application update via USB, connection of a control mouse and display LEDs

## Environmentally friendly across the board

through energy-saving components and software functions as well as appropriate packaging

# B-PRIMIS ET-PRIME



## Outstanding operation

also with gloves on a surface exposed to water and dirt

## Versatile preparation

thanks to capacitive touch and enabled gesture control

## Variable in use

with panel mounting as well as prepared for narrow cut operating housings also with support arm and lift system

## Environmentally friendly across the board

through energy-saving components and software functions as well as appropriate packaging

## Professional future

from the combination of performance and properties

## Powerful supplement

of the B-Primis ET-PRO, of course with continuation of its features

## Uniquely designed

without frame, which means full flexibility in installation

## Brilliant in display

due to a high-class display with 85° viewing angle in all directions and particularly clear colour reproduction

## Strong appearance

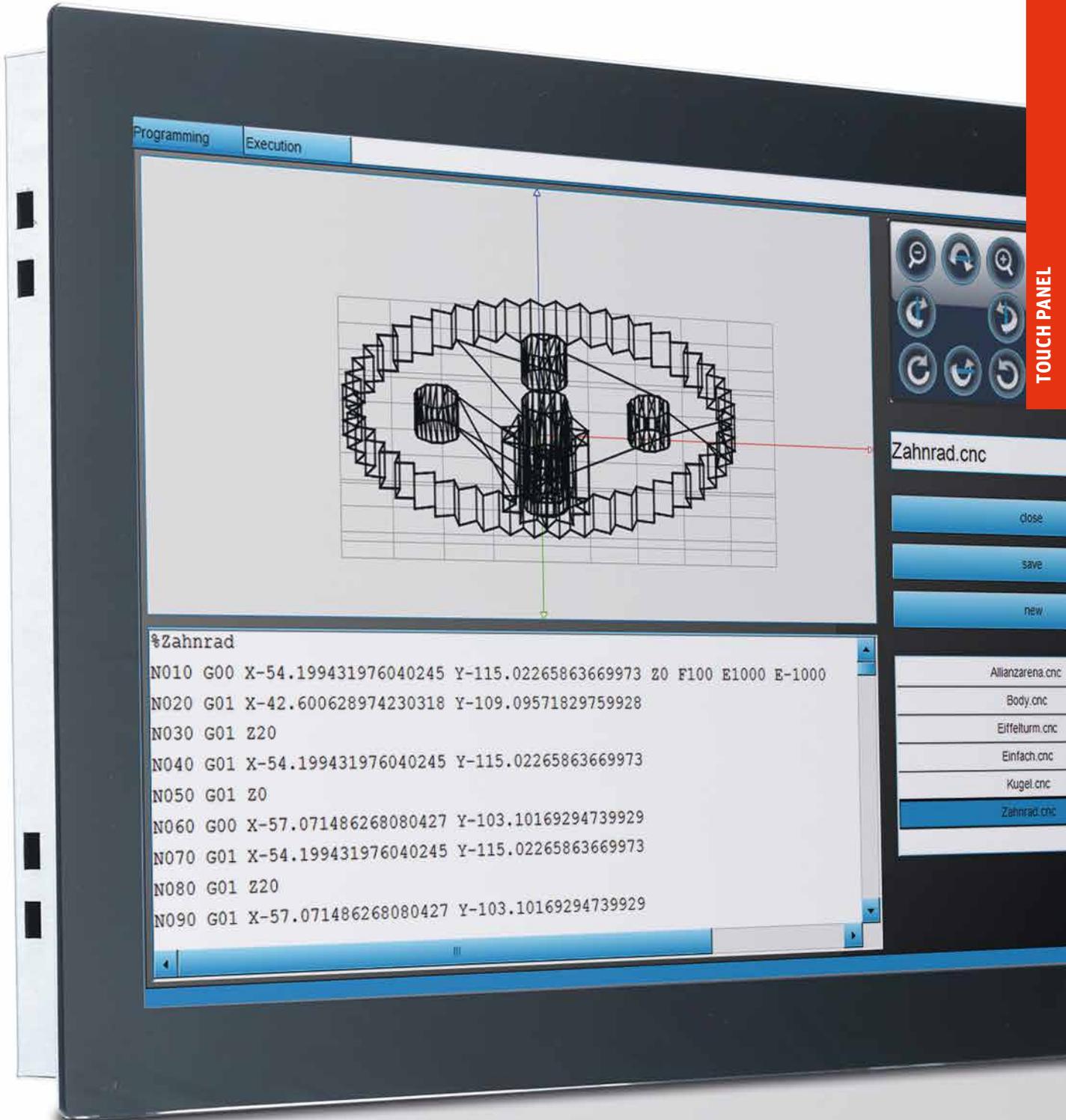
through chemically hardened glass in the extraordinarily stable 2mm version

## Optimal image

with widescreen resolutions and up to Full-HD at 1920x1080 pixels



# B-PRIMIS ET-PRIME



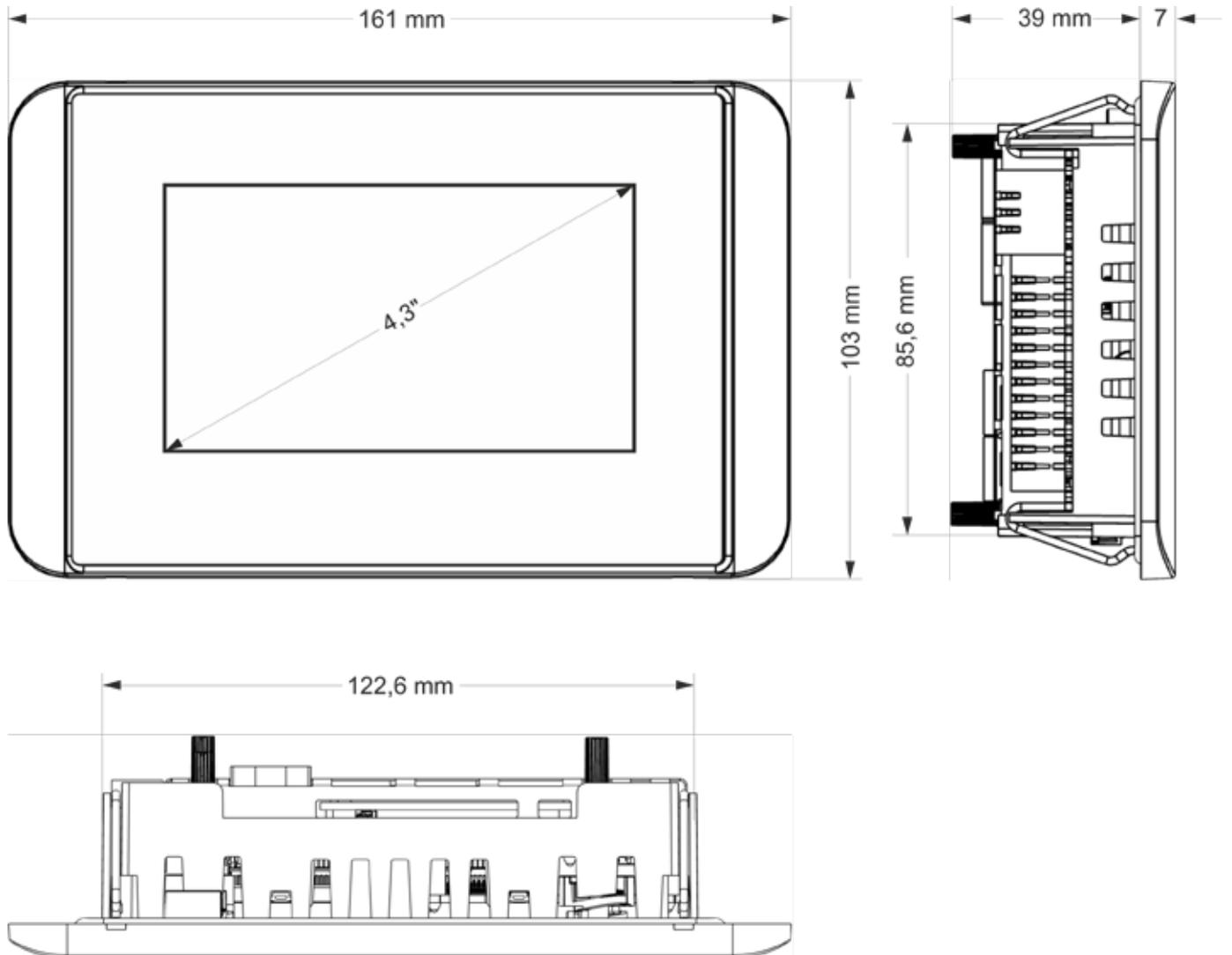
# B-PRIMIS ET-PRO 4

## INFORMATION TECHNICAL DATA

B-Primis ET-PRO 4	Specification
Description	ET-PRO 4 S02
Order number	<b>S-01010202-0201</b>
Dimensions WxHxD [mm]	161 x 103 x 42
Display diagonals/resolution	4,3" display / 480 x 272 (WQVGA)
Touch type	Resistive
Colours	TFT: 16,7 M (24 Bit/Pixels)
Weight	approx. 450 g
Mounting	Integrated securing clips
Certification	CE (EN 61131-2) / <sub>c</sub> UL <sub>us</sub> (UL 61010-2-201)
CPU	800 MHz ARM® CPU with Cortex™-A9 Single Core
RAM / Flash storage	512 MB RAM / 512 MB Flash
Communication interfaces	1x Ethernet, 10/100 Base, RJ45
Visualization	Target Visu (VNC Client), Web Visu (Web Client, HTML5)
Additional features	1x Host USB 2.0 / USB plug type A
Supply voltage	+24 VDC (-15% / +20%) SELV max. AC voltage component 5% with reverse voltage protection
Current consumption	Typ. 0,3 A, max. 1,2 A at +24 VDC
Operating conditions Transport / Storage	Ambient temperature: operational: 0 °C to 55 °C / transport -20 °C to +70 °C Relative humidity: max. 85%, non-condensing
<b>EMC, protection type</b>	
Emitted Interface	EN 61000-6-3, living area
Immunity to interface	EN 61000-6-2, industrial area
Protection class	III
Insulation strength	EN 61131-2
Protection type	IP20, front IP54 (IP65 only with twist locks catches tightend)
Vibration	Sinusoidal (EN 60068-2-6) test: Fc; 10 ... 150 Hz, 1 G (operation mode)
Schock resistance	15 G (approx. 150 m/s <sup>2</sup> ), 10 ms duration, half-sine (EN 60068-2-27) test: Ea

# B-PRIMIS ET-PRO 4

## INFORMATION DIMENSIONS



Dimensions B-Primis ET-Pro 4

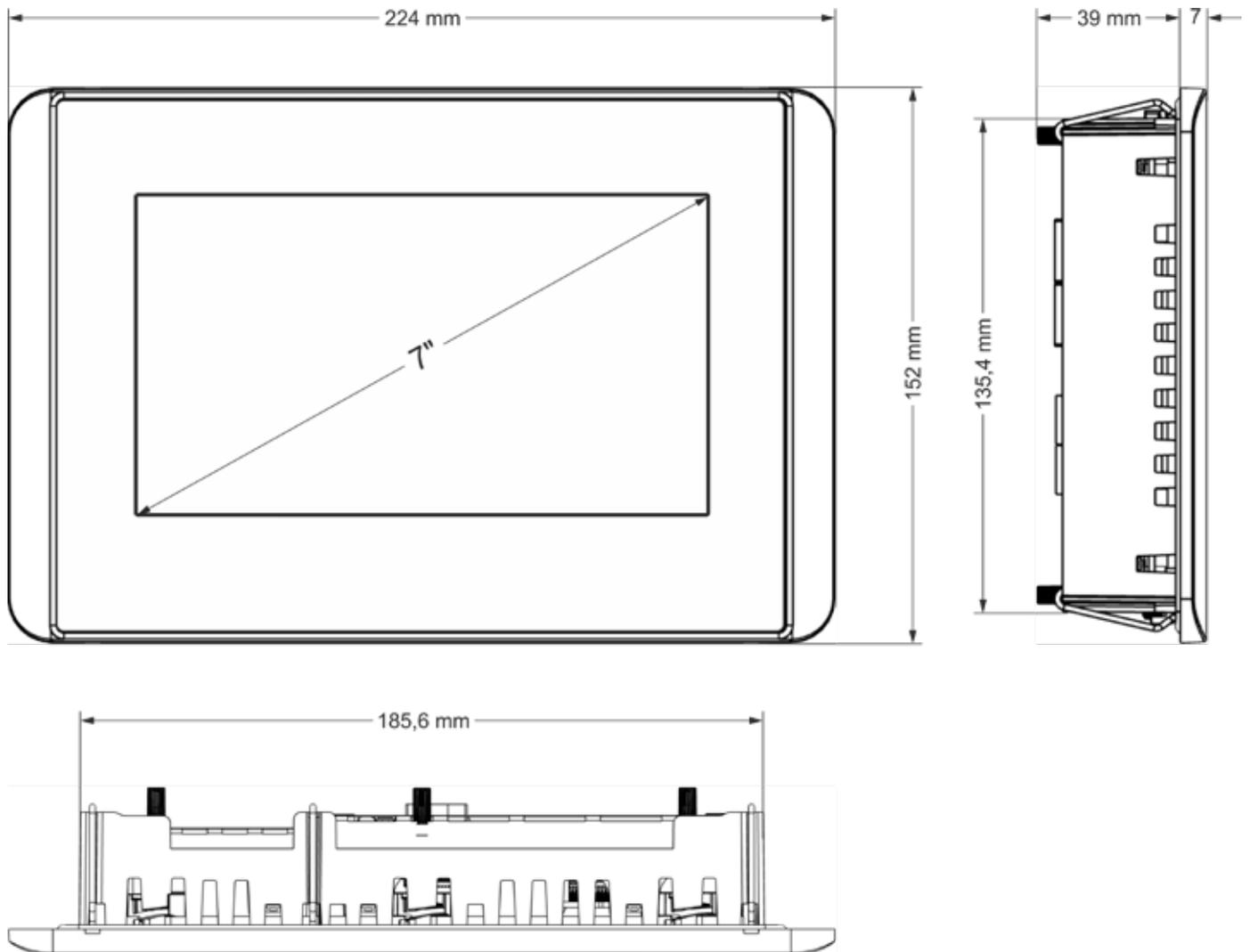
# B-PRIMIS ET-PRO 7

## INFORMATION TECHNICAL DATA

B-Primis ET-PRO 7	Specification
Description	ET-PRO 7 S02
Order number	<b>S-01010202-0204</b>
Dimensions WxHxD [mm]	222 x 152 x 45
Display diagonals/resolution	7" display / 800 x 480 (WVGA)
Touch type	Resistive
Colours	TFT: 16,7 M (24 Bit/Pixels)
Weight	approx. 600 g
Mounting	Integrated securing clips
Certification	CE (EN 61131-2) / <sub>c</sub> UL <sub>us</sub> (UL 61010-2-201)
CPU	800 MHz ARM® CPU with Cortex™-A9 Single Core
RAM / Flash storage	512 MB RAM / 512 MB Flash
Communication interfaces	1x Ethernet, 10/100 Base, RJ45
Visualization	Target Visu (VNC Client), Web Visu (Web Client, HTML5)
Additional features	1x Host USB 2.0 / USB plug type A
Supply voltage	+24 VDC (-15% / +20%) SELV max. AC voltage component 5% with reverse voltage protection
Current consumption	Typ. 0,3 A, max. 1,2 A at +24 VDC
Operating conditions Transport / Storage	Ambient temperature: operational: 0 °C to 55 °C / transport -20 °C to +70 °C Relative humidity: max. 85%, non-condensing
<b>EMC, protection type</b>	
Emitted Interface	EN 61000-6-3, living area
Immunity to interface	EN 61000-6-2, industrial area
Protection class	III
Insulation strength	EN 61131-2
Protection type	IP20, front IP54 (IP65 only with twist locks catches tightend)
Vibration	Sinusodial (EN 60068-2-6) test: Fc; 10 ... 150 Hz, 1 G (operation mode)
Schock resistance	15 G (approx. 150 m/s <sup>2</sup> ), 10 ms duration, half-sine (EN 60068-2-27) test: Ea

# B-PRIMIS ET-PRO 7

## INFORMATION DIMENSIONS



Dimensions B-Primis ET-Pro 7

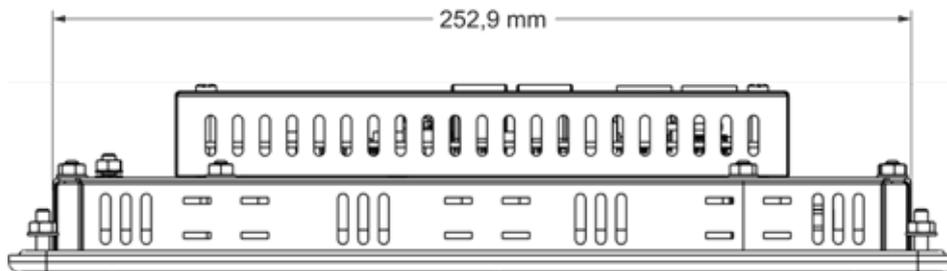
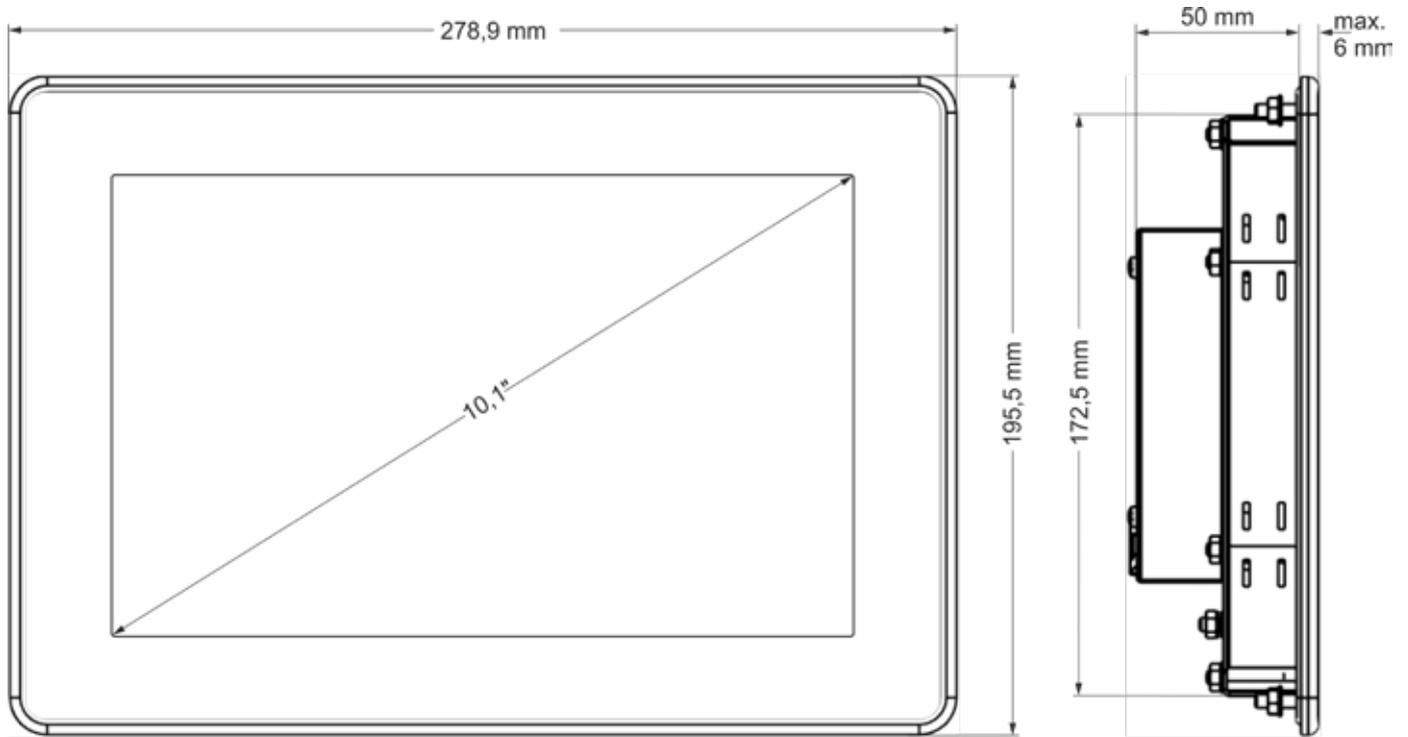
# B-PRIMIS ET-PRO 10

## INFORMATION TECHNICAL DATA

B-Primis ET-Pro 10	Specification
Description	ET-Pro 10 S02
Order number	<b>S-01010202-0205</b>
Dimensions WxHxD [mm]	283 x 198 x 55
Display diagonals/resolution	10,1" Display / 1280 x 800 (WXGA)
Touch type	Resistive
Colours	TFT: 16,7 M (24 Bit/Pixels)
Weight	approx. 2,5 Kg
Mounting	bolt mounting, additional option with securing clips for front IP65
Certification	CE (EN 61131-2)
CPU	800 MHz ARM® CPU with Cortex™-A9 Single Core
RAM / Flash storage	512 MB RAM / 2 GB Flash
Communication interfaces	1x Ethernet, 10/100 Base, RJ45
Visualisization	Target Visu (VNC Client), Web Visu (Web Client, HTML5)
Additional features	1x Host USB 2.0 / USB plug type A
Supply voltage	+24 VDC (-15% / +20%) SELV max. AC voltage component 5% with reverse voltage protection
Current consumption	Typ. 0,3 A, max. 1,2 A at +24 VDC
Operating conditions Transport / Storage	Ambient temperature: operational: 0 °C to 55 °C / transport -20 °C to +70 °C Relative humidity: max. 85%, non-condensing
<b>EMC, protection type</b>	
Emitted Interface	EN 61000-6-4, industrial area
Immunity to interface	EN 61000-6-2, industrial area
Protection class	III
Insulation strength	EN 61131-2
Protection type	IP20, front IP54 (IP65 only with all securing clips attached)
Vibration	Sinusodial (EN 60068-2-6) test: Fc; 10 ... 150 Hz, 1 G (operation mode)
Schock resistance	15 G (approx. 150 m/s <sup>2</sup> ), 10 ms duration, half-sine (EN 60068-2-27) test: Ea

# B-PRIMIS ET-PRO 10

## INFORMATION DIMENSIONS



Dimensions B-Primis ET-Pro 10

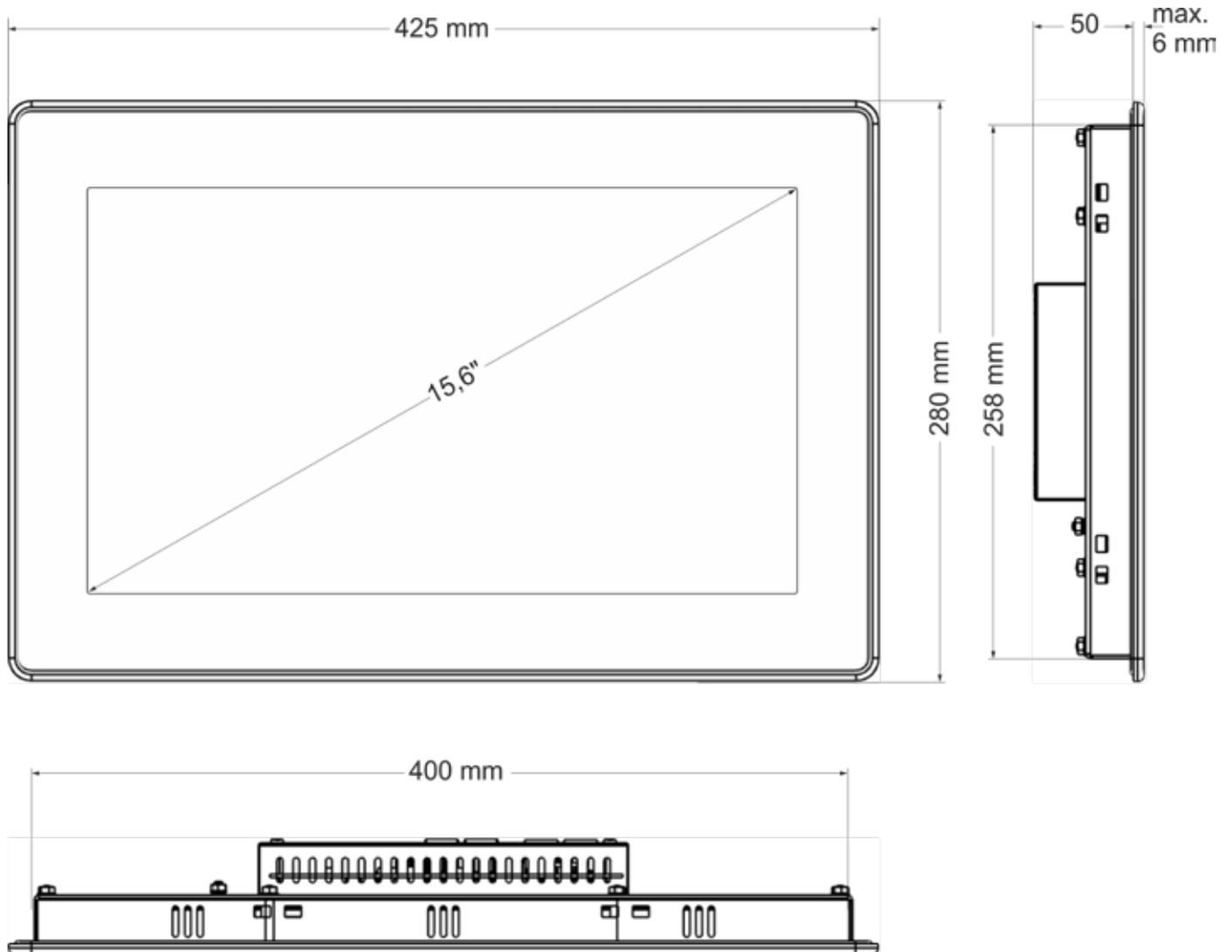
# B-PRIMIS ET-PRO 15

## INFORMATION TECHNICAL DATA

B-Primis ET-Pro 15	Specification
Description	ET-Pro 15 S02
Order number	<b>S-01010202-0208</b>
Dimensions WxHxD [mm]	425 x 280 x 55
Display diagonals/resolution	15,6" display / 1366 x 768 (WXGA)
Touch type	Resistive
Colours	TFT: 16,7 M (24 Bit/Pixels)
Weight	approx. 3 kg
Mounting	removable securing clips
Certification	CE (EN 61131-2) / $cUL_{us}$ (UL 61010-2-201)
CPU	800 MHz ARM® CPU with Cortex™-A9 Single Core
RAM / Flash storage	512 MB RAM / 2 GB Flash
Communication interfaces	1x Ethernet, 10/100 Base, RJ45
Visualisation	Target Visu (VNC Client), Web Visu (Web Client, HTML5)
Additional features	1x Host USB 2.0 / USB plug type A
Supply voltage	+24 VDC (-15% / +20%) SELV max. AC voltage component 5% with reverse voltage protection
Current consumption	Typ. 0,3 A, max. 1,2 A at +24 VDC
Operating conditions Transport / Storage	Ambient temperature: operational: 0 °C to 55 °C / transport -20 °C to +70 °C Relative humidity: max. 85%, non-condensing
<b>EMC, protection type</b>	
Emitted Interface	EN 61000-6-4, industrial area
Immunity to interface	EN 61000-6-2, industrial area
Protection class	III
Insulation strength	EN 61131-2
Protection type	IP20, front IP54 (IP65 only with all securing clips attached)
Vibration	Sinusoidal (EN 60068-2-6) test: Fc; 10 ... 150 Hz, 1 G (operation mode)
Schock resistance	15 G (approx. 150 m/s <sup>2</sup> ), 10 ms duration, half-sine (EN 60068-2-27) test: Ea

# B-PRIMIS ET-PRO 15

## INFORMATION DIMENSIONS



Dimensions B-Primis ET-Pro 15

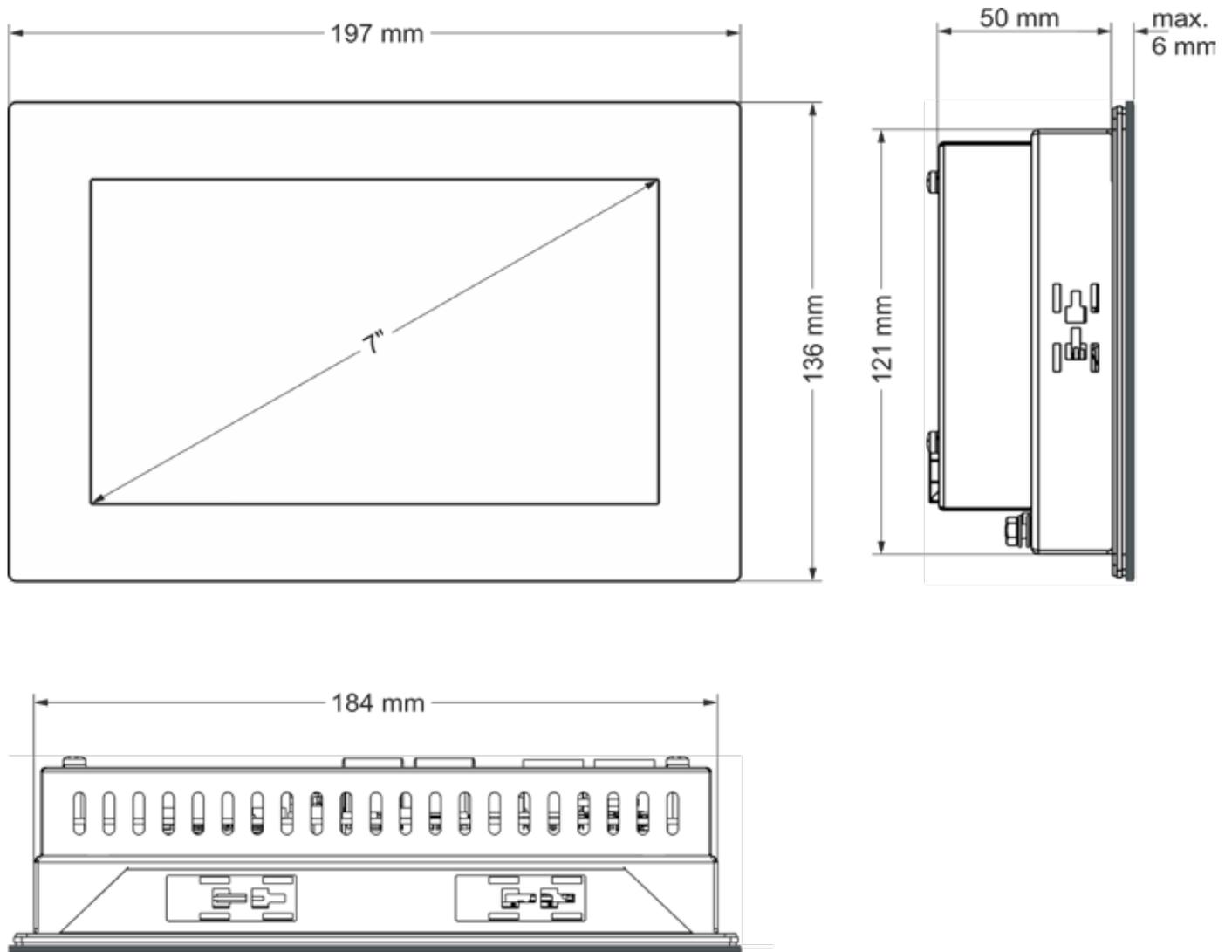
# B-PRIMIS ET-PRIME 7

## INFORMATION TECHNICAL DATA

B-Primis ET-Prime 7	Specification
Description	ET-Prime 7 S02
Order number	<b>S-01010203-0204</b>
Dimensions WxHxD [mm]	197 x 136 x 56
Display diagonals / Resolution	7" display / 800 x 480 (WVGA)
Touch type	Capacitive
Colours	TFT: 16,7 M (24 Bit/Pixel)
Weight	approx. 2 kg
Mounting	Removable securing clips
Certification	CE (EN 61131-2)
CPU	800 MHz ARM CPU mit Cortex™-A9 Single Core
RAM / Flash storage	512 MB RAM / 2 GB Flash
Communication interfaces	1x Ethernet, 10/100 Base, RJ45
Visualization	Target Visu (VNC Client), Web Visu (Web Client, HTML5)
Additional features	1x Host USB 2.0 / USB plug type A
Supply voltage	+24 VDC (-15% / +20%) SELV max. AC voltage component 5% with reverse voltage protection
Current consumption	Typ. 0,3 A, max. 1,2 A at +24 VDC
Operating conditions Transport / Storage	Ambient temperature: operational: 0 °C to 55 °C / transport -20 °C to +70 °C Relative humidity: max. 85%, non-condensing
<b>EMC, protection type</b>	
Emitted Interface	EN 61000-6-4, industrial area
Immunity to interface	EN 61000-6-2, industrial area
Protection class	III
Insulation strength	EN 61131-2
Protection type	IP20, front IP55 (IP65 only with twist locks catches tightend)
Vibration	Sinusoidal (EN 60068-2-6) test: Fc; 10 ... 150 Hz, 1 G (operation mode)
Schock resistance	15 G (approx. 150 m/s <sup>2</sup> ), 10 ms duration, half-sine (EN 60068-2-27) test: Ea

# B-PRIMIS ET-PRIME 7

## INFORMATION DIMENSIONS



Dimensions B-Primis ET-Prime 7

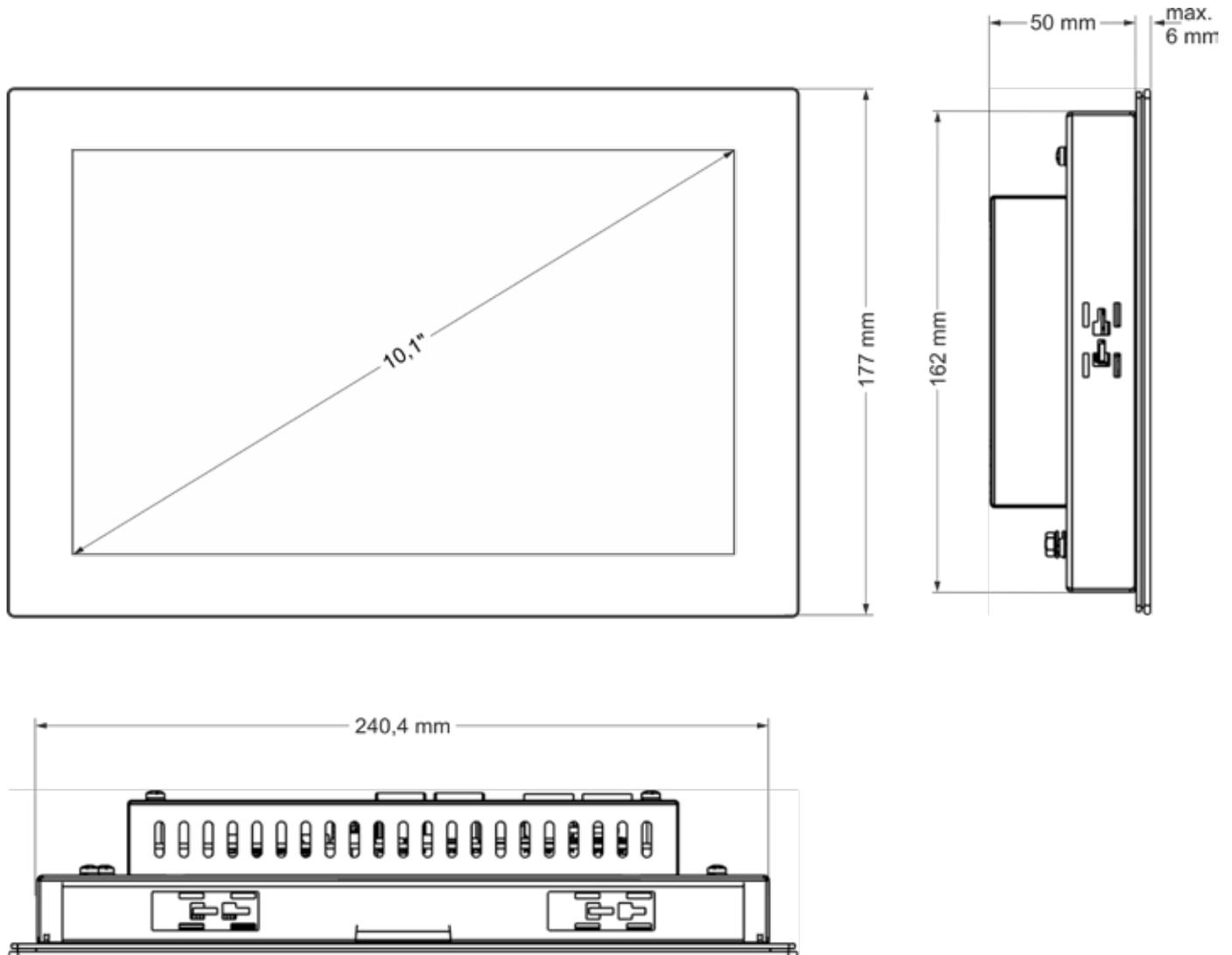
# B-PRIMIS ET-PRIME 10

## INFORMATION TECHNICAL DATA

B-Primis ET-Prime 10	Specification
Description	ET-Prime 10 S02
Order number	<b>S-01010203-0205</b>
Dimensions WxHxD [mm]	259 x 177 x 55
Display diagonals / Resolution	10,1" display / 1280 x 800 (WXGA)
Touch type	Capacitive
Colours	TFT: 16,7 M (24 Bit/Pixel)
Weight	approx. 2,5 kg
Mounting	Removable securing clips
Certification	CE (EN 61131-2)
CPU	800 MHz ARM CPU mit Cortex™-A9 Single Core
RAM / Flash storage	512 MB RAM / 2 GB Flash
Communication interfaces	1x Ethernet, 10/100 Base, RJ45
Visualization	Target Visu (VNC Client), Web Visu (Web Client, HTML5)
Additional features	1x Host USB 2.0 / USB plug type A
Supply voltage	+24 VDC (-15% / +20%) SELV max. AC voltage component 5% with reverse voltage protection
Current consumption	Typ. 0,3 A, max. 1,2 A at +24 VDC
Operating conditions Transport / Storage	Ambient temperature: operational: 0 °C to 55 °C / transport -20 °C to +70 °C Relative humidity: max. 85%, non-condensing
<b>EMC, protection type</b>	
Emitted Interface	EN 61000-6-4, industrial area
Immunity to interface	EN 61000-6-2, industrial area
Protection class	III
Insulation strength	EN 61131-2
Protection type	IP20, front IP55
Vibration	Sinusodial (EN 60068-2-6) test: Fc; 10 ... 150 Hz, 1 G (operation mode)
Schock resistance	15 G (approx. 150 m/s <sup>2</sup> ), 10 ms duration, half-sine (EN 60068-2-27) test: Ea

# B-PRIMIS ET-PRIME 10

## INFORMATION DIMENSIONS



Dimensions B-Primis ET-Prime 10

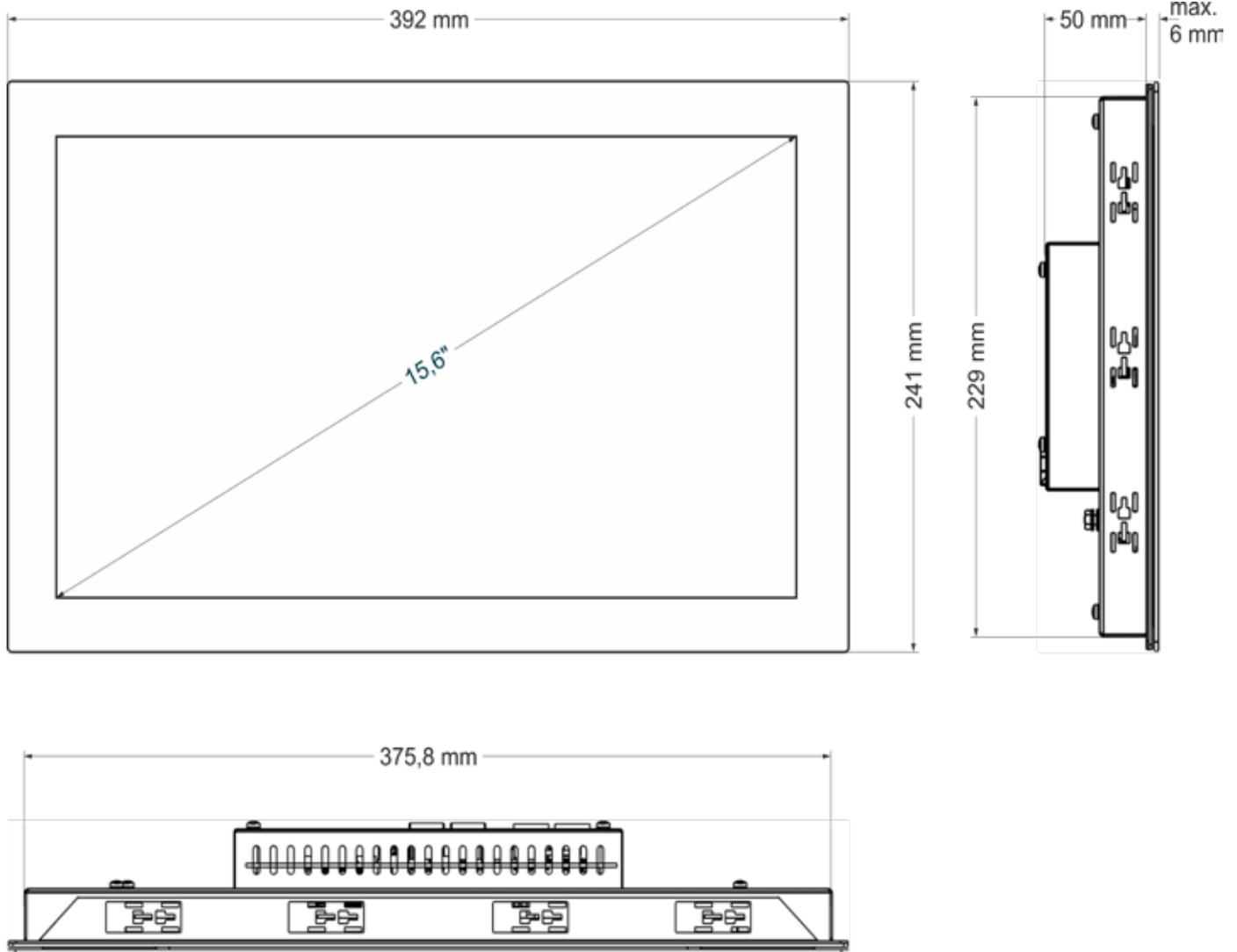
# B-PRIMIS ET-PRIME 15

## INFORMATION TECHNICAL DATA

B-Primis ET-Prime 15	Specification
Description	ET-Prime 15 S02
Order number	<b>S-01010203-0208</b>
Dimensions WxHxD [mm]	392 x 241 x 55
Display diagonals / Resolution	15,6" display / 1920 x 1080 (WXGA)
Touch type	Capacitive
Colours	TFT: 16,7 M (24 Bit/Pixels)
Weight	approx. 3 kg
Mounting	Removable securing clips
Certification	CE (EN 61131-2)
CPU	800 MHz ARM CPU mit Cortex™-A9 Single Core
RAM / Flash storage	512 MB RAM / 2GB Flash
Communication interfaces	1x Ethernet, 10/100 Base, RJ45
Visualization	Target Visu (VNC Client), Web Visu (Web Client, HTML5)
Additional features	1x Host USB 2.0 / USB plug type A
Supply voltage	+24 VDC (-15% / +20%) SELV max. AC voltage component 5% with reverse voltage protection
Current consumption	Typ. 0,3 A, max. 1,2 A at +24 VDC
Operating conditions Transport / Storage	Ambient temperature: operational: 0 °C to 55 °C / transport -20 °C to +70 °C Relative humidity: max. 85%, non-condensing
<b>EMC, protection type</b>	
Emitted Interface	EN 61000-6-4, industrial area
Immunity to interface	EN 61000-6-2, industrial area
Protection class	III
Insulation strength	EN 61131-2
Protection type	IP20, front IP55
Vibration	Sinusodial (EN 60068-2-6) test: Fc; 10 ... 150 Hz, 1 G (operation mode)
Schock resistance	15 G (approx. 150 m/s <sup>2</sup> ), 10 ms duration, half-sine (EN 60068-2-27) test: Ea

# B-PRIMIS ET-PRIME 15

## INFORMATION DIMENSIONS



Dimensions B-Primis ET-Prime 15

PIONEERING AUTOMATION TECHNOLOGY

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# HARDWARE & SOFTWARE OPTIONS

# HARDWARE & SOFTWARE **OPTIONS**

## Optional expansions for automation

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During development, Berghof Automation attaches great importance to a **manufacturer-independent solution** and relies on the long-term reliability of the **CODESYS automation software**, which makes it possible to carry out a wide range of tasks in automation technology. The platform used is **Linux**, which offers significant advantages over other solutions.

**By combining these two open standards of the software**, we are able to easily implement functional enhancements. For you as a user, this means unlimited functionality, independence from additional tools and the comprehensive applicability of CODESYS.

Extensions can be selected by means of a standardized or specially tailored range of options. Our products and processes are designed in such a way that a selection can be made both with and after product ordering.

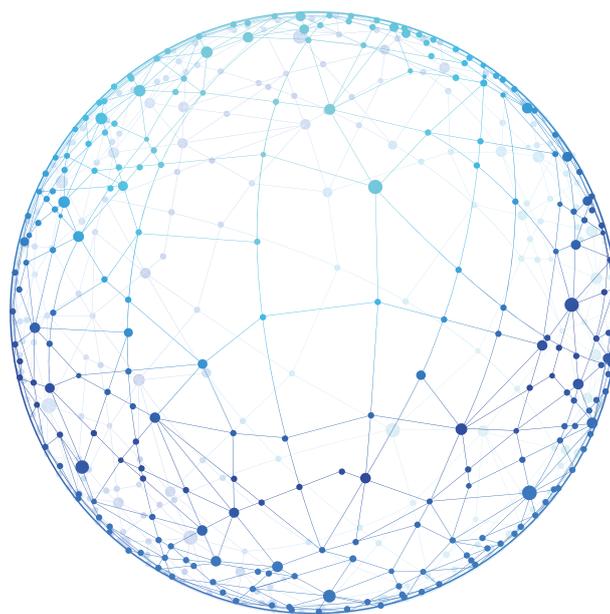
Repeat orders are no challenge for us, neither in the allocation in the corresponding product file (e.g. for the purpose of support) nor in the delivery with possibly immediate dispatch by electronic means or online connection.

This can be done by specifying the appropriate option code when ordering a product that includes a fully configured device, or by specifying the associated order number, with separate delivery of the function.

The options complement the range of functions that Berghof has already created based on CODESYS (see excerpt on page 11).

Below you will find the standardized additional functions that can be ordered. If you cannot find what you are looking for, please contact us.

**We will realize it for you.**



# OPTIONS

ID	Option	Description	Order number
S000	<b>Counter Encoder Interface</b>	With the help of this option it is possible to operate local inputs as counter or encoder inputs.	<b>S-05000201-0000</b>
S001	<b>Hardware Watchdog</b>	Option for monitoring the IEC tasks by an external watchdog.	<b>S-05000202-0000</b>
S002	<b>USB Serial Interface</b>	Option to communicate via USB Serial Adapter.	<b>S-05000203-0000</b>
S003	<b>USB Ethernet</b>	Option for an additional USB network interface for non fieldbus relevant communication.	<b>S-05000204-0000</b>
S004	<b>USB Keyboard</b>	Option for a USB keyboard / USB barcode scanner.	<b>S-05000205-0000</b>
S006	<b>Fast Event IOs</b>	Option for fast inputs and outputs. These are then handled independently of the I/O or bus cycle.	<b>S-05000206-0000</b>
S100	<b>CODESYS MOD-BUS RTU/TCP</b>	Operation of the controller as Modbus master and / or as Modbus slave. Both Modbus TCP via Ethernet and Modbus RTU via serial connections are supported.	<b>S-05000301-0000</b>
S101	<b>CODESYS BACNET</b>	Integration of the control in a BACnet network for building automation possible.	<b>S-05000302-0000</b>
S102	<b>CODESYS J1939</b>	Operation of the controller in a J1939 network. The roles J1939 Manager and J1939 ECU are supported.	<b>S-05000303-0000</b>
S103	<b>CODESYS CANopen Master</b>	With the help of this software option it is possible to operate the controller as a CANopen master and to communicate with CANopen slaves.	<b>S-05000305-0000</b>
S104	<b>CODESYS EtherCAT Master</b>	With this software option it is possible to operate the controller as an EtherCAT master and thus extend the controller with EtherCAT modules.	<b>S-05000304-0000</b>
S105	<b>CODESYS Profinet Device (Slave)</b>	With this software option it is possible to operate the controller as a Profinet Device in a higher-level Profinet plant network.	<b>S-05000307-0000</b>
S106	<b>CODESYS OPCuA Server</b>	Export of variables via OPCuA. This makes it possible to exchange data via an OPCuA-enabled client and server.	<b>S-05000308-0000</b>
S107	<b>CODESYS EtherNet/IP Scanner (Master)</b>	Integration of EtherNet/IP based slave devices (adapters) into the IO image.	<b>S-05000309-0000</b>
S108	<b>CODESYS EtherNet/IP Adapter (Slave)</b>	Integration of the controller as an EtherNet/IP adapter (slave) in an EtherNet/IP network.	<b>S-05000310-0000</b>
S109	<b>VPN Client IXON Client</b>	Integration of the controller into a virtual private network (VPN) as a client. The VPN basic technology used is OpenVPN.	<b>S-05000311-0000</b>
S110	<b>CODESYS IOT LIBRARIES</b>	With this option, numerous libraries can be used to support typical IoT communication protocols on the controller.	<b>S-05000317-0000</b>

# OPTIONS

ID	Option	Description	Order number
S111	FTP Server	This option can be used to activate an FTP server on the controller. This enables, for example, the exchange of configuration data or log data with other systems.	S-05000312-0000
S112	NTP Client	Synchronization of the system time of the controller with an NTP time server.	S-05000313-0000
S113	CODESYS SNMP V3	Option for communication via the SNMP V3 protocol (network management). This is typically used for communication with network components or for status queries in networks.	S-05000314-0000
S114	CODESYS Web-visualization	Use of CODESYS web visualization. This enables the visualization to be displayed in web browsers.	S-05000315-0000
S115	CODESYS Profinet Controller	With the help of this software option, it is possible to operate the controller as a Profinet controller in a higher-level Profinet plant network.	S-05000306-0000
S116	CODESYS KNX IP	Via the KNX IP transmission medium it is possible for you to exchange information. Bus devices can be either sensors or actuators needed for controlling the building automation. All functions can be controlled, monitored and secured by alarms through a unified system without the need for additional control centers.	S-05000316-0000
S117	CODESYS OPC UA	The CODESYS OPC UA Client can be used to connect to and exchange data with any OPC UA Server. The client provides an API to connect to an OPC UA server and execute the different types of OPC UA requests.	S-05000318-0000
S306	Motion Basic	Option to use the Berghof Motion Library for drive control. The library provides simple motion control of multiple drives using uniaxial motion (not synchronized).	S-05000401-0000
S300	Motion Basic + Softmotion	With the help of this software option it is possible to run drives controlled by the PLC. Typical motion applications with mutually coupled axes can thus be easily implemented. In addition to the Softmotion functionality, this option always includes the software option S306 (Motion Basic).	S-05000402-0000
S301	Motion Basic + Softmotion + CNC	With the help of this software option it is possible to run drives controlled by the PLC. In addition to the CNC functionality, this option always includes the software option S300 (Motion Basic + Softmotion).	S-05000403-0000
S400	Powertrack Communication	This software option activates (service) communication in Powertrack systems. This creates a direct connection between CODESYS and PLC, independent of their current position / segment in the Powertrack system (Online connection to moving vehicles).	S-05000501-0000
S401	Powertrack Servicetool	Activation of the service tool for Powertrack systems. This supports the cross-segment management of control systems in the Powertrack network.	S-05000502-0000

# OPTIONS

ID	Option	Description	Order number
S402	<b>Powertrack Software blocks</b>	With this option it is possible to use the Power-track system software blocks. With the support of these modules, a wide range of requirements for the control of electric monorail and electric floor conveyors can be covered.	<b>S-05000503-0000</b>
S500	<b>PDF Creation Library</b>	Library for the creation of PDF documents. With this option, the creation of protocols, measured values or error reports, for example, can be carried out directly on the controller as a PDF file.	<b>S-05000601-0000</b>
S501	<b>Backup/Restore functionality</b>	This option enables the triggering and importing of a PLC application via the web interface. This can be used e.g. for backup purposes or for the efficient installation of the PLC application in series production.	<b>S-05000602-0000</b>
S502	<b>Display Rotation</b>	With this software option it is possible to rotate the screen by 90°, 180° or 270°. This can be achieved, for example, by installing display devices in portrait format.	<b>S-05000603-0000</b>
S503	<b>Onboard configuration protection</b>	Option to password protect the configuration settings via the display menu. This protects the configuration from unauthorized modification.	<b>S-05000604-0000</b>
S505	<b>Application Protection</b>	This option protects your application programs from unwanted duplication by binding the application to the hardware.	<b>S-05000605-0000</b>

ID	Option*	Description
H001	<b>Plug set</b>	When this option is selected, the appropriate plug set is supplied with the device when it is ordered. If you wish to order plugs separately from a device, please select the appropriate plug set from our accessories. There you will find the respective order numbers.
H002	<b>Extended Heat sink</b>	With this option, the case is equipped with an extended heat sink which improves the thermal properties in passively cooled operation.
H100	<b>UL certificate</b>	With this option you guarantee the proven conformity of the product with the certification regulations of Canada and the USA.
H101	<b>CCC certificate</b>	With this option you guarantee the proven conformity of the product with the certification regulations of China.
H102	<b>EAC certificate</b>	With this option you guarantee the proven conformity of the product with the certification regulations of the Eurasian Economic Union.

\* These options are only available when purchasing a product

# OPTIONS

ID	Option*	Description
H200	MicroSD 2GB	Device comes with a pre-installed industrial MircroSD card with 2GB SLC memory.
H201	MircoSD 16GB	Device comes with a pre-installed industrial MircroSD card with 16GB SLC memory.
H300	Warranty extension for 1 year	With this option, an additional product warranty period of one year beyond the statutory warranty period is agreed. The total product warranty / guarantee period is hereby 2 years.
H301	Warranty extension for 2 years	With this option, an additional product warranty period of two years beyond the statutory warranty period is agreed. The total product warranty / guarantee period is hereby 3 years.
H400	WiFi / Bluetooth incl. antenna	This option enables WiFi and Bluetooth functionality on compatible devices, allowing wireless connections on standard networks as well as with other Bluetooth devices.

\* These options are only available when purchasing a product

ID	Option*	Description
C100	Customized device	With this option, a combination of all compatible C1xx options can be combined into one option.
C110	Customized front	With this option, a Berghof display device can be equipped with a customer-specific front.
C120	Customized hood	With this option, a Berghof device without display can be equipped with a customer-specific hood.
C130	Customized logo	With this option, a Berghof device can be provided with a customer-specific logo.
C140	Customized nameplate	With this option, a Berghof device can have a customer-specific nameplate affixed. This option requires approval documents for CE and, if applicable, UL, EAC from the customer.
C150	Customized software configuration	With this option, a Berghof device is delivered with a customized device configuration
C160	Customized DIN rail adapter	This option makes it possible to replace the standard DIN rail mounting of a control cabinet module with a customized solution

\* These options are only available when purchasing a product

PIONEERING AUTOMATION TECHNOLOGY

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# ACCESSORY COMPONENTS

# ACCESSORY COMPONENTS



# ACCESSORY COMPONENTS

**Complete system solutions from a single source.** In addition to the control products, additive components can also be required. We offer you the right spectrum, tailored to the portfolio and expanding the range of functions. If something is not available, no problem! We complete the offer according to your wishes.

**Functional safety**, even under the increased conditions of the industrial environment – we guarantee this with our tried and tested range of accessories.

Not every component available on the market fulfils these requirements unconditionally, in most cases this is not easy to recognise despite the appropriate specification.

Our accessories are proven, have completed an extensive test and approval process and are continuously checked for function in the event of innovations.

Cable		
Patch cable	Description	Order number
<b>Adapter cable RJ45 to D-SUB9 (RS232/RS485)</b>	Adapter cable RJ45 to D-SUB9 for Berghof MX6 controllers. Allows connection via D-SUB9 for COM1 (RS232) and (RS485) at the RJ45 socket for serial connections on the PLC.	<b>S-02040201-0000</b>
<b>Adapter cable RJ45 to D-SUB9 (CAN)</b>	Adapter cable RJ45 to D-SUB9 for Berghof MX6 controllers. Enables connection via D-SUB9 for CAN.	<b>S-02040301-0000</b>

Pins		
Product	Description	Order number
<b>MC-I/O shield connection terminal block 2x8mm</b>	The shield connection terminal makes it easier to connect the shielding directly to MC-I/O and SC-I/O modules. The terminal leads the potential of the cable shield to the DIN rail on which the MC-I/O module is located. The size is 2 x 8mm	<b>S-02060101-0100</b>
<b>MC-I/O shield connection terminal block 1x14mm</b>	The shield connection terminal makes it easier to connect the shielding directly to MC-I/O modules. The terminal leads the potential of the cable shield to the DIN rail on which the MC-I/O module is located. The size is 2 x 14mm	<b>S-02060101-0200</b>
<b>Mounting clips set ET/DC</b>	Set of 20 mounting clips Compatible with: ET/DC-Prime 7/10/15 ET/DC-Pro 10	<b>S-02060201-0100</b>

Gateways		
Product	Description	Order number
<b>Berghof Easy Connect</b>	The Berghof Easy Connect is a unique, intelligent interface in a compact format that makes security and connectivity challenges on a Berghof PLC a thing of the past. Via Plug n Play USB connection, the Berghof Easy Connect allows easy and secure access to a pre-configured Berghof controller without affecting the existing network structure.	<b>S-02040102-0000</b>
<b>USB-to-Ethernet Adapter</b>	<b>Connections / Interfaces:</b> Interface: USB 3.0, LAN: 10/100/1000, Connection: 1xRJ45 <b>General: Type:</b> Network card, Structure: external, Chipset: ASIX <b>Accessories:</b> Driver, manual execution <b>Standards:</b> IEEE 802.3, 802.3u, 802.3ab	<b>S-02040101-0000</b>

# ACCESSORY COMPONENTS

Storage devices		
Product	Description	Order number
<b>Micro SD-Card 2GB SD - formatted/ UNICODE Font</b>	Industrielle 2GB uSD Karte mit 2 Partitionen. Diese SD Karte kann mit Berghof MX6 Steuerungen benutzt werden und erlaubt die Verwendung der Option „Map Application on SD card“. Die SD-Karte beinhaltet auch das Arial Unicode MS font	<b>S-02030101-0201</b>
<b>Micro SD-Card 16GB SD - formatted/ UNICODE Font</b>	Industrial 16GB uSD card with 2 partitions. This SD card can be used with Berghof MX6 controllers and allows the use of the option „Map Application on SD card“. The SD card also includes Arial Unicode MS font	<b>S-02030101-0203</b>

Router		
Product	Description	Order number
<b>IX2400 - LAN</b>	1 x Ethernet, 1 x Ethernet 4-Port Switch	<b>S-02050102-0100</b>
<b>IX2410 - LAN - WiFi</b>	1 x Ethernet, 1 x Ethernet 4 Port Switch, WLAN	<b>S-02050102-0200</b>
<b>IX2405 - 4G Global - LAN</b>	1 x Ethernet, 1 x Ethernet 4-Port Switch, 1 x SIM card slot	<b>S-02050102-0300</b>
<b>IX2415 - 4G Global - LAN - WiFi</b>	1 x Ethernet, 1 x Ethernet 4-Port Switch, WLAN, 1 x SIM card slot	<b>S-02050102-0400</b>

Licenses		
Product	Description	Order number
<b>Safety-Package Company</b>	License for the CODESYS Safety extension, which must be purchased once. The Safety Package contains all software modules and device descriptions that are necessary for programming safety applications for the Safety PLC under CODESYS.	<b>S-05000702-0000</b>
<b>Berghof Target License Pro</b>	License for the Berghof Target Pro package, which must be purchased once. It includes extended system libraries for Berghof controllers, which allow to make applications in CODESYS V3 more comfortable and to implement configuration and diagnostics of the devices in the CODESYS project. In addition, there is full access to the closed download area of Berghof Automation for future software updates.	<b>S-05000104-0000</b>
<b>QR code library</b>	With the QR CODE Library, internationally standardized QR codes according to ISO/IEC18004 can be generated in CODESYS V3.	<b>S-05000606-0000</b>

# ACCESSORY COMPONENTS

Plugs		
Product	Description	Order number
<b>CC-Prime S06 plug set</b>	Packaged plug set for the CC-Prime S06 PLC with 1 x 6 pin plug for power supply, 2 x 16 pin digital I/O plug.	<b>S-02020102-0100</b>
<b>CC-Prime S01/02/03/07 plug set</b>	Packaged plug set for the CC-Prime S01/02/03/07 PLC with 1 x 6 pin plug for power supply, 2 x 16 pin digital I/O plug and 1 x 14 pin analog I/O plug.	<b>S-02020102-0200</b>
<b>CC-Prime S04 plug set</b>	Packaged plug set for the CC-Prime S04 PLC with 1 x 6-pole mains plug, 2 x 16-pole digital I/O connectors and 2 x 14-pole analog I/O connectors.	<b>S-02020102-0300</b>
<b>CC-Prime S05/08 plug set</b>	Packaged plug set for the CC-Prime S05/08 PLC with 1 x 6 pin power supply, 2 x 16 pin digital I/O connectors and 3 x 14 pin analog I/O connectors.	<b>S-02020102-0400</b>
<b>CC-A-I/O plug set</b>	Packaged plug set for the CC-A-I/O module with 1 x 4 pin plug for power supply and 3 x 14 pin analog I/O plug.	<b>S-02020103-0200</b>
<b>CC-D-I/O plug set</b>	Packaged connector set for the CC-D-I/O module with 1 x 4 pin connector for power supply and 2 x 16 pin digital I/O connectors.	<b>S-02020103-0100</b>
<b>ET-Pro power plug 2-pol.</b>	Single plug with 2 pins. Can also be used as a replacement plug for the MC-I/O Bus Coupler 3A.	<b>S-02020201-0100</b>
<b>DC-Pro 4/7 &amp; CC-Slim plug set</b>	Packaged plug set for DC-Pro 4/7 and CC-Slim PLC with 1 x 12-pin plug for power supply and DI/Os and 1 x 6-pin plug for the AIOs.	<b>S-02020105-0100</b>
<b>DC-Pro 4/7 S01, CC-Slim S01 plug set</b>	Single plug for DC-Pro 4/7 S01 and CC-Slim S01 with 1 x 12-pin plug for power supply and DI/Os.	<b>S-02020201-0600</b>
<b>DC-Pro 10/15 &amp; DC-Prime plug set</b>	Packaged plug set for DC-Pro 15 and all DC-Prime-PLC with 1 x 12 (2x6) pin plug for power supply and DIOs and 1 x 6 pin plug for the AIOs.	<b>S-02020105-0200</b>
<b>CC-Lite power plug 2-pol.</b>	Single plug with 2 pins. Can also be used as replacement plug for DC-Classic and ET-Classic.	<b>S-02020202-0100</b>
<b>ET-Prime/ DC-Prime S01 / DC-Pro 10/15 S01 power plug 12-pol. (2x6)</b>	Single plug with 12 pins, divided into two rows with six pins each.	<b>S-02020201-0601</b>
<b>MC-I/O plug 18-pol.</b>	Single plug with 18 pins.	<b>S-02020201-0800</b>
<b>MC-I/O plug 36-pol. (2x18)</b>	Single connector with 16 pins, divided into two rows with 8 pins each.	<b>S-02020201-0900</b>
<b>CAN2SC plug set</b>	Packed connector set for the CAN2SC module with 1x 2 pin connector for power supply, 1x 2 pin connector for terminating resistor and 1x 3 pin connector for SC-CAN.	<b>S-02020106-0100</b>

# ACCESSORY COMPONENTS

Antennas		
Product	Description	Order number
<b>WiFi / Bluetooth antenna</b>	WiFi / Bluetooth antenna to mount directly on the device for improved reception. Compatible with all WiFi-capable Berghof devices.	<b>S-02050401-0100</b>
<b>WiFi / Bluetooth antenna extension cable with 1,5m</b>	WiFi / Bluetooth antenna extension cable with 1,5m for external mounting on the switch cabinet for improved reception. Compatible with all WiFi-capable Berghof devices.	<b>S-02050401-0200</b>

Fans		
Product	Description	Order number
<b>Fan set 30 mm 5V</b>	Optional set consisting of a 30mm fan with 5V voltage and mounting material for attachment to the case to improve the thermal characteristics with active cooling. Compatible with BC/MC-PI Pro.	<b>S-02050501-0100</b>
<b>Fan set 50 mm 5V</b>	Optional set consisting of a 50mm fan with 5V voltage and mounting material for attachment to the case to improve the thermal characteristics with active cooling. Compatible with BC/MC-PI Prime/Plus.	<b>S-02050501-0200</b>

PIONEERING AUTOMATION TECHNOLOGY

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**SAFETY SERVICES**  
RISK ASSESSMENT  
SAFETY CONCEPTS  
DOCUMENTATION  
VERIFICATION  
SAFETY TRAININGS

# SAFETY SERVICES

## MAN, MACHINE AND PLANT SAFE FOR THE FUTURE

As a machine manufacturer as well as a machine operator, you are faced with the responsibility to bring plants and machines to such a safety level as the latest state of the art allows.

At national and international level, standards and directives stipulate the point at which you, as a machine manufacturer or installer of a system, have fulfilled your duty of care.

Berghof has developed an innovative and integrated safety solution to minimize the risk to people and the environment from technical equipment.

This comprises a freely programmable CODESYS Safety PLC and a Safety I/O Module (see catalog page 120) in accordance with the requirements of the safety standard norms according to IEC 61508 SIL 3 and DIN EN ISO 13849-1 PL<sub>e</sub>.

With the Berghof Safety System it is easy to implement the safety functions certified according to PLCopen:

- Emergency stop switch (EN 418)
- Two-handed operation (EN 574)
- Enabling switch, operating mode selector switch (IEC 60204)
- Safety door (EN 953/1088)
- Light barrier (IEC 61496 / 62046)
- Muting sensors (IEC 61496 / 62046)
- Actuator/valve with safe state or safe function (IEC 60204)
- Relay with feedback contact (IEC 60204)
- Unsafe switched output with monitoring (IEC 60204)

Do you need support in implementing the standards and guidelines correctly, understanding them and ensuring that they are effectively internalized by your employees?

Berghof offers you a fully comprehensive safety service package and gets you to a safe machine and perfectly trained personnel in 3 steps.

# SAFETY SERVICES

## 3 STEPS TO A SAFE MACHINE

**1. Risk Assessment**

**2. Safety Concepts**

**3. Verification  
Documentation**

**Trainings**

**Risk Reduction**

# SAFETY SERVICES

## 3 STEPS TO A SAFE MACHINE

### 1. Risk Assessment



In the first step, potential hazards of your machine are analyzed and examined together with you for possible risks, taking into account the essential standards and guidelines.

Possible hazards are identified along the entire life cycle of the machine and in the various operating modes and evaluated with regard to their probability of occurrence and extent of damage.

### 2. Safety Concepts



In the second step, the Berghof specialists develop a customized security concept for you.

In cooperation with you, all necessary measures are defined and detailed solution proposals for the implementation of safety into your machine.

Once all measures have been defined, Berghof supports you in commissioning the necessary safety functions of your machine.

### 3. Verification Documentation



In the third and final step, Berghof supports you in verifying the previously implemented safety functions according to DIN EN ISO 13849-1.

To round it all off, standard-compliant and easy-to-understand operating and assembly instructions are created for you.

### Trainings



Companies often lack the know-how of current safety standards and norms as well as the basic knowledge of functional safety.

In the course of safety training courses tailored to your individual needs, the know-how of your employees is sustainably built up and kept up to date.

PIONEERING AUTOMATION TECHNOLOGY

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BERGHOF **SERVICES**  
AS A BERGHOF CUSTOMER,  
WE WOULD LIKE TO OFFER  
YOU MAXIMUM RELIABILITY

# BERGHOF SERVICES

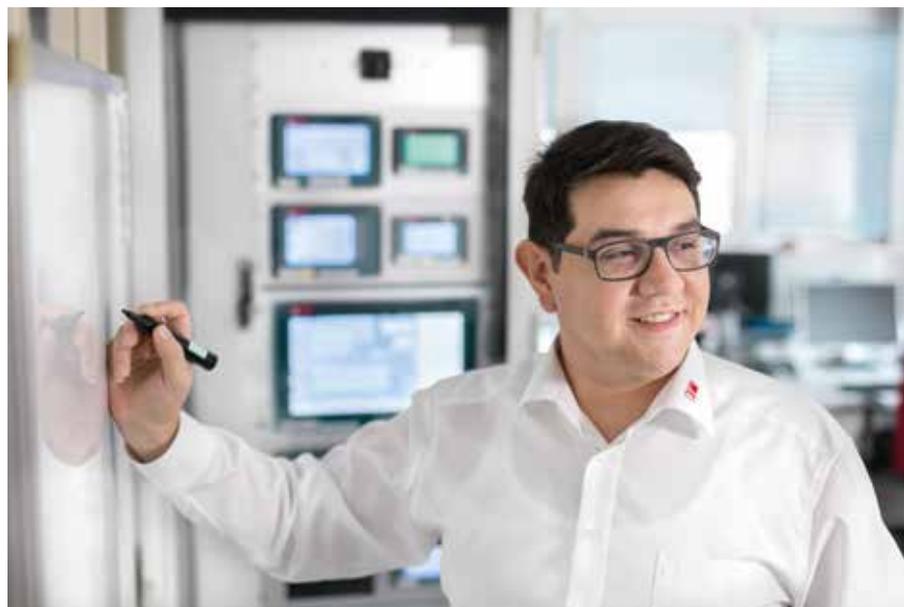


Those who have mastered extensive technologies and engineering have a clear competitive advantage. We give you this competitive edge and offer comprehensive service with guaranteed competent support.

Not only is the know-how of our employees available for you at any time at the company

headquarters, but our network of Solution Partners also provides you with excellent local support, in the local language with a direct connection to the Berghof central departments.

**Test us: in pre-sales, in your project planning phase and in after-sales.**



# BERGHOF RETROFIT

## Das Upgrade für Ihre gesicherte Zukunft

Competitiveness means adapting to constantly changing requirements, avoiding production downtimes or keeping production costs, including maintenance, low. Missing functional extensions or spare parts cause a long path of suffering. The new acquisition of the entire automation is usually described as inevitable.

Not like that at Berghof. For us, the optimum solution is the most important thing – this can only mean the replacement of a few components, such as the control system alone. Existing technology such as switch cabinets, cabling or even drive technology does not necessarily have to be replaced in every case.

Our experts support and take over the entire upgrade and retrofit process to keep your efficiency at a maximum: from analysis, product selection and project planning to programming, assembly, commissioning and training.

We guarantee minimum downtimes of the production plants and take care of a cost-optimized implementation. Ensuring compatibility with existing plants and mixed operation with old and new technology is a focus on which we attach great importance.

In order to guarantee the retrofitting of further functions and to be able to react optimally to every situation, your old control system is kept available as a backup.



### Retrofit offers numerous advantages:

- Increase in production volume and product quality through new functions
- Ensuring the supply of future spare parts
- Reduction of downtimes and service uncertainties
- Predictive Maintenance
- Retrofitting of automation technology possible at any time
- Cheaper than a new purchase
- Legal compliance
- Fast availability

# SECURE THE FUTURE

## **Our recipe for success - the 5 phases of retrofitting:**

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### **1. Analysis:**

We analyse your plant for potentials to prepare the best possible solution for you.

### **2. Planning:**

We will prepare an offer and adapt our concept to your wishes.

### **3. Programming:**

Combination of the migration of the existing program with new functions or resetting the logic.

### **4. Assembly/Commissioning:**

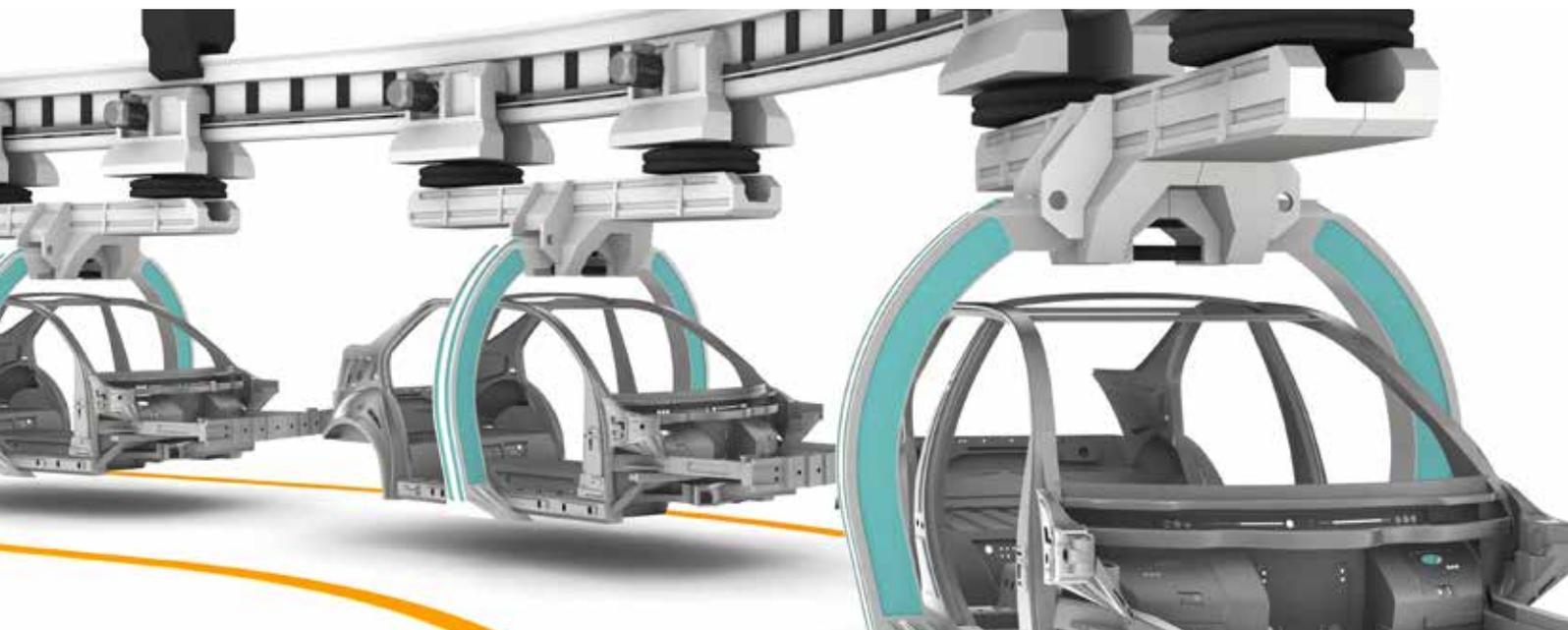
We replace your old control unit with our newly programmed unit and put the system into operation.

### **5. Service:**

We accompany your production and serve as your contact for all your questions during and after the process.

### **Retrofitted:**

Enjoy all the advantages of your retrofitted system. We will continue to support you with training & support if required.



# CODESYS & BERGHOF TRAINING

## Know how with Berghof

The effectiveness of your solution depends on the optimum interaction between Berghof technology, programmer and operator. As one of the first companies in automation, we have a unique pool of knowledge and a pronounced service mentality. We would like to pass this experience on to you and therefore offer various custom-made training modules on all aspects of Berghof automation and CODESYS V3.

### **Module 1: Introduction to CODESYS V3 and Berghof controllers**

Learn in a small group the essential functions of the Berghof controls and the basic elements of CODESYS V3 in just a short time.

### **Module 2: Getting started with CODESYS V3 Softmotion**

Learn the basic functions of CODESYS V3 SoftMotion and the configuration of drives.

### **Module 3: Porting a CODESYS V2.3 project to CODESYS V3**

Get to know the necessary measures of such a porting and test everything on a CODESYS SoftSPS.

### **Module 4: Introduction to object-oriented programming**

Learn to apply your own projects independently in CODESYS V3.

### **Module 5: Optional topics**

Use practical exercises to determine freely selectable problems with CODESYS V3.

## Customized software solutions



We provide the required individuality to write custom software for your application. On the basis of your specifications, we create functions that are perfectly tailored to your company.

Our spectrum of software solutions ranges from planning support to complete project planning. Here we use CODESYS V3 from 3S, the worldwide established standard for application development according to IEC 61131-3.

We guarantee optimal interaction of your hardware and software, guaranteed by our many years of expertise and the extensive know-how of the Berghof software specialists in the programming of CODESYS.

- Consulting and planning of new plants, modernization and extensions
- Development of requirement specifications
- Automation concepts with design of bus and network structures
- Development of operating concepts for fixed and mobile devices
- Programming of PLC
- Creation of visualizations
- Interfaces to external controls
- Interfaces to MES and ERP systems
- Database applications
- Traceability, data analysis and reporting
- Inhouse- Tests, Factory acceptance test (FAT)

# BERGHOF **MIGRATION CODESYS V2-V3**

## Adapted to your requirements



Switching to the current CODESYS V3 is essential. Updates and support for previous versions are only available to a limited extent from the end of 2019.

Our CODESYS team of experts will safely port your applications to the latest version for you, regardless of the manufacturer of the hardware used.

Our software updates will then keep you up to date at all times. Your time expenditure will be kept to a minimum in order not to negatively influence the day-to-day business.

**Extensive know-how.** To make full use of the know-how of our experts, all you need to do is take a look into the future – where do you want to go? This perspective helps us to combine migration with optimization. If you are not yet sure, we will be happy to advise you.

Benefit from the extensive experience of our CODESYS experts from numerous challenging projects. Our team accompanies you competently and in partnership from the preliminary analysis, the execution of the porting and the commissioning up to the service, support and maintenance of your automation solution.

# BERGHOF COMMISSIONING

**The first step is always the hardest**



This does not apply with commissioning accompanied by a Berghof expert team.

The Berghof service specialists guarantee you a time- and cost-optimized realization of your projected service. Once all parameters and operating conditions have been optimised, you have a plant that is reliable in every respect.

After completion of the installation and commissioning, we support you with qualified specialist personnel from the start-up phase to the continuous operation of your plant.

- Testing of all signal paths from the control system to the field devices
- Checking the direction of rotation of drives and the direction of action of actuators
- Parameter setting for sensors, actuators, frequency converters, switching devices, etc.
- Initial inspection of protective devices

# BERGHOF MAINTENANCE

## We predict maintenance



Failure of or even a defect in a machine causes high costs. Berghof helps you to minimize these downtimes and overspending and ensure longer machine run times. It is also important to us at Berghof not only to increase the availability of your system, but also to extend the overall life cycle.

All common service activities are adapted to your plant and needs.

All maintenance work is performed reliably and with the utmost care by certified service technicians and engineers.

The range of services includes:

- 24-hour support via telephone, Internet or on site
- Demand-oriented preventive maintenance
- Performance and maintenance contracts
- Repairs
- Replacement deliveries
- Plant reviews and enhancements including site migrations and capacity expansions
- System upgrades and updates (Retrofit)

# BERGHOF CERTIFICATION

## We secure the interaction

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You need components that work together with our controls and aren't sure it's gonna work?

Talk to us! Based on our many years of experience, we will give you detailed advice and, if necessary, subject your electronic components, modules and systems to intensive quality and functional tests.

You will then receive instructions on the use and limits of the application. You can build your application on this release with confidence.

For further questions, information or an offer for component certification, the Berghof team is always at your disposal.

# BERGHOF REPAIR SERVICE

## Knowledge and experience



Knowledge and experience are required for the repair of PLC components, control panel or industrial PCs. If a module has failed, a complete exchange is not always necessary. Above all, high-quality products should be reviewed for recovery by experts.

Berghof Automation and Control Solutions own a **special Maintenance team** with direct contact to the specialists of the Development and access to all documents of all product versions.

Furthermore, we provide appropriate warehousing and care about successor components in case of discontinuation. Not only current devices, also components from past generations can be easily repaired.

This is supported by an electronic device passport, which we create with each product. So even the installation of the original software at time of delivery is no challenge.

We carry out repair at component level with repair of only the defective components. We deliberately avoid, for example, board replacement in order to keep repair costs low. We charge according to a cost estimate, so you always receive the expenses in the desired scope. We finish the repair with a test procedure and a complete function test. Of course you will receive a protocol of the process.

If the cost for the reparation is too high, we are prepared to offer you other solutions.

# BERGHOF **HOTLINE** / 24-H SUPPORT

**Reach us at any time**



Available at any time when you need it. That is our understanding of support. Specially trained personnel with extensive experience in technology and engineering of hardware and software and almost all applications. Whether in the development phase, commissioning or during operation of your system - Berghof will not leave you alone as a reliable partner.

We solve complex problems by replicating your constellation at our premises and, of course, at your site.

Benefit from our service contracts with individually tailored components.

- Telephone hotline / on-call service
- Production support via remote access
- On-site support

We will be happy to work with you to create a service package that is optimal for you.

You can contact our qualified service staff at any time online or via the support hotline. contact persons.

**You can reach our support hotline at the following times:**

**Monday - Friday** during office hours.

**24/7** can be arranged individually.

**T:** +49.7121.894-183

**E:** support-controls@berghof.com





## **BERGHOF** - PIONEERING AUTOMATION TECHNOLOGY

