4PP065.0571-X74

1 Order data

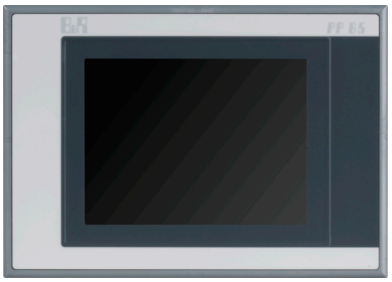
Model number	Short description	Figure
	Power Panel 65	
4PP065.0571-X74	Power Panel PP65, 5.7" QVGA color TFT display with touch screen (resistive), 128 MB DRAM, 232 kB SRAM, CompactFlash slot, 1x ETH 10/100, 1x X2X Link, 2x USB, IP65 protection (front), order application memory separately Order 0TB103 and 0TB704 terminal blocks separately	
	Required accessories	
	Accessories	
0TB103.9	Connector 24 VDC - 3-pin, female - Screw clamp terminal block 3.31 mm²	
0TB103.91	Connector 24 VDC - 3-pin, female - Cage clamp terminal block 3.31 mm²	
	CompactFlash cards	
0CFCRD.0512E.01	CompactFlash 512 MB extended temp.	
0CFCRD.2048E.01	CompactFlash 2048 MB extended temp.	
5CFCRD.0512-06	CompactFlash 512 MB B&R (SLC)	
5CFCRD.1024-06	CompactFlash 1 GB B&R (SLC)	
5CFCRD.2048-06	CompactFlash 2 GB B&R (SLC)	
5CFCRD.4096-06	CompactFlash 4 GB B&R (SLC)	
	Terminal blocks	
0TB704.9	Accessory terminal block, 4-pin, screw clamp terminal block 2.5 mm²	
0TB704.91	Accessory terminal block, 4-pin, push-in terminal block 2.5 mm²	
	Optional accessories	
	Batteries	
0AC201.91	Lithium batteries 4 pcs., 3 V / 950 mAh button cell	
4A0006.00-000	Lithium battery, 3 V / 950 mAh, button cell	
	Interface modules	
4PP065.IF10-1	PP65 interface module, 1 RS232 interface	
4PP065.IF23-1	PP65 interface module, 1 RS232 interface, 1 RS485/RS422 interface, RS422 electrically isolated, RS485 electrically isolated and network-capable, RS232/RS485/RS422 in one connector, 1 CAN interface electrically isolated and network-capable, order 0TB704 terminal block separately	
4PP065.IF24-1	PP65 interface module, 1 PROFIBUS DP slave interface electrically isolated and network-capable, 1 RS232 interface, 1 RS422/RS485 interface, RS422/RS485: electrically isolated and network-capable, RS232/RS422/RS485 in one connector	
4PP065.IF33-1	PP65 interface module, 2 CAN interfaces electrically isolated and network-capable, order 0TB704 terminal block separately	
	USB accessories	
5MMUSB.2048-01	USB 2.0 flash drive 2048 MB B&R	

Table 1: 4PP065.0571-X74 - Order data

2 Technical data

Model number	4PP065.0571-X74
General information	
B&R ID code	0xA963
LEDs	
Quantity	4
CF (CompactFlash)	Orange
Status	Red/Green
X2X	Orange
User	Green
Battery	
Type	Renata 950 mAh
Service life	4 years [1)]
Removable	Yes, accessible from the outside
Variant	Lithium ion
Backup capacitor	
Buffer time	10 min

Table 2: 4PP065.0571-X74 - Technical data

Model number	4PP065.0571-X74
Certifications	
CE	Yes
UL	cULus E115267 Industrial control equipment
EAC	Yes
Controller	
Bootloader, operating system	
PP65 supported starting with version	Automation Runtime, C2.96
Processor	
Type	Geode LX800, 32-bit x86
Clock frequency	500 MHz
L1 cache	128 kB (64 kB I-cache / 64 kB D-cache)
L2 cache	128 kB
Expanded command set	MMX technology, 3D Now
Floating point unit (FPU)	Yes
Flash	4 MB (for firmware)
Cooling	Passive via heat sink
Mode/Node switches	2, 16 positions each
Remanent variables	32 kB
Watchdog	MTCX [2]
Real-time clock	
Accuracy	At 25°C: Typ. 30 ppm (2.5 seconds) per day [3]
Battery-backed	Yes
Power failure logic	
Controller	MTCX [2]
Buffer time	10 ms
Graphics	
Controller	Geode LX800
Memory	8 MB shared memory (allocated in RAM)
Standard memory	
RAM	128 MB DDR SDRAM
User RAM	232 kB SRAM
PP65 Compact IF slot	1
Display	
Type	TFT color
Diagonal	5.7" (144 mm)
Colors	262,144
Resolution	QVGA, 320 x 240 pixels
Contrast	350:1
Viewing angles	
Horizontal	Direction R / Direction L = 60°
Vertical	Direction U = 65° / Direction D = 50°
Backlight	
Brightness	500 cd/m²
Half-brightness time	50,000 h
Touch screen	
Technology	Analog, resistive
Controller	B&R, 12-bit
Transmittance	70% ±10%
Screen rotation	Yes (see chapter "Installation", section "Screen rotation")
Interfaces	
CompactFlash slot 1	
Quantity	1
Type	Type I
Variant	Primary IDE device
USB	
Quantity	2
Type	USB 2.0
Variant	Type A
Transfer rate	Low speed (1.5 Mbit/s), full speed (12 Mbit/s), high speed (480 Mbit/s)
Current-carrying capacity	Max. 500 mA per connection
Ethernet	
Quantity	1
Controller	Intel 82551ER
Variant	Shielded RJ45 port (10/100 Base-T)
Transfer rate	10/100 Mbit/s
Max. baud rate	100 Mbit/s
Cables	S/STP (Category 5)
LED status indicators	Link/Activity

Table 2: 4PP065.0571-X74 - Technical data

Model number	4PP065.0571-X74
X2X	
Type	X2X Link master
Quantity	1
Variant	4-pin male multipoint connector
Internal bus power supply	No
Number of stations	Max. 253
Distance between 2 stations	Max. 100 m
Network topology	Line
Terminating resistor	Internal
Electrical properties	
Nominal voltage	24 VDC ±25%
Nominal current	0.45 A
Inrush current	Max. 2.8 A
Power consumption	Typ. 10 W
Galvanic isolation	No
Operating conditions	
Installation elevation above sea level	
0 to 2000 m	No limitation
>2000 m	Reduction of ambient temperature by 0.5°C per 100 m
Degree of protection per EN 60529	Back: IP20 (only with an inserted CompactFlash card) Front: IP65 / NEMA 250 type 4X, dust and sprayed water protection
Ambient conditions	
Temperature	
Operation	0 to 50°C
Storage	-20 to 70°C
Transport	-20 to 70°C
Relative humidity	
Operation	10 to 90%, non-condensing
Storage	T ≤ 40°C: 5 to 90%, non-condensing T > 40°C: <90%, non-condensing
Vibration	
Operation (continuous)	2 to 9 Hz: 1.75 mm amplitude / 9 to 200 Hz: 0.5 g
Operation (occasional)	2 to 9 Hz: 3.5 mm amplitude / 9 to 200 Hz: 1 g
Storage	2 to 8 Hz: 7.5 mm amplitude / 8 to 200 Hz: 2 g / 200 to 500 Hz: 4 g
Transport	2 to 8 Hz: 7.5 mm amplitude / 8 to 200 Hz: 2 g / 200 to 500 Hz: 4 g
Shock	
Operation	15 g, 11 ms
Storage	30 g, 15 ms
Transport	30 g, 15 ms
Mechanical properties	
Housing	
Material	Polyester
Front	Multi-layered panel overlay
Dimensions	
Width	203 mm
Height	145 mm
Depth	56.5 mm
Weight [4]	0.75 kg

Table 2: 4PP065.0571-X74 - Technical data

1) Typical service life (at 50% buffer operation: 25°C when device off, 50°C when device on).
Maximum service life in 24h operation (no buffer): 6 years at 25°C, 5 years at 50°C.
Maximum service life when device switched off: 2 years at 25°C, 1 year at 50°C.
2) Maintenance Controller Extended.
3) At max. specified ambient temperature: Typ. 50 ppm (4 s); worst case 100 ppm (8 s)
4) Weight including fasteners and battery (46.5 g) but without an interface module.

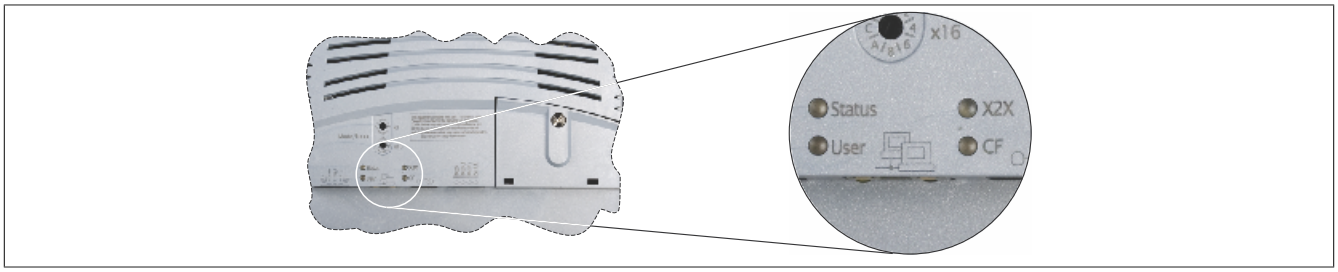
3 Supported interface modules

Support for interface modules is provided starting with the following Automation Runtime versions:

	Interface modules			
	4PP065.IF10-1	4PP065.IF23-1	4PP065.IF24-1	4PP065.IF33-1
Automation Runtime version	C2.96	C2.96	A3.07	C2.96

4 Diagnostic LEDs

There are four diagnostic LEDs on the back of the PP65.



Information:

The behavior of the Status LED has changed starting with AR J2.96, E3.01 and B3.06.

4.1 Diagnostic LEDs up to AR I2.96, D3.01 and A3.06

LED	Color	Status	Description
Status	Red	On	Error/Reset
	Orange	On	Boot or Ready mode
User	Green	On/Off	LED operable by the user (with the AsHW library)
X2X	Orange	On	Module sending data via the X2X Link interface
CF	Orange	On	CompactFlash card being accessed

4.2 Diagnostic LEDs starting with AR J2.96, E3.01 and B3.06

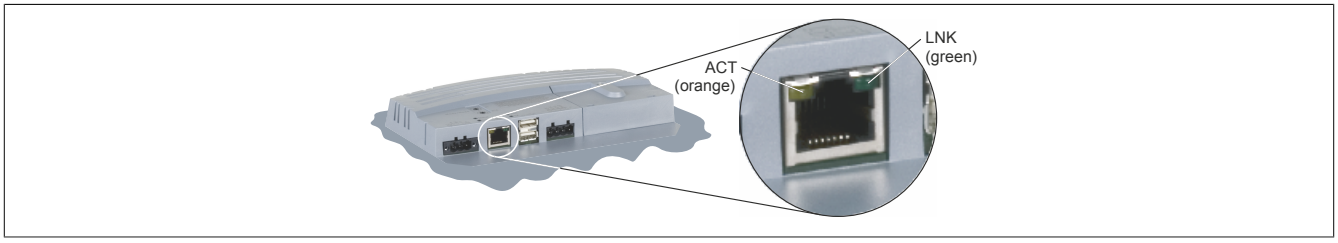
LED	Color	Status	Description
Status	see following table "Status LED blink codes"		
User	Green	On/Off	LED operable by the user (with the AsHW library)
X2X	Orange	On	Module sending data via the X2X Link interface
CF	Orange	On	CompactFlash card being accessed

Blink codes (200 ms pattern)	Function
	Error/Reset
	No errors, normal operation
	Battery not installed or battery capacity too low
	CompactFlash media not found
	Reserved for future blink codes

Because blink codes can only signal one error at a time, errors with higher priority take precedence. Fatal errors have a higher priority than less significant errors (e.g. low battery capacity).

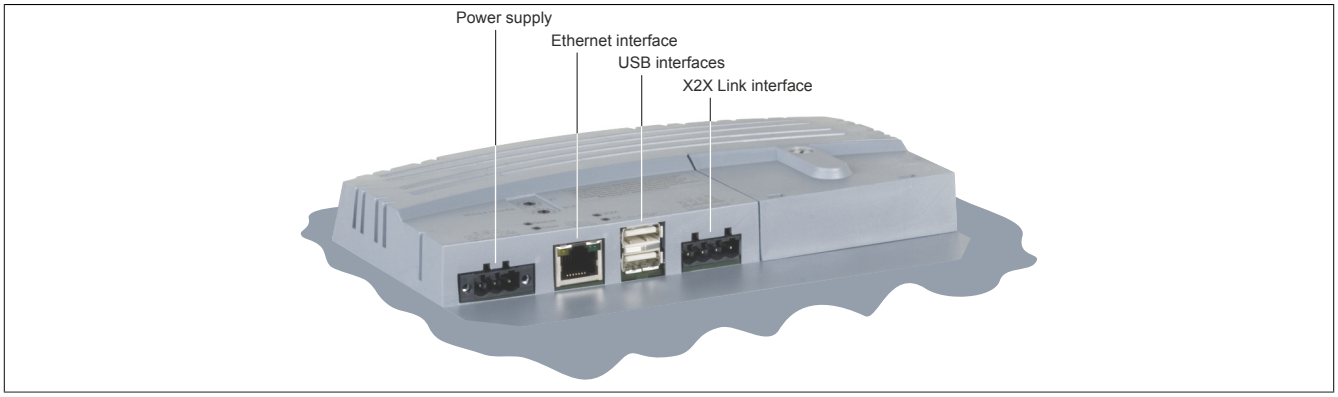
4.3 ACT / LNK LEDs for the RJ45 interface

There are two additional LEDs for the Ethernet interface.

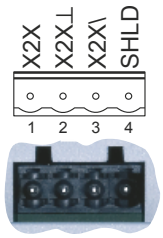


LED	Color	Status	Description
ACT	Orange	On	No Ethernet activity on the bus.
		Blinking	Ethernet activity on the bus.
LNK	Green	On	Link established to the remote station

5 Connection elements

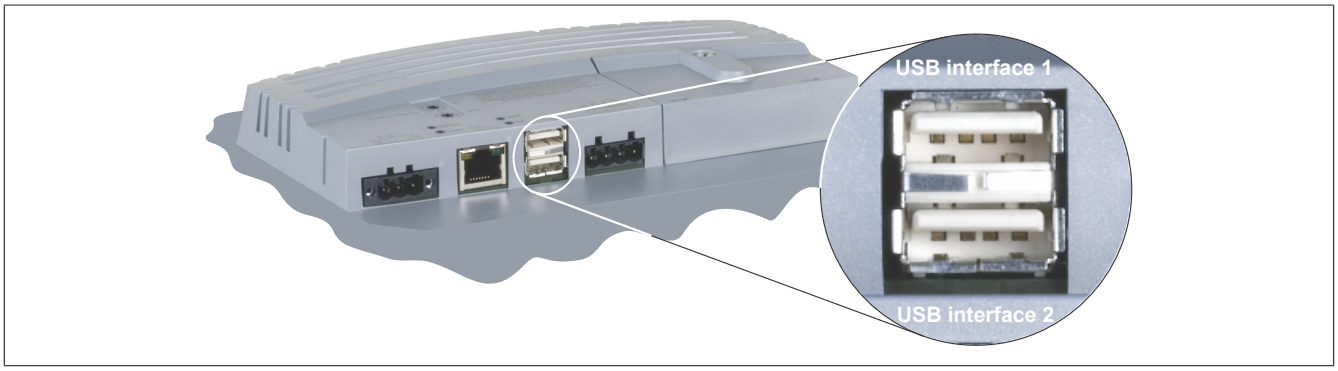


5.1 X2X Link interface

Interface	Pinout		
User interface X2X Link  4-pin male multipoint connector	**Terminal**	**X2X Link**	
	1	X2X	X2X data
	2	X2X⊥	X2X ground
	3	X2X\	X2X data inverted
	4	SHLD	Shield
	Required accessories		
	0TB704.9	Accessory terminal block, 4-pin, screw clamp terminal block 2.5 mm²	
	0TB704.91	Accessory terminal block, 4-pin, cage clamp terminal block, 2.5 mm²	

5.2 USB interface

This Power Panel 65 features a USB 2.0 (Universal Serial Bus) host controller with two USB interfaces that are accessible externally for the user.



USB interface	
Transfer rate [1]	Low speed (1.5 Mbit/s), full speed (12 Mbit/s), high speed (480 Mbit/s)
Power supply	Max. 0.5 A per port [2]

1) The actual value depends on the operating system or driver used.
2) Each USB interface is protected by a maintenance-free "USB current-limiting switch" (max. 0.5 A).

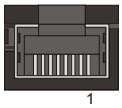
Warning!

Peripheral USB devices can be connected to the USB interfaces. Due to the large number of USB devices available on the market, B&R cannot guarantee their functionality. Functionality is ensured when using the USB devices available from B&R.

Notice!

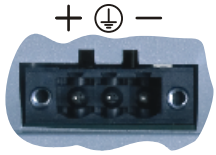
Because this interface is designed according to general PC specifications, extreme care should be taken with regard to EMC, wiring, etc.

5.3 Ethernet interface

Interface	Pinout		
Ethernet interface  1 RJ45 twisted pair female connector (10BaseT / 100BaseT)	**Terminal**	**Ethernet**	
	1	RXD	Receive signal
	2	RXD\	Receive signal inverted
	3	TXD	Transmit signal
	4	Termination	Termination
	5	Termination	Termination
	6	TXD\	Transmit signal inverted
	7	Termination	Termination
	8	Termination	Termination

5.4 Power supply

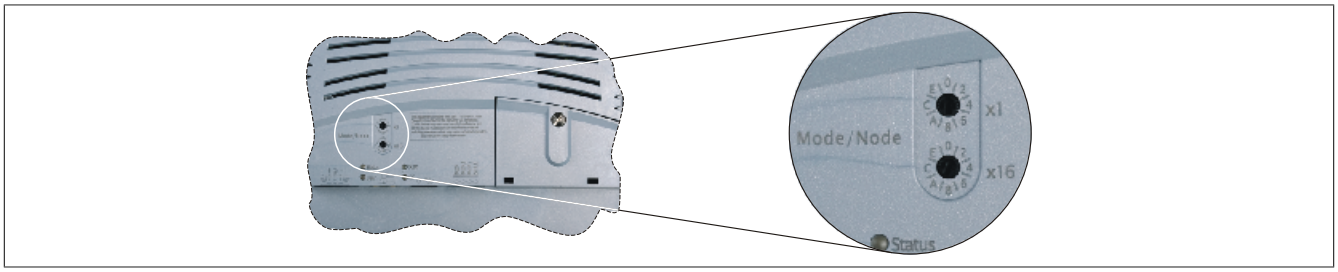
The pinout is listed in the following table and printed on the back of the Power Panel. The Power Panel has reverse polarity protection that prevents the supply voltage from being connected incorrectly and damaging the device. Overload protection must be provided by an external fuse (5 A, fast-acting).

Power supply	Pinout	
 3-pin male multipoint connector	**Terminal**	**Assignment**
	+	24 VDC
	⏚	Functional ground
	—	GND
	Required accessories	
	0TB103.9	Connector, 24 VDC, 3-pin female, 3.31 mm² screw clamps, protected against vibration by the screw flange
	0TB103.91	Connector, 24 VDC, 3-pin female, 3.31 mm² cage clamp terminal block, protected against vibration by the screw flange

Notice!

The functional ground must be connected to ground (e.g. control cabinet) using the shortest possible path. Using the largest possible conductor cross section on the power supply connector is recommended.

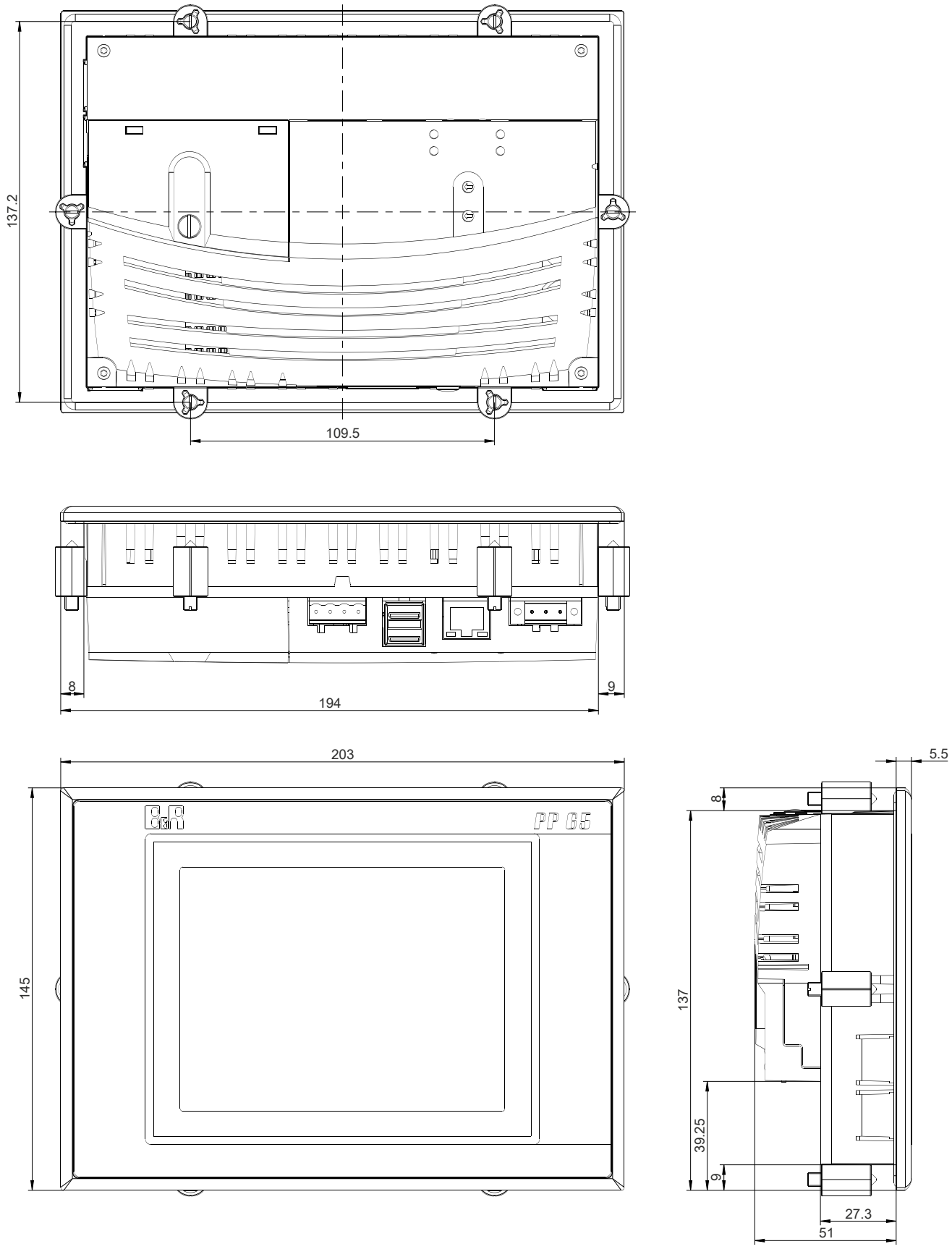
6 Operating mode and node number switches



The Power Panel 65 is equipped with 2 hex switches that can be used as operating mode or node number switches. Switch positions 0x01 to 0xFE are used to set the INA node number of the Ethernet interface.

Switch position	Description
0x00	Reserved
0x01 to 0xFE	**INA node number** of the Ethernet interface
0xFF	**Diagnostic mode:** Starts up the CPU in diagnostic mode. Does not initialize program sections in User RAM and User FlashPROM. After diagnostic mode, the CPU always starts up with a warm restart.

7 Dimensions



Installation cutout: 188 ±0.5 mm x 130 ±0.5 mm