

4. PP45 5.7" LCD color touch screen

4.1 Order data

Model number	Short description	Figure
4PP045.0571-062	Power Panel PP45, touch screen, 5.7" QVGA color LCD, backlighting, 10 touch keys, 64 MB DRAM, 32 KB SRAM, x86 100 MHz Intel compatible, removable application memory (CompactFlash), Ethernet 10/100, X2X Link, 2 x USB, IP 65 protection (front side). Application memory must be ordered separately! Order TB103 and TB704 terminal blocks separately.	
Required accessories		
0TB103.9	Accessory terminal block 3-pin, screw clamp, 3.31 mm², protection against vibration with the screw flange.	
0TB103.91	Accessory terminal block 3-pin, cage clamp, 3.31 mm², protection against vibration with the screw flange.	
0TB704.9	Accessory terminal block, 4-pin, screw clamp, 1.5 mm²	
0TB704.91	Accessory terminal block, 4-pin, cage clamp, 2.5 mm²	
0AC201.9	Lithium batteries, 5 pcs., 3 V / 950 mAh, button cell	
4A0006.00-000	Lithium battery, 3 V / 950 mAh, button cell	
4A0064.00-000	5 DIN A4 legend sheets, 16 fields for a total of 40 devices, CorelDraw template can be downloaded online.	
5CFCRD.0064-03	CompactFlash 64 MB ATA/IDE SiliconSystems	
5CFCRD.0128-03	CompactFlash 128 MB ATA/IDE SiliconSystems	
5CFCRD.0256-03	CompactFlash 256 MB ATA/IDE SiliconSystems	
5CFCRD.0512-03	CompactFlash 512 MB ATA/IDE SiliconSystems	
5CFCRD.1024-03	CompactFlash 1024 MB ATA/IDE SiliconSystems	
5CFCRD.2048-03	CompactFlash 2048 MB ATA/IDE SiliconSystems	
5CFCRD.4096-03	CompactFlash 4096 MB ATA/IDE SiliconSystems	
5CFCRD.8192-03	CompactFlash 8192 MB ATA/IDE SiliconSystems	
Optional accessories		
4PP045.IF10-1	PP45 interface module, 1 RS232 interface	
4PP045.IF23-1	2005 Interface Module, 1 RS485/RS422 interface (RS422: electrically isolated, RS485: electrically isolated and network capable), 1 CAN interface (electrically isolated and network capable).	
4PP045.IF24-1	PP45 interface module, 1 Profibus DP slave interface (electrically isolated and network capable), 1 RS232/RS422/RS485 interface (RS422/RS485: electrically isolated and network-capable)	
4PP045.IF33-1	PP45 interface module, 2 CAN (electrically isolated and network capable).	

Table 15: PP45 LCD color touch screen - Order data

4.2 Technical data

Product ID	PP45 LCD color touch screen
Controller	
Processor	ELAN SC520 100 MHz, Intel compatible
Main memory	64 MB DRAM
SRAM	32 KB, battery-backup
CompactFlash slot	1 slot for Type I CompactFlash card
Insert slot for PP45 interface modules	1
Watchdog	Internal system management controller
Power failure logic	System management controller, 10 ms buffer time
Battery	Lithium, 950 mAh, can be exchanged from the outside
Real-time clock	Battery-buffered
Mode/node switches	2, 16 digits each
Display	
Type	LCD color
Colors	256 colors
Resolution	QVGA, 320 x 240 pixels
Diagonal	5.7"
Brightness	140 cd/m ²
Half-brightness time	55,000 h
Front	Multi-layered cover with insertion slots for key labels
Keys	
Touch keys	10 (labeled with legend sheets)
Interfaces	
USB	2 x USB 2.0, type A connection
Ethernet	RJ 45 Twisted Pair (10 BaseT / 100 BaseT)
X2X	X2X Link master
24 VDC supply	
Input voltage	24 VDC $\pm$ 25%
General information	
Power consumption	Max. 8 W
Certification	CE, C-UL-US, GOST-R (in development)
Operational conditions	
Operating temperature	0 to +50°C
Relative humidity	10% to 90%, non-condensing
Protection type	IP65 (front side) / IP20 (back side)

Table 16: PP45 LCD color touch screen - Technical data

PP45 5.7" LCD color touch screen • Additional technical data

Product ID	PP45 LCD color touch screen
Storage and transport conditions	
Temperature	-20°C to +70°C
Relative humidity	T ≤ 40°C: 5% to 90%, non-condensing T > 40°C: < 90%, non-condensing
Mechanical characteristics	
Outer dimensions (W x H x D [mm])	203 x 145 x 56.4
Weight	0.5 kg

Table 16: PP45 LCD color touch screen - Technical data

4.3 Additional technical data

Product ID	PP45 LCD color touch screen
Controller	
Battery buffer current	Max. 30 µA
Real-time clock resolution	1 s
Operating system	Automation Runtime
24 VDC supply	
Input voltage (min./nom./max.)	18 VDC / 24 VDC / 30 VDC
Voltage monitoring	An NMI is triggered if the input voltage falls below 15 VDC.
General information	
B&R ID code	\$251A

Table 17: PP45 LCD color touch screen - Additional technical data

4.4 Diagnostic LEDs

There are four diagnostic LEDs on the back of the PP45:

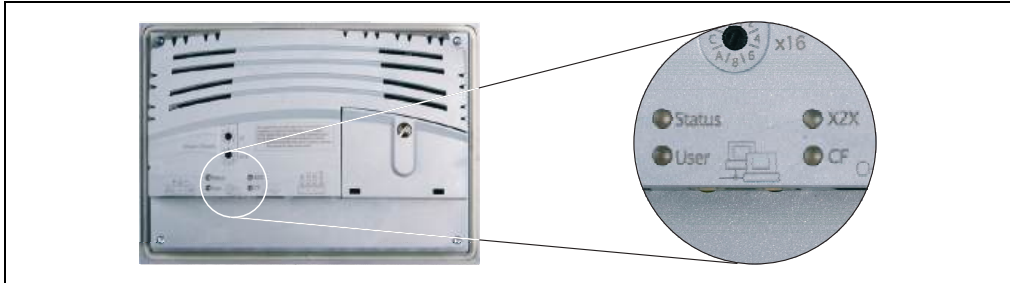


Figure 6: PP45 LCD color touch screen - Diagnostic LEDs

LED	Color	Status	Description
Status	Red	On	Error / Reset
	Green	On	RUN
	Orange	On	Boot, Service or Diagnostics mode
	Green on / Orange blinking		RUN, battery not OK
User	Green	-	This LED can be operated by the user (with the AsHW library). This function is supported by Automation Runtime starting with Version N2.90 / A2.92.
X2X	Orange	On	The module sends data via the X2X Link interface.
CF	Orange	On	Access to the CompactFlash card

Table 18: PP45 LCD color touch screen - Diagnostic LEDs

There are two more LEDs right next to the Ethernet interface:

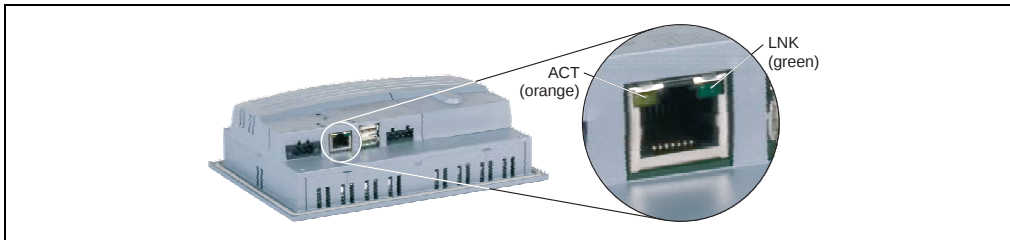


Figure 7: PP45 LCD color touch screen - Ethernet LEDs

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

Table 19: PP45 LCD color touch screen - Diagnostic LEDs

4.5 Connection elements

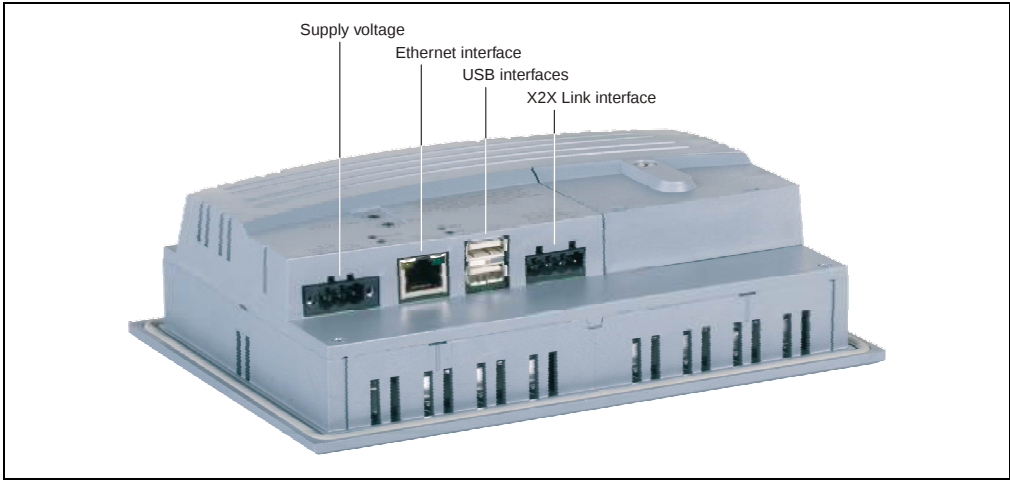


Figure 8: PP45 LCD color touch screen - Connection elements

4.5.1 X2X Link interface

Interface	Pin assignments		
Application interface X2X Link X2X X2X⊥ X2XI SHLD 1234  4-pin 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, 1.5 mm²	
	0TB704.91	Accessory terminal block, 4-pin, cage clamp, 2.5 mm²	

Table 20: PP45 LCD color touch screen - Pin assignments - X2X Link

4.5.2 USB interface

This Power Panel 45 device has a USB 2.0 (Universal Serial Bus) host controller with two USB ports, which are easily accessible for the user.

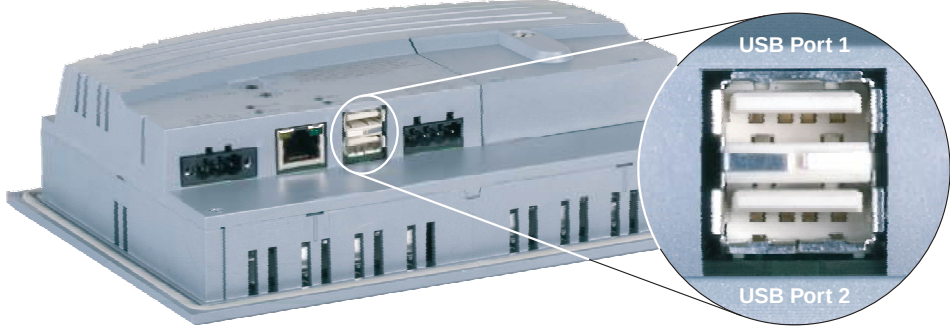
USB interface	
	
Transfer rate ¹⁾	Low speed (1.5 MBit/s), full speed (12 MBit/s), to high speed (480 Mbit/s)
Power supply	Max. 500 mA per port ²⁾

Table 21: PP45 LCD color touch screen - USB interface

1) The actual value depends on the operating system or diver being used.

2) For safety, every USB port is equipped with a maintenance free "USB current-limiting circuit breaker" (max. 500 mA)

Warning!

Peripheral USB devices can be connected to the USB interfaces. Due to the vast number of USB devices available on the market, B&R cannot guarantee their performance. B&R does assure the performance of all USB devices that they provide.

Important!

Because of general PC specifications, this interface should be handled with extreme care with regard to EMC, location of cables, etc.

4.5.3 Ethernet interface

Interface	Pin assignments		
	Terminal		
 Ethernet interface RJ45 twisted pair socket (10BaseT/100BaseT)	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

Table 22: PP45 LCD color touch screen - Pin assignments - Ethernet interface

4.5.4 Supply voltage

The pin assignments can be found either in the following table or printed on the back of the Power Panel. The Power Panel has reverse polarity protection that prevents the supply voltage from being connected incorrectly, which would damage the device. Overload protection must be provided by an external fuse (5 A, fast-acting).

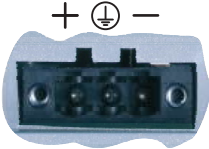
Supply voltage	Pin assignments	
	Terminal	Assignment
 3-pin multipoint connector	+	+ 24 VDC
	⏏	Functional grounding
	—	GND
	Required accessories	
	0TB103.9	Accessory terminal block 3-pin, screw clamp, 3.31 mm ² , protection against vibration with the screw flange.
	0TB103.91	Accessory terminal block 3-pin, cage clamp, 3.31 mm ² , protection against vibration with the screw flange.

Table 23: PP45 LCD color touch screen - Pin assignments - Supply voltage

Important!

The pin's connection to the functional ground (e.g. switching cabinet) should be as short as possible. We recommend using the largest possible conductor cross section on the supply plug.

4.6 Operating mode and node number switches

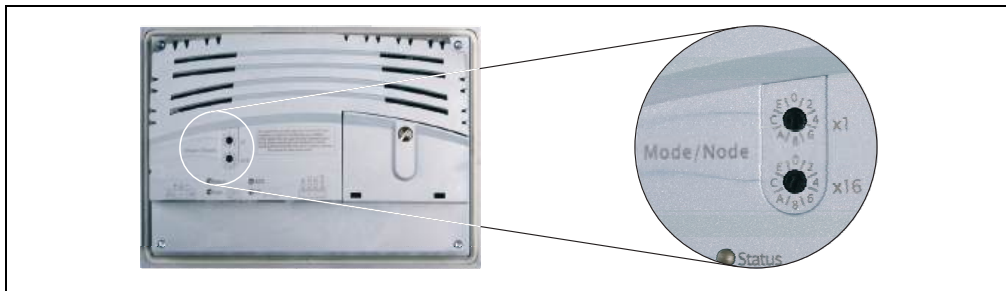


Figure 9: PP45 LCD color touch screen - Operating mode and node number switches

The Power Panel 45 device is equipped with 2 hex switches, which are used as operating mode or node number switches. Switch positions 01 - FE are used to set the INA station number of the Ethernet interface.

Switch position	Description
00	Boot mode: The CPU is started in boot mode.
01 - FE	INA node number of the Ethernet interface
FF	Diagnostics mode: The CPU boots in Diagnostics mode. Program sections in User RAM and User FlashPROM are not initialized. After diagnostics mode, the CPU always boots with a cold restart.

Table 24: PP45 LCD color touch screen - Switch positions of the operating mode and node number switches

4.7 Dimensions

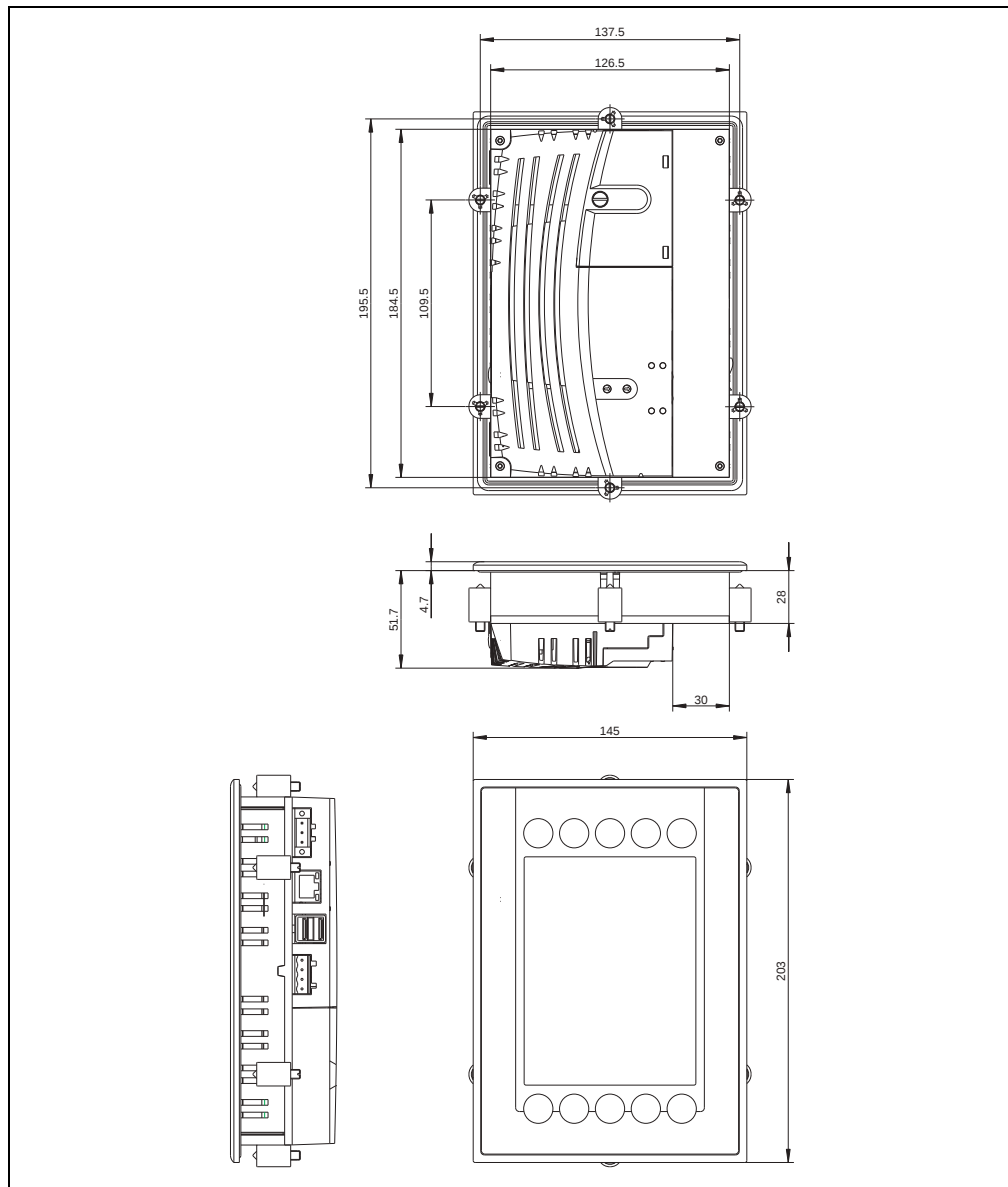


Figure 10: PP45 LCD color touch screen - Dimensions

Installation cutout: 186.1 mm x 128.1 mm