INTELLIGENT POWER DISTRIBUTION SYSTEM
ControlPlex® Controller CPC20

The intelligent ***ControlPlex***® system CPC20 is the perfect solution for the machine building and process industry. The system combines the well-proven quality of a DC 24 V overcurrent protection with a PROFINET communication function. It features permanent measuring data recording, analysing and processing. This provides the required transparency to detect changes in the production process at an early stage and initiate corrective actions in time. The integral web server of the CPC20 bus controller allows direct access to the data of the DC 24 V power distribution. All measuring data and status information can be accessed even without using the field bus interface.

TYPICAL FEATURES

- Control, diagnosis and monitoring via PROFINET
- Devices including supply module, overcurrent protection, power distribution module and bus controller
- Fully-fledged EtherNet communication interface (web server)
- Service and maintenance interface via USB terminal
- Adjustable configuration of up to 32 channels with 16 devices without expansion or up to 64 channels with 32 devices incl. expansion
- Integrated memory for overload and short circuit diagnosis in the load circuits

YOUR BENEFITS

- Increased system availability through comprehensive diagnostic functions
- Improves protection against voltage dips through selective protection of loads
- Reduces downtimes through quick trouble-shooting
- Increased flexibility of system planning through a modular terminal block system

TYP. APPLICATIONS

Automation; car production; mechanical engineering; chemical industry; steel industry; machine building industry; pharmaceuticals and foodstuffs

APPROVALS / CERTIFICATIONS

WEB LINKS

Further information, Operating instructions, International approvals, Technical basics, REACH, RoHS, Contact

COMPLIANCE

GENERAL INFORMATION

SAFETY AND INSTALLATION INSTRUCTIONS

Installation must be done by a qualified electrician.

- The CPC20 bus controller is only intended for use with safety extra-low voltage (=24 V DC).
- Connection to higher or not selectively protected voltages can cause harmful conditions or damage.
- The **18plus-*ControlPlex***® power distribution system is exclusively to be used.
- The device must only be supplied with power after proper installation.
- When a circuit protector has tripped and before the reset, the cause of the failure (short circuit or overload) must be remedied.
- The national standards (e.g. in Germany DIN VDE 0100) for installation and selection of the feed and return cables must be observed.

For convenient adjustment and configuration by means of projecting software a generic station description markup language file (GSDML file) is made available for downloading on the E-T-A homepage.

- Please observe separate CPC20 instruction manual.
- 0 V potential for load and control voltage is compulsory and connected.
- The CPC20 has a direct and permanent connection between the enclosure screen of the RJ45 sockets (XF1, XF2 and X1) and the 0 V of the XD1.

Electrostatically sensitive sub-assemblies can be destroyed by voltages far below the human perception threshold. These voltages already occur if you touch a component or electrical terminals of a component without being electrostatically discharged. The damage of a sub-assembly caused by an overvoltage is often not immediately recognised, but will be noticed only after a longer operating time.

Note:
When wiring and connecting to the PROFINET bus system the installation and wiring regulations of the PROFIBUS User Organisation (PNO) must be observed.

FURTHER INFORMATION

CPC20 CONTROLPLEX® SYSTEM
https://global.e-t-a.com/c17673/

TECHNICAL DATA (T_u = +25 °C, U_b = DC 24 V)

ELECTRICAL DATA

Rated voltage U_n	DC 24 V
Operating voltage U_b	18...30 V
Dielectric strength	DC 32 V (load circuit)
Quiescent current I_0	Typ. 160 mA
Insulation co-ordination (EN IEC 60664)	0.5 kV Overvoltage category: II Pollution degree: 2 Reinforced insulation in the actuating area

OVERVIEW OF COMMANDS IN THE COM MODE

Writing/reading the device configuration (parameters)	• Current limit value 50 ... 100 % • Rated current 1...10 A • Overload disconnection 105...135 % • Trip time in the event of overload 0.05…10 s • Short circuit current 180 % • Hysteresis limit value 5...20 % • Switch-on behaviour (latest state, OFF, ON) • Switch-on delay 0.05… 2.5 s
Reading static device information	• CPC20 device type & circuit protectors • CPC20 serial number & circuit protectors • CPC20 hardware version & circuit protectors • CPC20 software version & circuit protectors
Reading dynamic device information / measuring values	• CPC20 enclosure status • Device temperature of the circuit protectors • Error memory

	• Trip counter • Reason of last tripping • Device status / event of the circuit breakers • Load voltage ACTUAL / MIN / MAX / MEDIUM VALUE • Load current: ACTUAL / MIN / MAX / MEDIUM VALUE • Supply voltage • Total current • Histogramm: Load current and load voltage curve in the 4 s before the circuit protector trips
Control commands	• Switch on/off or reset load output • Reset trip counter • Set parameters to factory settings • Delete histogramm memory

MECHANICAL DATA	
Mounting dimensions (WxHxD)	24 x 130 x 113 mm (tolerances according to DIN ISO 286 part 1 IT13)
Mass	Approx. 150 g
Flammability class acc. to UL 94	V-0
Mounting data	DIN rail according to EN 60715-35x7.5

XD1 terminal	**Cable cross section [mm²]**	**Cable cross section [AWG]**	**Stripping length [mm]**
rigid	0.2...2.5	24...14	10
flexible	0.2...2.5	24...14	10
flexible with wire end ferrule with plastic sleeve	0.25...2.5	23...14	10
flexible with wire end ferrule without plastic sleeve	0.25...2.5	23...14	10

X2 COM-2 terminal Bar, spring 3-pole FK-MCP 1.5/3-ST-3.5BK	**Cable cross section [mm²]**	**Cable cross section [AWG]**	**Stripping length [mm]**
rigid	0.14...1.5	26...16	9
flexible	0.14...1.5	26...16	9
flexible with wire end ferrule with plastic sleeve	0.25...0.5	24...21	9
flexible with wire end ferrule without plastic sleeve	0.25...1.5	24...16	9

Interfaces	**PROFINET interface (XF1, XF2)** RJ45; connection to the PROFINET bus system with integral switch **ETHERNET interface (X1)** RJ45; communication interface to the web server **Service and maintenance interface (X3)** USB 2.0 Type C Cable length max. 2.5 m ***ELBus*® interface (COM-1)** Direct connection to the 18plus terminal module (no wiring required) ***ELBus*® interface (X2 COM-2)** Terminal for a 2. 18plus power distribution module for expansion by a maximum of 16 additional circuit breakers Cable length max. 3 m Terminal 16/ ADR: Addressing Terminal 15/ ELB: Data line ELBus®

AMBIENT CONDITIONS	
Ambient temperature	-0...+60 °C (without condensation)
Storage temperature	-40...+70 °C
Mounting temperature	+10...+30 °C
Damp heat	**Test according to IEC 60068-2-78, test cab. climate class 3K3 to EN60721** 96 h at 95 % rel. humidity/40 °C
Vibration	**Test according to IEC 60068-2-6, test Fc** 3 g
IP code (standard)	IP20 according to EN60529
EMC requirements - emitted interference (EMC directive)	EN 61000-6-3

EMC requirements - resistance to disturbances (EMC directive)	EN 61000-6-2

FURTHER INFORMATION

CPC20PN - VISUAL INDICATION OF THE RJ45 INTERFACES X1, XF1 AND XF2	
RJ45 interface X1	
Operating mode	**LED LNK**
Link available	Green
No link available	OFF
Operating mode	**LED ACT**
Activity available	blinking orange
No activity available	OFF
RJ45 interfaces XF1 and XF2	
Operating mode	**LED LNK**
Link available	Green
No link available	OFF
PROFINET device localisation	green blinking
Operating mode	**LED ACT**
Activity available	blinking orange
No activity available	OFF

CPC20PN - VISUAL INDICATION OF THE OPERATING CONDITIONS			
Operating mode	**LED US1**	**LED BF**	**LED SF**
Start-up mode	Orange	Orange	Orange
Fieldbus error	Green	Red	OFF
System error	Green	OFF	Red
Firmware Update	Red flashing	Red flashing	Red flashing
PROFINET connection active	Green	OFF	OFF
LED US1	Applied supply voltage indication		
LED BF	Bus error indication		
LED SF	System error indication		

ORDERING NUMBER CODE

1 TYPE NUMBER	
CPC20	Bus terminal controller for 18plus ***ControlPlex***® with ESX60D

2 VERSION: BUS SYSTEM	
PN	PROFINET (terminal: 2x RJ45 socket)
EN	EtherNet/IP (connection: 2x RJ45 socket)

3 VARYING NUMBER OF POWER DISTRIBUTORS TO BE CONNECTED	
T2	Connection option for two 18plus ***ControlPlex***® power distribution modules

4 PRODUCT VERSIONS	
001	Marking version

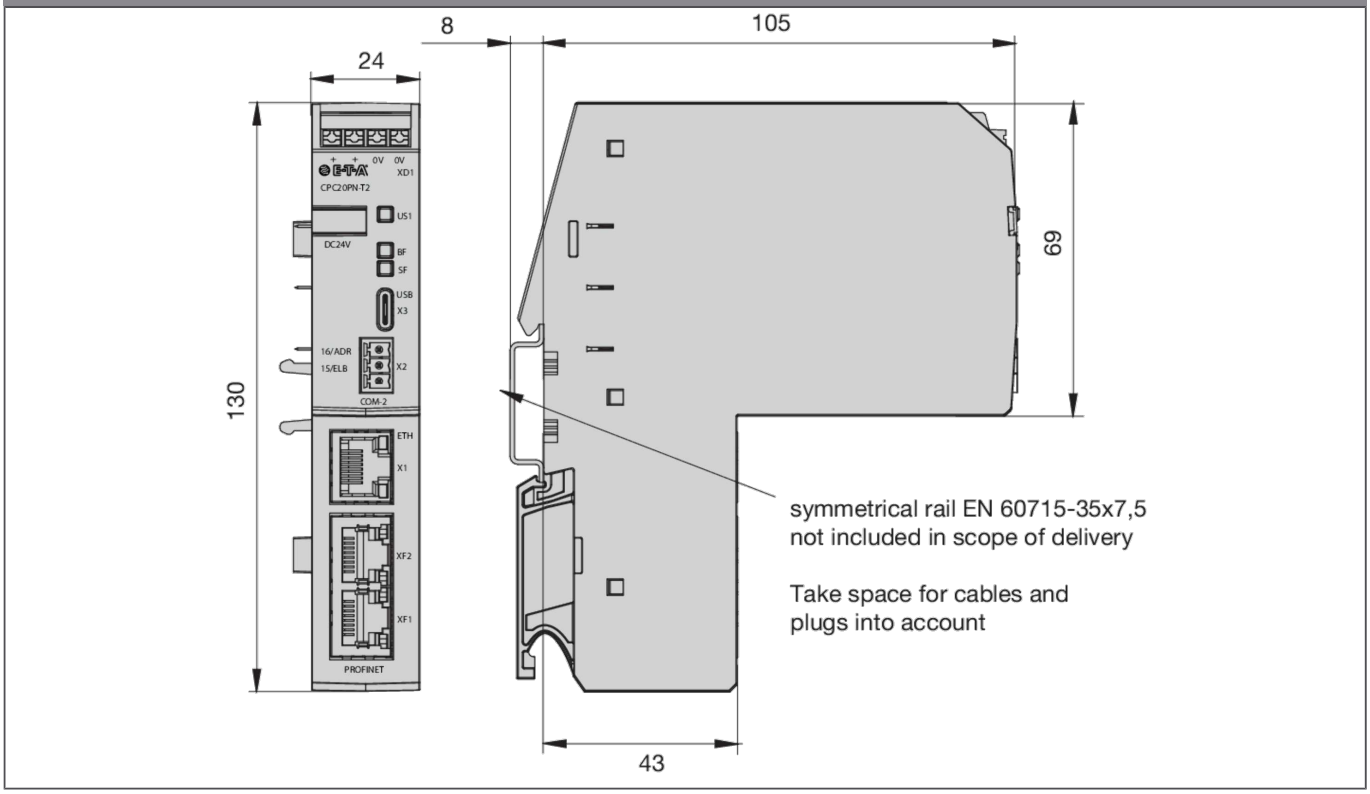
APPROVALS

APPROVALS			
Approval authority	**Test standard**	**File Certificate No.**	**Rated voltage [V]**
UL	UL 2367	E306740	DC 24
UL	UL 508 listed CSA C22.2 No. 14	E492388	DC 24

Find further information about approvals here: https://www.e-t-a.de/approvals_en

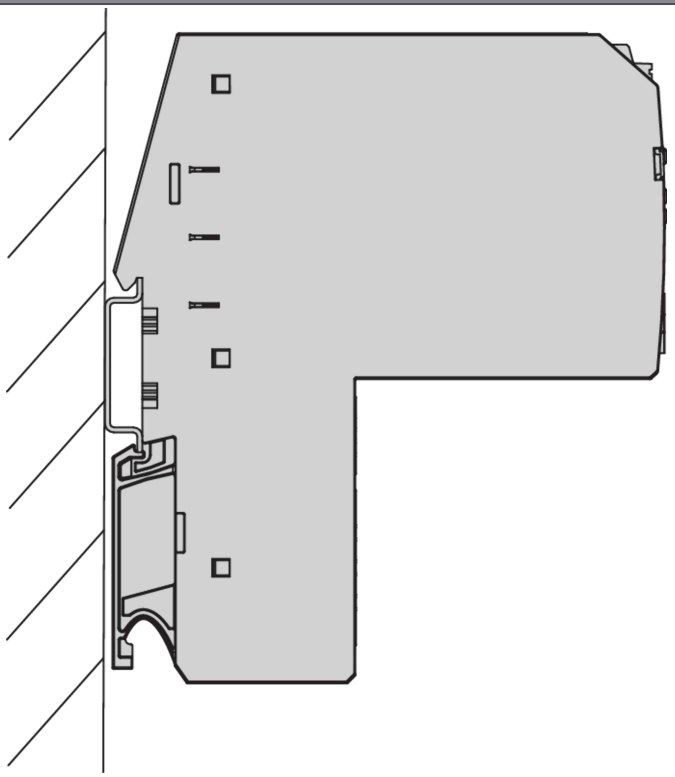
DIMENSIONS

DIMENSIONAL DRAWING CPC20 BUS CONTROLLER

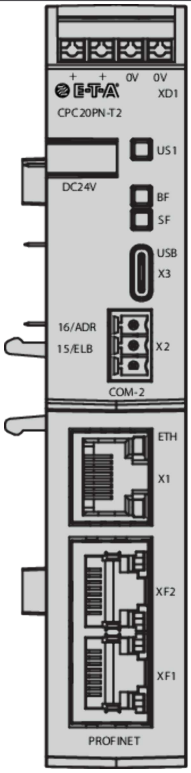


INSTALLATION INSTRUCTIONS

MOUNTING POSITION



SCHEMATIC DIAGRAMS

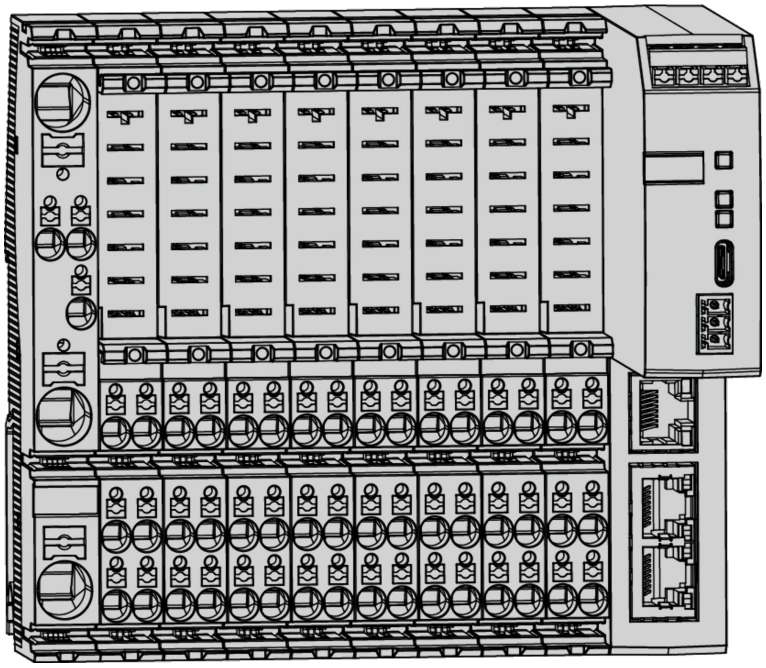


Designation of the connectors of the bus controller CPC20

APPLICATION EXAMPLES

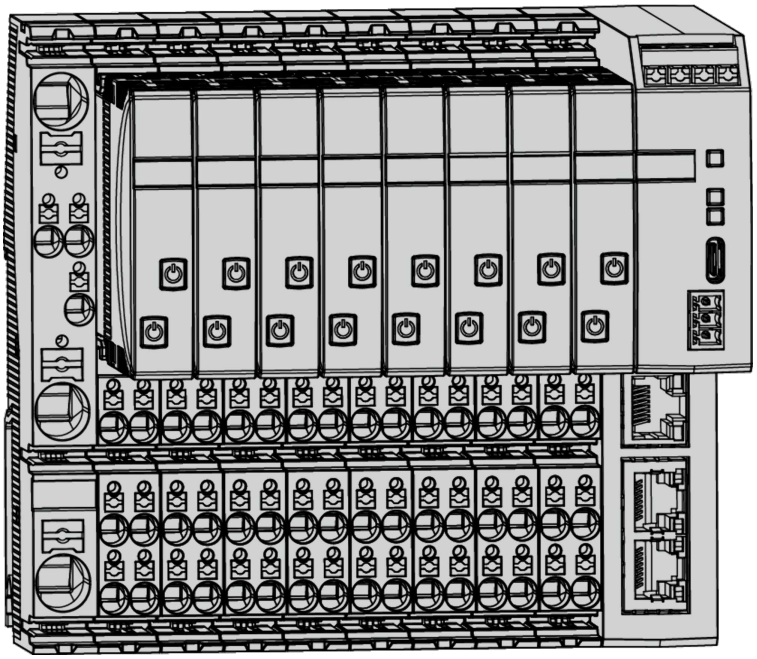
WIRING DIAGRAM

CPC20 bus controller and 18plus ControlPlex® unpopulated



WIRING DIAGRAM

CPC20 bus controller and 18plus ControlPlex® populated with ESX60D



ACCESSORIES

REQUIRED ACCESSORIES		
X22261102	Busbar for LINE, 0 V, FE, grey insulation, 500 mm	
18PLUS010 I	18PLUS-AM03-00-PT01-01 18plus connection module***ControlPlex***® for circuit breaker type ESX60D	
↳ X22261102	Busbar for LINE, 0 V, FE, grey insulation, 500 mm	
↳ X22357102	Supply busbar L=284 mm 18PLUS	
↳ X22357101	FTG busbar for LINE, 0 V, FE, grey insulation, 500 mm	
↳ Y31197801	Retaining clips	
18PLUS011 I	18PLUS-EM03-00-PT01-01 18PLUS supply module, ELBus® Version ***ControlPlex***®	
↳ X22261102	Busbar for LINE, 0 V, FE, grey insulation, 500 mm	
↳ X22357102	Supply busbar L=284 mm 18PLUS	
↳ X22357101	FTG busbar for LINE, 0 V, FE, grey insulation, 500 mm	
↳ Y31197801	Retaining clips	

REQUIRED ACCESSORIES FROM		
ESX60D-S	You get an intelligent power distribution system by combining the electronic ESX60D is a double channel, communication-capable circuit protector with the CPC20 bus controller and the 18plus ***ControlPlex***® module.	

OPTIONAL ACCESSORIES		
X22357102	Supply busbar L=284 mm 18PLUS	
X22357101	FTG busbar for LINE, 0 V, FE, grey insulation, 500 mm	
18PLUS012 I	18PLUS-TM03-00-PT01-01 18PLUS transfer module ***ControlPlex***® extension for CPC20 controller	

↳ X22261102	Busbar for LINE, 0 V, FE, grey insulation, 500 mm	
↳ X22357102	Supply busbar L=284 mm 18PLUS	
↳ X22357101	FTG busbar for LINE, 0 V, FE, grey insulation, 500 mm	
↳ Y31197801	Retaining clips	
Y31154801	Terminal strip 3-pole FK-MCP 1.5/3-ST-3 (X2 COM2)	

FURTHER INFORMATION ABOUT ACCESSORIES (DRAWINGS)

ACCESSORIES

3-pole terminal strip
FK-MCP 1.5/3-ST-3 (X2 COM2)
Y31154801