

## Description

The customers' demands for a constant quality of the produced goods, while at the same time increasing the quantities, pose great challenges to the mechanical and plant engineering industry. At the same time, globalisation is creating worldwide value flows and production chains. Machines and plants that had still been regionally organised just a few years ago are now networked worldwide. These developments extend the requirements of machine and plant control as well as of the installed components. An ever growing number of measuring data need to be recorded, analysed, evaluated and saved. This increases the transparency of the manufacturing process and thus system availability.

The DC 24 V power distribution is also affected by this development. The control voltage supplies all essential components of the machine or system. These include, besides programmable control units, for example actuators and sensors. Therefore, the control voltage has a special importance in the entire production process. Its availability and stability is crucial for system availability and quality of the produced goods. The REX system meets these requirements. It consists of electronic circuit protectors which are connected with each other via an integral connector arm without requiring additional components. Power supply is via the EM12 supply module which can supply the circuit protectors with max. 40 A. The new CPC12 bus controller additionally allows access to all system-relevant data of the superordinate control systems. This can be via the EtherCAT interface as well as via an additional Ethernet interface.

The CPC12 bus controller connects the circuit protectors with the superordinate control unit. Its internal **ELBus®** interface realises the connection with the REX-system intelligent circuit protectors. The CPC12 bus controller allows entire access on all required parameters of the intelligent circuit protectors, their control unit and the visualisation of the device data.

This is made available at the field bus interface for the superordinate control unit and also at the third RJ45 interface for further connection. Thus the system offers a fully parameterisable protection of the DC 24 V circuits and ensures selective overcurrent protection of sensors and actuators, decentralised peripheral sub-assemblies etc. and their supply lines.

## Approvals and certificates



(in conjunction with the devices of the REX systems...)

Approval authority	Standard	File certificate no.	Voltage rating
UL	UL 2367	E306740	DC 24 V
UL	UL 508 listed CSA C22.2 No. 14	E492388	DC 24 V

For approval information on accessories please see page 6.



CPC12EC

## Features

- Control, diagnosis and monitoring via EtherCAT
- Fully fledged communication interface EtherCAT
- Fully fledged communication interface Ethernet (web server)
- Updateable via web server
- Combination of supply modules, overcurrent protection and power distribution
- For REX12 intelligent circuit protectors system
- Variable configuration of up to 32 channels for 16 devices
- No accessories required for connecting the components
- Connection via push-in terminals
- Profitability through extremely reduced wiring time
- Reduction of planning, design and installation time
- Ease of maintenance, diagnosis and system extension

EtherCAT® is a registered trademark and patented technology, licensed by the Beckhoff Automation GmbH, Germany..

## Your benefits

- Increases machine uptime through clear failure detection and stable power supply
- Reduces downtimes through quick fault resolution
- Simplifies planning through clear sizes and ratings
- Saves costs and time through fast and flexible mounting including integral power distribution solution

## Compliances



## Downloads

Data sheet/Conformity documents/Brochure/CAD data etc. is available on our website.

**Please observe separate user manual/installation instructions:**



CPC12EC-T1  
<http://www.e-t-a.de/qr1043/>

**Technical data (T<sub>amb</sub> = 25 °C, U<sub>B</sub> = V)**

Operating voltage U <sub>B</sub>	DC 24 V (18 ... 30 V)
Reverse polarity protection	yes
Closed current I <sub>0</sub>	typically 75 mA
<b>Supply via contact lever or additionally</b>	
Terminals XD1 (push-in)	0.2 mm <sup>2</sup> to 1.5 mm <sup>2</sup> AWG24 – AWG16 str.
Wire stripping length	8 mm
<b>EtherCAT interface XF1/IN, XF2/OUT</b>	
RJ45	connection to the EtherCAT bus system When wiring and connecting to the EtherCAT bus system, the installation and wiring regulations of the EtherCAT Technology Group (ETG) have to be observed.
<b>Ethernet interface (X1)</b>	
RJ45	communication interface to web server
<b>IP reset</b>	
Momentary switch	reset IP address (interface X1) by pushing the momentary switch for min. 3 sec
Dimensions (w x h x d)	23 x 80 x 98.5 mm (Tolerances according to DIN ISO 286 part 1 IT13)
Mass	approx. 70 g
<b>System Components type</b>	
EM12-T supply module	EM12-T00-000-DC24V-40A
Bus controller	CPC12xx-Tx-xxx
Circuit protectors to be mounted side-by-side	REX12D-T REX22D-T

**Visual status indication by means of multicoloured LED**

Operating mode	Indication of operating mode			
	LED US1	LED US2	LED ERR	LED RUN
EtherCAT Init-State	n.a.	n.a.	n.a.	off
EtherCAT Pre-Operational-State	n.a.	n.a.	n.a.	0.2 s on/ 0.2 s off, blinking green
EtherCAT Safe-Operational-State	n.a.	n.a.	n.a.	0.2 s on/ 1 s off, blinking green
EtherCAT Operational-State	n.a.	n.a.	n.a.	green
EtherCAT error	n.a.	n.a.	red	n.a.
No EtherCAT error	n.a.	n.a.	off	n.a.
Voltage supply OK+	green	n.a.	n.a.	n.a.
Firmware update <sup>1)</sup>	off	off	off	off
No actuator voltage	n.a.	red	n.a.	n.a.
No connected device or bus error	n.a.	0.5 s on/ 0.5 s off, blinking orange	n.a.	n.a.

n.a. not applicable

**Technical data (T<sub>amb</sub> = 25 °C, U<sub>B</sub> = V)**

<b>LED-LINK/ACT</b>	
Operating mode	Indication of operating mode
	<b>LED LINK/ACT</b>
Link available	green
No link available	off
Act available	blinking green
<b>General data</b>	
Housing material	plastic material
Mounting method	symmetrical rail to EN 60715 – 3.5 x 7.5
Ambient temperature (TAMB)	-30 °C ... + 60 °C (without condensation, cf. EN 60204-1)
Storage temperature	-40 °C ... +70 °C
Mounting temperature	+5 °C ... +60 °C
Damp heat	96 hrs/95% RH 40 °C to IEC 60068-2-78-Cab climate class 3K3 to EN 60721
Altitude	2,000 m above sea level 3,000 m above sea level up to +55 °C 4,000 m above sea level up to +50 °C
Operation pressure	4 bar above atmospheric pressure
Vibration resistance	5 g, test to IEC 60068-2-6 test Fc
Degree of protection	IP20
EMC requirements (EMC Directive, CE Logo)	emitted interference: EN 61000-6-3 noise immunity: EN 61000-6-2
Insulation coordination (IEC 60664)	Overvoltage category II/pollution degree 2
Instructions for installation	Mounting or actuation of the REX connector arm must only be effected at dead-voltage. For start-up the REX connector arm must be closed.

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## EtherCAT – communication interface

Overview of commands:

Writing/reading of configuration (parameters)

- Current limit value (50 %... 100 %)
- Rated current (1 A-10 A), writing of the rated current is only possible with device type REX12D-TE.

Reading of static product information

- Product type
- Serial number
- Hardware version
- Software version

Reading of dynamic product information / measuring values

- Status CPC12
- Internal cycle time
- Error memory
- Trip counter
- Reason of last trip
- Status / event of device
- Load voltage: ACTUAL / MIN / MAX / MEDIUM VALUE
- Load current: ACTUAL / MIN / MAX / MEDIUM VALUE
- Supply voltage
- Total current

Control commands

- Switch on/off or reset load output
- Reset trip counter
- Set parameters to factory setting

## Ordering information

type

**CPC12 ControlPlex® bus controller**

**Version: Field bus system**

**EC** EtherCAT (connection: 2 x RJ45 female connector)

**Mounting method**

**T** rail mounting

ELBus connections

**1** 1 connection (right)

**Product versions**

**001** Marking

**CPC12 EC - T 1 - 001** ordering example

## Notes

- The CPC12 bus controller is only intended for use with safety extra-low voltage (=24 V DC).
- Connection to a higher or not reliably disconnected voltage can cause hazardous conditions or damages.
- Only the intended circuit protectors must be used.
- The technical data of the circuit protectors used have to be observed.
- The entire power distribution system must only be installed by qualified personnel.
- Only after expert installation must the device be supplied with power.
- After tripping of the circuit protector and before reset, the cause of the failure (short circuit or overload) must be remedied..
- The national standards (e.g. for Germany DIN VDE 0100) have to be observed for installation and selection of feed and return cables.
- For convenient adjustment and configuration by means of projecting software, a master data file (ESI file) will be made available for downloading on the E-T-A homepage
- The CPC12 bus controller is not suitable for controlling safety-critical or functionally safe applications.

Please observe the separate user manual for CPC12 bus controller.

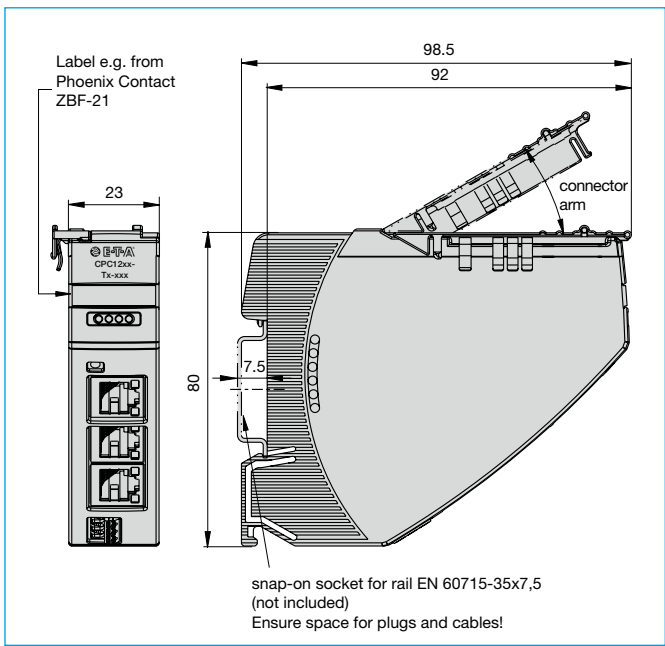
## Safety Note



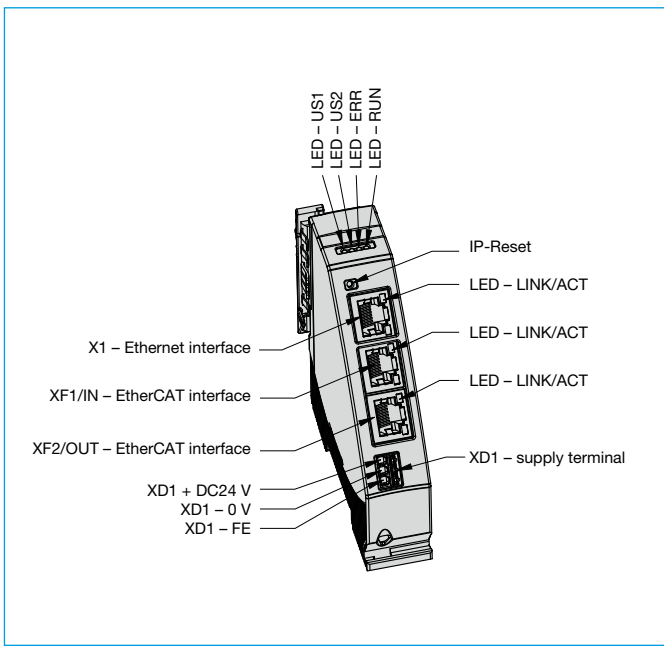
### Caution:

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 sub-assembly 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.

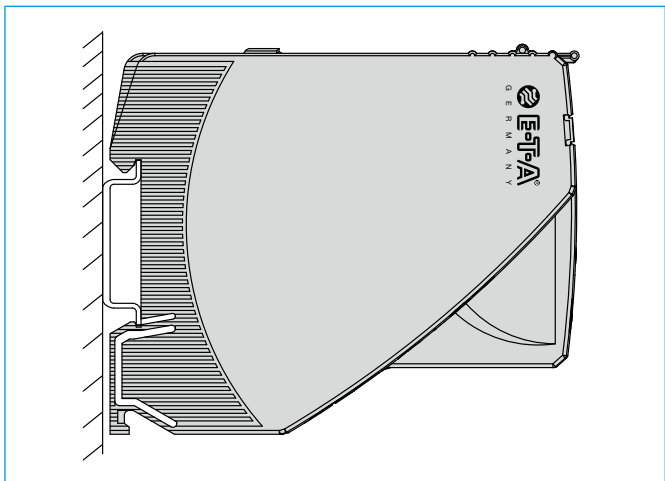
**Dimensions CPC12xx- Tx-xxx**



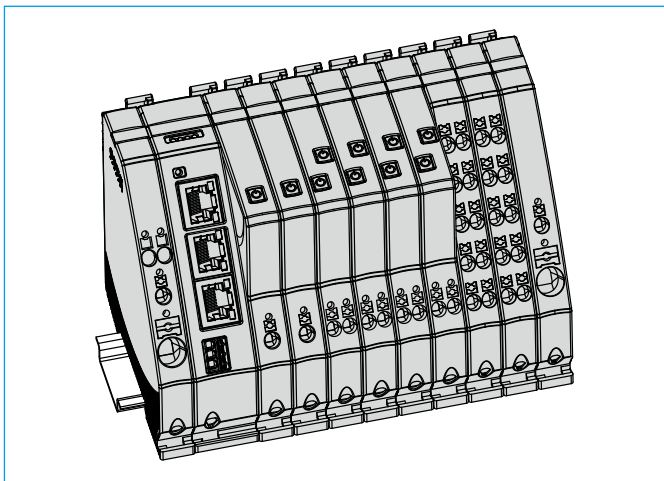
**Terminal selection**



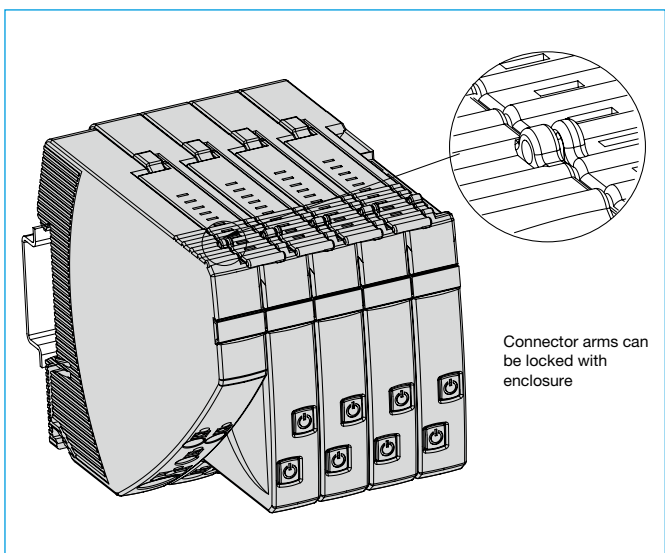
**Mounting position**



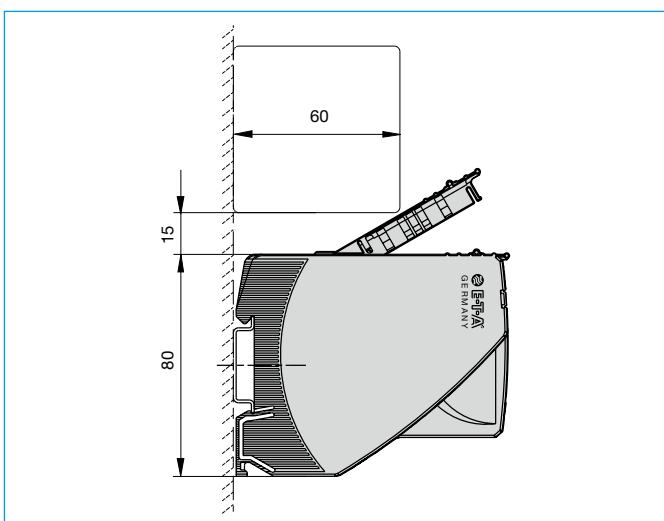
**Application example**



**Application example: CPC12 sealing**

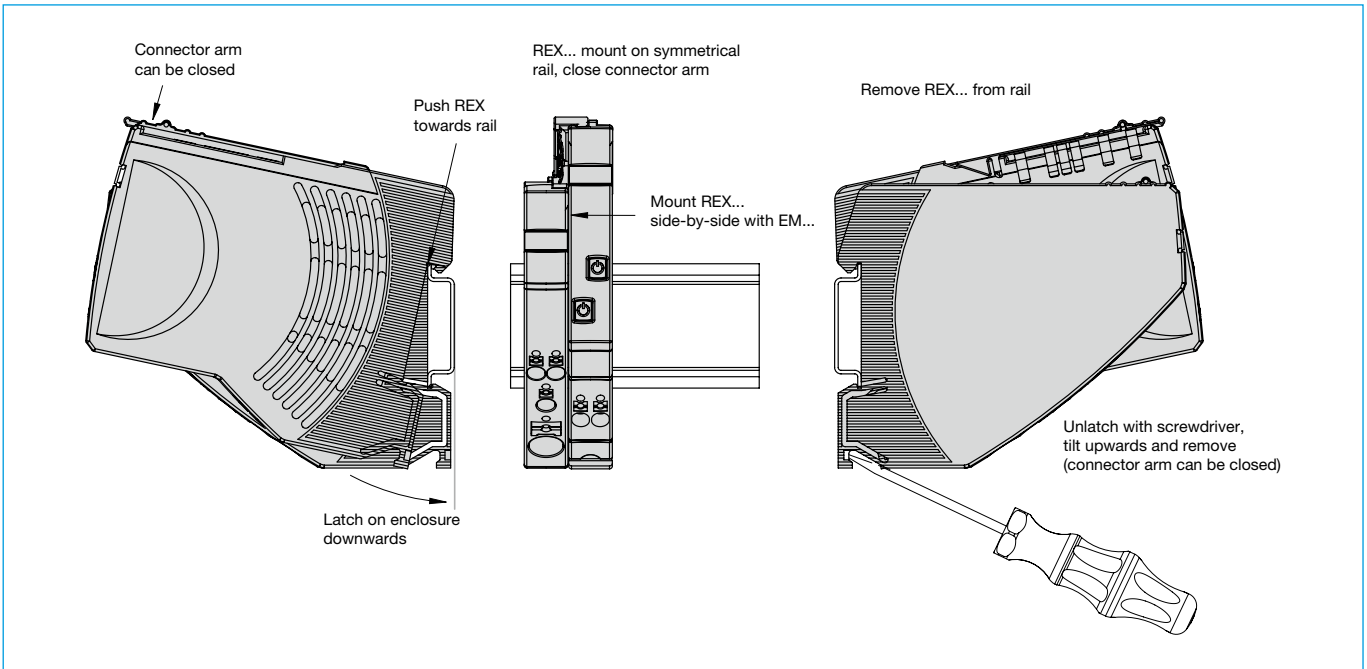


**Application example: CPC12 distance between cable duct and connector arm**

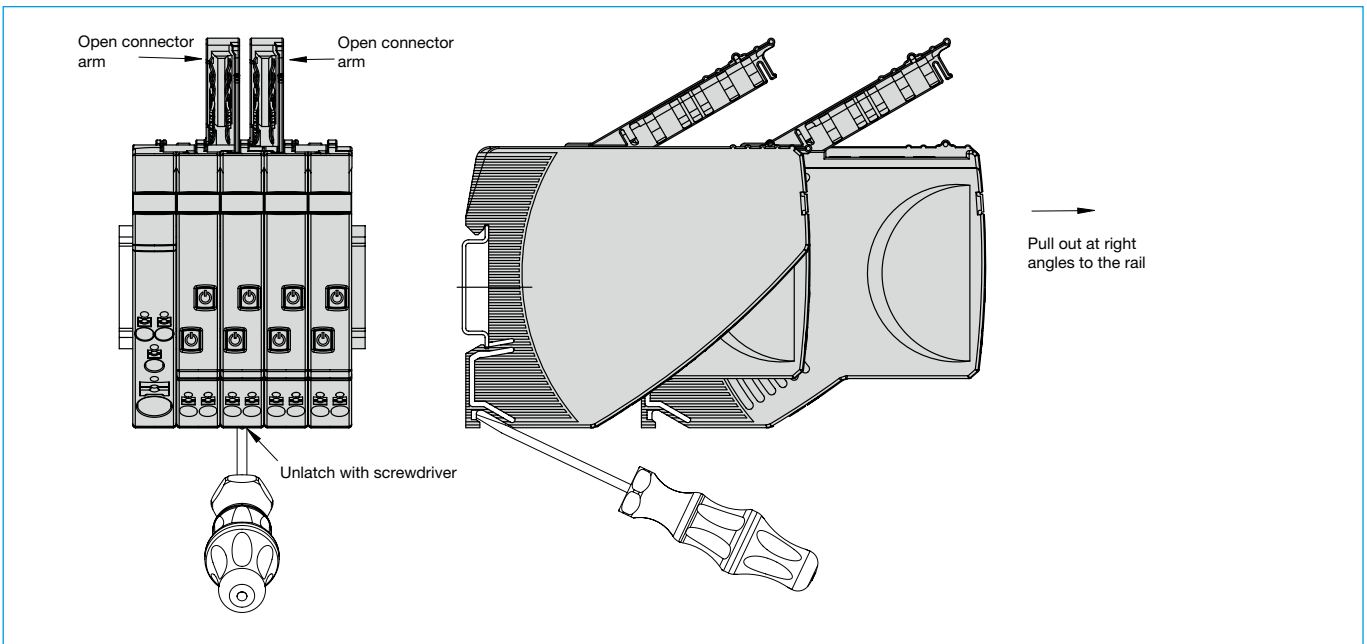


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**Application example: CPC12 mounting on or removing from symmetrical rail**



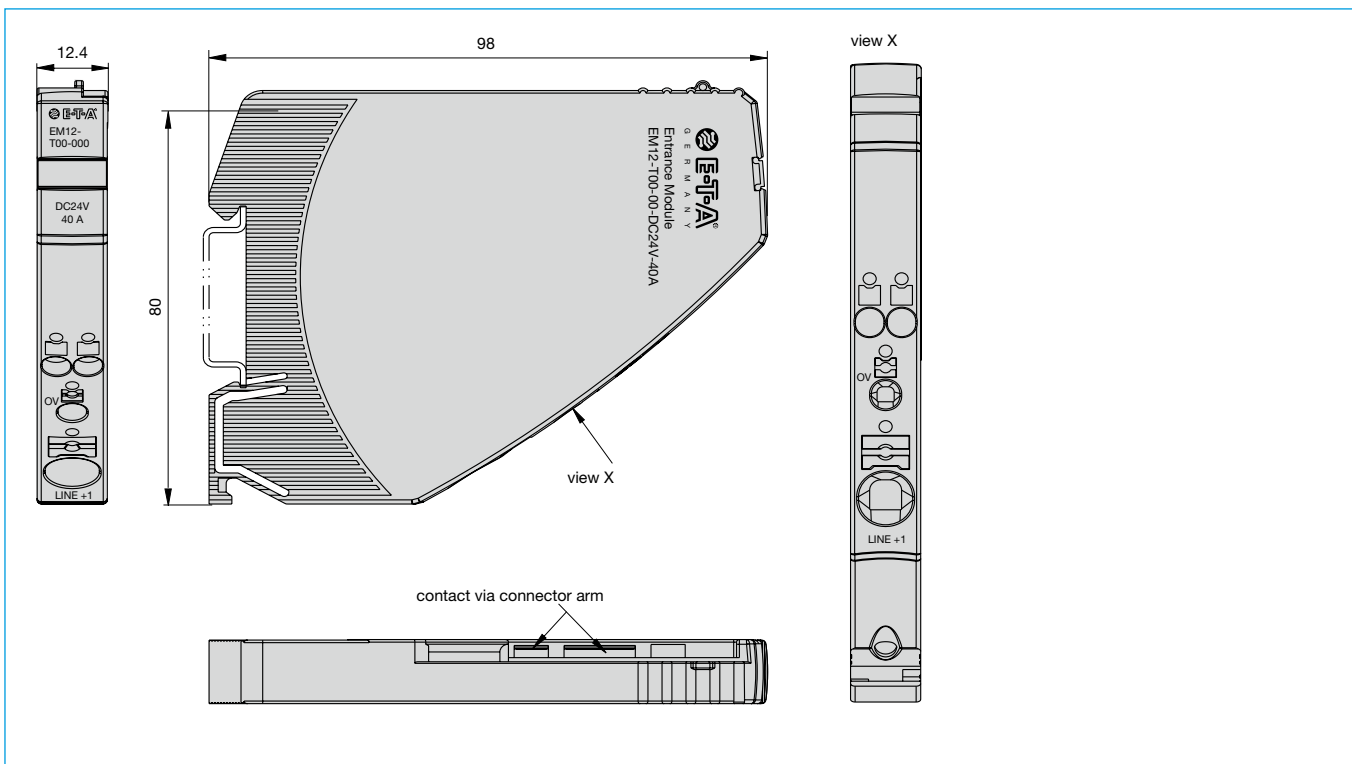
**CPC12 replacement or disassembly from the compound**



**Instructions for installation**

Mounting or actuation of the connector arm must only be effected at dead-voltage. For start-up the connector arm must be closed.

**Accessories: EM12-T00-000-DC24V-40A supply module**



Technical data		Schematic diagram
Please observe general data of REX / EM / PM		<p><b>EM12-T00-000-DC24V-40A</b></p>
Operating voltage $U_B$	DC 24 V (18 ... 30 V)	
Operating current $I_B$	Max. 40 A	
Insulation coordination	0.8 kV / pollution degree 2	
<b>Terminals</b>	<b>LINE+1</b>	
Push-in terminal PT 10	0.5 mm <sup>2</sup> ... 10 mm <sup>2</sup> flexible AWG24 – AWG8 rigid 18mm	
Wire stripping length	18mm	
<b>Terminals</b>	<b>0 V</b>	
Push-in terminal PT 2.5	0.14 mm <sup>2</sup> ... 2.5 mm <sup>2</sup> flexible 0,14 mm <sup>2</sup> ... 4 mm <sup>2</sup> , rigid AWG24 – AWG14 rigid 8 mm to 10 mm	
Wire stripping length	8 mm to 10 mm	
Dimensions (h x w x d)	12.4 x 80 x 98 mm	
Mass	approx. 52 g	
Approvals	UL 2367, File # E306740; cULus508listed, File # E492388	