



CPC12PN-T1-001

The intelligent CPC12 **ControlPlex**[®] system is the perfect solution for the machine building 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 CPC12 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.

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TYPICAL FEATURES

- Control, diagnosis and monitoring via PROFINET
- Devices including supply module, overcurrent protection, power distribution module and bus controller
- No accessories required for connecting the components
- Fully-fledged PROFINET communication interface
- Can be updated via fully-fledged Ethernet communication interface (web server)
- Adjustable configuration of up to 32 channels with 16 devices

TYP. APPLICATIONS

Automation, machine building industry, process industry

WEB LINKS

[Further information](#), [Web server instruction manual](#), [Mounting and operation \(videos\)](#), [Operating instructions](#), [International approvals](#), [Technical basics](#), [REACH](#), [RoHS](#), [Contact](#)

YOUR BENEFITS

- Increased machine uptime through clear failure detection and stable voltage supply
- Saves costs as no further accessories are required
- Saves 50 % time through innovative and flexible mounting and connection technology
- Reduces downtimes through quick trouble-shooting

APPROVALS / CERTIFICATIONS



NEC Class2



COMPLIANCE



GENERAL INFORMATION

SAFETY AND INSTALLATION INSTRUCTIONS



Installation must be done by a qualified electrician.



- The CPC12 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.
 - Only the intended circuit protectors must 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 file (GSDML file) is made available for downloading on the E-T-A homepage.
- The CPC12 bus controller is not suitable to control safety-relevant or functional safety applications.
 - Please observe separate CPC12 instruction manual.



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.

Mounting instruction: 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. A maximum of 40 modules can be connected in series.

Note: Data sheets for the electronic circuit protectors in the REX portfolio must be taken into account. Specifically the notes on DIN rail mounting/dismounting, installation position, installation space, sealing and application examples must be observed.

FURTHER INFORMATION



CONTROLPLEX® SYSTEM CPC12
<https://global.e-t-a.com/c18179/>

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
Quiescent current I_0	Typ. 75 mA
Reverse polarity protection	Yes
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, writing of the rated current only possible with the REX12D-TE and REX22D-TE devices.
Reading static device information	• CPC12 device type & circuit protectors • CPC12 serial number & circuit protectors • CPC12 hardware version & circuit protectors • CPC12 software version & circuit protectors
Reading dynamic device information / measuring values	• CPC12 device status • Internal cycle time • 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

Control commands	• Switch on/off or reset load output • Reset trip counter • Set parameters to factory settings
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MECHANICAL DATA

Mounting dimensions (WxHxD)	23 x 80 x 98.5 mm (tolerances according to DIN ISO 286 part 1 IT13)
Mass	Approx. 70 g
Mounting data	DIN rail according to EN 60715-35x7.5

MOUNTING VALUES

XD1 terminal	Cable cross section [mm²]	Cable cross section [AWG]	Stripping length [mm]
rigid	0.2...1.5	24...16	8
flexible	0.2...1.5	24...16	8
flexible with wire end ferrule with plastic sleeve	0.2...0.75	24...19	8
flexible with wire end ferrule without plastic sleeve	0.2...1.5	24...16	8

Interfaces	PROFINET interface (XF1, XF2) RJ45 connection to PROFINET bus system ETHERNET interface (X1) RJ45; communication interface to the web server
IP-reset momentary switch	Resetting the IP address (X1 interface) by pushing the button for min. 3 s

AMBIENT CONDITIONS

Ambient temperature	-30...+60 °C (without condensation, cf. EN 60204-1)
Storage temperature	-40...+70 °C
Mounting temperature	+5...+60 °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 5 g
IP code standard	IEC 60529
Actuating area IP code (standard)	IP30
Terminal area IP code (standard)	IP20
EMC requirements - emitted interference (EMC directive)	EN 61000-6-3
EMC requirements - resistance to disturbances (EMC directive)	EN 61000-6-2
Operating altitude	2,000 m a. sea level (SL) 3,000 m a. SL up to +55 °C 4,000 m a. SL up to +50 °C
Maximum ambient pressure during operation	4 bar above atmospheric pressure

FURTHER INFORMATION

CPC12EN/MB/PN - VISUAL INDICATION OF THE RJ45 INTERFACES X1, XF1 AND XF2

Link (Ethernet cable monitoring)	
Operating mode	LED LNK
Link available	Green
No link available	OFF
Activity (Ethernet communication activity)	
Operating mode	LED ACT
Activity available	Orange flashing

No activity available	OFF
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CPC12PN - VISUAL INDICATION OF THE OPERATING CONDITIONS

Operating mode	LED US1	LED US2	LED BF	LED SF
Bus fault	Green	Green	Red	OFF
System fault	Green	Green	OFF	Red
Firmware update	OFF	OFF	OFF	OFF
No actuator voltage	n.a.	Red	n.a.	n.a.
No connected device or bus fault	n.a.	blinking orange	n.a.	n.a.
PROFINET device localisation	n.a.	n.a.	n.a.	blinking red
PROFINET connection active	Green	Green	OFF	OFF

n.a. not applicable

ORDERING NUMBER CODE

C	P	C	1	2	P	N	-	T	1	-	0	0	1
			1			2			3	4			5

1 TYPE NUMBER

CPC12	Bus controller for REX12D and REX22D with PT connection technology
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2 VERSION: FIELDBUS SYSTEM

EC	EtherCAT (connection: 2x RJ45 socket)
EN	EtherNet/IP (connection: 2x RJ45 socket)
MB	Modbus TCP (connection: 2x RJ45 socket)
PN	PROFINET (terminal: 2x RJ45 socket)

3 MOUNTING

T	DIN rail mounting
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4 ELBUS CONNECTION

1	Communication with the REX12D and REX22D circuit protectors
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5 PRODUCT VERSIONS

001	Marking version
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6 ATEX APPROVAL

[No entry if no ATEX approval]	
E	ATEX/IECEX approval

Further ordering examples:

- CPC12 PN - T 1 - 001 - E (with ATEX approval)

APPROVALS

APPROVALS			
Approval authority	Test standard	File Certificate No.	Rated voltage [V]
UL	UL 2367 UL 1310 NEC Class2	E306740	DC 24
UL	UL 508 listed CSA C22.2 No. 14, CSA C22.2 No. 107.1	E492388	DC 24
UL	UL 121201 (Class I, Division 2, Groups A, B, C, D) CSA C22.2 No. 213	E543007	DC 24

Bureau Veritas	ATEX 2014/34/EU EN 60079-0 EN 60079-7 EN 60079-15	EPS 23 ATEX 1 262 U	DC 24
IECEX	IEC 60079-0 IEC 60079-7 IEC 60079-15	IECEX EPS 23.0072U	DC 24
UKEX	EN IEC 60079-0 EN IEC 60079-7 EN IEC 60079-15	EPS 23 UKEX 1 263 U	DC 24

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

APPROVALS



Operating temperature code T4

- This equipment is suitable for use in Class I, Division 2, Groups A, B, C and D or non-hazardous locations only. T5

WARNING - EXPLOSION HAZARD:

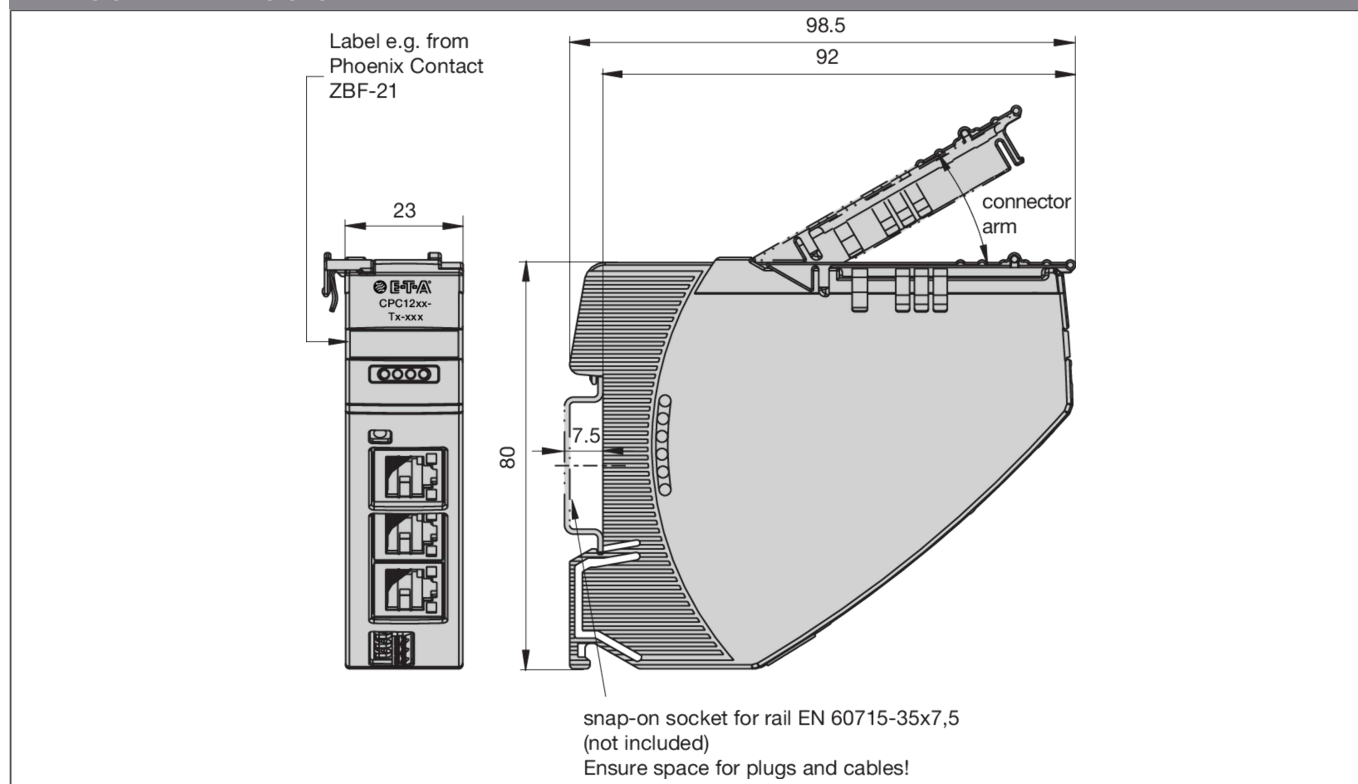
- Do not connect or disconnect equipment unless power has been removed or the area is known to be non-hazardous.

This device is OPEN type equipment that must be used within a suitable end-use system enclosure, the interior of which is only accessible using a tool. The suitability of the enclosure must be checked by the local authority at the time of installation.

Wiring to or from this device, which enters or leaves the system enclosure, must utilize wiring methods suitable for Class I, Division 2 Hazardous Locations, as appropriate for the installation.

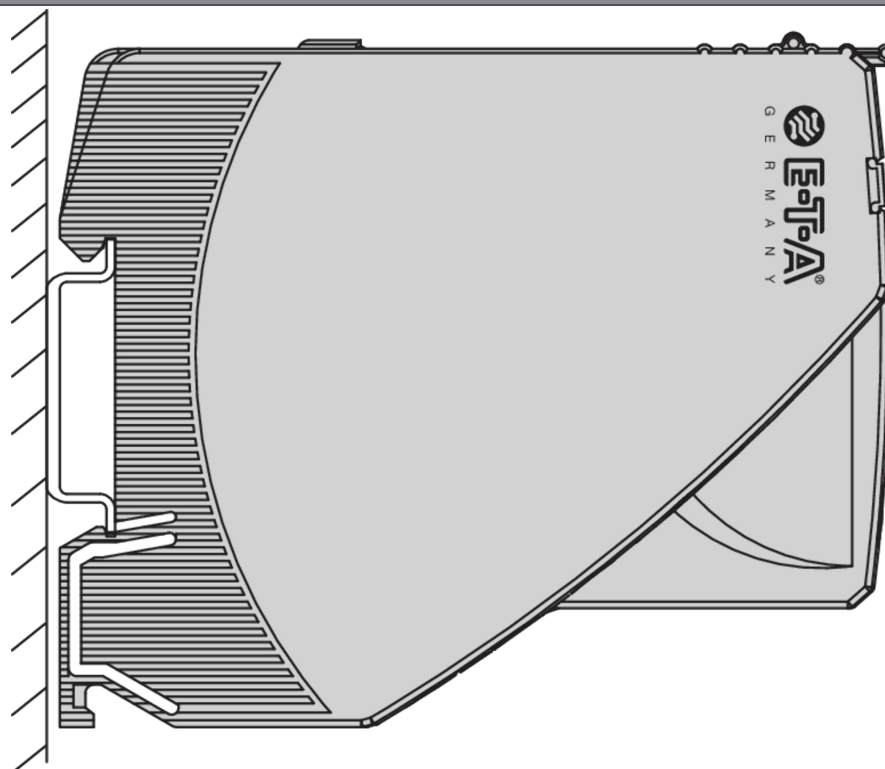
DIMENSIONS

DIMENSIONAL DRAWING CPC12XX-TX-XXX



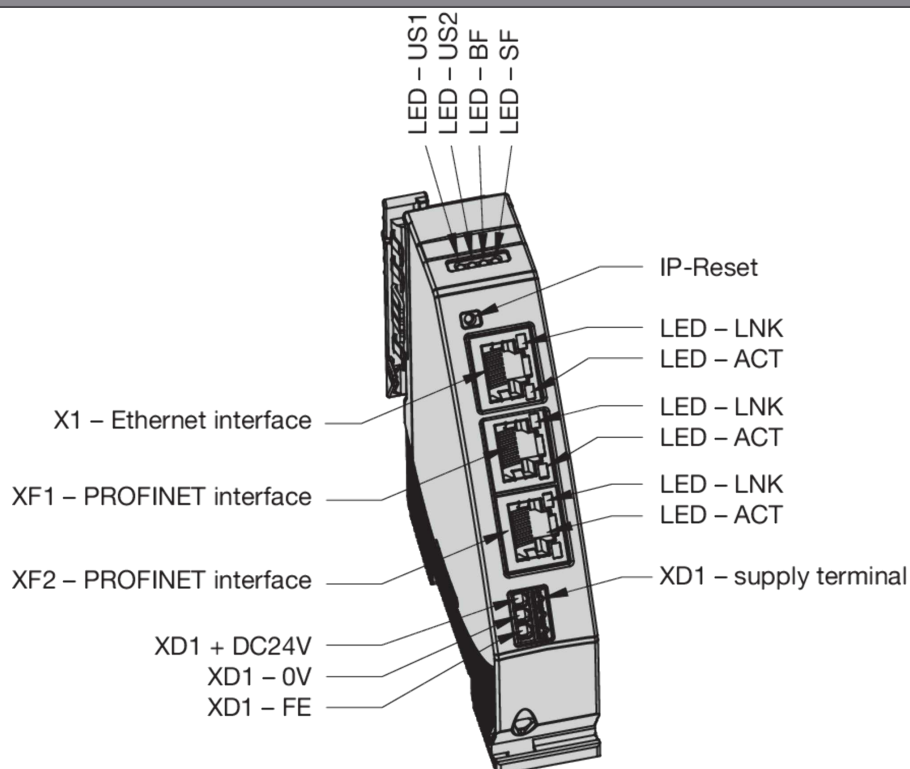
INSTALLATION INSTRUCTIONS

PREFERRED MOUNTING POSITION IN THE REX SYSTEM HORIZONTAL



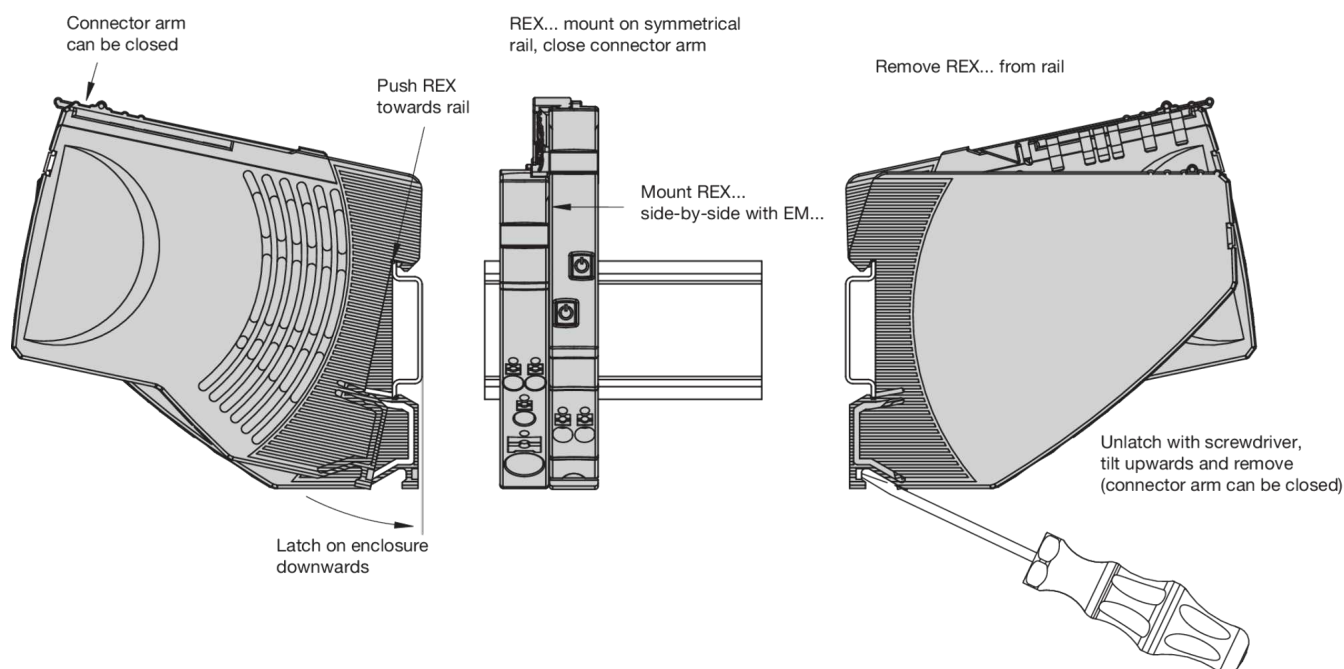
SCHEMATIC DIAGRAMS

CPC12PN PIN ASSIGNMENT

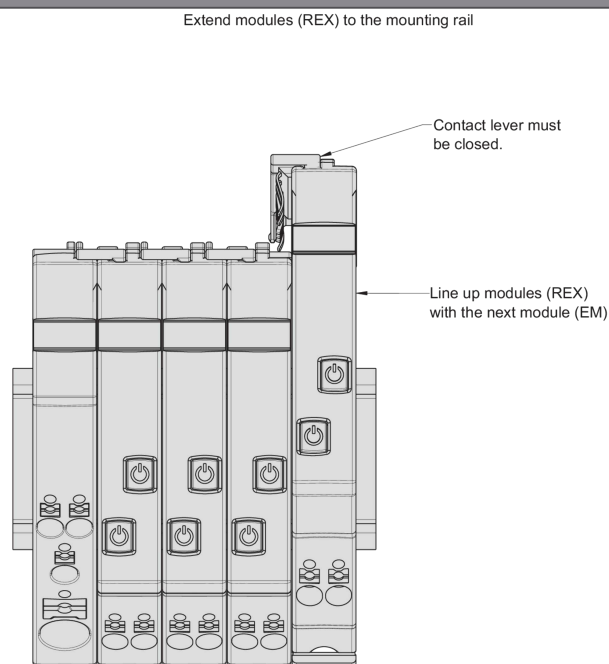


APPLICATION EXAMPLES

MOUNTING / DISMOUNTING ON DIN RAIL IN THE REX SYSTEM



MOUNTING / EXPANSION ON DIN RAIL IN THE REX SYSTEM

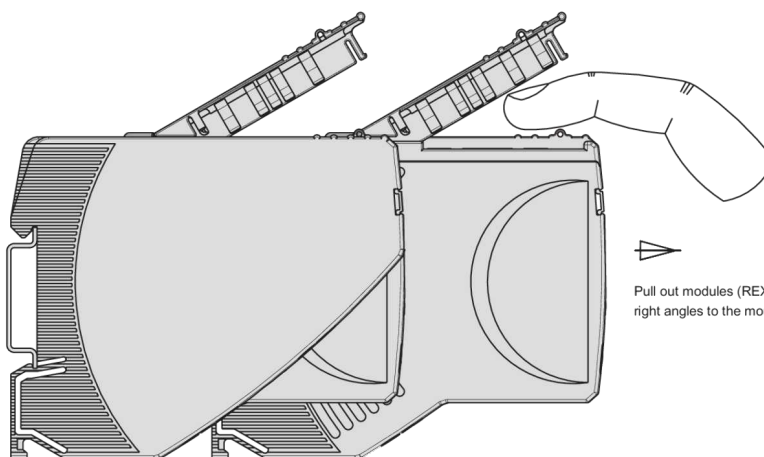
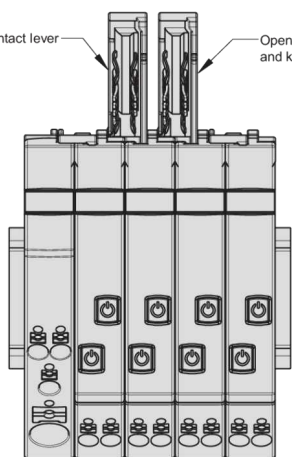


Mount modules individually with closed bracket on the mounting rail.

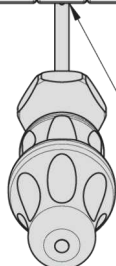
EXCHANGE IN / DISMOUNTING FROM THE REX SYSTEM NETWORK

Only open the bracket to change the module

Open contact lever
Open the contact lever and keep the contact

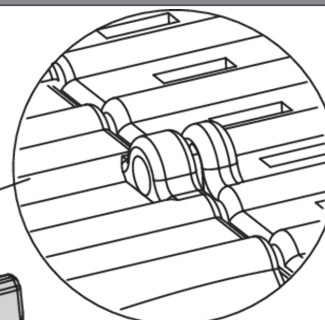
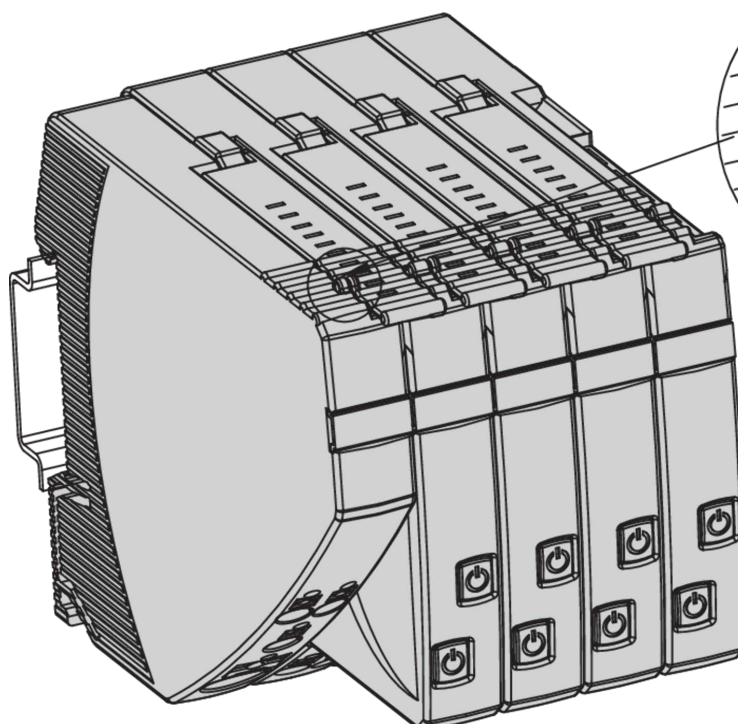


Pull out modules (REX) at right angles to the mounting rail



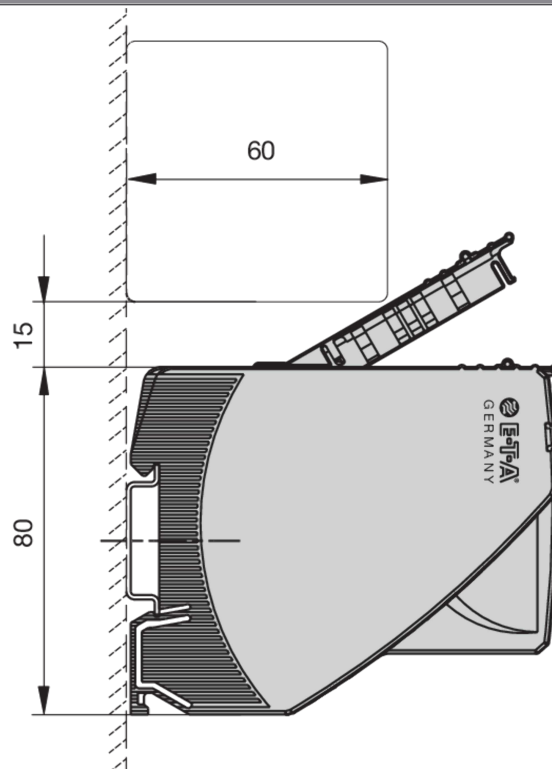
Release the housing latch of the modules (REX) with the screwdriver

SEALING OF THE REX SYSTEM

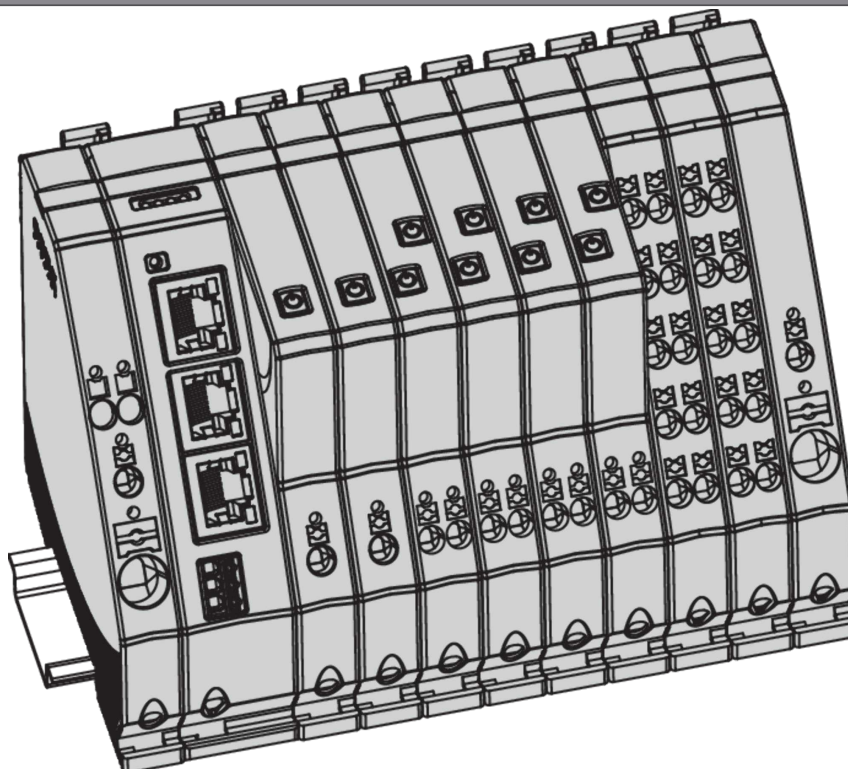


Connector arms can be locked with enclosure

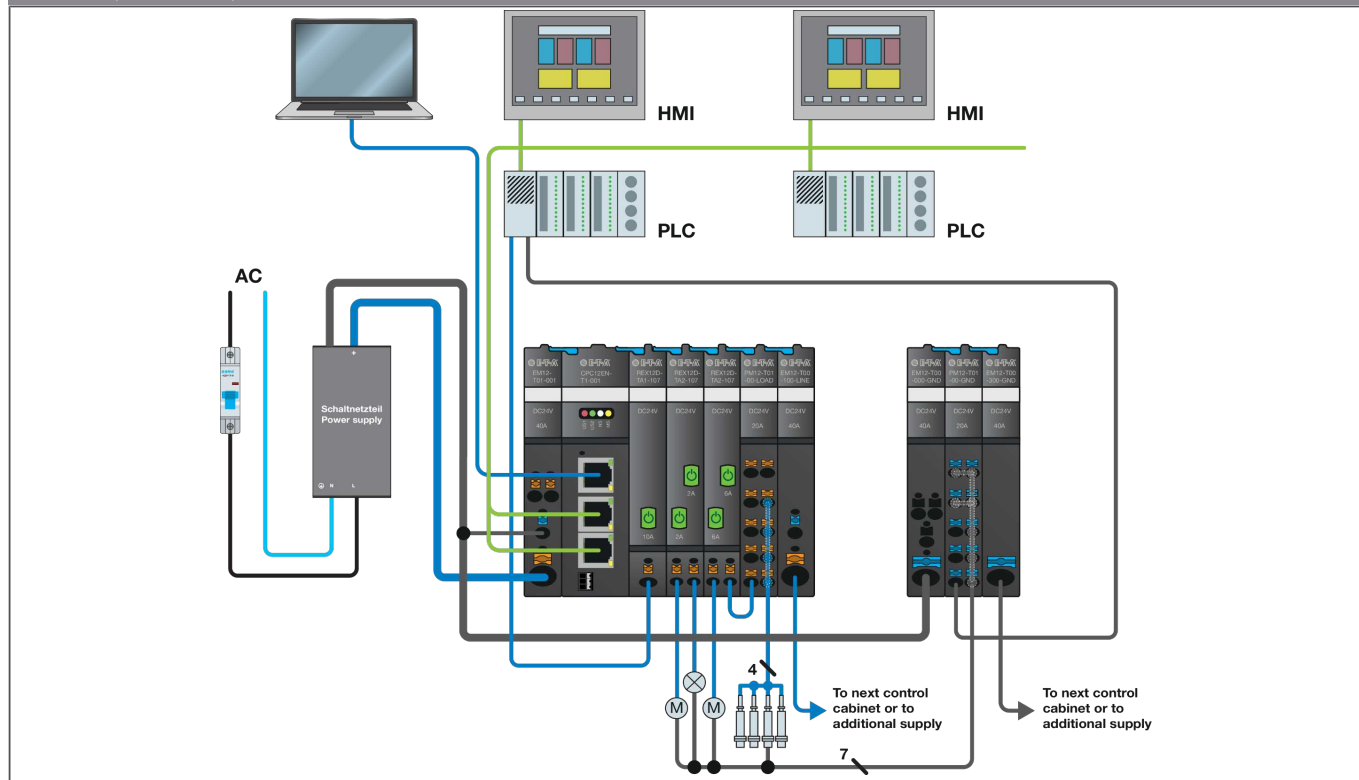
DISTANCES BETWEEN CABLE DUCT AND LEVER IN THE REX SYSTEM



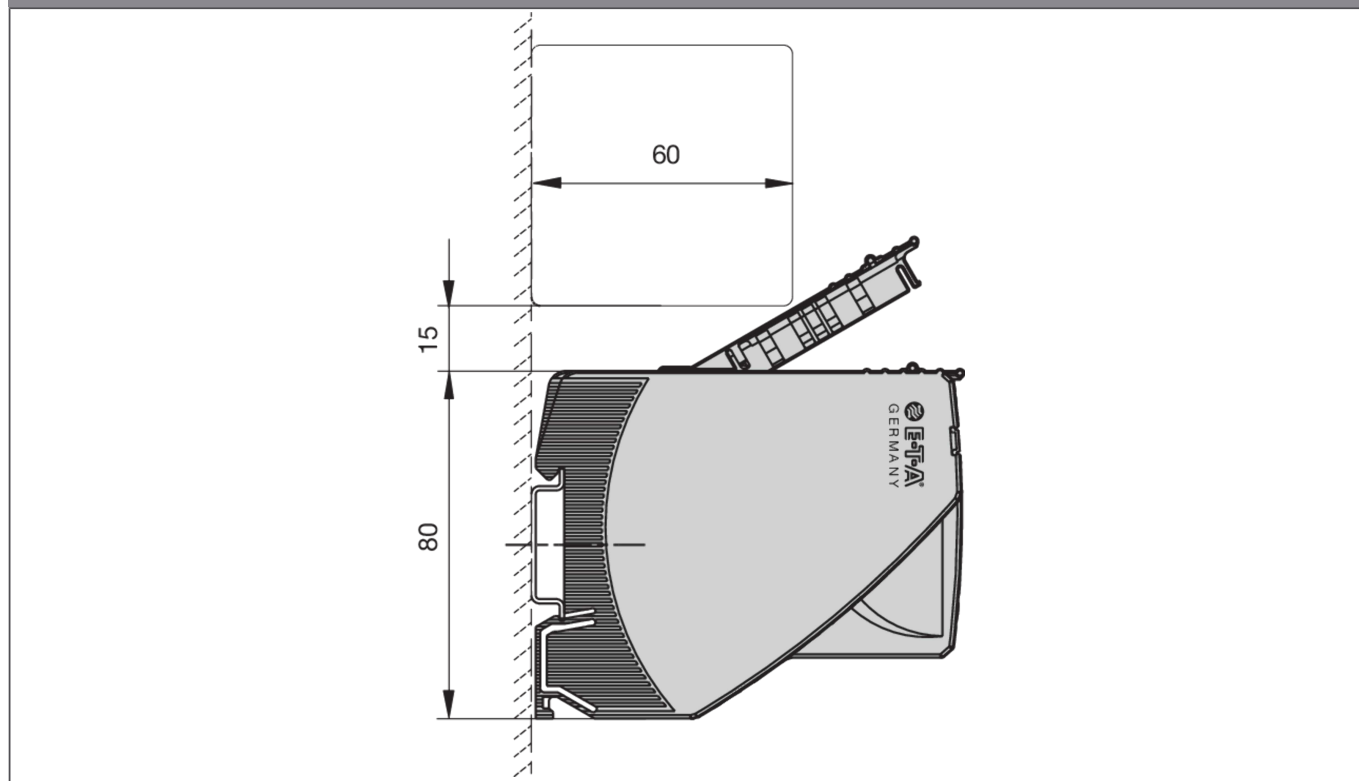
APPLICATION EXAMPLE



CPC12EN, CPC12MB, CPC12PN APPLICATION EXAMPLES



DISTANCES BETWEEN CABLE DUCT AND LEVER IN THE REX SYSTEM



ACCESSORIES

REQUIRED ACCESSORIES

<u>0EM120007183</u>	The EM12-T supply module receives the DC 24 V supply voltage, e.g. from a switched mode power supply, and distributes it to the mounted circuit protectors via the integral connector arm of the REX12-T. The potential-free Si auxiliary contact in the EM12-T indicates errors and faults detected by the circuit protectors, e.g. to a superordinate control unit (CPU). EM12-T00-000-DC24V-40A supply module (without signalling)	
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OPTIONAL ACCESSORIES

<u>EM12-T (LINE)</u>	The EM12-T supply module receives the DC 24 V supply voltage, e.g. from a switched mode power supply, and distributes it to the mounted circuit protectors via the integral connector arm of the REX12-T.	
<u>EM12-T (GND)</u>	The EM12-T supply module receives the DC 0 V (GND) of the supply voltage, e.g. from a switched mode power supply, and distributes it to the mounted potential distribution modules via the integral connector arm of the PM12-T.	

OPTIONAL ACCESSORIES FROM

<u>REX12D-T</u>	With the compact and flexible REX system, E-T-A offers a sophisticated DC 24 V solution for protection and power distribution in mechanical and plant engineering - consisting of power supply, overcurrent protection, distribution and bus controller. The REX12D-T circuit protector provides selective protection, reacts faster than the switch mode power supply to short circuits or overloads and reliably switches on capacitive loads up to 20,000 µF. Available with fixed and adjustable current ratings from 1 A to 10 A, it fulfils not only UL508 listed and NEC Class 2 but also exclusively EN 60204-1 for line protection. All REX12D-T modules support BASE and COM mode - with simple message signalling or extensive communication and diagnostics just as required. The operating mode is automatically recognised.	
<u>REX22D-T</u>	E-T-A's compact and flexible REX system represents a comprehensive DC 24 V protection- and power distribution solution for the machine building industry. It is a perfectly harmonised system including power supply, overcurrent protection, power distribution and bus controller. The REX22D-T selectively protects all DC 24 V load circuits up to 20 A and linearly limits the output current when switching on or before tripping. The limitation limits the rated current in the event of a short circuit. This allows effective and calculable protection of switch mode power supplies, even with small power reserves.	

All information and data given on our products are accurate and reliable to the best of our knowledge, but E-T-A does not accept any responsibility for the use in applications which are not in accordance with the present specification. E-T-A reserves the right to change specifications at any time in the interest of technical improvement. Dimensions are subject to change without notice. Please enquire for the latest dimensional drawing with tolerances if required. All dimensions, data, pictures and descriptions are for information only and are not binding. Amendments, errors and omissions excepted. Ordering part numbers may differ from the device marking.