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#### **Description**

The compact and flexible all-in-one solution REX consists of several perfectly matched components. It comprises the EM12-T supply module for the plus and minus potential via a single or double channel REX12-T electronic circuit protector which can be mounted side by side in any number and the PM12-T potential extension module for plus and minus multiplication. Connection of the only 12.5 mm wide modules is exclusively with push-in terminals which allow no-tool time-saving wiring.

The circuit protectors are placed on the symmetrical rail one after another in combination with EM12-T and PM12-T and are electrically connected by means of the built-in connector arm - no further accessories are required. The circuit protector REX12-T offers selective overcurrent protection by responding to short circuit or overload faster than the switch mode power supply. Capacitive loads of up to 20,000µF can be switched on without problems. The circuit protector is available in all standard fixed and adjustable current ratings from 1 A to 10 A. Besides the UL508listed approval and NEC Class2, the REX12-T also meets the requirements of cable protection to EN60204-1.

#### **Features**

- Combination of supply modules, overcurrent protection and power distribution
- Selective load protection by means of electronic trip curve
- No accessories required for connecting the components
- Width per channel only 12.5 mm (1-channel) or 6.25 mm (2-channel)
- Fixed and adjustable current ratings 1A-10A
- Integral fail-safe element, adjusted to max. current rating
- Switching capacitive loads up to 20,000 μF
- Manual ON/OFF/reset momentary switch
- Clear status indication by means of LED and signal contact Si
- Connection via push-in terminals including orange press release buttons



#### **Benefits**

- Saves cost no further accessories required
- Saves 50 % time through innovative and flexible mounting and connection technology
- Saves space with a width of only 12.5 mm per channel
- Provides flexibility through ease of mounting, disassembly and modular design
- Reduces storage costs because only one product is required for all current ratings

### Preferred types - for more details on all configurations please see page 3

Preferred types are E-T-A products most frequently used by E-T-A customers. We manufacture E-T-A preferred types in particularly high

volumes. Our preferred types are supplied at shorter lead times than non-standard versions.

## **Preferred types**

Preferred types	Short description	Preferred ra	atings (A)					
REX12-TA1	1-channel	2	4	6	10	2/2	4/4	6/6
REX12-TA1-107-DC24V-		х	х	х	х			
REX12-TA2	2-channel	2	4	6	10	2/2	4/4	6/6
REX12-TA2-107-DC24V-						х	х	х
REX12D-TE2	2-channel, adjustable	1A-10A						
REX12D-TE2-100-DC24V-		х						

## **Approvals**





#### **Compliances**



### Data sheet

The current data sheet is available on our website: www.e-t-a.de/e359

## **② [章] REX12 Electronic Circuit Protector**

### Technical data (T<sub>amb</sub> = +23 °C, U<sub>B</sub> = DC 24 V)

REX12-Txx-xxx circuit protectors REX12-TA1-107-DC24V-xA REX12-TB1-107-DC24V-xA (available REX12-TA2-107-DC24V-xA/xA	2-channel
REX12D-TE2-100-DC24V-xA-xA	2-channel
The REX12-TAx is operated in the stan REX12D-TE2 can be operated both wit operating mode EM12D-T (COM mode recognised automatically. The following standard mode.	th EM12D-T or EM12-T. The e) or EM12-T (standard) is
Operating voltage U <sub>B</sub>	DC 24 V (1830 V)

Closed-circuit current I<sub>0</sub>
REX12-Tx1 1-channel in ON condition: typically 5 mA
REX12-TA2 2-channel in ON condition: typically 5 mA
REX12D-TE2 1A-10A 2-channel in ON condition: typically 8 mA
Reverse polarity protection Yes

Power failure
buffering time up to 10 ms

Rated current I<sub>N</sub> ratings:

REX12-Tx1 1 A, 2 A, 3 A, 4 A, 6 A, 8 A, 10 A

REX12-TA2 1 A/1 A, 2 A/2 A, 3 A/3 A, 4 A/4 A, 6 A/6 A

REX12D-TE2 1 A – 10 A Condition upon delivery max. current rating

Visual status indication green: Load circuit connected

Visual status indication by means of LED

green: Load circuit connected green/orange blinking: load current warning limit reached 90 %

orange: overload or short circuit until disconnection red:
- after disconnection due to overload or short circuit
- after undervoltage release of operating voltage in ON condition with autoreset

OFF:

Device switched off by means of ON/OFF momentary switch or no operating voltage

#### Load circuit

power MOSFET switching output Load output (plus switching) Load current warning limit typically 0.9 x I<sub>N</sub> (I<sub>WLimit</sub>) hysteresis typically 5 % t<sub>ÜL</sub>: 3s Overload current typically I<sub>ÜL</sub>: I<sub>N</sub> x 1.05 t<sub>ÜL</sub>: 0,5s disconnection ( $I_{\ddot{U}L}$ ) typically  $I_{\ddot{U}L}$ :  $I_N \times 1.35$  typically  $I_{\ddot{U}L}$ :  $I_N \times 2.00$ with trip times (t<sub>ÜL</sub>) t<sub>ÜL</sub>: 0.1s t<sub>ÜL</sub>: 0.012 s typically I<sub>ÜL</sub>: I<sub>N</sub> x 2.50 short circuit typically at short circuit (I<sub>SC</sub>) t<sub>SC</sub>: 0.002 s<sup>2)</sup> trip time (t<sub>SC</sub>) see time/current characteristic Influence of ambient see temperature factor table

temperature on overload disconnection and load current warning limit

Continuous Current IC typically 0.8 x I<sub>N</sub>

(Fail Safe Element is protected by REX12)

Voltage drop in load circuit at  $\rm I_N$  and at  $\rm I_N$  70 % for REX12-Txx between LINE+ and LOAD+

Detween Flide	T AIR LOADT		
I <sub>N</sub> : 1 A (CL2)	typically 180 mV	I <sub>N</sub> : 70 %	typically 125 mV
I <sub>N</sub> : 2 A (CL2)	typically 110 mV	I <sub>N</sub> : 70 %	typically 80 mV
I <sub>N</sub> : 3 A	typically 120 mV	I <sub>N</sub> : 70 %	typically 85 mV
I <sub>N</sub> : 3 A-CL2	typically 130 mV	I <sub>N</sub> : 70 %	typically 90 mV
I <sub>N</sub> : 4 A	typically 115 mV	I <sub>N</sub> : 70 %	typically 80 mV
I <sub>N</sub> : 4 A-CL2	typically 180 mV	I <sub>N</sub> : 70 %	typically 120 mV
I <sub>N</sub> : 6 A	typically 170 mV	I <sub>N</sub> : 70 %	typically 110 mV
I <sub>N</sub> : 8 A	typically 160 mV	I <sub>N</sub> : 70 %	typically 105 mV
I <sub>N</sub> : 10 A	typically 180 mV	I <sub>N</sub> : 70 %	typically120 mV
2) depending on p	ower source		

Technical data (T<sub>amb</sub> = +23 °C, U<sub>B</sub> = DC 24 V)

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DEVIOD TEC 10	00 000 41	1 4 4 4 4 4 4						
REX12D-TE2-10				٦.	0./			
I <sub>N</sub> : 1 A	typically			70			ly 28 mV	
I <sub>N</sub> : 2 A	typically	39 mV		70			ly 34 mV	
I <sub>N</sub> : 3 A	typically			70			ly 40 mV	
I <sub>N</sub> : 4 A	typically			70			ly 46 mV	
I <sub>N</sub> : 5 A	typically	66 mV	I <sub>N</sub> :	70	%	typical	ly 52 mV	,
I <sub>N</sub> : 6 A	typically			70			ly 59 mV	
I <sub>N</sub> : 7 A	typically			70			ly 65 mV	
I <sub>N</sub> : 8 A	typically	92 mV		70		typical	ly 71 mV	,
I <sub>N</sub> : 9 A	typically	101 mV	I <sub>N</sub> :	70	%	typical	ly 77 mV	,
I <sub>N</sub> : 10 A	typically	110 mV	I <sub>N</sub> :	70	%	typical	ly 83 mV	_
Fail-safe elemer	nt	I <sub>N</sub> : 1 A	(CL2)		fail-	-safe I <sub>N</sub> : 1	ΙΑ	
integral		I <sub>N</sub> : 2 A			fail-	-safe I <sub>N</sub> : 2	2 A	
blade fuse		I <sub>N</sub> : 3 A			fail-	-safe I <sub>N</sub> : 3	3.15 A	
adjusted to		I <sub>N</sub> : 3A-			fail-	-safe I <sub>N</sub> : 4	l A	
related current r	ating I <sub>N</sub>	I <sub>N</sub> : 4 A			fail-	-safe I <sub>N</sub> : 4	I A	
	- 11	I <sub>N</sub> : 4 A			fail-	-safe I <sub>N</sub> : 4	I A	
		I <sub>N</sub> : 6 A				-safe I <sub>N</sub> : 6		
		I <sub>N</sub> : 8 A				-safe I <sub>N</sub> : 8		
		I <sub>N</sub> : 10			fail-	-safe I <sub>N</sub> : 1	10 A	
		I <sub>N</sub> : 1 A	/1 A (C	L2	) fail-	-safe I <sub>N</sub> : 1	A/1 A	
		I <sub>N</sub> : 2 A	/2 A (C	L2	) fail-	-safe I <sub>N</sub> : 2	2 A/2 A	
		I <sub>N</sub> : 3 A	/3 A			-safe I <sub>N</sub> : 3		5
		I <sub>N</sub> : 3 A	/3 A-C	L2		-safe I <sub>N</sub> : 4		
		I <sub>N</sub> : 4 A	/4 A		fail-	-safe I <sub>N</sub> : 4	1 A/4 A	
		I <sub>N</sub> : 4 A	/4 A-C	L2	fail-	-safe I <sub>N</sub> : 4	1 A/4 A	
		I <sub>N</sub> : 6 A	/6 A			-safe I <sub>N</sub> : 6		Α
		I <sub>N</sub> : 1 A	-10 A		fail-	-safe I <sub>N</sub> : 1	16 A	
Operating voltage	ge	OFF at	t typica	ally	U <sub>B</sub> <	16.0 V		
monitoring re.		ON at	typica	lly	$U_B >$	19.0 V		
undervoltage		hystere						
		with a	utomat	ic (	OFF a	nd ON sv	vitching	
ON delay								
<ul> <li>with power Of</li> </ul>	1	channe	el 1: ty	pic	ally 10	00 ms (RE	EX12-TA>	K)
		channe	el 2: ty	pic	ally 20	00 ms (RE	EX12-TA>	K)
		channe	el 1: typ	oica	ılly 1,5	500 ms (RI	EX12D-T	E2
		channe	el 2: typ	oica	lly 1,6	800 ms (RI	EX12D-T	E2
<ul> <li>when switchin</li> </ul>		channe						
ON /OFF switch	ch or	channe						
<ul> <li>after undervolf</li> </ul>	tage	channe						
		channe	el 2: ty	pic	ally 5	ms		
Disconnection of	load circui					ice with the switch	he	
						hort circu (no auto		
		- temp	orarily	at	under	voltage		
		- at no	opera	tinç	y volta	age		
			•			_		

Switch-on of load circuit

- momentary switch ON/OFF device can only be switched on when operating voltage is applied

- applying The device starts up with the condition operating voltage last stored.

## Technical data (T<sub>amb</sub> = +23 °C, U<sub>B</sub> = DC 24 V)

Enquire adjusted current rating with REX12D-TE2	Enquiry of currently adjusted current rating, independent of the operating mode (COM or standard), possible for each channel directly on the REX12D-TE2 Enquiry mode is started by pushing the button between ≥ 2 seconds and < 5 seconds. After releasing the button, the LED is RED for 333 ms to indicate start of enquiry. Afterwards, the LED flashes ORANGE in a pulse/break ratio of 1/2 with a frequency of 1 Hz to indicate the adjusted current value. When the adjusted current rating is reached, signalling restarts after the RED LED re-lights for 333 ms. The enquiry mode is left after the adjusted current rating was signalled 5 times or by pressing the button. Visual indication will now show again the current operating condition. The enquiry mode is possible in all operating conditions (ON, OFF, UNDERVOLTAGE and TRIPPED).
Adjustment of current rating with	The adjustment mode directly on the REX12D-TE2 can only be activated in the REX12D-TE2 standard mode The adjustment mode is started per channel by pushing the button for ≥ 5 seconds. After releasing the button, the LED is RED for 333 ms to indicate start of adjustment. The LED is blinking GREEN with a pulse/break ratio of 1/4 at a frequency of 0.6 Hz for visual indication. After reaching the max. adjustment value, signalling re-starts. Overrun of the max. adjustment value after 1 Ampere is indicated by the RED LED (333 ms). The current rating to be adjusted is adopted by pushing the button during the blinking period of 1 A up to the max. adjustment value. If for instance the button is pushed after the 7th illumination of the GREEN LED, 7A is adopted as current rating and visual indication again shows the current operating condition. If the button is not pressed, the adjustment mode is left after 5 times signalling the current rating range without a new current rating being adopted and the visual indication. The adjustment mode is possible in all operating conditions (ON, OFF, UNDER-VOLTAGE and TRIPPED).
Reset function	a blocked load output (blocked by over- load / short circuit) can externally be reset by the ON/OFF momentary switch
Leakage current in load circuit in OFF condition	typically <1 mA
Capacitive loads	up to 20,000 µF: depending on: cable attenuation, power supply used, load current and current rating
Free-wheeling diode	external free-wheeling circuit at inductive load (rating according to load)
Parallel connection of several load outputs	not allowed

Technical data (T	<sub>amb</sub> = +23 °C, U <sub>B</sub> = DC 24 V)			
Status output SM	status indicator in REX system			
Electrical data	minus switching signal output Group signalling is implemented in connection with EM12-T supply module			
Terminals LOAD+				
Push-in terminal PT 2.5 stripping length	0.14 mm <sup>2</sup> 2.5 mm <sup>2</sup> flexible AWG24 – AWG14 rigid 8 mm 10 mm			
Dimensions (w x h x d)	12.5 x 80 x 98.5 mm			
Mass REX12-TA1-xxx 1-channel REX12-TB1-xxx 2-channel REX12-TA2-xxx 2-channel REX12D-TE2-xxx 2-channel	approx. 57 g approx. 60 g approx. 58 g al approx. 62 g			
General data REX / EM	/ PM			
Housing material	moulded			
Mounting	symmetrical rail to EN 60715-35x7.5			
Ambient temperature	-25 °C +60 °C T(without condensation cf. EN 60204-1)			
Storage temperature	-40 °C +70 °C			
Mounting temperature	+5° +60 °C			
Humidity	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			
Corrosion	96 hrs. in 5 % salt mist to only PM and EM accessories IEC 60068-2-11 test Ka			
Vibration	5 g test to IEC 60068-2-6, test Fc			
Degree of protection operating area REX12:	(IEC 60529, DIN VDE 0470) IP30			
terminal area EM, PM:	IP20			
EMC requirements (EMC directive, CE logo)	noise emission EN 61000-6-3 susceptibility: EN 61000-6-2			
Insulation co-ordination	(IEC 60934) 0.5 kV / pollution degree 2			
Dielectric strength	max. DC 30 V (load circuit)			
Insulation resistance (OFF condition)	n/a, only electronic disconnection			
Conformity	CE marking			

### **Approvals and standards**

Approval authority			Voltage rating	Current rating range
UL	UL 2367	E306740	DC 24 V	1 A10 A
UL	UL 1310 NEC Class2	E306740	DC 24 V	1 A, 2 A, 3 A, 4 A
UL	cULus508listed	E492388	DC 24 V	1 A10 A

PM and EM – Approvals of accessories see technical data of accessories cULus508listed pending for REX12D-TE2 and REX12-TB1

### Preferred types – a short explanation.

Preferred types are E-T-A products most frequently used by E-T-A customers. We manufacture E-T-A preferred types in particularly high

volumes. Our preferred types are supplied at shorter lead times than non-standard versions.

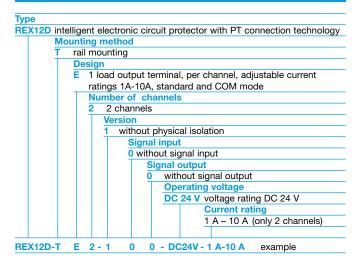
### **Preferred types**

Preferred types	Short description	Preferred ra	atings (A)					
REX12-TA1	1-channel	2	4	6	10	2/2	4/4	6/6
REX12-TA1-107-DC24V-		х	х	х	х			
REX12-TA2	2-channel	2	4	6	10	2/2	4/4	6/6
REX12-TA2-107-DC24V-						х	х	х
REX12D-TE2	2-channel, adjustable	1A-10A						
REX12D-TE2-100-DC24V-		х						

### Ordering number code - REX12-T

REX12 Electronic circuit protector with PT connection technology    Mounting method   T rail mounting	Туре					
T rail mounting  Design  A 1 load output terminal per channel, fixed current ratings xA or xA/xA  B 2 load output terminals per channel, fixed current ratings xA (only 1 channel)  Number of channels  1 1 channel (only 1-channel)  2 2 channels  Version  1 without physical isolation  Signal input  Operating voltage  DC 24 V voltage rating DC 24 V  Current rating  1 A (only 1 channel, Class2)  2 A (only 1 channel)  4 A (only 1 channel)  6 A (only 1 channel)  8 A (only 1 channel)  1 A / 1 A (only 2 channels, Class2)  2 A / 2 A (only 2 channels, Class2)  3 A // 3 A (only 2 channels)  4 A // 4 A (only 2 channels)  4 A // 4 A (only 2 channels)  4 A // 4 A (only 2 channels)  4 A // 5 A (only 2 channels)  Approval  CL2 Class2  (only 3A and 4A versions)		Electronic circuit protector with PT connection technology				
Design A 1 load output terminal per channel, fixed current ratings xA or xA/xA B 2 load output terminals per channel, fixed current ratings xA (only 1 channel)  Number of channels 1 1 channel (only 1-channel) 2 2 channels  Version 1 without physical isolation  Signal input 0 without signal input  Operating voltage DC 24 V voltage rating DC 24 V  Current rating 1 A (only 1 channel, Class2) 2 A (only 1 channel) 4 A (only 1 channel) 4 A (only 1 channel) 6 A (only 1 channel) 6 A (only 1 channel) 10 A (only 1 channel) 10 A (only 1 channel) 10 A (only 2 channels, Class2) 2 A / 2 A (only 2 channels, Class2) 3 A //3 A (only 2 channels) 4 A/4 A (only 2 channels) 4 A/4 A (only 2 channels) 4 A/4 A (only 2 channels) 6 A/6 A (only 2 channels) 4 A/4 A (only 2 channels) Approval CL2 Class2 (only 3A and 4A versions)						
A 1 load output terminal per channel, fixed current ratings xA or xA/xA  B 2 load output terminals per channel, fixed current ratings xA (only 1 channel)  Number of channels  1 1 channel (only 1-channel)  2 2 channels  Version  1 without physical isolation  Signal input  0 without signal input  Signal output  7 status output  Operating voltage  DC 24 V voltage rating DC 24 V  Current rating  1 A (only 1 channel, Class2)  2 A (only 1 channel)  4 A (only 1 channel)  4 A (only 1 channel)  6 A (only 1 channel)  10 A (only 1 channel)  10 A (only 1 channel)  10 A (only 2 channels, Class2)  2 A /2 A (only 2 channels, Class2)  3 A /3 A (only 2 channels, Class2)  4 A/4 A (only 2 channels)  4 A/4 A (only 2 channels)  4 A/4 A (only 2 channels)  Approval  CL2 Class2  (only 3A and 4A versions)		T rail mounting				
or xA/xA  B 2 load output terminals per channel, fixed current ratings xA (only 1 channel)  Number of channels  1 1 channel (only 1-channel)  2 2 channels  Version  1 without physical isolation  Signal input  0 without signal input  Operating voltage  DC 24 V voltage rating DC 24 V  Current rating  1 A (only 1 channel, Class2)  2 A (only 1 channel, Class2)  3 A (only 1 channel)  4 A (only 1 channel)  6 A (only 1 channel)  8 A (only 1 channel)  10 A (only 1 channel)  10 A (only 2 channels, Class2)  2 A / 2 A (only 2 channels, Class2)  3 A/3 A (only 2 channels)  4 A/4 A (only 2 channels)  Approval  CL2 Class2  (only 3A and 4A versions)						
B 2 load output terminals per channel, fixed current ratings xA (only 1 channel)  Number of channels  1 1 channel (only 1-channel)  2 2 channels  Version  1 without physical isolation  Signal input  O without signal input  Signal output  7 status output  Operating voltage  DC 24 V voltage rating DC 24 V  Current rating  1 A (only 1 channel, Class2)  2 A (only 1 channel)  4 A (only 1 channel)  4 A (only 1 channel)  6 A (only 1 channel)  8 A (only 1 channel)  10 A (only 1 channel)  1 A / 1 A (only 2 channels, Class2)  2 A / 2 A (only 2 channels, Class2)  3 A/3 A (only 2 channels)  4 A/4 A (only 2 channels)  4 A/4 A (only 2 channels)  Approval  CL2 Class2  (only 3A and 4A versions)  REX12 - T A 1 - 1 O 7 - DC24V - 10 A example of 1-channel						
Number of channels  1 1 channel (only 1-channel)  2 2 channels  Version  1 without physical isolation  Signal input  0 without signal input  Signal output  7 status output  Operating voltage  DC 24 V voltage rating DC 24 V  Current rating  1 A (only 1 channel, Class2)  2 A (only 1 channel, Class2)  3 A (only 1 channel)  4 A (only 1 channel)  6 A (only 1 channel)  8 A (only 1 channel)  10 A (only 1 channel)  10 A (only 1 channel)  1 A / 1 A (only 2 channels, Class2)  2 A / 2 A (only 2 channels, Class2)  3 A/3 A (only 2 channels, Class2)  4 A/4 A (only 2 channels)  4 A/4 A (only 2 channels)  Ayproval  CL2 Class2  (only 3A and 4A versions)  REX12 - T A 1 - 1 0 7 - DC24V - 10 A example of 1-channel						
1 1 channel (only 1-channel) 2 2 channels  Version 1 without physical isolation  Signal input 0 without signal input 7 status output 7 status output 1 A (only 1 channel, Class2) 2 A (only 1 channel, Class2) 3 A (only 1 channel) 4 A (only 1 channel) 6 A (only 1 channel) 8 A (only 1 channel) 10 A (only 1 channel) 10 A (only 2 channels, Class2) 2 A / 2 A (only 2 channels, Class2) 3 A/3 A (only 2 channels, Class2) 4 A/4 A (only 2 channels) 6 A/6 A (only 2 channels) 6 A/6 A (only 3 channels)  Approval CL2 Class2 (only 3A and 4A versions)						
2 2 channels  Version  1 without physical isolation  Signal input 0 without signal input  Signal output 7 status output  Operating voltage DC 24 V voltage rating DC 24 V  Current rating 1 A (only 1 channel, Class2) 2 A (only 1 channel) 4 A (only 1 channel) 6 A (only 1 channel) 8 A (only 1 channel) 10 A (only 1 channel) 10 A (only 2 channels, Class2) 2 A / 2 A (only 2 channels, Class2) 2 A / 2 A (only 2 channels, Class2) 3 A/3 A (only 2 channels) 4 A/4 A (only 2 channels) CL2 Class2 (only 3A and 4A versions)  REX12 - T A 1 - 1 0 7 - DC24V - 10 A example of 1-channel						
Version  1 without physical isolation  Signal input 0 without signal input  Signal output 7 status output  Operating voltage DC 24 V voltage rating DC 24 V  Current rating 1 A (only 1 channel, Class2) 2 A (only 1 channel, Class2) 3 A (only 1 channel) 4 A (only 1 channel) 6 A (only 1 channel) 8 A (only 1 channel) 10 A (only 1 channel) 11 A / 1 A (only 2 channels, Class2) 2 A / 2 A (only 2 channels, Class2) 2 A / 2 A (only 2 channels) 4 A/4 A (only 2 channels) 4 A/4 A (only 2 channels) 6 A/6 A (only 2 channels)  Approval CL2 Class2 (only 3A and 4A versions)  REX12 - T A 1 - 1 0 7 - DC24V - 10 A example of 1-channel						
1 without physical isolation  Signal input 0 without signal input  Signal output 7 status output  Operating voltage DC 24 V voltage rating DC 24 V  Current rating 1 A (only 1 channel, Class2) 2 A (only 1 channel, Class2) 3 A (only 1 channel) 4 A (only 1 channel) 6 A (only 1 channel) 8 A (only 1 channel) 10 A (only 1 channel) 10 A (only 1 channel) 1 A / 1 A (only 2 channels, Class2) 2 A / 2 A (only 2 channels, Class2) 3 A/3 A (only 2 channels) 4 A/4 A (only 2 channels) 6 A/6 A (only 2 channels)  Approval CL2 Class2 (only 3A and 4A versions)  REX12 - T A 1 - 1 0 7 - DC24V - 10 A example of 1-channel						
Signal input   O without signal input   Signal output   7 status output   Operating voltage   DC 24 V voltage rating DC 24 V   Current rating   1 A (only 1 channel, Class2)   2 A (only 1 channel, Class2)   3 A (only 1 channel)   4 A (only 1 channel)   4 A (only 1 channel)   6 A (only 1 channel)   10 A (only 1 channel)   10 A (only 1 channel)   10 A (only 2 channels, Class2)   2 A / 2 A (only 2 channels, Class2)   3 A/3 A (only 2 channels, Class2)   3 A/3 A (only 2 channels)   4 A/4 A (only 2 channels)   A/4 A (only 2 channels)   Approval   CL2 Class2   (only 3A and 4A versions)     REX12 - T A 1 - 1 O 7 - DC24V - 10 A example of 1-channel		10101011				
O without signal input   Signal output   7 status output   Operating voltage   DC 24 V voltage rating DC 24 V   Current rating   1 A (only 1 channel, Class2)   2 A (only 1 channel, Class2)   3 A (only 1 channel)   4 A (only 1 channel)   6 A (only 1 channel)   8 A (only 1 channel)   10 A (only 1 channel)   10 A (only 2 channels, Class2)   2 A / 2 A (only 2 channels, Class2)   2 A / 2 A (only 2 channels, Class2)   3 A/3 A (only 2 channels)   4 A/4 A (only 2 channels)   4 A/4 A (only 2 channels)   Approval   CL2 Class2   (only 3A and 4A versions)   CL2 Class2   (only 3A and 4A versions)     REX12 - T						
Signal output   7   status output   Operating voltage   DC 24 V   voltage rating DC 24 V     Current rating   1 A (only 1 channel, Class2)   2 A (only 1 channel, Class2)   3 A (only 1 channel)   4 A (only 1 channel)   4 A (only 1 channel)   8 A (only 1 channel)   8 A (only 1 channel)   10 A (only 1 channel)   10 A (only 2 channels, Class2)   2 A / 2 A (only 2 channels, Class2)   2 A / 2 A (only 2 channels, Class2)   3 A/3 A (only 2 channels)   4 A/4 A (only 2 channels)   4 A/4 A (only 2 channels)   4 A/4 A (only 2 channels)   Approval   CL2 Class2   (only 3A and 4A versions)     CL2 Class2   (only 3A and 4A versions)						
7 status output  Operating voltage DC 24 V voltage rating DC 24 V  Current rating  1 A (only 1 channel, Class2) 2 A (only 1 channel) 4 A (only 1 channel) 6 A (only 1 channel) 8 A (only 1 channel) 10 A (only 1 channel) 10 A (only 1 channel) 1 A / 1 A (only 2 channels, Class2) 2 A / 2 A (only 2 channels, Class2) 2 A / 2 A (only 2 channels, Class2) 3 A/3 A (only 2 channels) 4 A/4 A (only 2 channels) 4 A/4 A (only 2 channels) 6 A/6 A (only 2 channels) CL2 Class2 (only 3A and 4A versions)  REX12 - T A 1 - 1 0 7 - DC24V - 10 A example of 1-channel						
Operating voltage						
DC 24 V voltage rating DC 24 V  Current rating  1 A (only 1 channel, Class2) 2 A (only 1 channel, Class2) 3 A (only 1 channel) 4 A (only 1 channel) 6 A (only 1 channel) 8 A (only 1 channel) 10 A (only 1 channel) 1 A / 1 A (only 2 channels, Class2) 2 A / 2 A (only 2 channels, Class2) 2 A / 2 A (only 2 channels, Class2) 3 A/3 A (only 2 channels) 4 A/4 A (only 2 channels) 6 A/6 A (only 2 channels)  Approval CL2 Class2 (only 3A and 4A versions)  REX12 - T A 1 - 1 0 7 - DC24V - 10 A example of 1-channel						
Current rating  1 A (only 1 channel, Class2) 2 A (only 1 channel, Class2) 3 A (only 1 channel) 4 A (only 1 channel) 6 A (only 1 channel) 10 A (only 2 channels, Class2) 2 A / 2 A (only 2 channels, Class2) 3 A/3 A (only 2 channels) 4 A/4 A (only 2 channels) 4 A/4 A (only 2 channels) 6 A/6 A (only 2 channels) CL2 Class2 (only 3A and 4A versions)  REX12 - T A 1 - 1 0 7 - DC24V - 10 A example of 1-channel						
1 A (only 1 channel, Class2) 2 A (only 1 channel, Class2) 3 A (only 1 channel) 4 A (only 1 channel) 6 A (only 1 channel) 8 A (only 1 channel) 10 A (only 1 channel) 1 A / 1 A (only 2 channels, Class2) 2 A / 2 A (only 2 channels, Class2) 3 A/3 A (only 2 channels) 4 A/4 A (only 2 channels) 4 A/4 A (only 2 channels) 6 A/6 A (only 2 channels) CL2 Class2 (only 3A and 4A versions)  REX12 - T A 1 - 1 0 7 - DC24V - 10 A example of 1-channel						
2 A (only 1 channel, Class2) 3 A (only 1 channel) 4 A (only 1 channel) 6 A (only 1 channel) 8 A (only 1 channel) 10 A (only 1 channel) 1 A / 1 A (only 2 channels, Class2) 2 A / 2 A (only 2 channels, Class2) 3 A/3 A (only 2 channels) 4 A/4 A (only 2 channels) 6 A/6 A (only 2 channels)  Approval CL2 Class2 (only 3A and 4A versions)  REX12 - T A 1 - 1 0 7 - DC24V - 10 A example of 1-channel						
3 A (only 1 channel) 4 A (only 1 channel) 6 A (only 1 channel) 8 A (only 1 channel) 10 A (only 1 channel) 10 A (only 2 channels, Class2) 2 A / 2 A (only 2 channels, Class2) 3 A/3 A (only 2 channels) 4 A/4 A (only 2 channels) 6 A/6 A (only 2 channels) CL2 Class2 (only 3A and 4A versions)  REX12 - T A 1 - 1 0 7 - DC24V - 10 A example of 1-channel		2 A (only 1 channel Class2)				
4 A (only 1 channel) 6 A (only 1 channel) 8 A (only 1 channel) 10 A (only 1 channel) 10 A (only 2 channels, Class2) 2 A / 2 A (only 2 channels, Class2) 3 A/3 A (only 2 channels) 4 A/4 A (only 2 channels) 6 A/6 A (only 2 channels) 6 A/6 A (only 2 channels) CL2 Class2 (only 3A and 4A versions)  REX12 - T A 1 - 1 0 7 - DC24V - 10 A example of 1-channel						
6 A (only 1 channel) 8 A (only 1 channel) 10 A (only 1 channel) 1 A / 1 A (only 2 channels, Class2) 2 A / 2 A (only 2 channels, Class2) 3 A/3 A (only 2 channels, Class2) 4 A/4 A (only 2 channels) 6 A/6 A (only 2 channels)  Approval CL2 Class2 (only 3A and 4A versions)  REX12 - T A 1 - 1 0 7 - DC24V - 10 A example of 1-channel						
8 A (only 1 channel) 10 A (only 1 channel) 1 A / 1 A (only 2 channels, Class2) 2 A / 2 A (only 2 channels, Class2) 3 A/3 A (only 2 channels) 4 A/4 A (only 2 channels) 6 A/6 A (only 2 channels)  Approval CL2 Class2 (only 3A and 4A versions)  REX12 - T A 1 - 1 0 7 - DC24V - 10 A example of 1-channel						
10 A (only 1 channel) 1 A / 1 A (only 2 channels, Class2) 2 A / 2 A (only 2 channels, Class2) 3 A/3 A (only 2 channels) 4 A/4 A (only 2 channels) 6 A/6 A (only 2 channels)  Approval CL2 Class2 (only 3A and 4A versions)  REX12 - T A 1 - 1 0 7 - DC24V - 10 A example of 1-channel						
1 A / 1 A (only 2 channels, Class2) 2 A / 2 A (only 2 channels, Class2) 3 A/3 A (only 2 channels) 4 A/4 A (only 2 channels) 6 A/6 A (only 2 channels) Approval CL2 Class2 (only 3A and 4A versions)  REX12 - T A 1 - 1 0 7 - DC24V - 10 A example of 1-channel						
2 A / 2 A (only 2 channels, Class2) 3 A/3 A (only 2 channels) 4 A/4 A (only 2 channels) 6 A/6 A (only 2 channels)  Approval  CL2 Class2 (only 3A and 4A versions)  REX12 - T A 1 - 1 0 7 - DC24V - 10 A example of 1-channel						
3 A/3 A (only 2 channels) 4 A/4 A (only 2 channels) 6 A/6 A (only 2 channels)  Approval CL2 Class2 (only 3A and 4A versions)  REX12 - T A 1 - 1 0 7 - DC24V - 10 A example of 1-channel						
4 A/4 A (only 2 channels) 6 A/6 A (only 2 channels)  Approval CL2 Class2 (only 3A and 4A versions)  REX12 - T A 1 - 1 0 7 - DC24V - 10 A example of 1-channel						
6 A/6 A (only 2 channels)  Approval  CL2 Class2 (only 3A and 4A versions)  REX12 - T A 1 - 1 0 7 - DC24V - 10 A example of 1-channel						
Approval CL2 Class2 (only 3A and 4A versions)  REX12 - T A 1 - 1 0 7 - DC24V - 10 A example of 1-channel						
(only 3A and 4A versions)  REX12 - T A 1 - 1 0 7 - DC24V - 10 A example of 1-channel						
REX12 - T A 1 - 1 0 7 - DC24V - 10 A example of 1-channel		CL2 Class2				
		(only 3A and 4A versions)				
	REX12 -	T A 1 - 1 0 7 - DC24V - 10 A example of 1-channel				

### **Ordering number code – REX12D-TE2**



### **Custom designed versions**

Looking for a version you cannot find in our ordering number code? Please get in touch. We will be pleased to find a solution for you.

## Overview of ordering number codes

Supply module	EM12-T00-000-DC24V-40A EM12-T01-001-DC24V-40A
Circuit protectors: 1-channel	REX12-TA1-107-DC24V-1A (Class2) REX12-TA1-107-DC24V-2A (Class2) REX12-TA1-107-DC24V-3A REX12-TA1-107-DC24V-3A-CL2 (Class2) REX12-TA1-107-DC24V-4A REX12-TA1-107-DC24V-4A-CL2 (Class2) REX12-TA1-107-DC24V-6A REX12-TA1-107-DC24V-8A REX12-TA1-107-DC24V-10A
Circuit protectors: 1-channel 2 load output terminals	REX12-TB1-107-DC24V-1A (Class2) REX12-TB1-107-DC24V-2A (Class2) REX12-TB1-107-DC24V-3A REX12-TB1-107-DC24V-3A-CL2 (Class2) REX12-TB1-107-DC24V-4A REX12-TB1-107-DC24V-4A- CL2 (Class2) REX12-TB1-107-DC24V-6A REX12-TB1-107-DC24V-8A REX12-TB1-107-DC24V-10A
Circuit protectors: 2-channel	REX12-TA2-107-DC24V-1A/1A (Class2) REX12-TA2-107-DC24V-2A/2A (Class2) REX12-TA2-107-DC24V-3A/3A REX12-TA2-107-DC24V-3A/3A-CL2 (Class2) REX12-TA2-107-DC24V-4A/4A REX12-TA2-107-DC24V-4A/4A-CL2 (Class2) REX12-TA2-107-DC24V-6A/6A
Circuit protectors 2-channel, adjustable	REX12D-TE2-100-DC24V-1A-10A
Accessories	
Supply modules	EM12-T00-100-LINE-40A EM12-T00-200-LINE-40A EM12-T00-000-GND-40A EM12-T00-300-GND-40A
Potential modules	PM12-T01-00-LOAD-20A PM12-T02-00-LOAD-20A PM12-T03-00-GND-20A

### REX12-Quat-Pack-1A-10A electronic circuit protector

REX12-Quat-Pack-1A-10A

4-channel pack, selective load protection, voltage rating DC24V variable current ratings 1A-10A in 1A steps, rail mounting, installation width 37.5 mm, push-in connection technology, signalling with auxiliary contact N/O

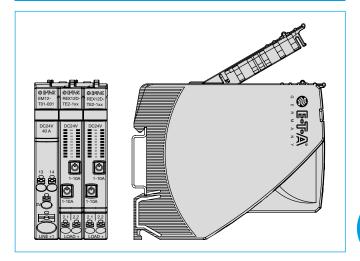
Current ratings 4 x 1A-10A adjustable

A pack consists of

- 1 supply module, EM12-T01-001-DC24V-40A
- 2 circuit protectors, 2-channel, adjustable 1-10A, REX12D-TE2-100-DC24V-1A-10A

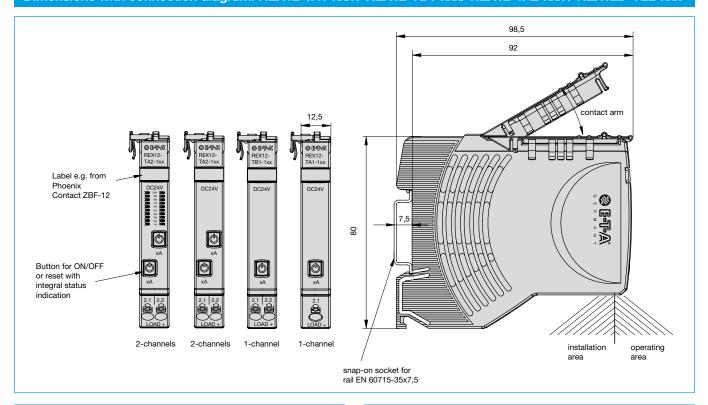
Part number: X22378501

### REX12-Quat-Pack-1A-10A

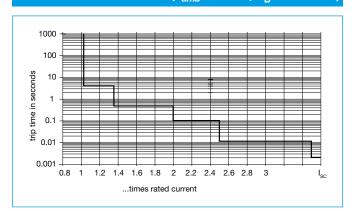


## 4

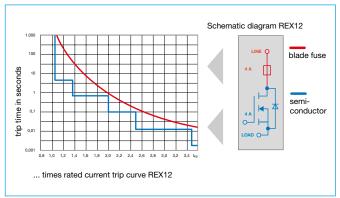
### Dimensions with connection diagram: REX12-TA1-xxx / REX12-TB1-xxx/ REX12-TA2-xxx / REX12D-TE2-xxx



## Time/current characteristic (T<sub>amb</sub> = +23 °C, U<sub>B</sub> = DC - 24 V)



## Basic trip curve and schematic diagram REX12



## Temperature factor / continuous duty

The time/current characteristic depends on the ambient temperature. In order to determine the max. load current, please multiply the current rating with the temperature factor and consider the factor for side-by-side mounting.

#### Temperature factor table:

ambient temperature [°C]	0	10	23	40	50	60
temperature factor	1	1	1	0.95	0.90	0.85

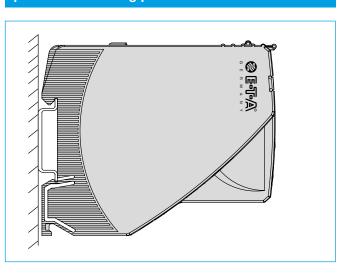
#### Note:

When mounted side-by-side, the devices can carry max. 80 % of their rated load or a different rating has to be selected (see Technical Information on www.e-t-a.de/ti\_d)

With high temperatures, the load current warning threshold "warn limit typically 0.9 x IN" will be reduced in accordance with the temperature factor.

Selection of current rating of the circuit protector  $\leq$  rating of power supply.

# Mounting position REX... preferred mounting position horizontal



## **Description – EM12-T supply module**

The EM12-T supply module receives the DC 24 V supply voltage, e.g. from a switch mode power supply, and distributes it to the mounted circuit protectors via the integral connector arm of the REX12-T.

The potential-free auxiliary contact in the EM12-T indicates any detected failures through the circuit protector, e.g. to the superordinate control unit (CPU).

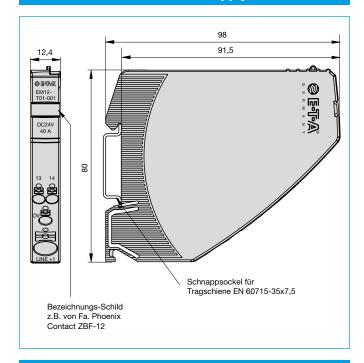
## Technical data $(T_{amb} = +23 \, ^{\circ}C, U_{B} = DC \, 24 \, V)$

Operating voltage U <sub>B</sub>	DC 24 V (1830 V)				
Operating current I <sub>B</sub>	max. 40 A				
Reverse polarity protection	yes				
Signalling	only EM12-T01-001-DC24V-40A				
Quiescent current I <sub>0</sub>	typically 10 mA				
Potential-free auxiliary cha	nge-over contact max. DC 30 V / 0.5 A min. 10 V / 1 mA				
Group signalling Si contact: Si (13) / Si (14)	auxiliary contact, make contact				
normal condition:	auxiliary contact closed based on all protection modules - when ON, load output connected - when OFF, load output disconnected				
fault condition:	auxiliary contact open based on one or more protection modules - after overload or short circuit trip - after undervoltage release of operating voltage in ON condition with autoreset - at no operating voltage U <sub>B</sub> in supply module				
Insulation co-ordination	0.5 kV / pollution degree 2				
Power failure buffering time for Si	up to 10 ms				
Screw terminals	LINE+				
Push-in terminal PT 10 stripping length	0.5 mm <sup>2</sup> 10 mm <sup>2</sup> flexible AWG24 – AWG8 rigid 18 mm				
Screw terminals	0 V / Si 13 / Si 14				
Push-in terminal PT 2.5	0.14 mm <sup>2</sup> 2.5 mm <sup>2</sup> flexible AWG24 – AWG14 rigid				
stripping length	8 mm 10 mm				
Dimensions (w x h x d)	12.5 x 80 x 98 mm				
Mass	approx. 52 g				
Circuit protectors to be me REX12-Tx1-x or REX12-TA2-x or REX12D-TE2 2-channel	ounted side-by-side max. 16 pcs				

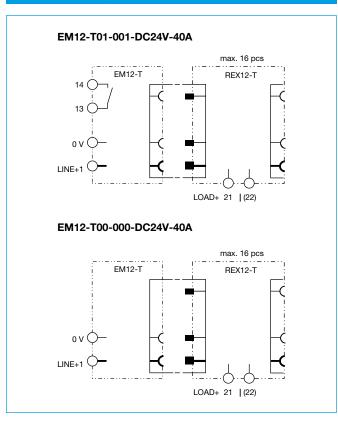
### Ordering number code - EM12

Type				
EM12	supply module for REX12, with PT connection technology			
	Mounting method			
	T rail mounting			
	Version: communication, interface			
	00 without signal 01 analog signal			
	Additional functionality			
	0 without			
	Signal input			
	<ul><li>without signal input</li></ul>			
	Signal output			
	without auxiliary contact			
	1 signal make contact			
	Operating voltage			
	DC 24 V voltage rating DC 24 V			
	Current rating			
	40 A			
EM12 -	T 01 - 0 0 1 - DC 24 V - 40 A example			

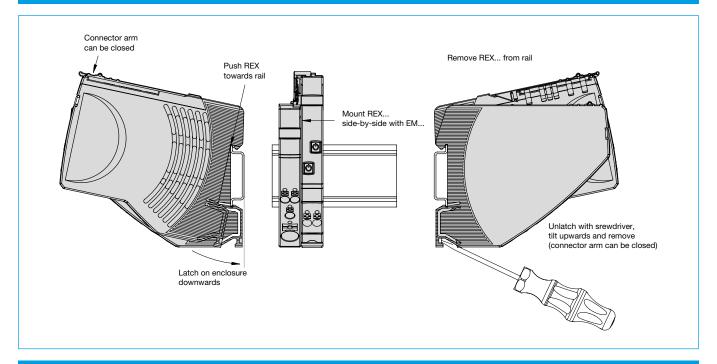
### Dimensions EM12-T01-xxx supply module



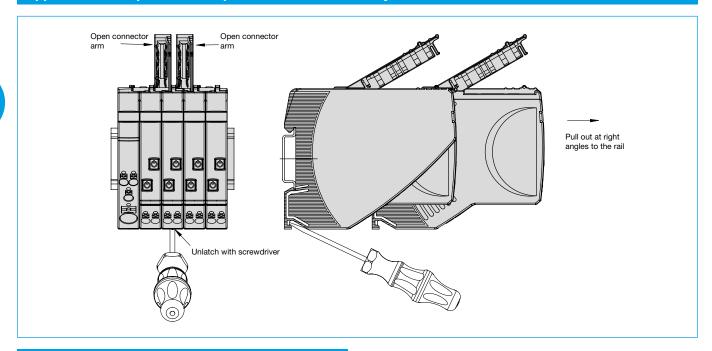
### Schematic diagram EM12-Txx-xxx with REX12-xx



## Application example: REX... assembly/disassembly on symmetrical rail



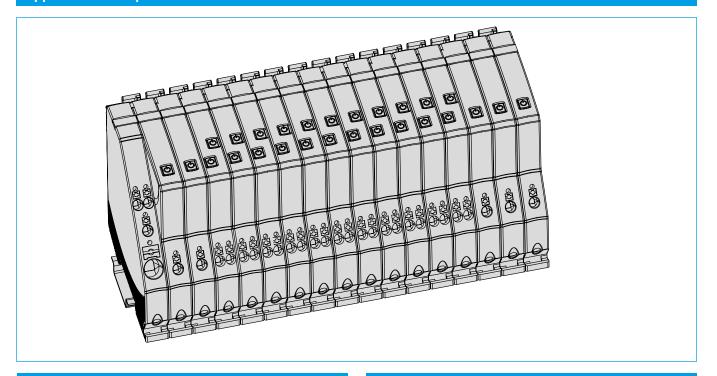
## Application example: REX... Replacement or disassembly



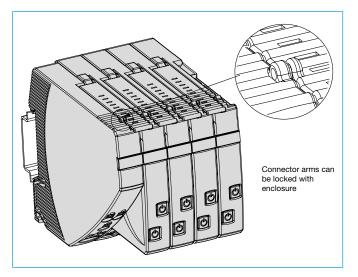
### **Instructions for installation**

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.

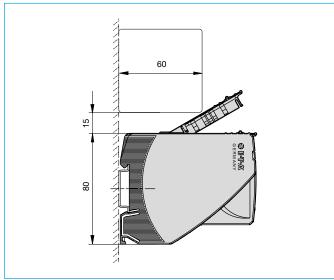
## Application example: EM12-T with REX12-TA1... and REX12-TA2...



## **Application example: Locked connector arms**



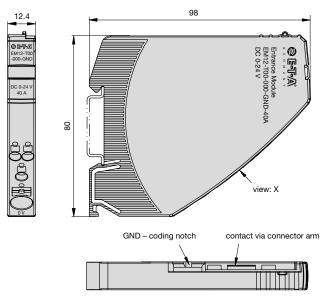
# Application example: REX12(D)-T... distance between cable duct and connector arm



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 improved design, performance and cost effectiveness, 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 codes of the products may differ from their marking.

### **Accessories**

### EM12-T00-000-GND-40A supply module left – 0V – GND



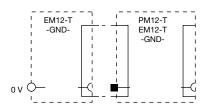
#### Technical data

view: X

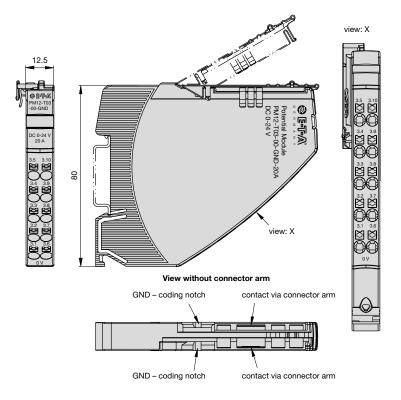
Please observe general data of REX / EM / PM		
Operating voltage U <sub>B</sub>	0 V - DC 24 V (0 30 V)	
Operating current I <sub>B</sub>	max. load 40 A	
line terminal	0 V – GND	
Push-in terminal PT 10 stripping length	0.5 mm² 10 mm² flexible AWG24 – AWG8 rigid 18 mm	
Dimensions (w x h x d)	12.5 x 80 x 98 mm	
Mass	approx. 40 g	
Approvals	UL 1059, File # E335289	

## Schematic diagram

EM12-T00-000-GND-40A



## PM12-T03-00-GND-20A potential module – GND (10-way)

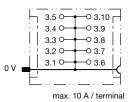


#### Technical data

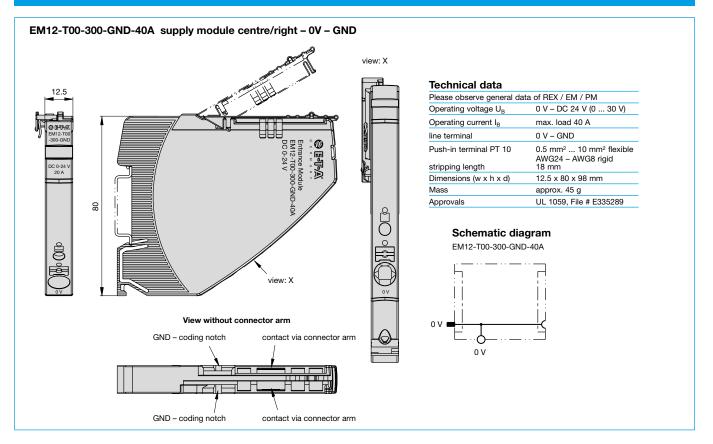
Please observe general data	a of REX / EM / PM
Operating voltage U <sub>B</sub>	0 V - DC 24 V (0 30 V)
Operating current I <sub>B</sub>	max. load 20 A
line terminal	0 V – GND
Push-in terminal PT 2.5 stripping length	0.14 mm² 2.5 mm² flexible AWG24 – AWG14 rigid 8 mm 10 mm
Dimensions (w x h x d)	12.5 x 80 x 98 mm
Mass	approx. 52 g
Approvals	UL 1059, File # E335289

### Schematic diagram

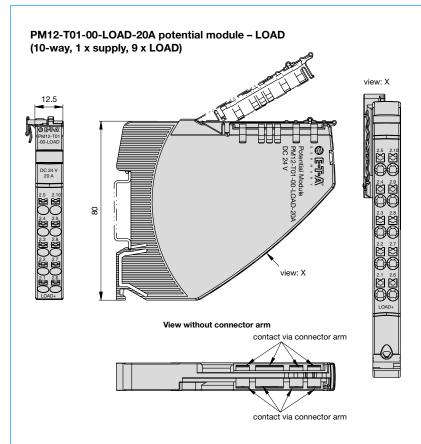
PM12-T03-00-GND-20A



### **Accessories**



### **Accessories**

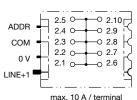


#### **Technical data**

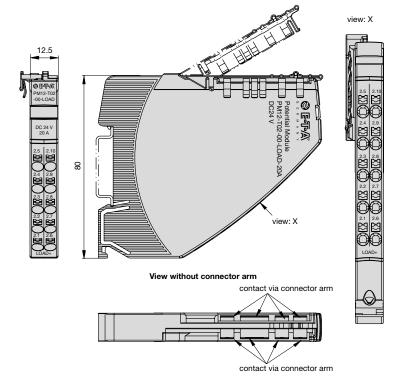
Please observe general date	ta of REX / EM / PM
Operating voltage U <sub>B</sub>	DC 24 V (1830 V)
Operating current I <sub>B</sub>	max. load 20 A
Insulation co-ordination	0.8 kV / pollution degree 2
Screw terminals	LOAD+
Push-in terminal PT 2.5	0.14 mm <sup>2</sup> 2.5 mm <sup>2</sup> flexible AWG24 – AWG14 rigid
stripping length	8 mm 10 mm
Dimensions (w x h x d)	12.5 x 80 x 98 mm
Mass	approx. 52 g
Approvals	UL 1059, File # E335289

#### Schematic diagram

PM12-T01-00-LOAD-20A



# PM12-T02-00-LOAD-20A potential module – LOAD (2 x 5-way, 1 x supply and 4 x LOAD each)

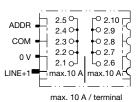


### Technical data

Please observe general da	ta of REX / EM / PM
Operating voltage U <sub>B</sub>	DC 24 V (1830 V)
Operating current I <sub>B</sub>	max. load 20 A
Insulation co-ordination	0.8 kV / pollution degree 2
Screw terminals	LOAD+
Push-in terminal PT 2.5 stripping length	0.14 mm <sup>2</sup> 2.5 mm <sup>2</sup> flexible AWG24 – AWG14 rigid 8 mm 10 mm
Dimensions (w x h x d)	12.5 x 80 x 98 mm
Mass	approx. 52 g
Approvals	UL 1059, File # E335289

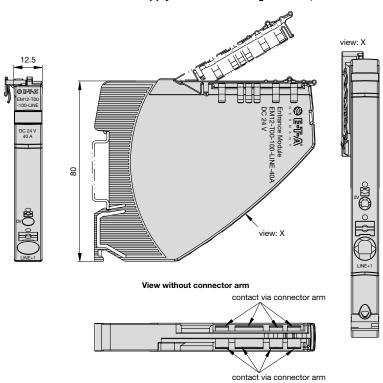
## Schematic diagram

PM12-T02-00-LOAD-20A



## **Accessories**

### EM12-T00-100-LINE-40A supply module centre/right – LINE, LINE connected

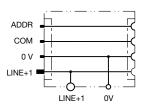


### Technical data

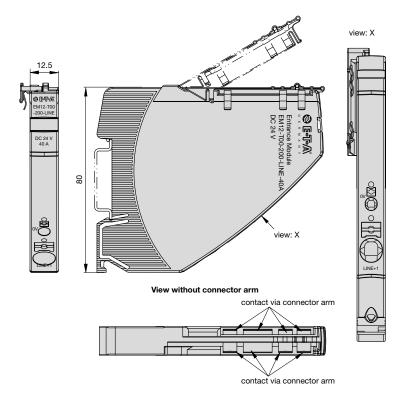
iooiiiiioai aata	
Please observe general dat	a of REX / EM / PM
Operating voltage U <sub>B</sub>	DC 24 V (1830 V)
Operating current I <sub>B</sub>	max. load 40 A
Insulation co-ordination	0.8 kV / pollution degree 2
Screw terminals	LINE+1
Push-in terminal PT 10 stripping length	0.5 mm² 10 mm² flexible AWG24 – AWG8 rigid 18 mm
Screw terminals	0 V
push-in terminal PT 2.5 Stripping length	0.14mm² 2.5mm², flexible AWG26 – AWG14 rigid 8 mm 10 mm
Dimensions (w x h x d)	12.5 x 80 x 98 mm
Mass	approx. 52 g
Approvals	UL 1059, File # E335289

### Schematic diagram

EM12-T00-100-LINE-40A



### EM12-T00-200-LINE-40A supply module centre/LINE, LINE separated

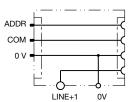


### Technical data

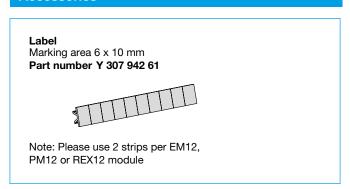
Please observe general data	of REX / EM / PM
Operating voltage UB	DC 24 V (1830 V)
Operating current IB	max. load 40 A
Insulation co-ordination	0.8 kV / pollution degree 2
Screw terminals	LINE+1
Push-in terminal PT 10	0.5 mm <sup>2</sup> 10 mm <sup>2</sup> , flexible AWG24 – AWG8 rigid
stripping length	18 mm
Screw terminals	0 V
Push-in terminal PT 2.5 stripping length	0.14mm <sup>2</sup> 2.5mm <sup>2</sup> , flexible AWG24 – AWG14 rigid 8 mm 10 mm
Dimensions (w x h x d)	12.5 x 80 x 98 mm
	1210 X 00 X 00 111111
Mass	approx. 52 g

### Schematic diagram

EM12-T00-200-LINE-40A



## Accessories



## Application example: EM12-T ... with REX12-TAx... and PM12-...

