

Description

Electronic circuit protector type ESX10 is designed to ensure **selective** disconnection of DC 24 V load systems.

DC 24 V power supplies, which are widely used in industry today, will shut down the output in the event of an overload with the result that one faulty load in the system can lead to complete disconnection of all loads. As well as an unidentified failure this also means stoppage of the whole system.

Through **selective** disconnection the ESX10 responds much faster to overload or short circuit conditions than the switch-mode power supply. This is achieved by active current limitation. The ESX10 limits the highest possible current to 1.8 or 1.5 times the selected rated current of the circuit protector. Thus it is possible to switch on **capacitive loads of up to 20,000 µF** lamp loads, but they are disconnected only in the event of an overload or short circuit.

For optimal alignment with the characteristics of the application the current rating of the ESX10 can be selected in fixed values from 1 A...12 A. Failure and status indication are provided by a multicolour LED and an integral short-circuit-proof status output or a potential-free signal contact.

The ESX10, with a width of only 12.5 mm, can be plugged into the E-T-A power distribution socket Module 17plus ensuring ease of installation and saving space in control cabinets.

Upon detection of overload or short circuit in the load circuit, the MOSFET of the load output will be blocked to interrupt the current flow. The MOSFET and the load circuit may be re-activated via the remote electronic reset input or manually by means of the ON/OFF button. When starting up the system, the load circuit may also be manually disconnected.

Features

- Selective load protection, electronic trip characteristics.
- Active current limitation for safe connection of capacitive loads up to 20,000 µF and on overload/short circuit.
- Current ratings 1 A...12 A.
- Reliable overload disconnection with $1.1 \times I_N$ plus, even with long load lines or small cable cross sections (see table 3).
- Manual ON/OFF button (S1).
- Control input IN+ for remote ON/OFF signal (option).
- Clear status and failure indication through LED, status output SF or Si contact F.
- Electronic reset input RE (option).
- Integral fail-safe element.
- Width per unit only 12.5 mm.
- Plug-in mounting utilising power distribution system Module 17plus or SVSxx optionally (see product group 7)

Approvals

Authority	Voltage rating	Current ratings
UL 2367	DC 24 V	0.5...12 A

Attention:

- The user should ensure that the cable cross sections of the relevant load circuit are suitable for the current rating of the ESX10 used.
- Automatic start-up of machinery after shut down must be prevented (Machinery Directive 98/37/EG and EN 60204-1). In the event of a short circuit or overload the load circuit will be disconnected electronically by the ESX10.



ESX10

Technical data (T_{ambient} = 25 °C, operating voltage U_B = DC 24 V)

Operating data

Operating voltage U _B	DC 24 V (18...32 V)
Current rating I _N	fixed current ratings: 1 A, 2 A, 3 A, 4 A, 6 A, 8 A, 10 A, 12 A
Closed current I ₀	ON condition: typically 20...30 mA depending on signal output
Status indication by means of	<ul style="list-style-type: none"> ● multicolour LED: <ul style="list-style-type: none"> GREEN: unit is ON, power-MOSFET is switched on <ul style="list-style-type: none"> - status output SF ON, supplies + DC 24 V ORANGE: in the event of overload or short circuit until electronic disconnection RED: <ul style="list-style-type: none"> - unit electronically disconnected - load circuit/Power-MOSFET OFF OFF: <ul style="list-style-type: none"> - manually switched off (S1 = OFF) or device is dead - undervoltage (U_B < 8 V) - after switch-on till the end of the delay period ● status output SF (option) ● potential-free signal contact F (option) ● ON/OFF/ condition of switch S1

Load circuit

Load output	Power-MOSFET switching output (high side switch)
Overload disconnection	typically $1.1 \times I_N$ ($1.05...1.35 \times I_N$)
Short-circuit current I _K	active current limitation (see table 1)
Trip time for electronic disconnection	see time/current characteristics typically 3 s at I _{Load} > $1.1 \times I_N$ typically 3 s...100 ms at I _{Load} > $1.8 \times I_N$ (or $1.5 \times I_N/1.3 \times I_N$)
Temperature disconnection	internal temperature monitoring with electronic disconnection
Low voltage monitoring load output	with hysteresis, no reset necessary load "OFF" at U _B < 8 V
Starting delay t _{start}	typically 0.5 sec after every switch-on and after applying U _B
Disconnection of load circuit	electronic disconnection
Free-wheeling circuit	external free-wheeling diode recommended with inductive load
Several load outputs must not be connected in parallel	

Technical data ($T_{\text{ambient}} = 25^{\circ}\text{C}$, operating voltage $U_B = \text{DC } 24 \text{ V}$)

Status output SF	ESX10-104/-106/-124/-127
Electrical data	plus-switching signal output, connects U_B to terminal 12 of module 17plus nominal data: DC 24 V / max. 0.2 A (short circuit proof) status output is internally connected to GND with a 10 kOhm resistor
Status OUT	ESX10-104/-106/-124 (signal status OUT), at $U_B = +24 \text{ V}$ $+24 \text{ V} = \text{S1 is ON}$, load output connected through $0 \text{ V} = \text{S1 is ON}$, load output blocked and/or switch S1 is OFF
Status $\overline{\text{OUT}}$	ESX10-127 (signal status OUT inverted), at $U_B = +24 \text{ V}$ $+24 \text{ V} = \text{S1 is ON}$, load output blocked, red LED lighted $0 \text{ V} = \text{S1 is ON}$, load output connected through and / or switch S1 is in OFF position
OFF condition	0 V level at status output when: <ul style="list-style-type: none"> switch S1 is in ON position, but device is still in switch-on delay switch S1 is OFF, or control signal OFF, device is switched off no operating voltage U_B
Signal output F	ESX10-101/-102/-103/-105/-106/-115/-125
Electrical data	potential-free signal contact max. DC 30 V/0.5 A, min. 10 V/10 mA
ON condition LED green	voltage U_B applied, switch S1 is in ON position no overload, no short circuit
OFF condition LED off	<ul style="list-style-type: none"> device switched off (switch S1 is in OFF position) no voltage U_B applied
Fault condition LED orange	overload condition $> 1.1 \times I_N$ up to electronic disconnection
Fault condition LED red	electronic disconnection upon overload or short circuit device switched off with control signal (switch S1 is in ON position)
ESX10-101	single signal, make contact contact SC/SO-SI open
ESX10-102	single signal, break contact contact SC/SO-SI closed
ESX10-103	group signal change-over contact contact SC-SO open, SC-SI closed
ESX10-105/-106/-115/-125	group signal, make contact contact SC-SO open
Fault	signal output fault conditions: <ul style="list-style-type: none"> no operating voltage U_B ON/OFF switch S1 is in OFF position red LED lighted (electronic disconnection)

Table 1: voltage drop, current limitation, max. load current

current rating I_N	typically voltage drop U_{ON} at I_N	active current limitation (typically)	max. load current at 100 % ON duty	
			$T_U = 40^{\circ}\text{C}$	$T_U = 50^{\circ}\text{C}$
1 A	80 mV	$1.8 \times I_N$	1 A	1 A
2 A	130 mV	$1.8 \times I_N$	2 A	2 A
3 A	80 mV	$1.8 \times I_N$	3 A	3 A
4 A	100 mV	$1.8 \times I_N$	4 A	4 A
6 A	130 mV	$1.8 \times I_N$	6 A	5 A
8 A	120 mV	$1.5 \times I_N$	8 A	7 A
10 A	150 mV	$1.5 \times I_N$	10 A	9 A
12 A	180 mV	$1.3 \times I_N$	12 A	10.8 A

Attention: when mounted side-by-side without convection the ESX10-0.. should not carry more than 80 % of its rated load with 100 % ON duty due to thermal effects.

Technical data ($T_{\text{ambient}} = 25^{\circ}\text{C}$, operating voltage $U_B = \text{DC } 24 \text{ V}$)

Reset input RE	ESX10-124/-125/-127
Electrical data	voltage: max. +DC 32 V high $> \text{DC } 8 \text{ V} \leq \text{DC } 32 \text{ V}$ low $\leq \text{DC } 3 \text{ V} > 0 \text{ V}$ power consumption typically 2.6 mA (+DC 24 V) min. pulse duration typically 10 ms
Reset signal RE (= terminal 13,14 or 12 of Module 17plus)	The electronically blocked ESX10-124/-127 may remotely be reset via an external momentary switch due to the falling edge of a +24 V pulse. The reset signal will be fed in terminal 13, 14 or 12 of Module 17plus and is internally pre-wired. The reset simultaneously affects all blocked ESX10-124/-127 channels of the power distribution system, all switched on ESX10-124/-127 channels remain unaffected. With type ESX10-125 the reset only affects the device concerned. By connecting the individual terminals 12 of the Module 17plus a joint reset signal for all ESX10-125 may be generated.
Caution: unused slots have to be fitted with jumpers	
Control input IN+	ESX10-115
Electrical data	see reset input RE
Control signal IN+	+24V level (HIGH): device will be switched on by a remote ON/OFF signal 0 V level (LOW): device will be switched off by a remote ON/OFF signal
Switch S1 ON/OFF	unit can only be switched on with S1 if a HIGH level is applied to IN+
General data	
Fail-safe element:	backup fuse for ESX10 <u>not required</u> because of the integral redundant fail-safe element
Blade terminals	6.3 mm to DIN 46244-A6.3-0.8
Housing	moulded
Mounting	plug-in mounting utilising power distribution system Module 17plus or SVSxx
Ambient temperature	0...+50 °C (without condensation, see EN 60204-1)
Storage temperature	-20...+70 °C
Humidity	96 hrs/95 % RH/40 °C to IEC 60068-2-78-Cab climate class 3K3 to EN 60721
Vibration	3 g, test to IEC 68-2-6 test Fc
Degree of protection	housing: IP30 DIN 40050 terminals: IP00 DIN 40050
EMC (EMC directive, CE logo)	emission: EN 61000-6-3 susceptibility: EN 61000-6-2
Insulation co-ordination (IEC 60934)	0.5 kV/2 pollution degree 2 re-inforced insulation in operating area
dielectric strength	max. DC 32 V (load circuit)
Insulation resistance (OFF condition)	n/a, only electronic disconnection
Approvals	UL 2367, File E306740 Solid State Overcurrent Protectors CE logo
Dimensions (W x H x D)	12.5 x 70 x 60 mm
Mass	approx. 40 g

Ordering information

Type No.

ESX10 Electronic Circuit Protector for DC 24 V applications

Version

1 standard, without physical isolation in the event of a failure

Signal input

0 without signal input

1 with control input IN+, only ESX10-115

2 with reset input RE, only ESX10-124, ESX10-125, ESX10-127

Signal outputs

0 without, only ESX10-100

1 signal output F (single signal, N/O), only ESX10-101

2 signal output F (single signal, N/C), only ESX10-102

3 signal output F (group signal, change-over), only ESX10-103

4 status output SF (+24 V = OK), only ESX10-104, ESX10-124

5 signal output F (group signal, N/O), ESX10-105, ESX10-115, ESX10-125

6 signal output F (group signal, N/O), status output SF +24 V = OK, only ESX10-106

7 status output inverted, 0 V = OK, only ESX10-127

Operating voltage

DC 24 V rated voltage DC 24 V

Current rating

1 A

2 A

3 A

4 A

6 A

8 A

10 A

12 A

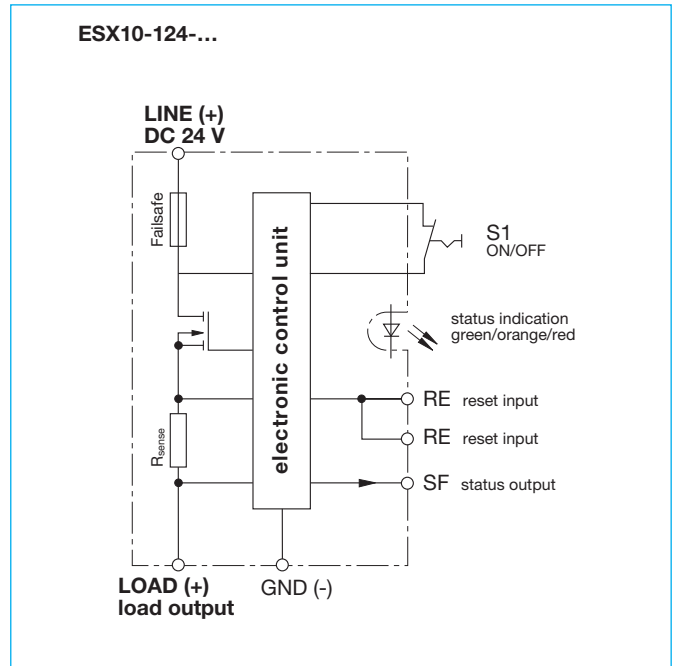
ESX10 - 1 0 5 - DC 24 V - 6 A ordering example

Description of ESX10 signal inputs and outputs (wiring diagrams) see next page.

Please note:

- The user should ensure that the cable cross sections of the relevant load circuit are suitable for the current rating of the ESX10 used.
- Automatic start-up of machinery after shut down must be prevented (Machinery Directive 98/37/EG and EN 60204-1). In the event of a short circuit or overload the load circuit will be disconnected electronically by the ESX10.

Schematic diagram ESX10-124



Terminal wiring diagram ESX10-124

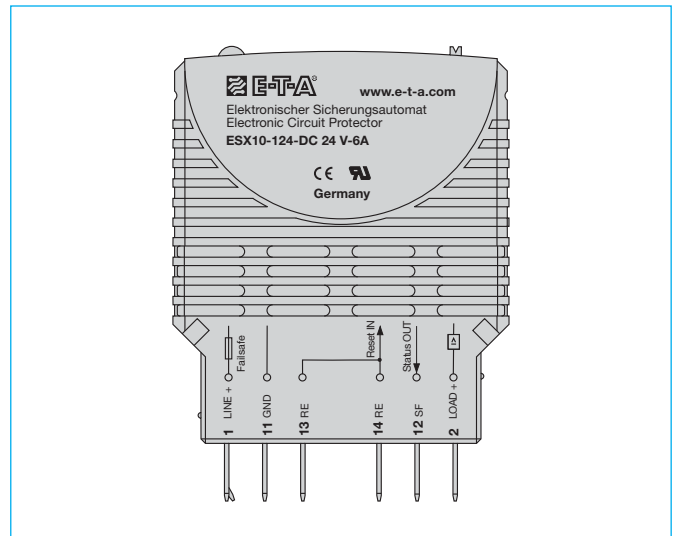


Table 2: ESX10 - product version

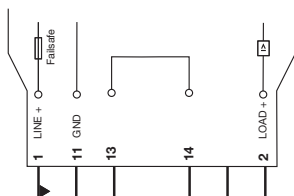
version	signal input		signal output					status output SF	
			signal output F		status output SF		status OUT +24 V = OK	status OUT 0 V = OK	
ESX10 -...	control input ON/OFF +24 V Control IN+	reset input +24 V RE	single signal N/O	single signal N/C	group signal N/O	group signal change-over	status OUT +24 V = OK	status OUT 0 V = OK	
-100									
-101			x						
-102				x					
-103						x			
-104							x		
-105					x				
-106					x		x		
-115	x				x				
-124		x					x		
-125		x			x				
-127		x						x	

ESX10 Signal inputs / outputs (wiring diagram)

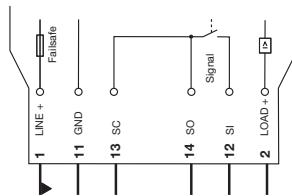
ESX10 signal inputs / outputs (wiring diagrams)

Signal contacts are shown in the OFF or fault condition.

ESX10-100
without signal input/output

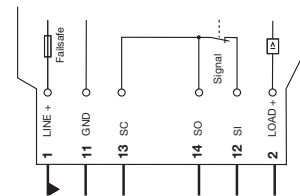


ESX10-101
without signal input
with signal output F (single signal, N/O)



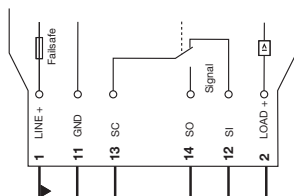
operating condition: SC/SO-SI closed
fault condition: SC/SO-SI open

ESX10-102
without signal input
with signal output F (single signal, N/C)



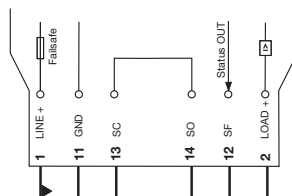
operating condition: SC/SO-SI open
fault condition: SC/SO-SI closed

ESX10-103
without signal input
with signal output F (group signal, change-over)



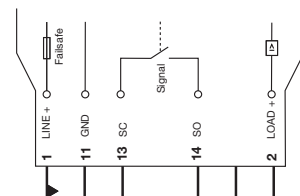
operating condition: SC/SO closed, SC-SI open
fault condition: SC/SO open, SC-SI closed

ESX10-104
without signal input
with status output SF (+24V = load output ON)



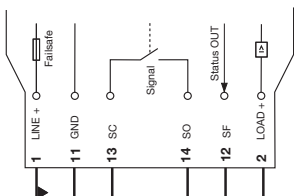
operating condition: SF +24V = OK
fault condition: SF 0V

ESX10-105
without signal input
with signal output F (group signal, N/O)



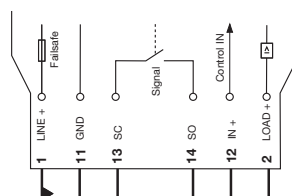
operating condition: SC-SO closed
fault condition: SC-SO open

ESX10-106
without signal input
with signal output F (group signal, N/O)
with status output SF (+24V = load output ON)



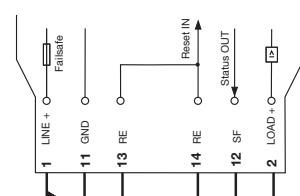
operating condition: SC-SO closed
fault condition: SC-SO open

ESX10-115-...
with control input IN+ (+DC 24V)
with signal output F (group signal, N/O)



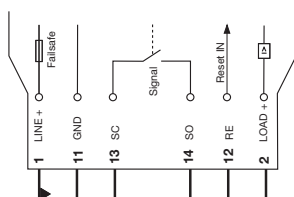
operating condition: SC-SO closed
fault condition: SC-SO open

ESX10-124-...
with reset input RE (+DC 24V↓)
with status output SF (+24V = load output ON)



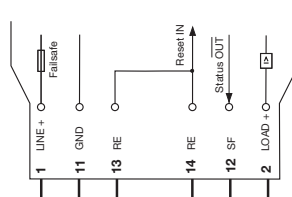
operating condition: SF +24V = OK
fault condition: SF 0V

ESX10-125-...
with reset input RE (+DC 24V↓)
with signal output F (group signal, N/O)



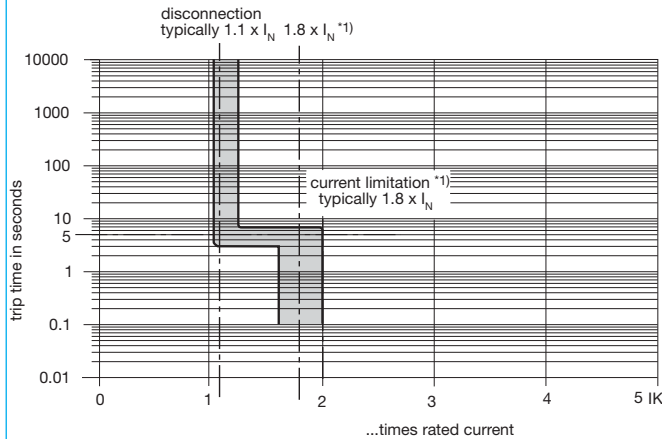
operating condition: SC-SO closed
fault condition: SC-SO open

ESX10-127-...
with reset input RE (+DC 24V↓)
with status output SF inverted, 0V = load output ON



operating condition: SF 0V = OK
fault condition: SF +24V

Time/Current characteristic curve ($T_A = 25^\circ\text{C}$)



- The trip time is typically 5 s in the range between 1.1 and $1.8 \times I_N^{*1}$.
- Electronic current limitation occurs at typically $1.8 \times I_N^{*1}$ which means that under all overload conditions (independent of the power supply and the resistance of the load circuit) the max. overload before disconnection will not exceed $1.8 \times I_N^{*1}$ times the current rating. Trip time is between 100 ms (short circuit current I_K) and 5 sec (at overload with high line attenuation).
- Without this current limitation a considerably higher overload current would flow in the event of an overload or short circuit.

*1 current limitation typically $1.8 \times I_N$ times rated current at $I_N = 1 \text{ A} \dots 6 \text{ A}$
 current limitation typically $1.5 \times I_N$ times rated current at $I_N = 8 \text{ A}$ or 10 A
 current limitation typically $1.3 \times I_N$ times rated current at $I_N = 12 \text{ A}$

Table 3: Reliable trip of ESX10

Reliable trip of ESX10 with different cable lengths and cross sections

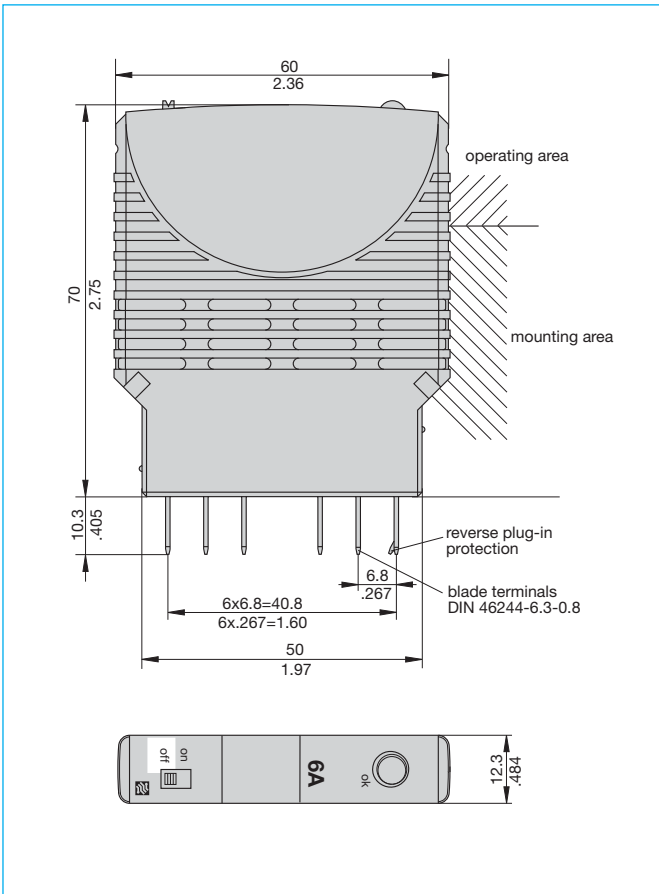
Resistivity of copper $\rho_0 =$	0.0178 (Ohm x mm ²) / m		
$U_B = \text{DC } 19.2 \text{ V}$ (= 80 % v. 24 V)	voltage drop of ESX10 and tolerance of trip point (typically $1.1 \times I_N = 1.05 \dots 1.35 \times I_N$) have been taken into account.		
ESX10-selected rating I_N (in A) →	3	6	→ ESX10 trips after 3 s
e. g. trip current $I_{ab} = 1.25 \times I_N$ (in A) →	3.75	7.5	
R_{max} in Ohm = $(U_B / I_{ab}) - 0.050$ →	5.07	2.51	

The ESX10 reliably trips from 0 Ohm to max. circuitry resistance R_{max}

Cable cross section A in mm ² →	0.14	0.25	0.34	0.5	0.75	1	1.5
cable length L in meter (= single length) ↓	cable resistance in Ohm = $(R_0 \times 2 \times L) / A$						
	↓	↓	↓	↓	↓	↓	↓
5	1.27	0.71	0.52	0.36	0.24	0.18	0.12
10	2.54	1.42	1.05	0.71	0.47	0.36	0.24
15	3.81	2.14	1.57	1.07	0.71	0.53	0.36
20	5.09	2.85	2.09	1.42	0.95	0.71	0.47
25	6.36	3.56	2.62	1.78	1.19	0.89	0.59
30	7.63	4.27	3.14	2.14	1.42	1.07	0.71
35	8.90	4.98	3.66	2.49	1.66	1.25	0.83
40	10.17	5.70	4.19	2.85	1.90	1.42	0.95
45	11.44	6.41	4.71	3.20	2.14	1.60	1.07
50	12.71	7.12	5.24	3.56	2.37	1.78	1.19
75	19.07	10.68	7.85	5.34	3.56	2.67	1.78
100	25.34	14.24	10.47	7.12	4.75	3.56	2.37
125	31.79	17.80	13.09	8.90	5.93	4.45	2.97
150	38.14	21.36	15.71	10.68	7.12	5.34	3.56
175	44.50	24.92	18.32	12.46	8.31	6.23	4.15
200	50.86	28.48	20.94	14.24	9.49	7.12	4.75
225	57.21	32.04	23.56	16.02	10.68	8.01	5.34
250	63.57	35.60	26.18	17.80	11.87	8.90	5.93

- Example 1:** max. length at 1.5 mm² and 3 A → **214 m**
- Example 2:** max. length at 1.5 mm² and 6 A → **106 m**
- Example 3:** mixed wiring: $R_1 = 40 \text{ m}$ in 1.5 mm² and $R_2 = 5 \text{ m}$ in 0.25 mm²:
 (Control cabinet – sensor/actuator level) $R_1 = 0.95 \text{ Ohm}$, $R_2 = 0.71 \text{ Ohm}$ → **Total ($R_1 + R_2$) = 1.66 Ohm**

Dimensions



5

This is a metric design and millimeter dimensions take precedence ($\frac{\text{mm}}{\text{inch}}$)

All dimensions without tolerances are for reference only. In the interest of improved design, performance and cost effectiveness the right to make changes in these specifications without notice is reserved. Product markings may not be exactly as the ordering codes. Errors and omissions excepted.

Accessories for ESX10

Description

Module 17plus is a power distribution system for use with electronic circuit protectors ESX10.

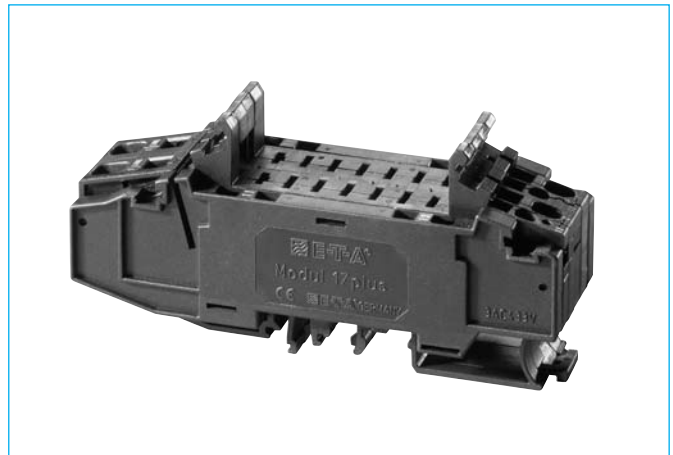
Each module accommodates two protectors with an individual housing width of only 12.5 mm and fits onto all industry standard mounting rails.

The two-way modules can be interconnected to provide as many ways as required with a terminal block fitted at each end for connection of signalling circuits. A distribution busbar can be fitted on the supply side of the modules (positive pole) though each pole of multipole circuit breakers must be individually connected.

Electrical connections are by means of spring-loaded terminals. The reference potential for the ESX10 (GND pin 11) is also looped through and connected to the terminal blocks at the sides.

The integral status output SF of the ESX10-104/-106/-124/-127 can be tapped at terminal 12 of the relevant channel (single signalisation). The reset input RE may be connected via terminal 13 or 14 (ESX10-124/-127) or terminal 12 (ESX10-125). The integral control input IN+ of ESX10-115 is connected via terminal 12.

Depending on the version a potential-free signal contact is available (ESX10-101/-102/-103/-104/-105/-106/-115/-125).



Technical data

Connection	Spring-loaded terminals for solid conductors and stranded cables with and without wire end ferrules. Please use appropriate screw driver size (SD) for removing the spring loaded terminals.
LINE feed (1)	spring-loaded terminals for 0.5-6 mm ² (AWG 10), SD 2 (0.8x4.0)
LOAD output (2)	spring-loaded terminals for 0.25-4 mm ² (AWG 12), SD 1 (0.6x3.5)
Reference potential GND/ group signal terminals (11 or 13, 14):	spring-loaded terminals for 0.25-2.5 mm ² (AWG 14), SD 1 (0.6x3.5)
single signal terminal (12)	spring-loaded terminal for 0.25-1.5 mm ² (AWG 16), SD 0 (0.4x2.5)

Test probe for testing the group signal for line interruption: ≤ 2 mm \varnothing

Voltage rating (without ESX10)	AC 433 V; DC 65 V
Current rating (without ESX10)	
LINE feed (1)	50 A
LOAD output (2)	25 A
Reference potential GND (11)	10 A
single signal (12)	1 A (with ESX10: 0.5 A)
Group signal /(13-14)	1 A (with ESX10: 0.5 A)
Internal resistance values (without ESX10)	
LINE-LOAD (1-2)	≤ 5 m Ω
Group signal (13-14) per module	≤ 8 m Ω per pole +5 m Ω for each additional module

Busbar for power distribution	
insulated busbar (blue or red):	I_{max} 32 A
non-insulated busbar:	I_{max} 50 A
(The non-insulated busbar, too, meets brush contact safety standards when fitted.)	

Dielectric strength of Module 17plus (without ESX10)	
between main circuits (without busbar):	1,500 V
main circuit to auxiliary circuit:	1,500 V
between auxiliary circuits:	1,500 V

Mass: Module 17plus (centre piece)	approx. 85 g
terminal blocks (pair)	approx. 30 g

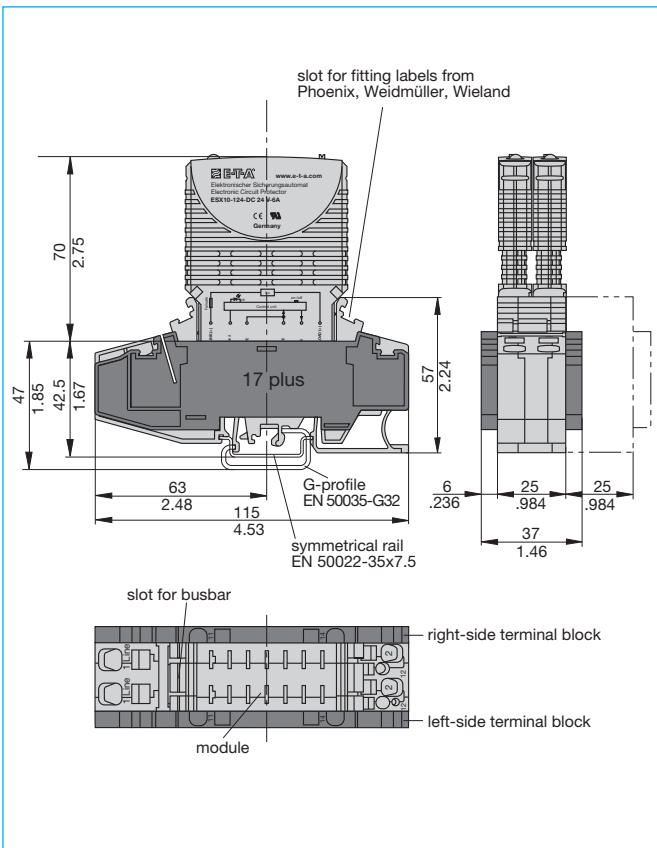
Ordering information

17PLUS-Q02-00	Module 17plus, centre piece, two-way
17PLUS-QA0-LR	one each left- and right-side terminal block for supply feed from the side by means of screw terminal, connection of signalisation etc.

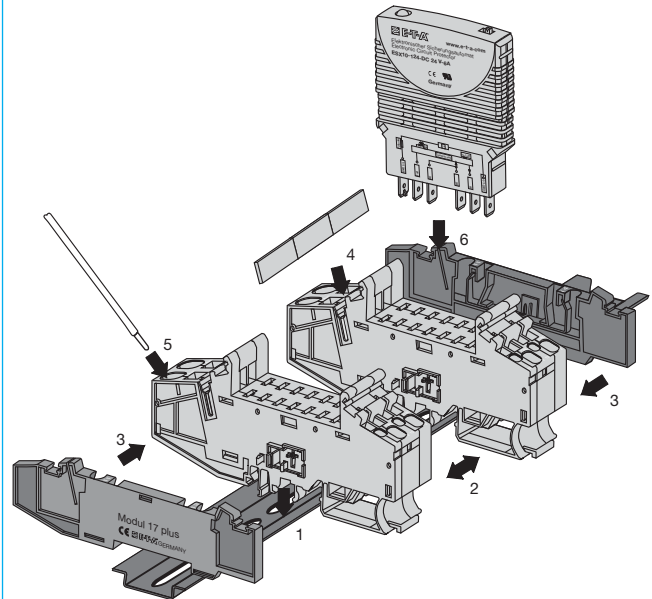
Pin configuration, fitted with ESX10-124 (Example)

ESX10-124	Modul 17 plus	Pin	Description
LINE (+)	(1)		operating voltage PLUS, DC 24 V
Gnd	(11)		operating voltage MINUS
RE	(13)		reset input RE
RE	(14)		reset input RE
SF	(12)		status output SF
LOAD (+)	(2)		protected load output

Dimensions



Installation example

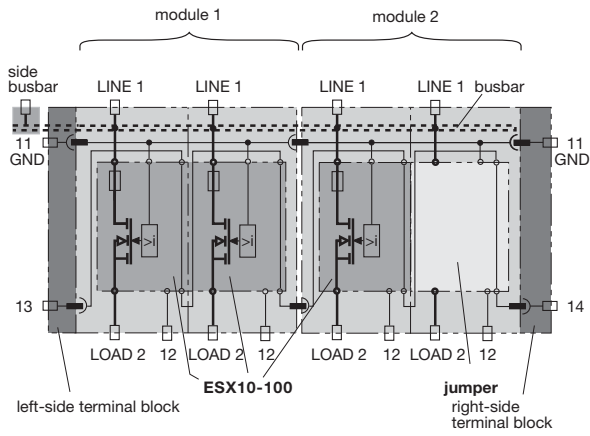


Installation:

- 1 Clip modules onto DIN rails.
- 2 Push modules together (side-by-side).
- 3 Snap on right-side and left-side terminal blocks.
- 4 Cut busbar to required length and fit on supply side of the modules.
- 5 Connect line feed with spring-loaded terminals.
- 6 Plug in ESX10.

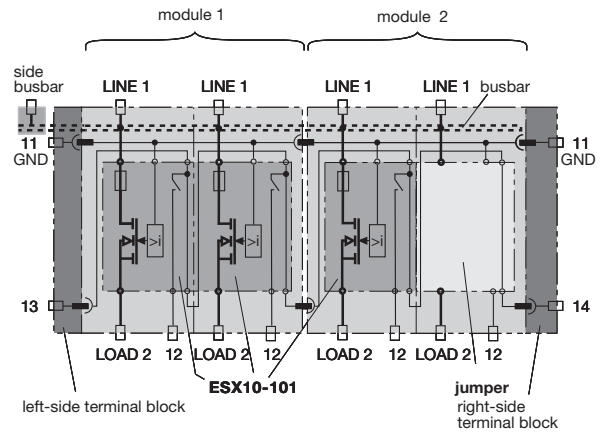
Connection diagram for ESX10-...

Module 17plus with ESX10-100



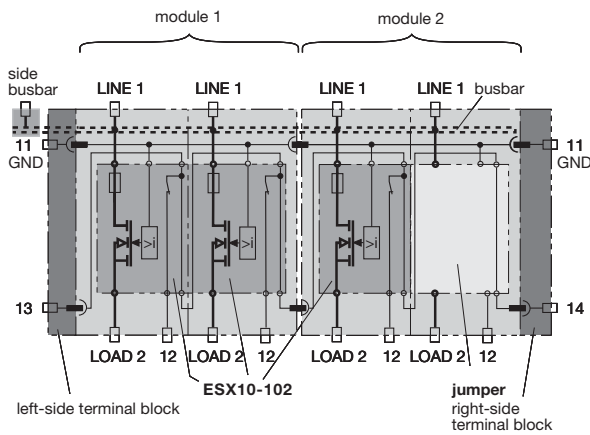
11 GND
13, 14 looped through

Module 17plus with ESX10-101



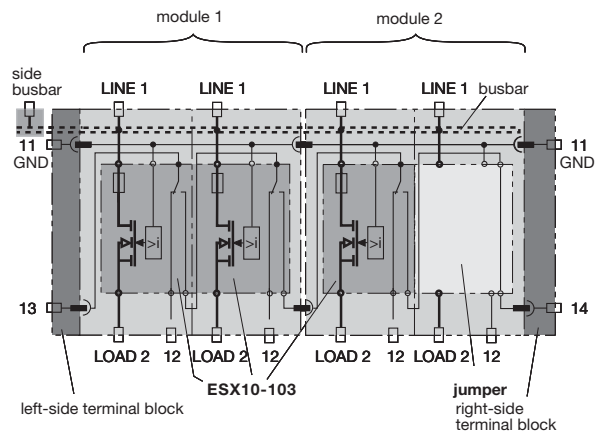
11 GND
12 output single signalisation per channel (N/O)
13, 14 feed single signalisation

Module 17plus with ESX10-102



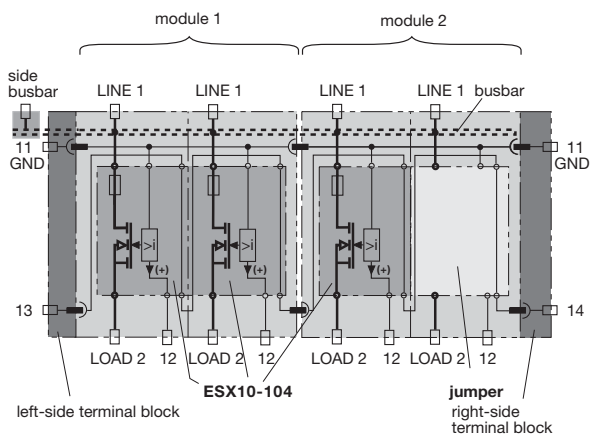
11 GND
12 output single signalisation per channel (N/C)
13, 14 feed single signalisation

Module 17plus with ESX10-103



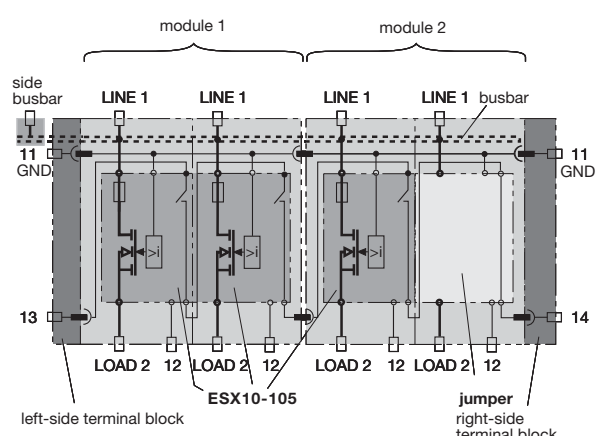
11 GND
12, 13, 14 terminal group signalisation (change-over)
(13-12 N/C, 13-14 N/O)

Module 17plus with ESX10-104



11 GND
12 status indication SF +24V=OK
13, 14 looped through

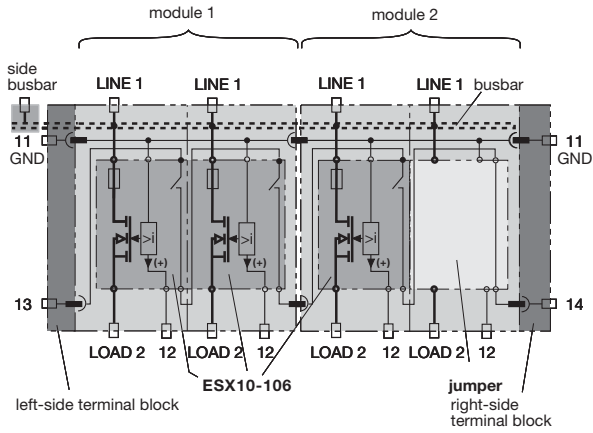
Module 17plus with ESX10-105



11 GND
13, 14 terminal group signalisation (N/O)

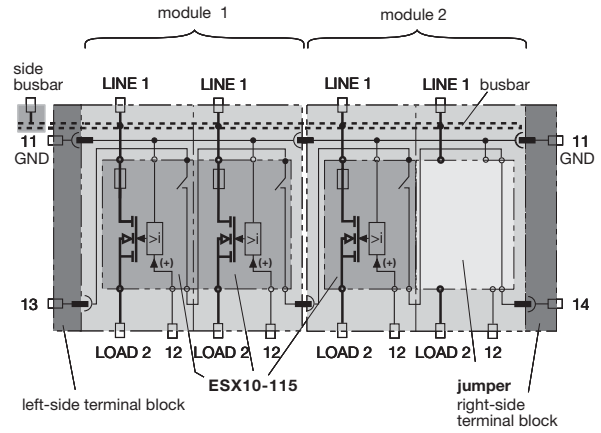
Connection diagram for ESX10-...

Module 17plus with ESX10-106



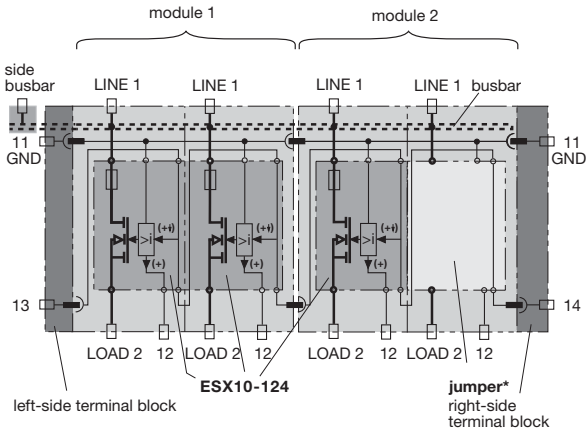
- 11 GND
- 12 status indication SF +24V=OK
- 13, 14 terminal group signalisation (N/O)

Module 17plus with ESX10-115



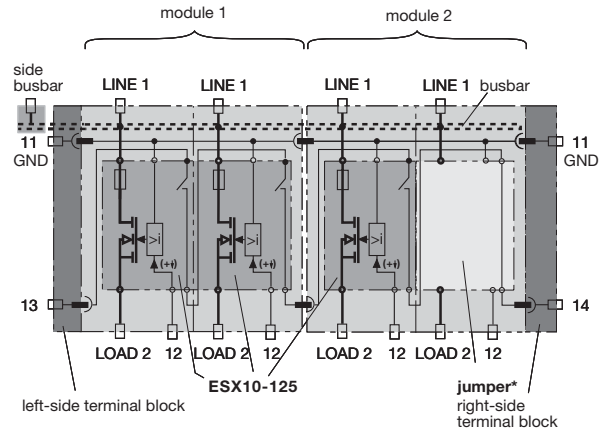
- 11 GND
- 12 terminal control signal ON (+24V DC)
- 13, 14 terminal group signalisation (N/O)

Module 17plus with ESX10-124



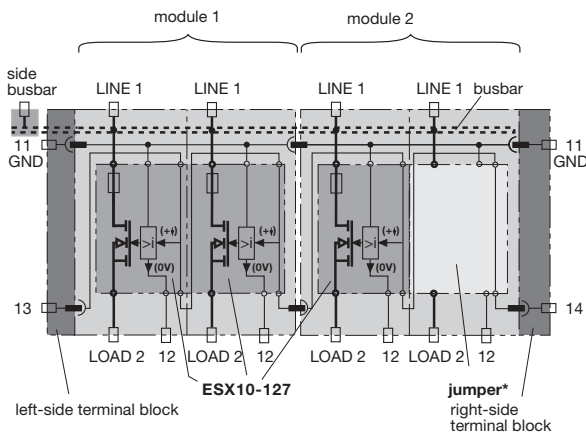
- 11 GND
 - 12 status indication SF +24V=OK
 - 13, 14 reset input RE (group reset), +24V falling edge
- *Caution: unused slots have to be fitted with jumpers

Module 17plus with ESX10-125



- 11 GND
 - 12 reset input RE (single reset), +24V falling edge
 - 13, 14 terminal group signalisation (N/O)
- *Caution: unused slots have to be fitted with jumpers

Module 17plus with ESX10-127

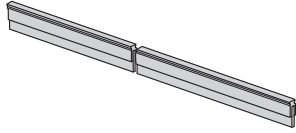


- 11 GND
 - 12 status indication SF inverted, 0V=OK
 - 13, 14 reset input RE (group reset), +24V falling edge
- *Caution: unused slots have to be fitted with jumpers

Accessories for ESX10

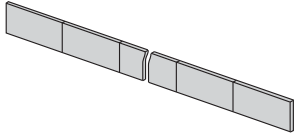
Busbar 32 A

- X 222 005 01 blue insulation, 500 mm/19.68 in.
- X 222 005 02 red insulation, 500 mm/19.68 in.
- X 222 005 03 grey insulation, 500 mm/19.68 in.



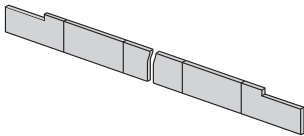
Busbar 50 A

- Y 307 016 01 non-insulated, 500 mm/19.68 in.

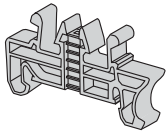


Busbar 50 A

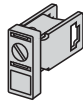
- Y 307 016 11 non-insulated, 500 mm/19.68 in.



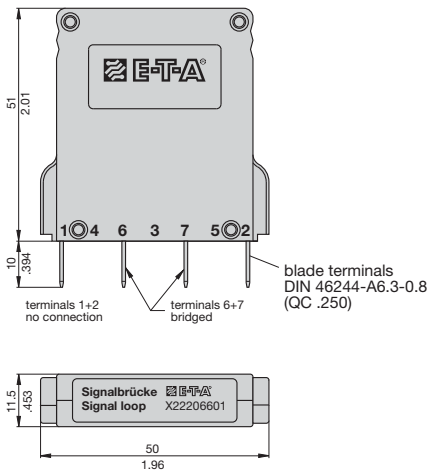
End bracket
X 222 004 01



Screw terminal for busbar
X 211 156 01 non insulated



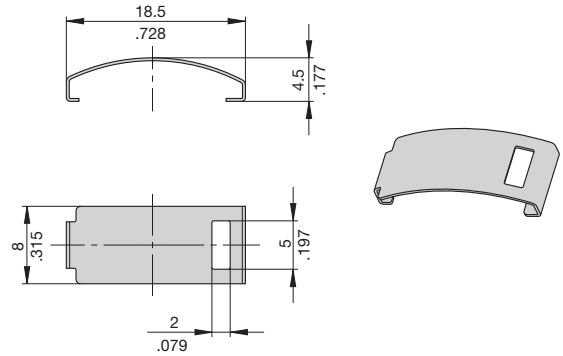
Jumper
X 222 066 01



This is a metric design and millimeter dimensions take precedence ($\frac{\text{mm}}{\text{inch}}$)

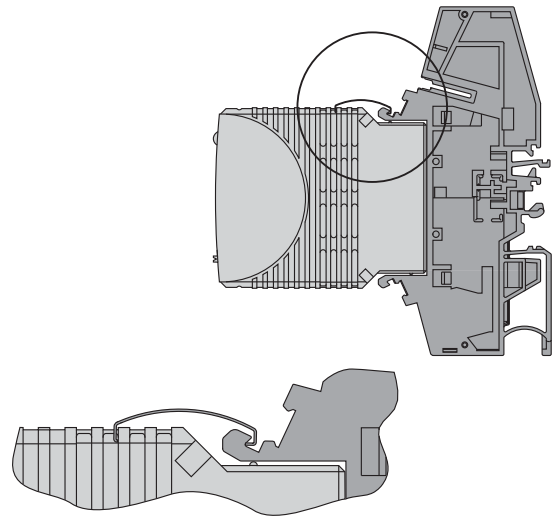
Accessories for ESX10

Retaining clip Y 307 754 01

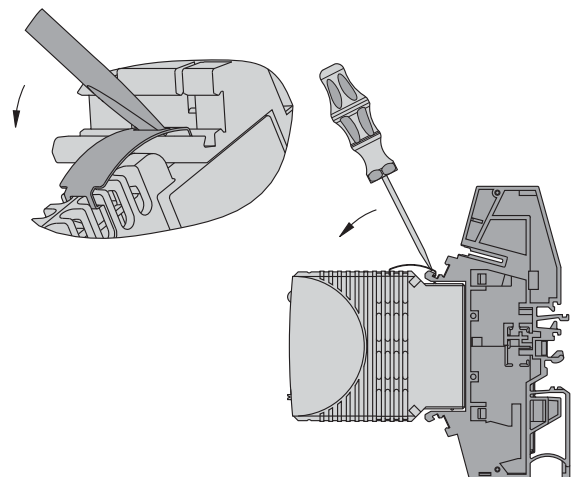


Mounting of retaining clip

ESX10 with retaining clip Y 307 754 01 for power distribution system module 17plus



Removal of retaining clip Y 307 754 01

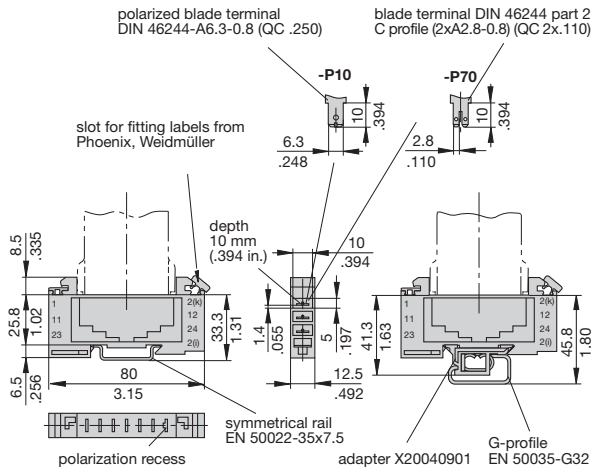


Accessories for ESX10

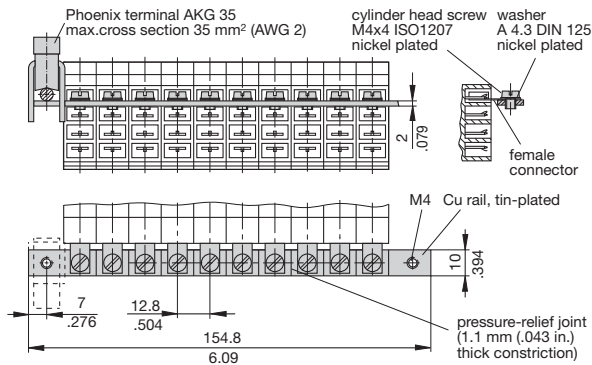
Single mounting sockets
(up to 16 A max. load)
17-P10-Si
17-P70-Si

(with adapter)

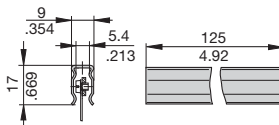
17-P10-Si-20025
17-P70-Si-20025



Bus bar (10-way) (supplied as a complete package)
for type 17 socket
(for max. 100 A continuous load,
more positions available on request)
X 211 157 01 with terminal
X 211 157 02 without terminal



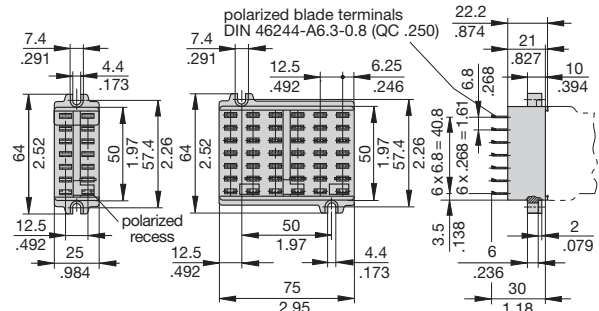
Insulating sleeving for bus bar (10-way)
Y 303 824 01



2-way mounting socket
23-P10-Si

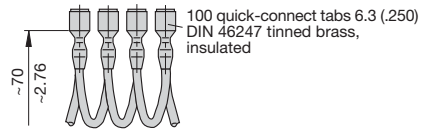
(retaining clip Y 300 581 03 available on request)

6-way mounting socket
63-P10-Si



Connector bus links -P10

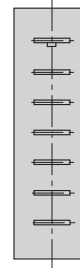
X 210 588 01/ 1.5 mm², (AWG 16), brown (up to 13 A max. load)
X 210 588 02/ 2.5 mm², (AWG 14), black (up to 20 A max. load)
X 210 588 03/ 2.5 mm², (AWG 14), red (up to 20 A max. load)
X 210 588 04/ 2.5 mm², (AWG 14), blue (up to 20 A max. load)



Pin selection, fitted with ESX10-124 (Example)

ESX10-124 17-P10-Si

LINE (+) [2(k)]
Gnd [12]
RE [24]
[2(i)]
RE [23]
SF [11]
LOAD (+) [1]



This is a metric design and millimeter dimensions take precedence ($\frac{\text{mm}}{\text{inch}}$)

Table 4: ESX10-... - Pin assignment 17-P10-Si

17-P10-Si	ESX10-										
Pins	-100	-101	-102	-103	-104	-105	-106	-115	-124	-125	-127
[2(k)]	LINE (+) DC +24 V	LINE (+) DC +24 V	LINE (+) DC +24 V	LINE (+) DC +24 V	LINE (+) DC +24 V	LINE (+) DC +24 V	LINE (+) DC +24 V	LINE (+) DC +24 V	LINE (+) DC +24 V	LINE (+) DC +24 V	LINE (+) DC +24 V
[12]	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND
[24]		single SF N/O terminal	single SF N/C terminal	group SF changeover terminal		group SF N/O	group SF N/O	group SF N/O	reset IN+ +24 V ↓	group SF N/O	reset IN+ +24 V ↓
[2(i)]	not assigned	not assigned	not assigned	not assigned	not assigned	not assigned	not assigned	not assigned	not assigned	not assigned	not assigned
[23]		single SF N/O terminal	single SF N/C terminal	group SF changeover N/O		group SF N/O	group SF N/O	group SF N/O	reset IN+ +24 V ↓	group SF N/O	reset IN+ +24 V ↓
[11]		single SF N/O output	single SF N/C output	group SF changeover N/C	status OUT +24 V = OK		status OUT +24 V = OK	control signal IN+ +24 V = ON	status OUT +24 V = OK	reset IN+ +24 V ↓	status OUT +0 V = OK
[1]	LOAD (+)	LOAD (+)	LOAD (+)	LOAD (+)	LOAD (+)	LOAD (+)	LOAD (+)	LOAD (+)	LOAD (+)	LOAD (+)	LOAD (+)