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E-T-A
E-1048-702-DC24V-1A

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sales@integrated-circuit.com

E-T-A Solid State Remote Power Controller E-1048-7...

Description

The E-T-A Solid State Remote Power Controller E-1048-7... is a transistorised switching device providing both protection and signalisation. It is suitable for all applications where the capabilities of the existing PLC outputs are not sufficient or where no protection against overload and short circuit or wire breakage monitoring of connected loads is provided. The use of a costly, high-capacity output card becomes superfluous when only one or two powerful outputs are necessary.

Using the SSRPC E-1048-7... in combination with the module 17plus creates a new, very flexible system capable of being subsequently changed or extended. Busbars, pre-wired signal contacts and spring-loaded terminals reduce installation times considerably (see accessories).

Typical applications

Automation
- interface module providing inexpensive power amplification at PLC outputs
- optimum protection of individual loads by monitoring the load circuit

Protection and control of
- motors
- solenoids
- lamps

Features

- Optimum load protection. Available in current ratings of 0.5 A; 1 A; 2 A; 4 A; 5 A. No derating required over entire temperature range!
- Fast short-circuit limitation and disconnection
- Time/current dependent overload disconnection (simulating thermal-magnetic CBE trip curve)
- Remote control
- Fault indication: LED and signal output for overload/short-circuit signalisation, and wire break indication in the OFF condition (version -700) and in the OFF and ON condition (version -702 and -712)
- Fault storage: version -710 and -712
- Physically isolated fault indication
- Compact plug-in type
- Plug-in design for use with power distribution system module 17plus
- Integral pre-wiring of common supply and signal contacts

Ordering information

Type No.				
E-1048	SSRPC for PLC outputs			
	Version			
	700	wire break indication in OFF condition (standard)		
	702	permanent wire break indication		
	712	permanent wire break indication and fault storage		
	703	without wire break indication		
		Voltage rating		
		DC24 V	DC 24 V (standard)	
			Current ratings	
			0.5 A	
			1.0 A	
			2.0 A	
			4.0 A	
			5.0 A	
E-1048 -	700	DC24 V	1.0 A	ordering example

E-1048-7...

Technical data ($T_{ambient}$ = 25 °C; at U_N)

Load circuit	
Voltage rating U_S	DC 24 V (18...36 V)
Current rating I_N	0.5 A; 1 A; 2 A; 4 A; 5 A (other ratings to special order)
Closed-circuit current I_{Contr}	typically 0.3 mA
Min. load current	
Version -700/-710:	
wire break indication in OFF condition	
Optional: wire break indication in OFF and ON condition	
wire break ind. in OFF cond.	R_{load} typically 500 kΩ
wire break ind. in ON cond.	I_{load} < typ. 130 mA (0.5/1 A unit) I_{load} < typ. 500 mA (2/4/5 A unit)
Voltage drop U_{DSmax}	0.15 V; 0.3 V; 0.1 V; 0.2 V; 0.3 V
Switch-on/switch-off time t_{on}/t_{off}	typ. 300 µs/700 µs with resistive load
Overload disconnection	approx. 1.5 (± 0.3) x I_N after approx. 100 ms
Short-circuit current (self-limiting)	max. 25 A (with 0.5 A and 1 A current ratings) max. 75 A (with 2 A/4 A/5 A current ratings)
Short-circuit disconnection	< 250 µs
Control input	
Control level	between IN+ and GND
Voltage rating	DC 24 V
Voltage controlled input U_E	DC 0 V < low level < 5 V DC 8.5 V < high level < 36 V
Input current I_E	1...10 mA (8.5...36 V)
Max. switching frequency f_{max}	1 kHz
Reset time after short-circuit/ overload disconnection	1 ms
Fault indication output F relay contact	
max. switching voltage	DC 150 V AC 125 V
max. interrupting capacity	DC 30 W AC 60 W
limiting continuous current	1 A
General data	
Temperature range	0 °C...+60 °C
Insulation voltage (IEC 60664/VDE 0110)	DC 500 V > 10 MΩ
Mass	28 g

Preferred types

Preferred types	Standard current ratings (A)				
	0.5	1	2	4	5
E-1048-700-DC24V-	x	x	x	x	x
E-1048-702-DC24V-	x	x	x	x	x

E-T-A Solid State Remote Power Controller E-1048-7...

Technical description

At the correct input voltage (> 8.5 V), the SSRPC will switch on a power transistor to connect the load to the plus pole of the load circuit supply (U_S).
The transistor will switch off when
- the control voltage (U_E) is removed
- there is a short-circuit/overload in the load circuit.

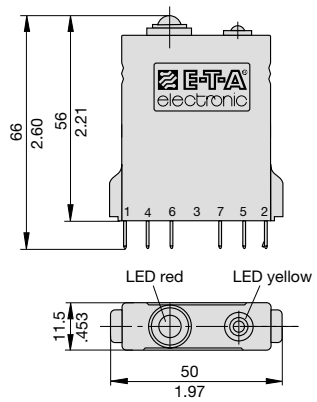
Status indication is provided by two LEDs (red and yellow).
Simulated thermal-magnetic overload protection occurs at approx. 1.5 times rated current. See time/current characteristic curves.
The SSRPC is fitted with blade terminals DIN 46244-A6.3-0.8 and is suitable for plug-in mounting with various E-T-A sockets or **module 17plus** (see Accessories).

Control circuit
ON condition:
If a voltage higher than 8.5 V is applied to the input terminals (+I_N against GND), the control current (from the PLC) will flow through the opto coupler. The output transistor will be conductive, status indication by yellow LED.
OFF condition:
A control voltage lower than 5 V will switch the output transistor off.

Load circuit
The load circuit switches depending on the control signal (“0” or “1”). It is electronically monitored for faults. In the event of a short-circuit the circuit is disconnected after max. 250 µs whilst upon inadmissible overload it is disconnected according to the time/current curves shown.

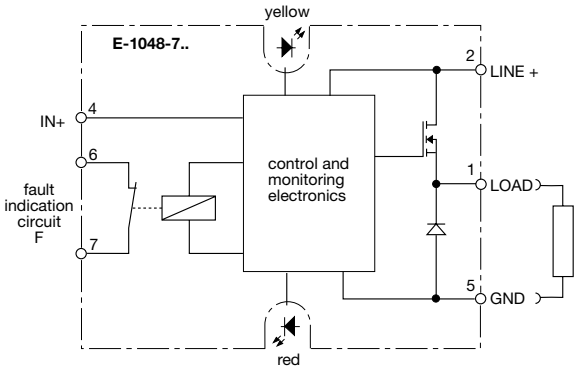
Fault indication output F
The fault indication circuit is physically isolated from the load and control circuits via a relay.
In the OFF condition, this circuit (with closed contact) will provide wire break indication, with the transistor output being open.
The versions with fault storage (712) store the fault signal until the control voltage is re-applied.
Visual fault indication by red LED.

Dimensions



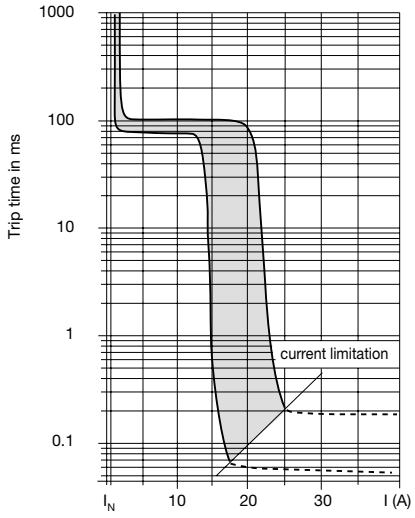
This is a metric design and millimeter dimensions take precedence (mm / inch)

Connection diagram

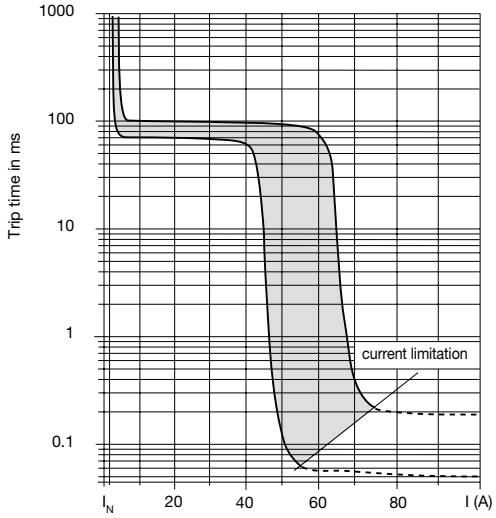


Typical time/current characteristics (T_A = 25 °C)

0.5 A and 1 A



2 A and 4 A



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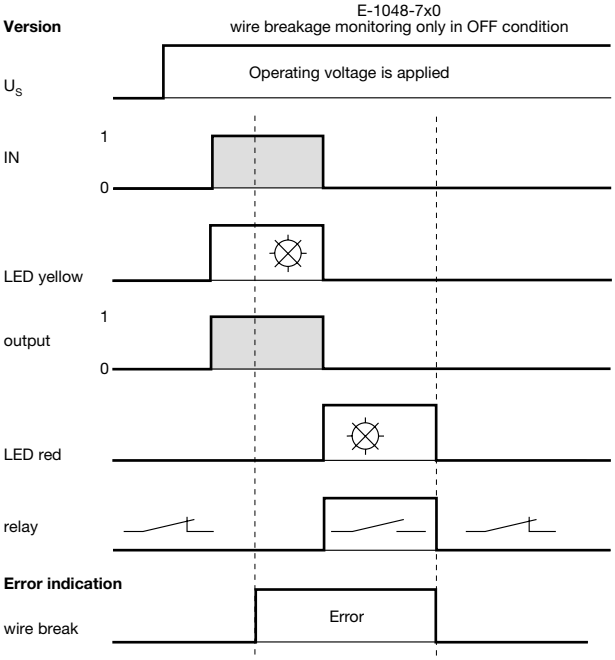
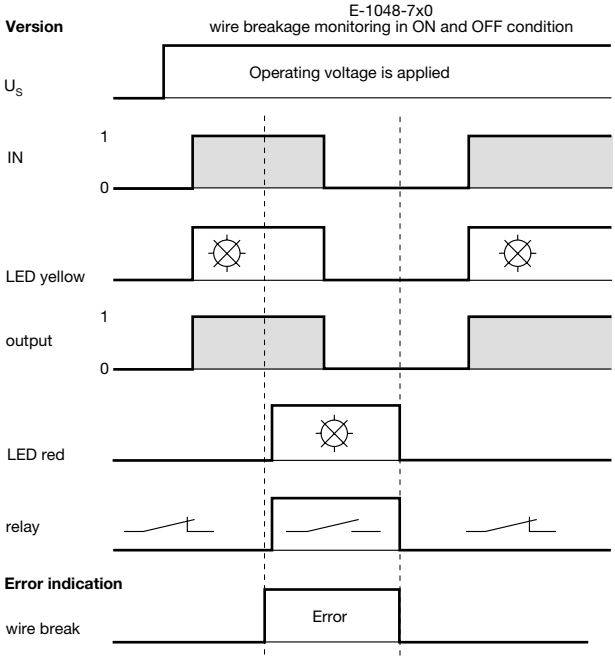
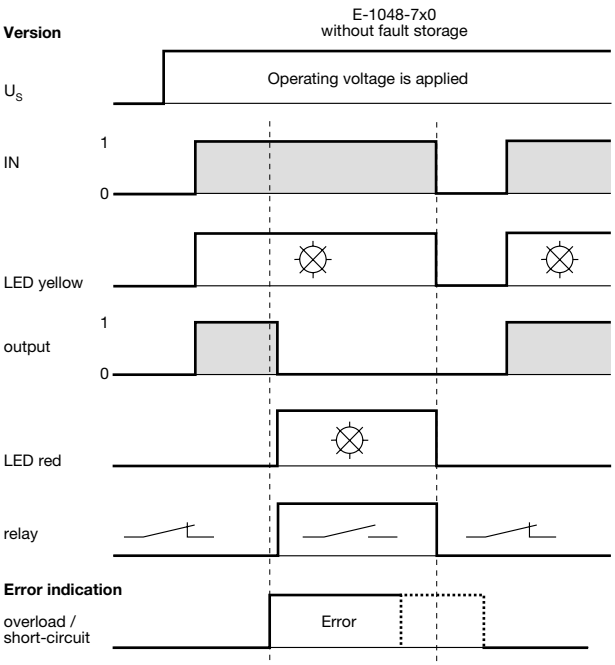
Functional diagrams E-1048-7..

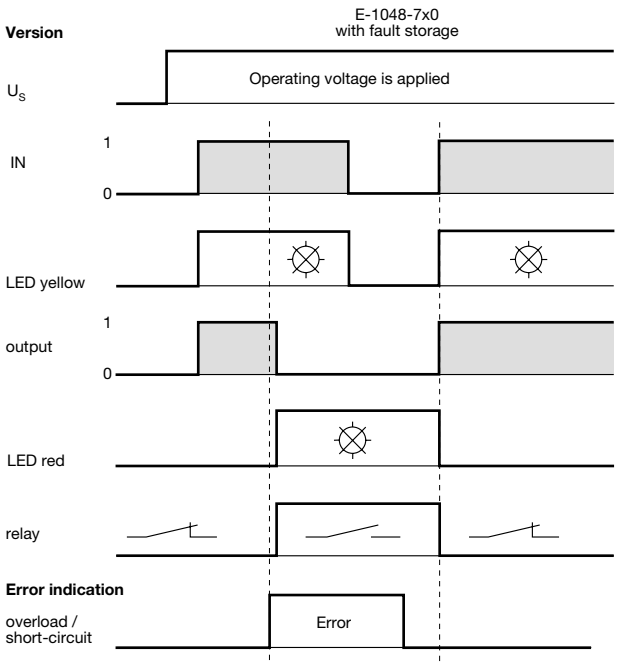
Functional diagram E-1048-7..
wire break indication

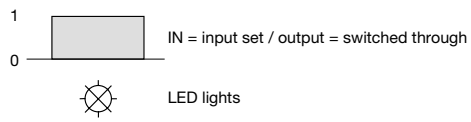




Functional diagram E-1048-7..
overload /short-circuit indication







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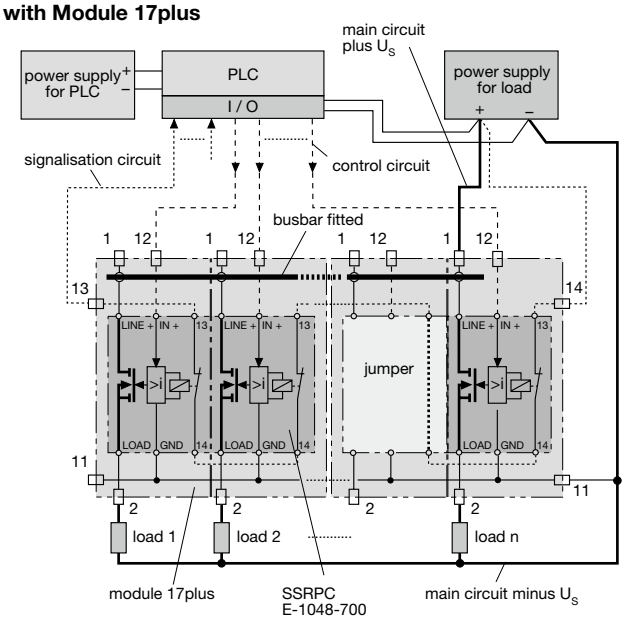
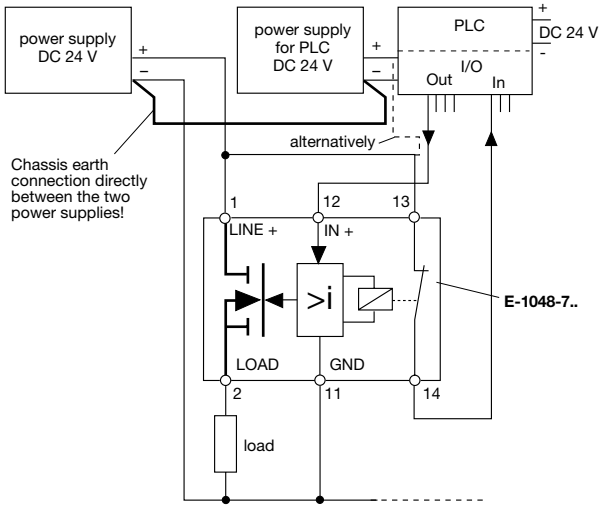
Connection diagram

Solid State Remote Power Controller E-1048-700 with Module 17plus



Wiring diagram

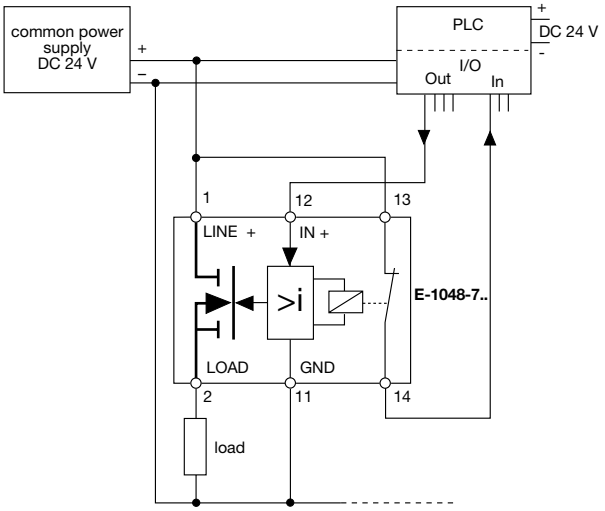
Separate power supply for load, PLC I/O and signal loop



Caution: If there is no firm chassis earth connection when using several separate power supplies, the connected fault indication loop may lead to intermittent operation of the SSRPC and resultant operational hazards.

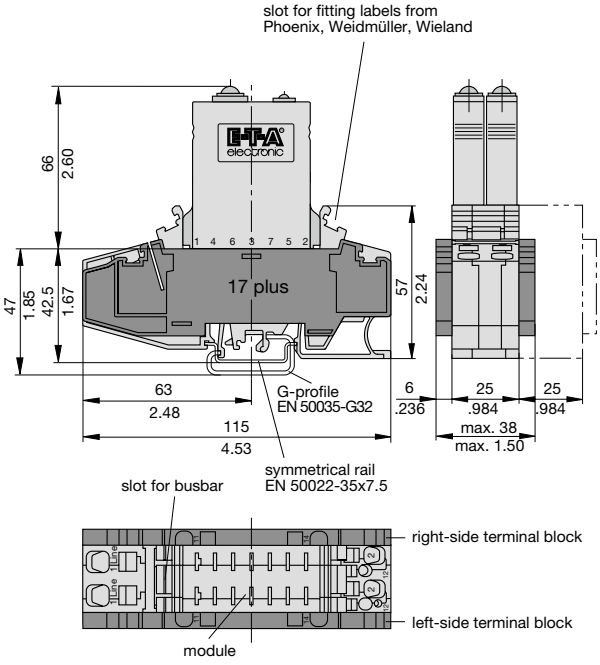
Wiring diagram

Common power supply for load, PLC I/O and signal loop



Accessories

Module 17plus
For technical data see section Power Distribution Systems



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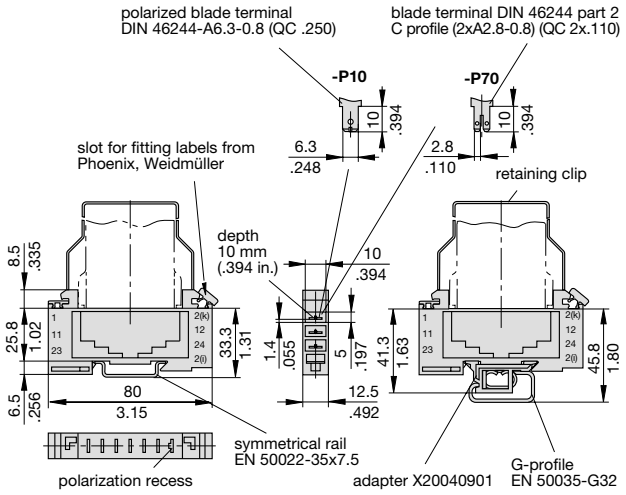
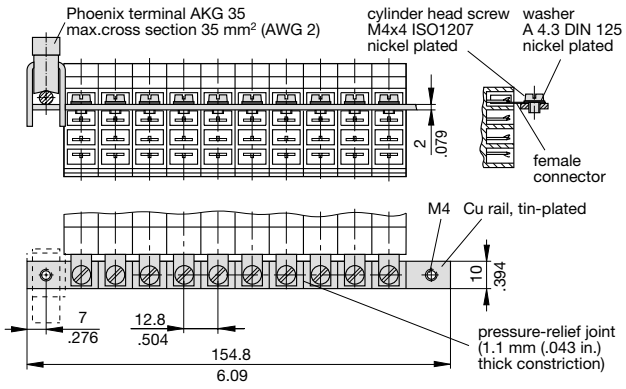
Accessories for E-1048-7..

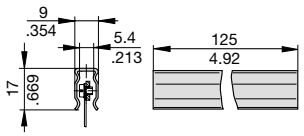
Single mounting sockets (with adapter)
(up to 16 A max. load)
17-P10-Si **17-P10-Si-20025**
17-P70-Si **17-P70-Si-20025**
(retaining clip Y 300 581 11 available on request)



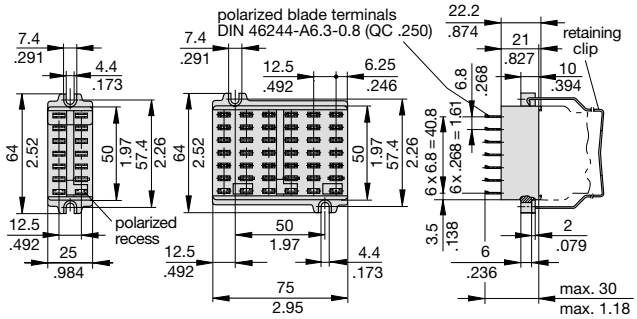
Busbar (10-way) (supplied as a complete package)
for type 17 socket
(for max. 100 A continuous load),
more positions available on request
X 211 157 01 with terminal
X 211 157 02 without terminal



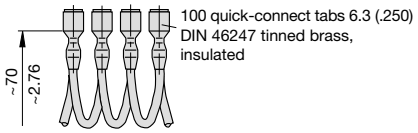
Insulating sleeving for busbar (10-way)
Y 303 824 01



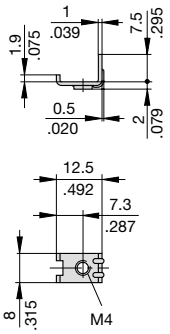
2-way mounting socket **6-way mounting socket**
23-P10-Si **63-P10-Si**
(retaining clip Y 300 581 03 available on request)



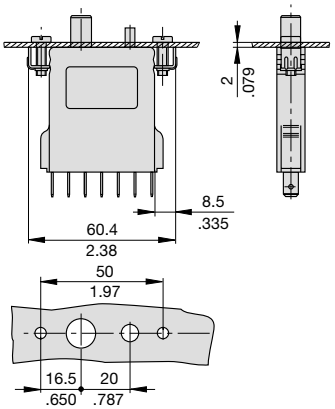
Connector bus links -P10
X 210 588 01/ 1.5 mm², (AWG 16), brown (up to 13 A max. load)
X 210 588 02/ 2.5 mm², (AWG 14), black (up to 20 A max. load)
X 210 588 03/ 2.5 mm², (AWG 14), red (up to 20 A max. load)
X 210 588 04/ 2.5 mm², (AWG 14), blau (up to 20 A max. load)



2 mounting clips
Y 300 504 02
(2 pcs needed per unit)



Installation drawing with
mounting clips Y 300 504 02



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