E-T-A Solid state remote power controller E-1048-S7...

Description

The E-T-A solid state remote power controller for PLC outputs E-1084-S7... is a transistor switch with integral protection and signalling functions. It is used in applications where the existing PLC output power is not sufficient. In addition the device provides protection against short circuit and overload as well as a monitoring function with regard to wire break. The solid state remote power controller E-1048-S7.. reduces the number of components such as fuses and relays and avoids the use of expensive powerful output cards.

The devices are operated on a power distribution module 17plus and they also fit into the smart power distribution system SVS16. The E-1048-S7.. easily allows control, protection and load circuit diagnosis and offers reduced wiring efforts.

Applications

Automation and process control
- Coupler component for cost-effective power gain at PLC outputs
- Optimum protection of every single load by load circuit monitoring

Protection and control for fast switching operations with:
- motors
- magnetic valves
- resistive loads
- signalling and monitoring lamps

Features

- Optimum load protection because a range of current ratings is available
- No derating over the entire temperature range
- Fast short circuit disconnection with simultaneous short-circuit limitation
- Time-dependent overload disconnection (trip curve similar to thermal-magnetic circuit breakers)
- Remotely controllable
- Error message: LED and signal output indicate overload/short circuit and wire break in the “OFF” condition (version 700), wire break in “OFF” and “ON” condition: (type: 702)
- Physically isolated fault indication
- Compact enclosure
- Plug-in design to fit into power distribution module 17plus and power distribution system SVS16

Order numbering code

Type No.					
E-1048	solid state remote power controller for PLC outputs				
	Version				
	S700	with wire break monitoring in OFF condition (standard)			
	S702	with permanent wire break monitoring			
	S703	without wire break monitoring			
		Rated voltage			
		DC 24 V	DC 24 V (standard)		
			Current ratings		
			1.0 A		
			2.0 A		
			4.0 A		
			5.0 A		
E-1048 -	S700	DC 24 V	1.0 A	ordering example	

E-1048-S7xx

Technical data (T_{amb} = 25 °C, at U_N)

Load circuit	
Operating voltage U_B	DC 24 V (18...32 V)
Current ratings I_N	1; 2; 4; 5 A
Quiescent current I_S	typically 0.5 mA
Min. load current	
Version700:	
wire break “OFF” condition:	R_{load} > 500 KΩ
Option: wire break in “OFF” and “ON” condition:	
wire break “OFF” condition:	R_{load} > typically 500 kΩ
wire break “ON” condition:	I_{load} < typically 130 mA (1 A unit) I_{load} < typically 500 mA (2/4/5 A unit)
Voltage drop U_{DSmax}	0.1 V
Trip times t_{ON}/t_{OFF}	typically 5 ms / 1.5 ms
Overload disconnection	1.5 (±-0.3) x I_N after approx. 200 ms
Short circuit current	max. 50 A L/R = 2- 3 ms max. 180 A L/R = 0 ms
OFF delay	typically 200 ms
Control input IN+	
Control level	between IN+ and GND
Voltage controlled	DC 0 V < low level < 5 V
Input U_E	DC 8.5 V < high level < 32 V
Input current I_E	1...10 mA (8.5 V...32 V)
Max. switching frequency f_{max}	100 Hz
Error signal output	
Relay contact (potential-free signal contact)	max. DC 30 V / 0.5 A min. DC 10 V / 10 mA
General data	
Housing material	moulded
Operating temperature 0…60°C	
Storage temperature	-40...70°C
Blade terminals	6.3 mm to EN 60934-6.3-0.8
Humidity	96 hours at 95% RH, 40 °C to IEC 60068-2-78,-Cab climate class 3K3 to EN60721
Vibration	3g test to IEC 60068-2-6, test Fc
Shock	30 g/11 ms halfsine to EN60068-2-7
Protection class	housing IP30 DIN40050 terminals IP00 EN 40050
EMC requirements	noise emission: EN 61000-6-3 noise immunity: EN 61000-6-2
Insulation resistance	>100MΩ (DC500V) auxiliary contact to LINE, LOAD, GND and IN+ (bridged)
Dielectric strength	test voltage AC 500 V, auxiliary contact to LINE, LOAD, GND and IN+ (bridged)
Dimensions (w x h d)	12.5 x 70 x 60 mm
Mass	approx. 33g

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Solid state remote power controller E-1048-S7...

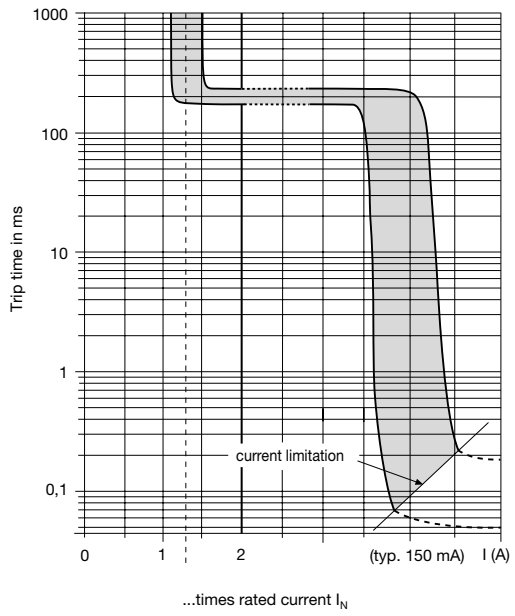
Functional description

When applying the control voltage (>8,5 V) to the control input of the SSRPC E-1048-S7, the integral power transistor becomes conductive. It connects the plus pole of the load circuit supply (UB) with the load.
The transistor will switch off when the control voltage is removed or when there is a short circuit / overload in the load circuit. Status indication is provided by two LEDs (red / yellow).
Overload disconnection is similar to a trip curve of a thermal-magnetic circuit breaker and occurs at approx. 1.5 times rated current (see time/current characteristic)
The device is fitted with blade terminals to EN 60934-6.3-0.8 and suitable for plug-in mounting with power distribution module 17plus or the power distribution board SVS16 (see separate data sheets).

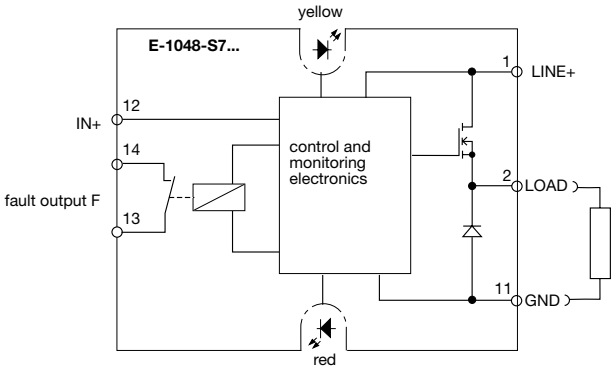
Control circuit
ON condition:
If a voltage higher than 8.5 V is applied to the input terminals (+IN against GND), the control current (e.g. from the PLC) will flow into the electronic circuitry. The output transistor will be conductive, status indication by yellow LED.
OFF condition:
A control voltage 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 ms 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.
Depending on the version this circuit (with closed contact) will additionally provide wire break indication. In the ON condition, short circuit or overload will be monitored and indicated. The LED indicates a failure.

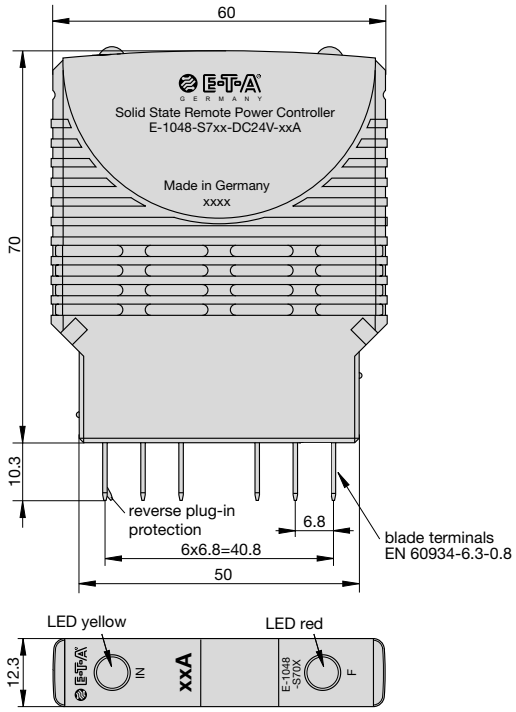
Time/current characteristic (T_{amb} = 25 °C)



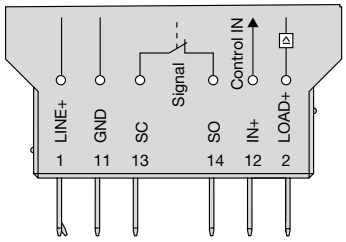
Schematic diagram



Dimensions



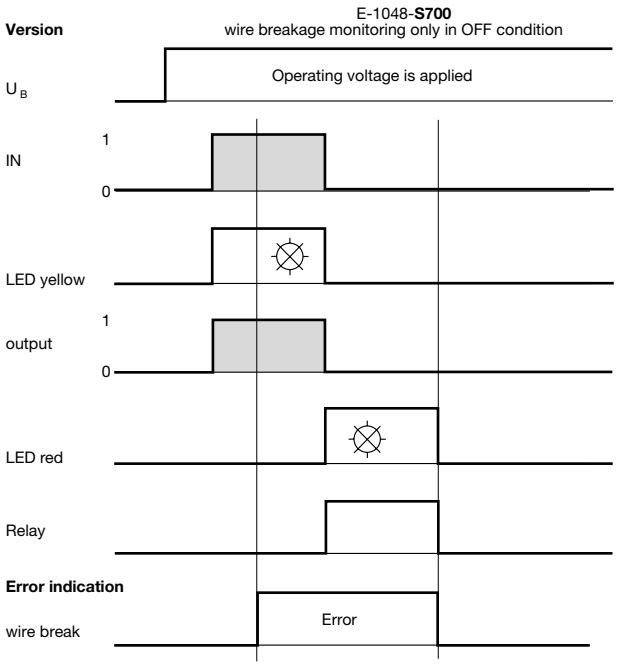
Connection diagrams E-1048-S7xx

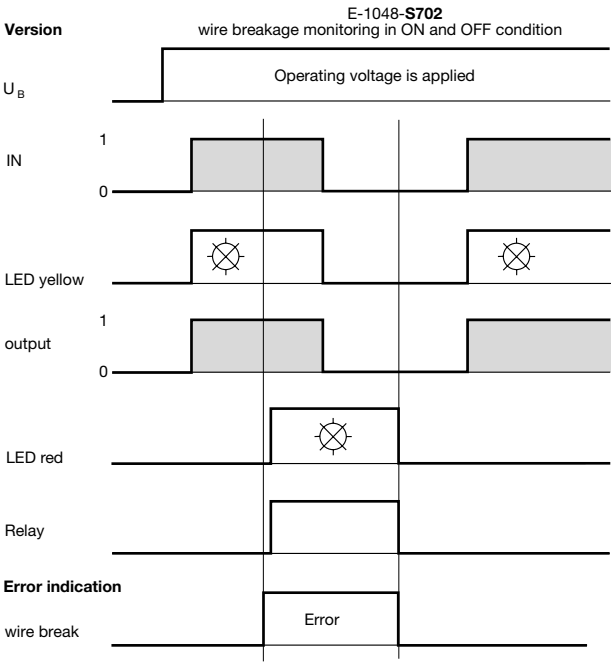


All dimensions without tolerances are for reference only. E-T-A reserves the right change specifications at any time in the interest of improved design, performance and cost effectiveness, the right to make changes in these specifications without notice is reserved. Product markings may not be exactly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

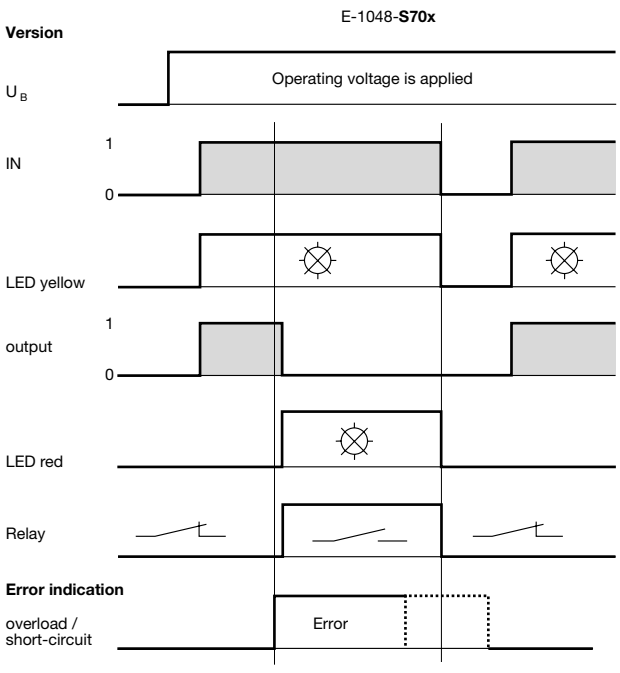
Functional diagrams E-1048-S7xx

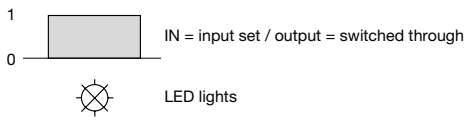
Functional diagram E-1048-S7xx
wire break indication





Functional diagram E-1048-S70x
overload /short-circuit indication





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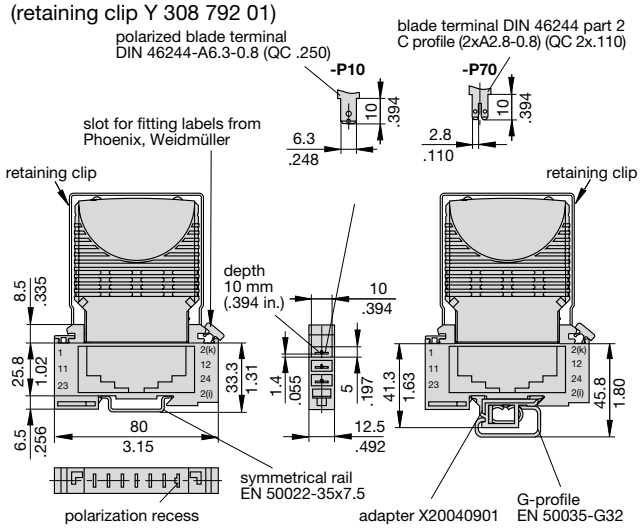
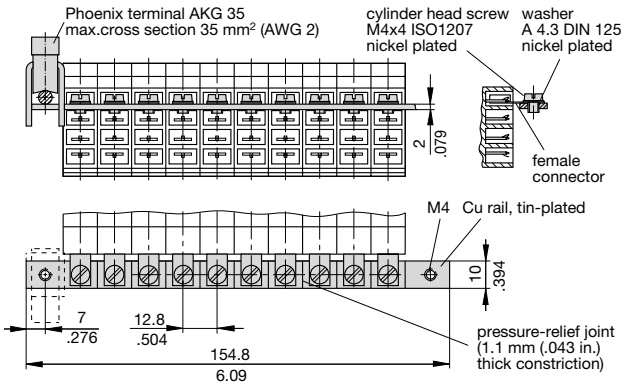
Accessories for E-1048-S7xx

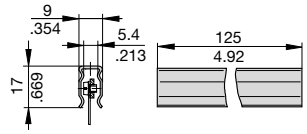
Single mounting sockets (with adapter)
(up to 16 A max. load)
17-P10-Si **17-P10-Si-20025**
17-P70-Si **17-P70-Si-20025**
(retaining clip Y 308 792 01)



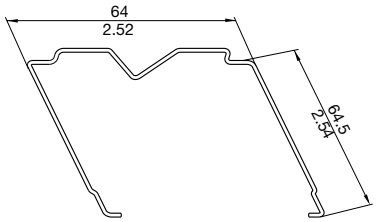
Busbar (10-way) (supplied as a complete package)
for type 17 socket
(for max. 100 A continuous load),
more positions available on request
X 211 157 01 with terminal
X 211 157 02 without terminal



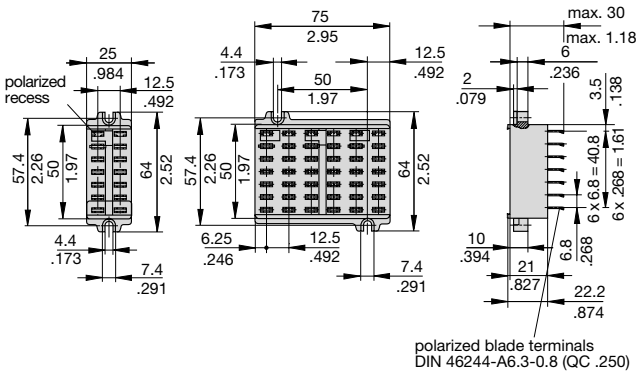
Insulating sleeving for busbar (10-way)
Y 303 824 01



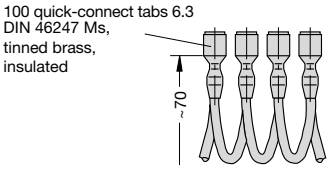
Retaining clip
Y 308 792 01
recommended for a tight fit of types
ESX10 / E-1048-S6xx / SB-S11-P1-xx
with terminal blocks type 17 and 17plus



2-way mounting socket **6-way mounting socket**

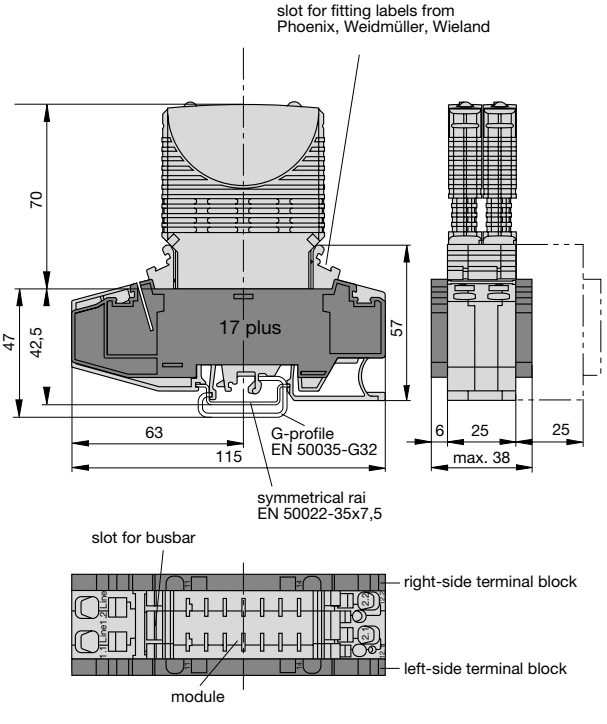


Connector bus links -P10
X 210 588 01 / 01/1.5 mm² brown
X 210 588 02 / 01/2.5 mm² black
X 210 588 03 / 01/2.5 mm² red
X 210 588 04 / 01/2.5 mm² blue



Module 17plus

See data sheet Module 17plus



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