Safety relays - PSR-MC50-3NO-1DO-24DC-SC - 2700553

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Safety relay for monitoring non-equivalent signal generators up to SILCL 3, Cat. 4, PL e, 2-channel, non-equivalent operation, automatic or manual, monitored start, 3 enabling current paths, U_S = 24 V DC, plug-in screw terminal block

Why buy this product

- Up to Cat.4/PL e according to ISO 13849-1, SILCL 3 according to IEC 62061
- Low housing width of just 12.5 mm
- Two-channel non-equivalent control
- 3 enabling current paths, 1 digital signal output
- Manually monitored and automatic activation in a single device

Key Commercial Data

Packing unit	1 STK
Weight per Piece (excluding packing)	180.000 g
Custom tariff number	85371099
Country of origin	Germany

Technical data

Note

Utilization restriction	EMC: class A product, see manufacturer's declaration in the download area

Dimensions

Width	12.5 mm
Height	112.2 mm
Depth	114.5 mm

Ambient conditions

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Ambient conditions

Ambient temperature (operation)	-40 °C ... 55 °C (observe derating)
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Max. permissible relative humidity (operation)	75 % (on average, 85% infrequently, non-condensing)
Max. permissible humidity (storage/transport)	75 % (on average, 85% infrequently, non-condensing)
Shock	15g
Vibration (operation)	10 Hz ...150 Hz, 2g
Maximum altitude	≤ 2000 m (Above sea level)

Input data

Rated control circuit supply voltage U_S	24 V DC -15 % / +10 %
Power consumption at U_S	typ. 1.92 W
Rated control supply current I_S	typ. 80 mA
Inrush current	5 A (Δt = 200 µs at U_s)
Current consumption	< 5 mA (with U_s/I_x to S12)
	< 5 mA (with U_s/I_x to S13)
	> -5 mA (with U_s/I_x to S34)
	< 10 mA (with U_s/I_x to S34)
Voltage at input/start and feedback circuit	24 V DC -15 % / +10 %
Typical response time	< 175 ms (automatic start)
	< 175 ms (manual, monitored start)
Typ. starting time with U_s	< 250 ms (when controlled via A1)
Typical release time	< 20 ms (when controlled via A1 or S12 and S13.)
Recovery time	< 500 ms
Status display	3 x green LED
Maximum switching frequency	0.5 Hz
Max. permissible overall conductor resistance	150 Ω
Filter time	1 ms (at A1 in the event of voltage dips at U_s)
	max. 1.5 ms (at S12, S13; test pulse width)
	min. 7.5 ms (at S12, S13; test pulse rate)
	Test pulse rate = 5 x Test pulse width

Output data

Contact type	3 enabling current paths
Contact material	$AgSnO_2$
Minimum switching voltage	12 V AC/DC
Maximum switching voltage	250 V AC/DC (Observe the load curve)
Limiting continuous current	6 A (observe derating)
Inrush current, minimum	3 mA

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Output data

Maximum inrush current	6 A
Sq. Total current	48 A^2 (observe derating)
Switching capacity	min. 60 mW
Output fuse	6 A gL/gG (N/O contact)
	4 A gL/gG (for low-demand applications)

Alarm outputs

Number of outputs	1 (digital, PNP)
Voltage	22 V DC (U_s - 2 V)
Current	max. 100 mA
Maximum inrush current	500 mA (Δt = 1 ms at U_s)
Short-circuit protection	no

General

Relay type	Electromechanical relay with forcibly guided contacts in accordance with IEC/EN 61810-3 (EN 50205)
Mechanical service life	10 x 10^6 cycles
Nominal operating mode	100% operating factor
Net weight	176.3 g
Mounting type	DIN rail mounting
Assembly instructions	See derating curve
Mounting position	vertical or horizontal
Degree of protection	IP20
Min. degree of protection of inst. location	IP54
Control	Two-channel
Housing material	PBT
Housing color	yellow

Connection data

Connection method	Screw connection
pluggable	Yes
Conductor cross section solid min.	0.2 mm²
Conductor cross section solid max.	2.5 mm²
Conductor cross section flexible min.	0.2 mm²
Conductor cross section flexible max.	2.5 mm²
Conductor cross section AWG min.	24
Conductor cross section AWG max.	12
Stripping length	7 mm
Screw thread	M3

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Technical data

Safety-related characteristic data

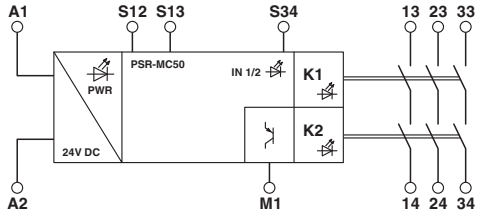
Stop category	0
Designation	IEC 61508 - High demand
Safety Integrity Level (SIL)	3
Designation	IEC 61508 - Low demand
Safety Integrity Level (SIL)	3
Designation	EN ISO 13849
Performance level (PL)	e (4 A DC13; 5 A AC15; 8760 switching cycles/year)
Category	4
Designation	EN 62061
Safety Integrity Level Claim Limit (SIL CL)	3

Standards and Regulations

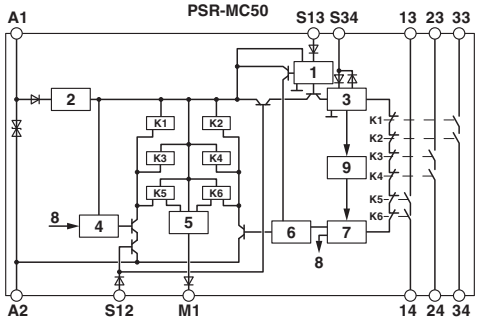
Shock	15g
Designation	Air clearances and creepage distances between the power circuits
Standards/regulations	DIN EN 50178
Rated insulation voltage	250 V AC
Rated surge voltage/insulation	Safe isolation, reinforced insulation 6 kV between input circuit and enabling current path (13/14) and enabling current path (23/24) and enabling current path (33/34) Basic insulation 4 kV between all current paths and housing
Degree of pollution	2
Overvoltage category	III
Vibration (operation)	10 Hz ...150 Hz, 2g
Conformance	CE-compliant

Drawings

Block diagram



Block diagram

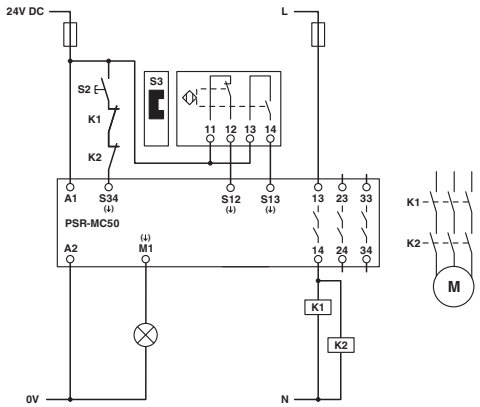


Key:
1 = Input circuit

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2 = Voltage limitation
3 = Start circuit
4 = Control circuit channel 1
5 = Control circuit signal output
6 = Control circuit channel 2
7 = Start channel 1 and 2
8 = Channel 1
9 = Diagnostics
K1, K2 ... K6 = Force-guided elementary relays

Circuit diagram



Classifications

eCl@ss

eCl@ss 5.1	27371901
eCl@ss 6.0	27371819
eCl@ss 8.0	27371819
eCl@ss 9.0	27371819

ETIM

ETIM 5.0	EC001449

Approvals

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UL Listed / cUL Listed / EAC / Functional Safety / cULus Listed

Ex Approvals

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Approvals

Approval details

UL Listed http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm FILE E 140324

cUL Listed http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm FILE E 140324

EAC 7500651.22.01.00244

Functional Safety 44-205-13755201

cULus Listed

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