

Safety relays - PSR-MC60-2NO-1DO-24DC-SP - 2700572

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Safety relay for two-hand control devices according to EN 574 type IIIA, up to SILCL 1, Cat. 1, PL c, synchronous activation monitoring < 0.5 s, 2 enabling current paths, $U_s = 24 \text{ V DC}$, pluggable Push-in terminal block


The figure shows a version with a screw connection

Your advantages

- ✓ Up to Cat. 1/PL c according to ISO 13849-1, SILCL 1 according to IEC 62061
- ✓ Type IIIA according to EN 574
- ✓ Low housing width of just 12.5 mm
- ✓ 2 enabling current paths, 1 digital signal output
- ✓ Automatic activation



Key Commercial Data

Packing unit	1 pc
GTIN	 4 046356 988360
GTIN	4046356988360
Weight per Piece (excluding packing)	140.000 g
Custom tariff number	85371098
Country of origin	Germany

Technical data

Note

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

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Dimensions

Width	12.5 mm
Height	116.6 mm
Depth	114.5 mm

Ambient conditions

Ambient temperature (operation)	-35 °C ... 60 °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)
Maximum altitude	≤ 2000 m (Above sea level)

Power supply

Designation	A1/A2
Rated control circuit supply voltage U_s	24 V DC -20 % / +25 %
	19.2 V DC ... 30 V DC
Rated control supply current I_s	typ. 35 mA
Power consumption at U_s	typ. 0.9 W
Inrush current	typ. 20 A ($\Delta t = 10 \mu s$ at U_s)
Filter time	10 ms (For the logic. At A1 in the event of voltage dips at U_s)
Protective circuit	Surge protection Suppressor diode
	Protection against polarity reversal for rated control circuit supply voltage

Digital inputs

Input name	Sensor circuit
	S12, S22
Description of the input	safety-related sensor inputs
Number of inputs	2
Inrush current	< 5.5 mA (with U_s/I_x to S12)
	> -5.5 mA (with U_s/I_x to S22)
Current consumption	< 5.1 mA (with U_s/I_x to S12)
	> -5.1 mA (with U_s/I_x to S22)
Max. permissible overall conductor resistance	150 Ω
Concurrence	< 0.5 s

2. Digital inputs

Input name	Feedback circuit
	S35
Description of the input	non-safety-related
Number of inputs	1

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2. Digital inputs

Inrush current	< 5.5 mA (typically with U_s)
Current consumption	< 5.1 mA (typically with U_s)
Max. permissible overall conductor resistance	150 Ω

Relay outputs: enabling current path

Output name	Enabling current paths
	13/14, 23/24
Output description	safety-related N/O contacts
Number of outputs	2 (undelayed)
Contact type	2 enabling current paths
Contact material	AgSnO ₂ (enabling current path)
Switching voltage	min. 12 V AC/DC
	max. 250 V AC/DC (Observe the load curve)
Limiting continuous current	6 A (observe derating)
Inrush current	min. 3 mA
	max. 6 A
Sq. Total current	72 A ² (observe derating)
Switching capacity	min. 60 mW
Switching frequency	1 Hz
Mechanical service life	10x 10 ⁶ cycles
Output fuse	6 A gL/gG (N/O contact)

Alarm outputs

Designation	M1
Output description	PNP
	non-safety-related
Number of outputs	1 (digital, PNP)
Voltage	22 V DC ($U_s - 2$ V)
Current	max. 100 mA
Maximum inrush current	500 mA ($\Delta t = 1$ ms at U_s)
Short-circuit protection	Yes

Times

Typical response time at U_s	< 40 ms
Typical release time at U_s	< 10 ms (when controlled via S12/S22)
	< 5 ms (when interrupted via A1; applicative deactivation via A1/A2 is not permitted)
Restart time	< 2 s (Boot time)
Recovery time	< 500 ms

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General

Relay type	Electromechanical relay with force-guided contacts in accordance with IEC/EN 61810-3
Nominal operating mode	100% operating factor
Net weight	111.28 g
Mounting position	vertical or horizontal
Mounting type	DIN rail mounting
Assembly instructions	See derating curve
Degree of protection	IP20
Min. degree of protection of inst. location	IP54
Housing material	PBT
Housing color	yellow
Status display	5 x bi-color LED

Connection data

Connection method	Push-in connection
pluggable	Yes
Conductor cross section solid	0.2 mm ² ... 1.5 mm ²
Conductor cross section flexible	0.2 mm ² ... 1.5 mm ²
Conductor cross-section AWG	24 ... 16
Conductor cross-section flexible with ferrule without plastic sleeve	0.25 mm ² ... 1.5 mm ² (only together with CRIMPFOX 6)
Conductor cross-section flexible with ferrule and plastic sleeve	0.25 mm ² ... 1.5 mm ² (only together with CRIMPFOX 6)
Stripping length	8 mm

Safety-related characteristic data

Stop category	0
Type class	IIIA
Designation	IEC 61508 - High demand
Safety Integrity Level (SIL)	1 (4 A DC13; 5 A AC15; 8760 switching cycles/year)
Designation	EN ISO 13849
Performance level (PL)	c (4 A DC13; 5 A AC15; 8760 switching cycles/year)
Category	1 (4 A DC13; 5 A AC15; 8760 switching cycles/year)
Designation	EN 62061
Safety Integrity Level Claim Limit (SIL CL)	1 (4 A DC13; 5 A AC15; 8760 switching cycles/year)

Standards and Regulations

Designation	Air clearances and creepage distances between the power circuits
Standards/regulations	DIN EN 50178
Rated insulation voltage	250 V AC
	250 V AC

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Technical data

Standards and Regulations

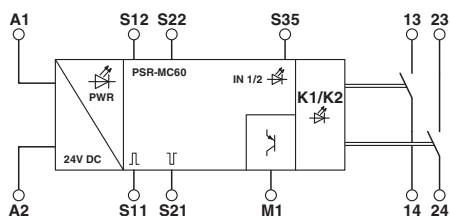
Rated surge voltage/insulation	Basic insulation 4 kV between all current paths and housing
	Safe isolation, reinforced insulation 6 kV: between (A1, A2, S11, S12, S21, S22, S35, M1) and enabling current path (13/14) between (A1, A2, S11, S12, S21, S22, S35, M1) and enabling current path (23/24) between enabling current paths
Degree of pollution	2
Overvoltage category	III
Shock	15g
Vibration (operation)	10 Hz ... 150 Hz, 2g
Conformance	CE-compliant

Environmental Product Compliance

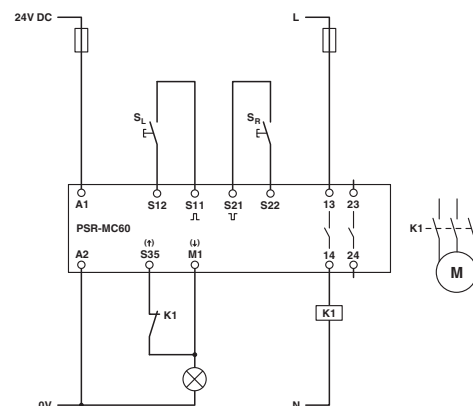
REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

Drawings

Block diagram



Circuit diagram



Classifications

eCl@ss

eCl@ss 10.0.1	27371821
eCl@ss 11.0	27371821
eCl@ss 4.0	40020600
eCl@ss 4.1	40020600

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Classifications

eCl@ss

eCl@ss 5.0	27371900
eCl@ss 5.1	27371900
eCl@ss 6.0	27371800
eCl@ss 7.0	27371819
eCl@ss 9.0	27371821

ETIM

ETIM 6.0	EC001452
ETIM 7.0	EC001452

UNSPSC

UNSPSC 13.2	39121501
UNSPSC 18.0	39121105
UNSPSC 19.0	39121105
UNSPSC 20.0	39121105
UNSPSC 21.0	39121105

Approvals

Approvals


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UL Listed / cUL Listed / Functional Safety / cULus Listed

Ex Approvals

Approval details

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

Functional Safety



01/205/5532.00/16

cULus Listed

