

Safety relays - PSR-MC60-2NO-1DO-24DC-SC - 2700571

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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, $U_s = 24 \text{ V DC}$, plug-in screw terminal block

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 988353
GTIN	4046356988353
Weight per Piece (excluding packing)	147.300 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

Width	12.5 mm
Height	112.2 mm
Depth	114.5 mm

Ambient conditions

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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 at S12)
	> -5.5 mA (with U_s/I_x to S22)
Current consumption	< 5.1 mA (with U_s/I_x at S12)
	> -5.1 mA (with U_s/I_x to S22)
Max. permissible overall conductor resistance	150 Ω
Concurrence input 1/2	< 0.5 s
	S35
Description of the input	non-safety-related
Number of inputs	1
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)

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Relay outputs: 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 ($\Delta t = 1 \text{ ms}$ at U _s)
Short-circuit protection	Yes

Times

Typical response time at US	< 40 ms
Typical release time at US	< 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

General

Relay type	Electromechanical relay with forcibly guided contacts in accordance with IEC/EN 61810-3 (EN 50205)
Nominal operating mode	100% operating factor
Net weight	147.3 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

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Connection data

Connection method	Screw connection
pluggable	Yes
Conductor cross section solid min.	0.2 mm ²
Conductor cross section solid max.	2.5 mm ²
Conductor cross section flexible min.	0.2 mm ²
Conductor cross section flexible max.	2.5 mm ²
Conductor cross section AWG min.	24
Conductor cross section AWG max.	12
Stripping length	7 mm
Screw thread	M3

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
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

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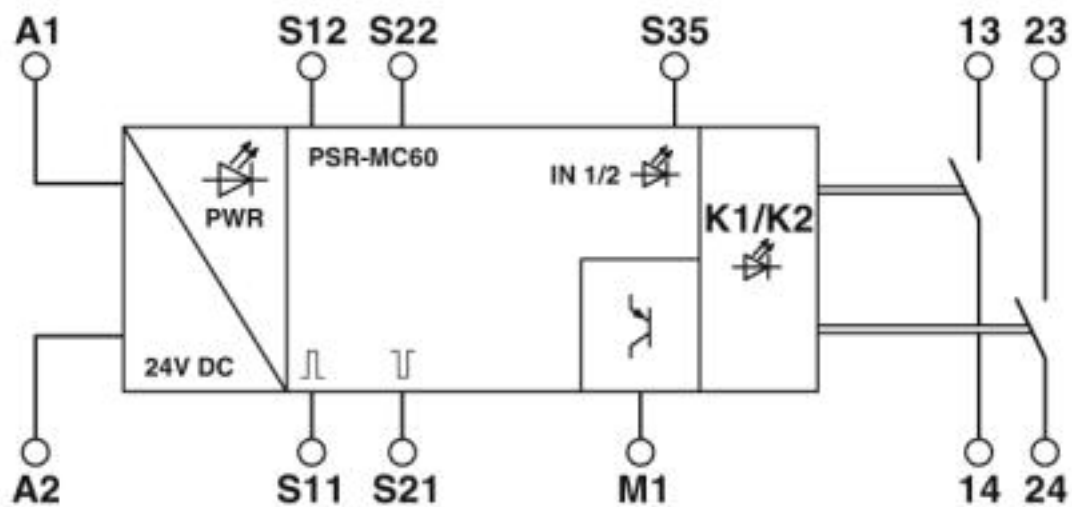
Technical data

Environmental Product Compliance

	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"
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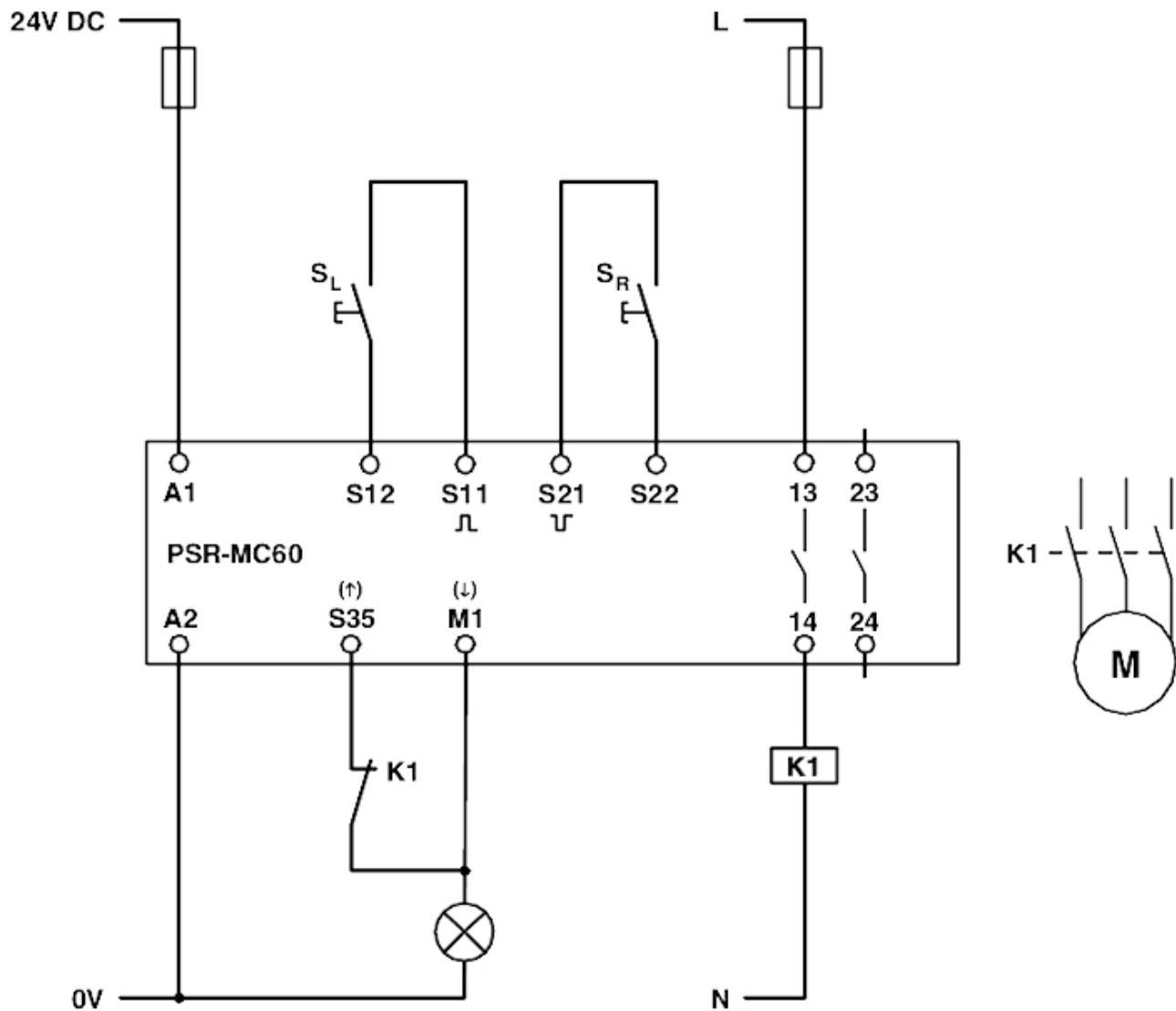
Drawings

Block diagram



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Circuit diagram



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Classifications

eCl@ss

eCl@ss 4.0	40020600
eCl@ss 4.1	40020600
eCl@ss 5.0	27371900
eCl@ss 5.1	27371900
eCl@ss 6.0	27371800
eCl@ss 7.0	27371819
eCl@ss 8.0	27371821
eCl@ss 9.0	27371821

ETIM

ETIM 5.0	EC001452
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

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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

