Safety relays - PSR-MS21-1NO-1DO-24DC-SC - 2702192

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Safety relay for failsafe controllers up to SILCL 3, Cat. 4, PL e, 1-channel operation, automatic start, 1 enabling current path, U_S = 24 V DC according to IEC 61131-6, fixed screw terminal block

Your advantages

- Up to Cat.4/PL e according to ISO 13849-1, SILCL 3 according to IEC 62061
- Low housing width of just 6.8 mm
- Single-channel control
- 1 enabling current path, 1 digital signal output
- Couples digital output signals from failsafe controllers to I/O devices (valves, etc.) for electrical isolation and power adaptation
- Automatic activation

Key Commercial Data

Packing unit	1 pc
GTIN	4 055626 010199
GTIN	4055626010199

Technical data

Note

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

Dimensions

Width	6.8 mm
Height	93.1 mm
Depth	102.5 mm

Ambient conditions

Ambient temperature (operation)	-40 °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)

Safety relays - PSR-MS21-1NO-1DO-24DC-SC - 2702192

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Ambient conditions

Max. permissible humidity (storage/transport)	75 % (on average, 85% infrequently, non-condensing)
Maximum altitude	≤ 2000 m (Above sea level)

Power supply

Rated control circuit supply voltage U_S	24 V DC -20 % / +25 % (at A1)
	19.2 V DC ... 30 V DC
Rated control supply current I_S	typ. 35 mA
Input voltage range "0" signal	0 V DC ... 5 V DC (for safe Off)
Input current range "0" signal	0 mA ... 2 mA (for safe Off)
Power consumption at U_S	typ. 840 mW
Inrush current	150 mA (Δt = 25 ms at U_s)
Filter time	2.5 ms (at A1 in the event of voltage dips at U_s)
	max. 3 ms (at A1; test pulse width; blanking pulses/dark test)
	1 s (at A1; test pulse rate; blanking pulses/dark test)
	Where test pulse width ≤ 1 ms: test pulse rate = 5 x test pulse width
	max. 1 ms (at A1; test pulse width; switch-on pulses/light test)
	100 ms (at A1; test pulse rate; switch-on pulses/light test)
	Unless switch-on pulses/light tests are safety-related, they should be disabled.
Protective circuit	Surge protection Suppressor diode
	Protection against polarity reversal for rated control circuit supply voltage

Digital inputs

Inrush current	< 10 mA (with U_s/I_x to S35)
Current consumption	< 2 mA (with U_s/I_x to S35)
Voltage at input/start and feedback circuit	24 V DC -20 % / +25 %
Max. permissible overall conductor resistance	150 Ω

Relay outputs: enabling current path

Output name	Enabling current path
Output description	safety-related N/O contacts
Number of outputs	1 (undelayed)
Contact type	1 enabling current path
Contact material	$AgSnO_2$
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	36 A^2 (observe derating)
Switching capacity	min. 60 mW
Switching frequency	max. 0.5 Hz

Safety relays - PSR-MS21-1NO-1DO-24DC-SC - 2702192

Technical data

Relay outputs: enabling current path

Mechanical service life	10x 10^6 cycles
Output fuse	6 A gL/gG (N/O contact)
	4 A gL/gG (for low-demand applications)

Alarm outputs

Output description	non-safety-related
Number of outputs	1 (digital, PNP)
Voltage	typ. 21 V DC (Voltage at terminal block “24V” - 3 V)
Current	max. 100 mA
Maximum inrush current	500 mA (Δt = 1 ms at U_s)
Short-circuit protection	Yes

Times

Typical pickup time at US	< 250 ms (when controlled via A1)
Typical response time at US	< 150 ms (automatic start)
Typical release time at US	< 20 ms (when controlled via A1)
Restart time	< 1 s
Recovery time	< 500 ms

General

Relay type	Electromechanical relay with force-guided contacts in accordance with IEC/EN 61810-3
Nominal operating mode	100% operating factor
Net weight	69 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
Operating voltage display	1 x green LED
Status display	2 x green LEDs

Connection data

Connection method	Screw connection
pluggable	no
Conductor cross section solid	0.2 mm² ... 2.5 mm²
Conductor cross section flexible	0.2 mm² ... 2.5 mm²
Conductor cross-section AWG	24 ... 12
Stripping length	12 mm
Screw thread	M3

Safety-related characteristic data

Safety relays - PSR-MS21-1NO-1DO-24DC-SC - 2702192

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Safety-related characteristic data

Stop category	0
Designation	IEC 61508 - High demand
Safety Integrity Level (SIL)	3 (4 A DC13; 5 A AC15; 8760 switching cycles/year)
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 (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	Safe isolation, reinforced insulation 6 kV between input circuit and enabling current path (13/14) Basic insulation 4 kV between all current paths and housing
Degree of pollution	2
Overvoltage category	III
Shock	15g
Vibration (operation)	10 Hz ... 150 Hz, 2g
Conformance	CE-compliant

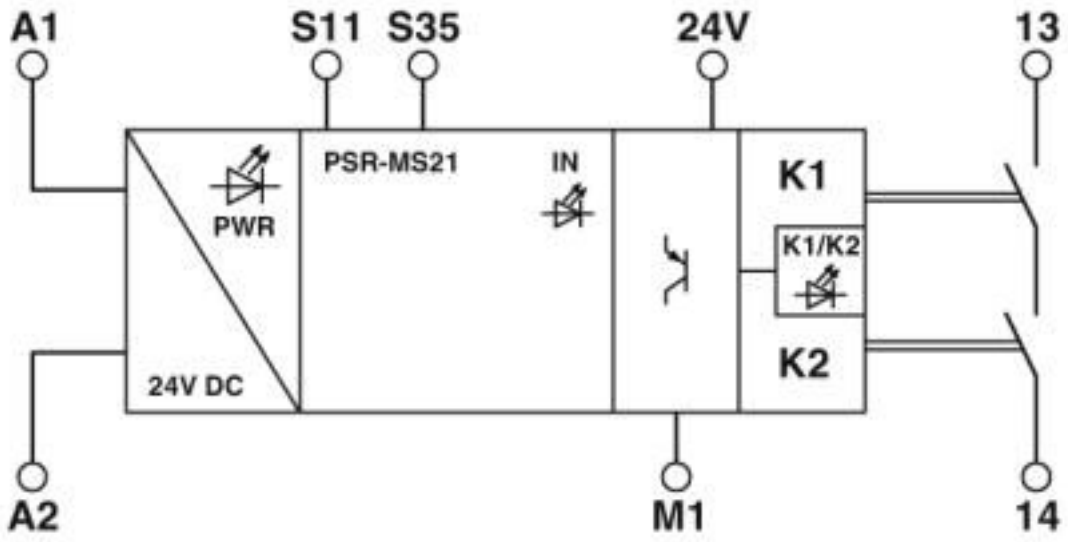
Environmental Product Compliance

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”

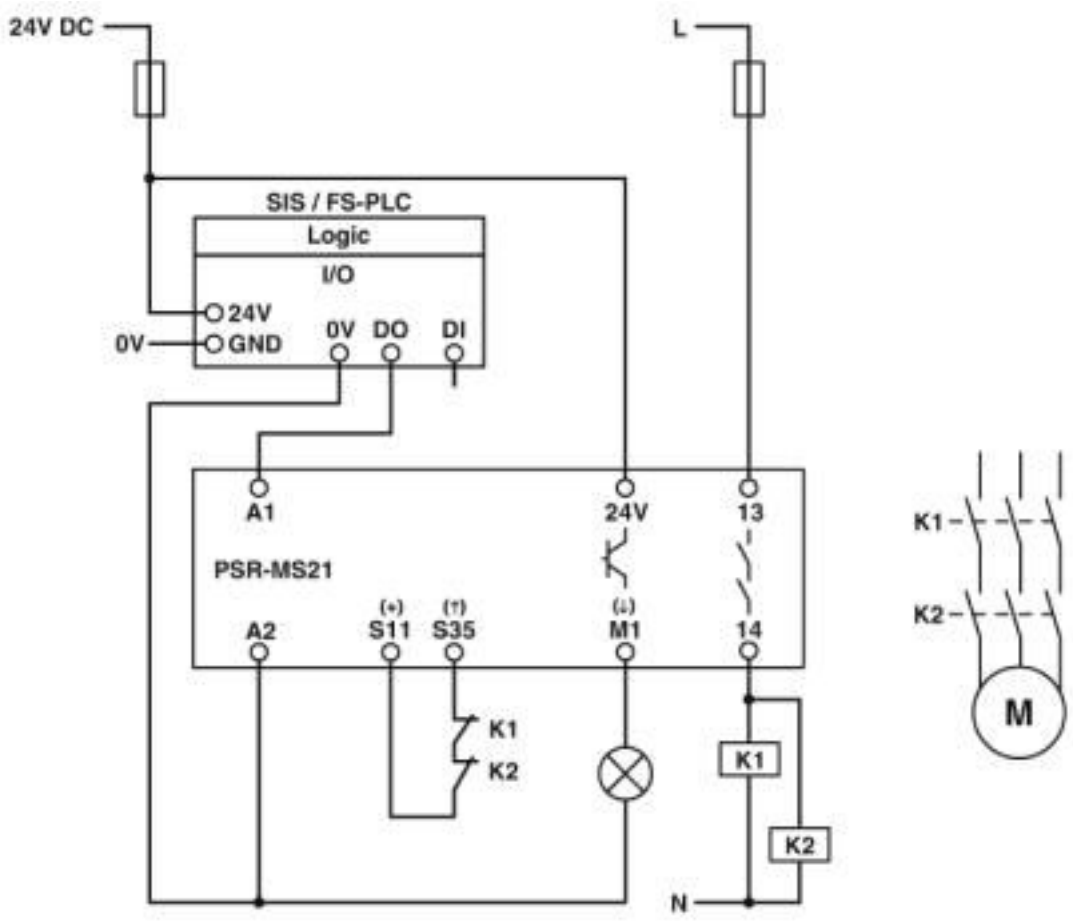
Drawings

Safety relays - PSR-MS21-1NO-1DO-24DC-SC - 2702192

Block diagram



Circuit diagram



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Classifications

eCl@ss

eCl@ss 10.0.1	27371819
eCl@ss 11.0	27371819
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	27371819
eCl@ss 9.0	27371819

ETIM

ETIM 5.0	EC001449
ETIM 6.0	EC001449
ETIM 7.0	EC001449

UNSPSC

UNSPSC 13.2	39121501
UNSPSC 18.0	39122205
UNSPSC 19.0	39122205
UNSPSC 20.0	39122205
UNSPSC 21.0	39122205

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

Functional Safety		44-205-15124301

cULus Listed	

Accessories

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Terminal marking

Zack Marker strip, flat - ZBF 6:UNBEDRUCKT - 0808710

Zack Marker strip, flat, Strip, white, unlabeled, can be labeled with: PLOTMARK, CMS-P1-PLOTTER, mounting type: snap into flat marker groove, for terminal block width: 6.2 mm, lettering field size: 5.15 x 6.15 mm, Number of individual labels: 10

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