

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, $U_s = 24\text{ V DC}$ 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
Weight per Piece (excluding packing)	69.000 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

Width	6.8 mm
Height	93.1 mm
Depth	102.5 mm

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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)
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
Power consumption at U_s	typ. 840 mW
Inrush current	150 mA ($\Delta t = 25$ 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

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Relay outputs: enabling current path

Switching frequency	max. 0.5 Hz
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 ($\Delta t = 1 \text{ ms at } U_s$)
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 forcibly guided contacts in accordance with IEC/EN 61810-3 (EN 50205)
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 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.	26

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Connection data

Conductor cross section AWG max.	12
Stripping length	12 mm
Screw thread	M3

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

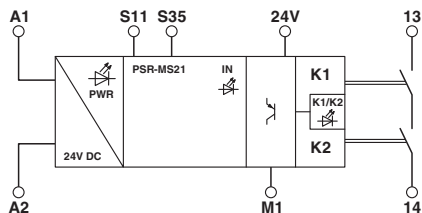
Environmental Product Compliance

China RoHS	Environmentally Friendly Use Period = 50
	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

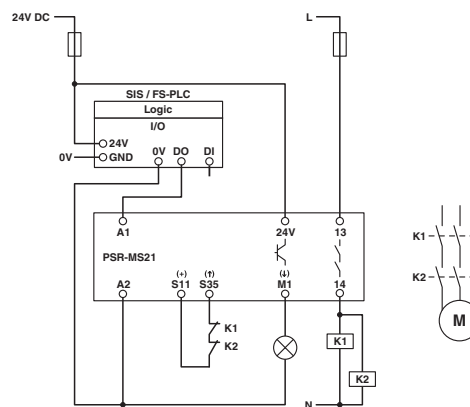
Drawings

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Block diagram



Circuit diagram



Classifications

eCl@ss

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

UNSPSC

UNSPSC 13.2	39121501
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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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Approvals

cUL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 140324
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Functional Safety			44-205-15124301
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cULus Listed			
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