

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



2702192

<https://www.phoenixcontact.com/us/products/2702192>

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Safety relay for failsafe controllers up to SILCL 3, Cat. 4, PL e, 1-channel operation, autostart, 1 enabling current path, $U_S = 24 \text{ V DC}$ in accordance with IEC 61131-6, fixed screw terminal block

Your advantages

- Up to Cat. 4/PL e in accordance with EN ISO 13849-1, SIL 3 in accordance with EN IEC 62061
- Low housing width of just 6.8 mm
- 1-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

Commercial data

Item number	2702192
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DN01
Product key	DNA171
Catalog page	Page 219 (C-6-2019)
GTIN	4055626010199
Weight per piece (including packing)	83.4 g
Weight per piece (excluding packing)	69 g
Customs tariff number	85371098
Country of origin	DE

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Technical data

Product properties

Product type	Safety relays
Product family	PSRmini
Application	Controllers
Relay type	Electromechanical relay with force-guided contacts in accordance with IEC/EN 61810-3

Times

Typical response time	< 150 ms (automatic start)
Typ. starting time with U_S	< 250 ms (when controlled via A1)
Typical release time	< 20 ms (when controlled via A1)
Restart time	< 1 s
Recovery time	< 500 ms

Electrical properties

Maximum power dissipation for nominal condition	3.1 W (at $U_S = 30$ V, $I_L^2 = 36$ A ²)
Nominal operating mode	100% operating factor

Air clearances and creepage distances between the power circuits

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

Supply

Rated control circuit supply voltage U_S	19.2 V DC ... 30 V DC
Rated control circuit supply voltage U_S	24 V DC -20 % / +25 % (at A1)
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

Input data

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Digital

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

Output data

Relay: Enabling current path

Output description	safety-related N/O contacts
Number of outputs	1 (undelayed)
Contact switching 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)
Switching capacity	min. 60 mW
Inrush current	min. 3 mA max. 6 A
Limiting continuous current	6 A (observe derating)
Sq. Total current	36 A ² (observe derating)
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)

Signal

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 ($\Delta t = 1$ ms at U_s)
Short-circuit protection	Yes

Connection data

Connection technology

pluggable	no
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Conductor connection

Connection method	Screw connection
Conductor cross section rigid	0.2 mm ² ... 2.5 mm ²
Conductor cross section flexible	0.2 mm ² ... 2.5 mm ²
Conductor cross-section AWG	24 ... 12
Stripping length	12 mm
Screw thread	M3

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Signaling

Status display	2 x green LEDs
Operating voltage display	1 x green LED

Dimensions

Width	6.8 mm
Height	93.1 mm
Depth	102.5 mm

Material specifications

Housing material	PBT
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Characteristics

Safety data

Stop category	0
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Safety data: EN ISO 13849

Category	4
Performance level (PL)	e (4 A DC13; 5 A AC15; 8760 switching cycles/year)

Safety data: IEC 61508 - High demand

Safety Integrity Level (SIL)	3 (4 A DC13; 5 A AC15; 8760 switching cycles/year)
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Safety data: IEC 61508 - Low demand

Safety Integrity Level (SIL)	3
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Safety data: EN IEC 62061

Safety Integrity Level (SIL)	3 (4 A DC13; 5 A AC15; 8760 switching cycles/year)
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Environmental and real-life conditions

Ambient conditions

Degree of protection	IP20
Min. degree of protection of inst. location	IP54
Ambient temperature (operation)	-40 °C ... 60 °C (observe derating)
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Maximum altitude	≤ 2000 m (Above sea level)
Max. permissible humidity (storage/transport)	75 % (on average, 85% infrequently, non-condensing)
Max. permissible relative humidity (operation)	75 % (on average, 85% infrequently, non-condensing)
Shock	15g
Vibration (operation)	10 Hz ... 150 Hz, 2g

Approvals

CE

Certificate	CE-compliant
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Standards and regulations

Air clearances and creepage distances between the power circuits

Standards/regulations	DIN EN 50178
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Mounting

Mounting type	DIN rail mounting
Assembly instructions	See derating curve
Mounting position	vertical or horizontal
Connection method	Screw connection

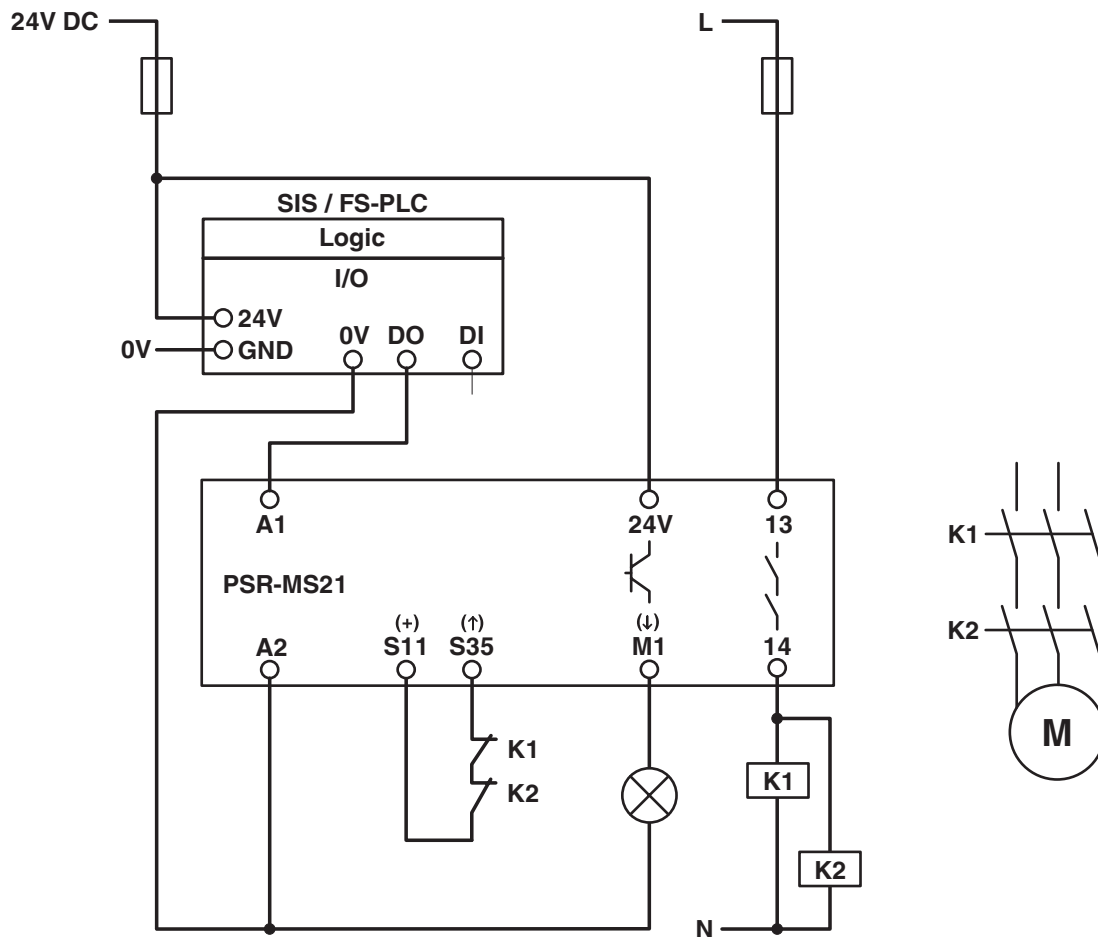
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Drawings

Circuit diagram

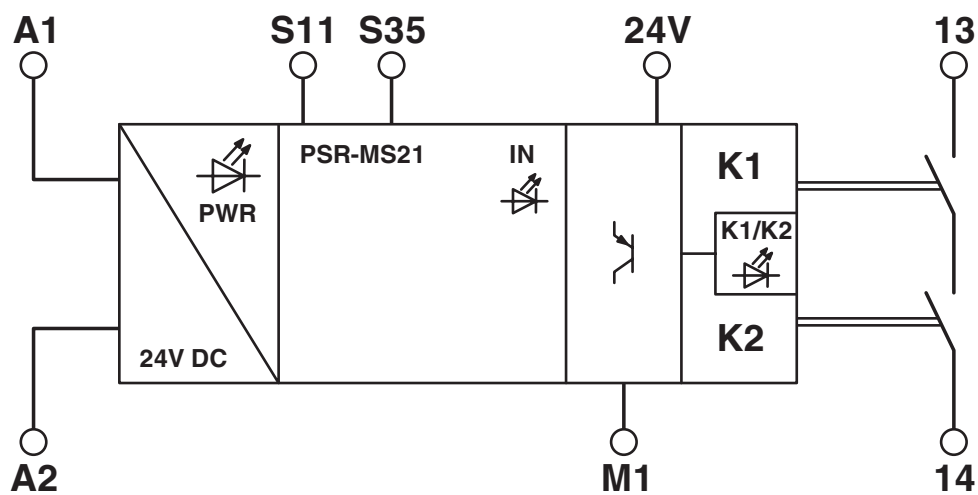


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Block diagram



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Approvals

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UL Listed

Approval ID: FILE E 140324



cUL Listed

Approval ID: FILE E 140324



Functional Safety

Approval ID: 44-205-15124301



Functional Safety

Approval ID: 44-780-15124301

cULus Listed

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Classifications

ECLASS

ECLASS-11.0	27371819
ECLASS-13.0	27371819
ECLASS-12.0	27371819

ETIM

ETIM 8.0	EC001449
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UNSPSC

UNSPSC 21.0	39122200
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Environmental product compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For information on hazardous substances, refer to the manufacturer's declaration available under "Downloads"

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Accessories

ZBF 6:UNBEDRUCKT - Zack Marker strip, flat

0808710

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Zack Marker strip, flat, Strip, white, unlabeled, can be labeled with: PLOTMARK, CMS-P1-PLOTTER, mounting type: snapped, 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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