

PSR-MC20-3NO-1DO-24DC-SP - Safety relays



2700467

<https://www.phoenixcontact.com/in/products/2700467>

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Safety relay for emergency stop / safety doors up to SIL 1, Cat. 1, PL c, depending on the application up to SIL 3, Cat. 4, PL e, 1-channel operation, automatic / manual start, 3 enabling current paths, $U_S = 24 \text{ V DC}$, pluggable Push-in terminal block

Your advantages

- Up to Cat. 1/PL c in accordance with EN ISO 13849-1, SIL 1 in accordance with EN IEC 62061
- Depending on the application, up to cat. 4/PL e in accordance with ISO 13849-1, SIL CL 3 in accordance with EN IEC 62061
- Low housing width of just 12.5 mm
- Manually monitored and automatic activation in a single device
- 3 enabling current paths, 1 digital signal output
- 1-channel control

Commercial data

Item number	2700467
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DNA
Product key	DNA181
Catalog page	Page 220 (C-6-2019)
GTIN	4046356912754
Weight per piece (including packing)	175.2 g
Weight per piece (excluding packing)	139.9 g
Customs tariff number	85371098
Country of origin	DE

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Technical data

Notes

Note on application

Note on application	Only for industrial use
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Product properties

Product type	Safety relays
Product family	PSRmini
Application	Emergency stop
	Safety door
	Magnetic switch
Control	1-channel
Relay type	Electromechanical relay with force-guided contacts in accordance with IEC/EN 61810-3

Insulation characteristics

Overvoltage category	III
Degree of pollution	2

Times

Typical response time	< 175 ms (automatic start)
	< 175 ms (manual, monitored start)
Typ. starting time with U_s	< 250 ms (when controlled via A1)
Typical release time	< 20 ms (when controlled via A1 or S12)
Restart time	< 1 s (Boot time)
Recovery time	< 500 ms
Start pulse length	≥ 500 ms (manual start)

Electrical properties

Maximum power dissipation for nominal condition	4.8 W ($U_s = 26.4$ V, $I_L^2 = 48$ A ² , $P_{\text{Total max}} = 2.4$ W + 2.4 W)
Nominal operating mode	100% operating factor
Rated insulation voltage	250 V AC
Rated surge voltage/insulation	See section "Insulation coordination"

Supply

Designation	A1/A2
Rated control circuit supply voltage U_s	20.4 V DC ... 26.4 V DC
Rated control circuit supply voltage U_s	24 V DC -15 % / +10 %
Rated control supply current I_s	typ. 80 mA
Power consumption at U_s	typ. 1.92 W
Inrush current	5 A ($\Delta t = 200$ μ s at U_s)
Filter time	1 ms (at A1 in the event of voltage dips at U_s)
Protective circuit	Serial protection against polarity reversal; Suppressor diode

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Input data

Digital: S12 (Sensor circuit)

Description of the input	safety-related sensor inputs
Number of inputs	1
Input voltage range "0" signal	0 V DC ... 5 V DC (for safe Off; at S12)
Input voltage range "1" signal	20.4 V DC ... 26.4 V DC
Input current range "0" signal	0 mA ... 2 mA (for safe Off; at S12)
Inrush current	< 21 mA (typ. with U_S)
Filter time	max. 1.5 ms (Test pulse width of low test pulses) Test pulse rate = 5 x Test pulse width
Max. permissible overall conductor resistance	150 Ω
Protective circuit	Suppressor diode
Current consumption	< 5 mA (typ. with U_S)

Digital: Start circuit (S34)

Description of the input	non-safety-related
Number of inputs	1
Input voltage range "1" signal	20.4 V DC ... 26.4 V DC
Inrush current	< 200 mA (typ. with U_S)
Max. permissible overall conductor resistance	150 Ω
Protective circuit	Suppressor diode
Current consumption	< 10 mA (typ. with U_S at S34/24 V) > -5 mA (typ. with U_S at S34/0 V)

Output data

Relay: Enabling current paths (13/14, 23/24, 33/34)

Output description	2 N/O contacts each in series, safety-related, floating
Number of outputs	3 (undelayed)
Contact switching type	3 enabling current paths
Contact material	AgSnO ₂
Switching voltage	min. 12 V AC/DC max. 250 V AC/DC
Switching capacity	min. 60 mW
Inrush current	min. 3 mA max. 6 A
Limiting continuous current	6 A (observe derating)
Sq. Total current	48 A ² (observe derating)
Switching frequency	max. 0.1 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: M1

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Output description	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 (Δt = 1 ms at U_s)
Protective circuit	Suppressor diode

Connection data

Connection technology

pluggable	yes
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Conductor connection

Connection method	Push-in connection
Conductor cross section rigid	0.2 mm ² ... 1.5 mm ²
Conductor cross section flexible	0.2 mm ² ... 1.5 mm ²
Conductor cross section, flexible, with ferrule, with plastic sleeve	0.25 mm ² ... 1.5 mm ² (only together with CRIMPFOX 6)
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 AWG	24 ... 16
Stripping length	8 mm

Signaling

Status display	3 x LED (green)
Operating voltage display	1 x LED (green)

Dimensions

Width	12.5 mm
Height	116.6 mm
Depth	114.5 mm

Material specifications

Color (Housing)	yellow (RAL 1018)
Housing material	PA

Characteristics

Safety data

Stop category	0
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Safety data: EN ISO 13849

Category	1 (up to Cat. 4 depending on the application)
Performance level (PL)	c (up to PL e depending on the application)

Safety data: IEC 61508 - High demand

Safety Integrity Level (SIL)	1 (up to SIL 3 depending on the application)
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Safety data: IEC 61508 - Low demand

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Safety Integrity Level (SIL)	1 (up to SIL 3 depending on the application)
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Safety data: EN IEC 62061

Safety Integrity Level (SIL)	1 (up to SIL 3 depending on the application)
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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 ... 55 °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, amplitude 0.15 mm, 2g

Approvals

CE

Identification	CE-compliant
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Mounting

Mounting type	DIN rail mounting
Assembly note	See derating curve
Mounting position	vertical or horizontal

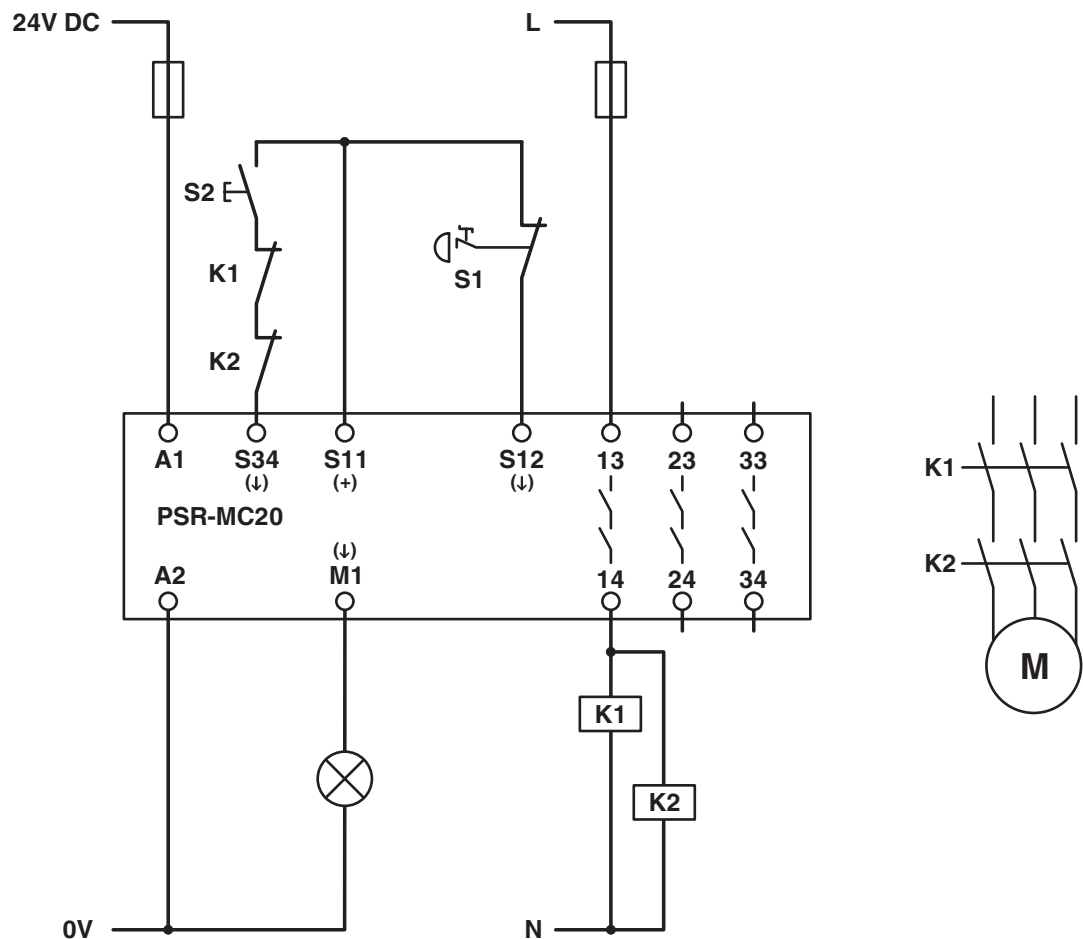
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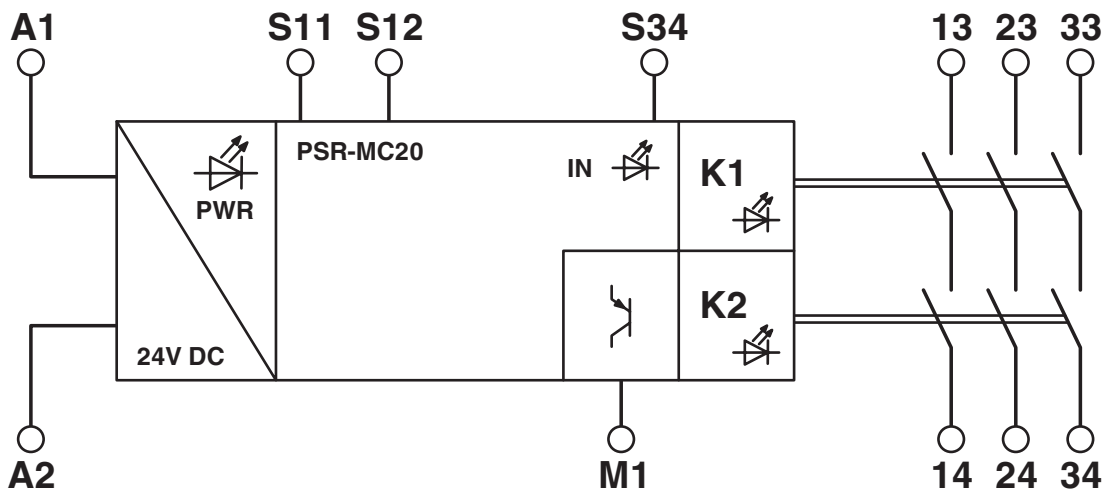
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Drawings

Circuit diagram

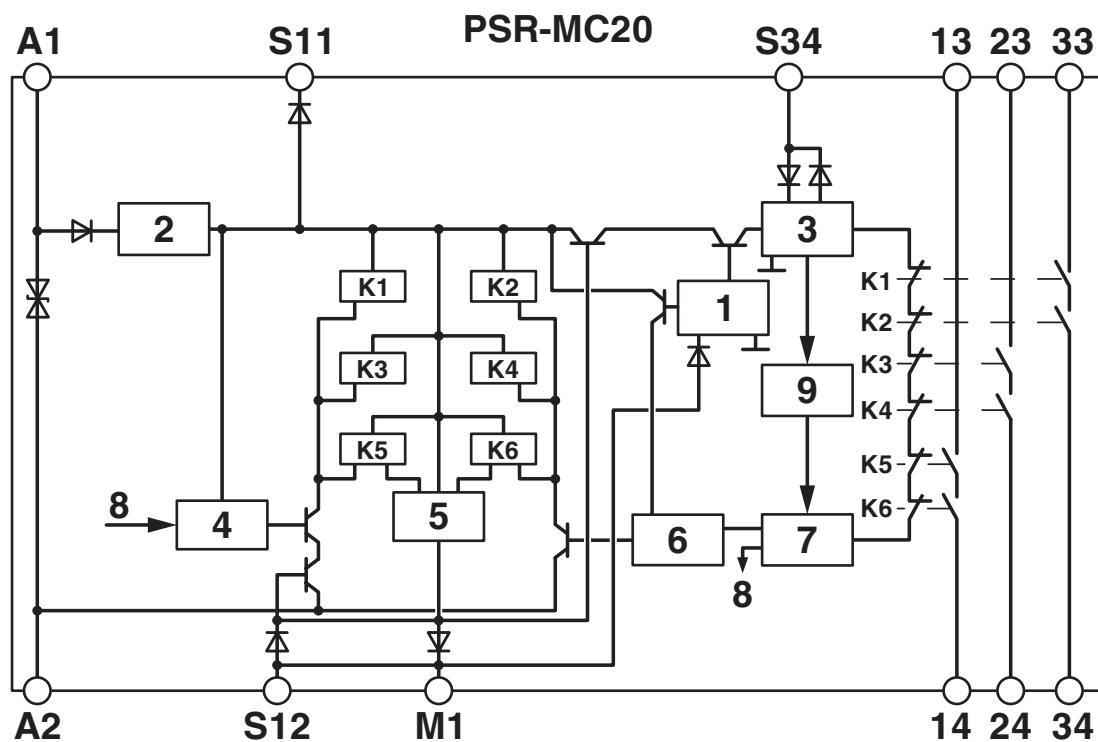


Block diagram



Block diagram

Block diagram



Key:

1 = Input circuit

2 = Voltage limitation

3 = Start circuit

4 = Control circuit channel 1

5 = Control circuit signal output

6 = Control circuit channel 2

7 = Start channel 1 and 2

8 = Channel 1

9 = Diagnostics

K1, K2 ... K6 = Force-guided elementary relays

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Approvals

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Functional Safety

Approval ID: 44-205-13755201



Functional Safety

Approval ID: 44-4780-13755201



cULus Listed

Approval ID: E140324

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Classifications

ECLASS

ECLASS-13.0	27371819
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ETIM

ETIM 9.0	EC001449
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UNSPSC

UNSPSC 21.0	39122200
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Environmental product compliance

EU RoHS

Fulfills EU RoHS substance requirements	Yes
Exemption	7(a), 7(c)-I

China RoHS

Environment friendly use period (EFUP)	EFUP-50
	An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required.

EU REACH SVHC

REACH candidate substance (CAS No.)	Lead(CAS: 7439-92-1)
SCIP	ec6fc66e-0f50-4441-9b43-dd8c73433275