

PSR-MC34-3NO-1DO-24DC-SC - Safety relays

2700540

<https://www.phoenixcontact.com/us/products/2700540>



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Safety relay for emergency stop and safety doors up to SIL 3, Cat. 4, PL e, 1 or 2-channel operation, automatic or manual, monitored start, cross-circuit detection, 3 enabling current paths, $U_S = 24$ V DC, plug-in 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 12.5 mm
- 2 channel control
- 3 enabling current paths, 1 digital signal output
- Manually monitored and automatic activation in a single device
- Cross-circuit detection

Commercial data

Item number	2700540
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DN01
Product key	DNA181
GTIN	4046356912716
Weight per piece (including packing)	172.2 g
Weight per piece (excluding packing)	143.74 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

Product properties

Product type	Safety relays
Product family	PSRmini
Application	Emergency stop Safety door Magnetic switch Transponder
Control	2-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 (on demand via A1) < 20 ms (on demand via the sensor circuit)
Restart time	< 1 s (Boot time, after switching on the supply voltage)
Recovery time	< 500 ms (following demand of the safety function)
Start pulse length	500 ms (manual start)

Electrical properties

Maximum power dissipation for nominal condition	6.1 W ($U_s = 26.4$ V, $I_L^2 = 72$ A 2 , $P_{Total\ max} = 2.5$ W + 3.6 W)
Nominal operating mode	100% operating factor
Rated insulation voltage	250 V AC
Rated surge voltage/insulation	See data sheet, 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. 84 mA (at U_s)
Power consumption at U_s	typ. 2 W
Inrush current	typ. 5 A ($\Delta t = 200$ μ s at U_s)
Filter time	1 ms (in the event of voltage dips at U_s)

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Protective circuit

Serial protection against polarity reversal; Suppressor diode

Input data

Digital: Sensor circuit (S12, S22)

Description of the input	safety-related sensor inputs
Number of inputs	NPN (S12), NPN/PNP (S22)
Input voltage range "0" signal	2
Input voltage range "1" signal	< 5 V (S12)
Input current range "0" signal	Input S22 can interpret low-resistance outputs of a PLC as a continuous HIGH signal.
Inrush current	20.4 V ... 26.4 V
Filter time	< 2 mA (S12)
Concurrence	0 mA ... 2 mA (S22)
Max. permissible overall conductor resistance	< 20 mA (typ. with U_S at S12)
Protective circuit	< 5 mA (typ. with U_S at S22/24 V)
Current consumption	> -15 mA (typ. with U_S at S22/0 V)
	max. 1.5 ms (at S12, S22; test pulse width)
	min. 7.5 ms (at S12, S22; test pulse rate)
	∞
	150 Ω
	Suppressor diode
	< 5 mA (typ. with U_S at S12)
	< 5 mA (typ. with U_S at S22/24 V)
	> -5 mA (typ. with U_S at S22/0 V)

Digital: Start circuit (S34)

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

Output data

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

Output description	safety-related N/O contacts
Number of outputs	3 (undelayed)
Contact switching type	3 enabling current paths
Contact material	AgSnO ₂
Switching voltage	min. 12 V
	max. 250 V AC/DC (Observe the load curve)

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Switching power	min. 60 mW
Inrush current	min. 3 mA
	max. 6 A
Switching capacity	5 A (AC15)
	4 A (DC13)
Limiting continuous current	6 A (For 13/14)
	6 A (For 23/24/34; since the 23/24/34 contact path only has one input path, only a total current of 6 A is permitted here)
Sq. Total current	72 A ² (observe derating)
Switching frequency	0.1 Hz
Mechanical service life	10x 10 ⁶ cycles
Output fuse	6 A gL/gG
	4 A gL/gG (for low-demand applications)

Signal: M1

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
Short-circuit protection	no

Connection data

Connection technology

pluggable	yes
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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	7 mm
Screw thread	M3
Tightening torque	0.5 Nm ... 0.6 Nm

Signaling

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

Dimensions

Width	12.5 mm
Height	112.2 mm
Depth	114.5 mm

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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	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
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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
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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

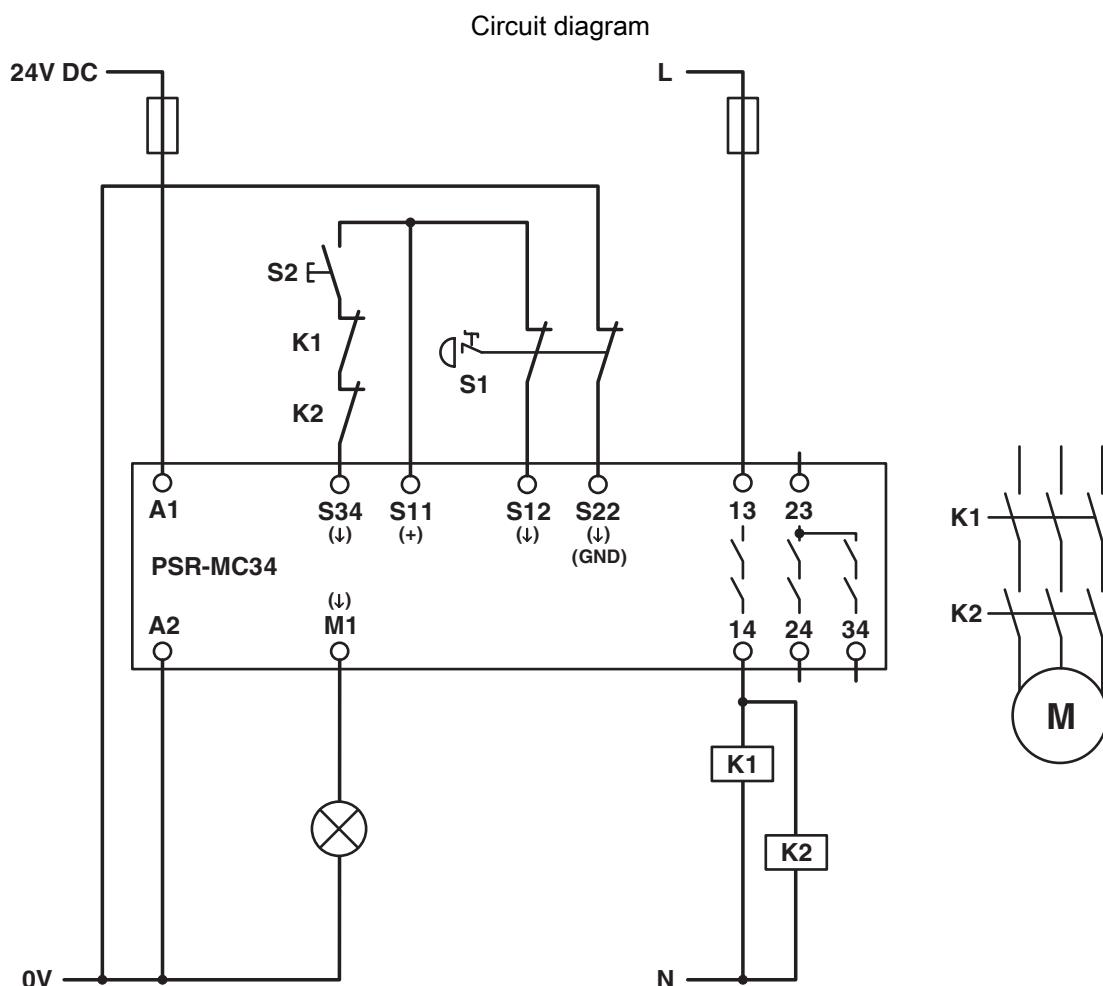
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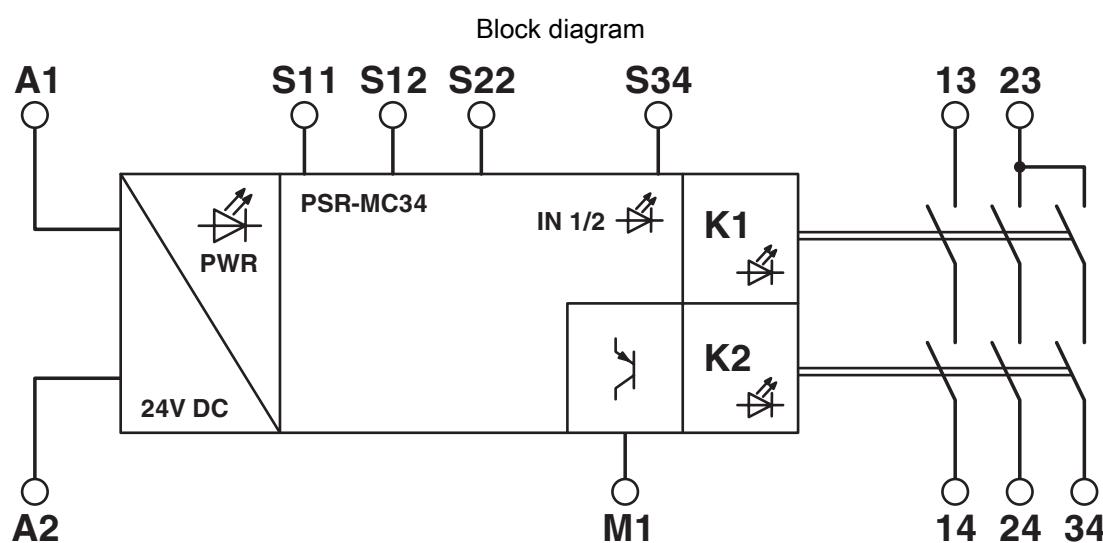
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Drawings



Example application



Block diagram

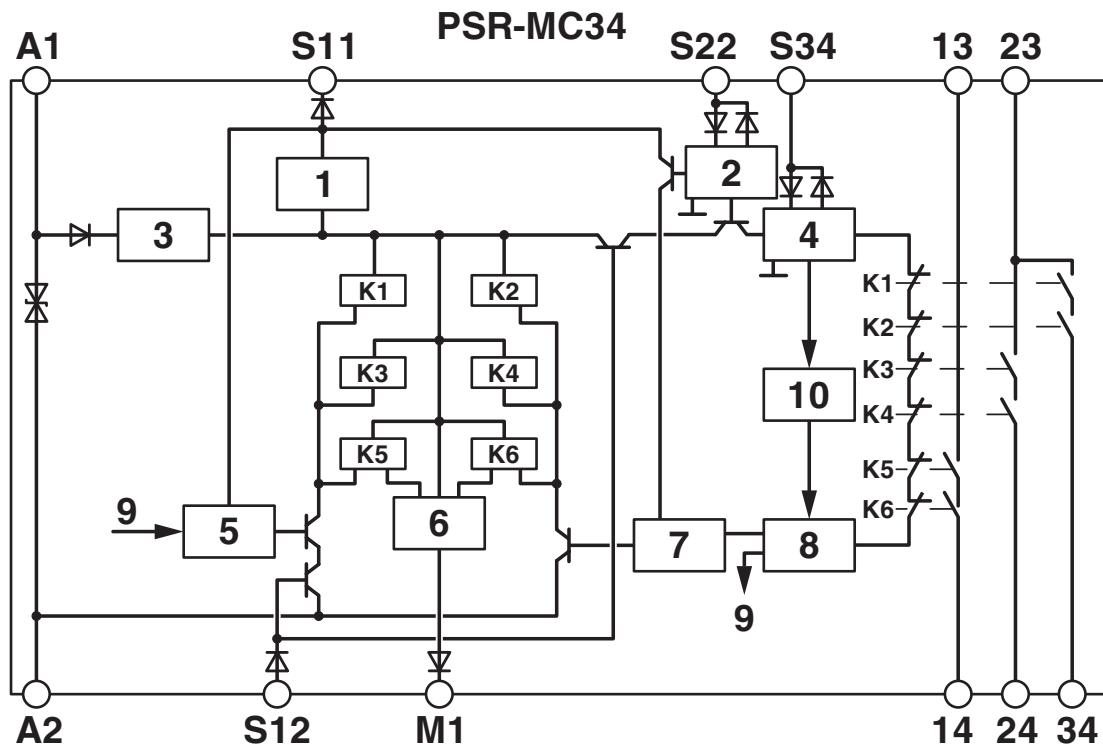
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Block diagram



Key:

- 1 = Current limitation
- 2 = Input circuit
- 3 = Voltage limitation
- 4 = Start circuit
- 5 = Control circuit channel 1
- 6 = Control circuit signal output
- 7 = Control circuit channel 2
- 8 = Start channel 1 and 2
- 9 = Channel 1
- 10 = Diagnostics
- K1, K2 ... K6 = Force-guided elementary relays

Approvals

ⓘ To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2700540>



Functional Safety

Approval ID: 44 205 13755201



Functional Safety

Approval ID: 44 780 13755201



cULus Listed

Approval ID: E140324

Classifications

ECLASS

ECLASS-13.0	27371819
ECLASS-15.0	27371819
ECLASS-15.0 ASSET	27250101

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	07756783-9445-469b-9efa-61d141e1ca63

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