

PSR-MM25-1NO-2DO-24DC-SC - Safety relay module



2702355

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Safety relay module for sensor-free zero-speed monitoring for 3- and 1-phase motors up to SIL 3, Cat. 3, PL e, 2-channel evaluation of the residual voltage of AC, three-phase, and DC motors, plug-in screw terminal block, width: 12.5 mm

Your advantages

- Monitoring of 1 and 3-phase AC or DC motors
- No additional sensors required
- Adjustable delay time from 0.5 s ... 20 s
- Adjustable switching threshold from 50 mV... 500 mV
- 1 enabling current path, 2 digital signal outputs
- Low housing width of just 12.5 mm
- Up to Cat. 3/PL e in accordance with EN ISO 13849-1, SIL 3 in accordance with EN IEC 62061

Commercial data

Item number	2702355
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DN01
Product key	DNA241
Catalog page	Page 243 (C-6-2019)
GTIN	4055626133201
Weight per piece (including packing)	152.5 g
Weight per piece (excluding packing)	152.5 g
Customs tariff number	90328900
Country of origin	DE

Technical data

Product properties

Product type	Safety device
Application	Zero-speed safety relay

Times

Typ. starting time with U_s	< 1 s
Response time	typ. 20 ms (at 50 Hz input frequency)
Delay time range	0.5 s ... 20 s \pm 1 % (K1, K2 can be parameterized)

Electrical properties

Nominal operating mode	100% operating factor
Interfaces	Without sensor

Air clearances and creepage distances between the power circuits

Rated insulation voltage	250 V AC
	250 V AC
	400 V AC with isolation paths between (L1/L2/L3) and the remaining current paths
	690 V AC (with isolation paths within L1/L2/L3)
Rated surge voltage/insulation	Basic insulation 4 kV: between all current paths and housing
	Basic insulation 8 kV: between L1 and L2 between L1 and L3 between L2 and L3
	Safe isolation, reinforced insulation 6 kV: between A1/A2 and 13/14 between MO/FO and 13/14
	Safe isolation, reinforced insulation 8 kV: between L1/L2/L3 and A1/A2 between L1/L2/L3 and MO/FO between L1/L2/L3 and 13/14

Supply

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. 50 mA
Power consumption at U_s	typ. 1.2 W
Inrush current	5.6 A ($\Delta t = 400 \mu s$ at U_s)
Filter time	1 ms (at A1 in the event of voltage dips at U_s)
Protective circuit	Surge protection; Suppressor diode
	Protection against polarity reversal for rated control circuit supply voltage

Input data

Measurement

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Voltage input signal	max. 690 V AC/DC (at L1/L2/L3)
Limit frequency	max. 3 kHz (At voltages > 2 V _{RMS})
Current consumption	max. 0.35 mA (at L1/L2/L3)

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. 24 V AC/DC max. 250 V AC/DC (Observe the load curve)
Switching capacity	min. 72 mW
Inrush current	min. 3 mA max. 5 A
Limiting continuous current	5 A (observe derating)
Sq. Total current	25 A ² (observe derating)
Switching frequency	max. 0.5 Hz
Mechanical service life	10x 10 ⁶ cycles
Output fuse	5 A gL/gG

Signal

Number of outputs	2 (digital, PNP)
Voltage	23 V DC (U _S - 1 V)
Current	max. 100 mA
Maximum inrush current	500 mA
Short-circuit protection	Yes

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, flexible, with ferrule, with plastic sleeve	0.2 mm ² ... 2.5 mm ²
Conductor cross section flexible, with ferrule without plastic sleeve	0.2 mm ² ... 2.5 mm ²
Conductor cross-section AWG	24 ... 12
Stripping length	7 mm
Screw thread	M3

Signaling

Status display	4 x LED Bi-Colour
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Dimensions

Width	12.5 mm
Height	112.2 mm
Depth	114.5 mm

Material specifications

Housing material	Polyamide
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Characteristics

Safety data

Stop category	0
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Safety data: EN ISO 13849

Category	3
Performance level (PL)	e (4 A DC13; 5 A AC15; 17520 switching cycles/year)

Safety data: IEC 61508 - High demand

Safety Integrity Level (SIL)	3 (4 A DC13; 5 A AC15; 17520 switching cycles/year)
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Safety data: EN IEC 62061

Safety Integrity Level (SIL)	3 (4 A DC13; 5 A AC15; 17520 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)	-20 °C ... 55 °C (observe derating)
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Maximum altitude	max. 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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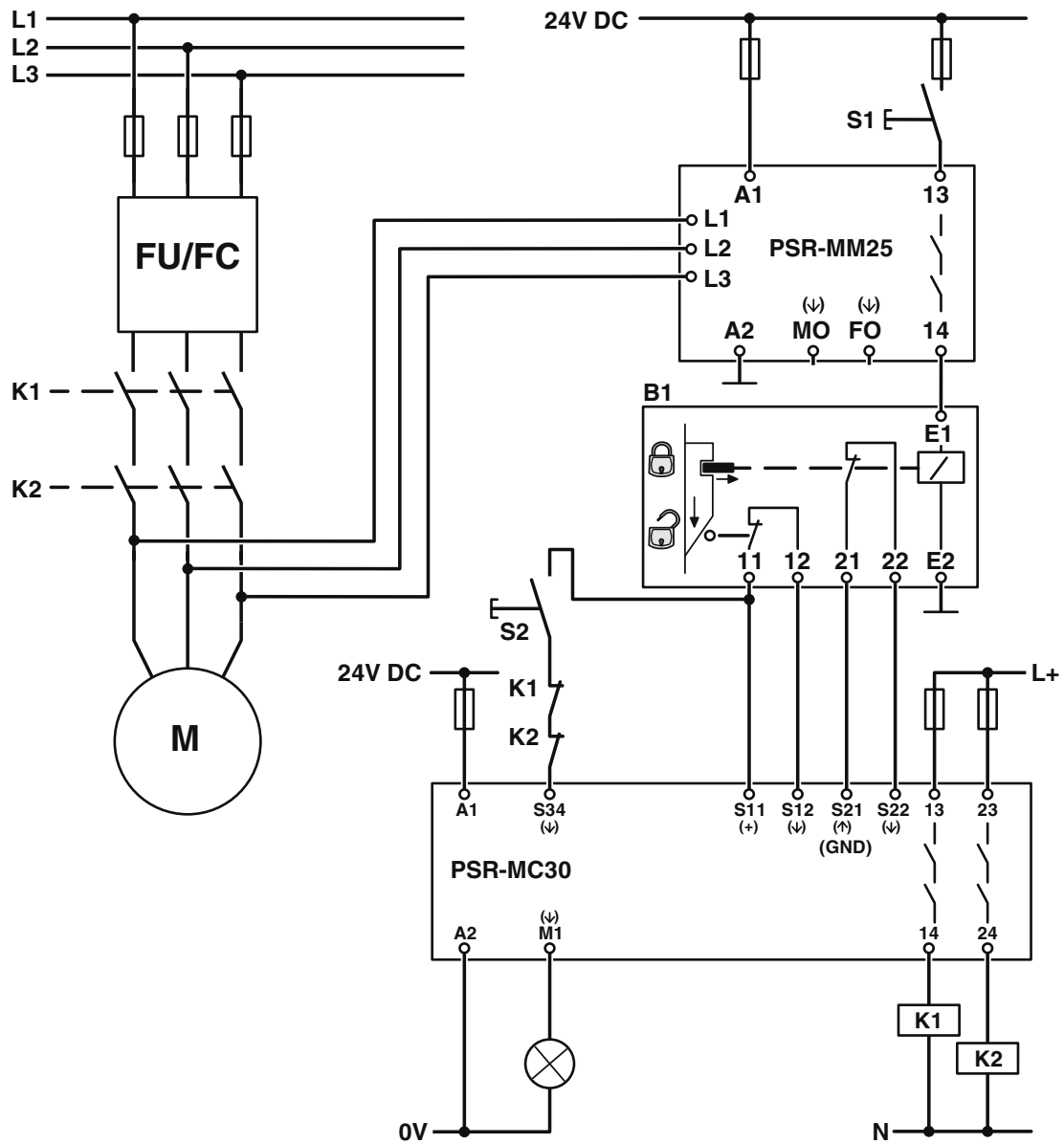
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Mounting

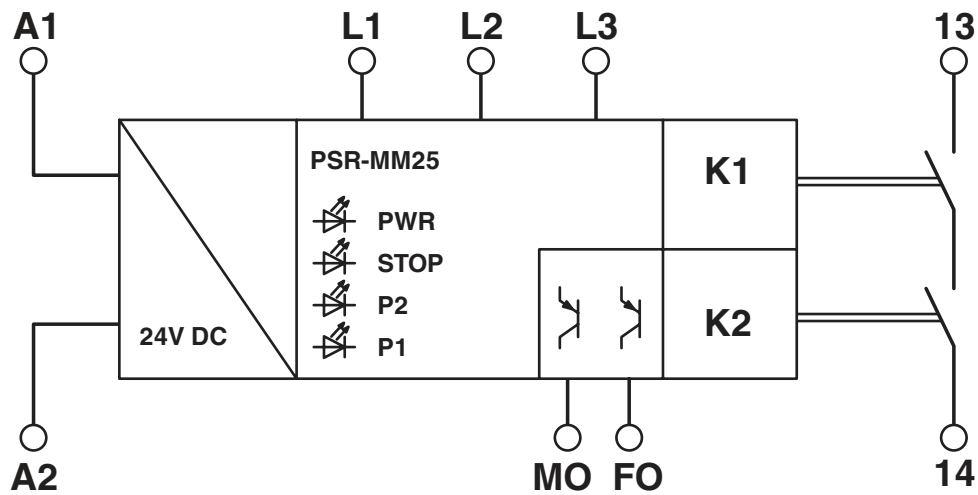
Mounting type	DIN rail mounting
Assembly instructions	See derating curve
Mounting position	vertical or horizontal
Connection method	Screw connection

Drawings

Circuit diagram

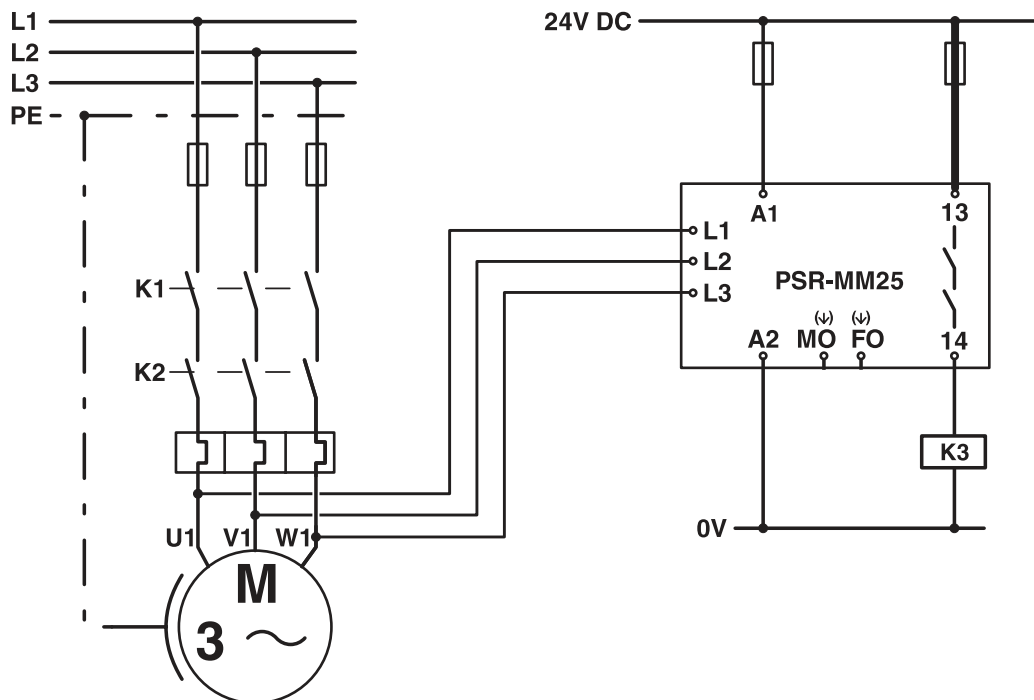


Block diagram



Block diagram

Circuit 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: 01/205/5492.01/21



Functional Safety

Approval ID: 968/FSP 1226.02/21

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Classifications

ECLASS

ECLASS-11.0	27371811
ECLASS-12.0	27371811
ECLASS-13.0	27371811

ETIM

ETIM 8.0	EC001448
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UNSPSC

UNSPSC 21.0	39122300
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Environmental product compliance

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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Phoenix Contact USA
586 Fulling Mill Road
Middletown, PA 17057, United States
(+717) 944-1300
info@phoenixcon.com