

# 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
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

### Notes

#### Note on application

Note on application	Only for industrial use
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### Product properties

Product type	Safety device
Application	Zero-speed safety relay
Control	2-channel

#### Insulation characteristics

Overtoltage category	III
Degree of pollution	2

#### 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
Rated insulation voltage	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

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. 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
	Reverse polarity protection

## Input data

### Measurement

Input name	L1, L2, L3
Number of inputs	3
Voltage input signal	max. 690 V AC/DC
Limit frequency	max. 3 kHz (At voltages $> 2 V_{RMS}$ )
Current consumption	max. 0.35 mA

## Output data

### Relay: Enabling current path (13/14)

Output description	safety-related N/O contacts
Number of outputs	1 (undelayed)
Contact switching type	1 enabling current path
Contact material	AgSnO <sub>2</sub>
Switching voltage	min. 24 V AC/DC
	max. 250 V AC/DC
Switching power	min. 72 mW
Inrush current	min. 3 mA
	max. 5 A
Switching capacity	5 A (AC15)
	4 A (DC13)
Limiting continuous current	5 A
Sq. Total current	25 A <sup>2</sup> (observe derating)
Switching frequency	max. 0.1 Hz
Mechanical service life	10x 10 <sup>6</sup> cycles
Output fuse	5 A gL/gG

### Signal: M0, F0

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
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Conductor cross-section rigid	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
Conductor cross-section flexible	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
Conductor cross-section, flexible, with ferrule, with plastic sleeve	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
Conductor cross-section, flexible, with ferrule, without plastic sleeve	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
Conductor cross-section AWG	24 ... 12
Stripping length	7 mm
Screw thread	M3
Tightening torque	0.5 Nm ... 0.6 Nm

## 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

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

## Characteristics

### Safety data

Stop category (EN 60204-1)	0
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### Safety data: EN ISO 13849

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

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Vibration (operation)	10 Hz ... 150 Hz, amplitude 0.15 mm, 2g
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## Approvals

CE

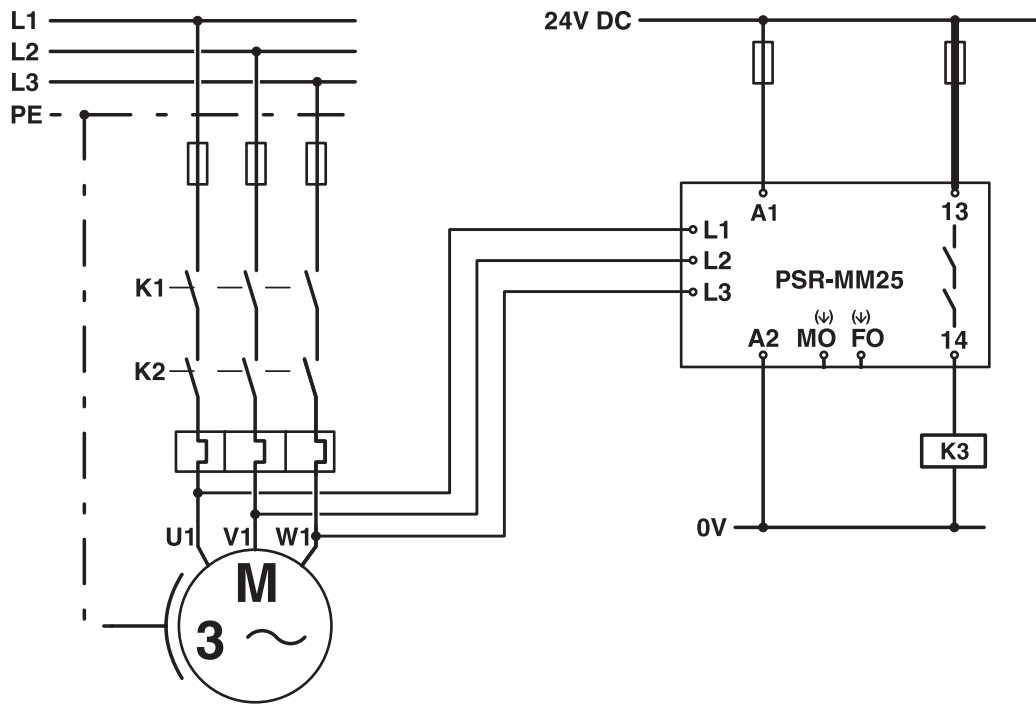
Identification	CE-compliant
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## Mounting

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

## Drawings

Circuit diagram

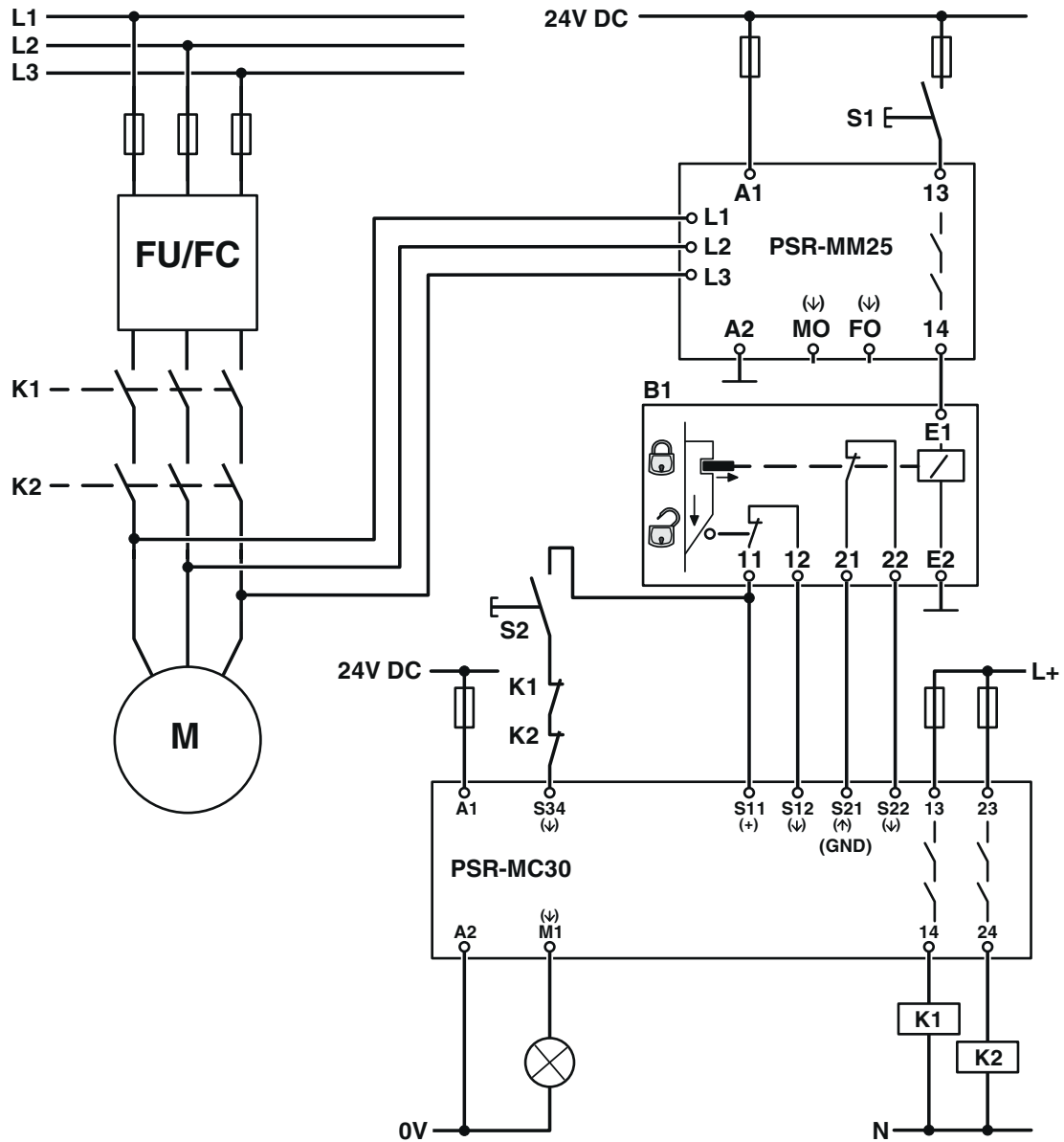


Example application

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Circuit diagram



Example application

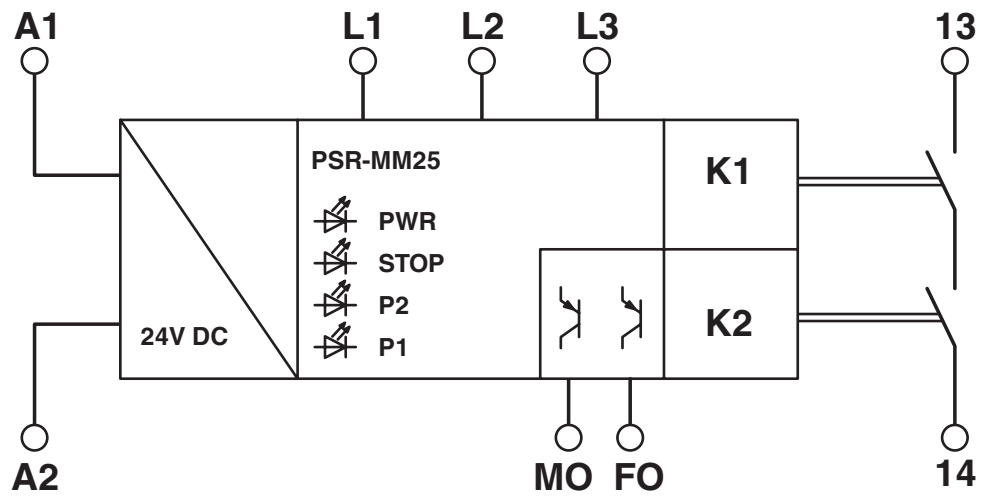
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Block diagram



Block diagram

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## Approvals

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**UL Listed**

Approval ID: E140324



**cUL Listed**

Approval ID: E140324



**Functional Safety**

Approval ID: 01/205/5492.02/24

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## Classifications

### ECLASS

ECLASS-13.0	27371811
ECLASS-15.0	27371811
ECLASS-15.0 ASSET	27250101

### ETIM

ETIM 10.0	EC001448
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### UNSPSC

UNSPSC 21.0	39122300
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## Environmental product compliance

### EU RoHS

Fulfills EU RoHS substance requirements	Yes, No exemptions
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### 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.)	No substance above 0.1 wt%
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### EF3.1 Climate Change

CO2e kg	30.905 kg CO2e
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Phoenix Contact USA  
586 Fulling Mill Road  
Middletown, PA 17057, United States  
(+717) 944-1300  
[info@phoenixcon.com](mailto:info@phoenixcon.com)