

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



2702355

<https://www.phoenixcontact.com/us/products/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) | 150 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 |
|-----------|-----|

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 |
|----------------|-------------------|

Dimensions

| | |
|--------|----------|
| Width | 12.5 mm |
| Height | 112.2 mm |
| Depth | 114.5 mm |

Material specifications

| | |
|------------------|-------------------|
| Color (Housing) | yellow (RAL 1018) |
| Housing material | Polyamide |

Characteristics

Safety data

| | |
|---------------|---|
| Stop category | 0 |
|---------------|---|

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) |
|------------------------------|---|

Safety data: EN IEC 62061

| | |
|------------------------------|---|
| Safety Integrity Level (SIL) | 3 (4 A DC13; 5 A AC15; 17520 switching cycles/year) |
|------------------------------|---|

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 |
|-------------|--------------|

Standards and regulations

Air clearances and creepage distances between the power circuits

| | |
|-----------------------|--------------|
| Standards/regulations | DIN EN 50178 |
|-----------------------|--------------|

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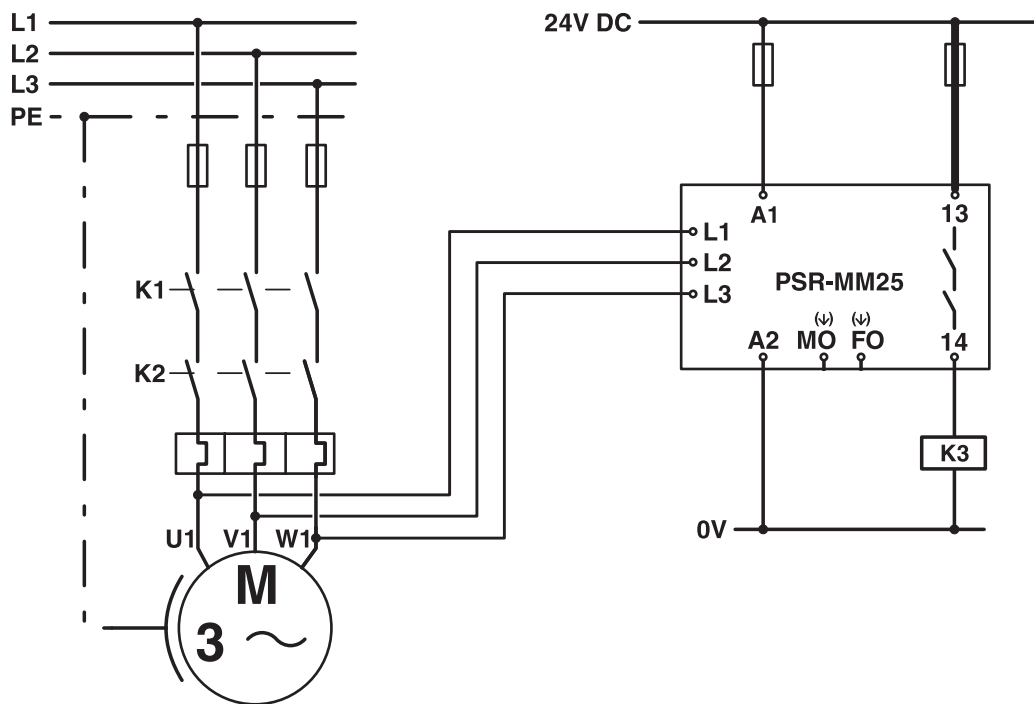
<https://www.phoenixcontact.com/us/products/2702355>

Mounting

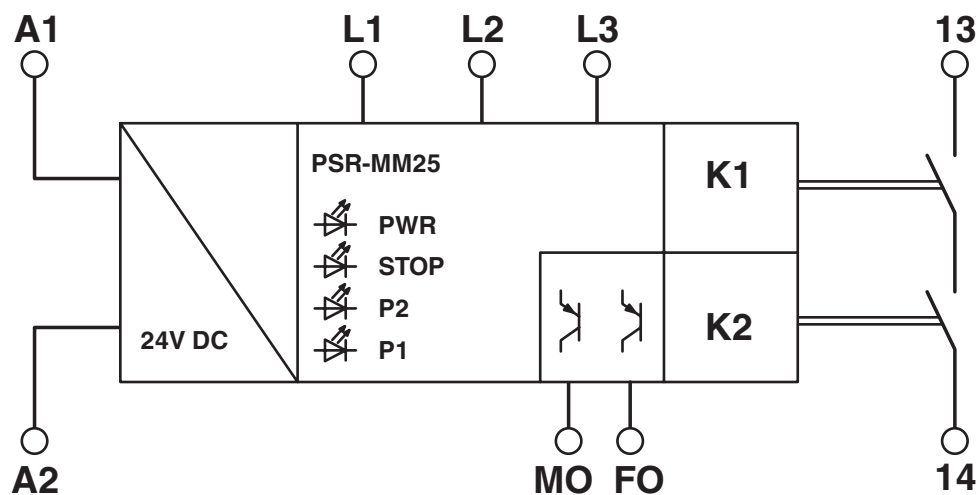
| | |
|-------------------|------------------------|
| Mounting type | DIN rail mounting |
| Assembly note | See derating curve |
| Mounting position | vertical or horizontal |

Drawings

Circuit diagram

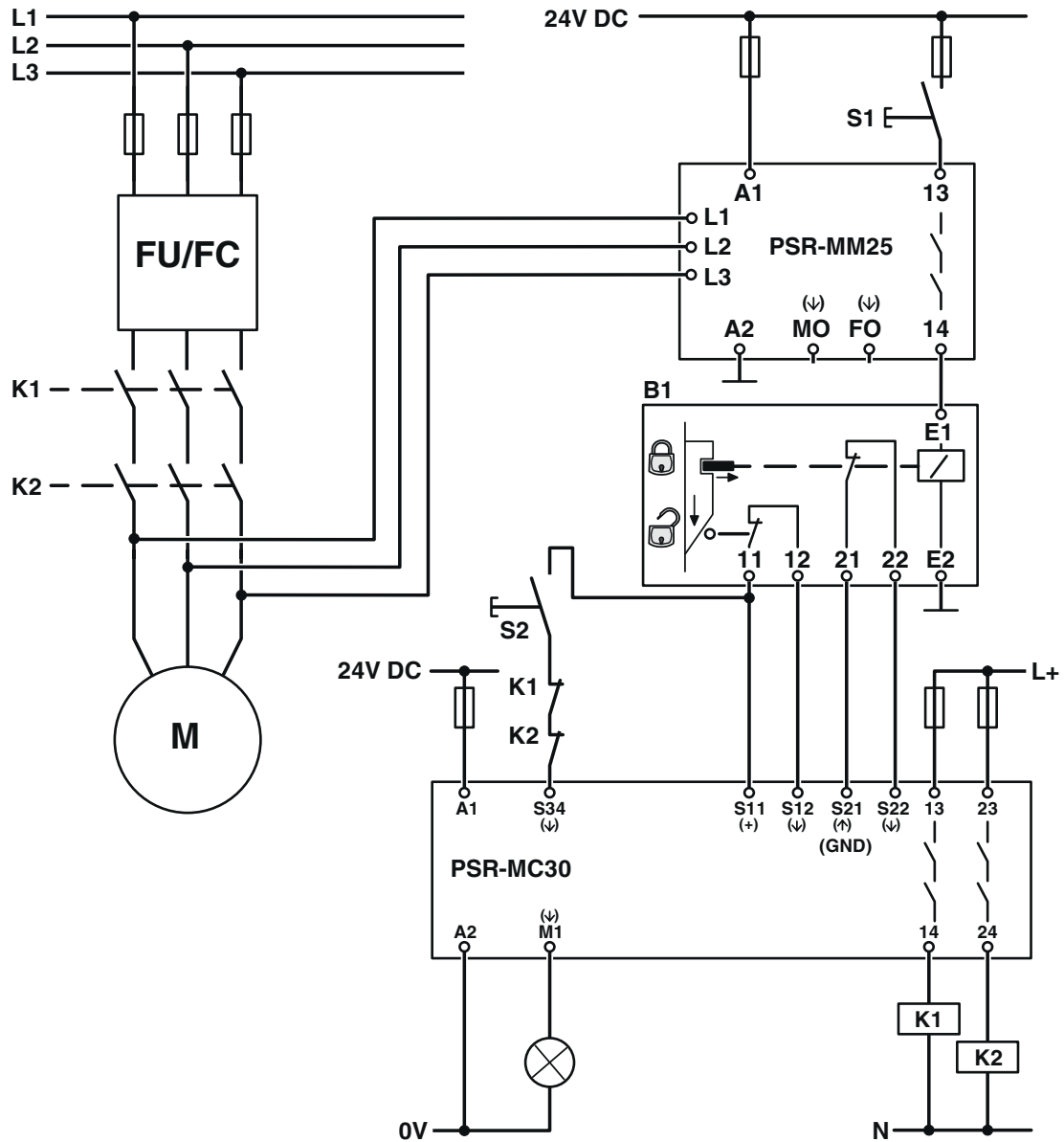


Block diagram



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 9.0 | EC001448 |
|----------|----------|

UNSPSC

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|-------------|----------|
| UNSPSC 21.0 | 39122300 |
|-------------|----------|

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Environmental product compliance

EU RoHS

| | |
|---|--------------------|
| Fulfills EU RoHS substance requirements | Yes, No exemptions |
|---|--------------------|

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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Accessories

C-RCI 2,5/M4 - Ring cable lug

3240023

<https://www.phoenixcontact.com/us/products/3240023>



Ring cable lug, blue, 1.5 ... 2.5 mm², M4

C-RCI 2,5/M6 - Ring cable lug

3240025

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Ring cable lug, blue, 1.5 ... 2.5 mm², M6

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C-RCI 2,5/M8 - Ring cable lug

3240026

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Ring cable lug, blue, 1.5 ... 2.5 mm², M8

C-RC 2,5/M3,5 DIN - Ring cable lug

3240077

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Ring cable lug, non-insulated, 1.1 ... 2.5 mm², M3,5

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C-RC 2,5/M5 DIN - Ring cable lug

3240079

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Ring cable lug, non-insulated, 1.1 ... 2.5 mm², M5

C-RC 2,5/M6 DIN - Ring cable lug

3240080

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Ring cable lug, non-insulated, 1.1 ... 2.5 mm², M6

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C-RC 2,5/M8 DIN - Ring cable lug

3240081

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Ring cable lug, non-insulated, 1.1 ... 2.5 mm², M8

C-RC 2,5/M10 DIN - Ring cable lug

3240082

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Ring cable lug, non-insulated, 1.1 ... 2.5 mm², M10

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CRIMPFOX 6 - Crimping pliers

1212034

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Crimping pliers, for ferrules without insulating collar according to DIN 46228 Part 1 and ferrules with insulating collar according to DIN 46228 Part 4, 0.25 mm² ... 6.0 mm², lateral entry, trapezoidal crimp

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