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

2702356

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The figure shows a version with a screw connection

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 Push-in 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	2702356
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DN01
Product key	DNA241
GTIN	4055626133218
Weight per piece (including packing)	144.9 g
Weight per piece (excluding packing)	143.9 g
Customs tariff number	90328900

Country of origin	DE

Technical data

Notes

Note on application

Note on application	Only for industrial use

Product properties

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

Insulation characteristics

Overvoltage category	II, III (See the section “Insulation coordination”)
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 ±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 (Δt = 400 µs 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	$AgSnO_2$
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^2 (observe derating)
Switching frequency	max. 0.1 Hz
Mechanical service life	10x 10^6 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

Conductor connection

Connection method	Push-in connection

Conductor cross-section rigid	0.2 mm² ... 1.5 mm²
Conductor cross-section flexible	0.2 mm² ... 1.5 mm²
Conductor cross-section, flexible, with ferrule, with plastic sleeve	0.25 mm² ... 1.5 mm² (only together with CRIMPFOX 6)
Conductor cross-section, flexible, with ferrule, without plastic sleeve	0.25 mm² ... 1.5 mm² (only together with CRIMPFOX 6)
Conductor cross-section AWG	24 ... 16
Stripping length	8 mm

Signaling

Status display	4 x LED Bi-Colour

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 (EN 60204-1)	0

Safety data: EN ISO 13849

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

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, amplitude 0.15 mm, 2g

Approvals

CE

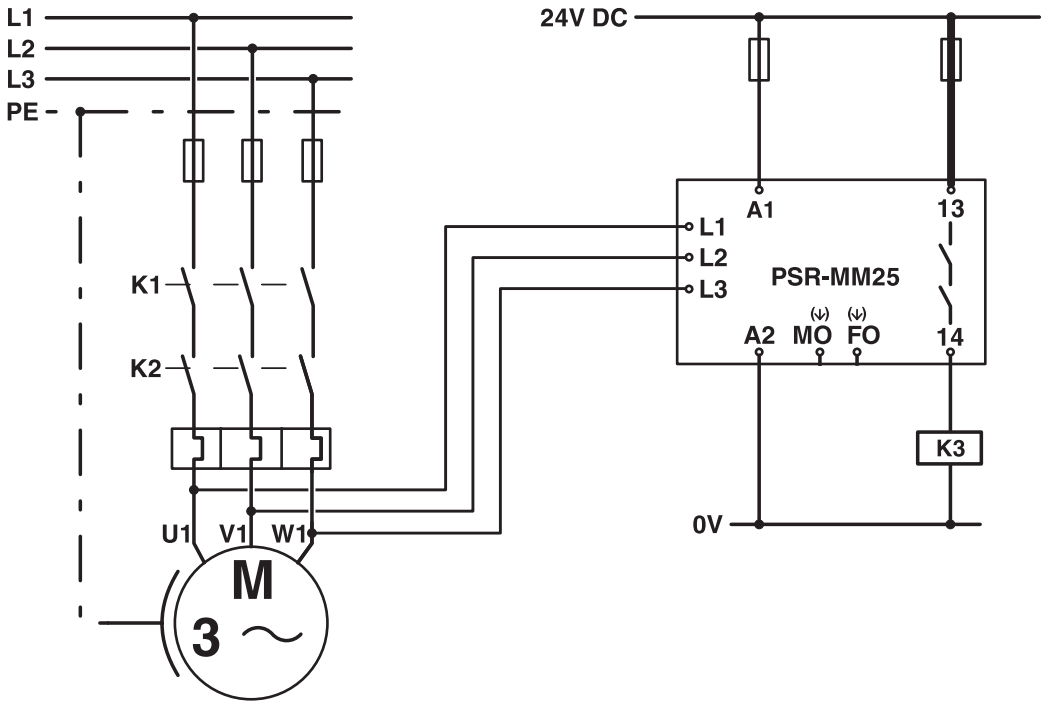
Identification	CE-compliant

Mounting

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

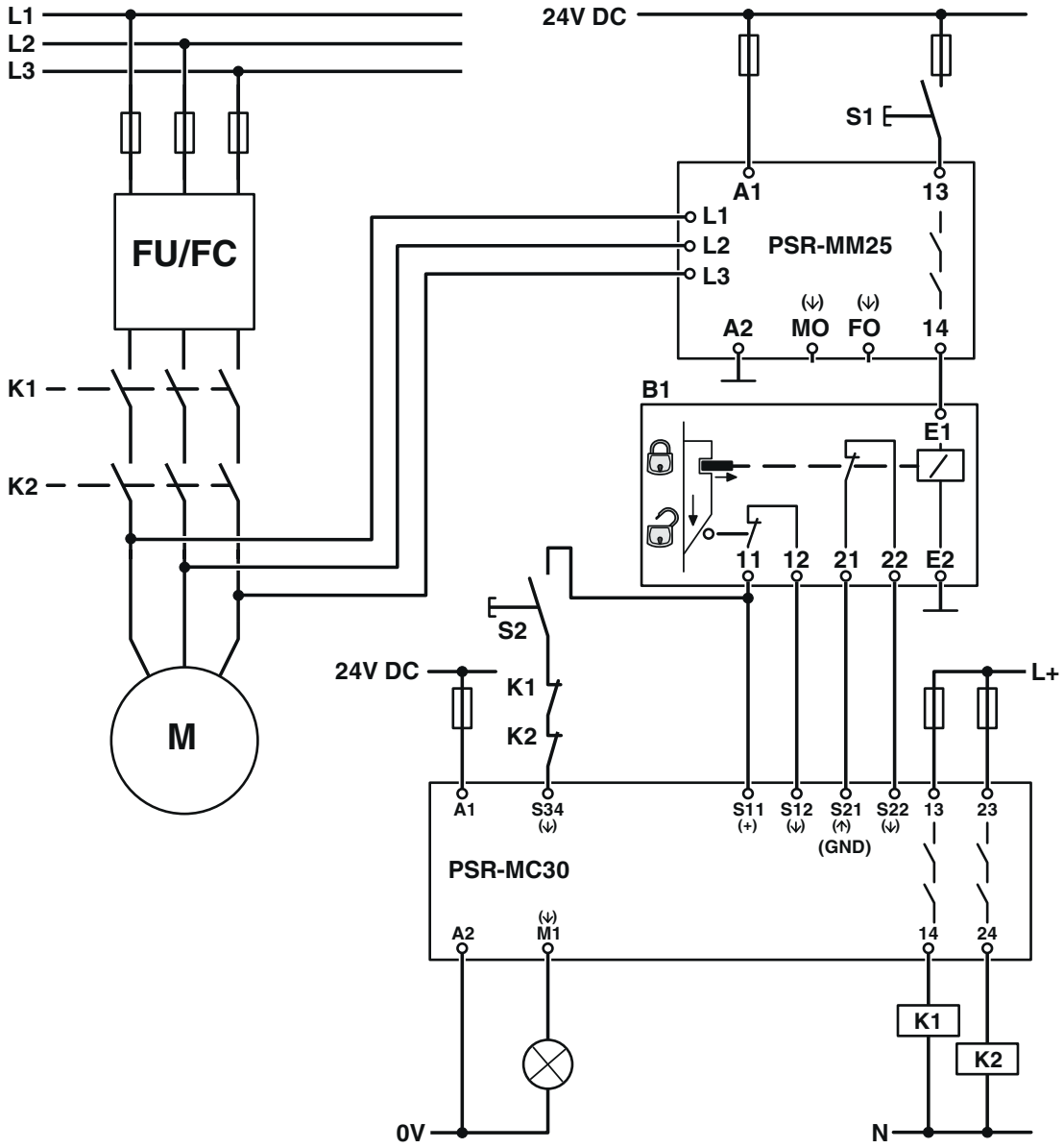
Drawings

Circuit diagram



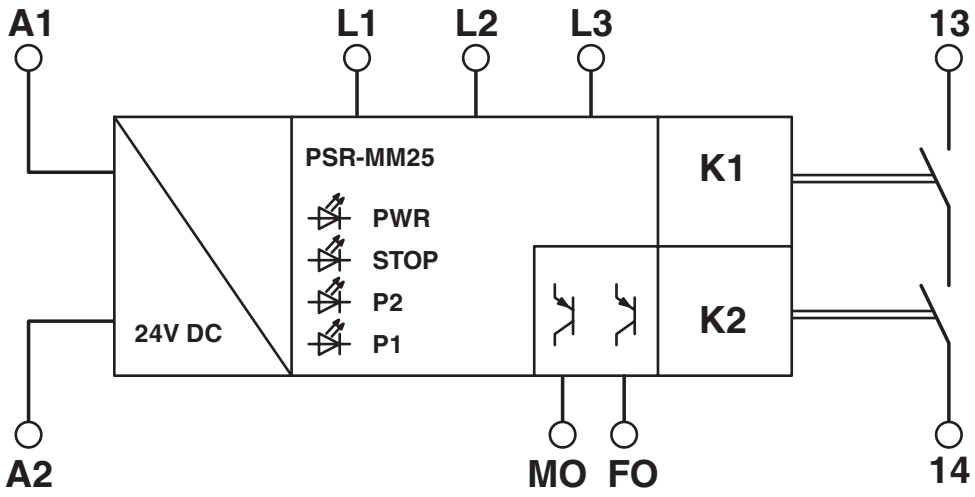
Example application

Circuit diagram



Example application

Block diagram



Block diagram

Approvals

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Functional Safety
Approval ID: 01/205/5492.03/26

cULus Listed
Approval ID: E140324

Classifications

ECLASS

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

ETIM

ETIM 10.0	EC001448

UNSPSC

UNSPSC 21.0	39122300

Environmental product compliance

EU RoHS

Fulfills EU RoHS substance requirements	Yes, No exemptions

China RoHS

Environment friendly use period (EFUP)	EFUP-E
	No hazardous substances above the limits

EU REACH SVHC

REACH candidate substance (CAS No.)	No substance above 0.1 wt%

EF3.1 Climate Change

CO2e kg	38.633 kg CO2e

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