

Safety device - PSR-MM25-1NO-2DO-24DC-SP - 2702356

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Safety relay module for sensor-free standstill monitoring for 3- and 1-phase motors to SILCL 3, Cat. 3, PL e, two-channel evaluation of the remanence voltage of AC, three-phase, and DC motors, pluggable Push-in terminal block, width: 12.5 mm

The figure shows a version with a screw connection

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 according to ISO 13849-1, SILCL 3 according to IEC 62061
- ✓ Time saving push-in connection, tools not required
- ✓ Potentials can be easily looped through – ideal for BUS applications
- ✓ Intuitive use through colour coded actuation lever
- ✓ Can be combined with the MSTB 2,5 range
- ✓ Quick and convenient testing using integrated test option



Key Commercial Data

Packing unit	1 pc
GTIN	
GTIN	4055626133218
Weight per Piece (excluding packing)	146.700 g
Custom tariff number	85371098
Country of origin	Germany

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Technical data

Note

Utilization restriction	EMC: class A product, see manufacturer's declaration in the download area
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Dimensions

Width	12.5 mm
Height	116.6 mm
Depth	114.5 mm

Ambient conditions

Ambient temperature (operation)	-20 °C ... 55 °C (observe derating)
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Max. permissible relative humidity (operation)	75 % (on average, 85% infrequently, non-condensing)
Max. permissible humidity (storage/transport)	75 % (on average, 85% infrequently, non-condensing)
Maximum altitude	max. 2000 m (Above sea level)

Power supply

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

Measuring inputs

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

Relay outputs: enabling current path

Output name	Enabling current path
Output description	safety-related N/O contacts
Number of outputs	1 (undelayed)
Contact 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)
Limiting continuous current	5 A (observe derating)
Inrush current	min. 3 mA
	max. 5 A
Sq. Total current	25 A ² (observe derating)
Switching capacity	min. 72 mW
Switching frequency	max. 0.5 Hz

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Relay outputs: enabling current path

Mechanical service life	10x 10 ⁶ cycles
Output fuse	5 A gL/gG

Alarm outputs

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

Times

Typical pickup time at US	< 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)

General

Nominal operating mode	100% operating factor
Net weight	146.7 g
Mounting position	vertical or horizontal
Mounting type	DIN rail mounting
Assembly instructions	See derating curve
Degree of protection	IP20
Min. degree of protection of inst. location	IP54
Housing material	PBT
Housing color	yellow
Status display	4 x LED Bi-Colour

Connection data

Connection method	Push-in connection
pluggable	Yes
Conductor cross section solid min.	0.2 mm ²
Conductor cross section solid max.	1.5 mm ²
Conductor cross section flexible min.	0.2 mm ²
Conductor cross section flexible max.	1.5 mm ²
Conductor cross section AWG min.	24
Conductor cross section AWG max.	16
Stripping length	8 mm

Safety-related characteristic data

Stop category	0
Designation	IEC 61508 - High demand
Safety Integrity Level (SIL)	3 (4 A DC13; 5 A AC15; 17520 switching cycles/year)
Designation	EN ISO 13849

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Safety-related characteristic data

Performance level (PL)	e (4 A DC13; 5 A AC15; 17520 switching cycles/year)
Category	3
Designation	EN 62061
Safety Integrity Level Claim Limit (SIL CL)	3 (4 A DC13; 5 A AC15; 17520 switching cycles/year)

Standards and Regulations

Designation	Air clearances and creepage distances between the power circuits
Standards/regulations	DIN EN 50178
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
Degree of pollution	2
Overvoltage category	III
Shock	15g
Vibration (operation)	10 Hz ... 150 Hz, 2g
Conformance	CE-compliant

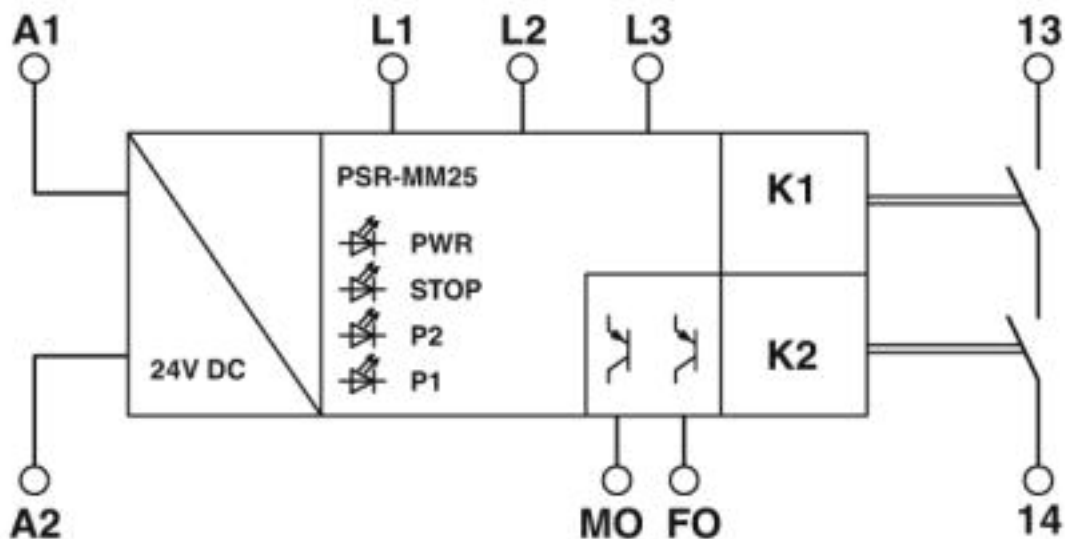
Environmental Product Compliance

China RoHS	Environmentally friendly use period: unlimited = EFUP-e
	No hazardous substances above threshold values

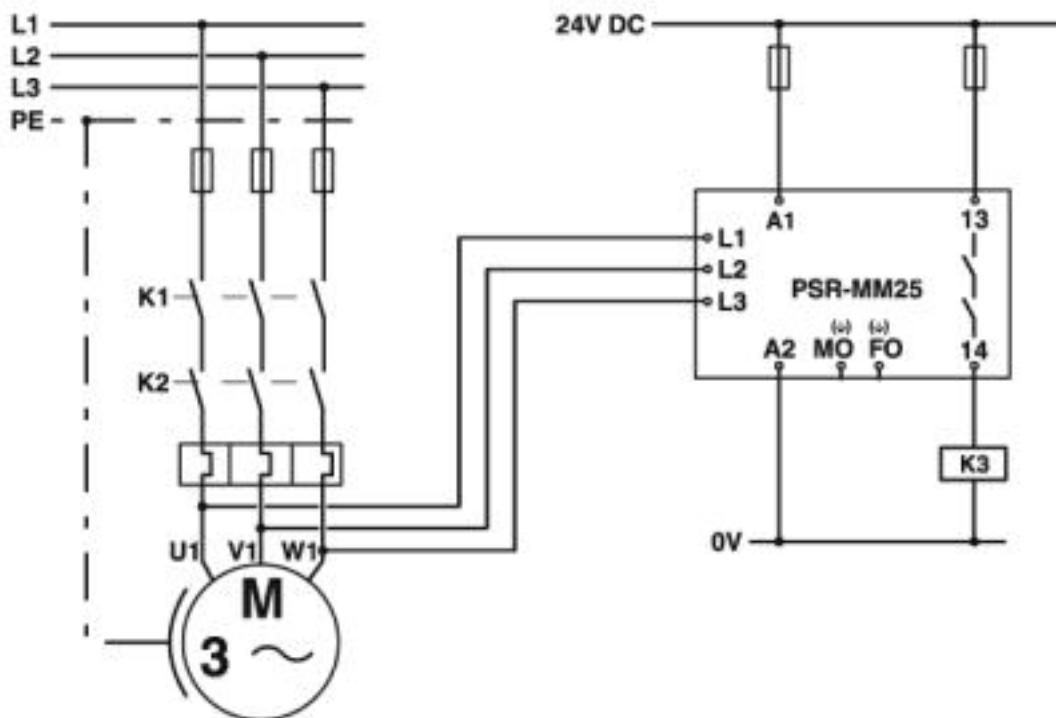
Drawings

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Block diagram



Circuit diagram



Classifications

eCl@ss

eCl@ss 4.0	40020600
eCl@ss 4.1	40020600
eCl@ss 5.0	27371900

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Classifications

eCl@ss

eCl@ss 5.1	27371900
eCl@ss 6.0	27371800
eCl@ss 7.0	27371811
eCl@ss 8.0	27371811
eCl@ss 9.0	27371811

ETIM

ETIM 3.0	EC001449
ETIM 4.0	EC001449
ETIM 5.0	EC001448
ETIM 6.0	EC001448
ETIM 7.0	EC001448

UNSPSC

UNSPSC 6.01	30211901
UNSPSC 7.0901	39121501
UNSPSC 11	39121501
UNSPSC 12.01	39121501
UNSPSC 13.2	39122331
UNSPSC 18.0	39122331
UNSPSC 19.0	39122331
UNSPSC 20.0	39122331
UNSPSC 21.0	39122331

Approvals

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Functional Safety / UL Listed / cUL Listed / Functional Safety / cULus Listed

Ex Approvals

Approval details

Functional Safety		968/FSP 1226.00/16
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Approvals

UL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 140324
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cUL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 140324
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Functional Safety			01/205/5492.00/16
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cULus Listed			
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Accessories

Accessories

Connector

Ring cable lug - C-RCI 2,5/M4 - 3240023



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

Ring cable lug - C-RCI 2,5/M6 - 3240025



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

Ring cable lug - C-RCI 2,5/M8 - 3240026



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

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Accessories

Ring cable lug - C-RC 2,5/M3,5 DIN - 3240077



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

Ring cable lug - C-RC 2,5/M5 DIN - 3240079



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

Ring cable lug - C-RC 2,5/M6 DIN - 3240080



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

Ring cable lug - C-RC 2,5/M8 DIN - 3240081



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

Ring cable lug - C-RC 2,5/M10 DIN - 3240082



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