

# PSR-MM35-1NO-1DO-24DC-SP - Safety relay module



1249516

<https://www.phoenixcontact.com/us/products/1249516>

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Safety relay module for sensor-free speed and speed range monitoring up to SIL 3, Cat. 4, PL e, 2-channel evaluation of the rotating field of AC and three-phase motors, plug-in Push-in terminal block, width: 12.5 mm

## Your advantages

- Safe motion monitoring based on sensor-free rotating field measurement of the drive
- Maximum system availability, robust measuring procedure in the face of interference factors such as shock, vibration, and EMI
- Integrated safety functions: SLS (Safe Limited Speed), SSM (Safe Speed Monitor), SSR (Safe Speed Range)
- Easy parameterization and online monitoring with the PSRmotion software, which can be downloaded free of charge
- 1 enabling current path, 1 parameterizable digital signal output
- Up to Cat. 4/PL e in accordance with EN ISO 13849-1, SIL 3 in accordance with EN IEC 62061

## Commercial data

Item number	1249516
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DN01
Product key	DNA242
GTIN	4063151354688
Weight per piece (including packing)	153.8 g
Weight per piece (excluding packing)	148 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	Over-speed safety relay
Relay type	Electromechanical relay with force-guided contacts in accordance with IEC/EN 61810-3

#### Insulation characteristics

Overvoltage category	II (600 V)
	III (300 V)
	III
Degree of pollution	2

#### Times

Typical response time	70 ms (For $U_S$ autostart)
	70 ms (For $U_S$ manual, monitored start)
Delay time range	0 s ... 2 s $\pm 10$ % (Switch-off delay)
	0 s ... 10 s $\pm 10$ % (Switch-on delay)
Restart time	< 5 s (Boot time)
Start pulse length	$\leq 2$ s (manual start)
	$\geq 200$ ms (manual start)

### Electrical properties

Maximum power dissipation for nominal condition	3 W (At $U_S = 26.4$ V, $I_L^2 = 6$ A <sup>2</sup> )
Nominal operating mode	100% operating factor
Interfaces	Without sensor
Rated insulation voltage	300 V (ÜKAT III)
	600 V (ÜKAT II)
Rated surge voltage/insulation	Basic insulation 4 kV between all current paths and housing
	Safe isolation, reinforced insulation 6 kV: between 13/14 and A1/A2, S34, MO
	Safe isolation, reinforced insulation 8 kV: between L1/L2/L3 and A1, A2, S34, MO 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 % (provide external protection)
Rated control supply current $I_S$	46 mA

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Power consumption at $U_S$	1.1 W
Filter time	20 ms (in the event of voltage dips at $U_S$ )
Protective circuit	Surge protection; Suppressor diode
Protection	1 A (slow-blow)

## Input data

Digital: Digital input

Description of the input	IEC 61131-2 type 1
Number of inputs	1 (Non-safety-related parameterizable acknowledgment input: S34)
Input voltage range "0" signal	0 V DC ... 5 V DC
Input voltage range "1" signal	15 V DC ... 30 V DC
Input current range "0" signal	0 mA ... 0.5 mA
Filter time	20 ms (Test pulse width of low test pulses)
Max. permissible overall conductor resistance	500 $\Omega$ (Input and reset circuit at $U_S$ )
Protective circuit	33 V suppressor diode
Current consumption	typ. 3 mA (at 24 V)

Measurement

Input name	Sensor inputs
Number of inputs	3 (Safety-related sensor inputs: L1 , L2 , L3)
Input voltage range "1" signal	90 V AC ... 690 V AC
Precision	$\pm 1 \%$
Limit frequency	min. 0.5 Hz max. 1200 Hz
Current consumption	0.35 mA

## Output data

Relay: Enabling current path

Output description	2 N/O contacts in series, floating
Number of outputs	1 (safety-related N/O contacts: 13/14)
Contact switching type	1 enabling current path
Contact material	AgSnO <sub>2</sub>
Switching voltage	min. 12 V max. 250 V AC/DC
Switching power	min. 60 mW
Inrush current	min. 3 mA max. 6 A
Switching capacity	4 A (DC13, 24 V) 5 A (AC15, 250 V)
Limiting continuous current	6 A
Sq. Total current	36 A <sup>2</sup> (observe derating)
Switching frequency	max. 0.1 Hz
Mechanical service life	10x 10 <sup>6</sup> cycles

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Output fuse	6 A gL/gG
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## Signal

Output description	PNP
Number of outputs	1 (Non-safety-related signal output: MO)
Voltage	23 V DC ( $U_S - 1 V$ )
Current	max. 100 mA
Maximum inrush current	500 mA
Ohmic load	min. 240 $\Omega$
Switching frequency	0.5 Hz (ohmic)
Protective circuit	Reverse polarity protection 33 V suppressor diode
Short-circuit protection	Yes
Discharging circuit	Yes, internal

## Connection data

### Connection technology

pluggable	yes
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### Conductor connection

Connection method	Push-in connection
Conductor cross-section rigid	0.2 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>
Conductor cross-section flexible	0.2 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>
Conductor cross-section AWG	24 ... 16
Stripping length	8 mm

## Signaling

Status display	1 x OUT LED (green, red)
Operating voltage display	1 x PWR LED (green, red)
Error indication	Red LED, (flashes in the event of short-circuits or overload)

## 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
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### Safety data: EN ISO 13849

Performance level (PL)	e
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Safety data: IEC 61508 - High demand

Safety Integrity Level (SIL)	3
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Safety data

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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	≤ 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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## Mounting

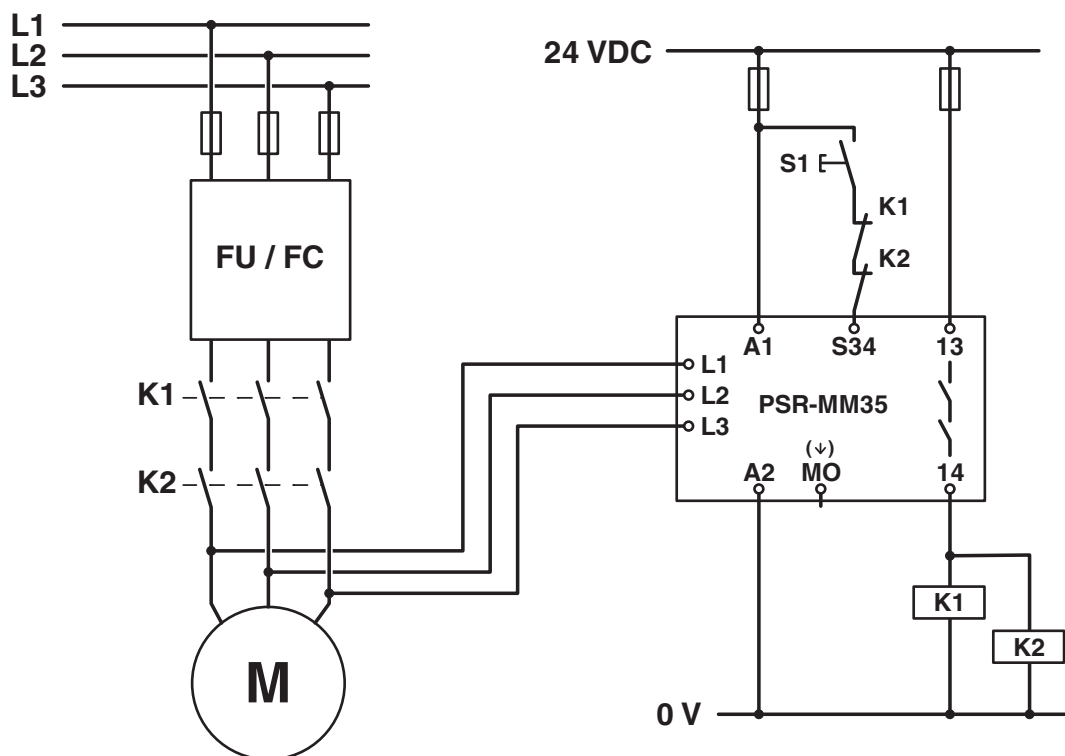
Mounting type	DIN rail mounting
Assembly note	See derating curve
Mounting position	vertical or horizontal

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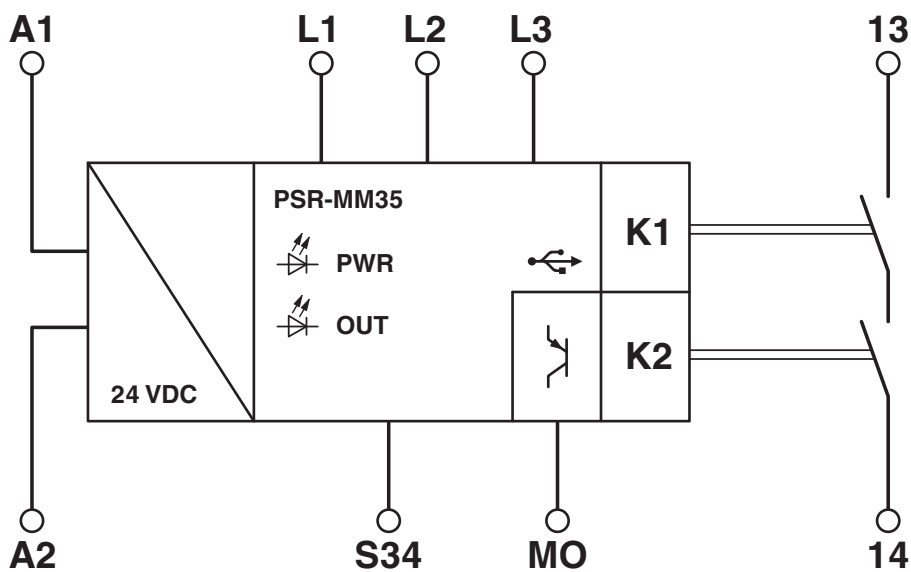
Drawings

Circuit diagram



Example application

Block diagram



Block diagram

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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1249516>



### UL Listed

Approval ID: E140324



### cUL Listed

Approval ID: E140324



### Functional Safety

Approval ID: 01/205/5879.01/24

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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
Exemption	7(a), 7(c)-I

### 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.)	Lead titanium zirconium oxide(CAS: 12626-81-2)
	Lead(CAS: 7439-92-1)
SCIP	ebdfe503-3634-435f-8476-c5556d3e153a

### EF3.1 Climate Change

CO2e kg	49.533 kg CO2e
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