

Safety device - PSR-MM35-1NO-1DO-24DC-SP



1249516

<https://www.phoenixcontact.com/gb/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 IEC 62061

Commercial Data

Item number	1249516
Packing unit	1 pc
Minimum order quantity	1 pc
Sales Key	DNA242
Product Key	DNA242
GTIN	4063151354688
Weight per Piece (including packing)	156.2 g
Weight per Piece (excluding packing)	148 g
Customs tariff number	90328900
Country of origin	DE

Technical Data

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

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 ± 10 % (Switch-off delay)
	0 s ... 10 s ± 10 % (Switch-on delay)
Restart time	< 5 s (Boot time)

Electrical properties

Maximum power dissipation for nominal condition	3 W (At $U_S = 26.4$ V, $I_L^2 = 6$ A ²)
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
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
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

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)

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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 Ω (Input and reset circuit at U _S)
Protective circuit	33 V suppressor diode
Current consumption	typ. 3 mA (at 24 V)
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	± 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 type	1 enabling current path
Contact material	AgSnO ₂
Switching voltage	min. 12 V max. 250 V AC/DC
Switching capacity	min. 60 mW
Inrush current	min. 3 mA max. 6 A
Switching capacity according to IEC 60947-5-1	4 A (DC13, 24 V) 5 A (AC15, 250 V)
Limiting continuous current	6 A
Sq. Total current	36 A ² (observe derating)
Switching frequency	max. 0.5 Hz
Mechanical service life	10x 10 ⁶ cycles
Output fuse	6 A gL/gG

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
Switching frequency	0.5 Hz (ohmic)
Protective circuit	Reverse polarity protection 33 V suppressor diode
Short-circuit protection	Yes

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Connection data

Connection technology

pluggable	yes
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Conductor connection

Connection method	Push-in connection
Conductor cross section solid	0.2 mm ² ... 1.5 mm ²
Conductor cross-section AWG	24 ... 16

LED signaling

Status display	1 x green, red LED (OUT)
Operating voltage display	1 x green, red LED (PWR)
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

Housing material	Polyamide
Housing color	yellow

Characteristics

Safety data

Stop category	0
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Safety data: EN ISO 13849

Category	4
Performance level (PL)	e

Safety data: IEC 61508 - High demand

Equipment type	Type B
Safety Integrity Level (SIL)	3
Probability of a hazardous failure per hour (PFH _D)	5.72 x 10 ⁻⁹ ()
Proof test interval	240 Months
Duration of use	240 Months

Safety data: IEC 61508 - Low demand

Equipment type	Type A
Safety Integrity Level (SIL)	3

Environmental and real-life conditions

Ambient conditions

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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

Approval data

CE

Certificate	CE-compliant
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Standards and regulations

Air clearances and creepage distances between the power circuits

Standards/regulations	EN 60947-1
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Mounting

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

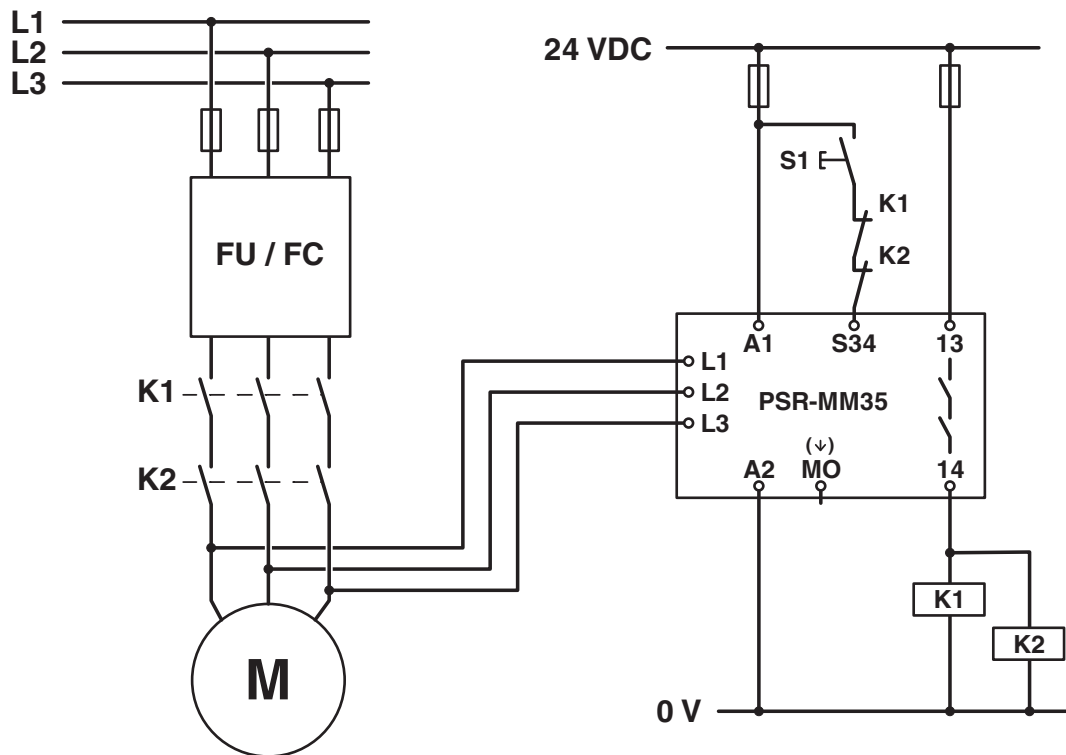
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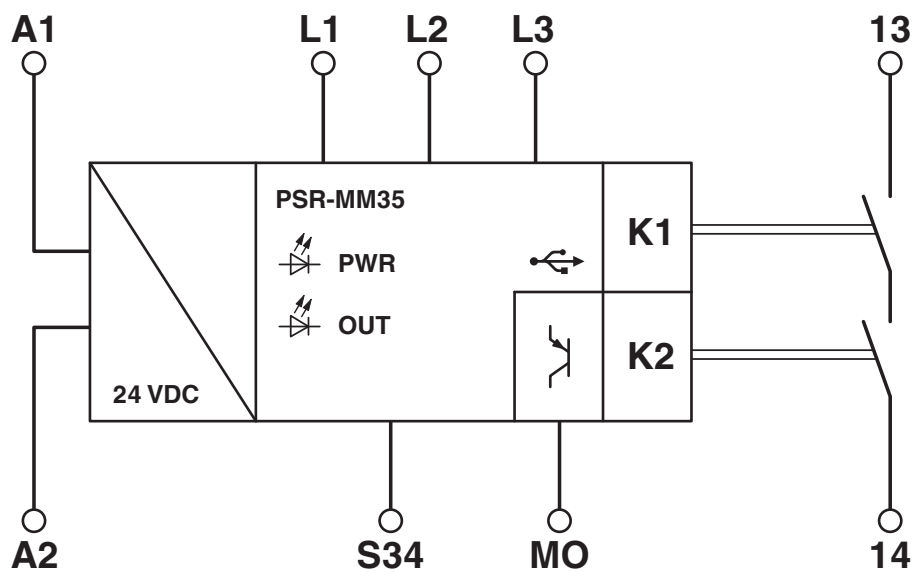
Drawings

Circuit diagram



Example application

Block diagram



Block diagram

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Approvals



EAC

Approval ID: RU*-DE*B.00606/20



Functional Safety

Approval ID: 01/205/5879.00/21



UL Listed

Approval ID: FILE E 140324



cUL Listed

Approval ID: FILE E 140324

cULus Listed

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Classifications

ECLASS

ECLASS-9.0	27371811
ECLASS-10.0.1	27371811
ECLASS-11.0	27371811

ETIM

ETIM 8.0	EC001448
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UNSPSC

UNSPSC 21.0	39122300
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Environmental Product Compliance

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

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Accessories

Connecting cable

Connecting cable - CAB-USB A/MICRO USB B/2,0M - 2701626

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Connecting cable, for connecting the controller to a PC for PC Worx and LOGIC+, USB A to micro USB B, 2 m in length.

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