PSR-MM30-2NO-2DO-24DC-SP - Safety relay module

2702358

https://www.phoenixcontact.com/us/products/2702358

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2-channel over-speed and zero-speed safety relay up to SIL 3, Cat. 4, PL e, 2 safe relay outputs, suitable for connecting HTL, TTL, or sine/cosine encoders as well as proximity switches, plug-in Push-in terminal block, width: 22.5 mm

Your advantages

- Monitoring of up to three different speeds as well as downtime
- Compatible with a range of motion sensors
- Easy parameterization and online monitoring with the PSRmotion software, which can be downloaded free of charge
- Force-guided relay contacts, parameterizable signal outputs
- Up to Cat. 4/PL e in accordance with EN ISO 13849-1, SIL 3 in accordance with EN IEC 62061, SIL 3 in accordance with IEC 61508

Commercial data

Item number	2702358
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DN01
Product key	DNA242
Catalog page	Page 243 (C-6-2019)
GTIN	4055626133232
Weight per piece (including packing)	190.9 g
Weight per piece (excluding packing)	190.9 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
	Over-speed safety relay
Relay type	Electromechanical relay with force-guided contacts in accordance with IEC/EN 61810-3

Data management status

Article revision	01

Times

Typical response time	< 200 ms (For U_s autostart)
	< 150 ms (For U_s manual, monitored start)
Delay time range	0 s ... 10 s ±10 % (Adjustable switch-on delay for downtime contacts 23/24)
Restart time	< 1 s (Boot time)
Recovery time	< 1 s

Electrical properties

Maximum power dissipation for nominal condition	6.5 W (at U_S = 26.4 V, U_{INPUT} =30 V, I_L^2 = 72 A²)
Nominal operating mode	100% operating factor
Interfaces	Encoder
	Proximity switches

Air clearances and creepage distances between the power circuits

Rated insulation voltage	250 V AC
Rated surge voltage/insulation	Basic insulation 4 kV between all current paths and housing
	Safe isolation, reinforced insulation 6 kV between input circuit (A1/A2, I1, I2, I3, MI1, MI2, IN1, IN2, S34, MO1, MO2, RJ45, USB) and the enabling current paths (13/14, 23/24)

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. 74 mA
Power consumption at U_S	typ. 1.78 W
Inrush current	< 18 A (Δt = 500 µs at U_s)
Filter time	2 ms (at A1 in the event of voltage dips at U_s)
Protective circuit	Serial protection against polarity reversal; 33 V suppressor diode

Input data

Digital: Operating mode and monitoring inputs

Description of the input	NPN, IEC 61131-2, type 1
Number of inputs	1 (Non-safety-related start input: S34)
	3 (Safety-related operating mode inputs: I1, I2, I3)
	2 (Safety-related monitoring inputs: MI1, MI2)
Discrepancy time	2 s (I1, I2, I3)
	2.5 s (MI1, MI2)
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 ... 1.5 mA
Inrush current	< 5 mA
Filter time	max. 2 ms (Test pulse width; low test pulses for operating mode and monitoring inputs)
	Test pulse rate = 5 x Test pulse width
Max. permissible overall conductor resistance	150 Ω
Protective circuit	33 V suppressor diode
Current consumption	typ. 4 mA (at U_S)

Measurement

Input name	Proximity switch inputs
Description of the input	NPN, IEC 61131-2, type 1
Number of inputs	2 (Safety-related proximity switch inputs: IN1 IN2)
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 ... 1.5 mA
Inrush current	< 12 mA
Precision	± 2 % (in reference to the parameterized limit value)
Limit frequency	max. 2 kHz (Minimum pulse duration: 45 µs)
Max. permissible overall conductor resistance	150 Ω
Protective circuit	33 V suppressor diode
Current consumption	typ. 10 mA (at U_S)

Measurement

Input name	Encoder input
Description of the input	TTL, HTL, Sin/Cos
Number of inputs	1 (Safety-related encoder input, RJ45)
Precision	± 2 % (in reference to the parameterized limit value)
Limit frequency	max. 400 kHz
	max. 250 kHz For active diagnostic safety encoder
Max. permissible overall conductor resistance	150 Ω
HTL Signal form/signal level	0 V DC ... 3 V DC (Low)
	12 V DC ... 30 V DC (High)
TTL Signal form/signal level	0 V DC ... 0.9 V DC (Low)

	2.5 V DC ... 5 V DC (High)
Sine / cosine Signal form/signal level	2 V DC ... 3 V DC (1 V_{pp} differential signal)
Current consumption	< 3 mA (Per track for U_S)

Output data

Relay: Enabling current path

Output description	2 NO contacts each in series, without delay, floating
Number of outputs	2 (safety-related N/O contacts: 13/14, 23/24)
Contact switching type	2 enabling current paths
Contact material	$AgSnO_2$
Switching voltage	min. 12 V AC/DC
	max. 250 V AC/DC (Observe the load curve)
Switching capacity	min. 60 mW
Inrush current	min. 3 mA
	max. 6 A
Switching capacity in accordance with IEC 60947-5-1	4 A (24 V (DC13))
	5 A (250 V (AC15))
Limiting continuous current	6 A
Sq. Total current	72 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	2 (Non-safety-related signal outputs: MO1, MO2)
Voltage	approx. 22 V DC (U_s - 2 V)
Current	max. 100 mA
Maximum inrush current	500 mA (Δt = 1 ms at U_s)
Protective circuit	33 V suppressor diode
Short-circuit protection	no

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	2x LED green (OUT1, OUT2)
Operating voltage display	1 x green LED (PWR)

Dimensions

Width	22.5 mm
Height	117.5 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	4
Performance level (PL)	e (6 A DC1, 17520 switching cycles/year)

Safety data: IEC 61508 - High demand

Safety Integrity Level (SIL)	3

Safety data: EN IEC 62061

Safety Integrity Level (SIL)	3 (For applications in SIL 3, the required demand rate for the safety function is once per day.)

Environmental and real-life conditions

Ambient conditions

Degree of protection	IP20
Min. degree of protection of inst. location	IP54
Ambient temperature (operation)	-40 °C ... 55 °C (observe derating)
Ambient temperature (storage/transport)	-40 °C ... 70 °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

Standards and regulations

Air clearances and creepage distances between the power circuits

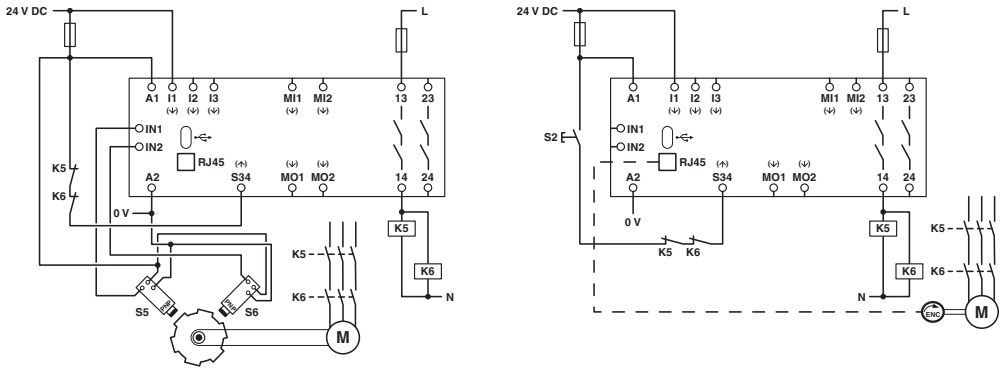
Standards/regulations	DIN EN 50178, EN 60947-5-1

Mounting

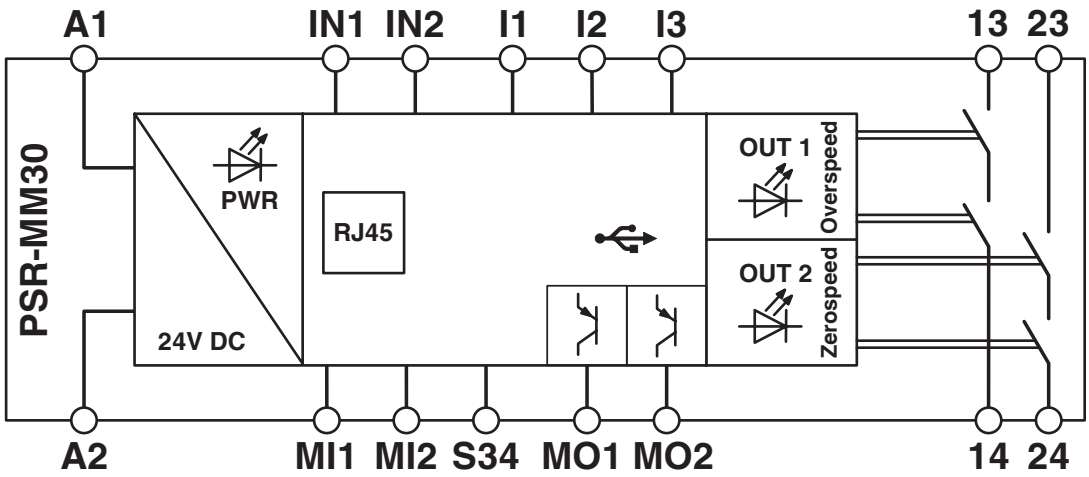
Mounting type	DIN rail mounting
Thread type	()
Assembly note	See derating curve
Mounting position	vertical or horizontal

Drawings

Circuit diagram



Block diagram



Block diagram

Approvals

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UL Listed
Approval ID: E140324

cUL Listed
Approval ID: E140324

Functional Safety
Approval ID: 01/205/5690.00/19

Functional Safety
Approval ID: 968/FSP 1755.00/19

cULus Listed

Classifications

ECLASS

ECLASS-11.0	27371811
ECLASS-12.0	27371811
ECLASS-13.0	27371811

ETIM

ETIM 9.0	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%

Accessories

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

2701626

https://www.phoenixcontact.com/us/products/2701626

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

CRIMPFOX 6 - Crimping pliers

1212034

https://www.phoenixcontact.com/us/products/1212034

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 mm^2 ... 6.0 mm^2, lateral entry, trapezoidal crimp

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