PSR-M-EM3-HTL1-SC - Extension module

1105009

https://www.phoenixcontact.com/us/products/1105009

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Safe extension module for monitoring zero-speed, speed, direction of rotation, monitoring of 2 axes, NPN/PNP proximity switch, 1 x HTL encoder, TBUS interface, up to SIL 3, Cat. 4/PL e, pluggable screw terminal block, TBUS connector included

Product Description

The configurable and individually scalable PSRmodular safety system is a flexible safety solution for monitoring your machine or system. The safe extension module is used to monitor downtimes, speed, and direction of rotation. The module is suitable for connection of NPN/PNP proximity switches and HTL encoders.

Your advantages

- Cost-effective safety solution with a high level of adaptability to individual requirements
- Fast startup, thanks to easy hardware and software configuration
- Machine downtimes minimized with comprehensive, easy-to-understand diagnostics
- Narrow housing width of just 22.6 mm
- Up to Cat. 4/PL e in accordance with EN ISO 13849-1, SIL 3 in accordance with IEC 62061, SIL 3 in accordance with IEC 61508
- Suitable for elevator applications in accordance with EN 81-20

Commercial Data

Item number	1105009
Packing unit	1 pc
Minimum order quantity	1 pc
Sales Key	DN02
Product Key	DNA363
GTIN	4055626974927
Weight per Piece (including packing)	191.5 g
Weight per Piece (excluding packing)	191.5 g
Customs tariff number	85371098
Country of origin	IT

Technical Data

Product properties

Product type	Safety device
Application	Over-speed safety relay
	Zero-speed safety relay
	Monitoring the direction of rotation

Insulation characteristics

Protection class	III

Times

Response time	see user manual
Restart time	min. 5 s (Boot time)
	max. 10 s (Boot time)

Electrical properties

Maximum power dissipation for nominal condition	3.22 W (U_B = 28.8 V, IN1 = IN2 = 50 mA, U_{ENC} = 30 V)
Nominal operating mode	100% operating factor
Interfaces	DIN rail TBUS for connection to the master module, supplied as standard
	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 24 V power supply and I/Os to the housing

Supply

Designation	A1/A2
Rated control circuit supply voltage U_S	19.2 V DC ... 28.8 V DC
Rated control circuit supply voltage U_S	24 V DC -20 % / +20 % (provide external protection, typically 1 A)
Rated control supply current I_S	typ. 40 mA
Power consumption at U_S	typ. 0.96 W
Inrush current	3.5 A (Δt = 1 ms at U_s)
Filter time	typ. 20 ms (at A1 in the event of voltage dips at U_s)
Protective circuit	Serial protection against polarity reversal
	Suppressor diode

Input data

Measurement

Input name	Proximity switch inputs
	IN1, IN2
Description of the input	NPN / PNP (3- or 4-wire)

Number of inputs	2
Input voltage range "0" signal	0 V DC ... 5 V DC (NPN)
	16 V DC ... 28.8 V DC (PNP)
Input voltage range "1" signal	16 V DC ... 28.8 V DC (NPN)
	0 V DC ... 5 V DC (PNP)
Input current range "0" signal	< 2 mA (NPN)
Precision	5 % (in reference to the parameterized limit value)
Limit frequency	max. 5 kHz
Max. permissible overall conductor resistance	150 Ω
Protective circuit	Suppressor diode
Current consumption	typ. 13 mA (NPN, at U_S)
	typ. -13 mA (PNP, at U_s)
	max. 17 mA (NPN, at 28.8 V DC)
	max. -15 mA (PNP, at 28.8 V DC)

Measurement

Input name	Encoder input
Description of the input	HTL
	IEC 61131-2 Type 2
Number of inputs	1
Precision	5 % (in reference to the parameterized limit value)
Limit frequency	max. 300 kHz
Max. permissible overall conductor resistance	150 Ω
HTL Signal form/signal level	11 V ... 30 V (Duty factor trace A, B: 50% ±15%, phase shift trace A, B: 90° ±40°)
Current consumption	typ. 12 mA (Per track for U_S)

Output data

Digital: Proximity switch supply (24V/0V)

Short-circuit protection	no
Nominal output voltage range	16.7 V DC ... 26.3 V DC (U_S - 2,5 V)

Connection data

Connection technology

pluggable	yes

Conductor connection

Connection method	Screw connection
Conductor cross section rigid	0.2 mm² ... 2.5 mm²
Conductor cross section flexible	0.2 mm² ... 2.5 mm²
Conductor cross-section AWG	24 ... 12
Stripping length	7 mm
Screw thread	M3
Tightening torque	0.5 Nm ... 0.6 Nm

Signaling

Status display	5 x LED (yellow), 1 x LED (green), 2 x LED (orange)
Operating voltage display	1 x green LED
Error indication	2 x LED (red)

Dimensions

Width	22.61 mm
Height	112.58 mm
Depth	113.6 mm

Material specifications

Housing material	Polyamide PA non-reinforced

Characteristics

Safety data: EN ISO 13849

Category	3
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)	6.70×10^{-9}
Proof test interval	240 Months
Duration of use	240 Months

Environmental and real-life conditions

Ambient conditions

Degree of protection	IP20
Min. degree of protection of inst. location	IP54
Ambient temperature (operation)	-10 °C ... 55 °C (observe derating)
Ambient temperature (storage/transport)	-20 °C ... 85 °C
Maximum altitude	≤ 2000 m (Above sea level)
Max. permissible humidity (storage/transport)	95 % (non-condensing)
Max. permissible relative humidity (operation)	95 % (non-condensing)
Shock	10g for Δt = 16 ms (continuous shock, 1000 shocks in each space direction)
Vibration (operation)	10 Hz ... 150 Hz, 2g

Approvals

CE

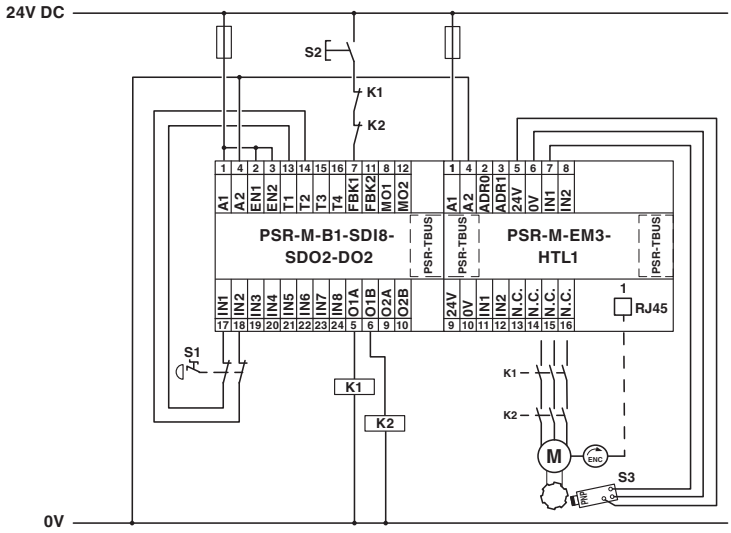
Identification	CE-compliant

Mounting

Mounting type	DIN rail mounting
Assembly instructions	Observe derating
Mounting position	vertical or horizontal
Connection method	Screw connection

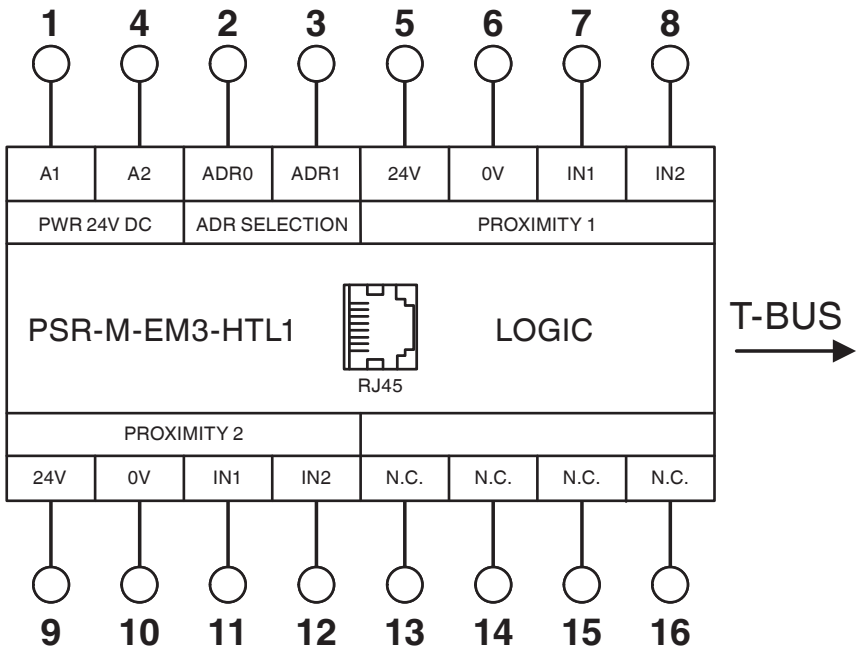
Drawings

Application drawing



Example application

Block diagram



Block diagram

Approvals

UL Listed
Approval ID: FILE E 238705

cUL Listed
Approval ID: FILE E 238705

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

Classifications

ECLASS

ECLASS-11.0	27371819
ECLASS-13.0	27371819
ECLASS-12.0	27371819

ETIM

ETIM 8.0	EC001449

UNSPSC

UNSPSC 21.0	39122200

Environmental Product Compliance

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

Accessories

CP-MSTB - Coding profile

1734634

https://www.phoenixcontact.com/us/products/1734634

Coding profile, is inserted into the slot on the plug or inverted header, red insulating material

CR-MSTB - Coding section

1734401

https://www.phoenixcontact.com/us/products/1734401

Coding section, inserted into the recess in the header or the inverted plug, red insulating material

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