Extension module - PSR-M-EM5-TTL2-PI - 1105015

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Safe extension module for monitoring zero-speed, speed, direction of rotation, monitoring of 2 axes, NPN/PNP proximity switch, 2x TTL encoders, with voltage monitoring, Cat. 4/PL e, SIL 3, pluggable Push-in 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 the connection of NPN/PNP proximity switches and TTL 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
- Tool-free and time-saving installation thanks to Push-in technology
- 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 lift applications according to EN 81-20

Key Commercial Data

Packing unit	1 pc
GTIN	4 055626 975115
GTIN	4055626975115
Weight per Piece (excluding packing)	180.000 g
Custom tariff number	85371098
Country of origin	Italy

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Technical data

Dimensions

Width	22.61 mm
Height	107.74 mm
Depth	113.6 mm

Ambient conditions

Ambient temperature (operation)	-10 °C ... 55 °C (observe derating)
Ambient temperature (storage/transport)	-20 °C ... 85 °C
Max. permissible relative humidity (operation)	95 % (non-condensing)
Max. permissible humidity (storage/transport)	95 % (non-condensing)
Maximum altitude	≤ 2000 m (Above sea level)

Power supply

Designation	A1/A2
Rated control circuit supply voltage U_S	24 V DC -20 % / +20 % (provide external protection, typically 1 A)
	19.2 V DC ... 28.8 V DC
Rated control supply current I_S	typ. 50 mA
Current consumption	max. 175 mA (with full load)
Power consumption at U_S	typ. 1.2 W
Inrush current	20 A (Δt = 500 µs 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

Measuring inputs

Input name	Proximity switch inputs
Description of the input	NPN / PNP (3- or 4-wire)
Number of inputs	2
Precision	5 % (in reference to the parameterized limit value)
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)
Input voltage range "0" signal	0 V DC ... 5 V DC (NPN)
Input voltage range "1" signal	16 V DC ... 28.8 V DC (NPN)
Input current range "0" signal	< 2 mA (NPN)
Max. permissible overall conductor resistance	150 Ω
Limit frequency	max. 5 kHz
Protective circuit	Suppressor diode

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Measuring inputs

Input name	Encoder inputs
Description of the input	TTL
Number of inputs	2
Precision	5 % (in reference to the parameterized limit value)
Current consumption	typ. 30 mA (5 V supply connection)
Max. permissible overall conductor resistance	150 Ω
Limit frequency	max. 500 kHz
Input impedance	120 Ω (per trace)
TTL signal form	2.5 V ... 5 V (Duty factor trace A, B: 50 % ±15 %, phase shift trace A, B: 90° ±40°, supply: 5 V ±0.1 V)

Digital outputs

Output name	Proximity switch supply
	24V/0V
Nominal output voltage range	16.7 V DC ... 26.3 V DC (U_S - 2,5 V)
Short-circuit protection	no

Times

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

General

Nominal operating mode	100% operating factor
Net weight	187.1 g
Mounting position	vertical or horizontal
Mounting type	DIN rail mounting
Assembly instructions	Observe derating
Degree of protection	IP20
Min. degree of protection of inst. location	IP54
Protection class	III (EN 50178)
Housing material	Polyamide PA non-reinforced
Housing color	yellow
Operating voltage display	1 x green LED
Status display	1 x LED (green), 2 x LED (orange)
	6 x LED (yellow)
Indication	2 x LED (red)

Connection data

Connection method	Push-in connection

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Connection data

pluggable	Yes
Conductor cross section solid	0.2 mm² ... 2.5 mm²
Conductor cross section flexible	0.2 mm² ... 2.5 mm²
Conductor cross-section AWG	24 ... 16
Stripping length	10 mm

Safety-related characteristic data

Designation	IEC 61508 - High demand
Safety Integrity Level (SIL)	3
Designation	EN ISO 13849-1
Performance level (PL)	e
Category	4
Designation	EN 62061
Safety Integrity Level (SIL)	3

Standards and Regulations

Designation	Air clearances and creepage distances between the power circuits
Standards/regulations	EN 50178
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
Degree of pollution	2
Overvoltage category	III
Shock	10g for Δt = 16 ms (continuous shock, 1000 shocks in each space direction)
Vibration (operation)	10 Hz ... 150 Hz, 2g
Conformance	CE-compliant

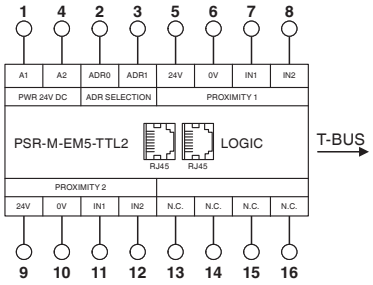
Environmental Product Compliance

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

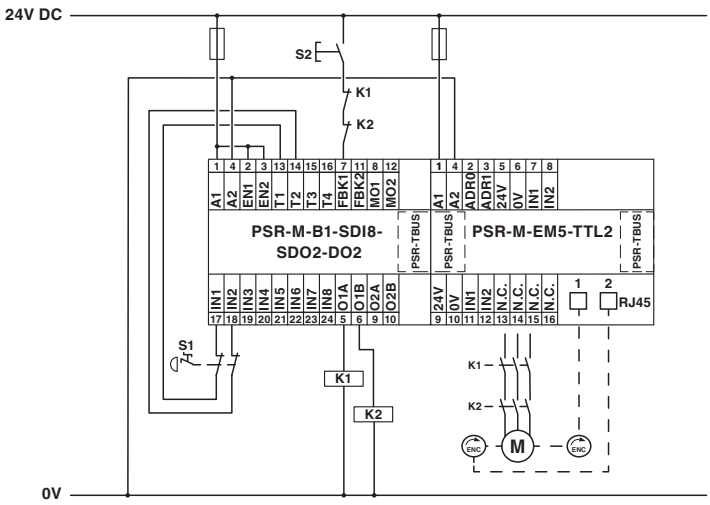
Drawings

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Block diagram



Application drawing



Classifications

eCl@ss

eCl@ss 10.0.1	27371819
eCl@ss 11.0	27371819
eCl@ss 9.0	27371819

ETIM

ETIM 7.0	EC001449

Approvals

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Approvals

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UL Listed / cUL Listed / EAC / cULus Listed

Ex Approvals

Approval details

UL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 238705
cUL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 238705
EAC			RU*-DE*B.00606/20
cULus Listed			

Accessories

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Coding element

Coding profile - CP-MSTB - 1734634



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

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Accessories

Coding section - CR-MSTB - 1734401



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

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