

Extension module - PSR-M-EM3-HTL1-SC - 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 SILCL 3, Cat. 4/PL e, SIL 3, 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

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



Key Commercial Data

| | |
|--------------------------------------|---|
| Packing unit | 1 pc |
| GTIN |  4 055626 974927 |
| GTIN | 4055626974927 |
| Weight per Piece (excluding packing) | 191.500 g |
| Custom tariff number | 85371098 |
| Country of origin | Italy |
| Sales Key | DNA363 |

Technical data

Dimensions

| | |
|--------|-----------|
| Width | 22.61 mm |
| Height | 112.58 mm |
| Depth | 113.6 mm |

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Technical data

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. 40 mA |
| Current consumption | max. 175 mA (with full load) |
| Power consumption at U_S | typ. 0.96 W |
| Inrush current | 3.5 A ($\Delta t = 1$ 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 |

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

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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 | 191.5 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 | 5 x LED (yellow), 1 x LED (green), 2 x LED (orange) |
| Indication | 2 x LED (red) |

Connection data

| | |
|----------------------------------|---|
| Connection method | Screw connection |
| pluggable | Yes |
| Conductor cross section solid | 0.2 mm ² ... 2.5 mm ² |
| Conductor cross section flexible | 0.2 mm ² ... 2.5 mm ² |
| Conductor cross-section AWG | 24 ... 12 |
| Stripping length | 7 mm |
| Screw thread | M3 |
| Torque | 0.5 Nm ... 0.6 Nm |

Safety-related characteristic data

| | |
|---|-------------------------|
| Designation | IEC 61508 - High demand |
| Safety Integrity Level (SIL) | 3 |
| Designation | EN ISO 13849 |
| Performance level (PL) | e |
| Category | 3 |
| Designation | EN 62061 |
| Safety Integrity Level Claim Limit (SIL CL) | 3 |

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Technical data

Standards and Regulations

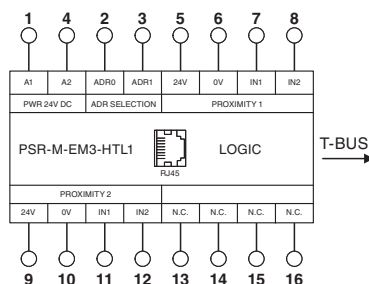
| | |
|--------------------------------|--|
| Designation | Air clearances and creepage distances between the power circuits |
| Standards/regulations | EN 50178 |
| Rated insulation voltage | 250 V AC |
| Rated surge voltage/insulation | Basic insulation 4 kV between 24 V power supply and I/Os to the housing |
| Degree of pollution | 2 |
| Overvoltage category | III |
| Shock | 10g for $\Delta t = 16$ 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 |

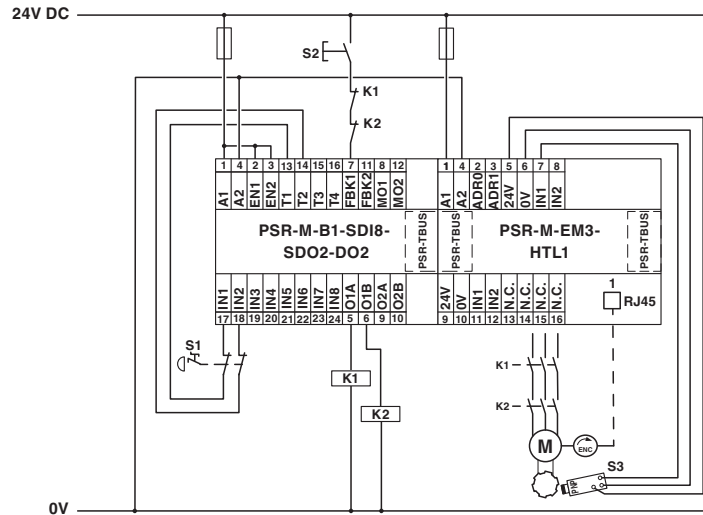
Drawings

Block diagram



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Application drawing



Classifications

eCl@ss

| | |
|---------------|----------|
| eCl@ss 10.0.1 | 27371819 |
| eCl@ss 11.0 | 27371819 |
| eCl@ss 8.0 | 27371819 |
| eCl@ss 9.0 | 27371819 |

ETIM

| | |
|----------|----------|
| ETIM 5.0 | EC001449 |
|----------|----------|

Approvals

Approvals

Approvals

UL Listed / cUL Listed / cULus Listed

Ex Approvals

Approval details

| | | | |
|-----------|--|---|---------------|
| UL Listed | | http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm | FILE E 238705 |
|-----------|--|---|---------------|

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| | | | |
|------------|--|---|---------------|
| cUL Listed | | http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm | FILE E 238705 |
|------------|--|---|---------------|

| | | | |
|--------------|--|--|--|
| cULus Listed | | | |
|--------------|--|--|--|

Accessories

Accessories

Coding element

Coding profile - CP-MSTB - 1734634



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

Coding section - CR-MSTB - 1734401



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