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

1105009

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

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CRA-READY



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
- Low 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 EN IEC 62061, SIL 3 in accordance with IEC 61508
- Suitable for elevator applications in accordance with EN 81-20

ELEKTROGERÄTE RÜCKNAHME

## 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

## Notes

| | |
|---|---|
| Note on application | Only for industrial use |
| Note on application | As things stand now, we are preparing the product so that, as of December 11, 2027, it will comply with the requirements of the EU Cyber Resilience Act (CRA) based on the information currently available regarding the CRA. |

## Product properties

| | |
|---|---|
| Product type | Safety device |
| Application | Over-speed safety relay |
| | Zero-speed safety relay |
| | Monitoring the direction of rotation |
| Control | 1 and 2 channel |
| Special properties | The product is being prepared for compliance with the Cyber Resilience Act (CRA) |

### Insulation characteristics

| | |
|---|---|
| Protection class | III |

### Insulation characteristics

| | |
|---|---|
| Overvoltage category | III |
| Degree of pollution | 2 |

### 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 |
| 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 |
| Duty factor | 55 % ... 95 % |
| Pulse width | min. 20 µs |
| 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 LED (green) |
| Error indication | 2 x LED (red) |

## Dimensions

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

## Material specifications

| | |
|---|---|
| Color (Housing) | yellow (RAL 1018) |
| Housing material | Polyamide PA non-reinforced |

## Characteristics

Safety data: EN ISO 13849

| | |
|---|---|
| Performance level (PL) | e |

Safety data: IEC 61508 - High demand

| | |
|---|---|
| Safety Integrity Level (SIL) | 3 |

Safety data: EN IEC 62061

| | |
|---|---|
| Safety Integrity Level (SIL) | 3 |

## 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

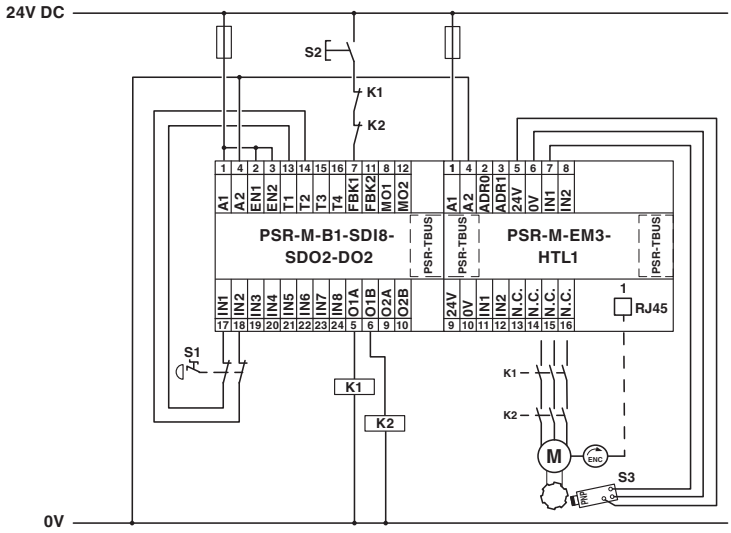
| | |
|---|---|
| Identification | CE-compliant |

## Mounting

| | |
|---|---|
| Mounting type | DIN rail mounting |
| Assembly note | Observe derating |
| Mounting position | vertical or horizontal |

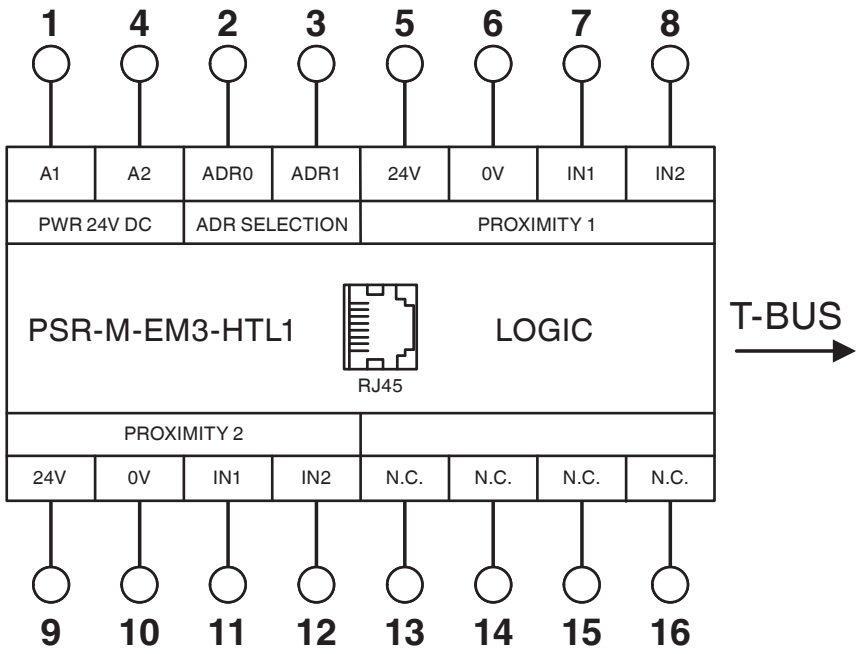
## Drawings

Application drawing




Example application

Block diagram




Block diagram

## Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/us/products/1105009

**cULus Listed**
Approval ID: E238705

**Functional Safety**
Approval ID: Z10029429 0013Rev.02

## Classifications

### ECLASS

| | |
|---|---|
| ECLASS-13.0 | 27371819 |
| ECLASS-15.0 | 27371819 |
| ECLASS-15.0 ASSET | 27250101 |

### ETIM

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|---|---|
| ETIM 10.0 | EC001449 |

### UNSPSC

| | |
|---|---|
| UNSPSC 21.0 | 39122200 |

## Environmental product compliance

EU RoHS

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|---|---|
| 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% |


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Phoenix Contact USA
586 Fulling Mill Road
Middletown, PA 17057, United States
(+717) 944-1300
info@phoenixcon.com