# Safety module - PSR-SCP- 24DC/TS/S - 2986229

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Freely configurable safety module with 20 safe inputs and 4 safe outputs; 4 alarm, 2 clock, and 2 ground switching outputs; diagnostics possible via bus gateways, up to SILCL 3, Cat.4/PL e, SIL 3, EN 50156, plug-in screw connection terminal blocks

## Your advantages

- Freely configurable safety module for monitoring emergency stops, safety doors, light grids, etc.
- With 20 safe inputs, 4 safe outputs, 4 alarm outputs, and 2 clock outputs on a design width of just 67.5 mm
- Multifunctional use for a wide range of safety functions
- Including IFS-CONFSTICK memory stick for easily storing and saving the configuration
- Easy graphical configuration with the SAFECONF software
- Easy graphical configuration instead of complex programming
- Quick startup thanks to comprehensive simulation and test functions
- Option for connecting fieldbus gateways for diagnostics and signaling functions
- Up to Cat. 4/PL e according to ISO 13849-1, SILCL 3 according to IEC 62061, SIL 3 according to IEC 61508
- EN 50156

## Key Commercial Data

| | |
|---|---|
| Packing unit | 1 pc |
| GTIN | 4 046356 477192 |
| GTIN | 4046356477192 |
| Weight per Piece (excluding packing) | 380.000 g |
| Custom tariff number | 85371098 |
| Country of origin | Germany |

## Technical data

### Note

# Safety module - PSR-SCP- 24DC/TS/S - 2986229

## Technical data

### Note

| | |
|---|---|
| Utilization restriction | EMC: class A product, see manufacturer's declaration in the download area |

### Dimensions

| | |
|---|---|
| Width | 67.5 mm |
| Height | 99 mm |
| Depth | 114.5 mm |

### Ambient conditions

| | |
|---|---|
| Ambient temperature (operation) | -20 °C ... 55 °C |
| Ambient temperature (storage/transport) | -20 °C ... 70 °C |
| Max. permissible relative humidity (operation) | 75 % (On average, 85 % occasionally) |
| Max. permissible humidity (storage/transport) | 75 % (On average, 85 % occasionally) |
| Air pressure (operation) | 70 kPa ... 108 kPa (up to 3000 m above sea level) |
| Air pressure (storage/transport) | 66 kPa ... 108 kPa (up to 3500 m above sea level) |
| Maximum altitude | max. 2000 m (See Appendix "Using PSR-TRISAFE modules at altitudes greater than 2000 m above sea level") |

### Power supply

| | |
|---|---|
| Rated control circuit supply voltage $U_S$ | 24 V DC (A1/A2) |
| | 18 V DC ... 30 V DC (Incl. all tolerances, incl. residual ripple) |
| Rated control supply current $I_S$ | typ. 110 mA |
| Limiting continuous current | max. 6 A (For looped-through current paths A1/A1 and A2/A2) |
| Filter time | typ. 20 ms (Load-dependent, in the event of voltage dips at $U_S$) |
| Status display | 3x LED green, 1x LED red |
| Protective circuit | Yes, within the scope of the operating voltage limits |

### Digital inputs

| | |
|---|---|
| Description of the input | Digital, type HTL |
| Number of inputs | 10 (Two-channel, up to SIL 3) |
| | 20 (Single-channel, up to SIL 2) |
| Input voltage range "0" signal | 0 V DC ... 5 V DC (for safe Off) |
| Input voltage range "1" signal | 11 V DC ... 30 V DC |
| Current consumption | typ. 4 mA |
| Cable length | max. 2000 m |
| Status display | 20 x LED green (1 LED per input) |

### Digital outputs

| | |
|---|---|
| Number of outputs | 4 (Safe semiconductor outputs, up to Cat. 4 in accordance with EN ISO 13849-1) |
| | 2 (Ground switching outputs) |

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## Technical data

### Digital outputs

| | |
|---|---|
| Nominal output voltage | 24 V DC (Supply via 24 V/0 V) |
| Nominal output voltage range | 18 V DC ... 30 V DC (Incl. all tolerances, incl. residual ripple) |
| Limiting continuous current | 2 A (Per channel, see Derating) |
| | 2 A (Total current of all outputs) |
| Output voltage | < 5 V (Low state) |
| Leakage current | max. 2 mA |
| Max. capacitive load | max. 1 µF (Electronic components) |
| Max. inductive load | See "Protective circuit" |
| Test pulses | < 1 ms |
| Short-circuit protection | Yes |
| Note on protection circuit | Yes, within the scope of the operating voltage limits |
| Status display | 4 x LED green (1 LED per output) |

### Clock outputs

| | |
|---|---|
| Output description | Digital |
| Number of outputs | 2 |
| Voltage | 24 V DC (Supply via 24 V/0 V) |
| Limiting continuous current | 100 mA |
| Test pulses | < 1 ms |
| Short-circuit protection | Yes |

### Alarm outputs

| | |
|---|---|
| Output description | Digital |
| Number of outputs | 4 |
| Voltage | 24 V DC (Supply via 24 V/0 V) |
| Limiting continuous current | 100 mA |
| Short-circuit protection | Yes |

### Times

| | |
|---|---|
| Response time | max. 30 ms (plus response time of PSR-TS-SDOR4) |
| Recovery time | < 10 s |

### General

| | |
|---|---|
| Nominal operating mode | 100% operating factor |
| Net weight | 154 g |
| Mounting position | On horizontal DIN rail |
| Mounting type | DIN rail mounting |
| Degree of protection | IP20 |
| Min. degree of protection of inst. location | IP54 |

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## Technical data

### General

| | |
|---|---|
| Housing material | Polyamide PA non-reinforced |
| Housing color | yellow |
| Number of possible extension modules | 1 (Max. continuous current via PSR-TBUS: 4 A) |

### Connection data

| | |
|---|---|
| Connection method | Screw connection |
| 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 ... 12 |
| Stripping length | 7 mm |
| Screw thread | M3 |
| Torque | 0.5 Nm ... 0.6 Nm |
| | 5 $lb_f$-in. ... 7 $lb_f$-in. |

### Safety-related characteristic data

| | |
|---|---|
| Stop category | 0 |
| Designation | IEC 61508 - High demand |
| Safety Integrity Level (SIL) | 2 (1-channel parameterization) |
| | 3 (2-channel parameterization) |
| Designation | IEC 61508 - Low demand |
| Safety Integrity Level (SIL) | 2 (1-channel parameterization) |
| | 3 (2-channel parameterization) |
| Designation | EN ISO 13849 |
| Performance level (PL) | d (1-channel parameterization) |
| | e (2-channel parameterization) |
| Category | 2 (1-channel parameterization) |
| | 4 (2-channel parameterization) |
| Designation | EN 62061 |
| Safety Integrity Level Claim Limit (SIL CL) | 2 (1-channel parameterization) |
| | 3 (2-channel parameterization) |
| Designation | EN 50156 |
| Safety Integrity Level (SIL) | max. 3 (Reference IEC 61508) |

### Standards and Regulations

| | |
|---|---|
| Designation | Air clearances and creepage distances between the power circuits |
| Standards/regulations | DIN EN 50178 |
| Pollution degree | 2 |
| Overvoltage category | III |

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## Technical data

### Standards and Regulations

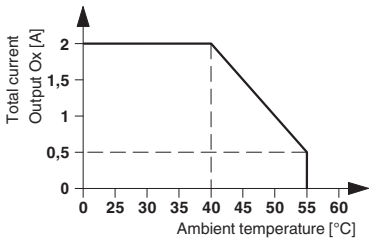
| | |
|---|---|
| Vibration (operation) | 2g |
| Shock (operation) | 10g (Δt = 11 ms, three shocks in each space direction) |
| | 10g (Δt = 16 ms, continuous shock, 1000 shocks in each space direction) |

### Environmental Product Compliance

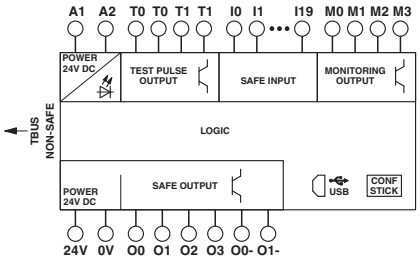
| | |
|---|---|
| REACh SVHC | Lead 7439-92-1 |
| China RoHS | Environmentally Friendly Use Period = 50 years |
| | For details about hazardous substances go to tab “Downloads”, Category “Manufacturer's declaration” |

## Drawings

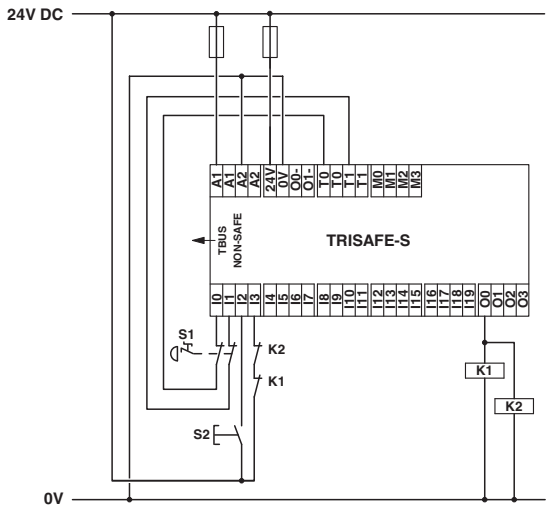
Diagram




Circuit diagram




Application drawing



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## Classifications

### eCl@ss

| | |
|---|---|
| eCl@ss 10.0.1 | 27371819 |
| eCl@ss 11.0 | 27371819 |
| eCl@ss 4.0 | 40020600 |
| eCl@ss 4.1 | 40020600 |
| eCl@ss 5.0 | 27371900 |
| eCl@ss 5.1 | 27371900 |
| eCl@ss 6.0 | 27371800 |
| eCl@ss 7.0 | 27371819 |
| eCl@ss 8.0 | 27371819 |
| eCl@ss 9.0 | 27371819 |

### ETIM

| | |
|---|---|
| ETIM 2.0 | EC001449 |
| ETIM 3.0 | EC001449 |
| ETIM 4.0 | EC001449 |
| ETIM 5.0 | EC001449 |
| ETIM 6.0 | EC001449 |
| ETIM 7.0 | EC001449 |

### UNSPSC

| | |
|---|---|
| UNSPSC 6.01 | 30211901 |
| UNSPSC 7.0901 | 39121501 |
| UNSPSC 11 | 39121501 |
| UNSPSC 12.01 | 39121501 |
| UNSPSC 13.2 | 39121501 |
| UNSPSC 18.0 | 39122205 |
| UNSPSC 19.0 | 39122205 |
| UNSPSC 20.0 | 39122205 |
| UNSPSC 21.0 | 39122205 |

## Approvals

### Approvals

Approvals

UL Listed / cUL Listed / Functional Safety / cULus Listed

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## Approvals

Ex Approvals

### Approval details

| | | | |
|---|---|---|---|
| UL Listed | | http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm | FILE E 140324 |
| cUL Listed | | http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm | FILE E 140324 |
| Functional Safety | | | 01/205/5151.03/17 |
| cULus Listed | | | |

## Accessories

### Accessories

### Device parameterization

Configuration package - SAFECONF - 2986119



Configuration software for SafetyBridge technology and PSR-TRISAFE modules, connecting cable for PSR-TRISAFE

### DIN rail connector

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## Accessories

DIN rail bus connectors - ME 22,5 TBUS 1,5/ 5-ST-3,81 GN - 2707437



DIN rail connector, color: green, nominal current: 8 A (parallel contacts), rated voltage (III/2): 125 V, Number of positions per row: 5, pitch: 3.81 mm, mounting: DIN rail mounting, Locking: without, type of packaging: packed in cardboard, Item with gold-plated contacts, bus connectors for connecting with electronics housings, 5 parallel contacts

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DIN rail bus connectors - PSR-TBUS - 2890425



DIN rail connector for safety switching devices, for supplying/controlling/monitoring (depending on the module)

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### Filter terminal block

Filter terminal block - PSR-FTB/20/86 - 2904477



Terminal block for filtering test pulses from safe semiconductor outputs with adjustable filter values (20 µF/86 µF), as well as for EMC filtering of 24 V signals up to an amperage of 2 A.

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Filter terminal block - PSR-FTB/1.5/11.5 - 2904476



Terminal block for filtering test pulses from safe semiconductor outputs with adjustable filter values (1.5 µF/11.5 µF), as well as for EMC filtering of 24 V signals up to an amperage of 2 A.

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### Gateways/Proxies

Data interface - EM-CAN-GATEWAY-IFS - 2901504



Gateway for the connection of up to 32 INTERFACE system devices to a higher-level controller via CANopen®. The INTERFACE system devices are connected to the Gateway via DIN rail connectors, the DIN rail connectors are provided.

# Safety module - PSR-SCP- 24DC/TS/S - 2986229

## Accessories

Data interface - EM-MODBUS-GATEWAY-IFS - 2901528



Gateway for the connection of up to 32 INTERFACE system devices via Modbus/TCP to a higher-level controller. The INTERFACE system devices are connected to the Gateway via DIN rail connectors, the DIN rail connectors are provided.

Data interface - EM-DNET-GATEWAY-IFS - 2901529



Gateway for the connection of up to 32 INTERFACE system devices to a higher-level controller via DeviceNet™. The INTERFACE system devices are connected to the Gateway via DIN rail connectors, the DIN rail connectors are provided.

Data interface - EM-ETH-GATEWAY-IFS - 2901988



Gateway for the connection of up to 32 INTERFACE system devices to a higher-level controller via EtherNet/IP™. The INTERFACE system devices are connected to the Gateway via DIN rail connectors, the DIN rail connectors are provided.

Data interface - EM-PNET-GATEWAY-IFS - 2904472



Gateway for the connection of up to 32 INTERFACE system devices via PROFINET to a higher-level controller. The INTERFACE system devices are connected to the Gateway via DIN rail connectors, the DIN rail connectors are provided.

Data interface - EM-PB-GATEWAY-IFS - 2297620



Gateway for the connection of up to 32 INTERFACE system devices to a higher-level controller via PROFIBUS DP. The INTERFACE system devices are connected to the Gateway via DIN rail connectors, the DIN rail connectors are provided.

# Safety module - PSR-SCP- 24DC/TS/S - 2986229

## Accessories

Data interface - EM-RS232-GATEWAY-IFS - 2901526



Gateway for the connection of up to 32 INTERFACE system devices to a higher-level controller via Modbus/RS-232. The INTERFACE system devices are connected to the Gateway via DIN rail connectors, the DIN rail connectors are provided.

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Memory block

Memory block - IFS-CONFSTICK - 2986122



Multi-functional memory block for the INTERFACE systemf for easy storage and backup of the configuration.

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Copy and delete station - COPYSTATION - IFS - 2901985



Copy and delete station for IFS-CONFSTICK memory modules for copying data from a master stick to up to four slave sticks and for deleting data on one ore more slave sticks, connection via USB/mini USB cable.

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Programming cable

USB cable - CABLE-USB/MINI-USB-3,0M - 2986135



USB connecting cable: USB plug type A to USB plug type Mini-B; length: 3 m

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Starter kit

# Safety module - PSR-SCP- 24DC/TS/S - 2986229

## Accessories

Starter kit - PSR-TRISAFE STARTER KIT - 2986300



STARTER kit for the PSR-TRISAFE safety module consisting of: PSR-TRISAFE demoboard (with inputs & outputs), SAFECONF CD, Quick Start Guide, USB cable (3m) , voltage supply with international connector adapters and package inserts.

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