

## Extension module - PSR-SCP- 24DC/TS/SDI8/SDIO4 - 2986038

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PSR-TRISAFE-M input/output extension module with 8 safe inputs and 4 safe, configurable channels (choice of safe inputs or outputs), 2 clock/alarm outputs; up to SILCL 3, Cat.4/PL e, SIL 3, EN 50156, plug-in screw connection terminal blocks

### Your advantages

- ✓ Flexible extension with safe inputs and outputs
- ✓ Narrow 22.5 mm housing
- ✓ 4 safe digital outputs or 4 additional digital inputs (that can be configured using SAFECONF)
- ✓ Including PSR-TBUS connector (DIN rail connector) for adapting to the PSR-TRISAFE-M master module
- ✓ Easy graphical configuration instead of complex programming
- ✓ Multifunctional use for a wide range of safety functions
- ✓ Quick startup thanks to user-friendly simulation and test options
- ✓ Up to Cat. 4/PL e according to ISO 13849-1, SILCL 3 according to IEC 62061, SIL 3 according to IEC 61508
- ✓ 8 safe digital inputs
- ✓ 2 alarm outputs or 2 clock outputs (that can be configured using SAFECONF)
- ✓ EN 50156



### Key Commercial Data

|                                      |   |
|--------------------------------------|---|
| Packing unit                         | 1 pc  |
| GTIN                                 | <br>4 046356 451871 |
| GTIN                                 | 4046356451871   |
| Weight per Piece (excluding packing) | 130.000 g   |
| Custom tariff number                 | 85364900  |
| Country of origin                    | Germany   |

### Technical data

#### Note

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

# Extension module - PSR-SCP- 24DC/TS/SDI8/SDIO4 - 2986038

## Technical data

### Dimensions

|        |          |
|--------|----------|
| Width  | 22.5 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 (Electrical supply via PSR-TBUS)  |
|  | 18 V DC ... 30 V DC (Incl. all tolerances, incl. residual ripple)                                   |
| Rated control supply current $I_s$         | Electrical supply via PSR-TBUS  |
|  | typ. 51.6 mA (No inputs or outputs set, A1/A2 open)<br>typ. 66 mA (All inputs and safe outputs set) |
| Filter time                                | typ. 20 ms (Load-dependent, in the event of voltage dips at $U_s$ )                                 |
| Status display                             | 1 x green LED, 1 x red LED  |
| Protective circuit                         | Yes, within the scope of the operating voltage limits   |

### Digital inputs

|                                |  |
|--------------------------------|--|
| Description of the input       | Digital input  |
| Number of inputs               | 12 (Of which 4 can be configured as input or output) |
| 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                 | 12 LEDs (green)                                      |

### Digital outputs

|                              |   |
|------------------------------|---|
| Number of outputs            | 4 (If the configurable inputs/outputs are used as outputs)        |
| Nominal output voltage       | 24 V DC (Supply via A1/A2)  |
| Nominal output voltage range | 18 V DC ... 30 V DC (Incl. all tolerances, incl. residual ripple) |
| Max. capacitive load         | max. 1 $\mu$ F (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               | 4x LED green  |

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### Technical data

#### Clock/signal outputs

|                             |                            |
|-----------------------------|----------------------------|
| Output description          | Digital                    |
| Number of outputs           | 2                          |
| Voltage                     | 24 V DC (Supply via A1/A2) |
| Limiting continuous current | 50 mA                      |
| Test pulses                 | ~ 1 ms                     |
| 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                                  | 130 g                       |
| Mounting position                           | On horizontal DIN rail      |
| Mounting type                               | DIN rail mounting           |
| Degree of protection                        | IP20                        |
|   | IP54                        |
| Min. degree of protection of inst. location | IP54                        |
| Housing material                            | Polyamide PA non-reinforced |
| Housing color                               | yellow                      |

#### Connection data

|                                       |   |
|---------------------------------------|---|
| Connection method                     | Screw connection                                  |
| pluggable                             | Yes   |
| Conductor cross section solid min.    | 0.2 mm <sup>2</sup>                               |
| Conductor cross section solid max.    | 2.5 mm <sup>2</sup>                               |
| Conductor cross section flexible min. | 0.2 mm <sup>2</sup>                               |
| Conductor cross section flexible max. | 2.5 mm <sup>2</sup>                               |
| Conductor cross section AWG min.      | 24  |
| Conductor cross section AWG max.      | 12  |
| Stripping length                      | 7 mm  |
| Screw thread                          | M3  |
| Torque                                | 0.5 Nm ... 0.6 Nm                                 |
|                                       | 5 lb <sub>f</sub> -in. ... 7 lb <sub>f</sub> -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) |

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### Technical data

#### Safety-related characteristic data

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

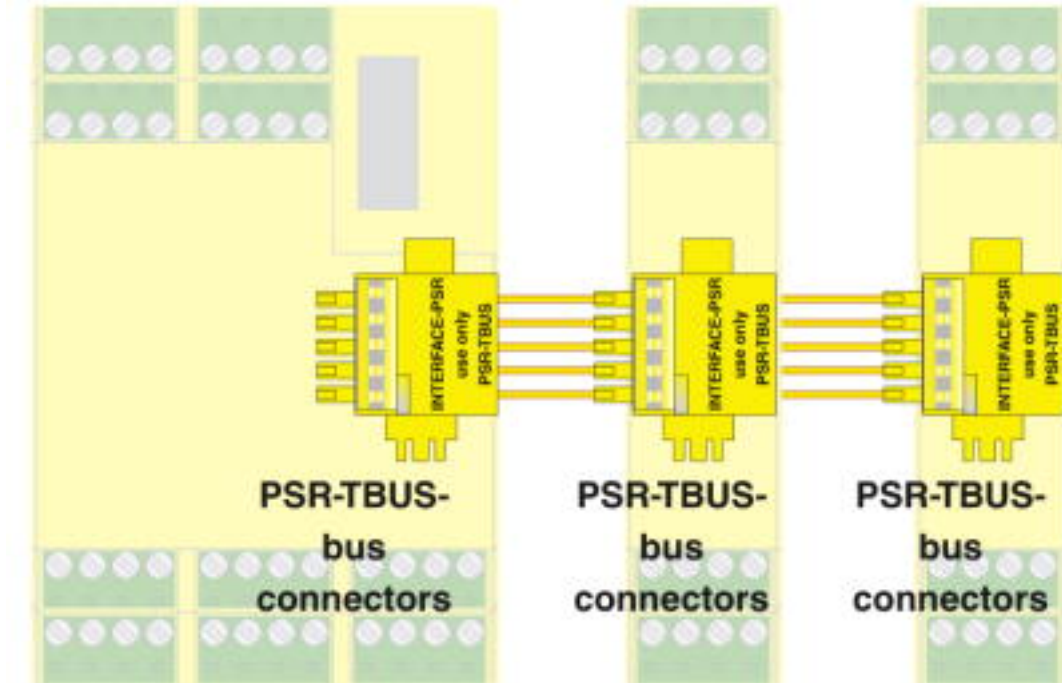
#### Environmental Product Compliance

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

### Drawings

## Extension module - PSR-SCP- 24DC/TS/SDI8/SDIO4 - 2986038

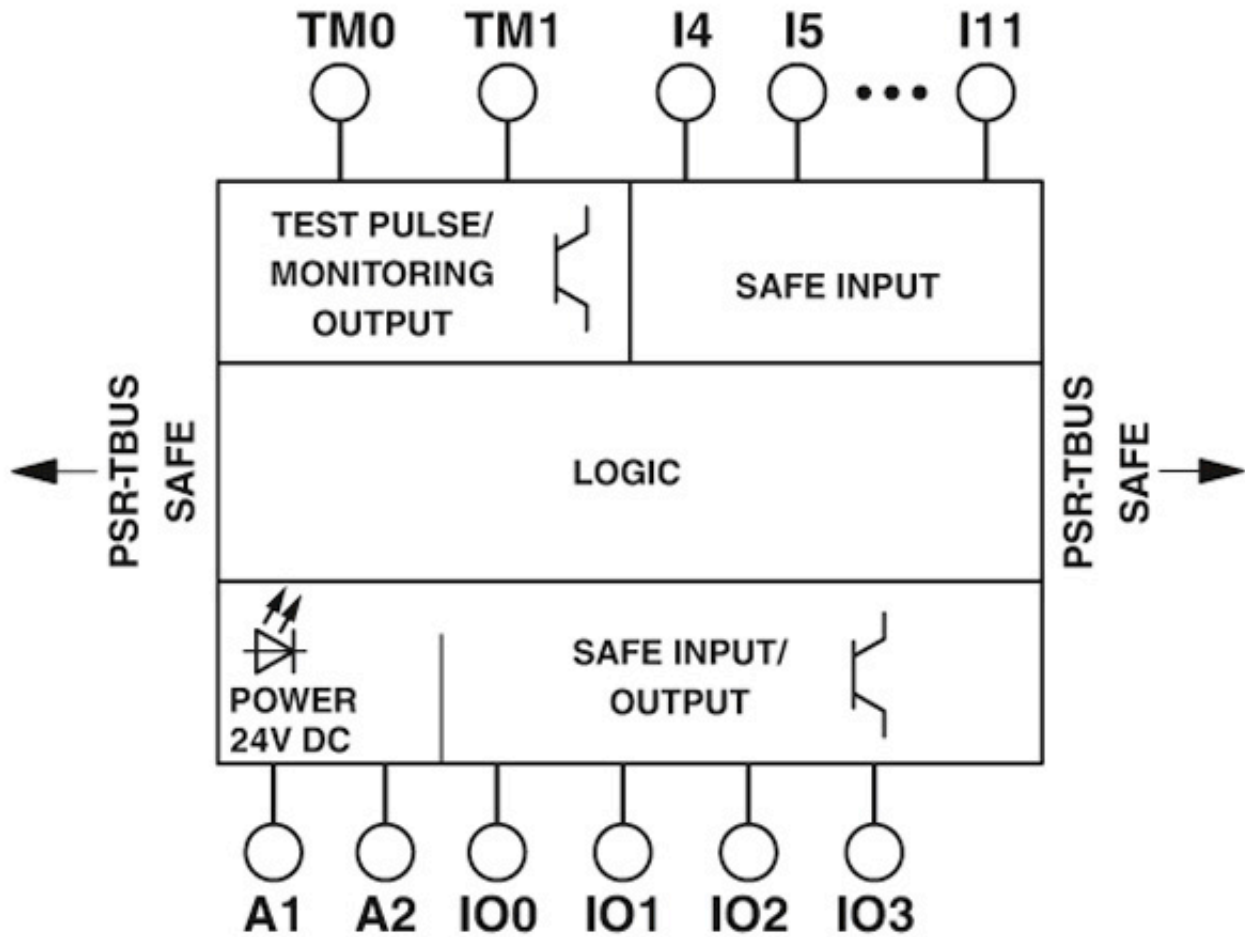
Connection diagram



PSR-TBUS DIN rail connectors are used for cross-wiring between the modules.

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Circuit diagram



### Classifications

eCl@ss

|            |          |
|------------|----------|
| 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 |

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## Classifications

### eCl@ss

|            |          |
|------------|----------|
| eCl@ss 9.0 | 27371819 |
|------------|----------|

### ETIM

|          |          |
|----------|----------|
| ETIM 2.0 | EC001449 |
| ETIM 3.0 | EC001449 |
| ETIM 4.0 | EC001417 |
| 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

#### Ex Approvals

### Approval details

|           |  |   |               |
|-----------|--|---|---------------|
| UL Listed |  | <a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a> | FILE E 140324 |
|-----------|--|---|---------------|

|            |  |   |               |
|------------|--|---|---------------|
| cUL Listed |  | <a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a> | FILE E 140324 |
|------------|--|---|---------------|

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### Approvals

|                   |  |                   |
|-------------------|--|-------------------|
| 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

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#### DIN rail connector

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



DIN rail connector, number of positions: 5, pitch: 3.81 mm, pin layout: Linear pinning, Articles with gold-plated contacts, bus connectors for connecting with electronic housings

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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



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### Accessories

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



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

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  $\mu$ F/11.5  $\mu$ F), as well as for EMC filtering of 24 V signals up to an amperage of 2 A.

### 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<sup>®</sup>. The INTERFACE system devices are connected to the Gateway via DIN rail connectors, the DIN rail connectors are provided.

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<sup>™</sup>. The INTERFACE system devices are connected to the Gateway via DIN rail connectors, the DIN rail connectors are provided.

## Extension module - PSR-SCP- 24DC/TS/SDI8/SDIO4 - 2986038

### Accessories

#### 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.

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#### 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.

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#### 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.

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#### 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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#### Data interface - EM-RS485-GATEWAY-IFS - 2901527



Gateway for the connection of up to 32 INTERFACE system devices to a higher-level controller via Modbus/RS-485. 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

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### Accessories

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

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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