

2986041

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PSR-TRISAFE-M I/O extension module with 8 safe inputs and 4 safe parameterizable channels (choice of safe inputs or outputs), 2 clock/signal outputs, up to SIL 3, Cat. 4/PL e, SIL 3, EN 50156, Push-in terminal block

Your advantages

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

Commercial data

|                                      |                     |
|--------------------------------------|---------------------|
| Item number                          | 2986041             |
| Packing unit                         | 1 pc                |
| Minimum order quantity               | 1 pc                |
| Product key                          | DNA341              |
| Catalog page                         | Page 262 (C-6-2019) |
| GTIN                                 | 4046356451369       |
| Weight per piece (including packing) | 180.4 g             |
| Weight per piece (excluding packing) | 130 g               |
| Customs tariff number                | 85364900            |
| Country of origin                    | DE                  |

## Technical data

### Product properties

|              |                                |
|--------------|--------------------------------|
| Product type | Safety device                  |
| Application  | PSR-TRISAFE-M extension module |

Insulation characteristics: Air clearances and creepage distances between the power circuits

|                      |     |
|----------------------|-----|
| Overvoltage category | III |
| Pollution degree     | 2   |

### Times

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

### Electrical properties

|                                                 |                                                                                                      |
|-------------------------------------------------|------------------------------------------------------------------------------------------------------|
| Maximum power dissipation for nominal condition | 2323 mW (at $f = 8$ , $g = 2$ , $h = 4$ , $I_{\text{clock}} = 50$ mA, $I_{\text{OUT/GND}} = 500$ mA) |
| Nominal operating mode                          | 100% operating factor                                                                                |
| Interfaces                                      | DIN rail TBUS for connection to the master module, supplied as standard                              |

### Supply

|                                            |                                                                     |
|--------------------------------------------|---------------------------------------------------------------------|
| Rated control circuit supply voltage $U_S$ | 18 V DC ... 30 V DC (Incl. all tolerances, incl. residual ripple)   |
| Rated control circuit supply voltage $U_S$ | 24 V DC (Electrical supply via PSR-TBUS)                            |
| Rated control supply current $I_S$         | Electrical supply via PSR-TBUS                                      |
|                                            | typ. 51.6 mA (No inputs or outputs set, A1/A2 open)                 |
|                                            | typ. 66 mA (All inputs and safe outputs set)                        |
| Filter time                                | typ. 20 ms (Load-dependent, in the event of voltage dips at $U_S$ ) |
| Protective circuit                         | Yes, within the scope of the operating voltage limits               |
| Status display                             | 1 x green LED, 1 x red LED                                          |

### Input data

#### Digital

|                                |                                                      |
|--------------------------------|------------------------------------------------------|
| 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                                  |
| Cable length                   | max. 2000 m                                          |
| Status display                 | 12 LEDs (green)                                      |
| Current consumption            | typ. 4 mA                                            |

### Output data

#### Digital

|                   |                                                            |
|-------------------|------------------------------------------------------------|
| Number of outputs | 4 (If the configurable inputs/outputs are used as outputs) |
|-------------------|------------------------------------------------------------|

# PSR-SPP- 24DC/TS/SDI8/SDIO4 - Extension module



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|                              |                                                                   |
|------------------------------|-------------------------------------------------------------------|
| Note on protection circuit   | Yes, within the scope of the operating voltage limits             |
| Short-circuit protection     | Yes                                                               |
| Max. capacitive load         | max. 1 $\mu$ F (Electronic components)                            |
| Max. inductive load          | See "Protective circuit"                                          |
| 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) |
| Status display               | 4x LED green                                                      |
| Test pulses                  | < 1 ms                                                            |

## Clock/signal

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

## Connection data

### Connection technology

|           |     |
|-----------|-----|
| pluggable | yes |
|-----------|-----|

### Conductor connection

|                                                                       |                                                                              |
|-----------------------------------------------------------------------|------------------------------------------------------------------------------|
| Connection method                                                     | Push-in connection                                                           |
| Conductor cross section rigid                                         | 0.2 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>                                  |
| Conductor cross section, flexible, with ferrule, with plastic sleeve  | 0.25 mm <sup>2</sup> ... 1.5 mm <sup>2</sup> (only together with CRIMPFOX 6) |
| Conductor cross section flexible, with ferrule without plastic sleeve | 0.25 mm <sup>2</sup> ... 1.5 mm <sup>2</sup> (only together with CRIMPFOX 6) |
| Conductor cross-section AWG                                           | 24 ... 16                                                                    |
| Stripping length                                                      | 8 mm                                                                         |

## Dimensions

|        |          |
|--------|----------|
| Width  | 22.5 mm  |
| Height | 112 mm   |
| Depth  | 114.5 mm |

## Material specifications

|                  |                             |
|------------------|-----------------------------|
| Color            | yellow                      |
| Housing material | Polyamide PA non-reinforced |

## Characteristics

### Safety data

|               |   |
|---------------|---|
| Stop category | 0 |
|---------------|---|

### Safety data: EN ISO 13849

|          |                                |
|----------|--------------------------------|
| Category | 2 (1-channel parameterization) |
|----------|--------------------------------|

|                                      |                                |
|--------------------------------------|--------------------------------|
| Performance level (PL)               | 4 (2-channel parameterization) |
|                                      | d (1-channel parameterization) |
|                                      | e (2-channel parameterization) |
| Safety data: EN 50156                |                                |
| Safety Integrity Level (SIL)         | max. 3 (Reference IEC 61508)   |
| Safety data: IEC 61508 - High demand |                                |
| Safety Integrity Level (SIL)         | 2 (1-channel parameterization) |
|                                      | 3 (2-channel parameterization) |
| Safety data: IEC 61508 - Low demand  |                                |
| Safety Integrity Level (SIL)         | 2 (1-channel parameterization) |
|                                      | 3 (2-channel parameterization) |
| Safety data: EN IEC 62061            |                                |
| Safety Integrity Level (SIL)         | 2 (1-channel parameterization) |
|                                      | 3 (2-channel parameterization) |

## Environmental and real-life conditions

### Ambient conditions

|                                                |                                                                                                         |
|------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| Degree of protection                           | IP20                                                                                                    |
| Min. degree of protection of inst. location    | IP54                                                                                                    |
| Ambient temperature (operation)                | -20 °C ... 55 °C                                                                                        |
| Ambient temperature (storage/transport)        | -20 °C ... 70 °C                                                                                        |
| Maximum altitude                               | max. 2000 m (See Appendix "Using PSR-TRISAFE modules at altitudes greater than 2000 m above sea level") |
| Max. permissible humidity (storage/transport)  | 75 % (On average, 85 % occasionally)                                                                    |
| Max. permissible relative humidity (operation) | 75 % (On average, 85 % occasionally)                                                                    |
| 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)                        |
| Vibration (operation)                          | 2g                                                                                                      |
| 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)                                                       |

## Standards and regulations

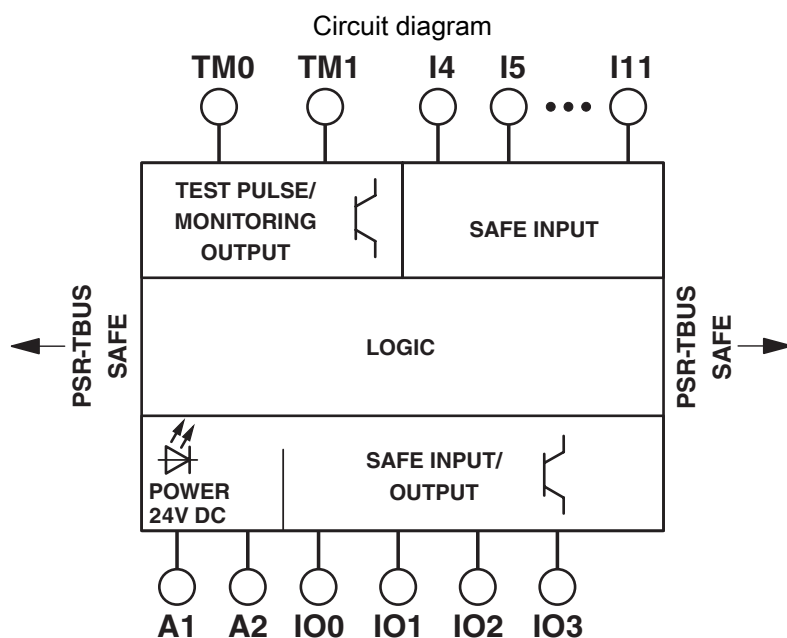
### Air clearances and creepage distances between the power circuits

|                       |              |
|-----------------------|--------------|
| Standards/regulations | DIN EN 50178 |
|-----------------------|--------------|

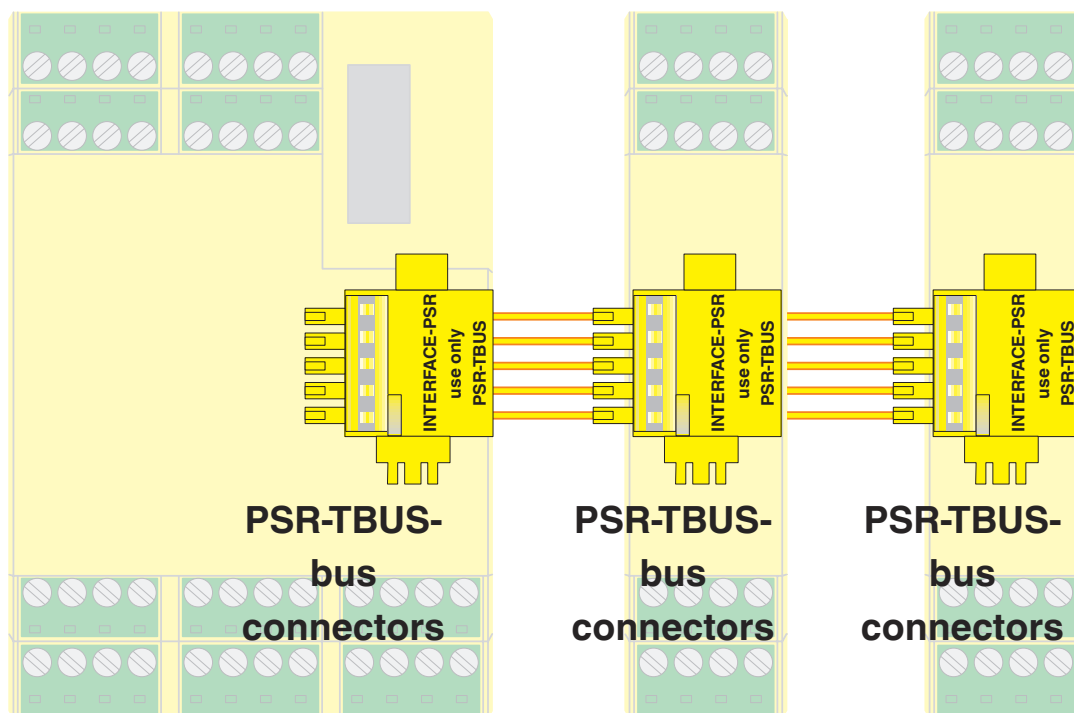
## Mounting

|                   |                        |
|-------------------|------------------------|
| Mounting type     | DIN rail mounting      |
| Mounting position | On horizontal DIN rail |
| Connection method | Push-in connection     |

## Drawings



Connection diagram



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

# PSR-SPP- 24DC/TS/SDI8/SDIO4 - Extension module



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## Approvals

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**UL Listed**

Approval ID: FILE E 140324



**cUL Listed**

Approval ID: FILE E 140324

**cULus Listed**

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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-11.0 | 27371819 |
| ECLASS-13.0 | 27371819 |
| ECLASS-12.0 | 27371819 |

### ETIM

|          |          |
|----------|----------|
| ETIM 9.0 | EC001449 |
|----------|----------|

### UNSPSC

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

Environmental product compliance

|            |                                                                                                              |
|------------|--------------------------------------------------------------------------------------------------------------|
| REACH SVHC | Lead 7439-92-1                                                                                               |
| China RoHS | Environmentally Friendly Use Period = 50 years                                                               |
|            | For information on hazardous substances, refer to the manufacturer's declaration available under "Downloads" |

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