

# PSR-SCP- 24DC/TS/M - Safety module



2986012

<https://www.phoenixcontact.com/us/products/2986012>

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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; can be extended with additional I/O modules, up to SIL 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.
- 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
- Flexible extension with safe inputs and outputs
- Quick startup thanks to comprehensive simulation and test functions
- Easy graphical configuration instead of complex programming
- Safe and standard extension via INTERFACE DIN rail TBUS
- Option for connecting fieldbus gateways for diagnostics and signaling functions
- Easy graphical configuration with the SAFECONF software
- Including IFS-CONFSTICK memory stick for easily storing and saving the configuration
- Multifunctional use for a wide range of safety functions
- With 20 safe inputs, 4 safe outputs, 4 alarm outputs, and 2 clock outputs on a design width of just 67.5 mm

## Commercial data

Item number	2986012
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DN02
Product key	DNA312
Catalog page	Page 261 (C-6-2019)
GTIN	4046356346979
Weight per piece (including packing)	415.75 g
Weight per piece (excluding packing)	154 g
Customs tariff number	85371098
Country of origin	DE

## Technical data

### Product properties

Product type	Safety device
Application	Emergency stop
	Light grid
	Safety door
	Two-hand control
Number of possible extension modules	1 (max. continuous current via PSR-TBUS: 4 A)
Number of possible safe extension modules	10 (max. continuous current via PSR-TBUS: 4 A)

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	6372 mW (at a = 20, b = 2, c = 4, e = 2, $I_{\text{clock}} = 100 \text{ mA}$ , $I_{\text{signal}} = 100 \text{ mA}$ , $I_{\text{Out/GND}} = 2 \text{ A}$ , $I_{\text{Out/Out}} = 2 \text{ A}$ )
Nominal operating mode	100% operating factor
Interfaces	USB
	DIN rail TBUS for extension modules and bus couplers

### 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 (A1/A2)
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 $U_S$ )
Protective circuit	Yes, within the scope of the operating voltage limits
Status display	3x LED green, 1x LED red

### Input data

#### Digital

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
Cable length	max. 2000 m
Status display	20 x LED green (1 LED per input)
Current consumption	typ. 4 mA

## Output data

### Digital

Number of outputs	4 (Safe semiconductor outputs, up to Cat. 4 in accordance with EN ISO 13849-1)
	2 (Ground switching outputs)
Note on protection circuit	Yes, within the scope of the operating voltage limits
Short-circuit protection	Yes
Output voltage	< 5 V (Low state)
Leakage current	max. 2 mA
Max. capacitive load	max. 1 $\mu$ F (Electronic components)
Max. inductive load	See "Protective circuit"
Limiting continuous current	2 A (Per channel, see Derating)
	2 A (Total current of all 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)
Status display	4 x LED green (1 LED per output)
Test pulses	< 1 ms

### Signal

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

### Clock

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

## Connection data

### Connection technology

pluggable	yes
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### Conductor connection

Connection method	Screw connection
Conductor cross section rigid	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
Conductor cross section flexible	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
Conductor cross-section AWG	24 ... 12
Stripping length	7 mm
Screw thread	M3

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Tightening torque	0.5 Nm ... 0.6 Nm
	5 lb <sub>F</sub> -in. ... 7 lb <sub>F</sub> -in.

## Dimensions

Width	67.5 mm
Height	99 mm
Depth	114.5 mm

## Material specifications

Color	yellow
Housing material	Polyamide PA non-reinforced

## Characteristics

### Safety data

Stop category	0
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### Safety data: EN ISO 13849

Category	2 (1-channel parameterization)
	4 (2-channel parameterization)
Performance level (PL)	d (1-channel parameterization)
	e (2-channel parameterization)

### Safety data: EN 50156

Safety Integrity Level (SIL)	max. 3 (Reference IEC 61508)
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### 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)

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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

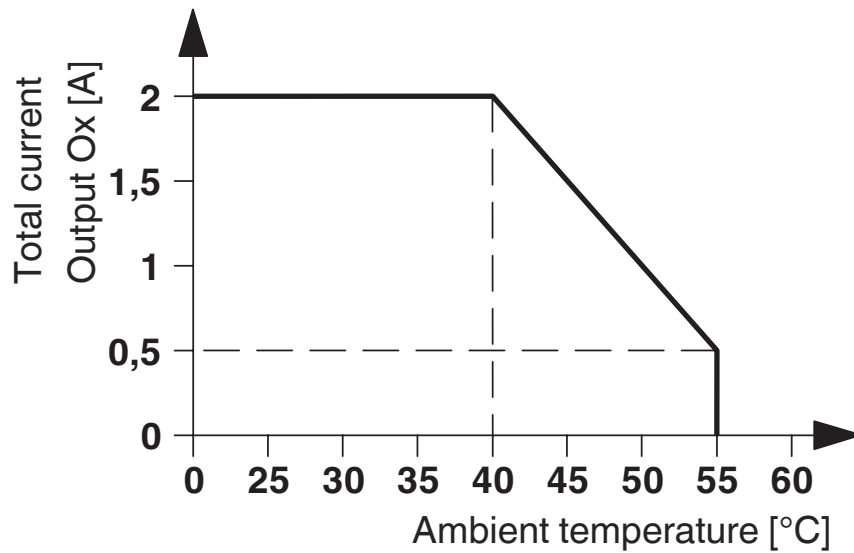
Standards/regulations	DIN EN 50178
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## Mounting

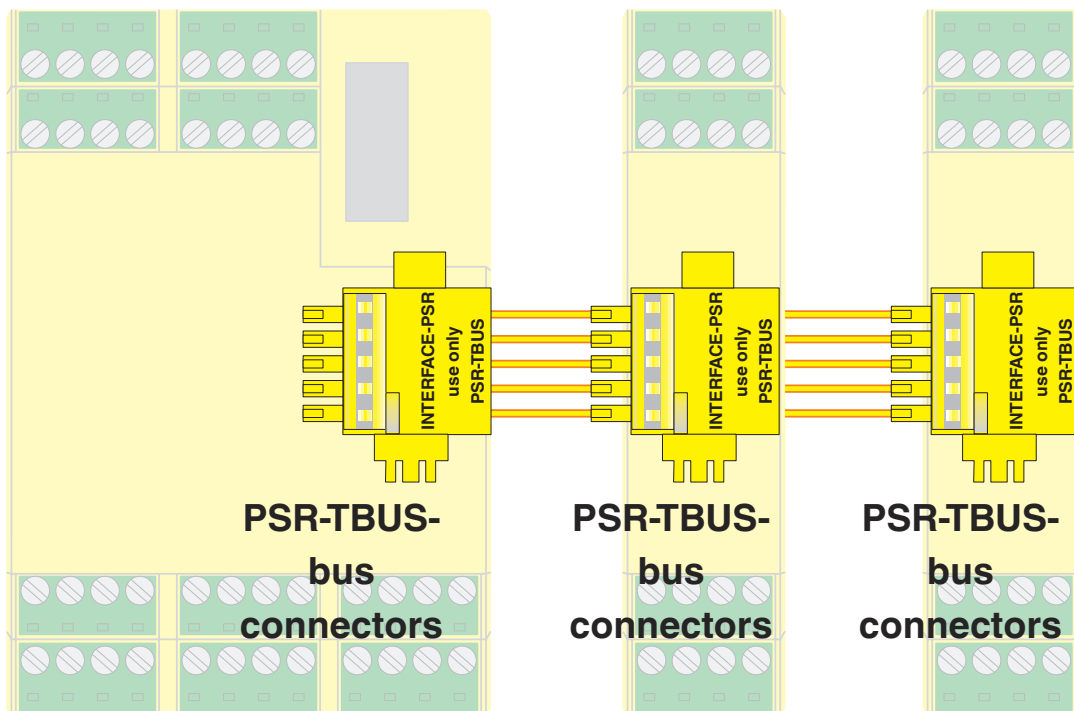
Mounting type	DIN rail mounting
Mounting position	On horizontal DIN rail

## Drawings

Diagram



Connection diagram



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

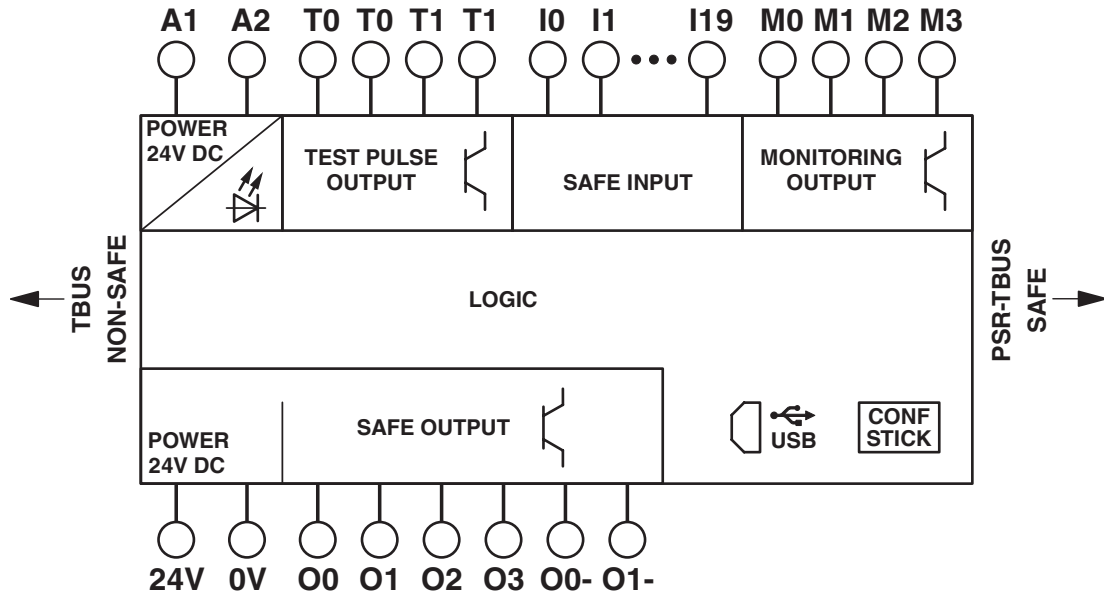
# PSR-SCP- 24DC/TS/M - Safety module



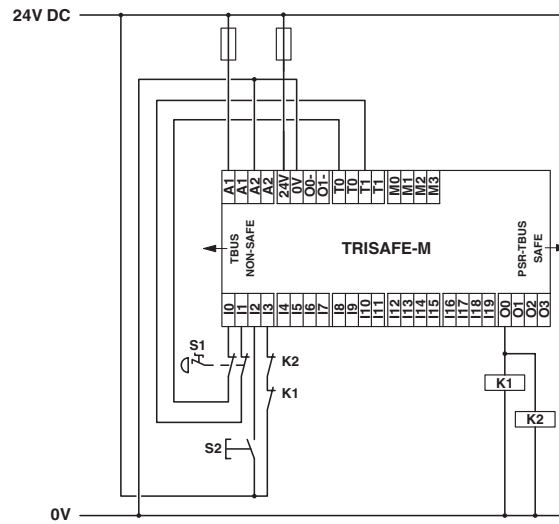
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Circuit diagram



Application drawing



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## Approvals

🔗 To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2986012>



**UL Listed**

Approval ID: FILE E 140324



**cUL Listed**

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**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
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### UNSPSC

UNSPSC 21.0	39122200
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## 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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## Accessories

### PSR-TRISAFE STARTER KIT - Starter kit

2986300

<https://www.phoenixcontact.com/us/products/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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### IFS-CONFSTICK - Memory block

2986122

<https://www.phoenixcontact.com/us/products/2986122>



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

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

2986135

<https://www.phoenixcontact.com/us/products/2986135>

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



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## SAFECONF - Configuration package

2986119

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Configuration software for SafetyBridge Technology and PSR-TRISAFE modules  
(available to download free of charge)



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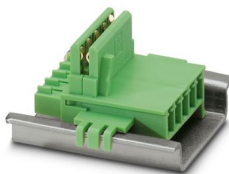
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## ME 22,5 TBUS 1,5/ 5-ST-3,81 GN - DIN rail bus connectors

2707437

<https://www.phoenixcontact.com/us/products/2707437>



DIN rail connector, color: green, nominal current: 8 A (parallel contacts), rated voltage (III/2): 125 V, number of positions: 5, pitch: 3.81 mm, mounting: DIN rail mounting, locking: without, mounting: 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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## PSR-TBUS - DIN rail bus connectors

2890425

<https://www.phoenixcontact.com/us/products/2890425>



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

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

2904477

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

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

2904476

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

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## COPYSTATION - IFS - Copy and delete station

2901985

<https://www.phoenixcontact.com/us/products/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 or more slave sticks, connection via USB/mini USB cable.

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## EM-CAN-GATEWAY-IFS - Data interface

2901504

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

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## EM-MODBUS-GATEWAY-IFS - Data interface

2901528

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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.

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## EM-ETH-GATEWAY-IFS - Data interface

2901988

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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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## EM-PNET-GATEWAY-IFS - Data interface

2904472

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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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## EM-PB-GATEWAY-IFS - Data interface

2297620

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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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## PSR-TBUS - 1PCS - DIN rail bus connectors

1326060

<https://www.phoenixcontact.com/us/products/1326060>

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



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