

PSR-SPP- 24DC/TS/M - Safety module



2986025

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Freely configurable safety module, with 20 safe inputs and 4 safe outputs, 4 signal, 2 clock, and 2 ground switching outputs; can be extended using additional I/O modules, up to SILCL 3, Cat. 4/PL e, SIL 3, EN 50156, pluggable Push-in terminal block

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	2986025
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DN02
Product key	DNA312
Catalog page	Page 261 (C-6-2019)
GTIN	4046356345897
Weight per piece (including packing)	406.5 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 µF (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	Push-in connection
Conductor cross section rigid	0.2 mm ² ... 1.5 mm ²
Conductor cross section, flexible, with ferrule, with plastic sleeve	0.25 mm ² ... 1.5 mm ² (only together with CRIMPFOX 6)
Conductor cross section flexible, with ferrule without plastic sleeve	0.25 mm ² ... 1.5 mm ² (only together with CRIMPFOX 6)
Conductor cross-section AWG	24 ... 16

Stripping length	8 mm
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Dimensions

Width	67.5 mm
Height	112 mm
Depth	114.5 mm

Material specifications

Color	yellow
Housing material	Polyamide PA non-reinforced

Characteristics

Safety data

Stop category	0
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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)
Max. permissible relative humidity (operation)	75 % (On average, 85 % occasionally)

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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

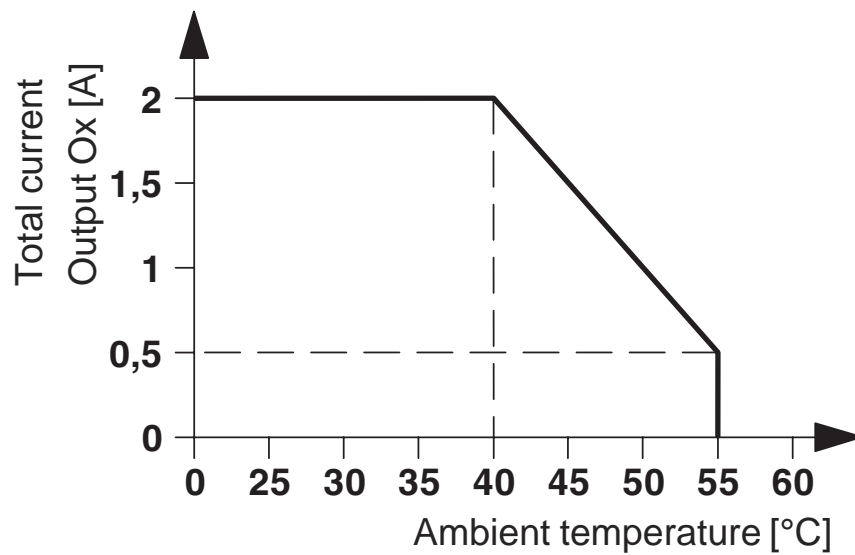
Standards/regulations	DIN EN 50178
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Mounting

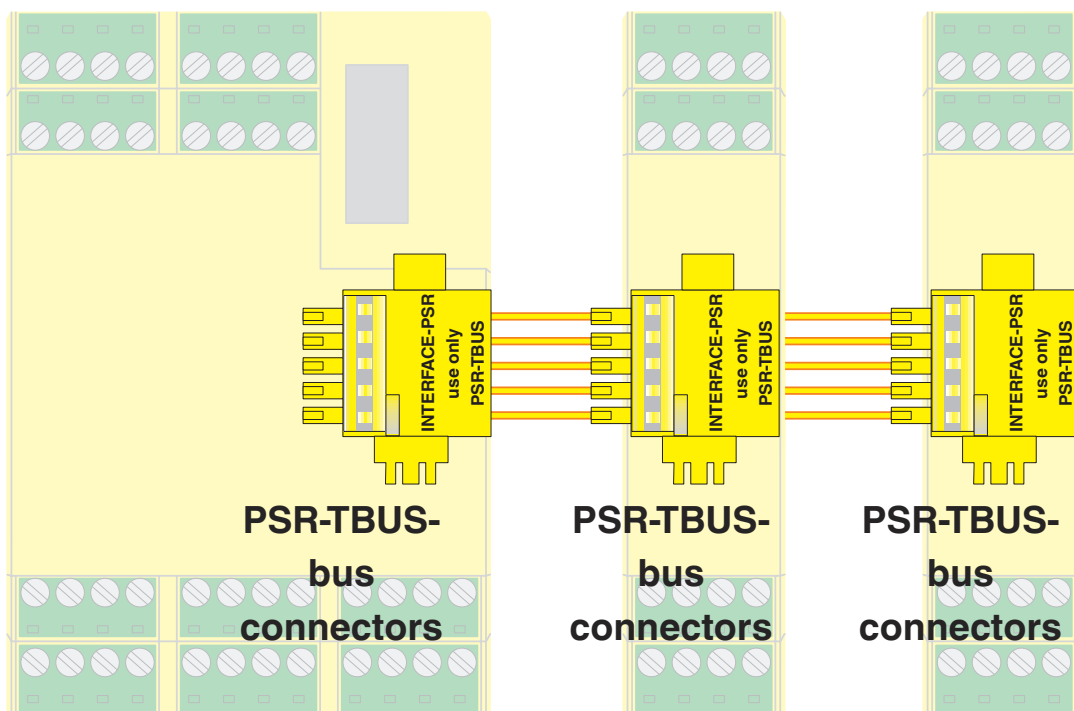
Mounting type	DIN rail mounting
Mounting position	On horizontal DIN rail

Drawings

Diagram



Connection diagram



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

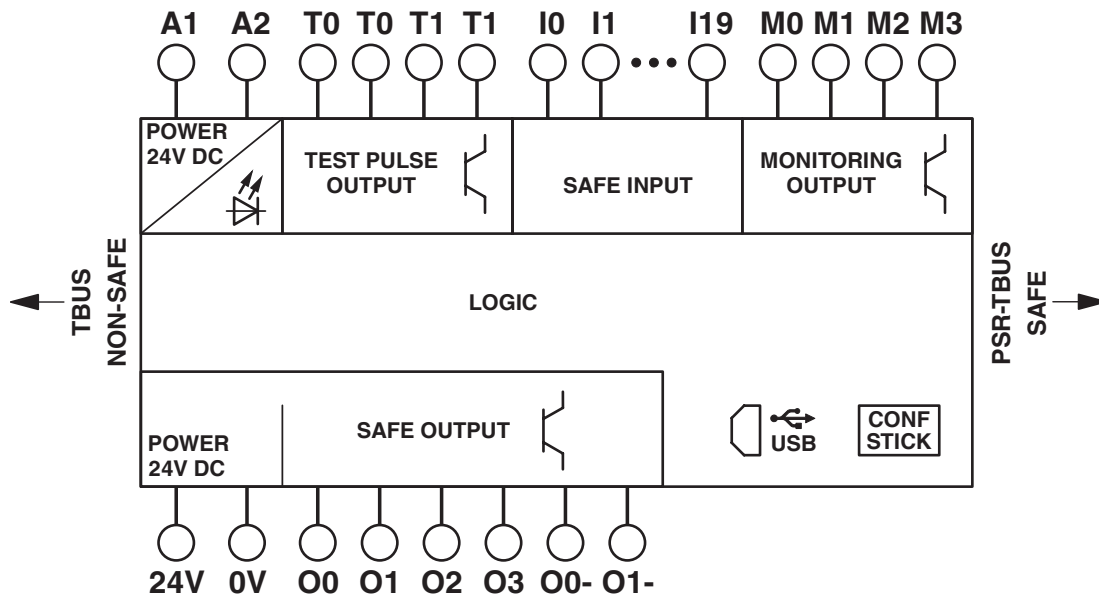
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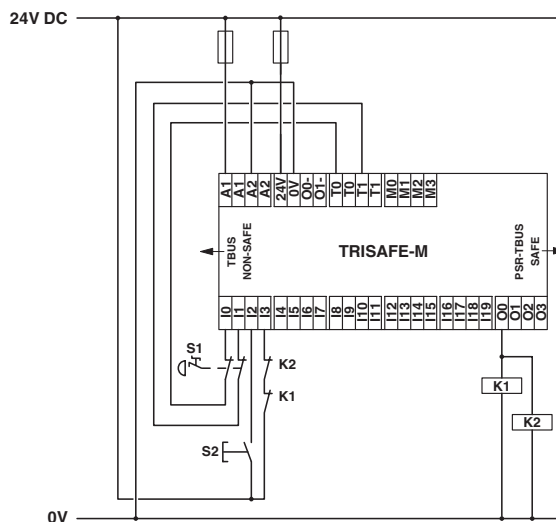
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Circuit diagram



Application drawing



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Approvals

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UL Listed

Approval ID: FILE E 140324



cUL 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

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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.

IFS-CONFSTICK - Memory block

2986122

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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

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



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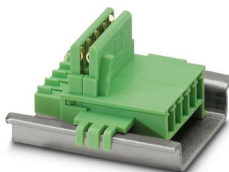
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ME 22,5 TBUS 1,5/ 5-ST-3,81 GN - DIN rail bus connectors

2707437

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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

PSR-TBUS - DIN rail bus connectors

2890425

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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

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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.

PSR-FTB/1.5/11.5 - Filter terminal block

2904476

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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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COPYSTATION - IFS - Copy and delete station

2901985

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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.

EM-CAN-GATEWAY-IFS - Data interface

2901504

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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.

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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.

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.

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

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



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