

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



2986025

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

Notes

Note on application

Note on application	Only for industrial use
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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)

Data management status

Article revision	13
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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	3 x LED (green), 1 x LED (red)

Input data

Digital

Description of the input	Digital, type HTL
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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

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
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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
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Mounting

Mounting type	DIN rail mounting
Mounting position	On horizontal DIN rail

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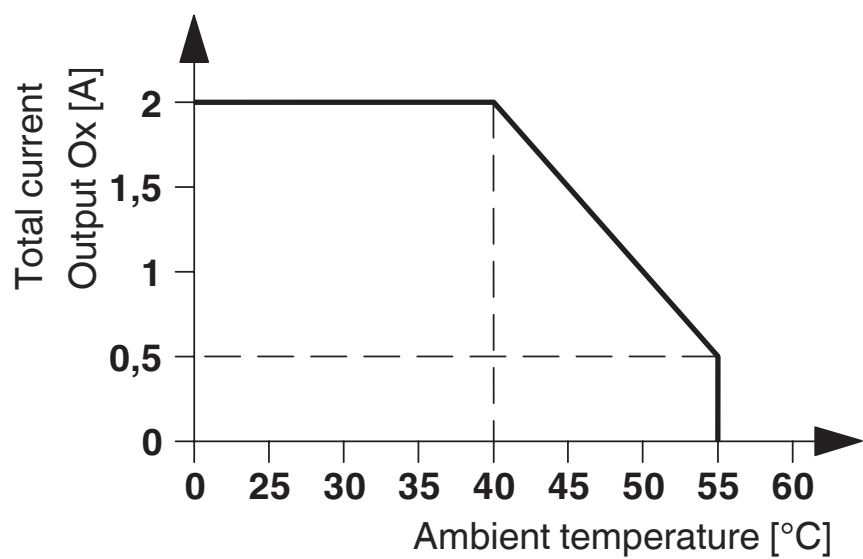
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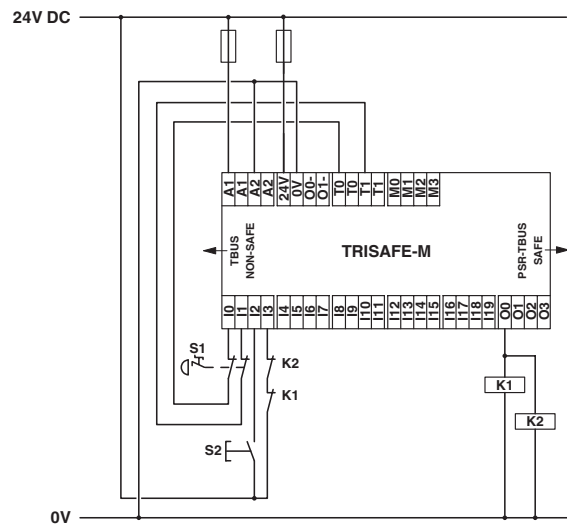


Drawings

Diagram



Application drawing

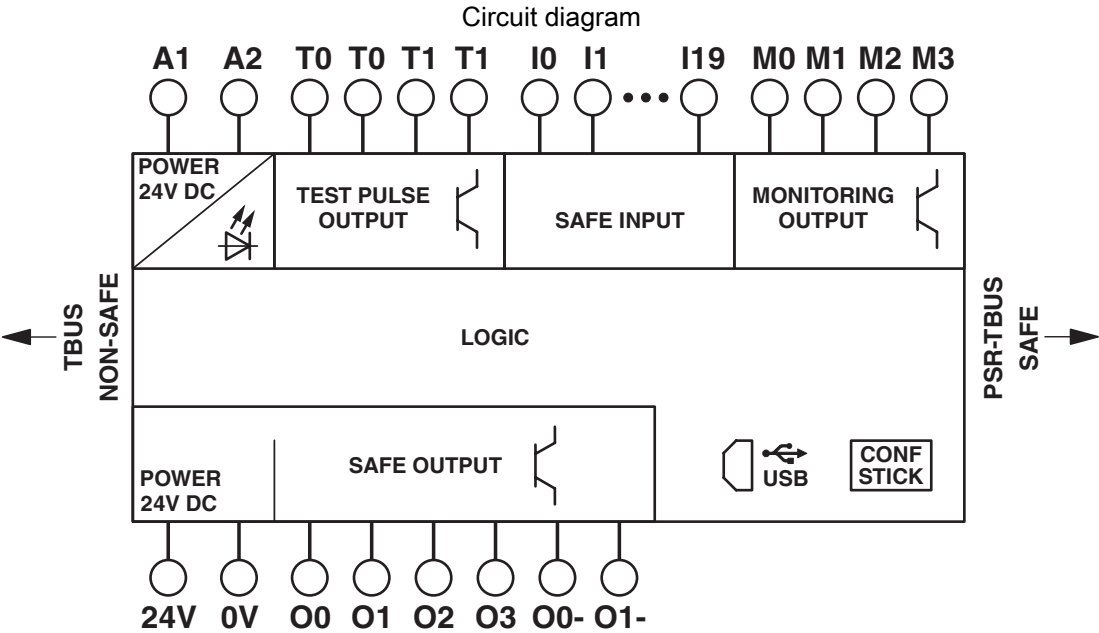


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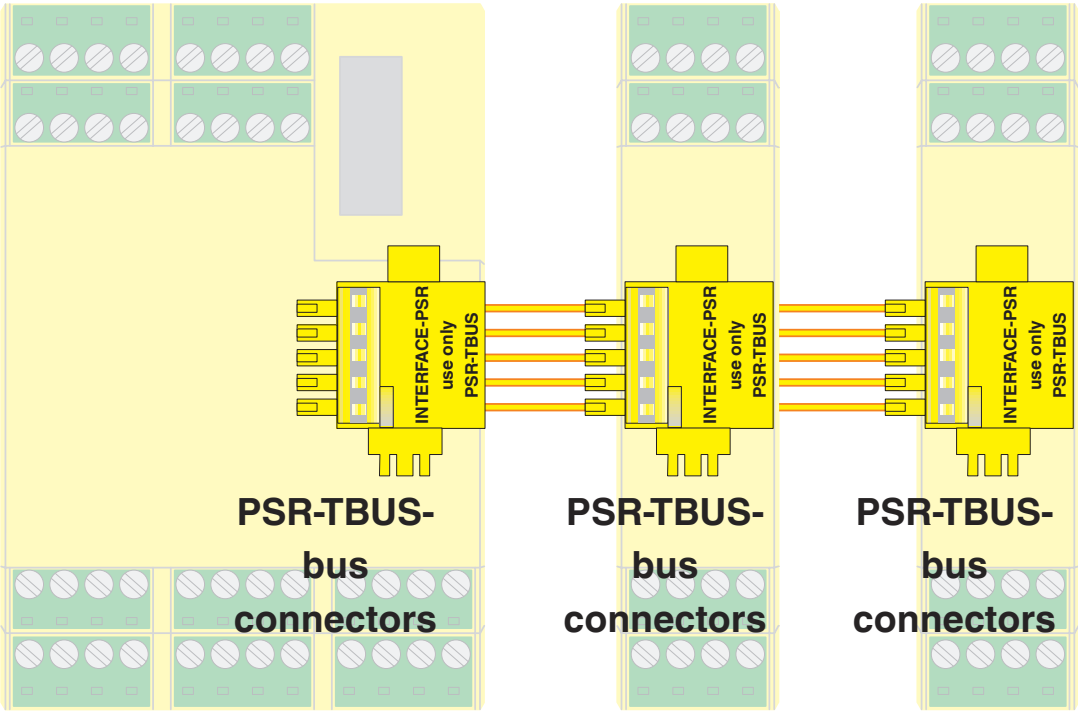


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Connection diagram



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

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Approvals

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cULus Listed

Approval ID: E140324

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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

EU RoHS	
Fulfills EU RoHS substance requirements	Yes
Exemption	7(a), 7(c)-I
China RoHS	
Environment friendly use period (EFUP)	EFUP-50
	An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required.
EU REACH SVHC	
REACH candidate substance (CAS No.)	Lead(CAS: 7439-92-1)
	2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol(CAS: 79-94-7)

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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

2986135

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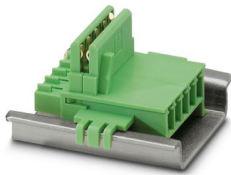
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ME 22,5 TBUS 1,5/ 5-ST-3,81 GN - DIN rail bus connectors

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, product range: TBUS5-22,5..., 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 μ F/86 μ F), 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

<https://www.phoenixcontact.com/us/products/2904476>



Terminal block for filtering test pulses from safe semiconductor outputs with adjustable filter values (1.5 μ F/11.5 μ 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

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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

<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®. 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

1326060

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



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