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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
Sales key	DN02
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

Notes

Note on application

Note on application	Only for industrial use
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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, $I_{\text{clock}} = 50 \text{ mA}$, $I_{\text{OUT/GND}} = 500 \text{ mA}$)
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 LED (green) , 1 x LED (red)

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)
Note on protection circuit	Yes, within the scope of the operating voltage limits
Short-circuit protection	Yes
Max. capacitive load	max. 1 μ 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	4 x 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
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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	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
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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)
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

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

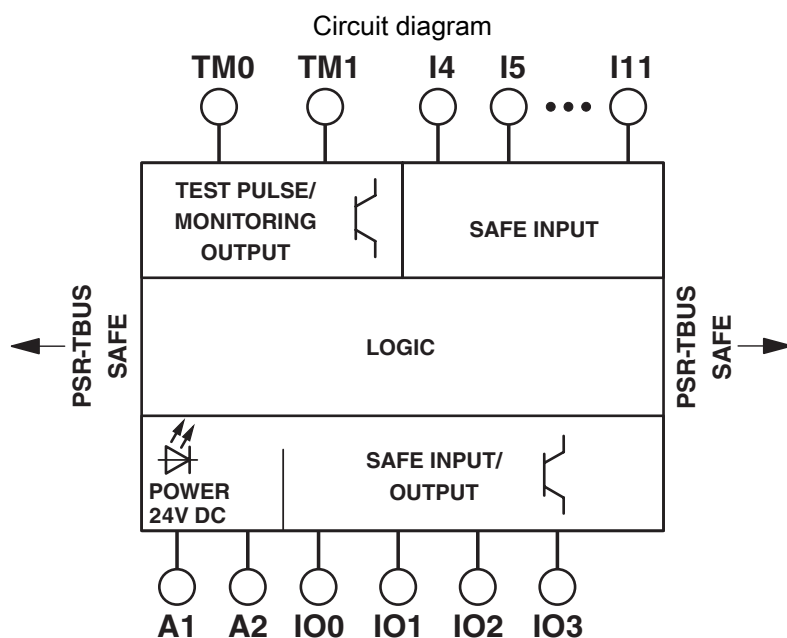


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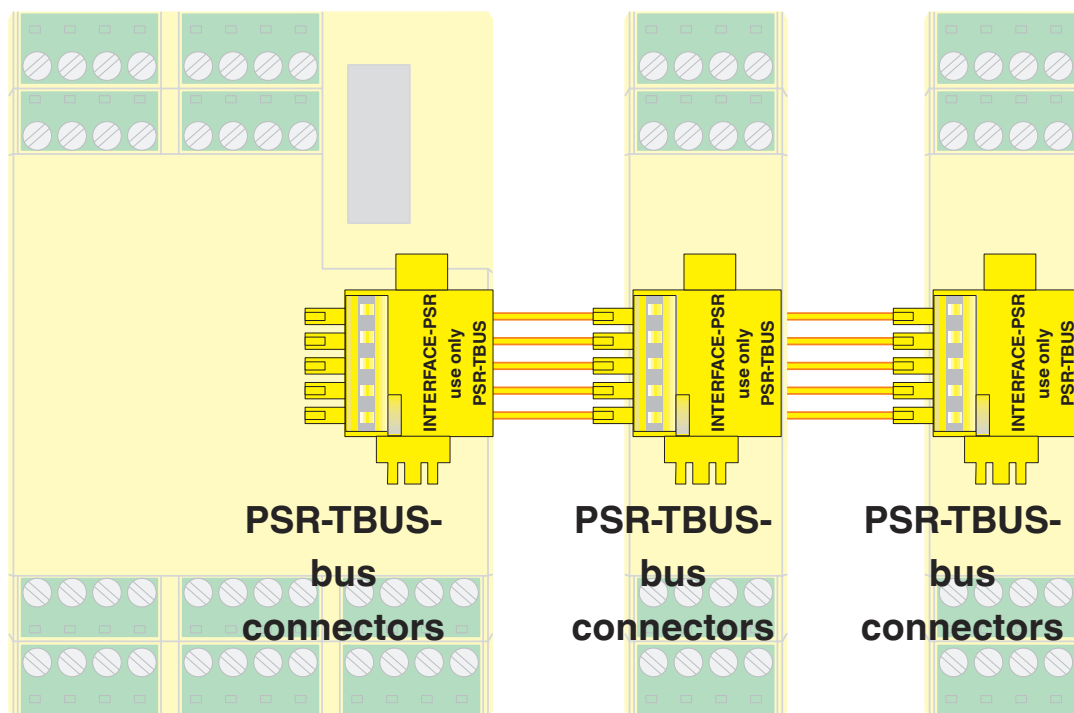
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Mounting type	DIN rail mounting
Mounting position	On horizontal DIN rail

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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cULus Listed

Approval ID: E140324

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)

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



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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.

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.

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



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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



SAFECONF - Configuration package

2986119

<https://www.phoenixcontact.com/us/products/2986119>



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

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



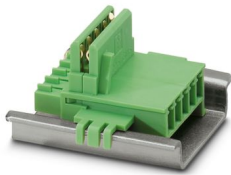
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ME 22,5 TBUS 1,5/ 5-ST-3,81 GN - DIN rail bus connectors

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

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



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

PSR-SPP- 24DC/TS/SDI8/SDIO4 - Extension 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.

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



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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.

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.

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



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EM-MODBUS-GATEWAY-IFS - Data interface

2901528

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

EM-ETH-GATEWAY-IFS - Data interface

2901988

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

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



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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.

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



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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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