

2986096

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PSR-TRISAFE-M relay output extension module with 4 safe relay output contacts (choice of 4 single-channel or 2 two-channel relay contacts), 4 alarm outputs; up to SIL 3, Cat.4/PLe, SIL 3, EN 50156, plug-in screw connection terminal blocks

Commercial data

Item number	2986096
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DN02
Product key	DNA332
Catalog page	Page 262 (C-6-2019)
GTIN	4046356536554
Weight per piece (including packing)	201.1 g
Weight per piece (excluding packing)	140 g
Customs tariff number	85371098
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. 50 ms
Recovery time	< 10 s

Electrical properties

Maximum power dissipation for nominal condition	3932 mW (up to 40°C ambient temperature, at m = 4, n = 4, $I_{load} = 4 \text{ A}$, $I_{signal} = 50 \text{ mA}$) 1532 mW (up to 55°C ambient temperature, at m = 4, n = 4, $I_{load} = 1 \text{ A}$, $I_{signal} = 50 \text{ mA}$)
Nominal operating mode	100% operating factor
Interfaces	DIN rail TBUS for connection to the master module, supplied as standard

Air clearances and creepage distances between the power circuits

Rated insulation voltage	250 V AC
Rated surge voltage/insulation	4 kV / basic insulation between output contact current paths (13/14, 23/24, 33/34, 43/44); 6 kV / safe isolation, reinforced insulation between output contact current paths (13/14, 23/24, 33/34, 43/44) and the other circuits

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 74 mA (At 24 V DC, relay outputs set) 54 mA (At 24 V DC, relay outputs not set)
Protective circuit	Yes, within the scope of the operating voltage limits
Status display	1 x green LED, 1 x red LED

Output data

Maximum switching voltage	250 V AC 24 V DC
Minimum switching voltage	5 V AC/DC
Limiting continuous current	4 A (see derating curve)
Maximum inrush current	6 A
Inrush current, minimum	5 mA
Switching capacity (3600/h cycles)	3 A (230 V (AC 15))

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	5 A (24 V (DC13))
Output fuse	6 A gL/gG
Response time	max. 50 ms

Relay

Output description	Relay contacts, safety-related N/O contacts
Number of outputs	4 (Single-channel)
	2 (Two-channel, connected in pairs)
Contact switching type	4 relay output contacts
Contact material	AgSnO ₂ (From HW03) AgCuNi +0.2 ... 0.4 µm Au (up to HW02)
Switching voltage	min. 12 V AC/DC (from HW 03)
	min. 5 V AC/DC (Up to HW02)
	max. 250 V AC/DC
Switching current	min. 3 mA (from HW 03)
	min. 5 mA (Up to HW02)
Switching capacity	min. 60 mW
Limiting continuous current	4 A (see to derating)
Mechanical service life	10x 10 ⁶ cycles
Output fuse	6 A (gL/gG)
	4 A (gL/gG for low-demand applications)
Status display	4 x green LEDs

Signal

Output description	Digital
Number of outputs	4
Voltage	24 V DC (Supply via A1/A2)
Limiting continuous current	50 mA
Protective circuit	Yes, within the scope of the operating voltage limits
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 ² ... 2.5 mm ²
Conductor cross section flexible	0.2 mm ² ... 2.5 mm ²
Conductor cross-section AWG	24 ... 12
Stripping length	7 mm
Screw thread	M3
Tightening torque	0.5 Nm ... 0.6 Nm
	5 lb _F -in. ... 7 lb _F -in.

Dimensions

Width	22.5 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	1 (1-channel parameterization)
	4 (2-channel parameterization)
Performance level (PL)	c (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)	1 (1-channel parameterization)
	3 (2-channel parameterization)

Safety data: IEC 61508 - Low demand

Safety Integrity Level (SIL)	1 (1-channel parameterization)
	3 (2-channel parameterization)

Safety data: EN IEC 62061

Safety Integrity Level (SIL)	1 (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 (see to derating)
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)

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	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

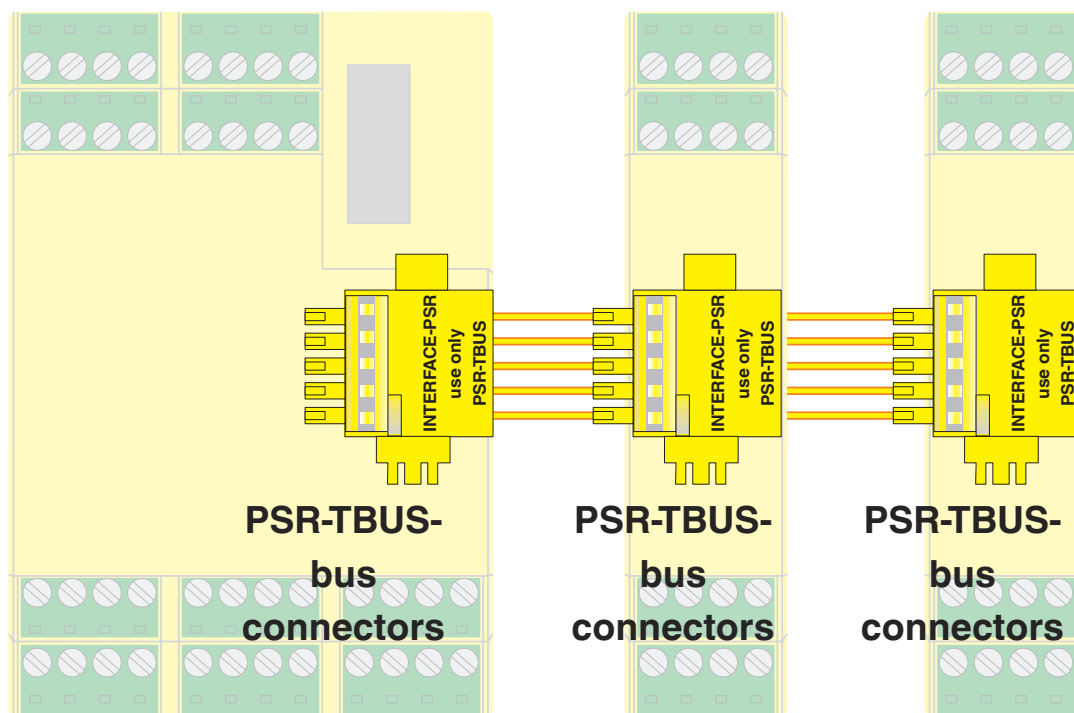
Standards/regulations	DIN EN 50178
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Mounting

Mounting type	DIN rail mounting
Mounting position	On horizontal DIN rail
Connection method	Screw connection

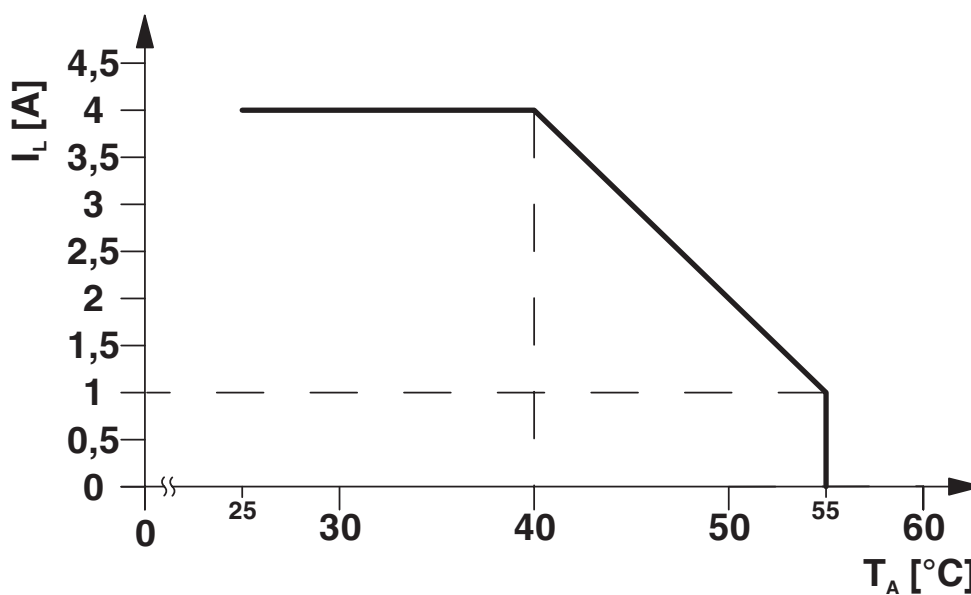
Drawings

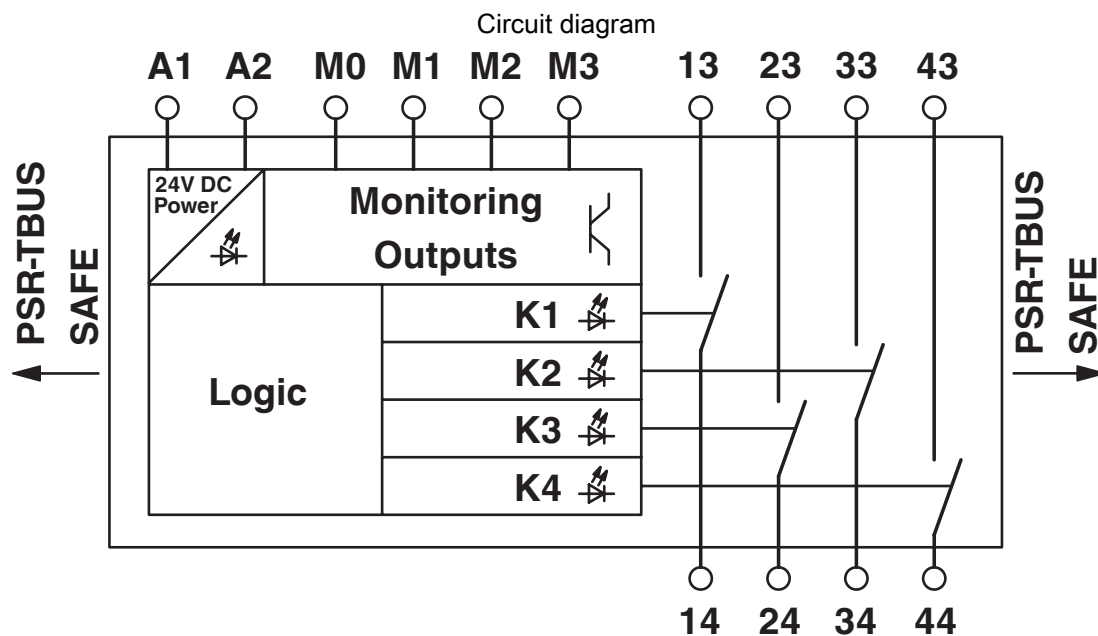
Connection diagram



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

Diagram





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Approvals

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UL Listed

Approval ID: FILE E 140324



cUL Listed

Approval ID: FILE E 140324

Functional Safety

Approval ID: 968/EL/477/10/17

cULus Listed

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Classifications

ECLASS

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

ETIM

ETIM 8.0	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

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

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

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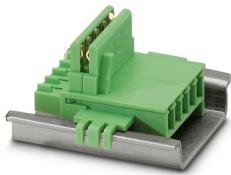
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ME 22,5 TBUS 1,5/ 5-ST-3,81 GN - DIN rail bus connectors

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 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

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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-SCP- 24DC/TS/SDOR4/4X1 - Extension module



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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.

PSR-SCP- 24DC/TS/SDOR4/4X1 - 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.

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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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