

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
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

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)
Control	1 and 2 channel

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
Number of inputs	10 (Two-channel, up to SIL 3)

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	20 (1-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

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Connection method	Screw connection
Conductor cross-section rigid	0.2 mm² ... 2.5 mm²
Conductor cross-section flexible	0.2 mm² ... 2.5 mm²
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	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
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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

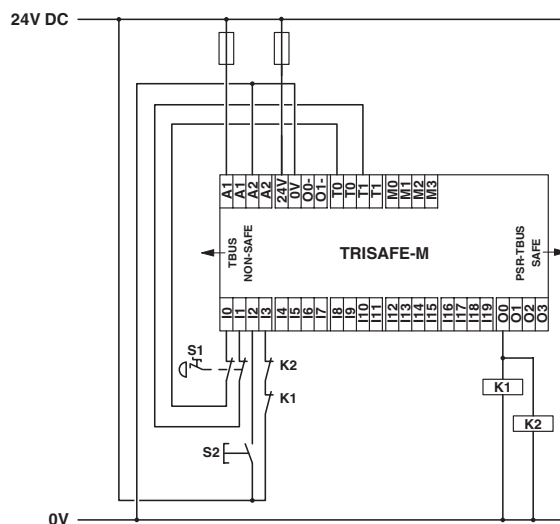
Standards/regulations	DIN EN 50178
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Mounting

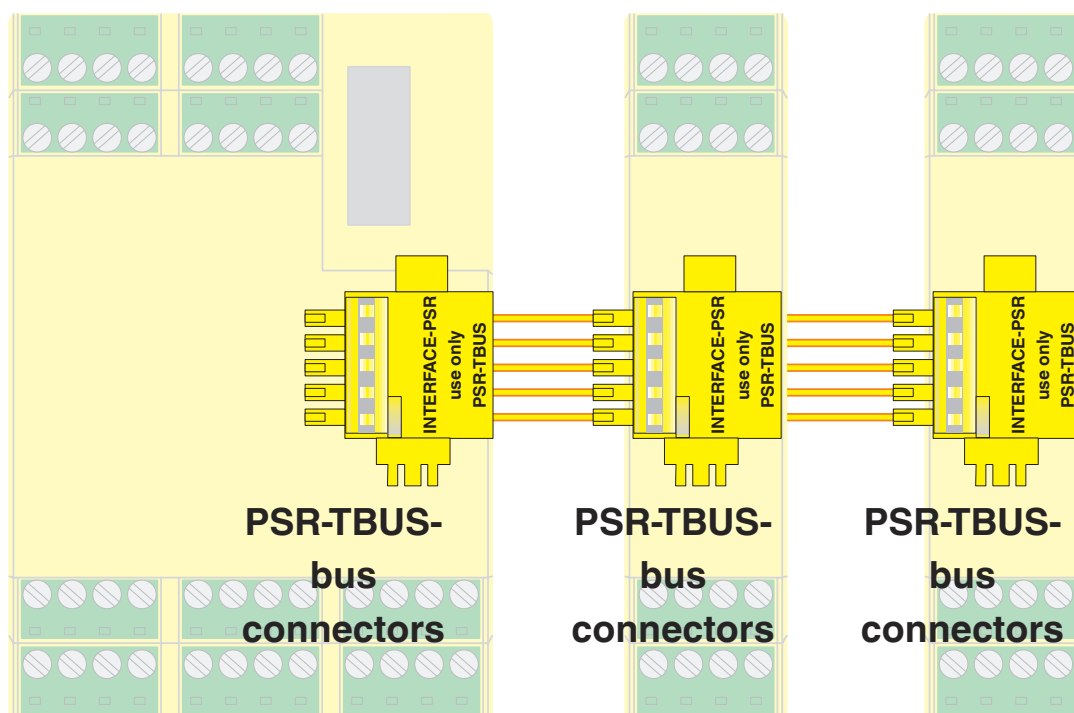
Mounting type	DIN rail mounting
Mounting position	On horizontal DIN rail

Drawings

Application drawing

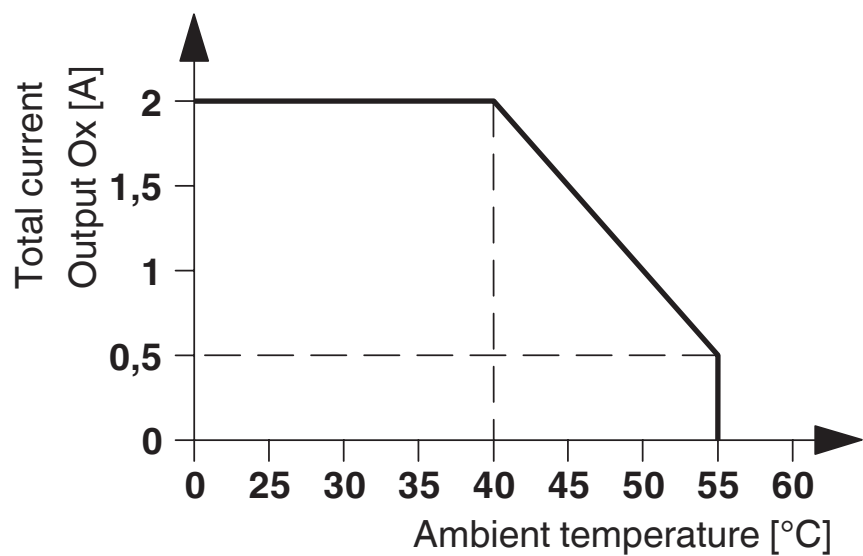


Connection diagram

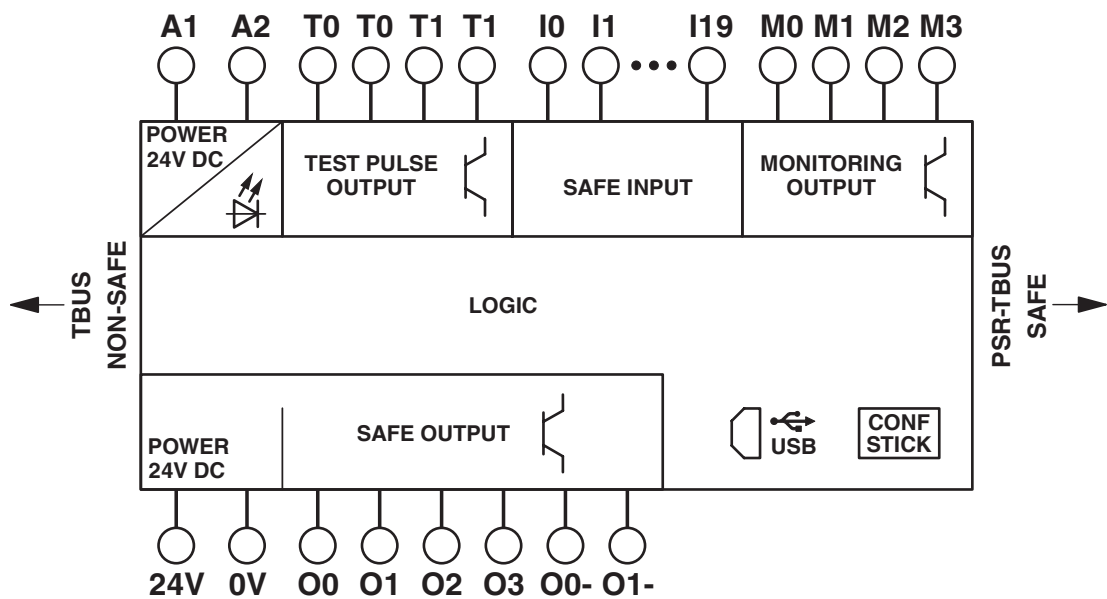


PSR-TBUS DIN rail connectors are used for cross-wiring between the modules.

Diagram



Circuit diagram



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Approvals

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cULus Listed

Approval ID: E140324

Classifications

ECLASS

ECLASS-13.0	27371819
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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)