

# Safety module - PSR-SPP- 24DC/TS/S - 2986232

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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; diagnostics possible via bus gateways, up to SILCL 3, Cat. 4/PL e, SIL 3, EN 50156, pluggable Push-in terminal block


The figure shows a version with a screw connection

## Your advantages

- ✓ Freely configurable safety module for monitoring emergency stops, safety doors, light grids, etc.
- ✓ With 20 safe inputs, 4 safe outputs, 4 alarm outputs, and 2 clock outputs on a design width of just 67.5 mm
- ✓ Multifunctional use for a wide range of safety functions
- ✓ Including IFS-CONFSTICK memory stick for easily storing and saving the configuration
- ✓ Easy graphical configuration with the SAFECONF software
- ✓ Easy graphical configuration instead of complex programming
- ✓ Quick startup thanks to comprehensive simulation and test functions
- ✓ Option for connecting fieldbus gateways for diagnostics and signaling functions
- ✓ Up to Cat. 4/PL e according to ISO 13849-1, SILCL 3 according to IEC 62061, SIL 3 according to IEC 61508
- ✓ EN 50156



## Key Commercial Data

Packing unit	1 pc
GTIN	 4 046356 477185
GTIN	4046356477185

## Technical data

### Note

Utilization restriction	EMC: class A product, see manufacturer's declaration in the download area
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### Dimensions

Width	67.5 mm
Height	112 mm

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## Technical data

### Dimensions

Depth	114.5 mm
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### Ambient conditions

Ambient temperature (operation)	-20 °C ... 55 °C
Ambient temperature (storage/transport)	-20 °C ... 70 °C
Max. permissible relative humidity (operation)	75 % (On average, 85 % occasionally)
Max. permissible humidity (storage/transport)	75 % (On average, 85 % occasionally)
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)
Maximum altitude	max. 2000 m (See Appendix "Using PSR-TRISAFE modules at altitudes greater than 2000 m above sea level")

### Power supply

Rated control circuit supply voltage $U_S$	24 V DC (A1/A2)
	18 V DC ... 30 V DC (Incl. all tolerances, incl. residual ripple)
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 $U_S$ )
Status display	3x LED green, 1x LED red
Protective circuit	Yes, within the scope of the operating voltage limits

### Digital inputs

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
Current consumption	typ. 4 mA
Cable length	max. 2000 m
Status display	20 x LED green (1 LED per input)

### Digital outputs

Number of outputs	4 (Safe semiconductor outputs, up to Cat. 4 in accordance with EN ISO 13849-1)
	2 (Ground switching 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)
Limiting continuous current	2 A (Per channel, see Derating)
	2 A (Total current of all outputs)
Output voltage	< 5 V (Low state)
Leakage current	max. 2 mA
Max. capacitive load	max. 1 $\mu$ F (Electronic components)
Max. inductive load	See "Protective circuit"

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## Technical data

### Digital outputs

Test pulses	< 1 ms
Short-circuit protection	Yes
Note on protection circuit	Yes, within the scope of the operating voltage limits
Status display	4 x LED green (1 LED per output)

### Clock outputs

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

### Alarm outputs

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

### Times

Response time	max. 30 ms (plus response time of PSR-TS-SDOR4)
Recovery time	< 10 s

### General

Nominal operating mode	100% operating factor
Net weight	300 g
Mounting position	On horizontal DIN rail
Mounting type	DIN rail mounting
Degree of protection	IP20
Min. degree of protection of inst. location	IP54
Housing material	Polyamide PA non-reinforced
Housing color	yellow
Number of possible extension modules	1 (Max. continuous current via PSR-TBUS: 4 A)

### Connection data

Connection method	Push-in connection
pluggable	Yes
Conductor cross section solid	0.2 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>
Conductor cross-section AWG	24 ... 16
Conductor cross-section flexible with ferrule without plastic sleeve	0.25 mm <sup>2</sup> ... 1.5 mm <sup>2</sup> (only together with CRIMPFOX 6)
Conductor cross-section flexible with ferrule and plastic sleeve	0.25 mm <sup>2</sup> ... 1.5 mm <sup>2</sup> (only together with CRIMPFOX 6)
Stripping length	8 mm

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## Technical data

### Safety-related characteristic data

Stop category	0
Designation	IEC 61508 - High demand
Safety Integrity Level (SIL)	2 (1-channel parameterization)
	3 (2-channel parameterization)
Designation	IEC 61508 - Low demand
Safety Integrity Level (SIL)	2 (1-channel parameterization)
	3 (2-channel parameterization)
Designation	EN ISO 13849
Performance level (PL)	d (1-channel parameterization)
	e (2-channel parameterization)
Category	2 (1-channel parameterization)
	4 (2-channel parameterization)
Designation	EN 62061
Safety Integrity Level Claim Limit (SIL CL)	2 (1-channel parameterization)
	3 (2-channel parameterization)
Designation	EN 50156
Safety Integrity Level (SIL)	max. 3 (Reference IEC 61508)

### Standards and Regulations

Designation	Air clearances and creepage distances between the power circuits
Standards/regulations	DIN EN 50178
Pollution degree	2
Overvoltage category	III
Vibration (operation)	2g
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)

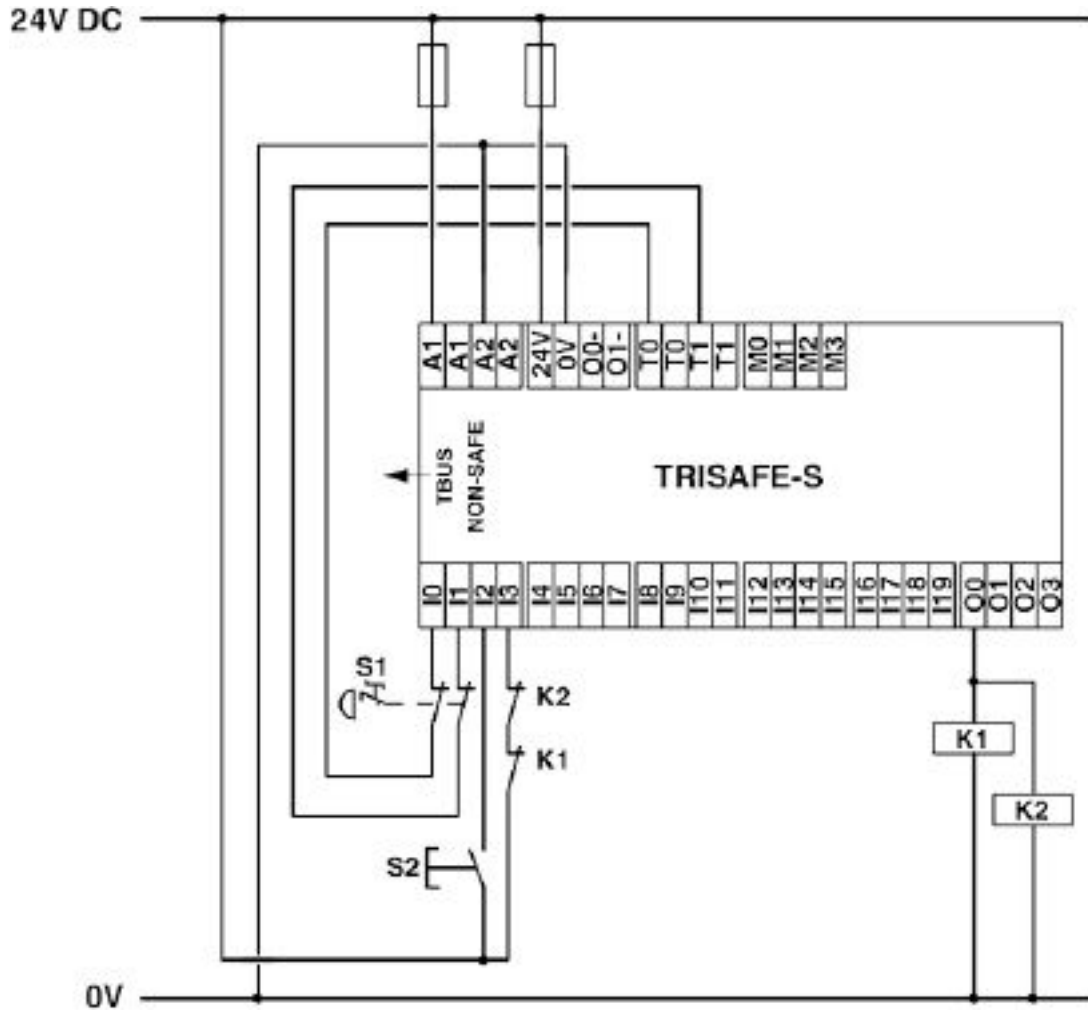
### Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

## Drawings

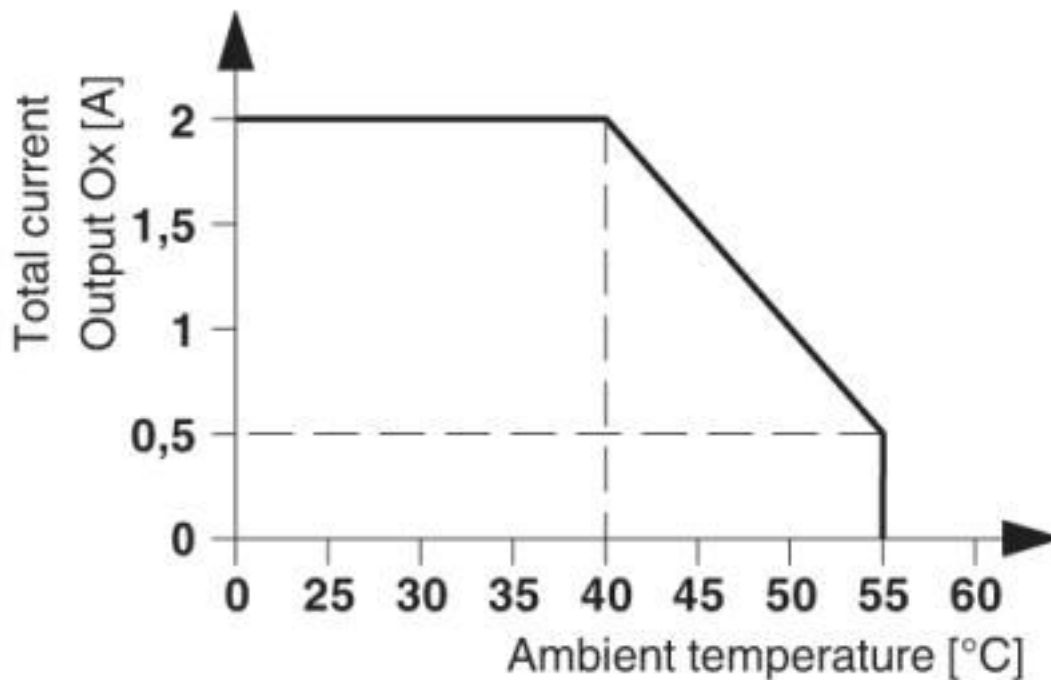
# Safety module - PSR-SPP- 24DC/TS/S - 2986232

Application drawing

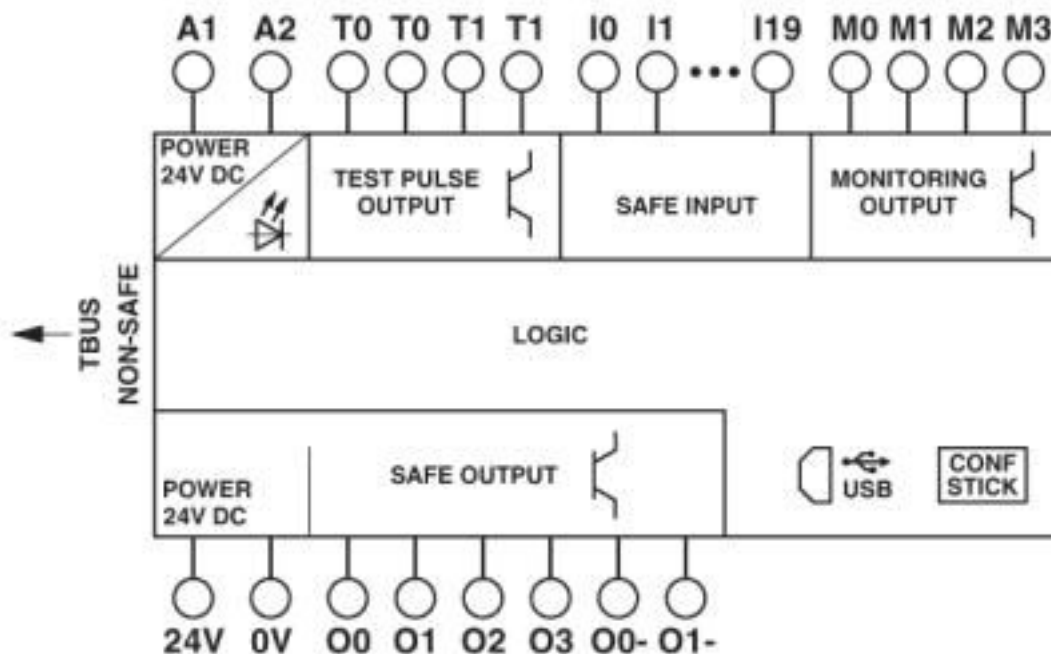


# Safety module - PSR-SPP- 24DC/TS/S - 2986232

Diagram



Circuit diagram



## Classifications

eCl@ss

eCl@ss 10.0.1	27371819
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## Classifications

### eCl@ss

eCl@ss 4.0	40020600
eCl@ss 4.1	40020600
eCl@ss 5.0	27371900
eCl@ss 5.1	27371900
eCl@ss 6.0	27371800
eCl@ss 7.0	27371819
eCl@ss 8.0	27371819
eCl@ss 9.0	27371819

### ETIM

ETIM 2.0	EC001449
ETIM 3.0	EC001449
ETIM 4.0	EC001449
ETIM 5.0	EC001449
ETIM 6.0	EC001449
ETIM 7.0	EC001449

### UNSPSC

UNSPSC 6.01	30211901
UNSPSC 7.0901	39121501
UNSPSC 11	39121501
UNSPSC 12.01	39121501
UNSPSC 13.2	39121501
UNSPSC 18.0	39122205
UNSPSC 19.0	39122205
UNSPSC 20.0	39122205
UNSPSC 21.0	39122205

## Approvals

### Approvals

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Approvals

UL Listed / cUL Listed / Functional Safety / cULus Listed

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Ex Approvals

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### Approval details

# Safety module - PSR-SPP- 24DC/TS/S - 2986232

## Approvals

UL Listed		<a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a>	FILE E 140324
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cUL Listed		<a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a>	FILE E 140324
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Functional Safety			01/205/5151.03/17
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cULus Listed			
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## Accessories

### Accessories

#### Device parameterization

Configuration package - SAFECONF - 2986119



Configuration software for SafetyBridge technology and PSR-TRISAFE modules, connecting cable for PSR-TRISAFE

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### DIN rail connector

DIN rail bus connectors - ME 22,5 TBUS 1,5/ 5-ST-3,81 GN - 2707437



DIN rail connector, nominal current: 8 A, rated voltage (III/2): 125 V, number of positions: 5, pitch: 3.81 mm, color: green, mounting: DIN rail, Item with gold-plated contacts, bus connectors for connecting with electronics housings, 5 parallel contacts

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DIN rail bus connectors - PSR-TBUS - 2890425



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



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## Accessories

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### Filter terminal block

Filter terminal block - PSR-FTB/20/86 - 2904477



Terminal block for filtering test pulses from safe semiconductor outputs with adjustable filter values (20  $\mu$ F/86  $\mu$ F), as well as for EMC filtering of 24 V signals up to an amperage of 2 A.

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Filter terminal block - PSR-FTB/1.5/11.5 - 2904476



Terminal block for filtering test pulses from safe semiconductor outputs with adjustable filter values (1.5  $\mu$ F/11.5  $\mu$ F), as well as for EMC filtering of 24 V signals up to an amperage of 2 A.

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### Gateways/Proxies

Data interface - EM-CAN-GATEWAY-IFS - 2901504



Gateway for the connection of up to 32 INTERFACE system devices to a higher-level controller via CANopen<sup>®</sup>. The INTERFACE system devices are connected to the Gateway via DIN rail connectors, the DIN rail connectors are provided.

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Data interface - EM-MODBUS-GATEWAY-IFS - 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.

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Data interface - EM-DNET-GATEWAY-IFS - 2901529



Gateway for the connection of up to 32 INTERFACE system devices to a higher-level controller via DeviceNet<sup>™</sup>. The INTERFACE system devices are connected to the Gateway via DIN rail connectors, the DIN rail connectors are provided.

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## Safety module - PSR-SPP- 24DC/TS/S - 2986232

### Accessories

#### Data interface - EM-ETH-GATEWAY-IFS - 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.

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#### Data interface - EM-PNET-GATEWAY-IFS - 2904472



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.

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#### Data interface - EM-PB-GATEWAY-IFS - 2297620



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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#### Data interface - EM-RS232-GATEWAY-IFS - 2901526



Gateway for the connection of up to 32 INTERFACE system devices to a higher-level controller via Modbus/RS-232. The INTERFACE system devices are connected to the Gateway via DIN rail connectors, the DIN rail connectors are provided.

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#### Data interface - EM-RS485-GATEWAY-IFS - 2901527



Gateway for the connection of up to 32 INTERFACE system devices to a higher-level controller via Modbus/RS-485. The INTERFACE system devices are connected to the Gateway via DIN rail connectors, the DIN rail connectors are provided.

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### Memory block

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### Accessories

Memory block - IFS-CONFSTICK - 2986122



Multi-functional memory block for the INTERFACE system for easy storage and backup of the configuration.

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Copy and delete station - COPYSTATION - IFS - 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.

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### Programming cable

USB cable - CABLE-USB/MINI-USB-3,0M - 2986135



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

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### Starter kit

Starter kit - PSR-TRISAFE STARTER KIT - 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.

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