

# 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, plug-in spring-cage terminal block


The figure shows a version with a screw connection

## Why buy this product

- ✓ 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 STK
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
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## Technical data

### Dimensions

Height	112 mm
Depth	114.5 mm

### 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)

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

## Technical data

### Digital outputs

Max. inductive load	See "Protective circuit"
Test pulses	< 1 ms
Note on protection circuit	Yes, within the scope of the operating voltage limits
Short-circuit protection	Yes
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	154 g
Mounting position	On horizontal DIN rail
Mounting type	DIN rail mounting
Degree of protection	IP20
	IP54
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	Spring-cage connection
pluggable	Yes
Conductor cross section solid min.	0.2 mm <sup>2</sup>
Conductor cross section solid max.	1.5 mm <sup>2</sup>
Conductor cross section flexible min.	0.2 mm <sup>2</sup>

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## Technical data

### Connection data

Conductor cross section flexible max.	1.5 mm <sup>2</sup>
Conductor cross section AWG min.	24
Conductor cross section AWG max.	16
Stripping length	8 mm

### Safety-related characteristic data

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

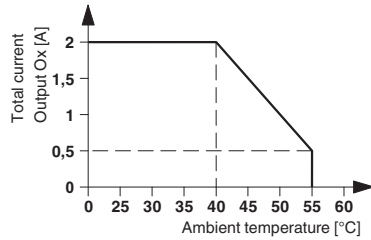
### Environmental Product Compliance

China RoHS	Environmentally friendly use period: unlimited = EFUP-e
	No hazardous substances above threshold values

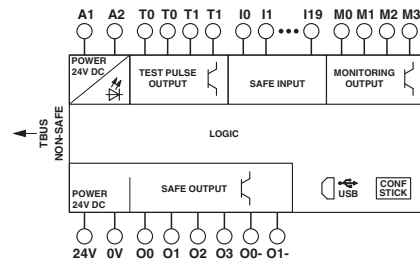
## Drawings

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

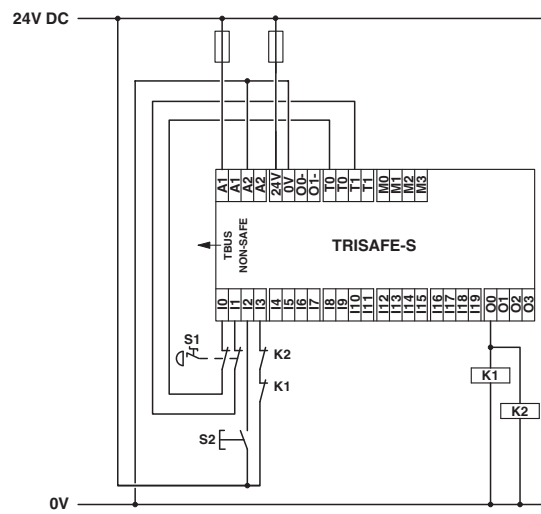
Diagram



Circuit diagram



Application drawing



## Approvals

Approvals

Approvals

UL Listed / cUL Listed / Functional Safety / cULus Listed

Ex Approvals

Approval details

UL Listed




<http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm>


FILE E 140324

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

### Approvals

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		<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>	
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