

## Coupling relay - PSR-PC20-1NO-1NC-24DC-SC - 2700577

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Coupling relay for SIL 3 high- and low-demand applications, couples digital output signals to the I/O, 1 enabling current path, 1 confirmation current path, 1 digital signal output, safe state off applications, test pulse filter, PSR-TBUS connection, plug-in screw terminal block

### Why buy this product

- ✓ Up to SIL 3 according to IEC 61508
- ✓ Forcibly guided contacts according to EN 50205
- ✓ Easy proof test according to IEC 61508 thanks to integrated signal contact
- ✓ Approved for Class I, Zone 2 applications
- ✓ Low housing width of just 12.5 mm
- ✓ Enabling current path protected via internal fuse as an option
- ✓ Long service life thanks to filtering of controller test pulses
- ✓ 1 enabling current path, 1 digital signal output, 1 diagnostic current path
- ✓ Couples digital output signals from failsafe controllers to I/O devices (valves, etc.) for electrical isolation and power adaptation



### Key Commercial Data

Packing unit	1 STK
Weight per Piece (excluding packing)	117.000 g
Custom tariff number	85364900
Country of origin	Germany

### Technical data

#### Note

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

# Coupling relay - PSR-PC20-1NO-1NC-24DC-SC - 2700577

## Technical data

### Dimensions

Width	12.5 mm
Height	112.2 mm
Depth	114.5 mm

### Ambient conditions

Ambient temperature (operation)	-40 °C ... 70 °C (observe derating)
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Max. permissible relative humidity (operation)	75 % (on average, 85% infrequently, non-condensing)
Max. permissible humidity (storage/transport)	75 % (on average, 85% infrequently, non-condensing)
Shock	15g
Vibration (operation)	2g
Maximum altitude	≤ 2000 m (Above sea level)

### Input data

Rated control circuit supply voltage $U_s$	24 V DC -15 % / +10 %
Power consumption at $U_s$	typ. 1.2 W
Rated control supply current $I_s$	typ. 50 mA
Inrush current	400 mA ( $\Delta t < 10 \mu s$ at $U_s$ )
Typ. starting time with $U_s$	< 100 ms (when controlled via A1)
Typical release time	< 35 ms (when controlled via A1)
Recovery time	500 ms
Status display	1 x green LED
Maximum switching frequency	1 Hz
Filter time	max. 2 ms (at A1-A2; test pulse width)
	≥ 100 ms (at A1-A2; test pulse rate)

### Output data

Contact type	1 enabling current path
	1 confirmation current path
Contact material	AgSnO <sub>2</sub> (enabling current path)
	AgCuNi, + Au (confirmation current path)
Minimum switching voltage	12 V AC/DC (N/O contact)
	20.4 V DC (N/C contact)
Maximum switching voltage	250 V AC/DC (N/O contact)
	26.4 V DC (N/C contact)
Limiting continuous current	6 A (13/14, see to derating)
	4 A (13F/14, see to derating)
	100 mA (N/C contact)
Inrush current, minimum	3 mA (N/O contact)

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### Technical data

#### Output data

	1 mA (N/C contact)
Maximum inrush current	6 A (N/O contact)
	100 mA (N/C contact)
Sq. Total current	36 A <sup>2</sup> (observe derating)
Switching capacity	min. 60 mW
Output fuse	6 A gL/gG (N/O contact 13/14)
	4 A gL/gG (for low-demand applications)
	150 mA fast blow (Confirmation current path)

#### Alarm outputs

Number of outputs	1 (digital, PNP)
Voltage	22 V DC (U <sub>D</sub> - 2 V)
Current	max. 100 mA
Maximum inrush current	500 mA (Δt = 1 ms at U <sub>s</sub> )
Short-circuit protection	no
Output fuse	150 mA fast blow (signal output)

#### General

Relay type	Electromechanical relay with forcibly guided contacts in accordance with IEC/EN 61810-3 (EN 50205)
Mechanical service life	10 x 10 <sup>6</sup> cycles
Nominal operating mode	100% operating factor
Net weight	189.1 g
Mounting type	DIN rail mounting
Assembly instructions	See derating curve
Mounting position	vertical, horizontal, with front of module upward
Degree of protection	IP20
Min. degree of protection of inst. location	IP54
Control	single-channel
Housing material	PBT
Housing color	yellow

#### Connection data

Connection method	Screw connection
pluggable	Yes
Conductor cross section solid min.	0.2 mm <sup>2</sup>
Conductor cross section solid max.	2.5 mm <sup>2</sup>
Conductor cross section flexible min.	0.2 mm <sup>2</sup>
Conductor cross section flexible max.	2.5 mm <sup>2</sup>

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### Technical data

#### Connection data

Conductor cross section AWG min.	24
Conductor cross section AWG max.	12
Stripping length	7 mm
Screw thread	M3

#### Safety-related characteristic data

Stop category	0
Designation	IEC 61508 - High demand
Safety Integrity Level (SIL)	3 (< 15% of the overall SIL)
Designation	IEC 61508 - Low demand
Safety Integrity Level (SIL)	3 (< 15% of the overall SIL)
Designation	EN 50156
Safety Integrity Level (SIL)	3

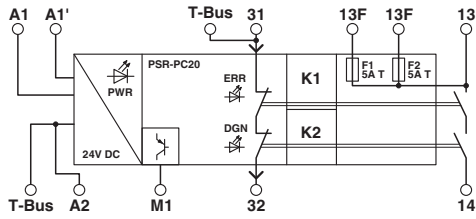
#### Standards and Regulations

Shock	15g
Designation	Air clearances and creepage distances between the power circuits
Standards/regulations	DIN EN 50178, EN 60079-15
Rated insulation voltage	250 V AC
Rated surge voltage/insulation	Safe isolation, 6 kV reinforced insulation from control circuit, start circuit, confirmation current path, signal output to the enabling current path; 4 kV/ basic insulation between all current paths and housing
Degree of pollution	2
Overvoltage category	III
Vibration (operation)	2g
Conformance	CE-compliant
UL, USA/Canada	cULus
	Class I, Zone 2, AEx nA nC IIC T4 / Ex nA nC IIC Gc T4 X
GL	C, EMC2

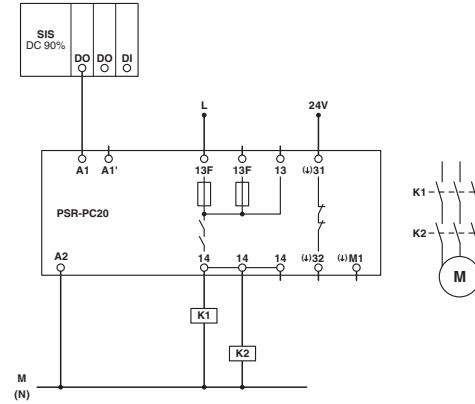
### Drawings

# Coupling relay - PSR-PC20-1NO-1NC-24DC-SC - 2700577

Block diagram



Circuit diagram



## Classifications

eCl@ss

eCl@ss 4.0	27371102
eCl@ss 4.1	27371102
eCl@ss 5.0	27371901
eCl@ss 5.1	27371901
eCl@ss 6.0	27371819
eCl@ss 7.0	27371819
eCl@ss 8.0	27371819
eCl@ss 9.0	27371819

ETIM

ETIM 5.0	EC001449
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## Approvals

Approvals

Approvals


UL Listed / cUL Listed / EAC / GL / Functional Safety / cULus Listed

Ex Approvals

Approval details

## Coupling relay - PSR-PC20-1NO-1NC-24DC-SC - 2700577

### Approvals

UL Listed  <http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm> FILE E 140324

cUL Listed  <http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm> FILE E 140324

EAC 7500651.22.01.00244

GL <http://www.gl-group.com/newbuilding/approvals/index.html> 11253-14 HH

Functional Safety 44-780-13755202

cULus Listed 

### Accessories

#### Accessories

#### DIN rail connector

DIN rail bus connectors - ME 6,2 TBUS-2 1,5/5-ST-3,81 GN - 2869728



DIN rail connector for DIN rail mounting. Universal for TBUS housing. Gold-plated contacts, 5-pos.