

## 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

### Product Features

- 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 pc
Weight per Piece (excluding packing)	117.0 g
Custom tariff number	85364900
Country of origin	Germany

### Technical data

#### Dimensions

Width	12.5 mm
Height	112.2 mm
Depth	114.5 mm

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## Technical data

### 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
Typical inrush current	400 mA ( $\Delta t < 10 \mu s$ at $U_s$ )
Typical pick-up time	< 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)
	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)

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## Technical data

### Output data

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 ( $U_D - 2 V$ )
Current	max. 100 mA
Maximum inrush current	500 mA ( $\Delta t = 1 ms$ at $U_s$ )
Short-circuit protection	no

### General

Relay type	Electromechanical relay with forcibly guided contacts in accordance with IEC/EN 61810-3 (EN 50205)
Mechanical service life	$10 \times 10^6$ cycles
Net weight	177.4 g
Mounting type	DIN rail mounting
Assembly instructions	See derating curve
Degree of protection	IP20
Min. degree of protection of inst. location	IP54
Mounting position	vertical, horizontal, with front of module upward
Control	single-channel
Housing material	PBT

### 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>
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

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## Technical data

### Safety-related characteristic data

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	IEC 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
ATEX	# II 3 G Ex nA nC IIC T4 Gc
IECEX	Ex nA nC IIC T4 Gc
UL, USA / Canada	cULus
	Class I, Zone 2, AEx nA nC IIC T4 / Ex nA nC IIC Gc T4 X
GL	C, EMC2

## 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

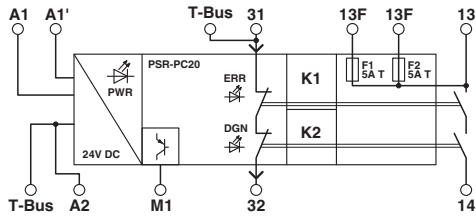
### ETIM

ETIM 5.0	EC001449
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## Drawings

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Block diagram



Circuit diagram

