

## Coupling relay - PSR-PS20-1NO-1NC-24DC-SC - 2700356

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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, fixed 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 6.8 mm
- ✓ 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
GTIN	 4 046356 912891
Weight per Piece (excluding packing)	83.5 g
Custom tariff number	85364900
Country of origin	Germany
Note	Made to Order (non-returnable)

### Technical data

#### Dimensions

Width	6.8 mm
Height	93.1 mm
Depth	102.5 mm

#### Ambient conditions

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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. 1.08 W
Rated control supply current $I_s$	typ. 45 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	2 x green LEDs
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	20 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)
Nominal current	6 A (N/O contact)
Limiting continuous current	6 A (N/O contact)
	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> (see to derating)
Switching capacity	min. 60 mW
Output fuse	6 A gL/gG (N/O contact)
	4 A gL/gG (for low-demand applications)

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## Technical data

### Output data

	150 mA fast blow (Confirmation current path)
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### 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 ( $\Delta t = 1 \text{ ms at } U_S$ )
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	83.5 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
Stop category	0
Parameters for IEC 61508	3
Housing material	PBT

### Connection data

Connection method	Screw connection
pluggable	no
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.	26
Conductor cross section AWG max.	12
Stripping length	12 mm
Screw thread	M3

### 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

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## Technical data

### Standards and Regulations

Pollution degree	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 5.1	27371901
eCl@ss 6.0	27371819
eCl@ss 8.0	27371819

### ETIM

ETIM 5.0	EC001449
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## Approvals

### Approvals

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#### Approvals

UL Listed / cUL Listed / EAC / cULus Listed

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#### Ex Approvals

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#### Approvals submitted

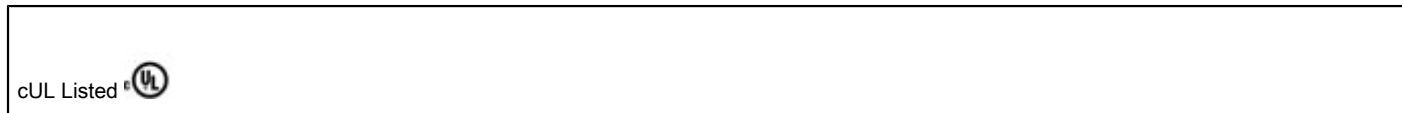
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### Approval details

UL Listed 
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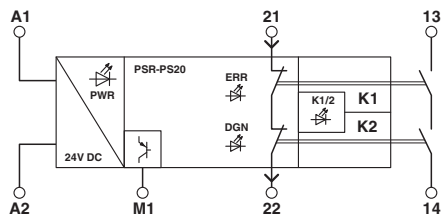
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## Approvals



## Drawings

Block diagram



Circuit diagram

