

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 STK
GTIN	 4 046356 912891
GTIN	4046356912891
Weight per Piece (excluding packing)	83.500 g
Weight per piece (including packing)	142.600 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

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Dimensions

Width	6.8 mm
Height	93.1 mm
Depth	102.5 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)
Maximum altitude	≤ 2000 m (Above sea level)

Input data

Rated control circuit supply voltage U_s	24 V DC -15 % / +10 %
Rated control supply current I_s	typ. 45 mA
Power consumption at U_s	typ. 1.08 W
Inrush current	400 mA ($\Delta t < 10 \mu s$ at U_s)
	2.5 A ($\Delta t < 20 \mu s$ at U_D)
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
Operating voltage display	1 x yellow LED
Status display	2 x green LEDs
Protective circuit	Surge protection Suppressor diode
	Polarity reversal protection for rated control circuit supply voltage and diagnostic supply voltage
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 ₂ (enabling current path)
	AgCuNi, + Au (confirmation current path)
Maximum switching voltage	250 V AC/DC (N/O contact)
	26.4 V DC (N/C contact)
Minimum switching voltage	12 V AC/DC (N/O contact)
	20.4 V DC (N/C contact)
Limiting continuous current	6 A (N/O contact, pay attention to the derating)
	100 mA (N/C contact)
Maximum inrush current	6 A (N/O contact)
	100 mA (N/C contact)

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Output data

Inrush current, minimum	3 mA (N/O contact)
	1 mA (N/C contact)
Sq. Total current	36 A ² (observe derating)
Switching capacity	min. 60 mW
Mechanical service life	10 x 10 ⁶ cycles
Output fuse	6 A gL/gG (N/O contact)
	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 (Δt = 1 ms at U _s)
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)
Nominal operating mode	100% operating factor
Net weight	83.5 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
Housing material	PBT
Housing color	yellow

Connection data

Connection method	Screw connection
pluggable	no
Conductor cross section solid min.	0.2 mm ²
Conductor cross section solid max.	2.5 mm ²
Conductor cross section flexible min.	0.2 mm ²
Conductor cross section flexible max.	2.5 mm ²
Conductor cross section AWG min.	26
Conductor cross section AWG max.	12
Stripping length	12 mm
Screw thread	M3

Safety-related characteristic data

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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

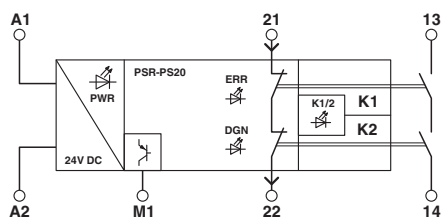
Designation	Air clearances and creepage distances between the power circuits
Standards/regulations	DIN EN 50178, EN 60079-15
Rated insulation voltage	250 V AC
Rated surge voltage/insulation	Safe isolation, 6 kV reinforced insulation from control circuit, start circuit, confirmation current path, signal output to the enabling current path; 4 kV/basic insulation between all current paths and housing
Degree of pollution	2
Overvoltage category	III
Shock	15g
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

Environmental Product Compliance

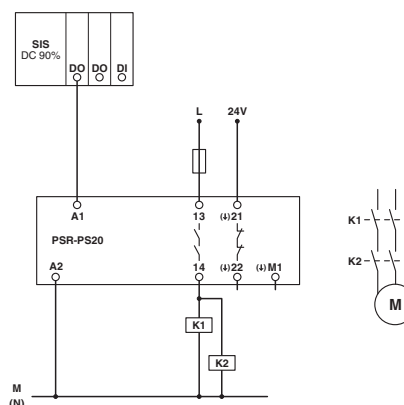
China RoHS	Environmentally Friendly Use Period = 50
	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

Drawings

Block diagram



Circuit diagram



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Classifications

eCl@ss

eCl@ss 5.1	27371901
eCl@ss 6.0	27371819
eCl@ss 8.0	27371819
eCl@ss 9.0	27371819

ETIM

ETIM 5.0	EC001449
ETIM 6.0	EC001449

UNSPSC

UNSPSC 13.2	39121501
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Approvals


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UL Listed / cUL Listed / EAC / GL / 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
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cUL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 140324
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EAC			RU C- DE.A*30.B.01082
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GL		http://exchange.dnv.com/tari/	11253-14 HH
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Functional Safety			44-780-13755203
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Approvals

cULus Listed



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