

Coupling relay - PSR-SPP- 24DC/FSP/2X1/1X2 - 2986957

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Safe coupling relay for SIL 3 high and low-demand applications, couples digital output signals to the I/O, 2 enabling current paths, 1 signal contact, module for safe state off applications, integrated test pulse filter, plug-in spring-cage terminal block, width: 17.5 mm

Why buy this product

- Narrow 17.5 mm housing
- Up to SIL 3 according to IEC 61508
- Easy proof test according to IEC 61508 thanks to integrated signal contact
- Forcibly guided contacts according to EN 50205
- Long service life thanks to filtering of controller test pulses
- Couples digital output signals from failsafe controllers to I/O devices (valves, etc.) for electrical isolation and power adaptation
- Two enabling current paths



Key Commercial Data

Packing unit	1 STK
GTIN	 4 046356 520928

Technical data

Note

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

Width	17.5 mm
Height	112 mm
Depth	114.5 mm

Ambient conditions

Ambient temperature (operation)	-20 °C ... 55 °C (observe derating)
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Ambient conditions

Ambient temperature (storage/transport)	-40 °C ... 70 °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)	10 Hz ...150 Hz, 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. 1.32 W
Rated control supply current I_s	typ. 55 mA
Typical inrush current	max. 100 mA
Typical pick-up time	50 ms
Typical release time	50 ms
Recovery time	1 s
Maximum switching frequency	0.5 Hz
Filter time	max. 5 ms (at A1 in the event of voltage dips at U_s)
	max. 2 ms (Test pulse width; high test pulse at A1/A2)
	≥ 100 ms (Test pulse width; high test pulse at A1/A2)
	Test pulse rate = 80 x Test pulse width
	max. 5 ms (Test pulse width; low test pulse at A1/A2)
	≥ 50 ms (Test pulse rate; low test pulse at A1/A2)
	Test pulse rate = 15 x Test pulse width

Output data

Contact type	2 enabling current paths
	1 confirmation current path
Contact material	AgCuNi, + 0.2 µm Au
Minimum switching voltage	15 V AC/DC (N/O contact / N/C contact)
Maximum switching voltage	250 V AC/DC (N/O contact / N/C contact, observe the load curve)
Limiting continuous current	5 A (N/O contact, pay attention to the derating)
	100 mA (N/C contact)
Inrush current, minimum	5 mA (N/O contact / N/C contact)
Maximum inrush current	5 A (N/O contact)
	100 mA (N/C contact)
Sq. Total current	50 A ² (observe derating)
Interrupting rating (ohmic load) max.	120 W (24 V DC, $\tau = 0$ ms, N/C contact: 2.4 W)
	192 W (48 V DC, $\tau = 0$ ms, N/C contact: 4.8 W)
	162 W (60 V DC, $\tau = 0$ ms, N/C contact: 6 W)
	66 W (110 V DC, $\tau = 0$ ms, N/C contact: 11 W)
	60 W (220 V DC, $\tau = 0$ ms, N/C contact: 22 W)

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Technical data

Output data

	1250 VA (250 V AC, $\tau = 0$ ms, N/C contact: 25 VA)
Maximum interrupting rating (inductive load)	72 W (24 V DC, $\tau = 40$ ms, N/C contact: 2.4 W)
	43 W (48 V DC, $\tau = 40$ ms, N/C contact: 4.8 W)
	41 W (60 V DC, $\tau = 40$ ms, N/C contact: 6 W)
	35 W (110 V DC, $\tau = 40$ ms, N/C contact: 11 W)
	48 W (220 V DC, $\tau = 40$ ms, N/C contact: 22 W)
Switching capacity	min. 75 mW
Output fuse	10 A gL/gG (N/O contact)
	4 A gL/gG (for low-demand applications)
	4 A gL/gG (N/C contact)

General

Relay type	Electromechanical relay with forcibly guided contacts in accordance with EN 50205
Mechanical service life	10×10^6 cycles
Net weight	137.48 g
Mounting type	DIN rail mounting
Degree of protection	IP54
	IP20
Min. degree of protection of inst. location	IP54
Mounting position	any
Control	single-channel
Housing material	PBT

Connection data

Connection method	Spring-cage connection
pluggable	Yes
Conductor cross section solid min.	0.2 mm ²
Conductor cross section solid max.	1.5 mm ²
Conductor cross section flexible min.	0.2 mm ²
Conductor cross section flexible max.	1.5 mm ²
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)	3 (max. 10% of the entire SIL; diagnostic coverage (DC) of the control unit at A1/A2 must be $\geq 90\%$)
Designation	IEC 61508 - Low demand
Safety Integrity Level (SIL)	3 (max. 10% of the entire SIL; diagnostic coverage (DC) of the control unit at A1/A2 must be $\geq 90\%$)

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Technical data

Safety-related characteristic data

Designation	EN ISO 13849
Performance level (PL)	e
Category	4
Designation	EN 62061
Safety Integrity Level Claim Limit (SIL CL)	3 (max. 10% of the entire SIL; diagnostic coverage (DC) of the control unit at A1/A2 must be $\geq 90\%$)
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/VDE 0160
Rated insulation voltage	250 V
Rated surge voltage/insulation	Safe isolation, reinforced insulation 6 kV between the control circuits (A1/A2), (31/32), (13/14, 23/24)
Degree of pollution	2
Overvoltage category	III
Vibration (operation)	10 Hz ...150 Hz, 2g
Conformance	CE-compliant

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 2.0	EC001449
ETIM 3.0	EC001449
ETIM 4.0	EC001449
ETIM 5.0	EC001449

UNSPSC

UNSPSC 6.01	30211901
UNSPSC 7.0901	39121501
UNSPSC 11	39121501

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Classifications

UNSPSC

UNSPSC 12.01	39121501
UNSPSC 13.2	39121501

Approvals

Approvals

Approvals

UL Listed / cUL Listed / Functional Safety / cULus Listed

Ex Approvals

Approvals submitted

Approval details

UL Listed 

cUL Listed 

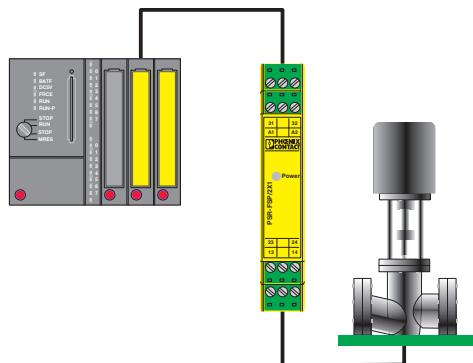
Functional Safety

cULus Listed 

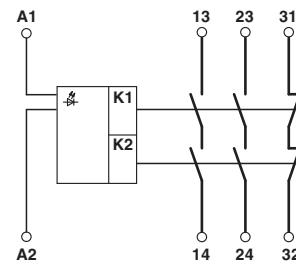
Drawings

Coupling relay - PSR-SPP- 24DC/FSP/2X1/1X2 - 2986957

Application drawing

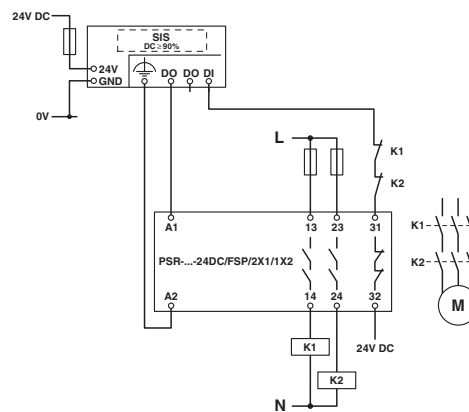


Circuit diagram

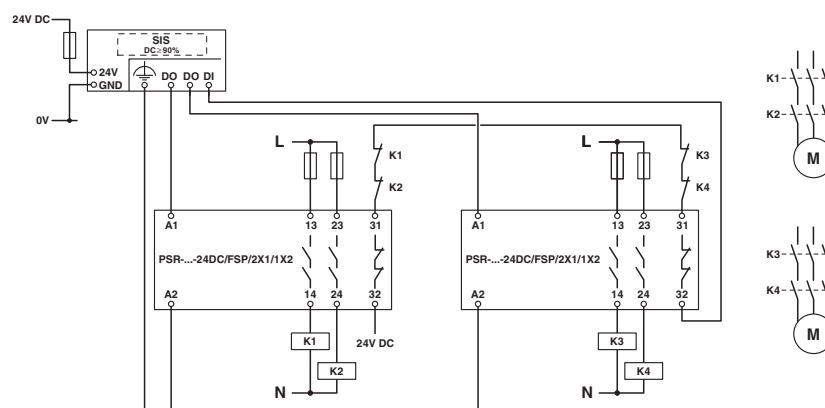


Example of electrical isolation of a safety PLC output from the field.

Circuit diagram



Circuit diagram



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