

PSR-SCP- 24DC/FSP/1X1/1X2 - Coupling relay



2981978

<https://www.phoenixcontact.com/us/products/2981978>

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Safe coupling relay for SIL 3 high- and low-demand applications, couples digital output signals to the periphery, one enabling current path, one signal contact, module for safe state off applications, test pulse filter, fuse, plug-in screw connection, width: 17.5 mm

Your advantages

- Narrow 17.5 mm housing
- Up to SIL 3 in accordance with IEC 61508
- With built-in, replaceable fuse in the enabling current path
- Easy proof test according to IEC 61508 thanks to integrated signal contact
- Long service life thanks to filtering of controller test pulses
- Force-guided contacts in accordance with EN 50205
- 1 enabling current path
- Couples digital output signals from failsafe controllers to I/O devices (valves, etc.) for electrical isolation and power adaptation

Commercial data

Item number	2981978
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DN01
Product key	DNA161
GTIN	4046356448352
Weight per piece (including packing)	160 g
Weight per piece (excluding packing)	155 g
Customs tariff number	85364190
Country of origin	DE

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Technical data

Notes

Note on application

Note on application

Only for industrial use

Product properties

Product type	Coupling relay
Product family	PSRclassic
Application	Safe switch off
	High demand
	Low demand
Control	1-channel
Mechanical service life	10×10^6 cycles
Relay type	Electromechanical relay with force-guided contacts in accordance with IEC/EN 61810-3

Insulation characteristics

Overvoltage category	III
Degree of pollution	2

Electrical properties

Maximum power dissipation for nominal condition	2.4 W
Nominal operating mode	100% operating factor
Rated insulation voltage	250 V AC
Rated surge voltage/insulation	Safe isolation, reinforced insulation 6 kV between the control circuits (A1/A2), (21/22), (13/14)

Input data

General

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
Input voltage range	20.4 V DC ... 26.4 V DC
Inrush current	max. 100 mA
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
Typ. starting time with U_S	50 ms
Typical release time	50 ms

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Recovery time	1 s
Maximum switching frequency	0.5 Hz
Protective circuit	Surge protection; Suppressor diode, 33 V (A1 - A2)
Operating voltage display	1 x yellow LED

Output data

Contact switching type	1 enabling current path 1 confirmation current path
Contact material	AgCuNi, + 0.2 µm Au
Maximum switching voltage	250 V AC/DC (N/O contact / N/C contact, observe the load curve)
Minimum switching voltage	15 V AC/DC (N/O contact / N/C contact)
Limiting continuous current	5 A (N/O contact, pay attention to the derating) 100 mA (N/C contact)
Maximum inrush current	5 A (N/O contact) 100 mA (N/C contact)
Inrush current, minimum	5 mA (N/O contact / N/C contact)
Sq. Total current	25 A ² (observe derating)
Interrupting rating (ohmic load) max.	120 W (24 V DC, τ = 0 ms, N/C contact: 2.4 W) 192 W (48 V DC, τ = 0 ms, N/C contact: 4.8 W) 162 W (60 V DC, τ = 0 ms, N/C contact: 6 W) 66 W (110 V DC, τ = 0 ms, N/C contact: 11 W) 60 W (220 V DC, τ = 0 ms, N/C contact: 22 W) 1250 VA (250 V AC, τ = 0 ms, N/C contact: 25 VA)
Maximum interrupting rating (inductive load)	72 W (24 V DC, τ = 40 ms, N/C contact: 2.4 W) 43 W (48 V DC, τ = 40 ms, N/C contact: 4.8 W) 41 W (60 V DC, τ = 40 ms, N/C contact: 6 W) 35 W (110 V DC, τ = 40 ms, N/C contact: 11 W) 48 W (220 V DC, τ = 40 ms, N/C contact: 22 W)
Switching power	min. 75 mW
Switching capacity (3600/h cycles)	5 A (24 V (DC13)) 5 A (230 V (AC15))
Output fuse	5 A T fuse (N/O contact) 150 mA Fast-blow (N/C contact)

Connection data

Connection technology	
pluggable	yes

Conductor connection	
Connection method	Screw connection
Conductor cross-section rigid	0.2 mm ² ... 2.5 mm ²
Conductor cross-section flexible	0.2 mm ² ... 2.5 mm ²
Conductor cross-section AWG	24 ... 12
Stripping length	7 mm

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Screw thread	M3
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Dimensions

Width	17.5 mm
Height	99 mm
Depth	114.5 mm

Material specifications

Color (Housing)	yellow (RAL 1018)
Housing material	PA

Characteristics

Safety data	
Stop category	0

Safety data: EN ISO 13849	
Category	4 (Diagnostic coverage (DC) of the control unit at A1/A2 must be $\geq 99\%$)
Performance level (PL)	e (Diagnostic coverage (DC) of the control unit at A1/A2 must be $\geq 99\%$)

Safety data: EN 50156	
Safety Integrity Level (SIL)	3

Safety data: 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 $\geq 90\%$)

Safety data: 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 $\geq 90\%$)

Safety data: EN IEC 62061	
Safety Integrity Level (SIL)	3 (max. 10% of the entire SIL; diagnostic coverage (DC) of the control unit at A1/A2 must be $\geq 90\%$)

Environmental and real-life conditions

Ambient conditions	
Degree of protection	IP20
Min. degree of protection of inst. location	IP54
Ambient temperature (operation)	-20 °C ... 55 °C (observe derating)
Ambient temperature (storage/transport)	-40 °C ... 70 °C
Maximum altitude	≤ 2000 m (Above sea level)
Max. permissible humidity (storage/transport)	75 % (on average, 85% infrequently, non-condensing)
Max. permissible relative humidity (operation)	75 % (on average, 85% infrequently, non-condensing)
Shock	15g
Vibration (operation)	10 Hz ... 150 Hz, 2g

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Approvals

CE

Certificate	CE-compliant
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Mounting

Mounting type	DIN rail mounting
Mounting position	any

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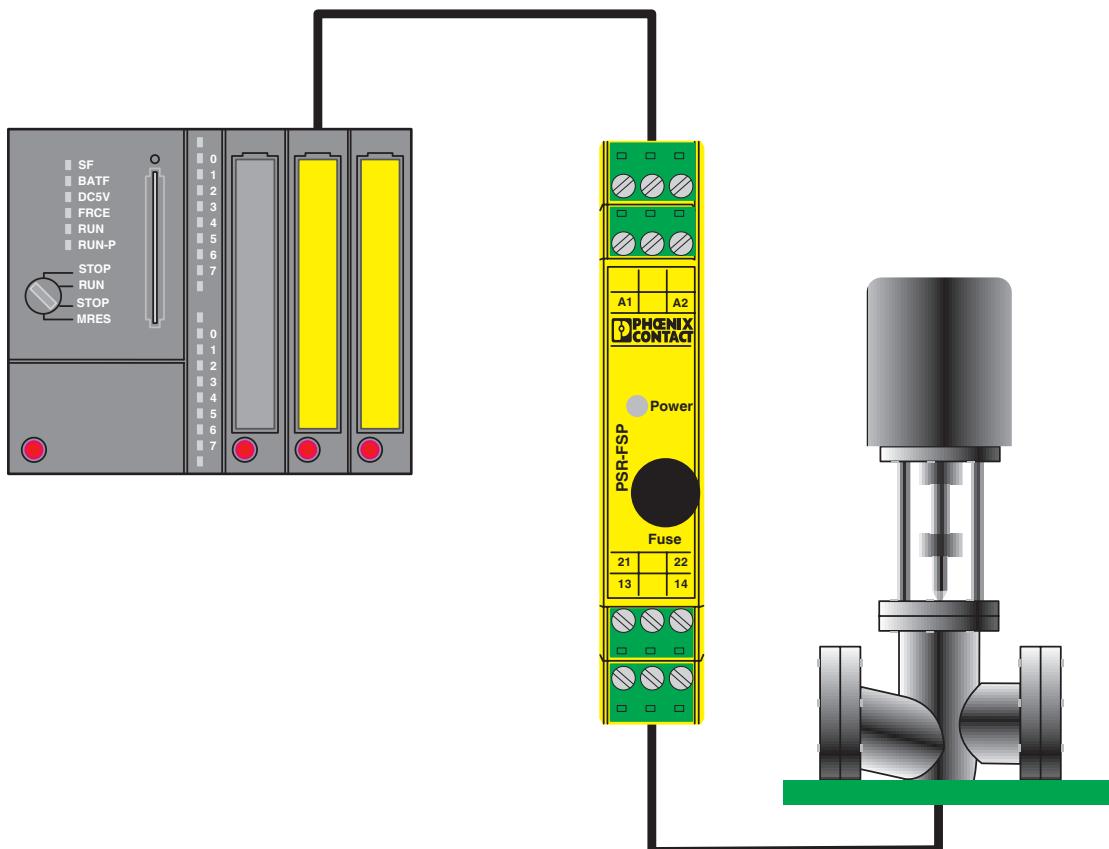
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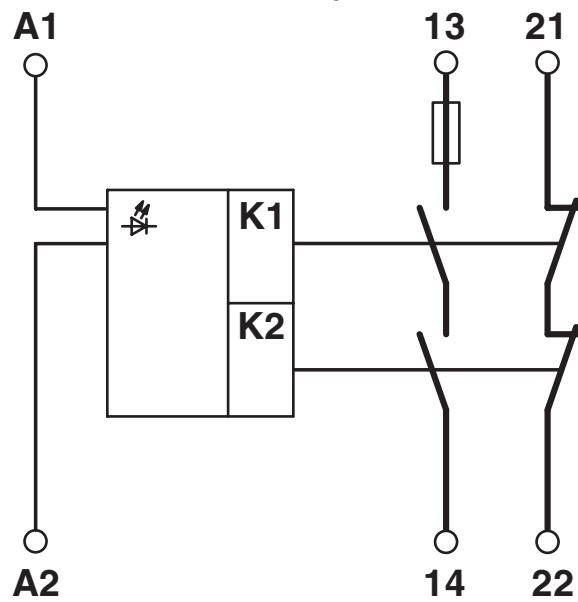
Drawings

Application drawing



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

Circuit diagram



Block diagram

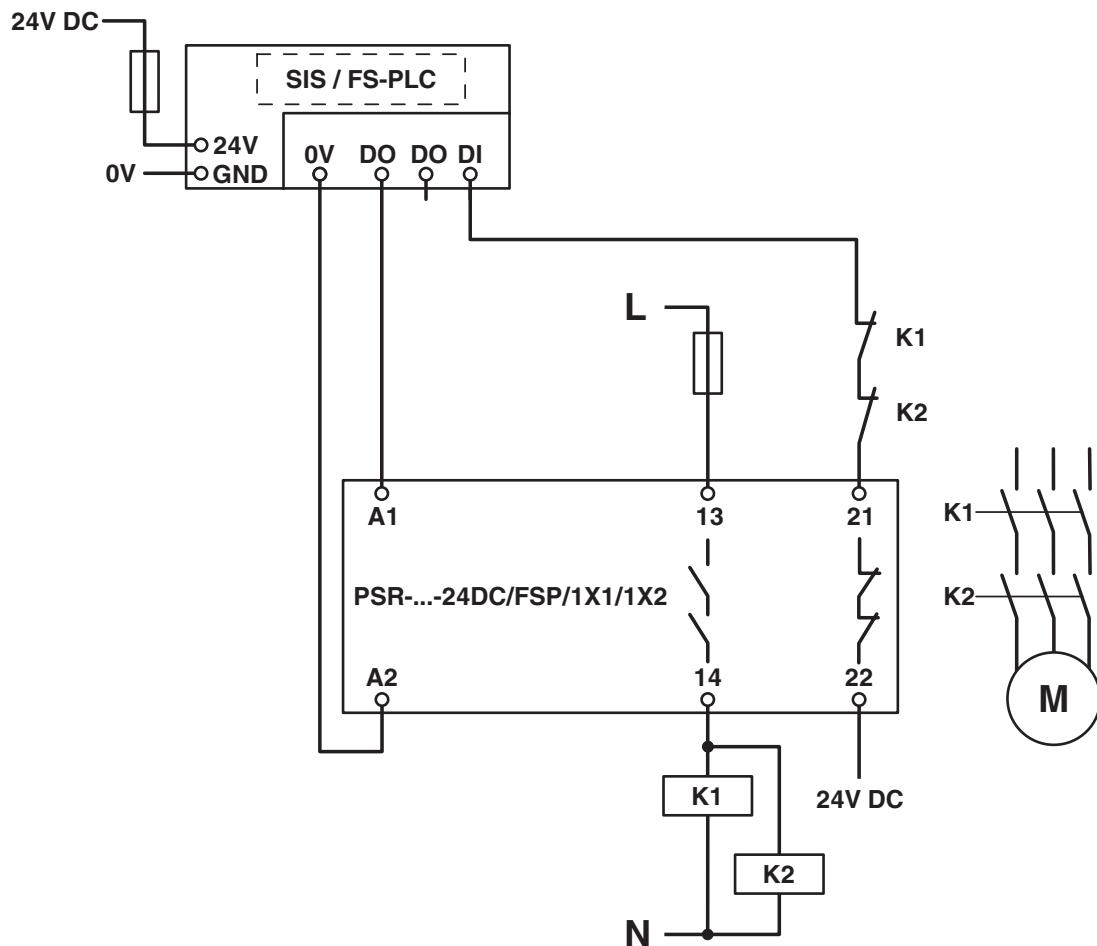
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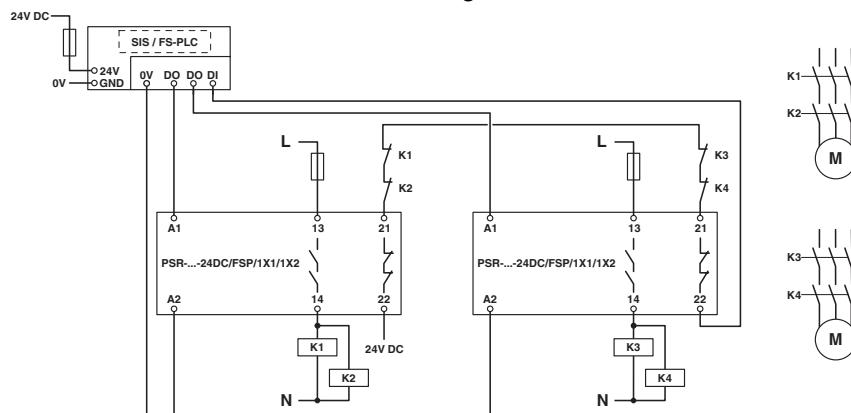
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Circuit diagram



Single-channel connection with integration of the confirmation current path

Circuit diagram



Two-channel connection with integration of the confirmation current path

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Approvals

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DNV GL

Approval ID: TAA00002UC



cULus Listed

Approval ID: E140324



Functional Safety

Approval ID: 968/EZ 365.12/24

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Classifications

ECLASS

ECLASS-13.0	27371819
ECLASS-15.0	27371819
ECLASS-15.0 ASSET	27250101

ETIM

ETIM 9.0	EC001449
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UNSPSC

UNSPSC 21.0	39122200
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Environmental product compliance

EU RoHS

Fulfills EU RoHS substance requirements	Yes
Exemption	7(a), 7(c)-I

China RoHS

Environment friendly use period (EFUP)	EFUP-50
An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required.	

EU REACH SVHC

REACH candidate substance (CAS No.)	Lead(CAS: 7439-92-1)
SCIP	3405ef31-df55-4383-9adf-0c3edb194e29

EF3.0 Climate Change

CO2e kg	3.059 kg CO2e
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