

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



2981981

<https://www.phoenixcontact.com/us/products/2981981>

Please be informed that the data shown in this PDF document is generated from our online catalog. Please find the complete data in the user documentation. Our general terms of use for downloads are valid.



The figure shows a version with a screw connection

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 Push-in 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	2981981
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DN01
Product key	DNA161
GTIN	4046356448345
Weight per piece (including packing)	149.58 g
Weight per piece (excluding packing)	128.79 g
Customs tariff number	85364900
Country of origin	DE

Technical data

Product properties

Product type	Coupling relay
Product family	PSRclassic
Application	Safe switch off
	High demand
	Low demand
Control	1-channel
Mechanical service life	10x 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

Times

Typ. starting time with U _s	50 ms (with U _s when controlled via A1)
Typical release time	50 ms (with U _s when controlled via A1)
Recovery time	1 s

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)

Supply

Designation	A1/A2
Rated control circuit supply voltage U _s	24 V DC -15 % / +10 %
Rated control supply current I _s	typ. 55 mA (at U _s)
Power consumption at U _s	typ. 1.32 W
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	
Protective circuit	Surge protection; Suppressor diode, 33 V (A1 - A2)

Output data

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



2981981

<https://www.phoenixcontact.com/us/products/2981981>

Relay: Enabling current path (13/14)

Output description	1 NO, undelayed
Number of outputs	1
Contact switching type	1 enabling current path
Contact material	AgCuNi, + 0.2 µm Au
Switching voltage	min. 15 V AC/DC max. 250 V AC/DC
Switching power	min. 75 mW
Inrush current	min. 5 mA max. 5 A
Switching capacity	5 A (24 V (DC13)) 5 A (230 V (AC15))
Limiting continuous current	5 A (N/O contact, pay attention to the derating)
Sq. Total current	25 A ² (observe derating)
Switching frequency	max. 0.5 Hz
Interrupting rating (ohmic load) max.	see load limit curve
Maximum interrupting rating (inductive load)	see load limit curve
Output fuse	5 A T fuse

Relay: Confirmation current path (21/22)

Output description	1 N/C signal contact
Number of outputs	1
Contact switching type	1 confirmation current path
Contact material	AgCuNi, + 0.2 µm Au
Switching voltage	min. 15 V AC/DC max. 250 V AC/DC
Switching power	min. 75 mW
Inrush current	5 mA max. 100 mA
Switching capacity	5 A (24 V (DC13)) 5 A (230 V (AC15))
Limiting continuous current	100 mA
Output fuse	150 mA Fast-blow

Connection data

Connection technology

pluggable	yes
-----------	-----

Conductor connection

Connection method	Push-in connection
Conductor cross-section rigid	0.2 mm ² ... 1.5 mm ²
Conductor cross-section flexible	0.2 mm ² ... 1.5 mm ²
Conductor cross-section, flexible, with ferrule, with plastic sleeve	0.25 mm ² ... 1.5 mm ² (only together with CRIMPFOX 6)
Conductor cross-section, flexible, with ferrule, without plastic	0.25 mm ² ... 1.5 mm ² (only together with CRIMPFOX 6)

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



2981981

<https://www.phoenixcontact.com/us/products/2981981>

sleeve	
Conductor cross-section AWG	24 ... 16
Stripping length	8 mm

Signaling

Operating voltage display	1 x yellow LED
---------------------------	----------------

Dimensions

Width	17.5 mm
Height	112 mm
Depth	114.5 mm

Material specifications

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

Characteristics

Safety data

Stop category (EN 60204-1)	0
----------------------------	---

Safety data: EN ISO 13849

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)

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



2981981

<https://www.phoenixcontact.com/us/products/2981981>

Max. permissible relative humidity (operation)	75 % (on average, 85% infrequently, non-condensing)
Shock	15g
Vibration (operation)	10 Hz ... 150 Hz, 2g

Approvals

CE

Certificate	CE-compliant
-------------	--------------

Mounting

Mounting type	DIN rail mounting
Mounting position	any

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

2981981

<https://www.phoenixcontact.com/us/products/2981981>

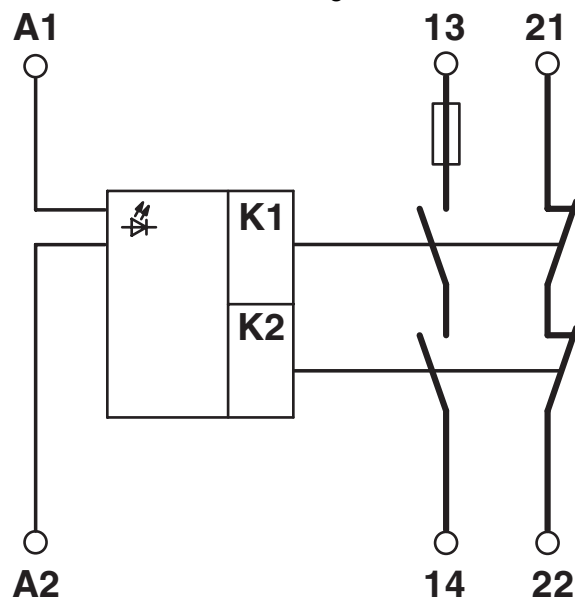
Drawings

Application drawing



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

Circuit diagram



Block diagram

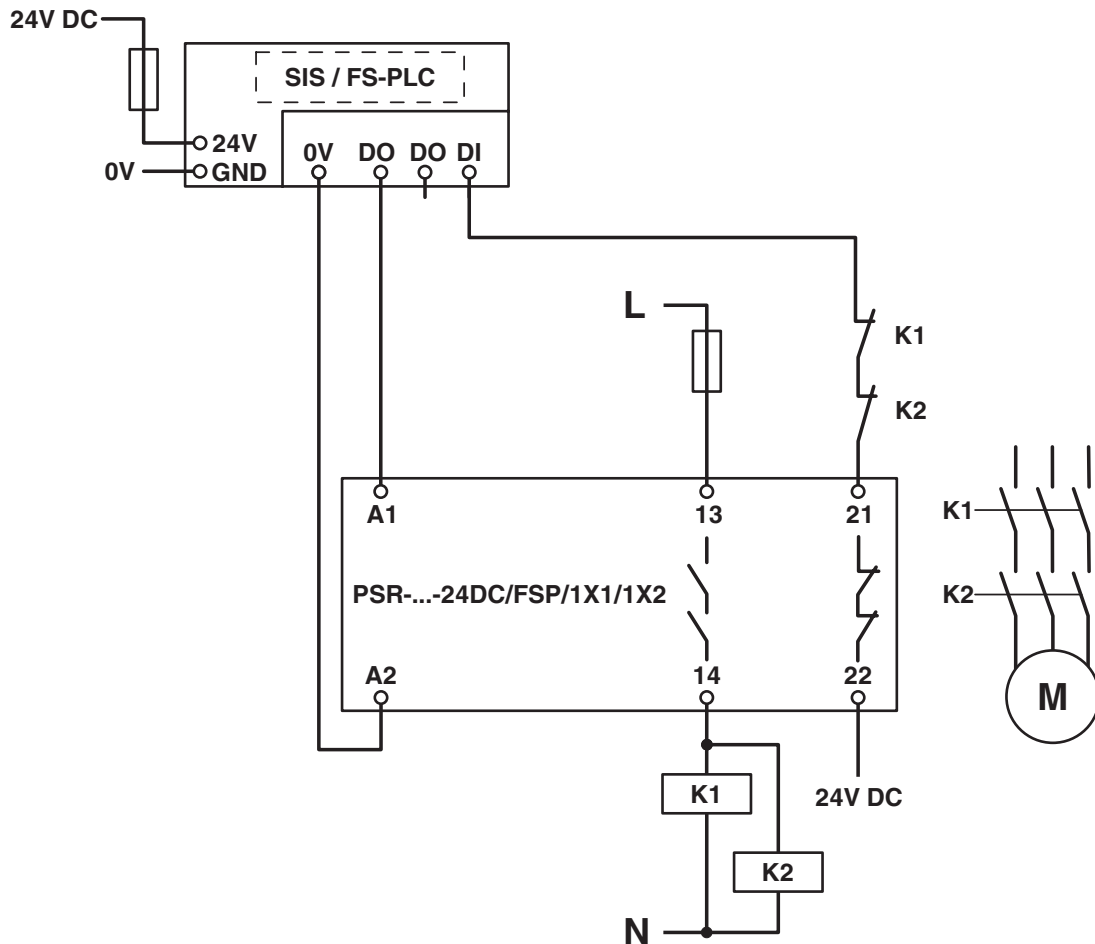
PSR-SPP- 24DC/FSP/1X1/1X2 - Coupling relay



2981981

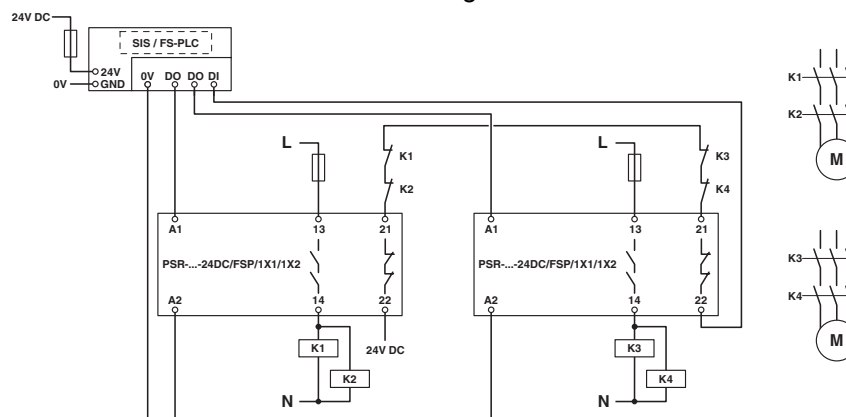
<https://www.phoenixcontact.com/us/products/2981981>

Circuit diagram



Single-channel connection with integration of the confirmation current path

Circuit diagram



Two-channel connection with integration of the confirmation current path

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



2981981

<https://www.phoenixcontact.com/us/products/2981981>

Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2981981>



DNV GL

Approval ID: TAA00002UC



cULus Listed

Approval ID: E140324



Functional Safety

Approval ID: 968/EZ 365.12/24

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



2981981

<https://www.phoenixcontact.com/us/products/2981981>

Classifications

ECLASS

ECLASS-13.0	27371819
ECLASS-15.0	27371819

ETIM

ETIM 10.0	EC001449
-----------	----------

UNSPSC

UNSPSC 21.0	39122200
-------------	----------

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	1df8785d-9c3e-4974-bbf0-9660da3d3e01

EF3.1 Climate Change

CO2e kg	2.245 kg CO2e
---------	---------------

Phoenix Contact 2026 © - all rights reserved
<https://www.phoenixcontact.com>

Phoenix Contact USA
586 Fulling Mill Road
Middletown, PA 17057, United States
(+717) 944-1300
info@phoenixcon.com