

# PSR-PS22-1NO-1NC-24VDC-SC - Coupling relay



2702524

<https://www.phoenixcontact.com/us/products/2702524>

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.



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, safe state off applications, test pulse filter, fixed screw terminal block

## Your advantages

- Up to SIL 3 in accordance with IEC 61508
- Force-guided contacts in accordance with EN 50205
- Easy proof test according to IEC 61508
- Low housing width of just 6.8 mm
- Long service life thanks to filtering of controller test pulses
- 1 enabling current path, 1 diagnostic current path
- Couples digital output signals from failsafe controllers to I/O devices (valves, etc.) for electrical isolation and power adaptation
- Corrosion protection through protective coating on the PCB

## Commercial data

Item number	2702524
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DN01
Product key	DNA172
Catalog page	Page 250 (C-6-2019)
GTIN	4055626280240
Weight per piece (including packing)	166.2 g
Weight per piece (excluding packing)	71.494 g
Customs tariff number	85364900
Country of origin	DE



## Technical data

### Notes

#### Utilization restriction

CCCex note	Use in potentially explosive areas is not permitted in China.
------------	---

### Product properties

Product type	Coupling relay
Product family	PSRmini
Application	Safe switch off
	High demand
	Low demand
	Ex
Relay type	Electromechanical relay with force-guided contacts in accordance with IEC/EN 61810-3

#### Times

Typ. starting time with $U_s$	< 150 ms (with $U_s$ when controlled via A1)
Typical release time	< 30 ms (when controlled via A1)
Recovery time	500 ms

### Electrical properties

Maximum power dissipation for nominal condition	3.28 W ( $I_L^2 = 36 \text{ A}^2$ )
Nominal operating mode	100% operating factor

#### Air clearances and creepage distances between the power circuits

Rated insulation voltage	250 V AC
Rated surge voltage/insulation	Basic insulation 4 kV between all current paths and housing
	Safe isolation, 6 kV reinforced insulation from the control circuit (A1/A2) and diagnostics circuit (0V/21/22) to the enabling current path (13/14)

#### Supply

Rated control circuit supply voltage $U_s$	20.4 V DC ... 26.4 V DC
Rated control circuit supply voltage $U_s$	24 V DC -15 % / +10 % (A1/A2)
Rated control supply current $I_s$	typ. 45 mA
Power consumption at $U_s$	typ. 1.08 W
Inrush current	typ. 150 mA ( $\Delta t < 5 \text{ ms}$ at $U_s$ )
Filter time	max. 3 ms (at A1-A2 in the event of voltage dips at $U_s$ )
	max. 3 ms (at A1-A2; low test pulse width)
	$\geq 50 \text{ ms}$ (at A1-A2; low test pulse rate)
	max. 17 ms (at A1-A2; high test pulse width)
	$\geq 600 \text{ ms}$ (at A1-A2; high test pulse rate)
Diagnostic supply voltage $U_D$	24 V DC -15 % / +10 % (21/0V)



# PSR-PS22-1NO-1NC-24VDC-SC - Coupling relay



2702524

<https://www.phoenixcontact.com/us/products/2702524>

Input current at $U_D$	6 mA (at the contacts 21/0V for $U_D$ ; + 100 mA depending on load at contact 22)
Inrush current at $U_D$	typ. 200 mA ( $\Delta t < 1$ ms; for contacts 21 - 0 V at $U_D$ )
Protective circuit	Serial protection against polarity reversal; 33 V suppressor diode (A1-A2)33 V suppressor diode (21/0V)

## Output data

### Relay: Enabling current path

Output description	2 N/O contacts in series, without delay, floating
Number of outputs	1 (safety-related N/O contacts: 13/14)
Contact switching type	1 enabling current path
Contact material	AgSnO <sub>2</sub>
Switching voltage	min. 12 V AC/DC max. 250 V AC/DC (Observe the load curve)
Switching capacity	min. 60 mW
Inrush current	min. 3 mA max. 6 A
Switching capacity in accordance with IEC 60947-5-1	4 A (24 V (DC13)) 5 A (250 V (AC15))
Limiting continuous current	6 A (High demand) 4 A (Low demand)
Sq. Total current	36 A <sup>2</sup> (observe derating)
Switching frequency	max. 1 Hz
Mechanical service life	10x 10 <sup>6</sup> cycles
Output fuse	6 A gL/gG 4 A gL/gG (for low-demand applications)

### Relay: Confirmation current path

Output description	2 N/C contacts in series, without delay, not floating (reference ground: A2)
Number of outputs	1 (safety-related N/C contacts: 21/22)
Contact switching type	1 confirmation current path
Contact material	AgCuNi, + Au
Switching voltage	min. 20.4 V DC max. 26.4 V DC
Switching capacity	min. 20 mW
Inrush current	min. 1 mA max. 100 mA
Limiting continuous current	100 mA
Switching frequency	max. 1 Hz
Mechanical service life	10x 10 <sup>6</sup> cycles
Output fuse	150 mA Fast-blow

## Connection data



# PSR-PS22-1NO-1NC-24VDC-SC - Coupling relay



2702524

<https://www.phoenixcontact.com/us/products/2702524>

## Connection technology

pluggable	no
-----------	----

## Conductor connection

Connection method	Screw connection
Conductor cross section rigid	0.2 mm² ... 2.5 mm²
Conductor cross section flexible	0.2 mm² ... 2.5 mm²
Conductor cross-section AWG	24 ... 12
Stripping length	12 mm
Screw thread	M3
Tightening torque	0.5 Nm ... 0.6 Nm

## Signaling

Status display	2 x green LEDs
Operating voltage display	1 x yellow LED
Error indication	1 x red LED

## Dimensions

Width	6.8 mm
Height	93.1 mm
Depth	102.5 mm

## Material specifications

Housing material	PBT
------------------	-----

## Characteristics

### Safety data

Stop category	0
---------------	---

### Safety data: EN 50156-2

Safety Integrity Level (SIL)	3 (Reference IEC 61508)
------------------------------	-------------------------

### Safety data: IEC 61508 - High demand

Safety Integrity Level (SIL)	3
	3

### Safety data: IEC 61508 - Low demand

Safety Integrity Level (SIL)	3
	3
	3

## Environmental and real-life conditions

### Ambient conditions

Degree of protection	IP20
Min. degree of protection of inst. location	IP54



# PSR-PS22-1NO-1NC-24VDC-SC - Coupling relay



2702524

<https://www.phoenixcontact.com/us/products/2702524>

Ambient temperature (operation)	-40 °C ... 70 °C (observe derating)
Ambient temperature (storage/transport)	-40 °C ... 85 °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

## Approvals

### ATEX

Identification	Ex II 3G Ex ec nC IIC T4 Gc
Certificate	UL 22 ATEX 2912X

### IECEX

Identification	Ex ec nC IIC T4 Gc
Certificate	IECEX UL 22.0037X

### UL, USA/Canada

Identification	cULus
Certificate	E140324

### UL Ex, USA / Canada

Identification	Class I, Zone 2, AEx nA nC IIC T4 / Ex nA nC IIC Gc T4 X Class I, Div. 2, Groups A, B, C, D, T4
Certificate	E360692

### CE

Identification	CE-compliant
----------------	--------------

### Environmental simulation test

Identification	G3
Certificate	ISA-S71.04

### CCC / China-Ex

Identification	Ex ec nC IIC T4 Gc
Certificate	2022122304115695

## Standards and regulations

### Air clearances and creepage distances between the power circuits

Standards/regulations	EN 60664-1, EN 60079-7, EN 60079-15
-----------------------	-------------------------------------

## Mounting

Mounting type	DIN rail mounting
Assembly instructions	See derating curve
Mounting position	vertical or horizontal
Connection method	Screw connection



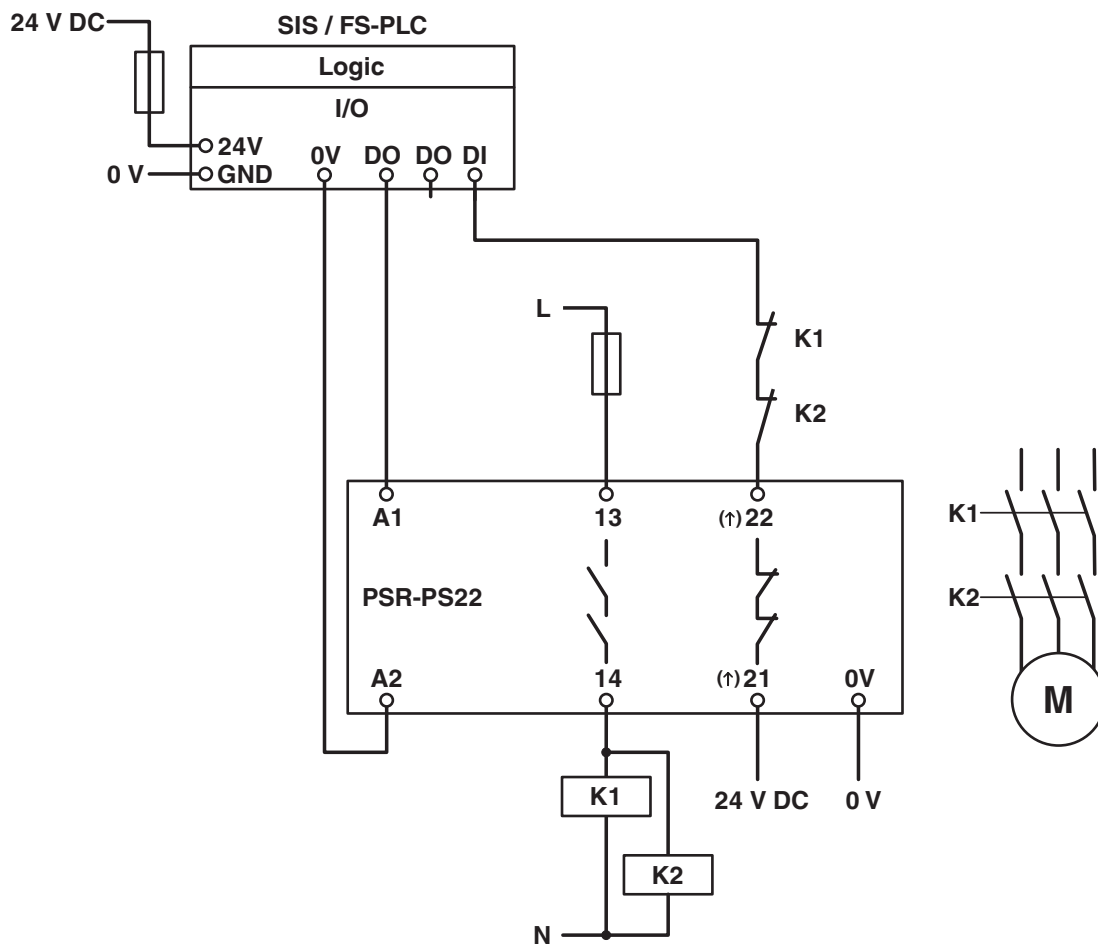
# PSR-PS22-1NO-1NC-24VDC-SC - Coupling relay

2702524

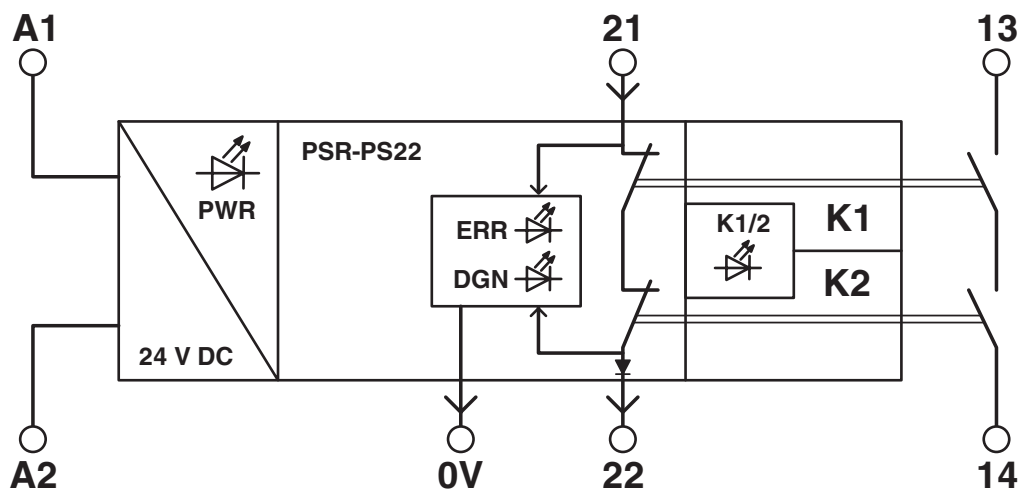
<https://www.phoenixcontact.com/us/products/2702524>

## Drawings

Circuit diagram



Block diagram



Block diagram



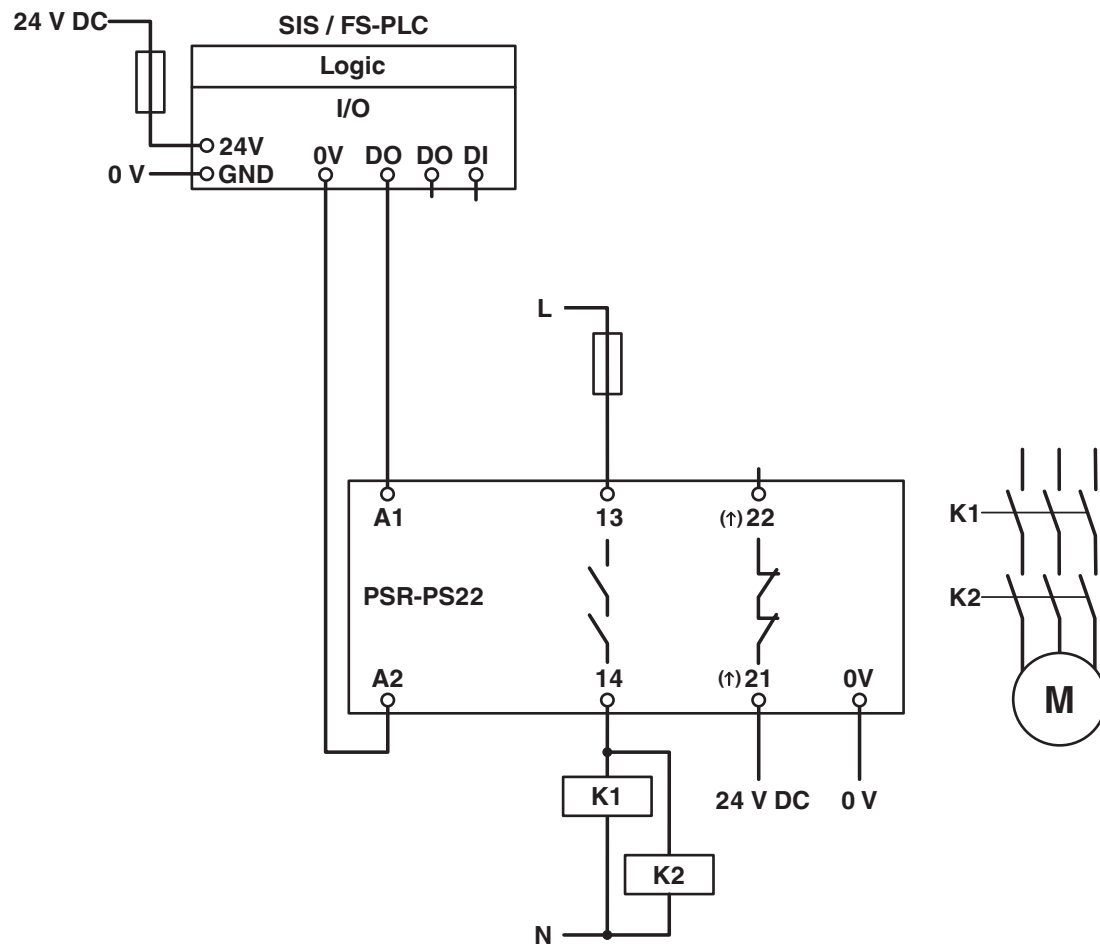
## PSR-PS22-1NO-1NC-24VDC-SC - Coupling relay

2702524

<https://www.phoenixcontact.com/us/products/2702524>



### Circuit diagram





# PSR-PS22-1NO-1NC-24VDC-SC - Coupling relay





2702524


<https://www.phoenixcontact.com/us/products/2702524>


## Approvals


To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2702524>


 **UL Listed**  
Approval ID: FILE E 140324


 **cUL Listed**  
Approval ID: FILE E 140324


 **EAC**  
Approval ID: RU C-DE.A\*30.B.01082


 **Functional Safety**  
Approval ID: 44-780-15124306

 **Functional Safety**  
Approval ID: 44-205-15124306

 **IECEX**  
Approval ID: IECEX ULD 14.0003 X

 **cUL Listed**  
Approval ID: File E 360692

 **UL Listed**  
Approval ID: File E 360692

 **ATEX**  
Approval ID: DEMKO 14 ATEX 1284 X

**cULus Listed**

**cULus Listed**



# PSR-PS22-1NO-1NC-24VDC-SC - Coupling relay



2702524

<https://www.phoenixcontact.com/us/products/2702524>

## Classifications

### ECLASS

ECLASS-11.0	27371819
ECLASS-13.0	27371819
ECLASS-12.0	27371819

### ETIM

ETIM 8.0	EC001449
----------	----------

### UNSPSC

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



# PSR-PS22-1NO-1NC-24VDC-SC - Coupling relay



2702524

<https://www.phoenixcontact.com/us/products/2702524>

## Environmental product compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For information on hazardous substances, refer to the manufacturer's declaration available under "Downloads"



# PSR-PS22-1NO-1NC-24VDC-SC - Coupling relay



2702524

<https://www.phoenixcontact.com/us/products/2702524>

## Accessories

ZBF 6:UNBEDRUCKT - Zack Marker strip, flat

0808710

<https://www.phoenixcontact.com/us/products/0808710>



Zack Marker strip, flat, Strip, white, unlabeled, can be labeled with: PLOTMARK, CMS-P1-PLOTTER, mounting type: snapped, for terminal block width: 6.2 mm, lettering field size: 5.15 x 6.15 mm, Number of individual labels: 10

---

Phoenix Contact 2023 © - 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](mailto:info@phoenixcon.com)