

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



2702524

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

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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, 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
GTIN	4055626280240
Weight per piece (including packing)	104.1 g
Weight per piece (excluding packing)	70.53 g
Customs tariff number	85364900
Country of origin	DE

## Technical data

### Notes

#### Note on application

Note on application	Only for industrial use
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### Product properties

Product type	Coupling relay
Product family	PSRmini
Application	Safe switch off
	High demand
	Low demand
	Ex
Control	1 and 2 channel
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 $U_s$	< 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
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

Designation	A1/A2
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 %
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)

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



2702524

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

	max. 17 ms (at A1-A2; high test pulse width)
	≥ 600 ms (at A1-A2; high test pulse rate)
Protective circuit	Serial protection against polarity reversal; Suppressor diode 33 V

## Supply

Designation	21/0V
Diagnostic supply voltage $U_D$	24 V DC -15 % / +10 %
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; Suppressor diode 33 V

## Output data

### Relay: Enabling current path (13/14)

Output description	2 N/O contacts in series, without delay, floating
Number of outputs	1 (safety-related)
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
Switching power	min. 60 mW
Inrush current	min. 3 mA max. 6 A
Switching capacity	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. 0.1 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 (21/22)

Output description	2 N/C contacts in series, without delay, not floating (reference ground: 0V)
Number of outputs	1 (safety-related)
Contact switching type	1 confirmation current path
Contact material	AgCuNi, + Au
Switching voltage	min. 20.4 V DC max. 26.4 V DC
Switching power	min. 20 mW
Inrush current	min. 1 mA max. 100 mA
Limiting continuous current	100 mA

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2702524

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Switching frequency	max. 0.1 Hz
Mechanical service life	10x 10 <sup>6</sup> cycles
Output fuse	150 mA Fast-blow

## Connection data

### Connection technology

pluggable	no
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### Conductor connection

Connection method	Screw connection
Conductor cross-section rigid	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
Conductor cross-section flexible	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
Conductor cross-section AWG	26 ... 12
Stripping length	12 mm
Screw thread	M3
Tightening torque	0.5 Nm ... 0.6 Nm

## Signaling

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

## Dimensions

Width	6.8 mm
Height	93.1 mm
Depth	102.5 mm

## Material specifications

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

## Characteristics

### Safety data

Stop category (EN 60204-1)	0
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### Safety data: EN 50156-2

Safety Integrity Level (SIL)	3 (Reference IEC 61508)
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### Safety data: IEC 61508 - High demand

Safety Integrity Level (SIL)	3
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### Safety data

Safety Integrity Level (SIL)	3
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### Safety data: IEC 61508 - Low demand

Safety Integrity Level (SIL)	3
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2702524

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

## Safety data

Safety Integrity Level (SIL)	3
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## Safety data: IEC 61508 - Low demand

Safety Integrity Level (SIL)	3
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## Environmental and real-life conditions

### Ambient conditions

Degree of protection	IP20
Min. degree of protection of inst. location	IP54
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	⊕ 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 ec nC IIC T4 / Ex ec nC IIC Gc T4 X Class I, Div. 2, Groups A, B, C, D, T4
Certificate	E360692

### CE

Identification	CE-compliant
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### Environmental simulation test

Identification	G3
Certificate	ISA-S71.04

### CCC / China-Ex

Identification	Ex ec nC IIC T4 Gc
Certificate	2022122304115695

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



2702524

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

## Mounting

Mounting type	DIN rail mounting
Assembly note	See derating curve
Mounting position	vertical or horizontal

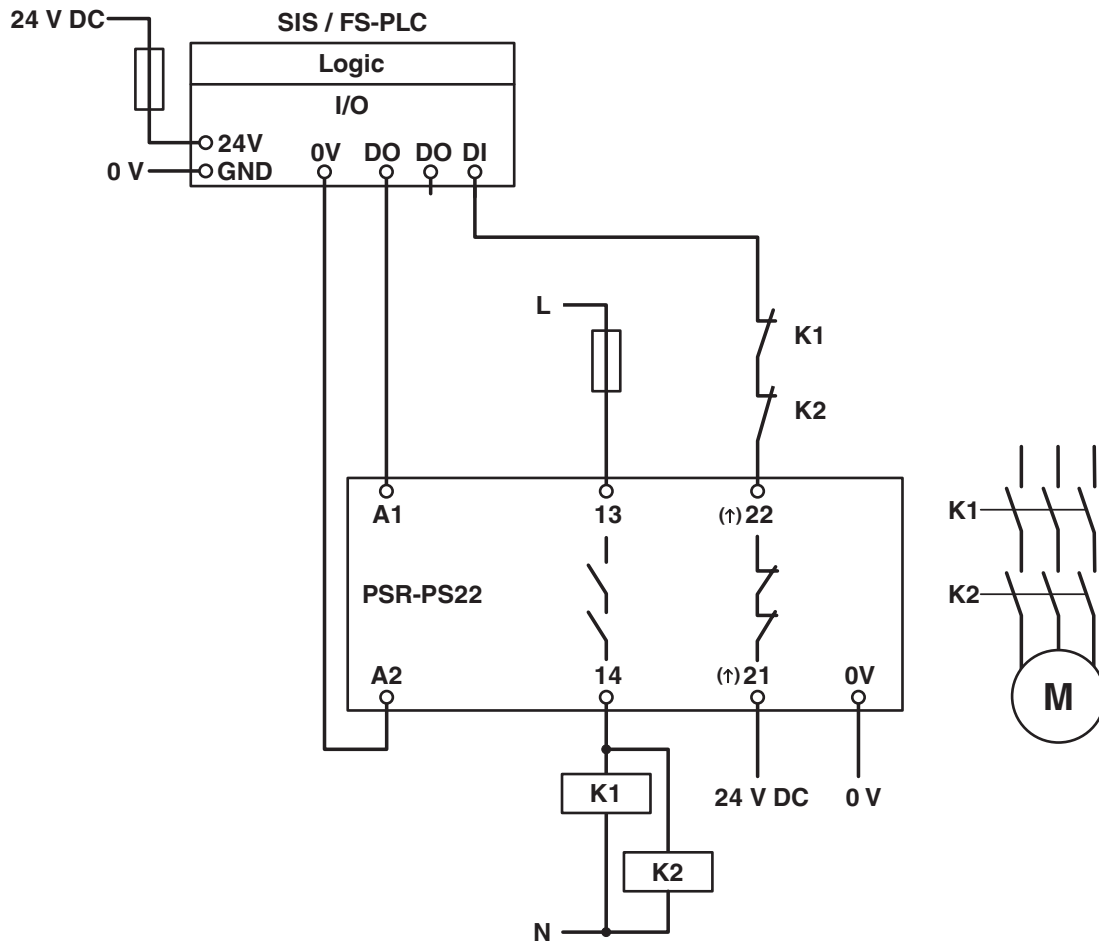
# PSR-PS22-1NO-1NC-24VDC-SC - Coupling relay

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## Drawings

Circuit diagram



Example application

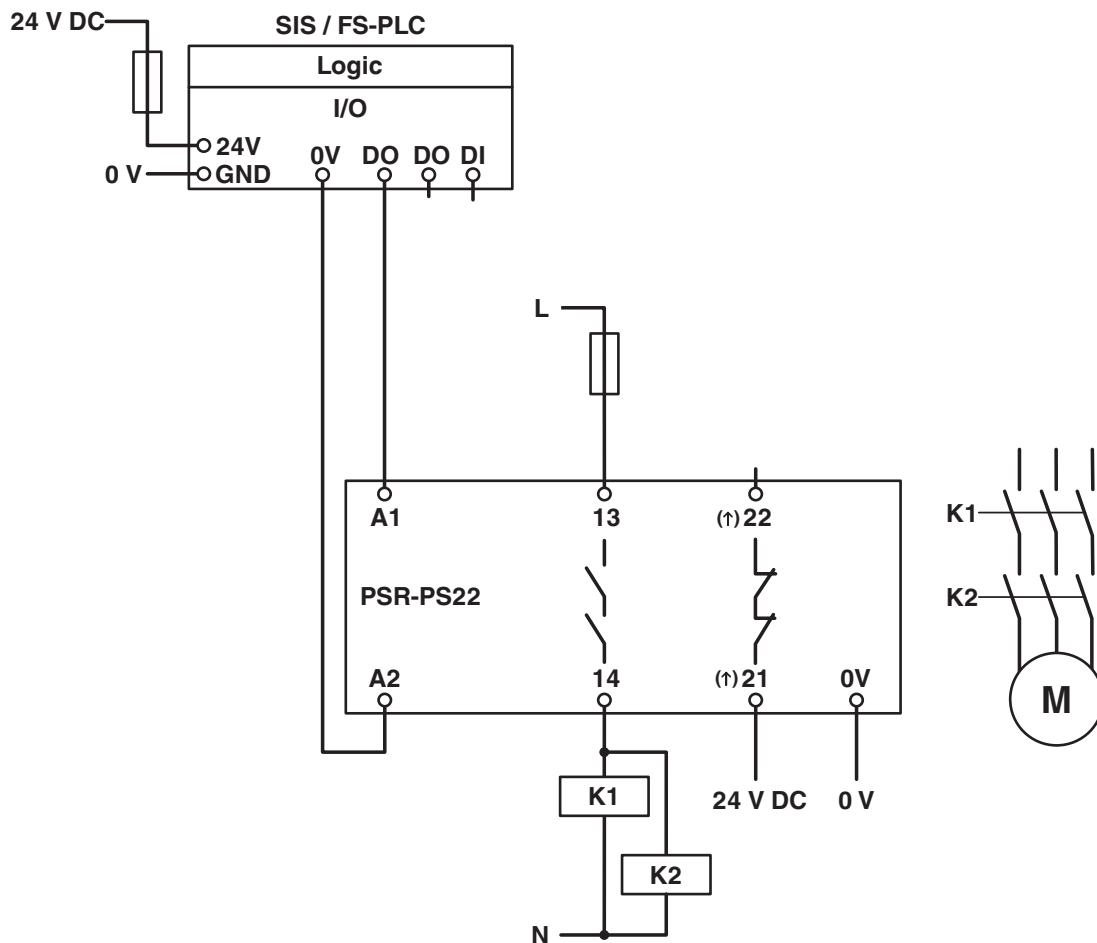
# PSR-PS22-1NO-1NC-24VDC-SC - Coupling relay



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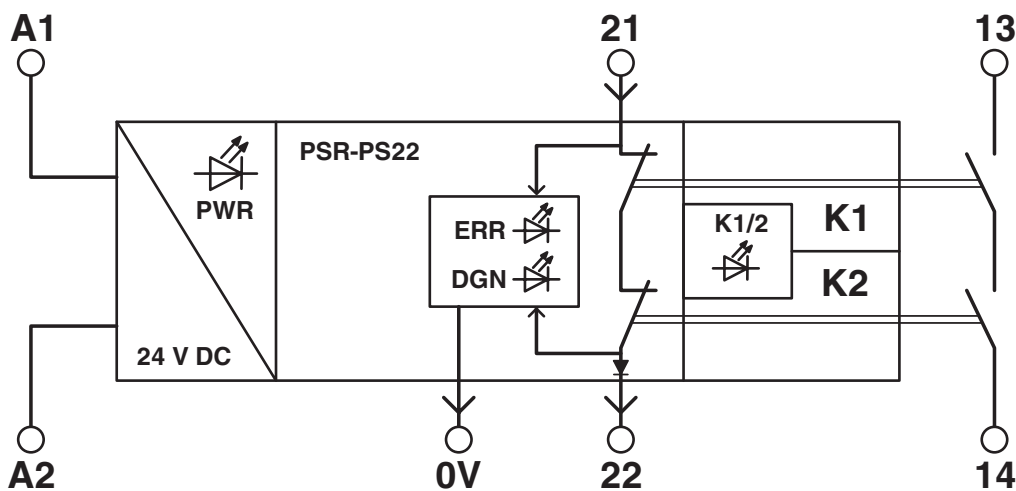
<https://www.phoenixcontact.com/us/products/2702524>

Circuit diagram



Example application

Block diagram



Block diagram

2702524

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## Approvals

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



### Functional Safety

Approval ID: 44 780 15124306



### cULus Listed

Approval ID: E140324



### IECEX

Approval ID: IECEX ULD 22.0037X



### ATEX

Approval ID: UL 22 ATEX 2912X



### cULus Listed

Approval ID: E360692



### CCC

Approval ID: 2022122304115695

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## Classifications

### ECLASS

ECLASS-13.0	27371819
ECLASS-15.0	27371819

### ETIM

ETIM 10.0	EC001449
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### UNSPSC

UNSPSC 21.0	39122200
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2702524

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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	b619f461-249e-46c4-89cf-a70789c77101

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