

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
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.
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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)

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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 ₂
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 ² (observe derating)
Switching frequency	max. 1 Hz
Mechanical service life	10x 10 ⁶ 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 ⁶ cycles
Output fuse	150 mA Fast-blow

Connection data

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Connection technology

pluggable	no
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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	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
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Characteristics

Safety data

Stop category	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
	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

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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 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
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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

Standards and regulations

Air clearances and creepage distances between the power circuits

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

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

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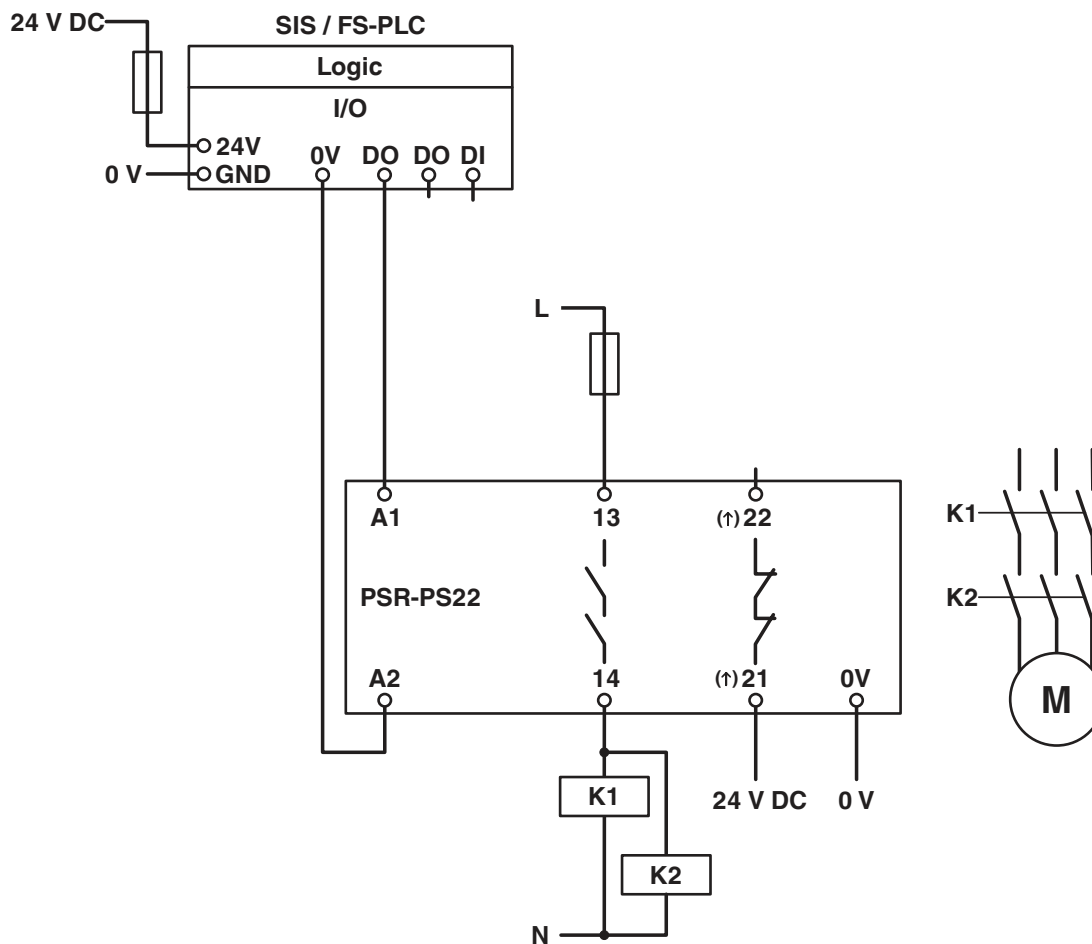


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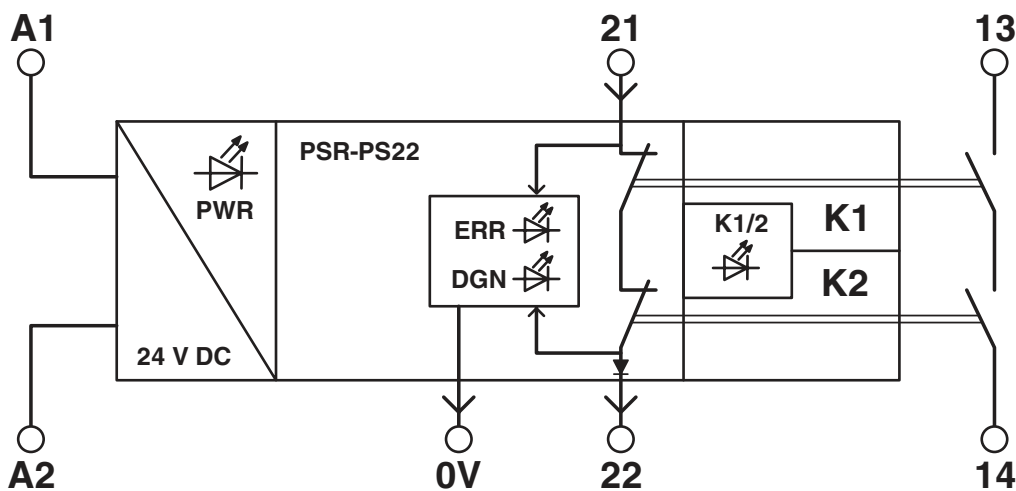
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Drawings

Circuit diagram



Block diagram



Block diagram

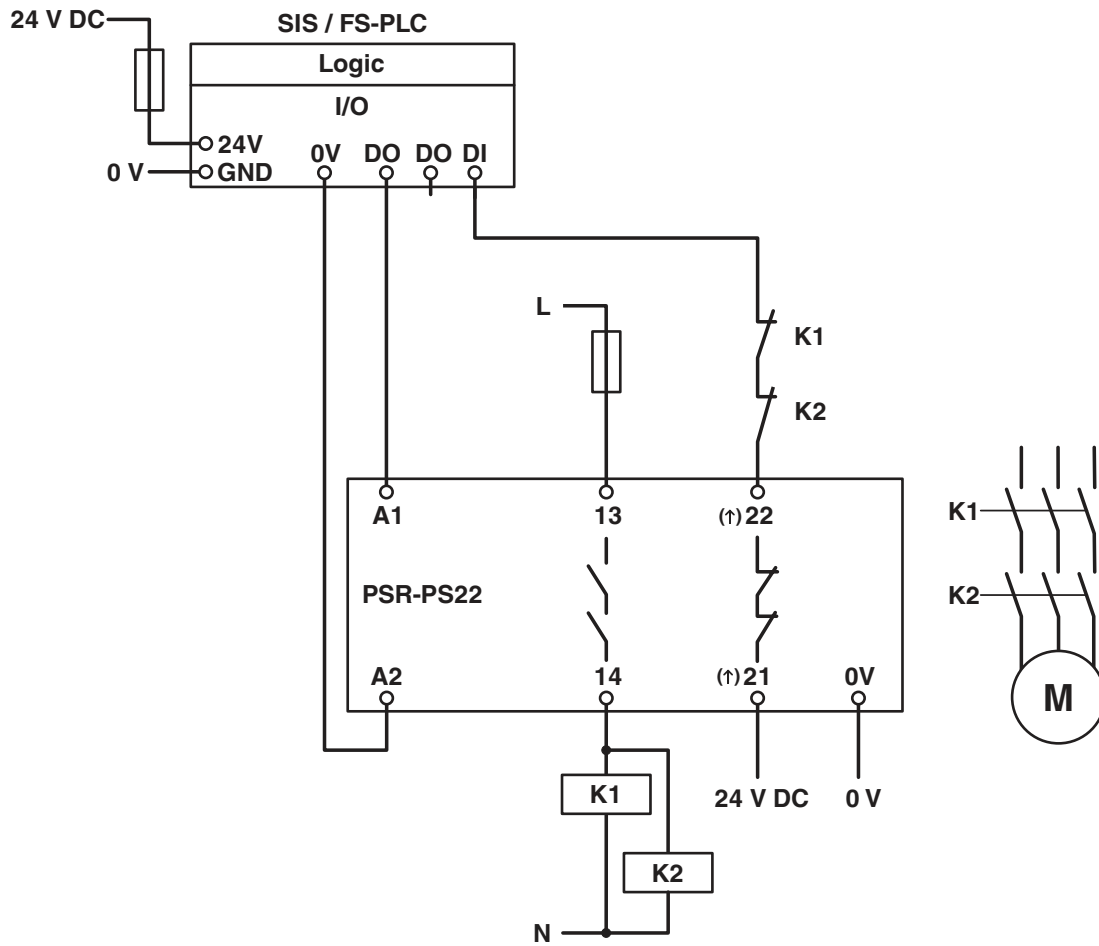
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Circuit diagram



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Approvals

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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

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Classifications

ECLASS

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

ETIM

ETIM 8.0	EC001449
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UNSPSC

UNSPSC 21.0	39122200
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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"

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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

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