

2700581

<https://www.phoenixcontact.com/au/products/2700581>

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Coupling relay for SIL 3 high and low-demand applications, couples digital signals to the I/O, 24 V ... 230 V wide-range input, 2 enabling current paths (1x up to 60 V, 1x up to 250 V) 1 confirmation current path, safe state off applications, plug-in 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
- Slim design
- Wide-range input
- Corrosion protection through protective coating on the PCB

Commercial data

Item number	2700581
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DNA182
Product key	DNA182
Catalog page	Page 252 (C-6-2019)
GTIN	4046356916066
Weight per piece (including packing)	258.69 g
Weight per piece (excluding packing)	157.28 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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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
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

Typical response time	< 100 ms (with U_s when controlled via A1)
Typical release time	< 200 ms (with U_s when controlled via A1)
Recovery time	< 500 ms

Electrical properties

Maximum power dissipation for nominal condition	5.7 W (at $I_L^2 = 72 \text{ A}^2$)
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, reinforced insulation 2.5 kV between (93/94) and (31/32, 24V/GND)
	Safe isolation, reinforced insulation 6 kV: between (A1/A2) and (13/14) and (31/32, 24V/GND) between (A1/A2) and (93/94) between (13/14) and (93/94)

Supply

Designation	A1/A2
Rated control circuit supply voltage U_s	24 V AC/DC ... 230 V AC/DC -15 % ... +10 %
Rated control supply current I_s	75 mA (24 V DC)
	34 mA (48 V DC)

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	97 mA (42 V AC)
	28 mA (120 V AC)
	16 mA (230 V AC)
Power consumption at U_s	1.8 W (with DC)
	2.1 W (with AC)
Apparent power	typ. 4.1 VA
Inrush current	typ. 16 A ($\Delta t < 100 \mu s$ at U_s)
	< 5 mA (at terminal blocks 24V/GND at U_D)
Filter time	10 ms (24 V DC, A1 in the event of voltage dips at U_s)
	max. 1.5 ms (at A1-A2; test pulse width; at 24 V DC)
	7.5 ms (at A1-A2; test pulse rate; at 24 V DC)
	Test pulse rate = 5 x Test pulse width
Protective circuit	Surge protection; Varistor 275 V

Supply

Designation	24V/GND
Diagnostic supply voltage U_D	24 V DC -15 % / +10 %
Input current at U_D	< 5 mA (at terminal blocks 24V/GND at U_D)
Protective circuit	Surge protection; 33 V suppressor diode
	Reverse polarity protection

Output data

Relay: Enabling current paths (13/14, 93/94)

Output description	2 NO contacts each in series, without delay, floating
Number of outputs	2 (safety-related)
Contact switching type	2 enabling current paths
Contact material	AgSnO ₂
Switching voltage	min. 12 V AC/DC
	max. 250 V AC/DC (13/14)
	max. 60 V AC/DC (93/94)
Switching capacity	min. 60 mW
Inrush current	min. 3 mA
	max. 6 A
Switching capacity (360/h cycles)	4 A (24 V (DC13))
	5 A (230 V (AC 15))
Limiting continuous current	6 A (observe derating)
Sq. Total current	72 A ² (observe derating)
Switching frequency	max. 0.1 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 (31/32)

Output description	2 N/C contacts in series, without delay, floating/non-floating, depending on the application
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Number of outputs	1 (safety-related)
Contact switching type	1 confirmation current path
Contact material	AgCuNi, + Au
Switching voltage	min. 3.3 V AC/DC max. 26.4 V DC
Switching capacity	min. 3.3 mW
Inrush current	min. 1 mA max. 100 mA
Limiting continuous current	100 mA
Output fuse	150 mA fast blow

Connection data

Connection technology

pluggable	yes
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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	7 mm
Screw thread	M3

Signaling

Status display	1 x LED (green), 1 x LED (yellow)
Operating voltage display	1 x LED (yellow)

Dimensions

Width	17.5 mm
Height	112.2 mm
Depth	114.5 mm

Material specifications

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

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 (< 15% of the overall SIL)
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Safety data: IEC 61508 - Low demand

Safety Integrity Level (SIL)	3 (< 15% of the overall SIL)
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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

Mounting

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

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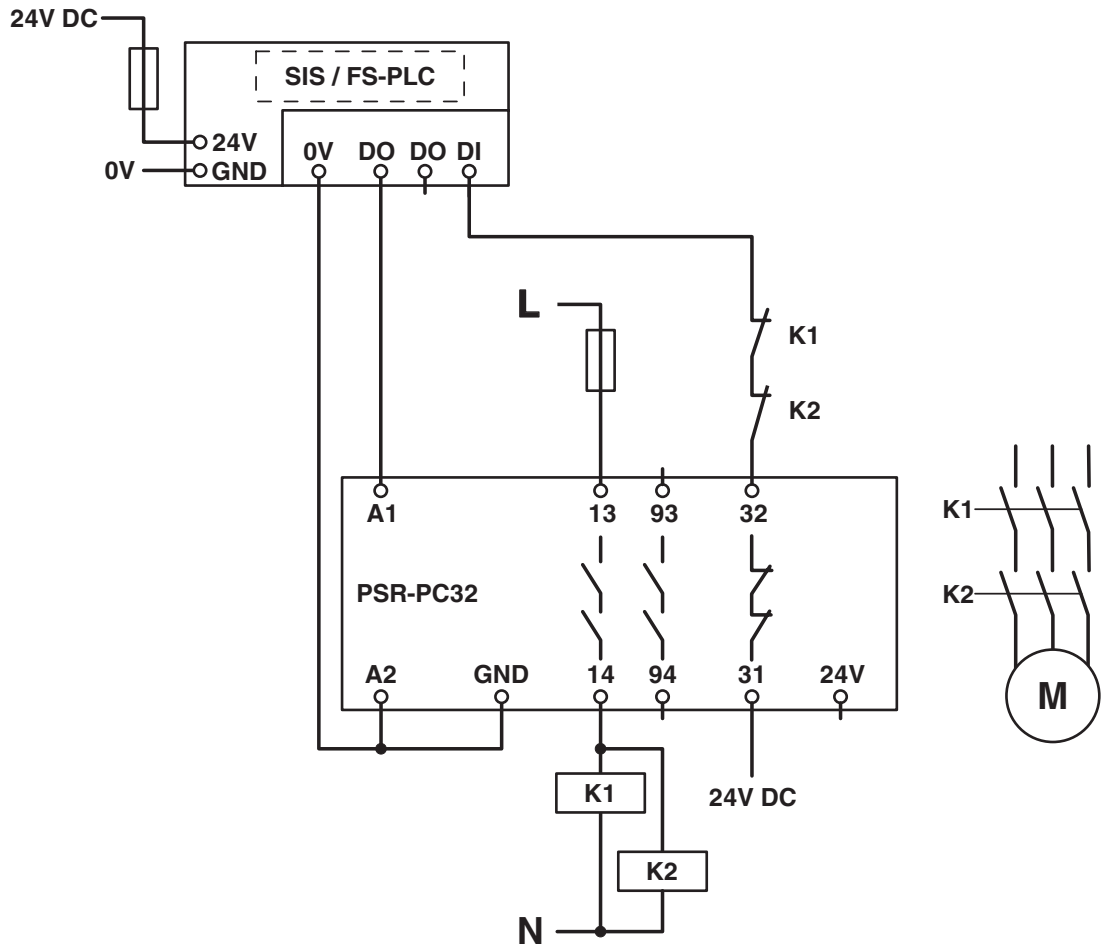


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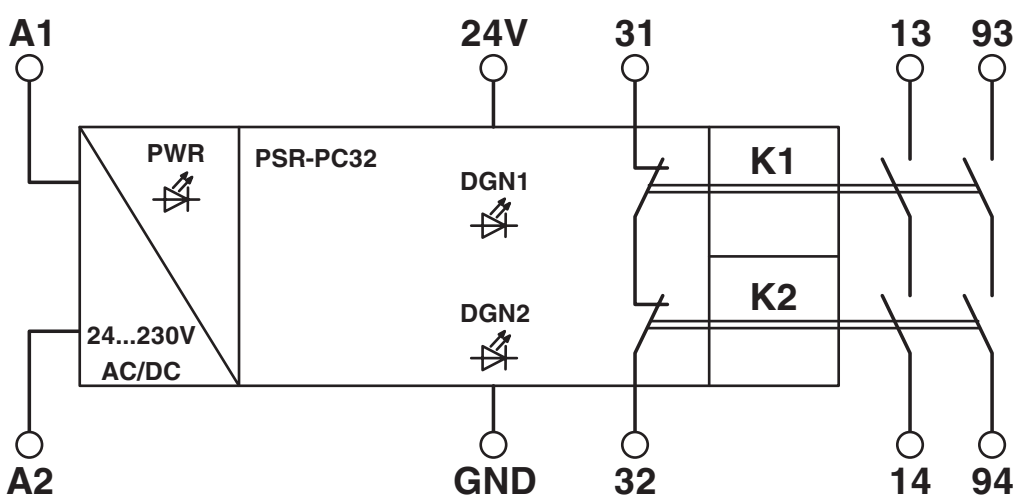
Drawings

Circuit diagram



Example application

Block diagram



Block diagram

Approvals

 To download certificates, visit the product detail page: <https://www.phoenixcontact.com/au/products/2700581>



Functional Safety

Approval ID: 44-205-15124302



Functional Safety

Approval ID: 4478015124308



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
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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	9eddf264-067b-403c-9bd0-7b8e51826b75