

# PSR-PC50-1NO-1DO-24DC-SP - Coupling relay



2904665

<https://www.phoenixcontact.com/us/products/2904665>

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Coupling relay for SIL 3 low-demand applications, couples digital output signals to the I/O, 1 enabling current path, module for F&G applications, test pulse filter, width: 17.5 mm, pluggable Push-in terminal block

## Your advantages

- Up to SIL 3 in accordance with IEC 61508
- Easy proof test according to IEC 61508 thanks to integrated signal contact
- Installation in zone 2 permitted
- Couples digital output signals from failsafe controllers to I/O devices (valves, etc.) for electrical isolation and power adaptation

## Commercial data

Item number	2904665
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DN01
Product key	DNA182
Catalog page	Page 253 (C-6-2019)
GTIN	4046356919920
Weight per piece (including packing)	221.2 g
Weight per piece (excluding packing)	212.4 g
Customs tariff number	85364900
Country of origin	DE

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## 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
Installation location	IP 54
Application	Safe switch on Low demand Ex
Relay type	Electromechanical relay with force-guided contacts in accordance with IEC/EN 61810-3

#### Times

Typ. starting time with $U_S$	30 ms (when controlled via A1)
Typical release time	30 ms (when controlled via A1)
Recovery time	1 s

### Electrical properties

Maximum power dissipation for nominal condition	1.56 W
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	6 kV/safe isolation (through protective impedance)

#### 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. 65 mA
Inrush current	$\leq 200$ mA
Filter time	$< 2$ ms (Test pulse duration) $\geq 100$ ms (Test pulse rate)
Protective circuit	Overload protection; Suppressor diode

#### Supply

Designation	24V/A2
Diagnostic supply voltage $U_D$	24 V DC -15 % / +10 %
Input current at $U_D$	typ. 15 mA (24V/A2; depending on load M1 +100 mA)
Inrush current at $U_D$	2.5 A (24V/A2; for 10 $\mu$ s)
Protective circuit	Overload protection; Suppressor diode

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## Input data

Digital: Test points for proof test (T1, T2, T3)

Number of inputs	3 (Test point for proof test)
Inrush current	200 mA (Inputs TP1, TP2 and TP3)
Current consumption	typ. 20 mA (Input TP1)
	typ. 18 mA (Input TP2)
	typ. 35 mA (Input TP3)

## Output data

Relay: Enabling current path

Output description	safety-related N/O contacts
Number of outputs	1 (undelayed)
Contact switching type	1 enabling current path
Contact material	AgNi, gold-flashed
Switching voltage	min. 15 V AC/DC (without diagnostics)
	min. 20 V AC/DC (with diagnostics)
	max. 250 V AC
	max. 125 V DC
Switching capacity	min. 1.5 W
Inrush current	min. 100 mA
	max. 5 A
Max. permissible overall conductor resistance	< 10 $\Omega$ (LO/LO' and NI/NI' and load resistance in the event of a short circuit)
Limiting continuous current	5 A
Switching frequency	max. 0.5 Hz
Diagnostic threshold	20 $\Omega$ ... 18 k $\Omega$ (lower/upper)
Mechanical service life	approx. 5x 10 <sup>7</sup> cycles

Signal

Output description	non-safety-related
Number of outputs	1 (digital)
Voltage	23 V DC
Current	max. 100 mA
Short-circuit protection	no
Output fuse	150 mA fast blow

## Connection data

Connection technology

pluggable	yes
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Conductor connection

Connection method	Push-in connection
Conductor cross section rigid	0.2 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>

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Conductor cross section flexible	0.2 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>
Conductor cross section, flexible, with ferrule, with plastic sleeve	0.25 mm <sup>2</sup> ... 1.5 mm <sup>2</sup> (only together with CRIMPFOX 6)
Conductor cross section flexible, with ferrule without plastic sleeve	0.25 mm <sup>2</sup> ... 1.5 mm <sup>2</sup> (only together with CRIMPFOX 6)
Conductor cross-section AWG	24 ... 16
Stripping length	8 mm

## Signaling

Status display	Green LED
Operating voltage display	Yellow LED
Error indication	Red LED

## Dimensions

Width	17.5 mm
Height	117.4 mm
Depth	114.5 mm

## Material specifications

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

## Characteristics

Safety data: IEC 61508 - Low demand

Safety Integrity Level (SIL)	3 (15 % of total 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)	-20 °C ... 55 °C
Ambient temperature (storage/transport)	-40 °C ... 65 °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)	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
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Certificate	IECEX UL 22.0037X
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## UL, USA/Canada

Identification	cULus
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Certificate	E140324
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## UL Ex, USA / Canada

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

Identification	CE-compliant
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## Environmental simulation test

Identification	G3
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Certificate	ISA-S71.04
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## CCC / China-Ex

Identification	Ex ec nC IIC T4 Gc
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Certificate	2022122304115695
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## DNV

Identification	C, EMC2
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Certificate	11253-14 HH
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## 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
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Mounting position	vertical or horizontal
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## Classifications

### ECLASS

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

### ETIM

ETIM 9.0	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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