

## Coupling relay - PSR-PC50-1NO-1DO-24DC-SC - 2904664

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Coupling relay for SIL 3 low demand applications, couples digital output signals to the periphery, 1 enabling current path, module for F&G applications, test pulse filter, plug-in screw connection, 17.5 mm width

### Your advantages

- ✓ Up to SIL 3 according to 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



### Key Commercial Data

Packing unit	1 pc
GTIN	 4 046356 919937
GTIN	4046356919937
Weight per Piece (excluding packing)	220.000 g
Custom tariff number	85364900
Country of origin	Germany

### Technical data

#### Note

Utilization restriction	EMC: class A product, see manufacturer's declaration in the download area
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#### Dimensions

Width	17.5 mm
Height	112.2 mm
Depth	114.5 mm

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## Technical data

### Ambient conditions

Ambient temperature (operation)	-20 °C ... 55 °C
Ambient temperature (storage/transport)	-40 °C ... 65 °C
Max. permissible relative humidity (operation)	75 % (on average, 85% infrequently, non-condensing)
Max. permissible humidity (storage/transport)	75 % (on average, 85% infrequently, non-condensing)
Maximum altitude	≤ 2000 m (Above sea level)

### Power supply

Rated control circuit supply voltage $U_s$	24 V DC -15 % / +10 % (A1/A2)
	20.4 V DC ... 26.4 V DC
Rated control supply current $I_s$	typ. 65 mA (A1/A2)
Inrush current	≤ 200 mA (A1/A2)
Filter time	< 2 ms (Test pulse duration)
	≥ 100 ms (Test pulse rate)
Diagnostic supply voltage $U_D$	24 V DC -15 % / +10 % (24V/A2)
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 μs)
Protective circuit	Overload protection Suppressor diode

### Digital inputs

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)

### Relay outputs: enabling current path

Output name	Enabling current path
Output description	safety-related N/O contacts
Number of outputs	1 (undelayed)
Contact 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
Limiting continuous current	5 A
Inrush current	min. 100 mA
	max. 5 A
Switching capacity	min. 1.5 W

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### Relay outputs: enabling current path

Switching frequency	max. 0.5 Hz
Diagnostic threshold	20 Ω ... 18 kΩ (lower/upper)
Max. permissible overall conductor resistance	< 10 Ω (LO/LO' and NI/NI' and load resistance in the event of a short circuit)
Mechanical service life	approx. 5x 10 <sup>7</sup> cycles

### Alarm outputs

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

### Times

Typical pickup time at US	30 ms (when controlled via A1)
Typical release time at US	30 ms (when controlled via A1)
Recovery time	1 s

### General

Relay type	Electromechanical relay with forcibly guided contacts in accordance with IEC/EN 61810-3 (EN 50205)
Nominal operating mode	100% operating factor
Net weight	221.1 g
Mounting position	vertical or horizontal
Mounting type	DIN rail mounting
Degree of protection	IP20
Min. degree of protection of inst. location	IP54
Housing material	PBT
Housing color	yellow
Operating voltage display	Yellow LED
Status display	Green LED
Indication	Red LED

### Connection data

Connection method	Screw connection
pluggable	Yes
Conductor cross section solid min.	0.2 mm <sup>2</sup>
Conductor cross section solid max.	2.5 mm <sup>2</sup>
Conductor cross section flexible min.	0.2 mm <sup>2</sup>

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## Technical data

### Connection data

Conductor cross section flexible max.	2.5 mm <sup>2</sup>
Conductor cross section AWG min.	24
Conductor cross section AWG max.	12
Stripping length	7 mm
Screw thread	M3

### Safety-related characteristic data

Designation	IEC 61508 - Low demand
Safety Integrity Level (SIL)	3 (15 % of total SIL)

### Standards and Regulations

Designation	Air clearances and creepage distances between the power circuits
Standards/regulations	DIN EN 50178
Rated insulation voltage	250 V AC
Rated surge voltage/insulation	6 kV/safe isolation (through protective impedance)
Degree of pollution	2
Overvoltage category	III
Shock	15g
Vibration (operation)	2g
Conformance	CE-compliant
ATEX	# II 3 G Ex nA nC IIC T4 Gc
IECEX	Ex nA nC IIC T4 Gc
UL, USA/Canada	cULus
	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
GL	C, EMC2
Environmental simulation test	ISA-S71.04 (G3)

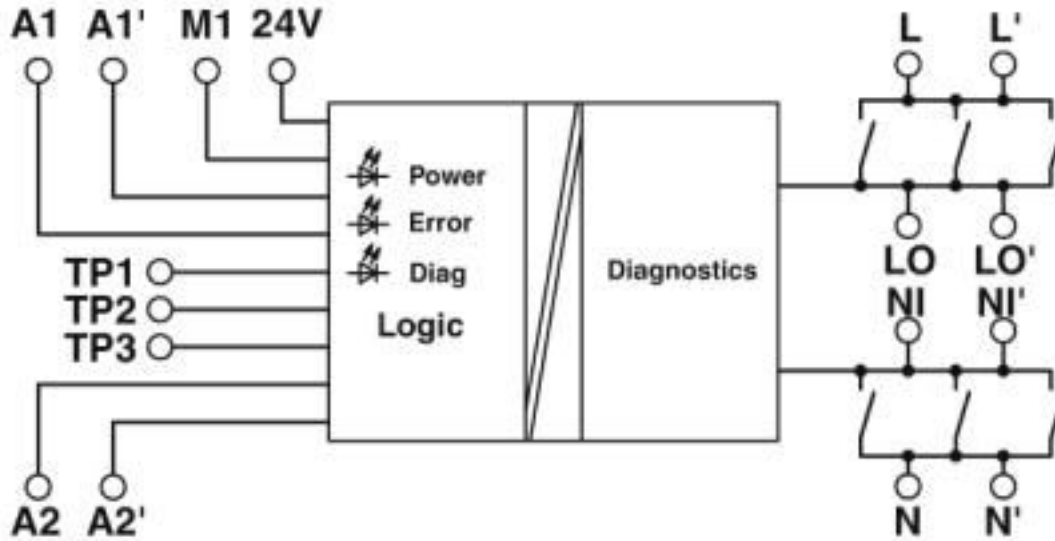
### Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

## Drawings

# Coupling relay - PSR-PC50-1NO-1DO-24DC-SC - 2904664

Block diagram



## Classifications

eCl@ss

eCl@ss 10.0.1	27371819
eCl@ss 4.0	40020600
eCl@ss 4.1	40020600
eCl@ss 5.0	27371900
eCl@ss 5.1	27371900
eCl@ss 6.0	27371800
eCl@ss 7.0	27371819
eCl@ss 8.0	27371819
eCl@ss 9.0	27371819

## ETIM

ETIM 4.0	EC001449
ETIM 5.0	EC001449
ETIM 6.0	EC001449
ETIM 7.0	EC001449

## Approvals

Approvals

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## Approvals

### Approvals

GL / EAC / UL Listed / cUL Listed / Functional Safety / Functional Safety / cULus Listed

### Ex Approvals

IECEX / ATEX / UL Listed / cUL Listed / cULus Listed

### Approval details

GL		<a href="https://approvalfinder.dnvgl.com/">https://approvalfinder.dnvgl.com/</a>	11253-14 HH
EAC			RU C- DE.A*30.B.01082
UL Listed		<a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a>	FILE E 140324
cUL Listed		<a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a>	FILE E 140324
Functional Safety			968/FSP 1011.02/20
Functional Safety			968/FSP 1011.02/20
cULus Listed			