

## Coupling relay - PSR-PS23-1NO-1NC-24VDC-SC - 2702663

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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

- ✓ Suitable for high and low-demand applications up to SIL 3 in accordance with IEC 61508, IEC 61511, and EN 50156
- ✓ Forcibly guided contacts according to 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
- ✓ Integrated DCS test pulse filter
- ✓ 1 enabling current path, 1 diagnostic current path



### Key Commercial Data

Packing unit	1 pc
GTIN	 4 055626 280233
GTIN	4055626280233

### Technical data

#### Note

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

Width	6.8 mm
Height	93.1 mm
Depth	102.5 mm

#### Ambient conditions

Ambient temperature (operation)	-40 °C ... 70 °C (observe derating)
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## Technical data

### Ambient conditions

Ambient temperature (storage/transport)	-40 °C ... 85 °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 -20 % / +25 % (A1/A2)
	19.2 V DC ... 30 V DC
Rated control supply current $I_s$	typ. 45 mA
Power consumption at $U_s$	typ. 1.08 W
Inrush current	typ. 120 mA ( $\Delta t < 10$ ms at $U_s$ )
Filter time	max. 2 ms (at A1-A2 in the event of voltage dips at $U_s$ )
	max. 2 ms (at A1-A2; low test pulse width)
	> 30 ms (at A1-A2; low test pulse rate)
	max. 2 ms (at A1-A2; high test pulse width)
	> 1 s (at A1-A2; high test pulse rate)
Protective circuit	Serial protection against polarity reversal 35 V suppressor diode (A1-A2)

### Relay outputs: enabling current path

Output name	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 type	1 enabling current path
Contact material	AgSnO <sub>2</sub>
Switching voltage	min. 12 V AC/DC
	max. 250 V AC/DC (Observe the load curve)
Limiting continuous current	6 A (High demand)
	4 A (Low demand)
Inrush current	min. 3 mA
	max. 6 A
Sq. Total current	36 A <sup>2</sup> (observe derating)
Switching capacity	min. 60 mW
Switching frequency	max. 1 Hz
Mechanical service life	10x 10 <sup>6</sup> cycles
Switching capacity according to IEC 60947-5-1	4 A (24 V (DC13))
	5 A (250 V (AC15))
Output fuse	6 A gL/gG
	4 A gL/gG (for low-demand applications)

### Relay outputs: return current/signaling current path

Output name	Confirmation current path
Output description	2 N/C contacts in series, without delay, floating

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## Technical data

Relay outputs: return current/signaling current path

Number of outputs	1 (safety-related N/C contacts: 21/22)
Contact type	1 confirmation current path
Contact material	AgCuNi, + Au
Switching voltage	min. 5 V DC
	max. 30 V DC
Limiting continuous current	100 mA
Inrush current	min. 1 mA
	max. 100 mA
Switching capacity	min. 20 mW
Switching frequency	max. 1 Hz
Mechanical service life	10x 10 <sup>6</sup> cycles
Output fuse	150 mA Fast-blow

## Times

Typical pickup time at US	< 70 ms (with U <sub>s</sub> when controlled via A1)
Typical release time at US	< 30 ms (when controlled via A1)
Recovery time	500 ms

## 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	70.162 g
Mounting position	vertical or horizontal
Mounting type	DIN rail mounting
Assembly instructions	See derating curve
Degree of protection	IP20
Min. degree of protection of inst. location	IP54
Housing material	PBT
Housing color	yellow
Operating voltage display	1 x yellow LED
Status display	1 x green LED

## Connection data

Connection method	Screw connection
pluggable	no
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>
Conductor cross section flexible max.	2.5 mm <sup>2</sup>
Conductor cross section AWG min.	26
Conductor cross section AWG max.	12

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## Technical data

### Connection data

Stripping length	12 mm
Screw thread	M3
Torque	0.5 Nm ... 0.6 Nm

### Safety-related characteristic data

Stop category	0
Designation	IEC 61508 - High demand
Safety Integrity Level (SIL)	3
Designation	IEC 61508 - Low demand
Safety Integrity Level (SIL)	3
Designation	EN 50156-2
Safety Integrity Level (SIL)	3 (Reference IEC 61508)

### Standards and Regulations

Designation	Air clearances and creepage distances between the power circuits
Standards/regulations	DIN EN 50178, EN 60079-15
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 and confirmation current path to the enabling current path
Degree of pollution	2
Overvoltage category	III
Shock	15g
Vibration (operation)	10 Hz ... 150 Hz, 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
Environmental simulation test	ISA-S71.04 (G3)

### Environmental Product Compliance

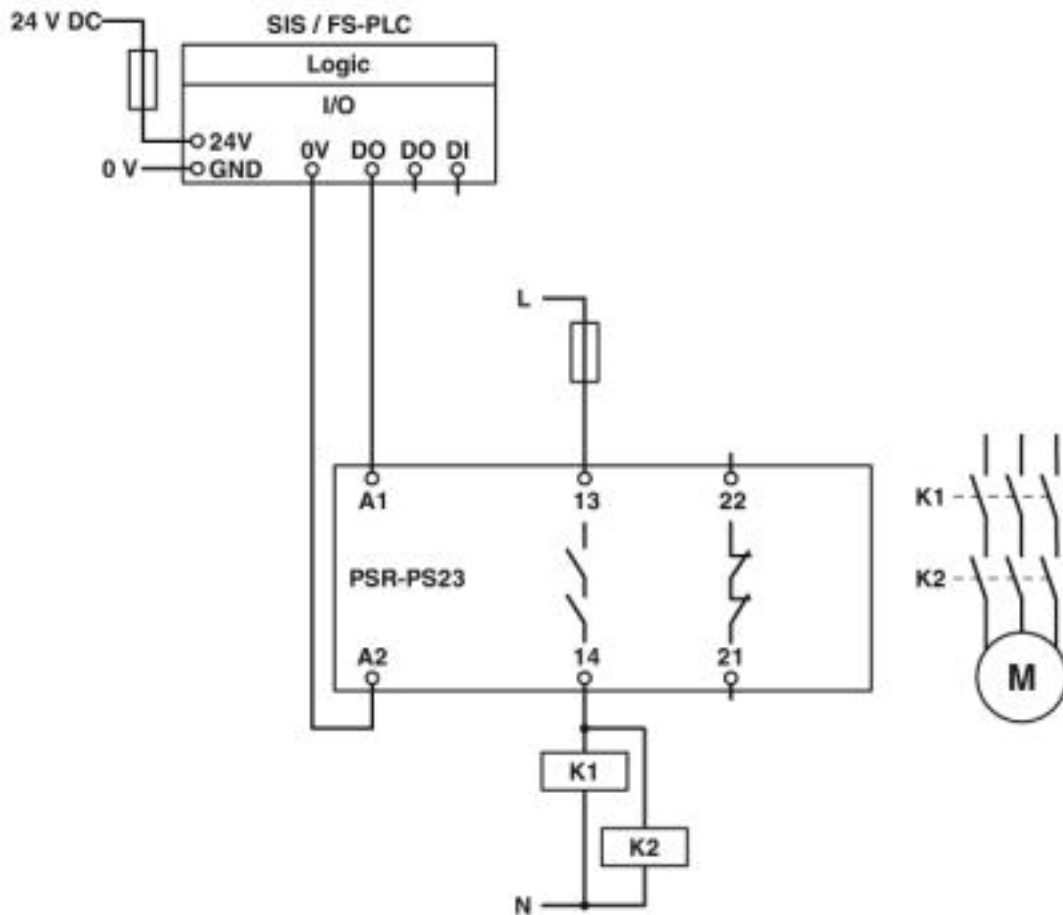
REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50
	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

## Drawings



# Coupling relay - PSR-PS23-1NO-1NC-24VDC-SC - 2702663

Circuit diagram



## Approvals

Approvals

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Approvals

UL Listed / cUL Listed / Functional Safety / cULus Listed

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Ex Approvals

UL Listed / cUL Listed / cULus Listed

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## Approval details

UL Listed




<http://database.ul.com/cgi-bin/XYVV/template/LISEXT/1FRAME/index.htm>

FILE E 140324

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### Approvals

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
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Functional Safety			44-780-15124307
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cULus Listed			
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