

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
- ✓ Corrosion protection due to conformal coating of the PCB



Key Commercial Data

Packing unit	1 pc
GTIN	 4 055626 280233
GTIN	4055626280233
Weight per Piece (excluding packing)	160.000 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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Technical data

Note

	Use in potentially explosive areas is not permitted in China.
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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)
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
Input voltage range "0" signal	0 V DC ... 5 V DC (for safe Off)
Input current range "0" signal	0 mA ... 2 mA (for safe Off)
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 ₂
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)

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Relay outputs: enabling current path

Inrush current	min. 3 mA
	max. 6 A
Sq. Total current	36 A ² (observe derating)
Switching capacity	min. 60 mW
Switching frequency	max. 1 Hz
Mechanical service life	10x 10 ⁶ 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
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 ⁶ cycles
Output fuse	150 mA Fast-blow

Times

Typical pickup time at US	< 70 ms (with U _s 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 force-guided contacts in accordance with IEC/EN 61810-3
Nominal operating mode	100% operating factor
Net weight	70.162 g
Mounting position	vertical or horizontal
Mounting type	DIN rail mounting

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Technical data

General

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	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
Torque	0.5 Nm ... 0.6 Nm

Safety-related characteristic data

Stop category in accordance with IEC 60204	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

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Standards and Regulations

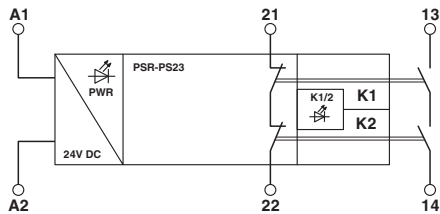
ATEX	# II 3 G Ex nA nC IIC T4 Gc
IECEX	Ex nA nC IIC T4 Gc
UL, USA/Canada	cULus
	Class I, Zone 2, AEx nA nC IIC T4 / Ex nA nC IIC Gc T4 X
	Class I, Div. 2, Groups A, B, C, D, T4
Environmental simulation test	ISA-S71.04 (G3)

Environmental Product Compliance

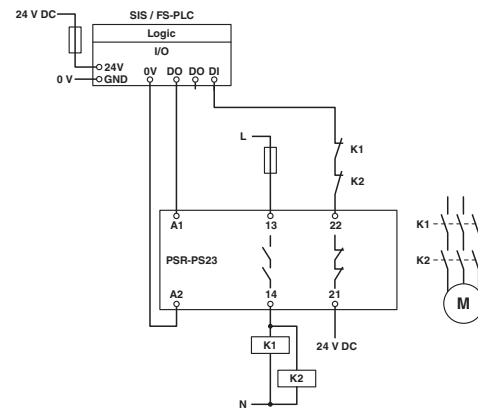
REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

Drawings

Block diagram

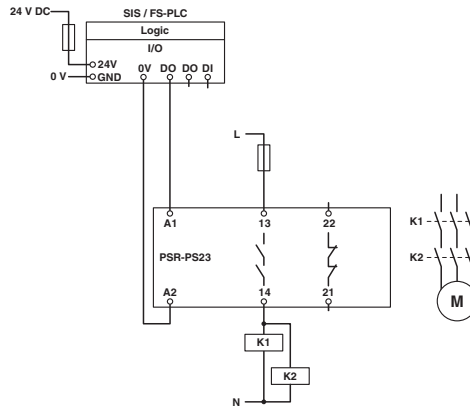


Circuit diagram



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Circuit diagram



Classifications

eCl@ss

eCl@ss 10.0.1	27371819
eCl@ss 11.0	27371819
eCl@ss 5.1	27371901
eCl@ss 6.0	27371800
eCl@ss 7.0	27371819
eCl@ss 9.0	27371819

ETIM

ETIM 6.0	EC001449
ETIM 7.0	EC001449

Approvals

Approvals

Approvals

UL Listed / cUL Listed / Functional Safety / cULus Listed

Ex Approvals

UL Listed / cUL Listed / IECEx / ATEX / cULus Listed

Approval details

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Approvals

UL Listed		http://database.ul.com/cgi-bin/XYVV/template/LISEXT/1FRAME/index.htm	FILE E 140324
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cUL Listed		http://database.ul.com/cgi-bin/XYVV/template/LISEXT/1FRAME/index.htm	FILE E 140324
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Functional Safety			44-780-15124307
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cULus Listed			
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Accessories

Accessories

Terminal marking

Zack Marker strip, flat - ZBF 6:UNBEDRUCKT - 0808710



Zack Marker strip, flat, Strip, white, unlabeled, can be labeled with: PLOTMARK, CMS-P1-PLOTTER, mounting type: snap into flat marker groove, for terminal block width: 6.2 mm, lettering field size: 5.15 x 6.15 mm, Number of individual labels: 10