

Coupling relay - PSR-PC21-2NO-2NC-24DC-SP - 1086946

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Coupling relay for SIL 3 high and low-demand applications, coupled digital output signals to the I/O, 2 independently controllable enabling current paths, 2 confirmation current paths, safe state off applications, test pulse filter, pluggable Push-in terminal block

Product Description


The safe coupling relay couples digital output signals from failsafe controllers to I/O devices and is used for power adaptation and electrical isolation. The safe coupling relay can be used in high- and low-demand applications. The safe coupling relay safely interrupts circuits.

Your advantages

- ✓ Up to SIL 3 in accordance with IEC 61508, IEC 61511, and IEC 50156
- ✓ Approved for Class I, Zone 2 applications
- ✓ Forcibly guided contacts according to EN 50205
- ✓ Easy proof test according to IEC 61508 thanks to integrated signal contact
- ✓ Low housing width of just 12.5 mm
- ✓ Long service life thanks to filtering of controller test pulses
- ✓ 2 enabling current paths, 2 confirmation current paths
- ✓ Independent control of the relay channels possible



Key Commercial Data

Packing unit	1 pc
GTIN	 4 055626 881669
GTIN	4055626881669
Weight per Piece (excluding packing)	220.000 g
Custom tariff number	85364190
Country of origin	Germany

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Technical data

Note

Utilization restriction	EMC: class A product, see manufacturer's declaration in the download area
	Use in potentially explosive areas is not permitted in China.

Dimensions

Width	12.5 mm
Height	116.6 mm
Depth	114.5 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

Designation	A1/A2, A3/A4
Rated control circuit supply voltage U_s	24 V DC -20 % / +25 %
	19.2 V DC ... 30 V DC
Rated control supply current I_s	typ. 15 mA (per channel (configurable))
	typ. 25 mA (per channel (configurable))
	typ. 40 mA (per channel (configurable))
	typ. 46 mA (per channel (configurable))
Input voltage range "0" signal	0 V DC ... 5 V DC
Input current range "0" signal	0 mA ... 2 mA
Power consumption at U_s	typ. 360 mW (per channel (configurable))
	typ. 600 mW (per channel (configurable))
	typ. 960 mW (per channel (configurable))
	typ. 1.1 W (per channel (configurable))
Inrush current	typ. 200 mA ($\Delta t = 10 \mu s$ at U_s , per channel (configurable))
	typ. 300 mA ($\Delta t = 10 \mu s$ at U_s , per channel (configurable))
Filter time	2 ms (in the event of voltage dips at U_s)
Protective circuit	Serial protection against polarity reversal 38.6 V suppressor diode

Relay outputs: enabling current path

Output name	Enabling current paths
	13/14, 33/34
Output description	2 N/O contacts parallel, without delay, safety-related, floating

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Relay outputs: enabling current path

Number of outputs	2
Contact type	2 enabling current paths
Contact material	AgSnO ₂
Switching voltage	min. 12 V 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	72 A ² (High-demand, observe derating)
	32 A ² (Low-demand, observe derating)
Switching capacity	min. 60 mW
Switching frequency	1 Hz
Mechanical service life	10x 10 ⁶ cycles
Switching capacity according to IEC 60947-5-1	4 A (24 V (DC13))
	5 A (230 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 paths
	21/22, 41/42
Output description	2 N/C contacts parallel, without delay, safety-related, floating
Number of outputs	2
Contact type	2 confirmation current paths
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	1 Hz
Mechanical service life	10x 10 ⁶ cycles
Output fuse	150 mA Fast-blow

Times

Typical pickup time at US	< 70 ms (when controlled via A1 or A3 at U _S)
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Times

Typical release time at US	< 30 ms (when controlled via A1 or A3 at U _S)
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	114.755 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	Polyamide
Housing color	yellow
Status display	2 x green LEDs

Connection data

Connection method	Push-in connection
Conductor cross section solid	0.2 mm ² ... 1.5 mm ²
Conductor cross section flexible	0.2 mm ² ... 1.5 mm ²
Conductor cross-section AWG	24 ... 16
Conductor cross-section flexible with ferrule without plastic sleeve	0.25 mm ² ... 1.5 mm ² (only together with CRIMPFOX 6)
Conductor cross-section flexible with ferrule and plastic sleeve	0.25 mm ² ... 1.5 mm ² (only together with CRIMPFOX 6)
Stripping length	8 mm

Safety-related characteristic data

Stop category in accordance with IEC 60204	0
Designation	IEC 61508 – High-demand for 2-channel wiring (1oo2 structure)
Safety Integrity Level (SIL)	3
Designation	IEC 61508 – High-demand for 1-channel wiring (1oo1 structure)
Safety Integrity Level (SIL)	2
Designation	IEC 61508 – Low-demand for 2-channel wiring (1oo2 structure)
Safety Integrity Level (SIL)	3
Designation	IEC 61508 – Low-demand for 1-channel wiring (1oo1 structure)
Safety Integrity Level (SIL)	2
Designation	EN ISO 13849
Performance level (PL)	e
Category	4

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Technical data

Safety-related characteristic data

Designation	EN 62061
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	EN 61010-1, EN 60947-1, EN 60079-7, EN 60079-15
Rated insulation voltage	250 V AC
Rated surge voltage/insulation	Safe isolation, reinforced insulation 6.4 kV from (A1/A2, A3/A4, 21/22, 41/42) to (13/14, 33/34) and between (13/14) and (33/34)
	Basic insulation 4 kV between all current paths and housing
	500 V isolation between (A1/A2, A3/A4) and (21/22, 41/42)
Degree of pollution	2
Overvoltage category	III
Shock	15g
Vibration (operation)	10 Hz ... 150 Hz, 2g
Conformance	CE-compliant
ATEX	# II 3 G Ex ec nC IIC T4 Gc
IECEX	Ex ec nC IIC T4 Gc
UL, USA/Canada	cULus
	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
Environmental simulation test	ISA-S71.04 (G3)

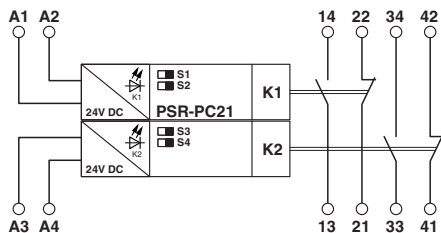
Environmental Product Compliance

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"

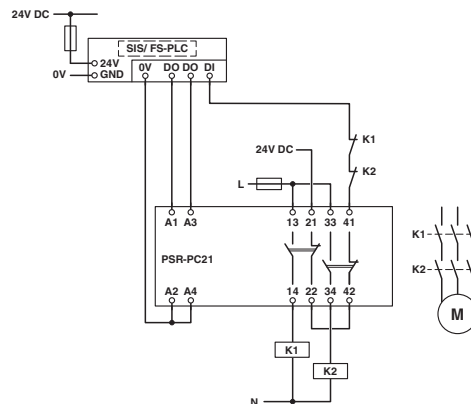
Drawings

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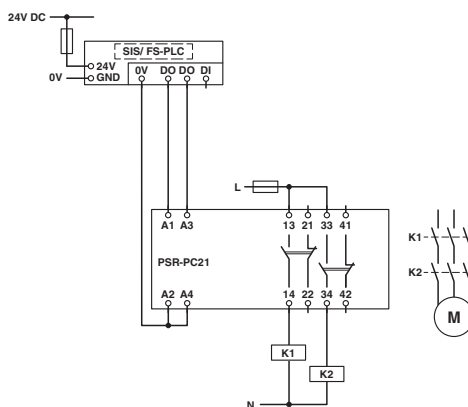
Block diagram



Circuit diagram



Circuit diagram



Classifications

eCl@ss

eCl@ss 10.0.1	27371819
eCl@ss 11.0	27371819
eCl@ss 9.0	27371819

ETIM

ETIM 7.0	EC001449
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Approvals

Approvals

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Approvals






Approvals

Functional Safety / Functional Safety / UL Listed / cUL Listed / cULus Listed

Ex Approvals

IECEEx / UL Listed / cUL Listed / UL Listed / cUL Listed / ATEX

Approval details

Functional Safety		968/FSP 1955.00/20
Functional Safety		968/FSP 1955.00/20
UL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm FILE E 140324
cUL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm FILE E 140324
cULus Listed		

Accessories

Accessories

Coding element

Coding profile - CP-MSTB - 1734634



Coding profile, is inserted into the slot on the plug or inverted header, red insulating material

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Accessories

Coding section - CR-MSTB - 1734401



Coding section, inserted into the recess in the header or the inverted plug, red insulating material