

Coupling relay - PSR-PS21-1NO-1NC-24DC-SC - 2700357

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Coupling relay for SIL 2 high- and low-demand applications, couples digital output signals to the I/O, 1 enabling current path, 1 confirmation current path, 1 digital signal output, safe state off applications, test pulse filter, fixed screw terminal block

Why buy this product

- ✓ Up to SIL 2 according to IEC 61508
- ✓ Forcibly guided contacts according to EN 50205
- ✓ Easy proof test according to IEC 61508 thanks to integrated signal contact
- ✓ Approved for Class I, Zone 2 applications
- ✓ Low housing width of just 6.8 mm
- ✓ Long service life thanks to filtering of controller test pulses
- ✓ 1 enabling current path, 1 digital signal output, 1 diagnostic current path
- ✓ 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 STK
Weight per Piece (excluding packing)	120.000 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	6.8 mm
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Dimensions

Height	93.1 mm
Depth	102.5 mm

Ambient conditions

Ambient temperature (operation)	-40 °C ... 65 °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)
Shock	15g
Vibration (operation)	2g
Maximum altitude	≤ 2000 m (Above sea level)

Input data

Rated control circuit supply voltage U_s	24 V DC -15 % / +10 %
Power consumption at U_s	typ. 1.08 W
Rated control supply current I_s	typ. 45 mA
Inrush current	400 mA ($\Delta t < 10 \mu s$ at U_s)
Typ. starting time with U_s	< 100 ms (when controlled via A1)
Typical release time	< 35 ms (when controlled via A1)
Recovery time	500 ms
Status display	2 x green LEDs
Maximum switching frequency	1 Hz
Filter time	max. 2 ms (at A1-A2; test pulse width)
	≥ 100 ms (at A1-A2; test pulse rate)

Output data

Contact type	1 enabling current path
	1 confirmation current path
Contact material	AgSnO ₂ (enabling current path)
	AgCuNi, + Au (confirmation current path)
Minimum switching voltage	10 V AC/DC (N/O contact)
	20.4 V DC (N/C contact)
Maximum switching voltage	250 V AC/DC (N/O contact)
	26.4 V DC (N/C contact)
Limiting continuous current	6 A (N/O contact, pay attention to the derating)
	100 mA (N/C contact)
Inrush current, minimum	3 mA (N/O contact)
	1 mA (N/C contact)
Maximum inrush current	6 A (N/O contact)

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Output data

	100 mA (N/C contact)
Sq. Total current	36 A ² (observe derating)
Switching capacity	min. 30 mW
Output fuse	6 A gL/gG (N/O contact)
	4 A gL/gG (for low-demand applications)
	150 mA fast blow (Confirmation current path)

Alarm outputs

Number of outputs	1 (digital, PNP)
Voltage	22 V DC ($U_D - 2 V$)
Current	max. 100 mA
Maximum inrush current	500 mA ($\Delta t = 1 \text{ ms}$ at U_s)
Short-circuit protection	no
Output fuse	150 mA fast blow (signal output)

General

Relay type	Electromechanical relay with forcibly guided contacts in accordance with IEC/EN 61810-3 (EN 50205)
Mechanical service life	10 x 10 ⁶ cycles
Nominal operating mode	100% operating factor
Net weight	118.6 g
Mounting type	DIN rail mounting
Assembly instructions	See derating curve
Mounting position	vertical, horizontal, with front of module upward
Degree of protection	IP20
Min. degree of protection of inst. location	IP54
Control	single-channel
Housing material	PBT
Housing color	yellow

Connection data

Connection method	Screw connection
pluggable	no
Conductor cross section solid min.	0.2 mm ²
Conductor cross section solid max.	2.5 mm ²
Conductor cross section flexible min.	0.2 mm ²
Conductor cross section flexible max.	2.5 mm ²
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

Safety-related characteristic data

Stop category	0
Designation	IEC 61508 - High demand
Safety Integrity Level (SIL)	2 (< 15% of the overall SIL)
Designation	IEC 61508 - Low demand
Safety Integrity Level (SIL)	2 (< 15% of the overall SIL)
Designation	EN 50156
Safety Integrity Level (SIL)	2

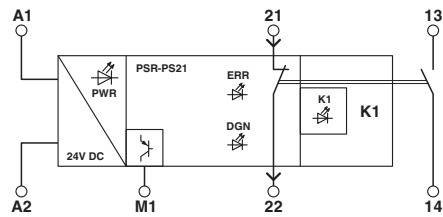
Standards and Regulations

Shock	15g
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	Safe isolation, 6 kV reinforced insulation from control circuit, start circuit, confirmation current path, signal output to the enabling current path; 4 kV/ basic insulation between all current paths and housing
Degree of pollution	2
Overvoltage category	III
Vibration (operation)	2g
Conformance	CE-compliant
UL, USA/Canada	cULus
	Class I, Zone 2, AEx nA nC IIC T4 / Ex nA nC IIC Gc T4 X
GL	C, EMC2

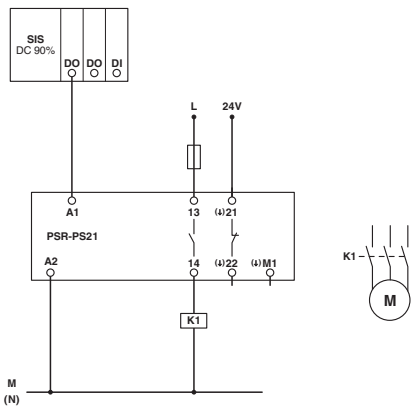
Drawings

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Block diagram



Circuit diagram



Classifications

eCl@ss

eCl@ss 5.1	27371901
eCl@ss 6.0	27371819
eCl@ss 8.0	27371819
eCl@ss 9.0	27371819

ETIM

ETIM 5.0	EC001449
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Approvals


Approvals

Approvals

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

Ex Approvals

Approval details

UL Listed  <http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm> FILE E 140324

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EAC 7500651.22.01.00244

GL <http://www.gl-group.com/newbuilding/approvals/index.html> 11253-14 HH

Functional Safety 44-780-13755203

cULus Listed 