PSR-PE20-1NO-24DC-SC - Coupling relay

1119573

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Coupling relay for SIL 3 low-demand applications, couples digital output signals to the I/O, 1 independently controllable enabling current path, safe state off applications, test pulse filter, plug-in screw 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 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
- Low housing width of just 12.5 mm
- Long service life thanks to filtering of controller test pulses
- 1 enabling current path

Commercial Data

Item number	1119573
Packing unit	1 pc
Minimum order quantity	1 pc
Sales Key	DNA
Product Key	DNA161
GTIN	4063151049638
Weight per Piece (including packing)	124.2 g
Weight per Piece (excluding packing)	92.66 g
Customs tariff number	85371098
Country of origin	DE

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Technical Data

Product properties

Product type	Coupling relay
Product family	PSRclassic
Set comprises	1272930 PSR-PE20-1NO-24DC-SC-SET60
Application	Safe switch off
	Low demand
Mechanical service life	10×10^6 cycles
Relay type	Electromechanical relay in accordance with IEC/EN 61810

Times

Typ. starting time with U_s	< 70 ms (when controlled via A3 at U_S)
Typical release time	< 50 ms (on demand via A3 at U_s)
Recovery time	500 ms

Electrical properties

Maximum power dissipation for nominal condition	2.36 W (U_B = 26.4 V, U_S = 24 V, I_S = 40 mA, $I_L{}^2$ = 16 A, $R_{contact}$ = 0.075 Ω)
Nominal operating mode	100% operating factor

Air clearances and creepage distances between the power circuits

Rated insulation voltage	250 V AC
Rated surge voltage/insulation	Safe isolation, reinforced insulation 6.4 kV between 250 V load current paths and 24 V logic paths
	Basic insulation 4 kV between all current paths and housing

Supply

Designation	3/4
Rated control circuit supply voltage U_S	21.6 V DC ... 26.4 V DC
Rated control circuit supply voltage U_S	24 V DC -10 % ... +10 %
Rated control supply current I_S	40 mA
Power consumption at U_S	960 mW
Inrush current	typ. 100 mA (Δt = 10 ms at U_s)
Filter time	1 ms (in the event of voltage dips at U_s)
Protective circuit	Serial protection against polarity reversal; Suppressor diode, 38.6 V/600 W (connections 3/4)

Output data

Relay: Enabling current path (5/6)

Output description	1 NO
Number of outputs	1 (safety-related)
Contact type	1 enabling current path
Contact material	$AgSnO_2$, gold-plated
Switching voltage	min. 12 V DC

	max. 250 V AC/DC (Observe the load curve)
Switching capacity	min. 120 mW
Inrush current	min. 10 mA
	max. 4 A
Limiting continuous current	4 A (Low demand)
Sq. Total current	16 A^2 (Low-demand, observe derating)
Switching frequency	1 Hz
Mechanical service life	10x 10^6 cycles
Output fuse	4 A gL/gG (for low-demand applications)

Connection data

Conductor connection

Connection method	Screw connection
Conductor cross section rigid	0.2 mm² ... 2.5 mm²
Conductor cross section flexible	0.2 mm² ... 2.5 mm²
Conductor cross-section AWG	24 ... 14
Stripping length	8 mm
Screw thread	M3
Tightening torque	0.6 Nm

Signaling

Status display	1 x green LED

Dimensions

Width	12.5 mm
Height	99 mm
Depth	114.5 mm

Material specifications

Housing material	Polyamide

Characteristics

Safety data: IEC 61508 - Low-demand for 1-channel wiring (1oo3 structure without diagnostics)

Equipment type	Type A
Safety Integrity Level (SIL)	3
Safe Failure Fraction (SFF)	99.87 %
MTBF	35.69 Years
λ_{SU}	3140.37 FIT
λ_{SD}	0 FIT
λ_{DU}	4.07 FIT
λ_{DD}	0 FIT
Probability of a hazardous failure on demand (PFD$_{AVG}$)	5.35×10^{-5}
	1.78×10^{-5} (for proof test interval = 1 year)
Proof test interval	36 Months

Duration of use	240 Months

Environmental and real-life conditions

Ambient conditions

Degree of protection	IP20
Min. degree of protection of inst. location	IP54
Ambient temperature (operation)	-40 °C ... 70 °C (observe derating)
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Maximum altitude	≤ 2000 m (Above sea level)
Max. permissible humidity (storage/transport)	75 % (on average, 85% infrequently, non-condensing)
Max. permissible relative humidity (operation)	75 % (on average, 85% infrequently, non-condensing)
Shock	15g
Vibration (operation)	10 Hz ... 150 Hz, 2g

Approvals

CE

Identification	CE-compliant

Standards and regulations

Air clearances and creepage distances between the power circuits

Standards/regulations	EN 61010-1, EN 60947-1, EN 60079-15

Mounting

Mounting type	DIN rail mounting
Assembly instructions	See derating curve
Mounting position	vertical or horizontal
Connection method	Screw connection

Drawings
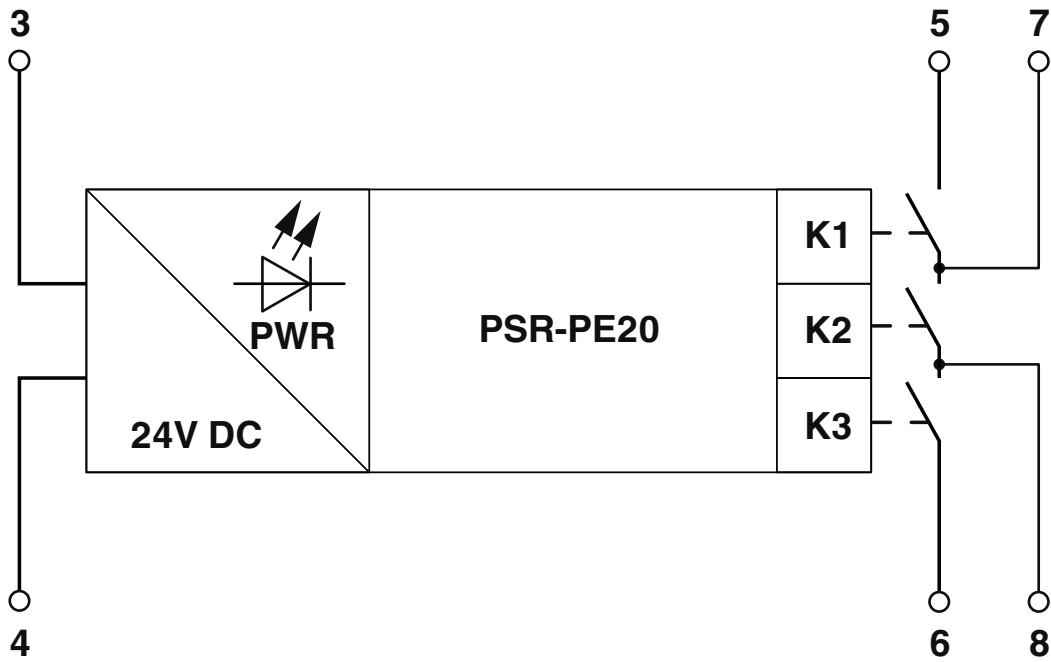
Block diagram

Block diagram

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Circuit diagram
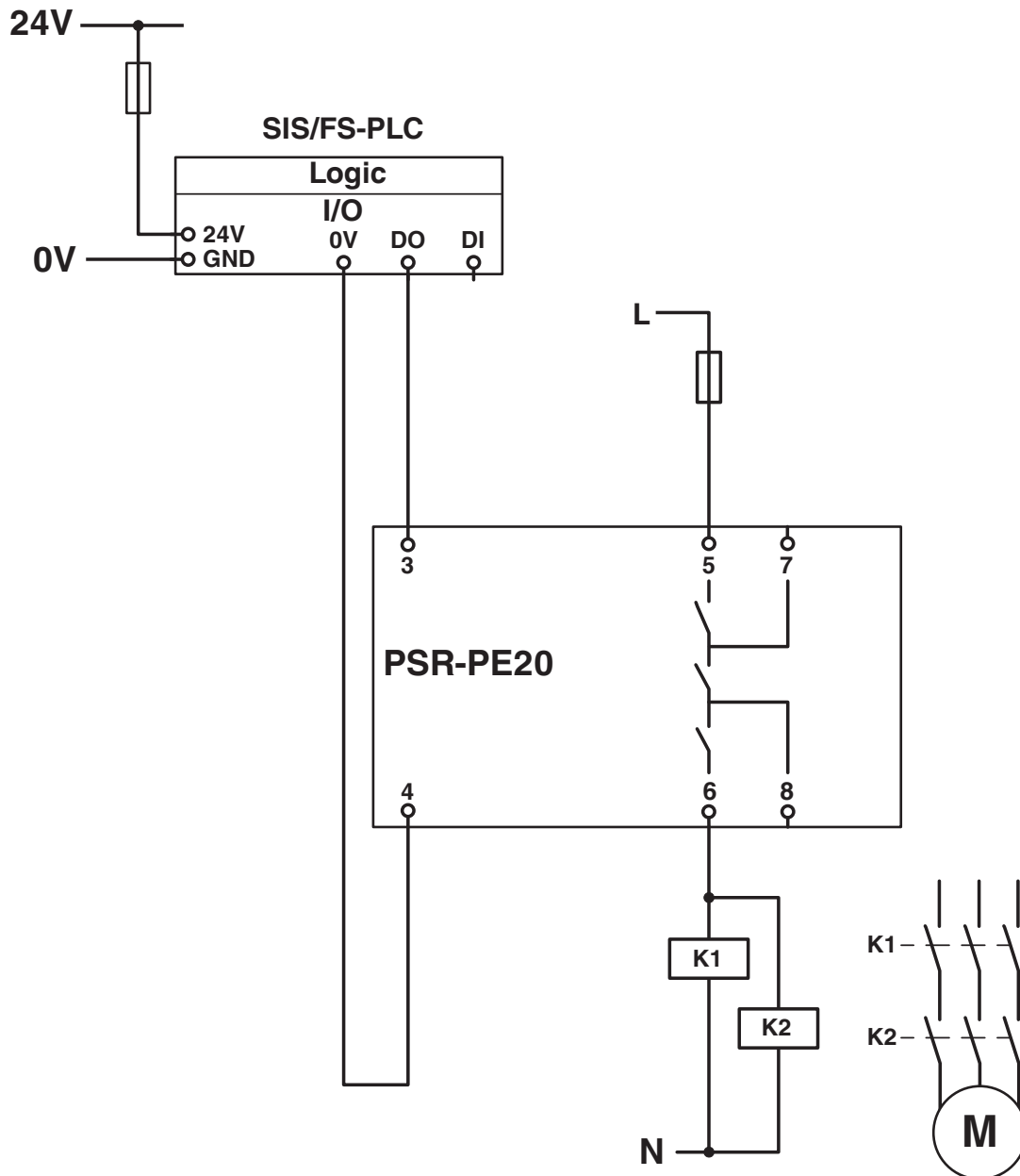
Approvals

	EAC
	Approval ID: TR_TS_D_00573_c

	UL Listed
	Approval ID: FILE E 140324

	cUL Listed
	Approval ID: FILE E 140324

	Functional Safety
	Approval ID: 44-780-15124320

Classifications

ECLASS

ECLASS-11.0	27371819
ECLASS-13.0	27371819
ECLASS-12.0	27371819

ETIM

ETIM 8.0	EC001449

UNSPSC

UNSPSC 21.0	39122200

Environmental Product Compliance

REACh SVHC	Lead 7439-92-1

Accessories

CP-MSTB - Coding profile

1734634

https://www.phoenixcontact.com/in/products/1734634

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

CR-MSTB - Coding section

1734401

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

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