

Safety relays - PSR-SPP- 24DC/ESP4/2X1/1X2



2981017

<https://www.phoenixcontact.com/us/products/2981017>

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Safety relay for SIL 3 high and low-demand applications, also approved in accordance with EN 50156, Germanischer Lloyd, and EN ISO 13849, emergency stop and safety door monitoring, 1-channel, 2 enabling current paths, 1 signal contact, width: 22.5 mm, pluggable Push-in terminal block

Your advantages

- Up to Cat. 4/PL e in accordance with ISO 13849-1, SIL 3 in accordance with IEC 62061, SIL 3 in accordance with IEC 61508
- 1-channel control
- Safe isolation
- With inrush current reduction, therefore suitable for coupling to failsafe controllers (PSR-ESP4)

Commercial Data

Item number	2981017
Packing unit	1 pc
Minimum order quantity	1 pc
Sales Key	C18
Product Key	DNA161
Catalog Page	Page 256 (C-6-2019)
GTIN	4017918911072
Weight per Piece (including packing)	203.4 g
Weight per Piece (excluding packing)	199.6 g
Customs tariff number	85371098
Country of origin	DE

Technical Data

Product properties

Product type	Safety relays
Application	Emergency stop
	Process technology
	Safety door
Mechanical service life	approx. 10^7 cycles
Relay type	Electromechanical relay with force-guided contacts in accordance with IEC/EN 61810-3

Insulation characteristics

Overvoltage category	III
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Electrical properties

Maximum power dissipation for nominal condition	15.9 W ($I^2 = 72 \text{ A}^2$)
Nominal operating mode	100% operating factor
Rated insulation voltage	250 V
Rated surge voltage/insulation	6 kV / Safe isolation, increased insulation
	Basic insulation 4 kV between all current paths and housing

Input data

General

Rated control circuit supply voltage U_S	24 V DC -15 % / +10 %
Power consumption at U_S	1.2 W
Rated control supply current I_S	typ. 50 mA DC
Inrush current	1 A ($\Delta t < 10 \text{ ms}$ at U_S)
Filter time	max. 3 ms (Test pulse duration)
Typical response time	60 ms (Automatic/manual start)
Typical release time	20 ms
Recovery time	approx. 1 s
Protective circuit	Surge protection; Suppressor diode, 33 V (A1 - A2, Y2 - A2)
	Reverse polarity protection
Operating voltage display	Green LED
Status display	Green LED

Output data

Contact type	2 enabling current paths
	1 signaling current path (type B in accordance with EN 50205)
Contact material	AgSnO ₂ , gold-flashed
Maximum switching voltage	250 V AC/DC (Observe the load curve)
Minimum switching voltage	10 V
Limiting continuous current	6 A (N/O contact/N/C contact, high demand)
	4 A (N/O contact, for low-demand applications)

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Maximum inrush current	6 A
Inrush current, minimum	10 mA
Sq. Total current	72 A ² (observe derating)
Interrupting rating (ohmic load) max.	144 W (24 V DC, $\tau = 0$ ms)
	200 W (48 V DC, $\tau = 0$ ms)
	77 W (110 V DC, $\tau = 0$ ms)
	70 W (220 V DC, $\tau = 0$ ms)
	1500 VA (250 V AC, $\tau = 0$ ms)
Switching capacity min.	0.2 W
Switching capacity (360/h cycles)	5 A (24 V (DC13))
	5 A (230 V (AC 15))
Switching capacity (3600/h cycles)	5 A (24 V (DC13))
	5 A (230 V (AC 15))
Output fuse	6 A gL/gG NEOZED (High demand)
	4 A gL/gG NEOZED (Low demand)
	Also applies to applications in accordance with EN 50156-1.

Connection data

Connection technology

pluggable	yes
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Conductor connection

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, flexible, with ferrule, with plastic sleeve	0.25 mm ² ... 1.5 mm ² (only together with CRIMPFOX 6)
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 AWG	24 ... 16
Stripping length	8 mm

Dimensions

Width	22.5 mm
Height	112 mm
Depth	114.5 mm

Material specifications

Housing material	Polyamide
Housing color	yellow

Characteristics

Safety data

Stop category	0
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Safety data: EN ISO 13849

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Category	4
Performance level (PL)	e

Safety data: IEC 61508 - High demand

Safety Integrity Level (SIL)	3
Probability of a hazardous failure per hour (PFH _D)	1.16×10^{-10}
Proof test interval	240 Months
Duration of use	240 Months

Safety data: IEC 61508 - Low demand

Safety Integrity Level (SIL)	3
Probability of a hazardous failure on demand (PFD _{AVG})	1.24×10^{-4}
Proof test interval	72 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)	-20 °C ... 55 °C
Ambient temperature (storage/transport)	-40 °C ... 70 °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

Approval data

CE

Certificate	CE-compliant
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Standards and regulations

Air clearances and creepage distances between the power circuits

Standards/regulations	DIN EN 50178/VDE 0160
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Mounting

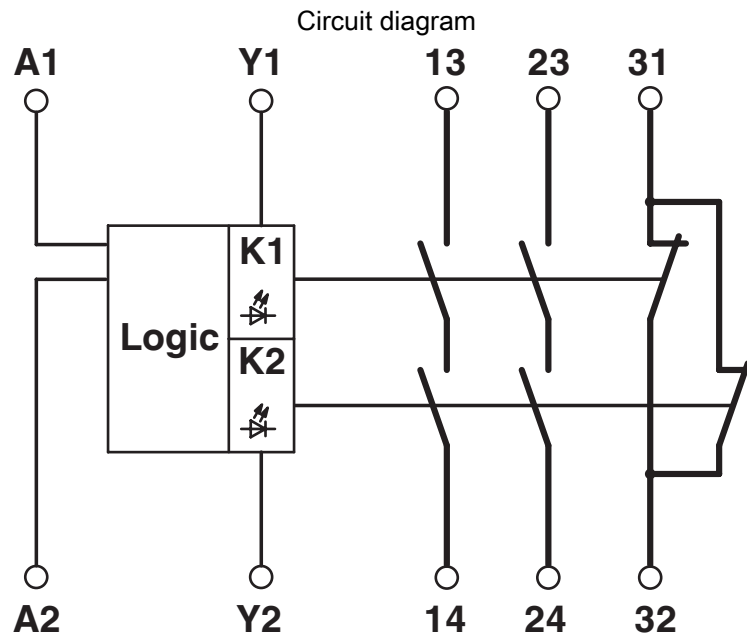
Mounting type	DIN rail mounting
Mounting position	On horizontal and vertical DIN rail

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Drawings



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Approvals



EAC

Approval ID: RU C-DE.A*30.B.01082



UL Listed

Approval ID: FILE E 140324



cUL Listed

Approval ID: FILE E 140324



Functional Safety

Approval ID: 968/EZ 406.05/22



Functional Safety

Approval ID: 01/205/0763.03/22

DNV

Approval ID: TAA00000K4

cULus Listed

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Classifications

ECLASS

ECLASS-9.0	27371819
ECLASS-10.0.1	27371819
ECLASS-11.0	27371819

ETIM

ETIM 8.0	EC001449
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UNSPSC

UNSPSC 21.0	39122200
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Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For information on hazardous substances, refer to the manufacturer's declaration available under "Downloads"

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