

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



2981020

<https://www.phoenixcontact.com/pc/products/2981020>

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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, plug-in screw terminal blocks, width: 22.5 mm

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	2981020
Packing unit	1 pc
Minimum order quantity	1 pc
Product Key	DNA161
Catalog Page	Page 256 (C-6-2019)
GTIN	4017918911065
Weight per Piece (including packing)	204.82 g
Weight per Piece (excluding packing)	168.97 g
Customs tariff number	85371098
Country of origin	DE

Technical Data

Product properties

Product type	Safety relays
Product family	PSRclassic
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

Electrical properties

Maximum power dissipation for nominal condition	15.9 W ($I^2 = 72 \text{ A}^2$)
Nominal operating mode	100% operating factor

Air clearances and creepage distances between the power circuits

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
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	Screw connection
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	7 mm
Screw thread	M3

Dimensions

Width	22.5 mm
Height	99 mm
Depth	114.5 mm

Material specifications

Housing material	Polyamide
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Characteristics

Safety data

Stop category	0
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Safety data: EN ISO 13849

Category	4
Performance level (PL)	e

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Safety data: IEC 61508 - High demand

Safety Integrity Level (SIL)	3
Probability of a hazardous failure per hour (PFH _D)	1.16 x 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 x 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

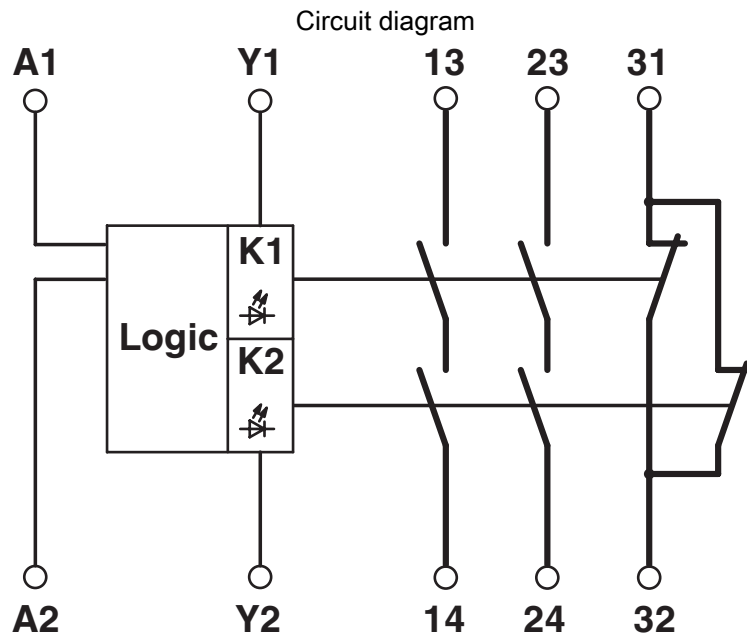
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Drawings



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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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