

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



2981017

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

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Safety relay for SIL 3 high-demand and low-demand applications, also approved in accordance with EN 50156, DNV, 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 EN 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	DN01
Product key	DNA161
Catalog page	Page 256 (C-6-2019)
GTIN	4017918911072
Weight per piece (including packing)	182.5 g
Weight per piece (excluding packing)	182.5 g
Customs tariff number	85371098
Country of origin	DE

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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

Times

Typical response time	typ. 60 ms (For U_S manual, monitored start)
	60 ms (For U_S autostart)
Typ. starting time with U_S	60 ms (At U_S /on demand via A1)
Typical release time	typ. 20 ms (At U_S /on demand via A1)
Restart time	< 1 s (Boot time)
Recovery time	≥ 1 s (following demand of the safety function)

Electrical properties

Maximum power dissipation for nominal condition	16.12 W (At $U_S = 26.4$ V, $I_L^2 = 72$ A ² , $P_{Total\ max} = 1.72$ W + 14.4 W)
Nominal operating mode	100% operating factor

Air clearances and creepage distances between the power circuits

Rated insulation voltage	250 V
	250 V
Rated surge voltage/insulation	See section "Insulation coordination"

Input data

Digital: Logic (A1)

Description of the input	safety-related
Number of inputs	1
Input voltage range "1" signal	20.4 V ... 26.4 V
Inrush current	max. 1 A (typically with U_S , $\Delta t = < 10$ ms)
Filter time	max. 3 ms (Test pulse width of low test pulses)
	min. 200 ms (Test pulse rate for low test pulse)
	No brightness test pulses / high test pulses permitted.
Max. permissible overall conductor resistance	50 Ω
Protective circuit	Suppressor diode
Current consumption	65 mA (typically with U_S)

Digital: Start circuit (Y2)

Description of the input	non-safety-related
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Number of inputs	1
Input voltage range "1" signal	20.4 V ... 26.4 V
Inrush current	< 14 mA (typically with U_S at Y2, Δt - 10 ms)
Filter time	No test pulses permitted
Max. permissible overall conductor resistance	50 Ω
Protective circuit	Suppressor diode
Current consumption	0 mA (typically with U_S at Y2)

Output data

Relay: Enabling current paths (13/14, 23/24)

Output description	2 N/O contacts each in series, safety-related, floating
Number of outputs	2
Contact switching type	2 enabling current paths
Contact material	AgSnO ₂
Switching voltage	min. 10 V max. 250 V AC
Switching capacity	min. 100 mW
Inrush current	min. 10 mA max. 6 A
Switching capacity in accordance with IEC 60947-5-1	5 A (AC15) 5 A (DC13)
Limiting continuous current	6 A (Observe derating and load limit curve)
Sq. Total current	72 A ² (observe derating)
Switching frequency	max. 0.5 Hz
Mechanical service life	10 ⁷ cycles
Interrupting rating (ohmic load) max.	Observe derating and load limit curve
Maximum interrupting rating (inductive load)	Observe derating and load limit curve
Output fuse	10 A gL/gG 4 A gL/gG (for low-demand applications)

Relay: Signaling current path (31/32)

Output description	2 N/C contacts parallel, non-safety-related, floating
Number of outputs	1
Contact switching type	1 signaling current path
Contact material	AgSnO ₂
Switching voltage	min. 10 V AC/DC max. 250 V AC
Switching capacity	min. 100 mW
Inrush current	min. 10 mA max. 6 A
Switching capacity in accordance with IEC 60947-5-1	1.5 A (AC15) 2 A (DC13)
Limiting continuous current	6 A
Sq. Total current	36 A ² (observe derating)

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Switching frequency	max. 0.5 Hz
Mechanical service life	10 ⁷ cycles
Interrupting rating (ohmic load) max.	Observe derating and load limit curve
Maximum interrupting rating (inductive load)	Observe derating and load limit curve
Output fuse	6 A gL/gG

Connection data

Connection technology

pluggable	yes
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Conductor connection

Connection method	Push-in connection
Conductor cross section rigid	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

Signaling

Status display	Green LED
Operating voltage display	Green LED

Dimensions

Width	22.5 mm
Height	112 mm
Depth	114.5 mm

Material specifications

Color (Housing)	yellow (RAL 1018)
Housing material	Polyamide

Characteristics

Safety data

Stop category	0
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Safety data: EN ISO 13849

Category	4
Performance level (PL)	e

Safety data: IEC 61508 - High demand

Safety Integrity Level (SIL)	3
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Safety data: IEC 61508 - Low demand

Safety Integrity Level (SIL)	3
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Safety data: EN IEC 62061

Safety Integrity Level (SIL)	3
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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 (observe derating)
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

Approvals

CE

Identification	CE-compliant
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Standards and regulations

Air clearances and creepage distances between the power circuits

Standards/regulations	DIN EN 60947-1
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Mounting

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

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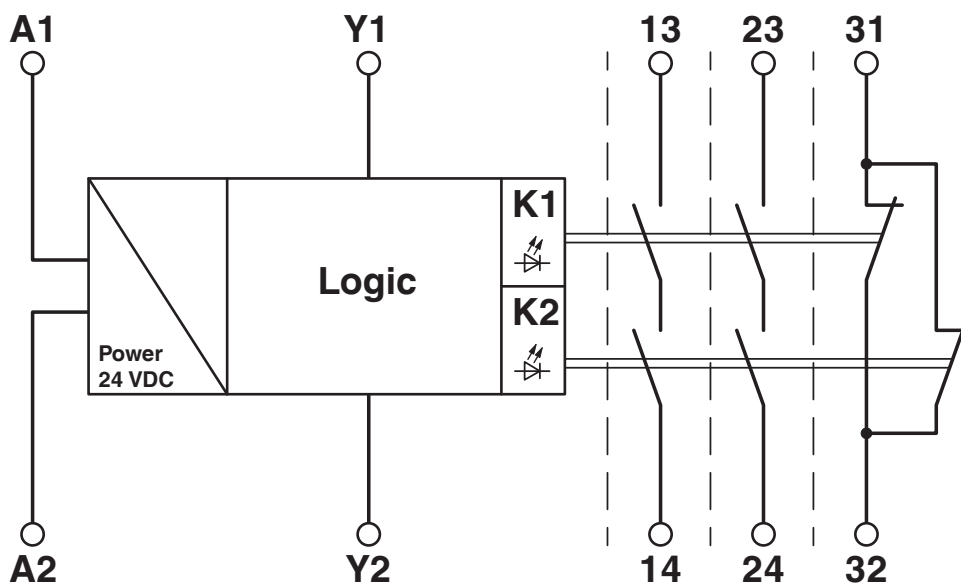


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Drawings

Circuit diagram



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Approvals

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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 406.06/23



Functional Safety

Approval ID: 01/205/0763.04/23

DNV

Approval ID: TAA00000K4

cULus Listed

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Classifications

ECLASS

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

ETIM

ETIM 8.0	EC001449
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UNSPSC

UNSPSC 21.0	39122200
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Environmental product compliance

EU RoHS	
Fulfills EU RoHS substance requirements	Yes
Exemption	7(a), 7(c)-I
China RoHS	
Environment friendly use period (EFUP)	EFUP-50
	An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required.
EU REACH SVHC	
REACH candidate substance (CAS No.)	Lead(CAS: 7439-92-1)
SCIP	7c96e563-ee87-4e0e-b3fe-09599e14b35a