

PSR-SPP- 24UC/THC4/2X1/1X2 - Safety relays



2963983

<https://www.phoenixcontact.com/us/products/2963983>

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Safety relay for two-hand control devices in accordance with ISO 13851 type IIIC to SIL 3 or Cat. 4, PL e in accordance with EN ISO 13849, synchronous activation monitoring < 0.5 s, 2 N/O contacts, 1 N/C contact, safe isolation, width: 22.5 mm, pluggable Push-in terminal block

The figure shows a version with a screw connection

Your advantages

- For two-hand controls in accordance with ISO 13851 type IIIC
- 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
- 2 channel control
- Synchronous activation monitoring < 0.5 s
- Automatic activation
- Two enabling and one signaling current path

Commercial data

Item number	2963983
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DN01
Product key	DNA141
GTIN	4017918904807
Weight per piece (including packing)	184.3 g
Weight per piece (excluding packing)	162.4 g
Customs tariff number	85371098
Country of origin	DE

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Technical data

Notes

Note on application

Note on application	Only for industrial use
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Product properties

Product type	Safety relays
Product family	PSRclassic
Application	Two-hand control 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	II, III (See the section "Insulation coordination")
Degree of pollution	2

Times

Typical response time	50 ms (automatic start)
Typical release time	90 ms (on demand via the sensor circuit) 20 ms (on demand via A1)
Delay time	< 500 ms (fixed setting)
Restart time	< 1 s (Boot time, after switching on the supply voltage)
Recovery time	< 500 ms (following demand of the safety function)

Electrical properties

Maximum power dissipation for nominal condition	16.6 W ($U_S = 26.4$ V, $I_L^2 = 72$ A ² , $P_{Total\ max} = 2.2$ W + 14.4 W)
Nominal operating mode	100% operating factor
Rated insulation voltage	250 V
Rated surge voltage/insulation	6 kV / Safe isolation, increased insulation

Supply

Designation	A1/A2
Rated control circuit supply voltage U_S	24 V AC/DC -15 %; +10 %
Rated control supply current I_S	125 mA AC (at U_S) 60 mA DC (at U_S)
Power consumption at U_S	typ. 1.6 W
Apparent power	3.6 VA (at U_S)
Filter time	3 ms (Rate > 100 ms)
Protective circuit	Serial protection against polarity reversal Surge protection Suppressor diode

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Input data

Digital: Sensor circuit (S11, S21)

Description of the input	safety-related sensor inputs
Number of inputs	2
Input voltage range "0" signal	0 V DC ... 5 V DC
Input voltage range "1" signal	> 18.5 V
Input current range "0" signal	0 mA ... 2 mA
Filter time	No test pulses permitted
Concurrence	< 500 ms
Max. permissible overall conductor resistance	50 Ω
Protective circuit	Suppressor diode
Current consumption	< 100 mA (typ. with U_S)

Digital: Feedback circuit (Y1, Y2)

Description of the input	non-safety-related
Number of inputs	1
Input voltage range "1" signal	> 18.5 V
Filter time	No test pulses permitted
Max. permissible overall conductor resistance	50 Ω

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 AC/DC max. 250 V AC
Switching power	min. 100 mW
Inrush current	min. 10 mA max. 6 A
Switching capacity	6 A (DC13) 5 A (AC15)
Limiting continuous current	6 A (observe derating)
Sq. Total current	72 A ² (observe derating)
Switching frequency	max. 0.1 Hz
Mechanical service life	10x 10 ⁶ cycles
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

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Contact switching type	1 signaling current path
Contact material	AgSnO ₂
Switching voltage	min. 10 V AC/DC max. 250 V AC
Switching power	min. 100 mW
Inrush current	min. 10 mA max. 5 A
Switching capacity	1.5 A (AC15) 2 A (DC13)
Limiting continuous current	5 A
Sq. Total current	25 A ²
Switching frequency	max. 0.1 Hz
Mechanical service life	10x 10 ⁶ cycles
Output fuse	5 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	2 x LED (green)
Operating voltage display	1 x green LED (PWR)

Dimensions

Width	22.5 mm
Height	112 mm
Depth	114.5 mm

Material specifications

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

Characteristics

Safety data	
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Stop category (EN 60204-1)	0
Type class	IIIC
Safety data: EN ISO 13849	
Performance level (PL)	e
Safety data: IEC 61508 - High demand	
Safety Integrity Level (SIL)	3
Safety data: IEC 61508 - Low demand	
Safety Integrity Level (SIL)	3
Safety data: EN IEC 62061	
Safety Integrity Level (SIL)	3

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

Approvals

Conformity/Approvals

Conformance	CE-compliant
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Mounting

Mounting type	DIN rail mounting
Assembly note	See derating curve
Mounting position	vertical or horizontal

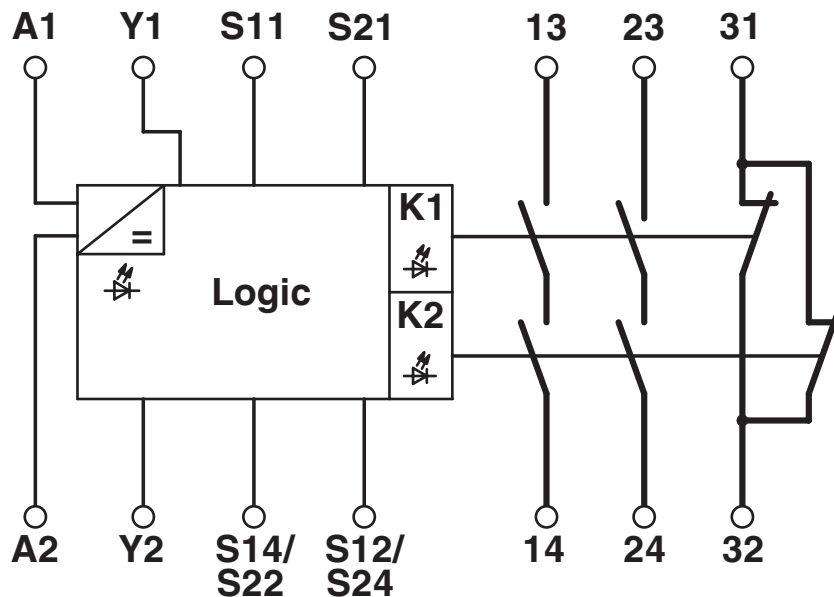
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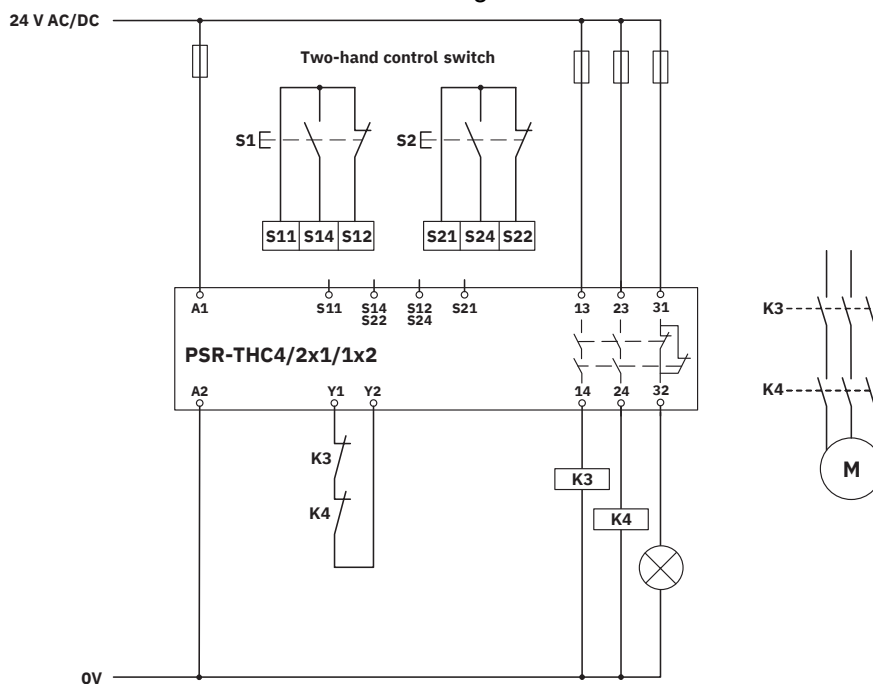
Drawings

Circuit diagram



Block diagram

Circuit diagram



Two-hand control device

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Approvals

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cULus Listed

Approval ID: E140324



Functional Safety

Approval ID: 01/205/0542.04/23

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Classifications

ECLASS

ECLASS-13.0	27371821
ECLASS-15.0	27371821

ETIM

ETIM 10.0	EC001452
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UNSPSC

UNSPSC 21.0	39121100
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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	69f3e9ff-5be2-4853-a750-aa3bc711fa0d

EF3.1 Climate Change

CO2e kg	5.182 kg CO2e
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