

Safety relays - PSR-SPP- 24UC/ESM4/2X1/1X2



2963705

<https://www.phoenixcontact.com/gb/products/2963705>

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Safety relay for emergency stop and safety door monitoring up to SIL 3 or Cat. 4, PL e in accordance with EN ISO 13849, 2-channel operation, 2 enabling current paths, nominal input voltage: 24 V DC, plug-in Push-in terminal block

Your advantages

- Up to Cat. 4/PL e in accordance with EN ISO 13849-1, SIL 3 in accordance with EN 62061, SIL 3 in accordance with IEC 61508
- 2 channel control
- 2 enabling current paths, 1 signaling current path

Commercial Data

Item number	2963705
Packing unit	1 pc
Minimum order quantity	1 pc
Sales Key	DNA112
Product Key	DNA112
Catalog Page	Page 20 (IF-2009)
GTIN	4017918904753
Weight per Piece (including packing)	192.18 g
Weight per Piece (excluding packing)	159.47 g
Customs tariff number	85371098
Country of origin	DE

Technical Data

Product properties

Product type	Safety relays
Application	Emergency stop 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	16.44 W ($U_S = 26.4$ V, $I_L^2 = 72$ A ² , $P_{Total\ max} = 2.04$ W + 14.4 W)
Nominal operating mode	100% operating factor
Rated insulation voltage	250 V
Rated surge voltage/insulation	See section "Insulation coordination"

Input data

General

Rated control circuit supply voltage U_S	24 V DC -15 % / +10 %
Power consumption at U_S	typ. 1.68 W (DC)
Rated control supply current I_S	typ. 70 mA
Input voltage range in reference to U_N	0.85 ... 1.1
Typical input current at U_N	70 mA DC
Inrush current	< 3.5 A ($\Delta t = 3$ ms at U_S) < 100 mA ($\Delta t = 500$ ms, with U_S/I_x at S12) > -100 mA ($\Delta t = 300$ ms, with U_S/I_x at S22) < 6 mA (with U_S/I_x to S34)
Current consumption	typ. 38 mA (S12) typ. -38 mA (S22) typ. 1 mA (with U_S/I_x to S34)
Voltage at input/start and feedback circuit	approx. 24 V DC
Filter time	5 ms (at A1 in the event of voltage dips at U_S) No test pulses permitted
Typical response time	100 ms (Monitored/manual start)
Typical release time	20 ms (on demand via the sensor circuit) 45 ms (on demand via A1)
Concurrence	∞
Recovery time	1 s (following demand of the safety function) < 1 s (Boot time)
Protective circuit	Surge protection; Suppressor diode
Max. permissible overall conductor resistance	approx. 50 Ω (Input and start circuits at U_S)

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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 , + 0.2 µm Au
Maximum switching voltage	250 V AC
Minimum switching voltage	10 V AC/DC
Limiting continuous current	6 A (N/O contact)
Maximum inrush current	6 A
Inrush current, minimum	10 mA
Sq. Total current	72 A ² (Enabling current paths)
	36 A ² (Signaling current path 31/32)
Switching capacity min.	100 mW
Switching capacity according to IEC 60947-5-1	6 A (DC13, enabling current paths)
	5 A (AC15, enabling current paths)
	2 A (DC13, signaling current paths)
	1.5 A (AC15, signaling current paths)
Output fuse	10 A gL/gG (Enabling current paths)
	4 A gL/gG (Low-demand enabling current paths)
	6 A gL/gG (Signaling current path)

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

Category	4
Performance level (PL)	e (5 A DC13; 5 A AC15; 8760 switching cycles/year)

Safety data: IEC 61508 - High demand

Equipment type	Type A
Safety Integrity Level (SIL)	3
Probability of a hazardous failure per hour (PFH _D)	5.5×10^{-10} (5 A DC13; 5 A AC15; 8760 switching cycles/year)
Proof test interval	240 Months
Duration of use	240 Months

Safety data: IEC 61508 - Low demand

Equipment type	Type A
Safety Integrity Level (SIL)	3
Probability of a hazardous failure on demand (PFD _{AVG})	1.37×10^{-4}
Proof test interval	66 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 (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

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
Assembly instructions	See derating curve
Mounting position	vertical or horizontal

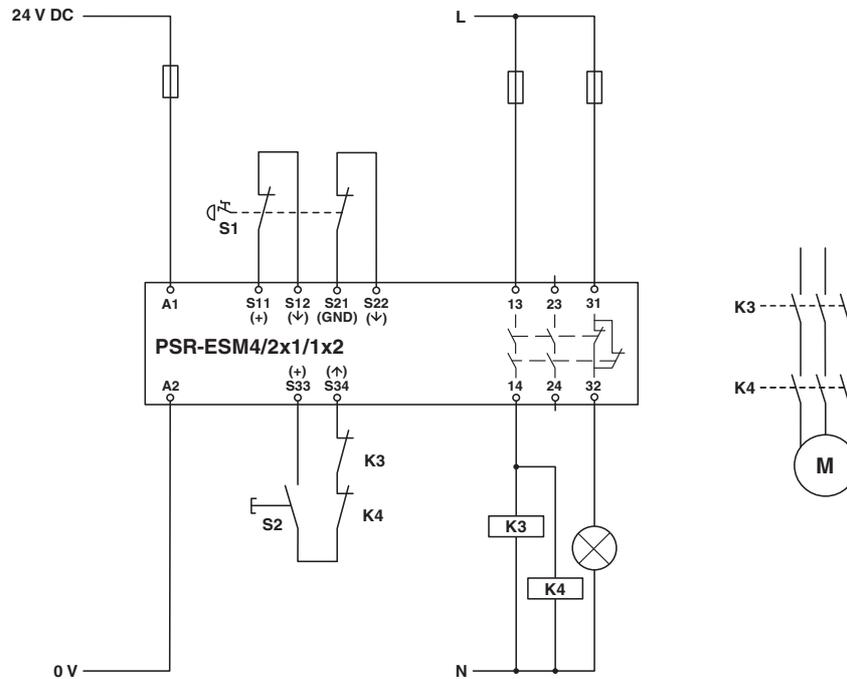
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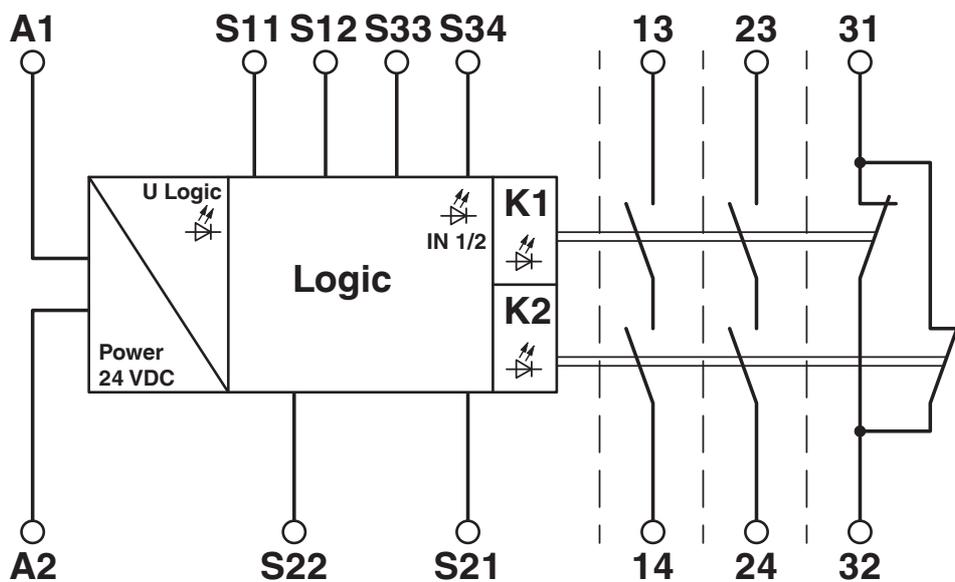
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Drawings

Circuit diagram



Circuit diagram



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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: 01/205/0652.05/22



Functional Safety

Approval ID: 968/EZ 404.07/22

cULus Listed

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Classifications

ECLASS

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

ETIM

ETIM 7.0	EC001449
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UNSPSC

UNSPSC 21.0	39122205
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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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Accessories

Coding profile

Coding profile - CP-MSTB - 1734634

<https://www.phoenixcontact.com/gb/products/1734634>

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



Coding section

Coding section - CR-MSTB - 1734401

<https://www.phoenixcontact.com/gb/products/1734401>

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



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