PSR-SPP- 24UC/ESA4/2X1/1X2 - Safety relays

2963938

https://www.phoenixcontact.com/us/products/2963938

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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 IEC 62061, SIL 3 in accordance with IEC 61508
- 2 channel control
- 2 enabling current paths, 1 signaling current path
- Manually monitored and automatic activation in a single device

Commercial data

Item number	2963938
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DN01
Product key	DNA113
Catalog page	Page 20 (IF-2009)
GTIN	4017918904777
Weight per piece (including packing)	191.43 g
Weight per piece (excluding packing)	193.9 g
Customs tariff number	85371098
Country of origin	DE

Technical data

Product properties

Product type	Safety relays
Product family	PSRclassic
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

Electrical properties

Maximum power dissipation for nominal condition	16.44 W (U_S = 26.4 V, I_L^2 = 72 A², $P_{Total\ max}$ = 2.04 W + 14.4 W)
Nominal operating mode	100% operating factor

Air clearances and creepage distances between the power circuits

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 (Δt = 3 ms at U_s)
	< 100 mA (Δt = 500 ms, with U_s/I_x at S12)
	> -100 mA (Δt = 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	150 ms (automatic start)
Typ. starting time with U_s	250 ms (with U_s when controlled via A1)
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)
Operating voltage display	Green LED
Status display	Green LED

Output data

Contact switching 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 in accordance with 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

Conductor connection

Connection method	Push-in connection
Conductor cross section rigid	0.2 mm² ... 1.5 mm²
Conductor cross section flexible	0.2 mm² ... 1.5 mm²
Conductor cross section, flexible, with ferrule, with plastic sleeve	0.25 mm² ... 1.5 mm² (only together with CRIMPFOX 6)
Conductor cross section flexible, with ferrule without plastic sleeve	0.25 mm² ... 1.5 mm² (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

Color (Housing)	yellow (RAL 1018)

Housing material	Polyamide

Characteristics

Safety data

Stop category	0

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

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 (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

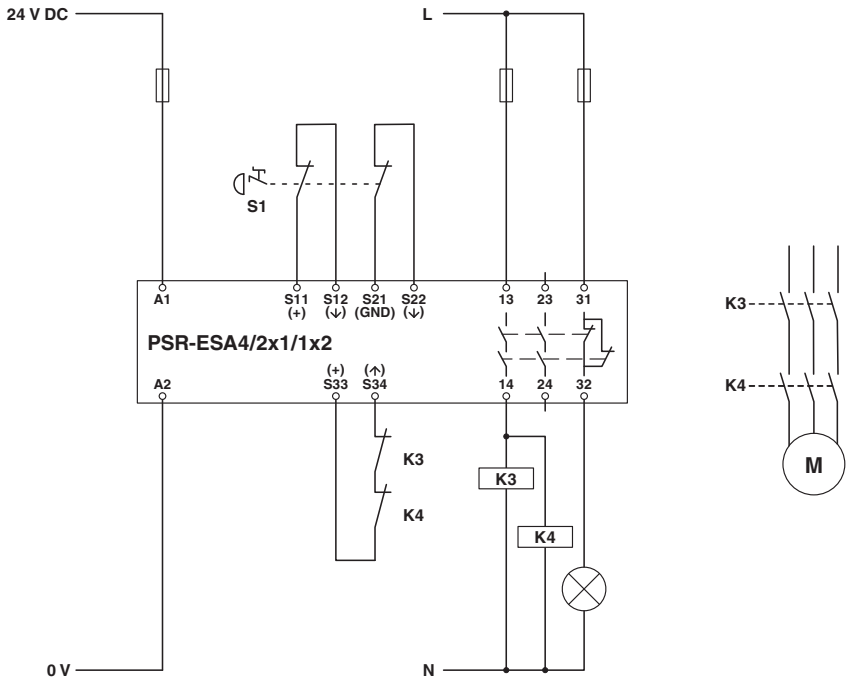
Standards/regulations	DIN EN 60947-1

Mounting

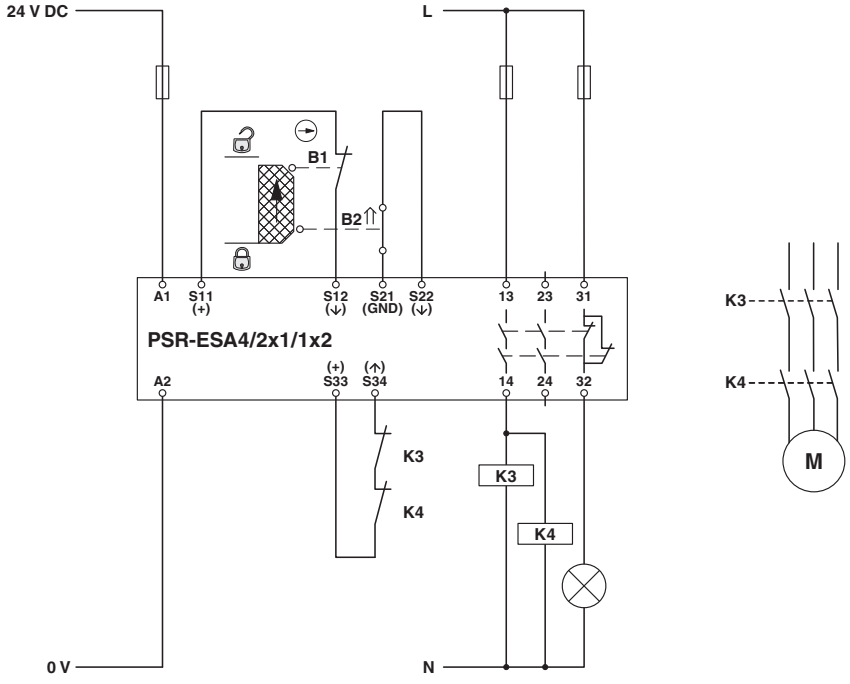
Mounting type	DIN rail mounting
Assembly note	See derating curve
Mounting position	vertical or horizontal

Drawings

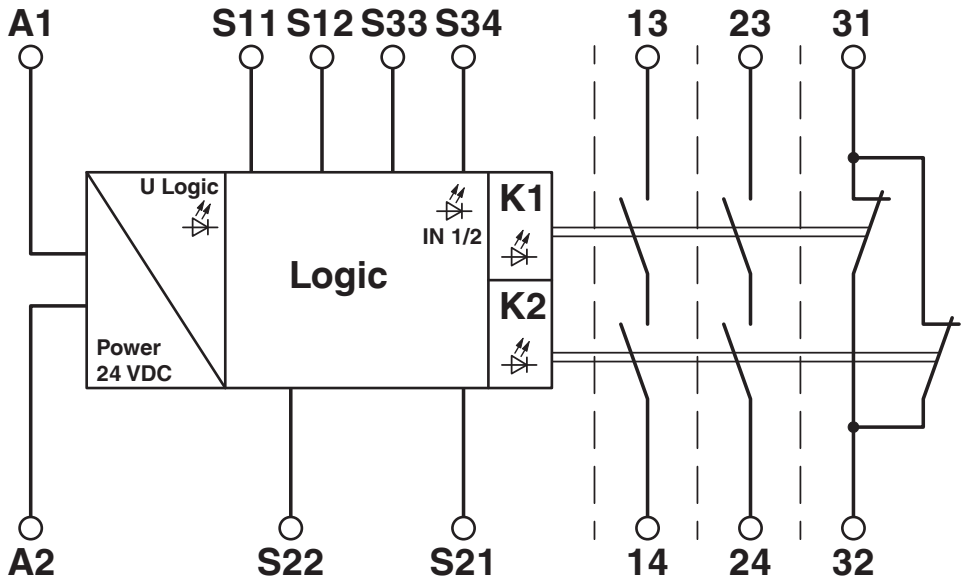
Circuit diagram



Circuit diagram



Circuit diagram



Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/us/products/2963938

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

Classifications

ECLASS

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

ETIM

ETIM 9.0	EC001449

UNSPSC

UNSPSC 21.0	39122205

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	25cda955-a831-4037-9eab-8a8e1e658c85

Accessories

CP-MSTB - Coding profile

1734634

https://www.phoenixcontact.com/us/products/1734634

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



CR-MSTB - Coding section

1734401

https://www.phoenixcontact.com/us/products/1734401

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



CRIMPFOX 6 - Crimping pliers

1212034

https://www.phoenixcontact.com/us/products/1212034



Crimping pliers, for ferrules without insulating collar according to DIN 46228 Part 1 and ferrules with insulating collar according to DIN 46228 Part 4, 0.25 mm^2 ... 6.0 mm^2, lateral entry, trapezoidal crimp

PSR-ESS-M0-H110 - Actuator

1221757

https://www.phoenixcontact.com/us/products/1221757



Actuator with anti-lock collar for modular emergency stop switches, for combination with module holder and contact module as a functional unit, panel installation, bayonet lock

PSR-ESS-ACC-CB1-C3 - Module holder

1221747

https://www.phoenixcontact.com/us/products/1221747



Module holder for modular emergency stop switches, connects the contact block and actuator with bayonet lock, suitable for 3 elements

PSR-ESS-ACC-CB1-NC-SC - Contact module

1221752

https://www.phoenixcontact.com/us/products/1221752



Contact module for modular emergency stop switches with force-guided N/C contact for safety-related shutdown, in conjunction with appropriate evaluation unit suitable for use up to PL e (EN ISO 13849-1), SIL 3 (EN IEC 62061)

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