PSR-SPP- 24UC/ESAM4/3X1/1X2/B - Safety relays

2900510

https://www.phoenixcontact.com/us/products/2900510

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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, 3 enabling current paths, nominal input voltage: 24 V DC, pluggable 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
- Manually monitored and automatic activation in a single device
- Basic insulation
- 2 channel control
- 3 enabling current paths, 1 signaling current path

Commercial Data

Item number	2900510
Packing unit	1 pc
Minimum order quantity	1 pc
Sales Key	DN01
Product Key	DNA114
Catalog Page	Page 229 (C-6-2019)
GTIN	4046356513784
Weight per Piece (including packing)	191.5 g
Weight per Piece (excluding packing)	159.08 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 (at Us)
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)
	< 6 mA (with U_s/I_x to S35)
Current consumption	typ. 38 mA (S12)
	typ. -38 mA (S22)
	typ. 0 mA (with U_s/I_x to S34)
	typ. 1 mA (with U_s/I_x to S35)
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)
	150 ms (automatic start)
Typ. starting time with U_s	250 ms (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 type	3 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 (Observe derating and load limit curve)
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 41/42)
Switching capacity min.	100 mW
Switching capacity in accordance with IEC 60947-5-1	6 A (DC13)
	5 A (AC15)
	2 A (DC13)
Switching capacity (3600/h cycles)	1.5 A (AC15)
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 solid	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

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: EN 50156

Safety Integrity Level (SIL)	3

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

Designation	The data is only valid if the demand rate is no more than once a year.
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

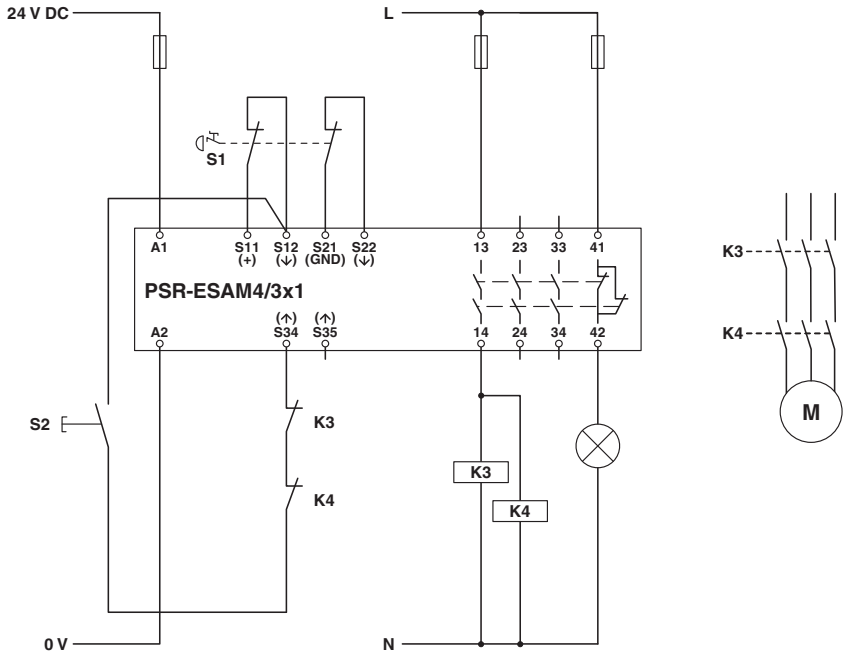
Standards/regulations	DIN EN 60947-1

Mounting

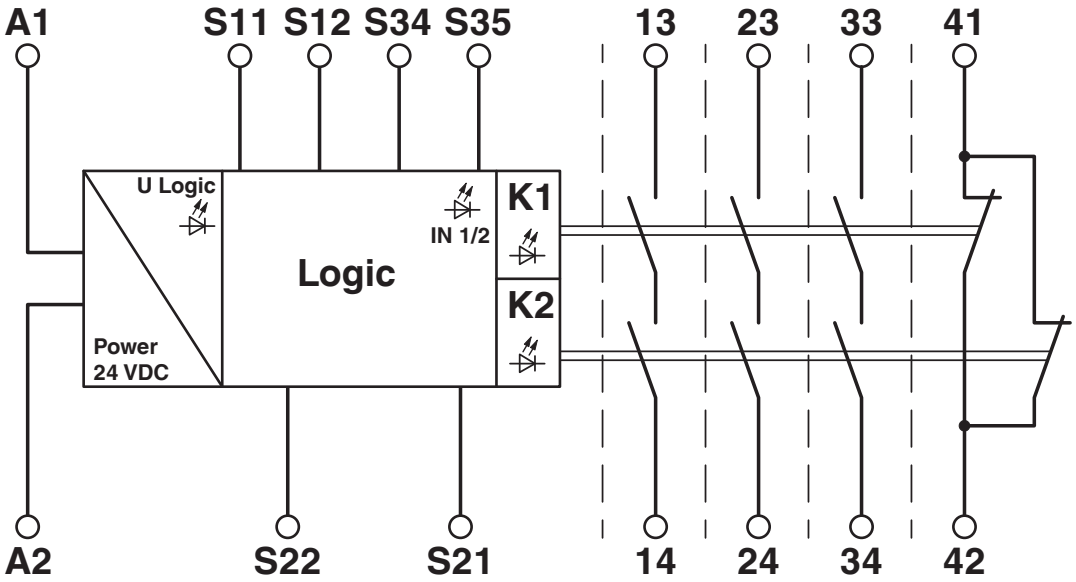
Mounting type	DIN rail mounting
Assembly instructions	See derating curve
Mounting position	vertical or horizontal

Drawings

Circuit diagram



Circuit diagram



Approvals

EAC
Approval ID: TR_TS_D_00573_c

UL Listed
Approval ID: FILE E 140324

cUL Listed
Approval ID: FILE E 140324

Functional Safety
Approval ID: 01/205/5117.03/21

Functional Safety
Approval ID: 968/EZ 496.04/21

cULus Listed

Classifications

ECLASS

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

ETIM

ETIM 7.0	EC001449

UNSPSC

UNSPSC 21.0	39122205

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”

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

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