Safety relays - PSR-SPP-24UC/ESAM4/8X1/1X2

2963996

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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, single- or two-channel operation, 8 enabling current paths, U_S = 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 IEC 62061, SIL 3 in accordance with IEC 61508
- Manually monitored and automatic activation in a single device
- 1- and 2-channel control
- 8 enabling current paths, 1 signaling current path

Commercial Data

Item number	2963996
Packing unit	1 pc
Minimum order quantity	1 pc
Sales Key	C18
Product Key	DNA114
Catalog Page	Page 229 (C-6-2019)
GTIN	4017918904814
Weight per Piece (including packing)	420.34 g
Weight per Piece (excluding packing)	334.92 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

Electrical properties

Maximum power dissipation for nominal condition	31.7 W (U_S = 26.4 V, I_L^2 = 144 A², $P_{Total\ max}$ = 2.9 W + 28.8 W)
Nominal operating mode	100% operating factor
Rated insulation voltage	250 V
Rated surge voltage/insulation	Basic insulation 4 kV: between all current paths and housing Safe isolation, reinforced insulation 6 kV: between A1/A2 and 63/64, 73/74, 83/84 between S10/S11/S12/S33/S34/S35 and 63/64, 73/74, 83/84 between 63/64, 73/74, 83/84 among one another

Input data

General

Rated control circuit supply voltage U_S	24 V DC -15 % / +10 %
Power consumption at U_S	typ. 2.4 W (DC)
Rated control supply current I_S	typ. 100 mA DC (at U_S)
Inrush current	3.5 A (Δt = 2 ms at U_s)
	max. 150 mA (Δt = 1 ms, with U_s/I_x at S10)
	max. 200 mA (Δt = 1 ms, with U_s/I_x at S12)
	max. -180 mA (Δt = 1 ms, with U_s/I_x at S22)
	< 10 mA (with U_s/I_x to S34)
	< 10 mA (with U_s/I_x to S35)
Current consumption	50 mA (with U_s/I_x to S10)
	50 mA (with U_s/I_x to S12)
	-50 mA (with U_s/I_x to S22)
	0 mA (with U_s/I_x to S34)
	1 mA (with U_s/I_x to S35)
Voltage at input/start and feedback circuit	24 V DC -15 % / +10 %
Filter time	2 ms (at A1 in the event of voltage dips at U_s)
	max. 1.5 ms (at S10, S12; test pulse width)
	7.5 ms (at S10, S12; test pulse rate)
	Test pulse rate = 5 x Test pulse width

Typical response time	< 120 ms (automatic start)
	< 140 ms (manual start)
Typ. starting time with U_s	< 200 ms (when controlled via A1)
Typical release time	< 20 ms (when controlled via S11/S12 and S21/S22)
	< 50 ms (when controlled via A1)
Concurrence	∞
Recovery time	< 500 ms (following demand of the safety function)
	< 1 s (Boot time)
Maximum switching frequency	0.5 Hz
Protective circuit	Surge protection; Suppressor diode
Max. permissible overall conductor resistance	11 Ω (Input sensor circuit S10,S12,S22)
	50 Ω (S34,S35 start circuit input)
Operating voltage display	1 x green LED
Status display	2 x green LEDs

Output data

Contact type	8 enabling current paths
	1 signaling current path
Contact material	$AgSnO_2$
Maximum switching voltage	250 V AC
Minimum switching voltage	5 V AC/DC
Limiting continuous current	6 A
Maximum inrush current	6 A
Inrush current, minimum	10 mA
Sq. Total current	144 A^2 (Enabling current paths)
	36 A^2 (Signaling current path)
Switching capacity min.	50 mW
Switching capacity according to IEC 60947-5-1	5 A (DC13)
	3 A (AC15)
	0.5 A (AC15)
Output fuse	10 A gL/gG (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	45 mm
Height	112 mm
Depth	114.5 mm

Material specifications

Housing material	Polyamide
Housing color	yellow

Characteristics

Safety data

Stop category	0

Safety data: EN ISO 13849

Category	4
Performance level (PL)	e (3 A DC13; 3 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)	5.06×10^{-10} (3 A DC13; 3 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})	1.48×10^{-4}
Proof test interval	77 Months
Duration of use	240 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

Approval data

CE

Certificate	CE-compliant

Standards and regulations

Air clearances and creepage distances between the power circuits

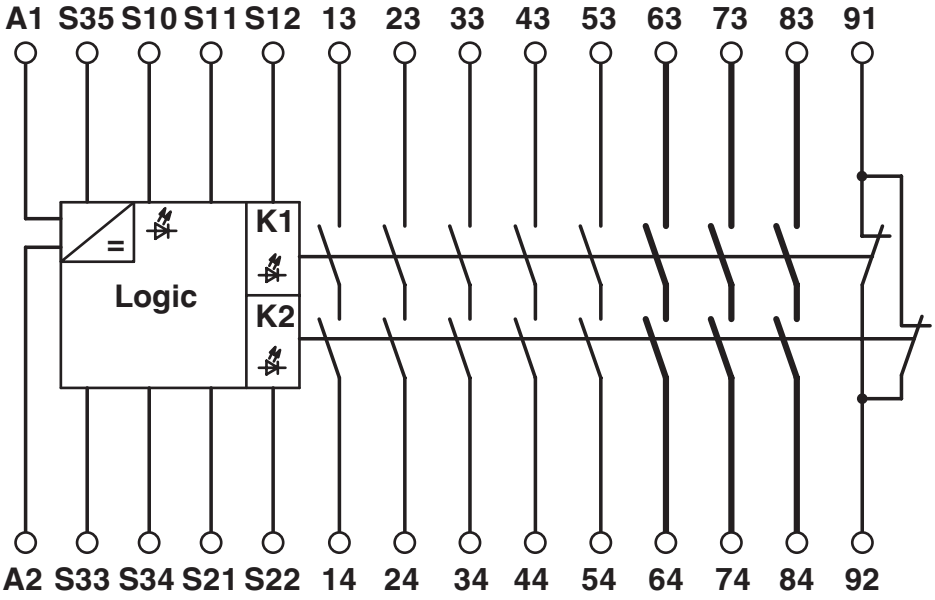
Standards/regulations	DIN EN 60947-1

Mounting

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

Drawings

Circuit diagram



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: 01/205/5363.03/22

Functional Safety
Approval ID: 968/EZ 622.03/22

cULus Listed

Classifications

ECLASS

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

ETIM

ETIM 8.0	EC001449

UNSPSC

UNSPSC 21.0	39122200

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

Coding profile

Coding profile - CP-MSTB - 1734634

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

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



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