Safety relays - PSR-SPP- 24DC/ESD/5X1/1X2/T10S

2981509

https://www.phoenixcontact.com/de/produkte/2981509

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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, automatic or manual activation, 3 N/O contacts, 1 N/C contact, 2 N/O contacts with a fixed dropout delay of 10 s, pluggable Push-in terminal block

Your advantages

- Up to Cat. 3/PL d in accordance with EN ISO 13849-1, SIL 2 for delayed contacts
- Up to Cat. 4/PL e in accordance with ISO 13849-1, SIL 3 in accordance with IEC 62061, SIL 3 in accordance with IEC 61508 for undelayed contacts
- 1- and 2-channel control
- 3 undelayed and 2 dropout delay contacts
- Fixed delay times of 10 s
- For emergency stop and safety door monitoring, plus evaluation of light grids

Commercial Data

Item number	2981509
Packing unit	1 pc
Minimum order quantity	1 pc
Sales Key	G1 - Relais
Product Key	DNA132
GTIN	4017918981105
Weight per Piece (including packing)	445 g
Weight per Piece (excluding packing)	445 g
Customs tariff number	85371098
Country of origin	DE

Technical Data

Product properties

Product type	Safety relays
Application	Emergency stop
	Safety door
	Light grid
Mechanical service life	10x 10^6 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	3.6 W
Nominal operating mode	100% operating factor
Rated insulation voltage	250 V AC
Rated surge voltage/insulation	Basic insulation 4 kV: between all current paths and housing Safe isolation, reinforced insulation 6 kV: between 13/14, 23/24, 33/34, and the remaining current paths between 13/14, 23/24, 33/34 among one another

Supply

Rated control circuit supply voltage U_S	20.4 V DC ... 26.4 V DC
Rated control circuit supply voltage U_S	24 V DC -15 % / +10 %

Input data

General

Power consumption at U_S	typ. 3.6 W
Rated control supply current I_S	typ. 150 mA
Inrush current	200 mA (at U_S)
	< 40 mA (with U_s/I_x to S10)
	< 150 mA (with U_s/I_x to S12)
	> -60 mA (with U_s/I_x to S22)
	< 40 mA (with U_s/I_x to S34)
	< 40 mA (with U_s/I_x to S35)
Current consumption	< 40 mA (with U_s/I_x to S10)
	< 40 mA (with U_s/I_x to S12)
	> -40 mA (with U_s/I_x to S22)
	0 mA (with U_s/I_x to S34)
	< 5 mA (with U_s/I_x to S35)
Voltage at input/start and feedback circuit	24 V DC -15 % / +10 %
	1 ms (at A1 in the event of voltage dips at U_s)

Filter time	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	< 600 ms (automatic start)
	< 70 ms (manual start)
Typ. starting time with U_s	< 600 ms (when controlled via A1)
Typical release time	< 20 ms (when controlled via S11/S12 and S21/S22)
	< 20 ms (when controlled via A1)
Concurrence	∞
Recovery time	< 1 s
Delay time	K3(t), K4(t) fixed depending on model
Maximum switching frequency	0.5 Hz
Protective circuit	Surge protection; Suppressor diode
Max. permissible overall conductor resistance	approx. 11 Ω (Input and start circuits at U_S)
Operating voltage display	1 x green LED
Status display	4 x green LEDs

Output data

Contact type	5 enabling current paths
	1 signaling current path
Contact material	$AgSnO_2$
Maximum switching voltage	250 V AC/DC (Observe the load curve)
Minimum switching voltage	5 V AC/DC
Limiting continuous current	6 A (N/O contact, pay attention to the derating)
	6 A (N/C contact)
Maximum inrush current	20 A (Δt ☐ 100 ms, undelayed contacts)
	8 A (delayed contacts)
Inrush current, minimum	10 mA
Sq. Total current	55 A^2 (observe derating)
Interrupting rating (ohmic load) max.	144 W (24 V DC, τ = 0 ms)
	288 W (48 V DC, τ = 0 ms)
	110 W (110 V DC, τ = 0 ms, delayed contacts: 77 W)
	88 W (220 V DC, τ = 0 ms)
	1500 VA (250 V AC, τ = 0 ms, delayed contacts: 2000 VA)
Maximum interrupting rating (inductive load)	42 W (24 V DC, τ = 40 ms, delayed contacts: 48 W)
	42 W (48 V DC, τ = 40 ms, delayed contacts: 40 W)
	42 W (110 V DC, τ = 40 ms, delayed contacts: 35 W)
	42 W (220 V DC, τ = 40 ms, delayed contacts: 33 W)
Switching capacity min.	50 mW
Switching capacity (360/h cycles)	4 A (24 V DC)
	4 A (230 V AC)
Switching capacity (3600/h cycles)	2.5 A (24 V (DC13))
	3 A (230 V (AC15))
Output fuse	10 A gL/gG (N/O contact)

	6 A gL/gG (N/C contact)

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
Color (Housing)	yellow (1018)

Characteristics

Safety data

Stop category	0
	1

Safety data: EN ISO 13849

Category	4 (Undelayed contacts)
	3 (delayed contacts)
Performance level (PL)	e (for delayed contacts PL d)

Safety data: IEC 61508 - High demand

Equipment type	Type A
Safety Integrity Level (SIL)	3 (for delayed contacts SIL 2)
Probability of a hazardous failure per hour (PFH_D)	1.67×10^{-9}
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 (for delayed contacts SIL 2)
Probability of a hazardous failure on demand (PFD_{AVG})	1.41×10^{-4}

Proof test interval	19 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

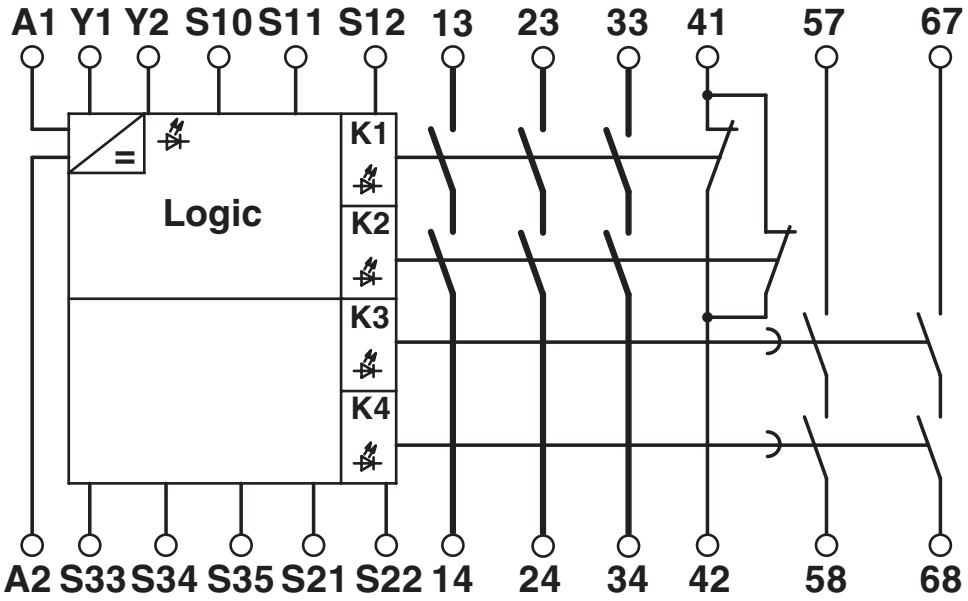
Standards/regulations	DIN EN 50178/VDE 0160

Mounting

Mounting type	DIN rail mounting
Mounting position	any

Drawings

Circuit diagram



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: 01/205/5347.03/21

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”

PHOENIX CONTACT Deutschland GmbH
Flachsmarktstraße 8
D-32825 Blomberg
+49 52 35/3-1 20 00
info@phoenixcontact.de