

Safety relays - PSR-SCP- 24DC/ESD/5X1/1X2/300



2981428

<https://www.phoenixcontact.com/us/products/2981428>

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Safety relay for emergency stop and safety door monitoring up to SIL 3 or Cat. 4, PL e (EN ISO 13849), one- or two-channel operation, automatic or manual activation, 3 N/O contacts, 1 N/C contact, 2 N/O contacts with dropout delay of 0.2 s ... 300 s, plug-in screw terminal block

Your advantages

- Maximum of 3 undelayed and 2 dropout delay contacts
- Manually monitored and automatic activation
- Up to Cat. 3/4 and PL d/e according to EN ISO 13849-1, SIL 3 according to IEC 62061, SIL 3 according to IEC 61508
- For emergency stop and safety door monitoring, plus evaluation of light grids
- 1- and 2-channel control
- Adjustable delay time of 0.2 s ... 300 s (24 increments)
- Protective labels to prevent manipulation of the set time (PSR-ESD-300) or electronic protection against manipulation (PSR-ESD-30)

Commercial Data

Item number	2981428
Packing unit	1 pc
Minimum order quantity	1 pc
Note	Made to Order (non-returnable)
Sales Key	C18
Product Key	DNA131
Catalog Page	Page 230 (C-6-2019)
GTIN	4017918975227
Weight per Piece (including packing)	430 g
Weight per Piece (excluding packing)	430 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
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Electrical properties

Maximum power dissipation for nominal condition	3.72 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

Input data

General

Rated control circuit supply voltage U_S	24 V DC -15 % / +10 %
Power consumption at U_S	typ. 3.72 W
Rated control supply current I_S	typ. 155 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)
	< 50 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 %
Filter time	1 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

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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
Maximum switching frequency	0.5 Hz
Protective circuit	Surge protection; Suppressor diode
Max. permissible overall conductor resistance	approx. 22 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 ($\Delta t \leq 100$ 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, $\tau = 0$ ms)
	288 W (48 V DC, $\tau = 0$ ms)
	110 W (110 V DC, $\tau = 0$ ms, delayed contacts: 77 W)
	88 W (220 V DC, $\tau = 0$ ms)
	1500 VA (250 V AC, $\tau = 0$ ms, delayed contacts: 2000 VA)
Maximum interrupting rating (inductive load)	42 W (24 V DC, $\tau = 40$ ms, delayed contacts: 48 W)
	42 W (48 V DC, $\tau = 40$ ms, delayed contacts: 40 W)
	42 W (110 V DC, $\tau = 40$ ms, delayed contacts: 35 W)
	42 W (220 V DC, $\tau = 40$ 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

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pluggable	yes
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Conductor connection

Connection method	Screw connection
Conductor cross section solid	0.2 mm ² ... 2.5 mm ²
Conductor cross-section AWG	24 ... 12
Screw thread	M3

Dimensions

Width	45 mm
Height	99 mm
Depth	114.5 mm

Material specifications

Housing material	PBT
Housing color	yellow

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)	1.89 x 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})	1.43 x 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

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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
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Standards and regulations

Air clearances and creepage distances between the power circuits

Standards/regulations	DIN EN 50178/VDE 0160
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Mounting

Mounting type	DIN rail mounting
Mounting position	any

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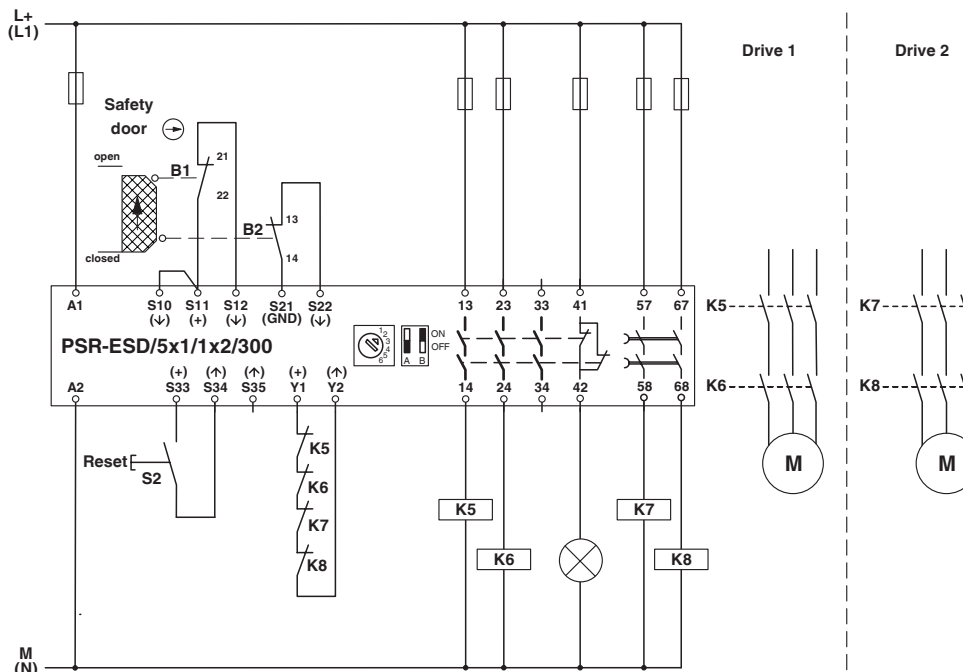


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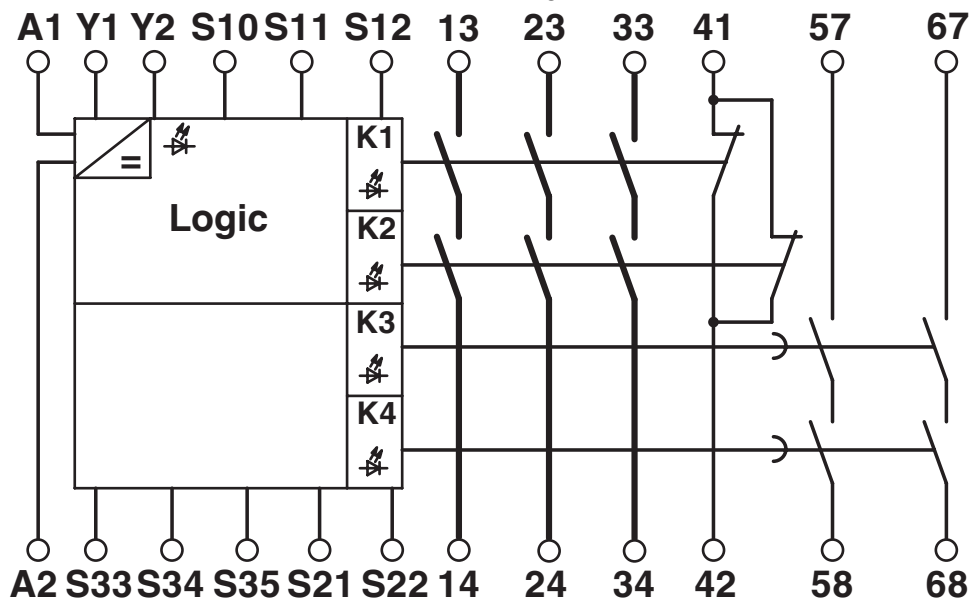
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Drawings

Circuit diagram



Circuit diagram



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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: 01/205/5347.03/21

cULus Listed

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Classifications

ECLASS

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

ETIM

ETIM 8.0	EC001449
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UNSPSC

UNSPSC 21.0	39122200
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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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