PSR-SCP-42-48UC/ESAM4/3X1/1X2B - Safety relays

2901416

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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, 1- or 2-channel operation, 3 enabling current paths, nominal input voltage: 42 V AC/DC ... 48 V AC/DC, plug-in screw terminal blocks

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
- 1- and 2-channel control
- 3 enabling current paths, 1 signaling current path

Commercial Data

Item number	2901416
Packing unit	1 pc
Minimum order quantity	1 pc
Sales Key	DN01
Product Key	DNA114
Catalog Page	Page 229 (C-6-2019)
GTIN	4046356591997
Weight per Piece (including packing)	238.01 g
Weight per Piece (excluding packing)	177.75 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	4.56 W
Nominal operating mode	100% operating factor

Air clearances and creepage distances between the power circuits

Rated insulation voltage	250 V AC
Rated surge voltage/insulation	4 kV / basic insulation (safe isolation, reinforced insulation, and 6 kV between A1-A2/logic/enabling and signaling current paths)

Input data

General

Control supply voltage range	42 V AC/DC ... 48 V AC/DC -15 % ... +10 % (Rated control circuit supply voltage U_S)
Rated control supply current I_S	95 mA
Typical input current at U_N	95 mA
Voltage at input/start and feedback circuit	~ 24 V DC
Typical response time	40 ms (man. start)
Typ. starting time with U_s	330 ms (when controlled via A1)
Typical release time	90 ms (when controlled via A1)
	20 ms (when controlled via S11/S12 and S21/S22)
Concurrence	∞
Recovery time	1 s
Maximum switching frequency	0.5 Hz
Protective circuit	Surge protection; Varistor 275 V_{RMS} (A1-A2)
	Surge protection; Varistor
Max. permissible overall conductor resistance	50 Ω
Operating voltage display	Green LED
Status display	Green LED

Output data

Contact switching type	3 enabling current paths
	1 signaling current path
Contact material	$AgSnO_2$, + 0.2 µm Au

Maximum switching voltage	250 V AC/DC
Minimum switching voltage	10 V AC/DC
Limiting continuous current	6 A (Enabling current paths)
	5 A (Signaling current path)
Maximum inrush current	6 A
Inrush current, minimum	10 mA
Sq. Total current	72 A^2 ($I_{TH}^2 = I_1^2 + I_2^2 + I_3^2$)
Interrupting rating (ohmic load) max.	144 W (24 V DC, τ = 0 ms)
	230 W (48 V DC, τ = 0 ms)
	68 W (110 V DC, τ = 0 ms)
	88 W (220 V DC, τ = 0 ms)
	2000 VA (250 V AC, τ = 0 ms)
Maximum interrupting rating (inductive load)	48 W (24 V DC, τ = 40 ms)
	40 W (48 V DC, τ = 40 ms)
	35 W (110 V DC, τ = 40 ms)
	33 W (220 V DC, τ = 40 ms)
Switching capacity min.	100 mW
Switching capacity (360/h cycles)	6 A (24 V DC)
	5 A (230 V AC)
Switching capacity (3600/h cycles)	3 A (24 V (DC13))
	3 A (230 V (AC 15))
Output fuse	10 A gL/gG NEOZED (Enabling current paths)
	6 A gL/gG NEOZED (Signaling current path)

Connection data

Connection technology

pluggable	yes

Conductor connection

Connection method	Screw connection
Conductor cross section rigid	0.2 mm² ... 2.5 mm²
Conductor cross section flexible	0.2 mm² ... 2.5 mm²
Conductor cross-section AWG	24 ... 12

Dimensions

Width	22.5 mm
Height	99 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

Safety data: IEC 61508 - High demand

Designation	The data only applies if the safety function is demanded at least once a year.
Safety Integrity Level (SIL)	3
Probability of a hazardous failure per hour (PFH_D)	3.6×10^{-10}
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.
Safety Integrity Level (SIL)	3
Mean time to a dangerous failure ($MTTF_D$)	19346.8 Years
Probability of a hazardous failure on demand (PFD_{AVG})	1.50×10^{-4}
Proof test interval	78 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)	-25 °C ... 55 °C
Ambient temperature (storage/transport)	-40 °C ... 85 °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

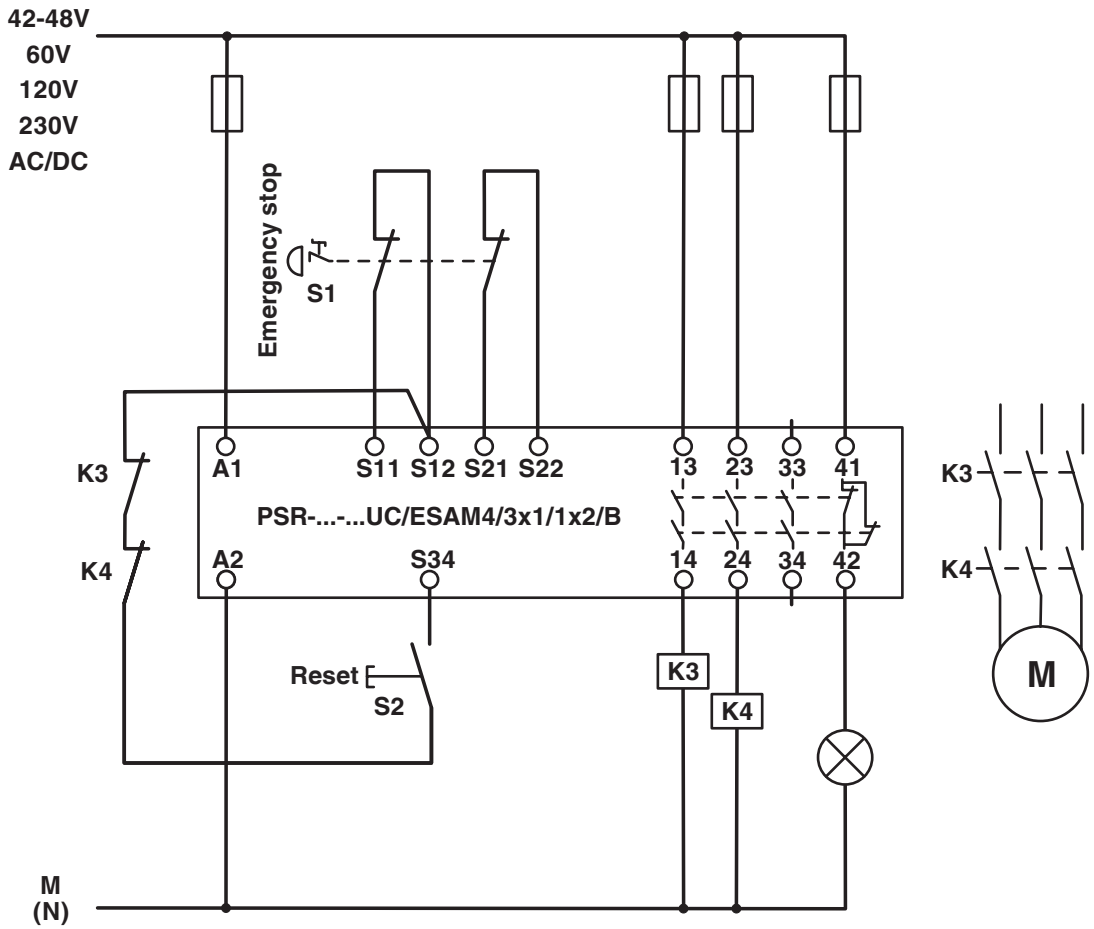
Standards/regulations	IEC 60664-1

Mounting

Mounting type	DIN rail mounting
Mounting position	any
Connection method	Screw connection

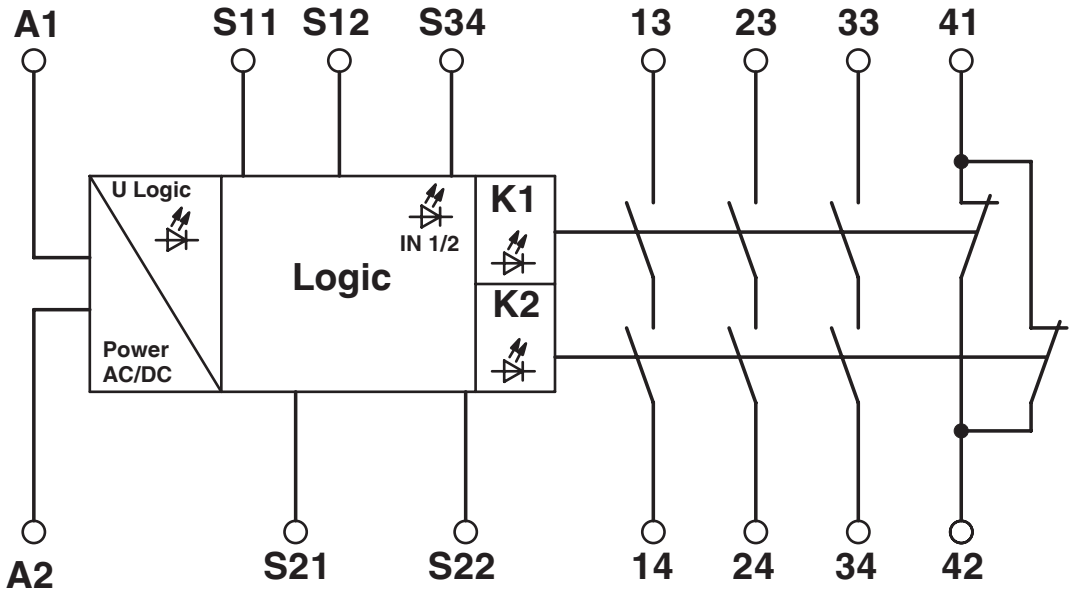
Drawings

Application drawing

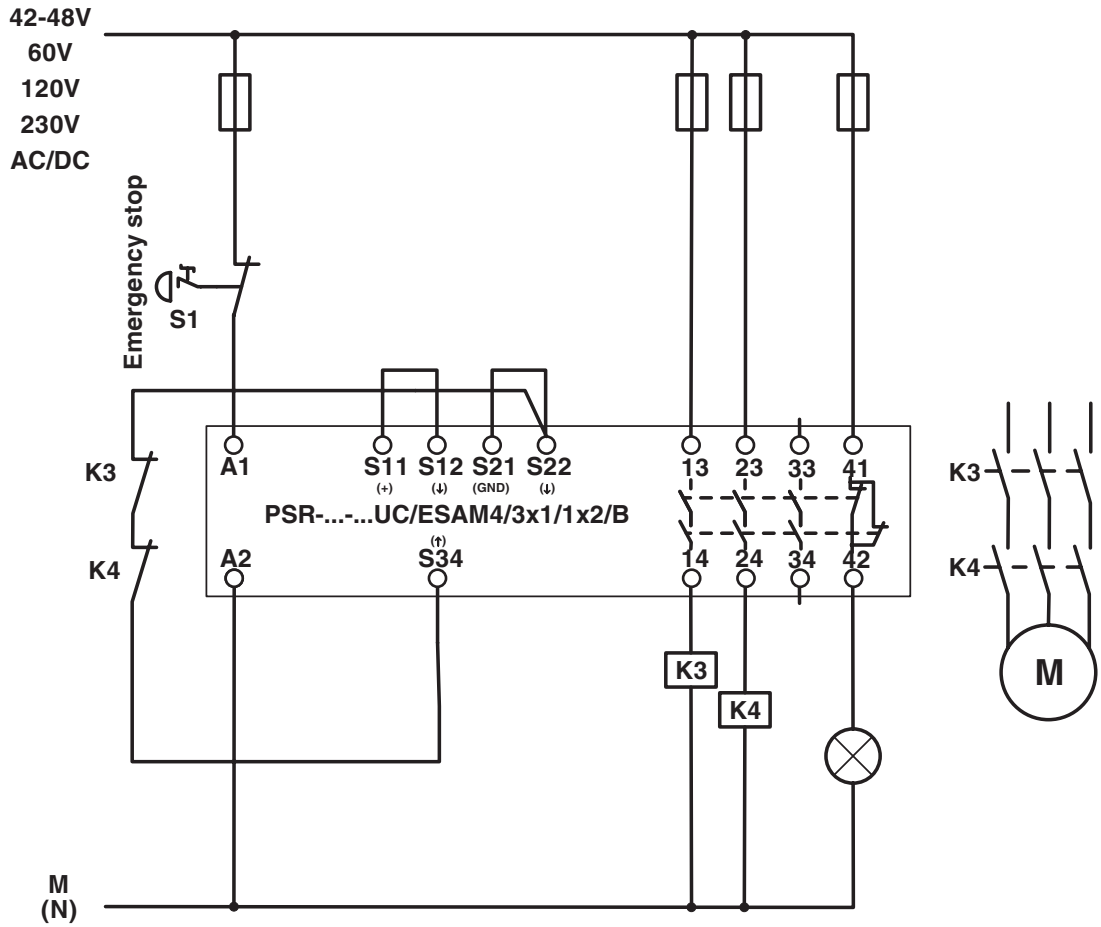


Two-channel emergency stop monitoring

Circuit diagram



Application drawing



Single-channel emergency stop monitoring

Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/us/products/2901416

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

Classifications

ECLASS

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

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