

Safety relays - PSR-SCP- 24UC/ESM4/3X1/1X2/B



2963776

<https://www.phoenixcontact.com/in/products/2963776>

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Safety relay for emergency stop and safety door monitoring up to SIL 3 or Cat. 4, PL e according to EN ISO 13849, 1- or 2-channel operation, 3 enabling current paths, nominal input voltage of 24 V AC/DC, plug-in screw terminal block

Your advantages

- Up to Cat. 4/PL e according to EN ISO 13849-1, SIL 3 according to EN 62061, SIL 3 according to IEC 61508
- 1- and 2-channel control
- 3 enabling current paths, 1 signaling current path
- Manual and monitored activation

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Commercial Data

Item number	2963776
Packing unit	1 pc
Minimum order quantity	1 pc
Sales Key	DNA
Product Key	DNA112
Catalog Page	Page 21 (IF-2009)
GTIN	4017918823627
Weight per Piece (including packing)	191.92 g
Weight per Piece (excluding packing)	160.95 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
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Electrical properties

Maximum power dissipation for nominal condition	1.56 W
Nominal operating mode	100% operating factor
Rated insulation voltage	250 V
Rated surge voltage/insulation	4 kV / Basic isolation, (safe isolation, reinforced insulation and 6 kV between input circuit and enabling current paths.)

Input data

Nominal input voltage U_N	24 V AC/DC
Input voltage range in reference to U_N	0.85 ... 1.1
Typical input current at U_N	140 mA AC 65 mA DC
Voltage at input/start and feedback circuit	approx. 24 V DC
Typical response time	20 ms (Monitored/manual start)
Typical release time	45 ms (single-channel) 10 ms (two-channel)
Concurrence	∞
Recovery time	1 s
Protective circuit	Surge protection; Suppressor diode
Max. permissible overall conductor resistance	approx. 50 Ω (Input and start circuits at U_N)
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 μ m Au
Maximum switching voltage	250 V AC/DC
Minimum switching voltage	15 V AC/DC
Limiting continuous current	6 A (N/O contact)
Maximum inrush current	6 A
Inrush current, minimum	25 mA

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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, $\tau = 0$ ms)
	288 W (48 V DC, $\tau = 0$ ms)
	77 W (110 V DC, $\tau = 0$ ms)
	88 W (220 V DC, $\tau = 0$ ms)
	1500 VA (250 V AC, $\tau = 0$ ms)
Maximum interrupting rating (inductive load)	48 W (24 V DC, $\tau = 40$ ms)
	40 W (48 V DC, $\tau = 40$ ms)
	35 W (110 V DC, $\tau = 40$ ms)
	33 W (220 V DC, $\tau = 40$ ms)
Switching capacity min.	0.4 W
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 (N/O contact)
	6 A gL/gG NEOZED (N/C contact)

Connection data

Connection technology

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	22.5 mm
Height	99 mm
Depth	114.5 mm

Material specifications

Housing material	Polyamide
Housing color	yellow

Connector

Application	Emergency stop
	Safety door
Connection method	Screw connection
Housing material	Polyamide
Degree of protection	IP20
Application	Emergency stop

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	Safety door
Connection method	Screw connection

Characteristics

Safety data

Stop category	0
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Safety data: EN ISO 13849

Category	4
Performance level (PL)	e

Safety data: IEC 61508 - High demand

Designation	Data only applies if the safety function is demanded at least once a year and the signal contact is read back.
Probability of a hazardous failure per hour (PFH _D)	5.05×10^{-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)	19629 Years
Probability of a hazardous failure on demand (PFD _{AVG})	1.37×10^{-4}
Proof test interval	66 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
Ambient temperature (storage/transport)	-40 °C ... 70 °C
Maximum altitude	≤ 2000 m (Above sea level)
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 50178/VDE 0160
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Mounting

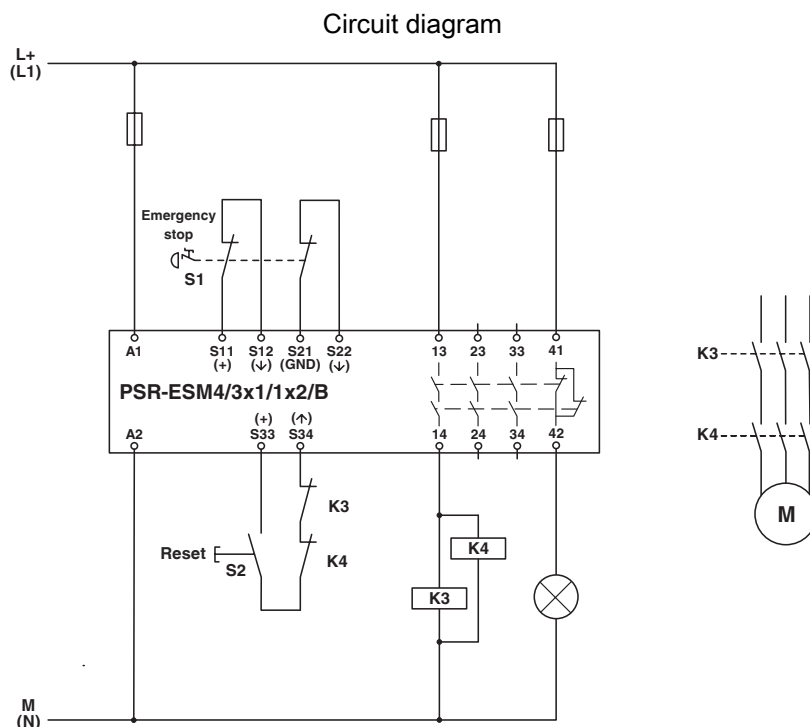
Mounting type	DIN rail mounting
Mounting position	any

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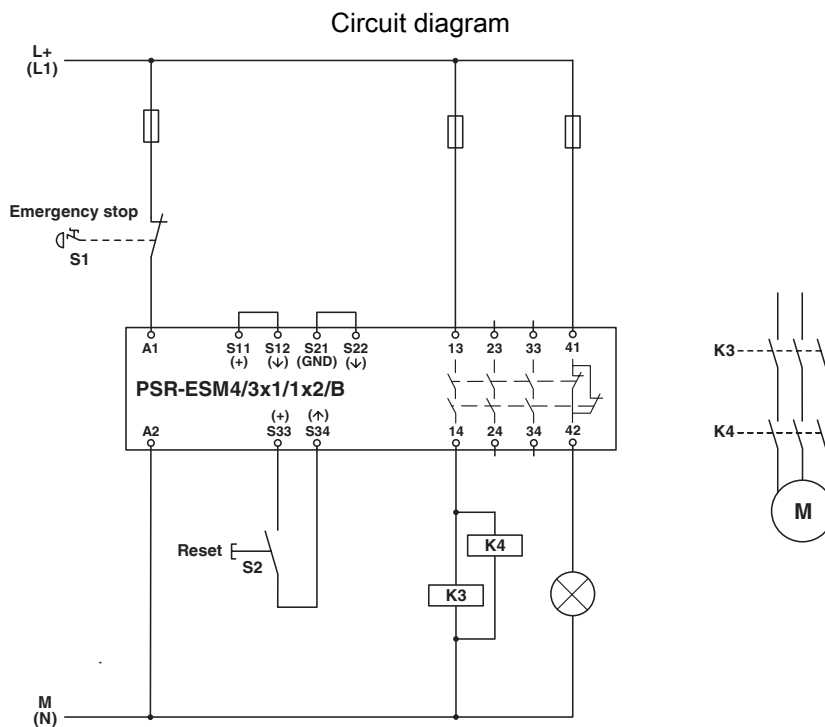
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Drawings



Two-channel emergency stop monitoring



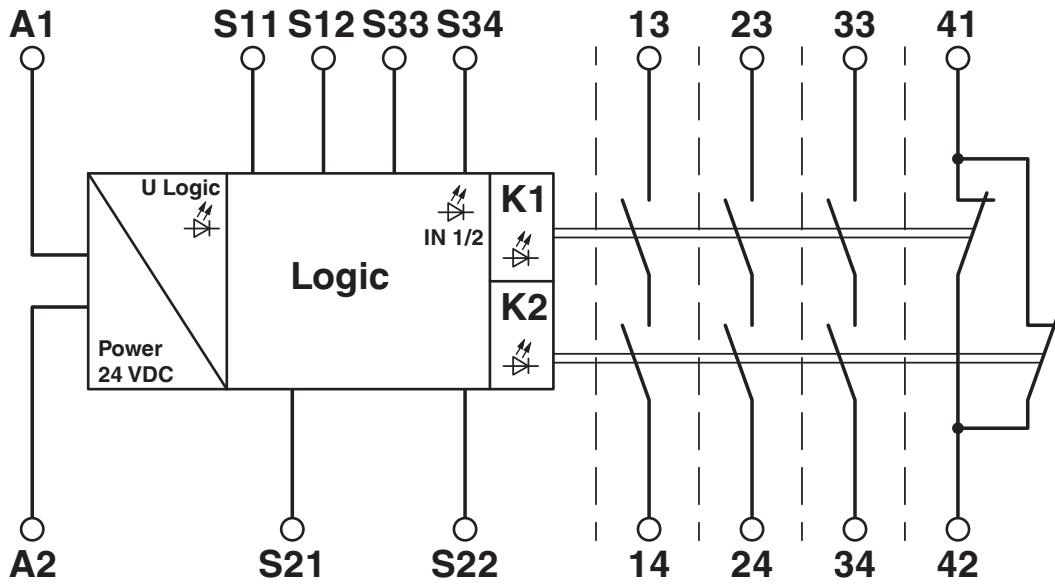
Single-channel emergency stop monitoring

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Circuit diagram



Block 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: 01/205/0652.03/22



Functional Safety

Approval ID: 968/EZ 404.05/22

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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