PSR-SCP- 24UC/ESA2/4X1/1X2/B - Safety relays

2963802

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Safety relay for emergency stop and safety door up to SIL 1, Cat. 1, PL c, depending on the application up to SIL 3, Cat. 4, PL e, single-channel operation, 4 enabling current paths, U_S = 24 V DC, plug-in screw terminal blocks

Your advantages

- Up to Cat. 1/PL c in accordance with ISO 13849-1, SIL 1 in accordance with EN IEC 62061, SIL 1 in accordance with IEC 61508
- Depending on the application, up to Cat. 4/PL e in accordance with ISO 13849-1, SIL 3 in accordance with EN IEC 62061, SIL 3 in accordance with IEC 61508
- Basic insulation
- 1-channel control

Commercial data

Item number	2963802
Packing unit	1 pc
Minimum order quantity	1 pc
Product key	DNA111
Catalog page	Page 229 (C-6-2019)
GTIN	4017918892661
Weight per piece (including packing)	212.4 g
Weight per piece (excluding packing)	210.5 g
Customs tariff number	85371098
Country of origin	DE

Technical data

Notes

Note on application

Note on application	Only for industrial use

Product properties

Product type	Safety relays
Product family	PSRclassic
Application	Emergency stop
	Safety door
Mechanical service life	10x 10^6 cycles
Relay type	Electromechanical relay with force-guided contacts in accordance with IEC/EN 61810-3

Data management status

Article revision	08

Times

Typical response time	< 100 ms (For U_s autostart)
	< 100 ms (with U_s manual start)
Typ. starting time with U_s	< 100 ms (with Us / when controlled via A1)
Typical release time	< 10 ms (At Us on demand via sensor circuit)
	< 100 ms (At Us/on demand via A1)
Recovery time	< 1 s (Boot time)

Electrical properties

Maximum power dissipation for nominal condition	16 W (U_S = 26.4 V, I_L^2 = 72 A², $P_{Total\ max}$ = 1.6 W + 14.4 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	Basic insulation 4 kV: between all current paths and housing Safe isolation, reinforced insulation 6 kV: between A1/A2 and 13/14, 23/24, 33/34, 43/44 between S11/S12/S33/S34 and 13/14, 23/24, 33/34, 43/44 between 51/52 and 13/14, 23/24, 33/34, 43/44

Supply

Rated control circuit supply voltage U_S	24 V DC -15 % / +10 %
Rated control supply current I_S	typ. 55 mA (at U_S)
Power consumption at U_S	typ. 1.32 W
Inrush current	< 3.5 A (typ. with U_S, Δt = 2 ms)
Filter time	2 ms (in the event of voltage dips at U_s)
Protective circuit	Serial protection against polarity reversal; Suppressor diode

Input data

Digital: Logic (S12)

Description of the input	safety-related
Number of inputs	1
Input voltage range "0" signal	0 V DC ... 5 V DC
Input voltage range "1" signal	20.4 V ... 26.4 V
Input current range "0" signal	0 mA ... 2 mA
Inrush current	80 mA (typically with U_S, Δt = 150 ms)
Filter time	No brightness test pulses / high test pulses permitted.
	1 ms (Test pulse width of low test pulses)
	1 s (Test pulse rate for low test pulse)
Max. permissible overall conductor resistance	50 Ω
Protective circuit	Suppressor diode
Current consumption	typ. 50 mA (with U_S at S11)
	typ. 52 mA (with U_S supplied externally)

Digital: Start circuit (S34)

Description of the input	non-safety-related
Number of inputs	1
Input voltage range "1" signal	20.4 V ... 26.4 V
Inrush current	< 6 mA (typically with U_S, Δt = 65 ms)
Filter time	No test pulses permitted
Max. permissible overall conductor resistance	50 Ω
Protective circuit	Suppressor diode
Current consumption	0 mA (typ. with U_S)

Output data

Relay: Enabling current paths (13/14, 23/24, 33/34, 43/44)

Output description	2 N/O contacts in series, safety-related, floating
Number of outputs	4
Contact switching type	4 enabling current paths
Contact material	$AgSnO_2$
Switching voltage	min. 10 V
	max. 250 V AC
Switching capacity	min. 100 mW
Inrush current	min. 10 mA
	max. 20 A (Δt = 100 ms)
Switching capacity in accordance with IEC 60947-5-1	3 A (AC15)
	5 A (DC13)
Limiting continuous current	6 A
Sq. Total current	72 A^2 (observe derating)
Switching frequency	max. 0.5 Hz
Interrupting rating (ohmic load) max.	Observe derating and load limit curve

Maximum interrupting rating (inductive load)	Observe derating and load limit curve
Output fuse	10 A gL/gG (High demand)
	4 A gL/gG (Low demand)

Relay: Signaling current path (51/52)

Output description	2 N/C contacts parallel, non-safety-related, floating
Number of outputs	1
Contact switching type	1 signaling current path
Contact material	$AgSnO_2$
Switching voltage	min. 5 V
	max. 250 V AC
Switching capacity	min. 50 mW
Inrush current	min. 10 mA
	max. 6 A
Switching capacity in accordance with IEC 60947-5-1	1.5 A (AC15)
	5 A (DC13)
Limiting continuous current	6 A (Signaling current path)
Sq. Total current	$36\ A^2$
Switching frequency	max. 0.5 Hz
Interrupting rating (ohmic load) max.	Observe derating and load limit curve
Maximum interrupting rating (inductive load)	Observe derating and load limit curve
Output fuse	6 A gL/gG

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
Stripping length	7 mm
Screw thread	M3
Tightening torque	0.5 Nm ... 0.6 Nm

Signaling

Status display	2 x LED (green)
Operating voltage display	1 x green LED

Dimensions

Width	22.5 mm
Height	99 mm
Depth	114.5 mm

Material specifications

Color (Housing)	yellow (RAL 1018)
Housing material	Polyamide

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)
	e (5 A DC13; 3 A AC15; 4380 switching cycles/year)

Safety data: IEC 61508 - High demand

Safety Integrity Level (SIL)	3

Safety data: IEC 61508 - Low demand

Safety Integrity Level (SIL)	3

Safety data: EN IEC 62061

Safety Integrity Level (SIL)	3

Environmental and real-life conditions

Ambient conditions

Degree of protection	IP20
Min. degree of protection of inst. location	IP54
Ambient temperature (operation)	-20 °C ... 65 °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

Approvals

CE

Identification	CE-compliant

Standards and regulations

Air clearances and creepage distances between the power circuits

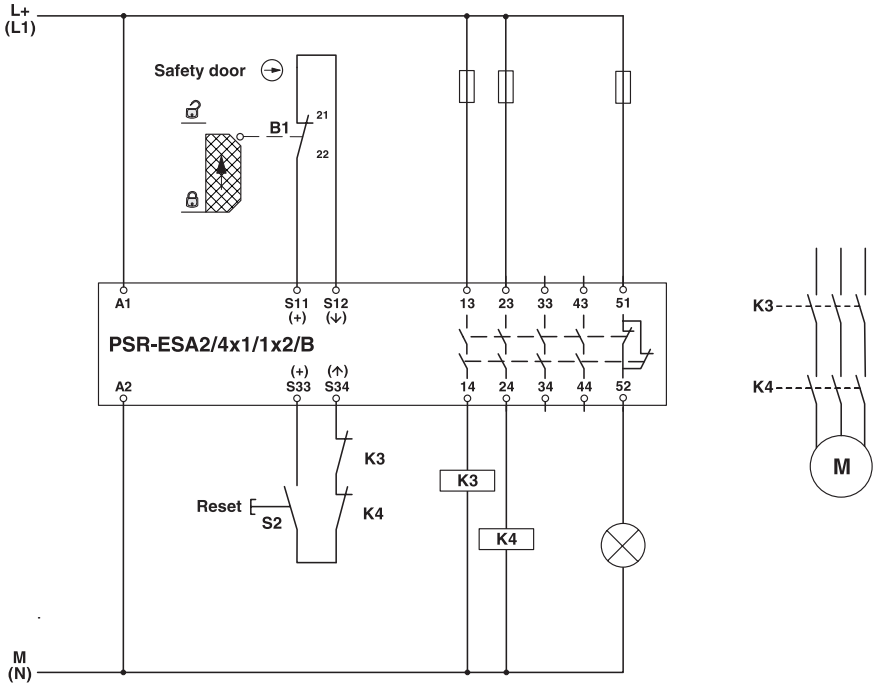
Standards/regulations	DIN EN 60947-1
	DIN EN 60664-1

Mounting

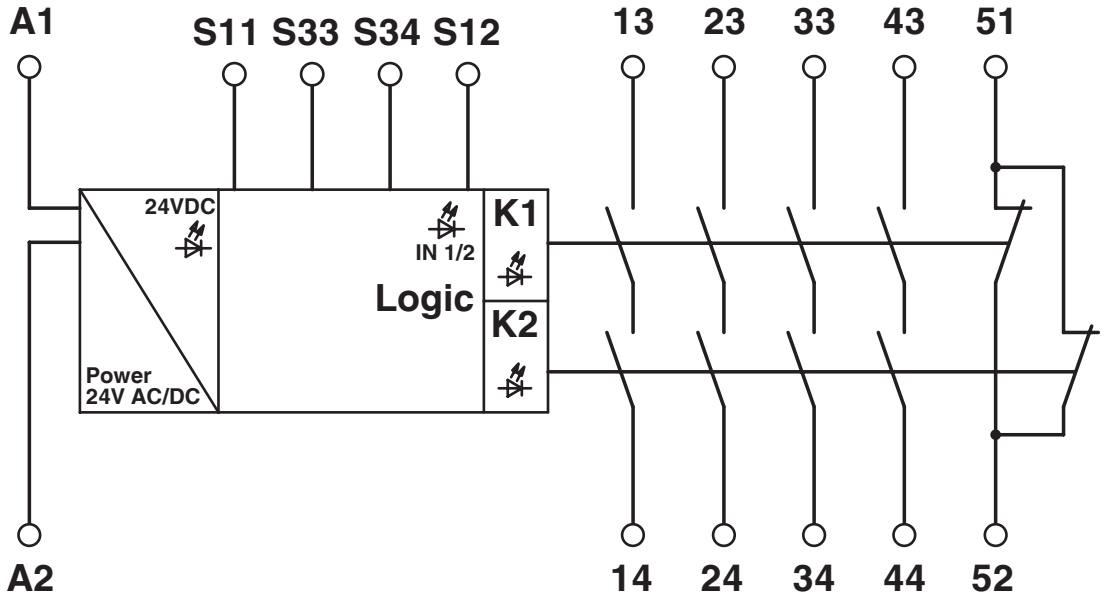
Mounting type	DIN rail mounting
Assembly note	See derating curve
Mounting position	vertical or horizontal

Drawings

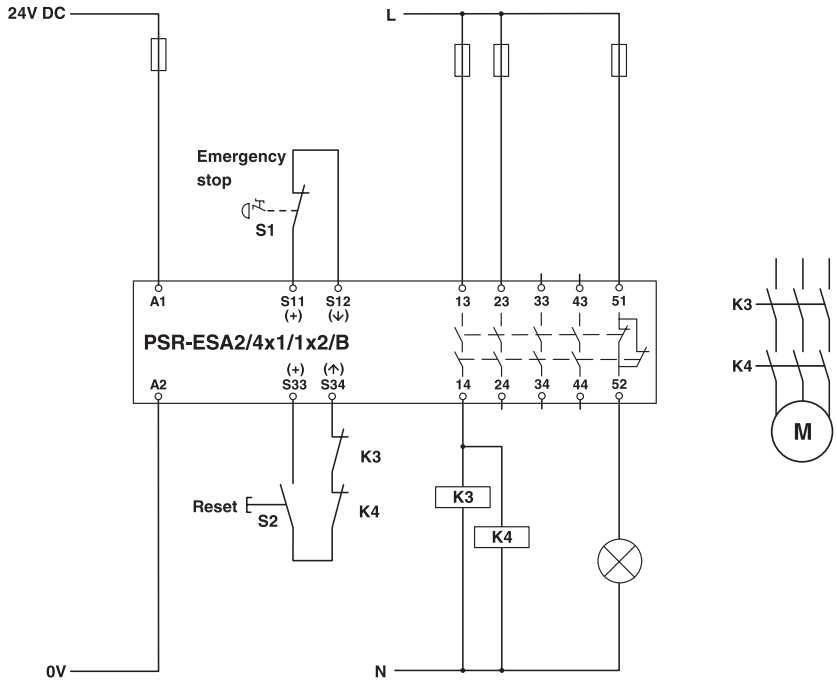
Circuit diagram



Circuit diagram



Circuit diagram



Approvals

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EAC
Approval ID: TR_TS_D_00573_c

Functional Safety
Approval ID: 01/205/0653.03/21

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Functional Safety
Approval ID: 968/EZ405.03/21

Functional Safety
Approval ID: 968/EZ405.03/21

cULus Listed
Approval ID: E140324

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Approval ID: E140324

Classifications

ECLASS

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

ETIM

ETIM 8.0	EC001449

UNSPSC

UNSPSC 21.0	39122200

Environmental product compliance

EU RoHS

Fulfills EU RoHS substance requirements	Yes
Exemption	7(a), 7(c)-I

China RoHS

Environment friendly use period (EFUP)	EFUP-50
	An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required.

EU REACH SVHC

REACH candidate substance (CAS No.)	Lead(CAS: 7439-92-1)
SCIP	0cde4f44-4521-4b22-8d20-64858a0ac0dc

EF3.0 Climate Change

CO2e kg	3.611 kg CO2e

PHOENIX CONTACT GmbH & Co. KG
Flachsmarktstraße 8
D-32825 Blomberg
+49 (0) 5235-3 00
info@phoenixcontact.com