Safety relays - PSR-SCP- 24UC/ESA2/4X1/1X2/B - 2963802

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

Your advantages

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

Key Commercial Data

Packing unit	1 pc
GTIN	4 017918 892661
GTIN	4017918892661

Technical data

Note

Utilization restriction	EMC: class A product, see manufacturer's declaration in the download area

Dimensions

Width	22.5 mm
Height	99 mm
Depth	114.5 mm

Ambient conditions

Ambient temperature (operation)	-20 °C ... 65 °C (observe derating)
Ambient temperature (storage/transport)	-40 °C ... 70 °C
Max. permissible relative humidity (operation)	75 % (on average, 85% infrequently, non-condensing)
Max. permissible humidity (storage/transport)	75 % (on average, 85% infrequently, non-condensing)

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Ambient conditions

Maximum altitude	≤ 2000 m (Above sea level)

Input data

Rated control circuit supply voltage U_S	24 V AC/DC -15 % / +10 %
Rated control supply current I_S	typ. 140 mA AC
	typ. 65 mA DC
Power consumption at U_S	typ. 3.36 W (AC)
	typ. 1.56 W (DC)
Inrush current	2 A (Δt = 10 ms at U_s)
	< 40 mA (with U_s/I_x to S34)
Current consumption	< 50 mA (with U_s/I_x to S12)
	0 mA (with U_s/I_x to S34)
Voltage at input/start and feedback circuit	24 V DC -15 % / +10 %
Typical response time	< 65 ms (automatic start)
	< 40 ms (manual start)
Typ. starting time with U_s	< 65 ms (when controlled via A1)
Typical release time	< 45 ms (when controlled via S12)
	< 200 ms (when controlled via A1)
Recovery time	< 1 s
Operating voltage display	1 x green LED
Status display	2 x green LEDs
Protective circuit	Surge protection Suppressor diode
	Protection against polarity reversal for rated control circuit supply voltage
Maximum switching frequency	1 Hz
Max. permissible overall conductor resistance	approx. 22 Ω (Input and start circuits at U_S)
Filter time	2 ms (at A1 in the event of voltage dips at U_s)
	max. 1.5 ms (at S12; test pulse width)
	7.5 ms (at S12; test pulse rate)
	Test pulse rate = 5 x Test pulse width

Output data

Contact type	4 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)
Inrush current, minimum	10 mA
Sq. Total current	72 A^2 (observe derating)

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Output data

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)
	88 W (220 V DC, τ = 0 ms)
	1500 VA (250 V AC, τ = 0 ms)
Maximum interrupting rating (inductive load)	42 W (24 V DC, τ = 40 ms)
	42 W (48 V DC, τ = 40 ms)
	42 W (110 V DC, τ = 40 ms)
	42 W (220 V DC, τ = 40 ms)
Switching capacity min.	50 mW
Mechanical service life	10x 10^6 cycles
Switching capacity (360/h cycles)	4 A (24 V DC)
	4 A (230 V AC)
Output fuse	10 A gL/gG (N/O contact)
	6 A gL/gG (N/C contact)

General

Relay type	Electromechanical relay with force-guided contacts in accordance with IEC/EN 61810-3
Nominal operating mode	100% operating factor
Net weight	210.5 g
Mounting position	vertical or horizontal
Mounting type	DIN rail mounting
Assembly instructions	See derating curve
Degree of protection	IP20
Min. degree of protection of inst. location	IP54
Housing material	PBT
Housing color	yellow

Connection data

Connection method	Screw connection
pluggable	Yes
Conductor cross section solid	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

Safety-related characteristic data

Stop category	0
Designation	IEC 61508 - High demand
Safety Integrity Level (SIL)	1 (up to SIL 3 depending on the application)

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Safety-related characteristic data

Designation	IEC 61508 - Low demand
Safety Integrity Level (SIL)	1 (up to SIL 3 depending on the application)
Designation	EN ISO 13849
Performance level (PL)	c (up to PL e depending on the application)
Category	1 (up to Cat. 4 depending on the application)
Designation	EN 62061
Safety Integrity Level Claim Limit (SIL CL)	1 (up to SILCL 3 depending on the application)

Standards and Regulations

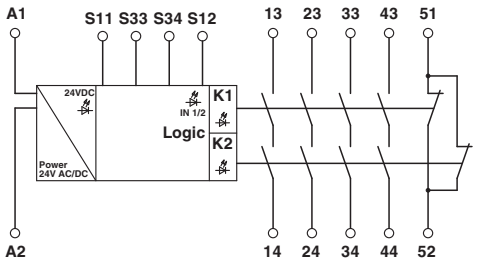
Designation	Air clearances and creepage distances between the power circuits
Standards/regulations	DIN EN 50178/VDE 0160
Rated insulation voltage	250 V AC
Rated surge voltage/insulation	Basic insulation 4 kV: between all current paths and housing Safe isolation, reinforced insulation 6 kV: between A1/A2 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
Degree of pollution	2
Overvoltage category	III
Shock	15g
Vibration (operation)	10 Hz ... 150 Hz, 2g
Conformance	CE-compliant

Environmental Product Compliance

REACh SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For details about hazardous substances go to tab “Downloads”, Category “Manufacturer's declaration”

Drawings

Circuit diagram



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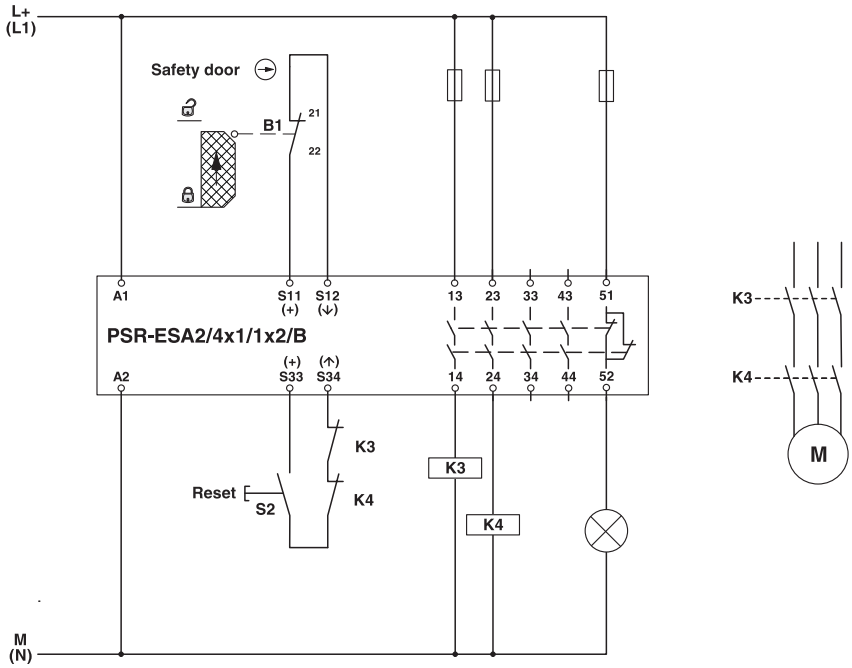
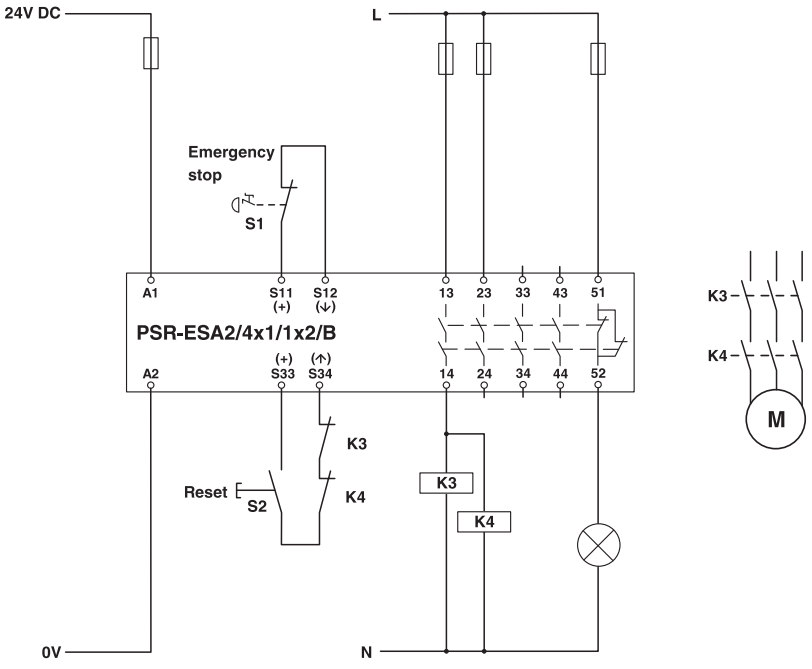
Circuit diagram



Single-channel safety door monitoring

Circuit diagram



Single-channel emergency stop monitoring

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Classifications

eCl@ss

eCl@ss 10.0.1	27371819
eCl@ss 11.0	27371819
eCl@ss 4.0	40020600
eCl@ss 4.1	40020600
eCl@ss 5.0	27371900
eCl@ss 5.1	27371900
eCl@ss 6.0	27371800
eCl@ss 7.0	27371819
eCl@ss 8.0	27371819
eCl@ss 9.0	27371819

ETIM

ETIM 2.0	EC000196
ETIM 3.0	EC001449
ETIM 4.0	EC001449
ETIM 5.0	EC001449
ETIM 6.0	EC001449
ETIM 7.0	EC001449

UNSPSC

UNSPSC 6.01	30211901
UNSPSC 7.0901	39121501
UNSPSC 11	39121501
UNSPSC 12.01	39121501
UNSPSC 13.2	39121501
UNSPSC 18.0	39122205
UNSPSC 19.0	39122205
UNSPSC 20.0	39122205
UNSPSC 21.0	39122205

Approvals

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UL Listed / cUL Listed / Functional Safety / EAC / EAC / cULus Listed

Ex Approvals

Approval details

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Approvals

UL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 140324
cUL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 140324
Functional Safety			01/205/0653.02/20
EAC			EAC-Zulassung
EAC			RU C-DE.A*30.B.01082
cULus Listed			

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