PSR-SCP- 24UC/ESAM4/3X1/1X2/B - Safety relays

2900509

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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, 2-channel operation, 3 enabling current paths, nominal input voltage: 24 V DC, plug-in screw terminal block

Your advantages

- Up to Cat. 4/PL e in accordance with EN ISO 13849-1, SIL 3 in accordance with EN IEC 62061, SIL 3 in accordance with IEC 61508
- Manually monitored and automatic activation in a single device
- Basic insulation
- 2 channel control
- 3 enabling current paths, 1 signaling current path

Commercial data

Item number	2900509
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DNA114
Product key	DNA114
Catalog page	Page 229 (C-6-2019)
GTIN	4046356513579
Weight per piece (including packing)	191.91 g
Weight per piece (excluding packing)	161.1 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
Set comprises	1449149 PSR-SCP- 24UC/ESAM4/3X1/1X2/B-SET10
Control	2-channel
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
Degree of pollution	2

Times

Typical response time	typ. 150 ms (For U_s autostart)
	typ. 100 ms (For U_s manual, monitored start)
Typ. starting time with U_s	typ. 250 ms (with Us / when controlled via A1)
Typical release time	typ. 20 ms (At Us on demand via sensor circuit)
	typ. 45 ms (At Us/on demand via A1)
Restart time	< 1 s (Boot time)
Recovery time	< 1 s (following demand of the safety function)
Start pulse length	≥ 500 ms (manual start)

Electrical properties

Maximum power dissipation for nominal condition	16.44 W (U_S = 26.4 V, I_L^2 = 72 A², $P_{Total\ max}$ = 2.04 W + 14.4 W)
Nominal operating mode	100% operating factor
Rated insulation voltage	250 V
Rated surge voltage/insulation	See section “Insulation coordination”

Supply

Rated control circuit supply voltage U_S	24 V DC -15 % / +10 %
Rated control supply current I_S	typ. 70 mA (at U_S)
Power consumption at U_S	typ. 1.68 W
Inrush current	< 3.5 A (typ. with U_S, Δt = 3 ms)
Filter time	5 ms (in the event of voltage dips at U_s)
Protective circuit	Serial protection against polarity reversal; Suppressor diode

Input data

Digital: Logic (S12, S22)

Description of the input	safety-related
Number of inputs	2

Input voltage range "0" signal	0 V DC ... 5 V DC (S12)
Input voltage range "1" signal	20.4 V ... 26.4 V (S12)
Input current range "0" signal	0 mA ... 2 mA
Inrush current	< 100 mA (Δt = 500 ms, with U_s/I_x at S12)
	> -100 mA (Δt = 300 ms, with U_s/I_x at S22)
Filter time	No test pulses permitted
Concurrence	∞
Max. permissible overall conductor resistance	50 Ω
Protective circuit	Suppressor diode
Current consumption	38 mA (typ. with U_S at S12)
	-38 mA (typ. with U_S at S22)

Digital: Start circuit (S34, S35)

Description of the input	non-safety-related
Number of inputs	2
Input voltage range "1" signal	20.4 V ... 26.4 V
Inrush current	< 6 mA (typ. with U_S at S34/35)
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 at S34)
	1 mA (typ. with U_S at S35)

Output data

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

Output description	2 N/O contacts in series, safety-related, floating
Number of outputs	3
Contact switching type	3 enabling current paths
Contact material	$AgSnO_2$
Switching voltage	min. 10 V AC/DC
	max. 250 V AC/DC
Switching capacity	min. 100 mW
Inrush current	min. 10 mA
	max. 6 A
Limiting continuous current	6 A
Sq. Total current	72 A^2 (observe derating)
Switching frequency	max. 0.5 Hz
Mechanical service life	10^7 cycles
Output fuse	10 A gL/gG (High demand)
	4 A gL/gG (Low demand)

Relay: Signaling current path (41/42)

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. 10 V AC/DC
	max. 250 V AC/DC
Switching capacity	min. 100 mW
Inrush current	min. 10 mA
	max. 6 A
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
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	3 x LED (green)
Operating voltage display	1 x LED (green)

Dimensions

Width	22.5 mm
Height	99 mm
Depth	114.5 mm

Material specifications

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

Characteristics

Safety data

Stop category	0

Safety data: EN ISO 13849

Category	4

Performance level (PL)	e (5 A DC13; 5 A AC15; 8760 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 ... 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

Approvals

CE

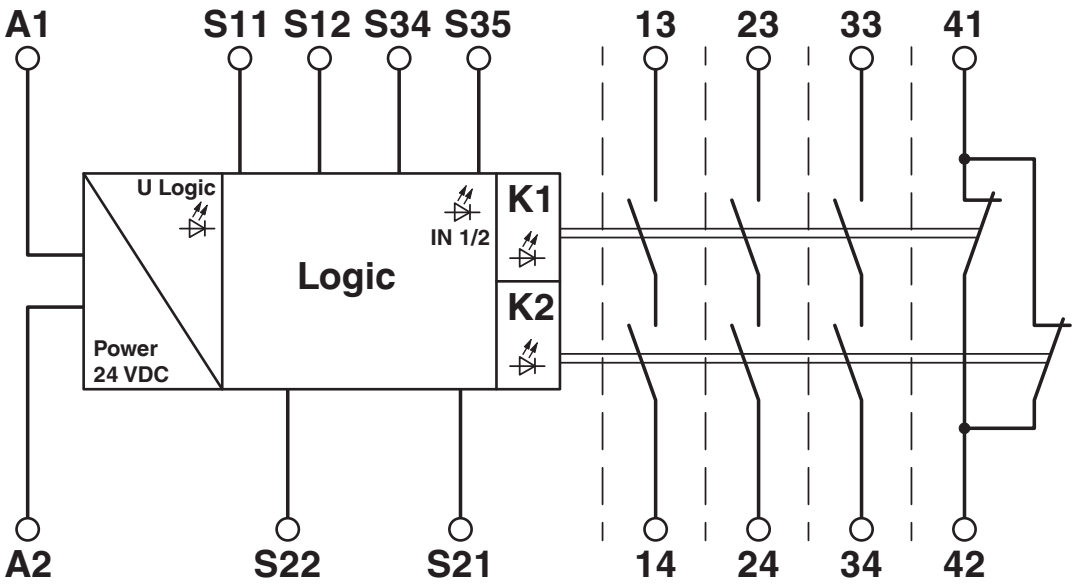
Identification	CE-compliant

Mounting

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

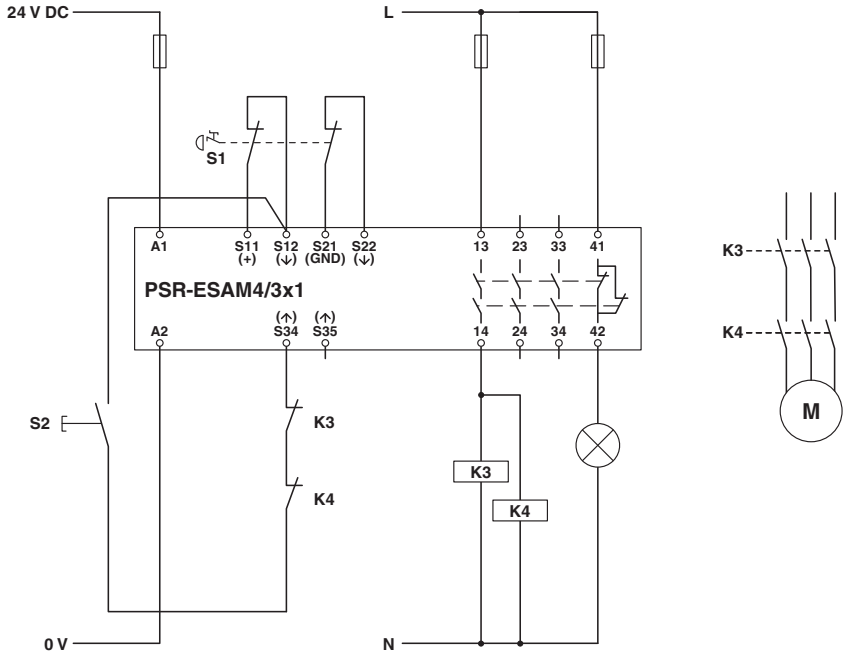
Drawings

Circuit diagram



Block diagram

Circuit diagram



2-channel emergency stop monitoring

Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/au/products/2900509

Functional Safety
Approval ID: 01/205/5117.04/23

cULus Listed
Approval ID: E140324

Classifications

ECLASS

ECLASS-13.0	27371819

ETIM

ETIM 9.0	EC001449

UNSPSC

UNSPSC 21.0	39122205

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	c5628219-0111-45f5-ad67-02317d0643d9

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