PSR-SCP- 24UC/ESAM4/8X1/1X2 - Safety relays

2963912

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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, 8 enabling current paths, U_S = 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
- 1- and 2-channel control
- 8 enabling current paths, 1 signaling current path

Commercial data

Item number	2963912
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DN01
Product key	DNA114
GTIN	4017918899707
Weight per piece (including packing)	369.67 g
Weight per piece (excluding packing)	339.64 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
Control	1 and 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	< 140 ms (For U_s manual, monitored start)
	< 120 ms (For U_s autostart)
Typ. starting time with U_s	< 200 ms (with Us / when controlled via A1)
Typical release time	< 20 ms (At Us on demand via sensor circuit)
	< 50 ms (At Us/on demand via A1)
Restart time	< 1 s (Boot time)
Recovery time	500 ms (following demand of the safety function)
	250 ms (Availability time after activating the sensor circuit during manual start)
Start pulse length	min. 500 ms (manual start)

Electrical properties

Maximum power dissipation for nominal condition	31.7 W (U_S = 26.4 V, I_L^2 = 144 A², $P_{Total\ max}$ = 2.9 W + 28.8 W)
Nominal operating mode	100% operating factor
Rated insulation voltage	250 V
Rated surge voltage/insulation	See data sheet, section “Insulation coordination”.

Supply

Designation	A1/A2
Rated control circuit supply voltage U_S	24 V DC -15 % / +10 %
Rated control supply current I_S	typ. 100 mA (at U_S)
Power consumption at U_S	typ. 2.4 W
Inrush current	typ. 3.5 A (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: Sensor circuit (S10, S12, S22)

Description of the input	safety-related
Number of inputs	3
Input voltage range "0" signal	0 V DC ... 5 V DC (S10, S12)
	S22 open
Input voltage range "1" signal	20.4 V ... 26.4 V (S10, S12)
	0 V ... 0 V (S22)
Input current range "0" signal	0 mA ... 2 mA (S10, S12)
Inrush current	max. 150 mA (Δt = 1 ms, with U_s/I_x at S10)
	max. 200 mA (Δt = 1 ms, with U_s/I_x at S12)
	max. -180 mA (Δt = 1 ms, with U_s/I_x at S22)
Filter time	No brightness test pulses / high test pulses permitted.
	max. 1.5 ms (Test pulse width, low test pulses (S10, S12))
	Test pulse rate = 5 x test pulse width, low test pulses (S10, S12)
Concurrence	∞
Max. permissible overall conductor resistance	11 Ω
Protective circuit	Suppressor diode
Current consumption	50 mA (S10, S12)
	-50 mA (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	< 10 mA
Filter time	No test pulses permitted
Max. permissible overall conductor resistance	50 Ω
Protective circuit	Suppressor diode
Current consumption	0 mA (S34)
	1 mA (S35)

Output data

Relay: Enabling current paths (13/14, 23/24, 33/34, 43/44, 53/54, 63/64, 73/74, 83/84)

Output description	2 N/O contacts each in series, safety-related, floating
Number of outputs	8
Contact switching type	8 enabling current paths
Contact material	$AgSnO_2$
Switching voltage	min. 5 V AC/DC
	max. 250 V AC/DC
Switching capacity	min. 50 mW
Inrush current	min. 10 mA AC/DC
	max. 6 A
Switching capacity	3 A (AC15)
	5 A (DC13)
Limiting continuous current	6 A (observe derating)

Sq. Total current	144 A^2 (observe derating)
Switching frequency	max. 0.5 Hz
Mechanical service life	10x 10^6 cycles
Output fuse	10 A gL/gG
	6 A gL/gG (Low demand)

Relay: Signaling current path (91/92)

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 AC/DC
	max. 250 V AC/DC
Switching capacity	min. 50 mW
Inrush current	min. 10 mA
	max. 6 A
Switching capacity	1.5 A (AC15)
	5 A (DC13)
Limiting continuous current	6 A
Sq. Total current	36 A^2
Switching frequency	max. 0.5 Hz
Mechanical service life	10x 10^6 cycles
Output fuse	6 A gL/gG
	4 A gL/gG (Low demand)

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 LED (green)

Dimensions

Width	45 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 (3 A DC13; 3 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 (contact interruptions < 100 µs possible)
Vibration (operation)	10 Hz ... 150 Hz, 2g

Approvals

CE

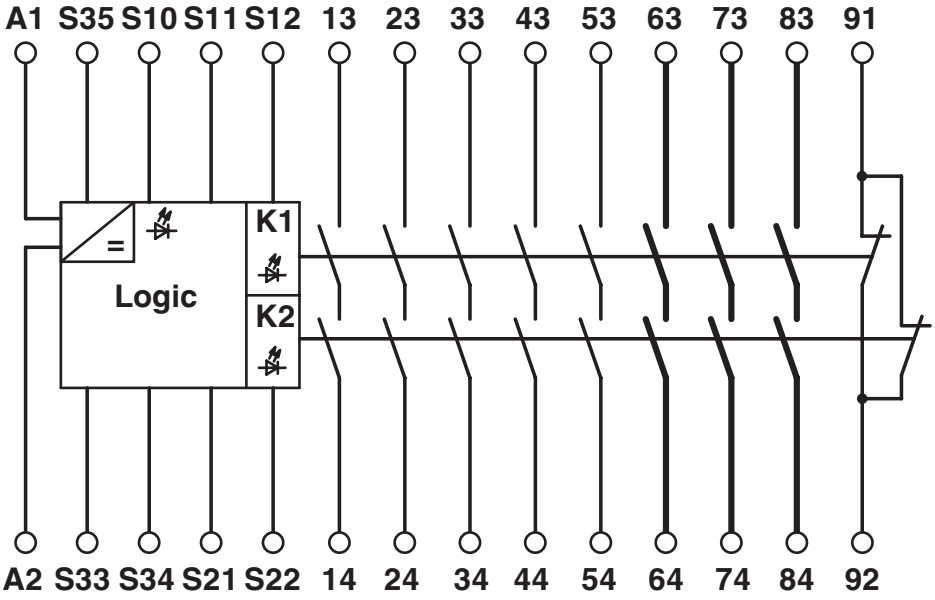
Identification	CE-compliant

Mounting

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

Drawings

Circuit diagram



Block diagram

Approvals

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cULus Listed
Approval ID: E140324

Functional Safety
Approval ID: 01/205/5363.04/24

Classifications

ECLASS

ECLASS-13.0	27371819
ECLASS-15.0	27371819
ECLASS-15.0 ASSET	27250101

ETIM

ETIM 9.0	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	27dcdbac-c215-44b3-abe0-df73c0c23cb0

EF3.0 Climate Change

CO2e kg	3.081 kg CO2e

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