

# Safety relays - PSR-SPP-24-230UC/ESAM4/3X1/1X2 - 2981127

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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, single or two-channel operation, 3 enabling current paths, nominal input voltage of 24 ... 230 V AC/DC, pluggable Push-in terminal block

The figure shows the versions with screw connection

## Your advantages

- Up to Cat. 4/PL e according to ISO 13849-1, SILCL 3 according to IEC 62061, SIL 3 according to IEC 61508
- Single and two-channel control
- With inrush current reduction, therefore suitable for coupling to failsafe controllers (PSR-ESP4)
- With wide-range input (PSR-ESAM4/3X1)



## Key Commercial Data

Packing unit	1 pc
GTIN	
GTIN	4046356051651

## Technical data

### Note

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

Width	45 mm
Height	112 mm
Depth	114.5 mm

### Ambient conditions

Ambient temperature (operation)	-20 °C ... 55 °C
Ambient temperature (storage/transport)	-25 °C ... 85 °C
Max. permissible relative humidity (operation)	75 % (on average, 85% infrequently, non-condensing)

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## Technical data

### Ambient conditions

Max. permissible humidity (storage/transport)	75 % (on average, 85% infrequently, non-condensing)
Maximum altitude	≤ 2000 m (Above sea level)

### Input data

Input voltage range	24 V AC/DC ... 230 V AC/DC
Input voltage range in reference to $U_N$	0.85 ... 1.1
Typical input current at $U_N$	120 mA (at 24 V DC)
	20 mA (at 120 V AC)
	10 mA (for 230 V AC)
Voltage at input/start and feedback circuit	approx. 24 V DC
Typical response time	50 ms (manual start)
	60 ms (automatic start)
Typ. starting time with $U_s$	500 ms (when controlled via A1)
Typical release time	20 ms (when controlled via S11/S12 and S21/S22)
	50 ms (at 24 V DC)
	110 ms (at 120 V AC)
	280 ms (for 230 V AC)
Concurrence input 1/2	∞
Recovery time	1 s
Operating voltage display	1 x green LED
Status display	2 x green LEDs
Protective circuit	Surge protection Suppressor diode and varistors
Maximum switching frequency	0.5 Hz
Max. permissible overall conductor resistance	11 Ω

### Output data

Contact type	3 enabling current paths
	1 signaling current path
Contact material	AgSnO <sub>2</sub> , + 0.2 μm Au
Maximum switching voltage	250 V AC/DC
Minimum switching voltage	10 V AC/DC
Limiting continuous current	6 A (N/O contact / N/C contact)
Maximum inrush current	6 A
Inrush current, minimum	10 mA
Sq. Total current	$50 A^2 (I_{TH}^2 = I_1^2 + I_2^2 + \dots + I_N^2)$
Interrupting rating (ohmic load) max.	192 W (24 V DC, τ = 0 ms)
	384 W (48 V DC, τ = 0 ms)
	80 W (110 V DC, τ = 0 ms)
	66 W (220 V DC, τ = 0 ms)
	2000 VA (250 V AC, τ = 0 ms)
Maximum interrupting rating (inductive load)	48 W (24 V DC, τ = 40 ms)

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## Technical data

### Output data

	48 W (48 V DC, $\tau = 40$ ms)
	48 W (110 V DC, $\tau = 40$ ms)
	48 W (220 V DC, $\tau = 40$ ms)
Switching capacity min.	360 mW
Mechanical service life	approx. $10^7$ cycles
Switching capacity (360/h cycles)	4 A (24 V (DC13))
	4 A (230 V (AC15))
Output fuse	6 A gG NEOZED
	B6/C4A gL/gG automatic device

### General

Relay type	Electromechanical relay with force-guided contacts in accordance with IEC/EN 61810-3
Nominal operating mode	100% operating factor
Net weight	301.48 g
Mounting position	any
Mounting type	DIN rail mounting
Degree of protection	IP20
	IP54
Min. degree of protection of inst. location	IP54
Housing color	yellow

### Connection data

Connection method	Push-in connection
pluggable	Yes
Conductor cross section solid min.	0.2 mm <sup>2</sup>
Conductor cross section solid max.	1.5 mm <sup>2</sup>
Conductor cross section flexible min.	0.2 mm <sup>2</sup>
Conductor cross section flexible max.	1.5 mm <sup>2</sup>
Conductor cross section AWG min.	24
Conductor cross section AWG max.	16
Stripping length	8 mm

### Safety-related characteristic data

Stop category	0
Designation	IEC 61508 - High demand
Safety Integrity Level (SIL)	3
Designation	IEC 61508 - Low demand
Safety Integrity Level (SIL)	3
Designation	EN ISO 13849
Performance level (PL)	e
Category	4

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## Technical data

### Safety-related characteristic data

Designation	EN 62061
Safety Integrity Level Claim Limit (SIL CL)	3

### Standards and Regulations

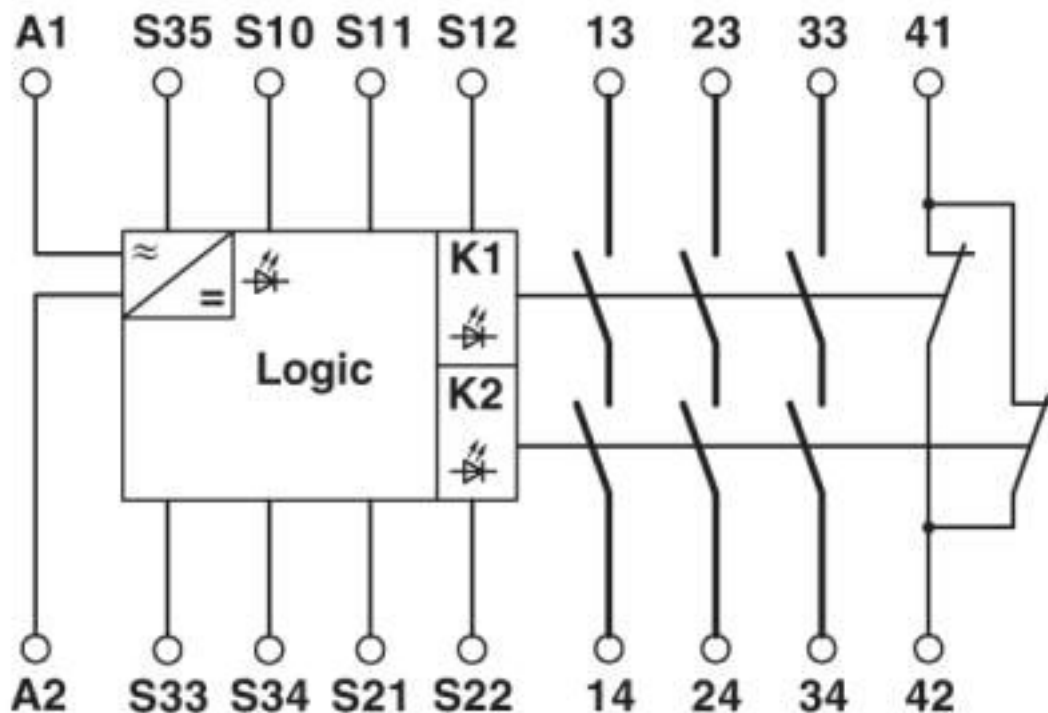
Designation	Air clearances and creepage distances between the power circuits
Standards/regulations	DIN EN 50178/VDE 0160
Rated insulation voltage	250 V AC
Rated surge voltage/insulation	6 kV/safe isolation, reinforced insulation and 6 kV between input circuits and output contact current paths (13/14, 23/24, 33/34), as well as between output contact current paths (13/14, 23/24, 33/34).
Degree of pollution	2
Overvoltage category	III
Shock	15g
Vibration (operation)	10 Hz ... 150 Hz, 2g

### Environmental Product Compliance

China RoHS	Environmentally friendly use period: unlimited = EFUP-e
	No hazardous substances above threshold values

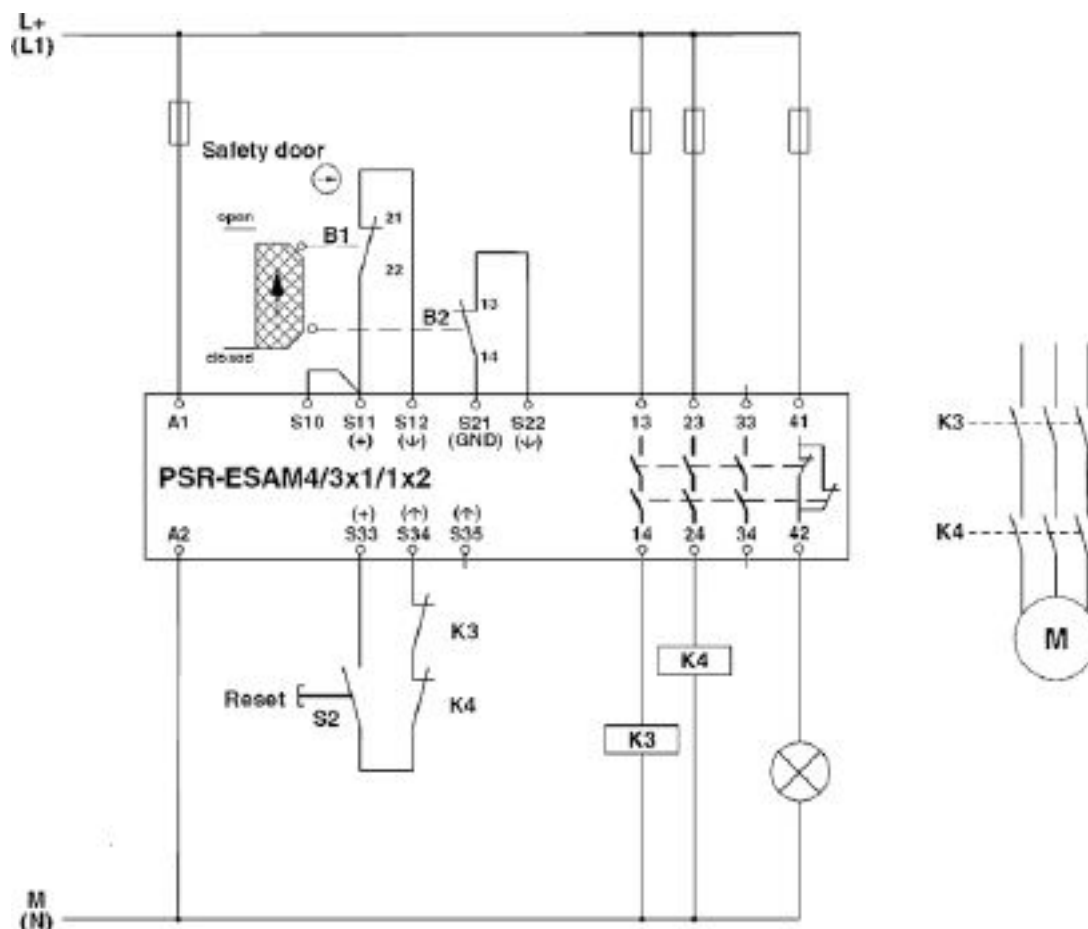
## Drawings

Circuit diagram



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Circuit diagram



Two-channel safety door monitoring

## Classifications

eCl@ss

eCl@ss 4.0	27371102
eCl@ss 4.1	27371102
eCl@ss 5.0	27371901
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	EC001449
ETIM 3.0	EC001449
ETIM 4.0	EC001449

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### Classifications

#### ETIM

ETIM 5.0	EC001449
ETIM 6.0	EC001449

#### UNSPSC

UNSPSC 6.01	30211901
UNSPSC 7.0901	39121501
UNSPSC 11	39121501
UNSPSC 12.01	39121501
UNSPSC 13.2	39121501
UNSPSC 19.0	39122205

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