

Safety relays - PSR-SPP-230AC/ESAM2/3X1/1X2/B - 2901431

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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, 3 enabling current paths, nominal input voltage of 230 V AC/DC, plug-in spring-cage terminal block

The figure shows a version with a screw connection

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
- ✓ Single-channel control
- ✓ Basic insulation



Key Commercial Data

Packing unit	1 pc
GTIN	 4 046356 592178
GTIN	4046356592178
Weight per Piece (excluding packing)	99.900 g
Custom tariff number	85371098
Country of origin	Germany

Technical data

Note

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

Width	22.5 mm
Height	112 mm
Depth	114.5 mm

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Technical data

Ambient conditions

Ambient temperature (operation)	-25 °C ... 55 °C
Ambient temperature (storage/transport)	-40 °C ... 85 °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)
Maximum altitude	≤ 2000 m (Above sea level)

Input data

Nominal input voltage U_N	230 V AC
Input voltage range in reference to U_N	0.85 ... 1.1
Typical input current at U_N	22 mA
Voltage at input/start and feedback circuit	~ 24 V DC
Typical response time	50 ms (manual start)
	300 ms (automatic start)
Typ. starting time with U_s	300 ms (when controlled via A1 or S11/S12)
Typical release time	20 ms (when controlled via S11/S12)
	150 ms (when controlled via A1)
Recovery time	1 s
Operating voltage display	Green LED
Status display	2 x green LEDs
Protective circuit	Surge protection Suppressor diode
	Surge protection Varistor
Maximum switching frequency	0.5 Hz
Max. permissible overall conductor resistance	50 Ω

Output data

Contact type	3 enabling current paths
	1 signaling current path
Contact material	AgSnO ₂ , gold-flashed
Maximum switching voltage	250 V AC/DC
Minimum switching voltage	10 V AC/DC
Limiting continuous current	6 A (N/O contact)
	5 A (N/C contact)
Maximum inrush current	6 A
Inrush current, minimum	10 mA
Sq. Total current	72 A ²
Interrupting rating (ohmic load) max.	144 W (at 24 V DC)
	230 W (at 48 V DC)
	68 W (at 110 V DC)
	88 W (at 220 V DC)
	2000 VA (for 250 V AC)
Maximum interrupting rating (inductive load)	48 W (at 24 V DC)

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Output data

	40 W (at 48 V DC)
	35 W (at 110 V DC)
	33 W (at 220 V DC)
Switching capacity min.	100 mW
Mechanical service life	approx. 10 ⁷ cycles
Switching capacity (360/h cycles)	6 A (24 V DC)
	5 A (230 V AC)
Output fuse	10 A gL/gG NEOZED (Enabling current paths)
	6 A gL/gG NEOZED (Signaling current paths)

General

Relay type	Electromechanical relay with forcibly guided contacts in accordance with EN 50205
Nominal operating mode	100% operating factor
Net weight	99.9 g
Mounting position	any
Mounting type	DIN rail mounting
Degree of protection	IP20
	IP54
Min. degree of protection of inst. location	IP54

Connection data

Connection method	Spring-cage connection
pluggable	Yes
Conductor cross section solid min.	0.2 mm ²
Conductor cross section solid max.	1.5 mm ²
Conductor cross section flexible min.	0.2 mm ²
Conductor cross section flexible max.	1.5 mm ²
Conductor cross section AWG min.	24
Conductor cross section AWG max.	16
Stripping length	8 mm

Safety-related characteristic data

Stop category	0
Safety Integrity Level (SIL)	1 (up to SIL 3 depending on the application)
	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)
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
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Technical data

Standards and Regulations

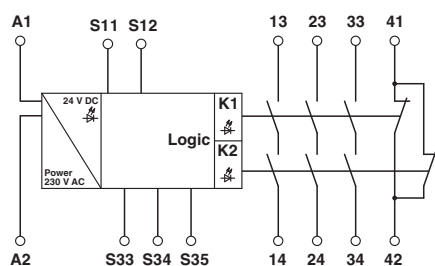
Standards/regulations	DIN EN 50178/VDE 0160
Rated insulation voltage	250 V AC
Rated surge voltage/insulation	4 kV / basic insulation (safe isolation, reinforced insulation, and 6 kV between A1-A2/logic/enabling and signaling current paths)
Degree of pollution	2
Overvoltage category	III
Shock	15g
Vibration (operation)	10 Hz ...150 Hz, 2g

Environmental Product Compliance

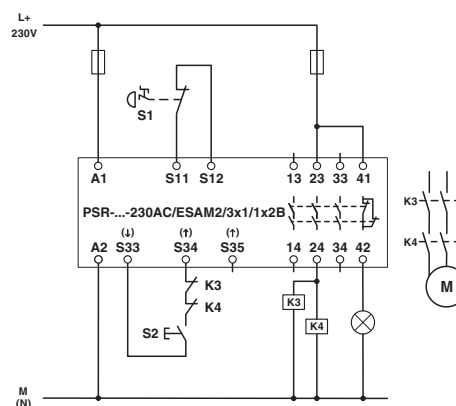
China RoHS	Environmentally friendly use period: unlimited = EFUP-e
	No hazardous substances above threshold values

Drawings

Circuit diagram



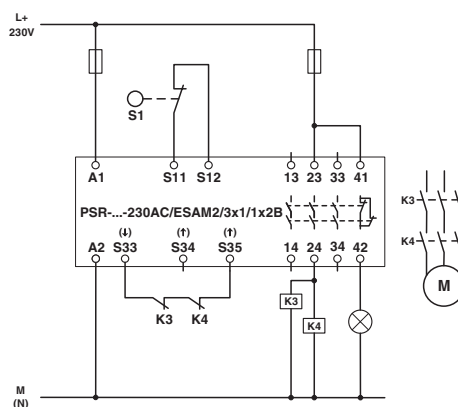
Circuit diagram



Single-channel emergency stop monitoring

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Circuit diagram



Single-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 3.0	EC001449
ETIM 4.0	EC001449
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

Approvals

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Approvals

Approvals

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

Ex Approvals

Approval details

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



01/205/5117.01/16

EAC



EAC-Zulassung

EAC



RU C-
DE.A*30.B.01082

cULus Listed

