Safety relays - PSR-SPP- 24DC/ESD/5X1/1X2/ T 1 - 2981156

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Safety relay for emergency stop and safety door monitoring up to SIL 3 or Cat. 4, PL e according to EN ISO 13849, automatic or manual activation, 3 N/O contacts, 1 N/C contact, 2 N/O contacts with fixed 1.0 s dropout delay, plug-in spring-cage terminal block

Your advantages

- Manually monitored and automatic activation
- Up to Cat. 3/4 and PL d/e according to ISO 13849-1, SILCL 3 according to IEC 62061, SIL 3 according to IEC 61508
- For emergency stop and safety door monitoring, plus evaluation of light grids
- Fixed delay times of 1 s
- 3 undelayed and 2 dropout delay contacts
- Single and two-channel control

Key commercial data

package_quantity	1
GTIN	4017918949044

Technical data

Note

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

Dimensions

Width	45 mm
Height	112 mm
Depth	114.5 mm

Ambient conditions

Ambient temperature (operation)	-20 °C ... 55 °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)
Shock	15g
Vibration (operation)	10 Hz ...150 Hz, 2g
Maximum altitude	≤ 2000 m (Above sea level)

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Input data

Rated control circuit supply voltage U_S	24 V DC -15 % / +10 %
Rated control supply current I_S	typ. 150 mA
Power consumption at U_S	typ. 3.6 W
Inrush current	200 mA (at U_S)
Current consumption	< 40 mA (with U_s/I_x to S10)
Current consumption	< 40 mA (with U_s/I_x to S12)
Current consumption	> -40 mA (with U_s/I_x to S22)
Current consumption	0 mA (with U_s/I_x to S34)
Current consumption	< 5 mA (with U_s/I_x to S35)
Voltage at input/start and feedback circuit	24 V DC -15 % / +10 %
Typical response time	< 600 ms (automatic start)
Typical response time	< 70 ms (manual start)
Typ. starting time with U_s	< 600 ms (when controlled via A1)
Typical release time	< 20 ms (when controlled via S11/S12 and S21/S22)
Typical release time	< 20 ms (when controlled via A1)
Concurrence input 1/2	∞
Recovery time	< 1 s
Status display	4 x green LEDs
Maximum switching frequency	0.5 Hz
Max. permissible overall conductor resistance	approx. 11 Ω (Input and start circuits at U_S)
Delay time	K3(t), K4(t) fixed depending on model
Filter time	1 ms (at A1 in the event of voltage dips at U_s)
Filter time	max. 1.5 ms (at S10, S12; test pulse width)
Filter time	7.5 ms (at S10, S12; test pulse rate)
Filter time	Test pulse rate = 5 x Test pulse width

Output data

Contact type	5 enabling current paths
Contact type	1 signaling current path
Contact material	$AgSnO_2$
Minimum switching voltage	5 V AC/DC
Maximum switching voltage	250 V AC/DC (Observe the load curve)
Limiting continuous current	6 A (N/O contact, pay attention to the derating)
Limiting continuous current	6 A (N/C contact)
Inrush current, minimum	10 mA
Maximum inrush current	20 A ($\Delta t \leq 100$ ms, undelayed contacts)
Maximum inrush current	8 A (delayed contacts)
Sq. Total current	55 A^2 (observe derating)
Interrupting rating (ohmic load) max.	144 W (24 V DC, τ = 0 ms)
Interrupting rating (ohmic load) max.	288 W (48 V DC, τ = 0 ms)
Interrupting rating (ohmic load) max.	110 W (110 V DC, τ = 0 ms, delayed contacts: 77 W)

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Output data

Interrupting rating (ohmic load) max.	88 W (220 V DC, τ = 0 ms)
Interrupting rating (ohmic load) max.	1500 VA (250 V AC, τ = 0 ms, delayed contacts: 2000 VA)
Maximum interrupting rating (inductive load)	42 W (24 V DC, τ = 40 ms, delayed contacts: 48 W)
Maximum interrupting rating (inductive load)	42 W (48 V DC, τ = 40 ms, delayed contacts: 40 W)
Maximum interrupting rating (inductive load)	42 W (110 V DC, τ = 40 ms, delayed contacts: 35 W)
Maximum interrupting rating (inductive load)	42 W (220 V DC, τ = 40 ms, delayed contacts: 33 W)
Switching capacity min.	50 mW
Output fuse	10 A gL/gG (N/O contact)
Output fuse	6 A gL/gG (N/C contact)

General

Relay type	Electromechanical relay with forcibly guided contacts in accordance with EN 50205
Mechanical service life	10 x 10^6 cycles
Nominal operating mode	100% operating factor
Net weight	410.4 g
Mounting type	DIN rail mounting
Mounting position	any
Degree of protection	IP54
Degree of protection	IP20
Min. degree of protection of inst. location	IP54
Control	one and two channel
Housing material	PBT
Housing color	yellow

Connection data

Connection method	Spring-cage connection
pluggable	Yes
Conductor cross section solid min.	0.2 mm²
Conductor cross section solid max.	1.5 mm²
Conductor cross section flexible min.	0.2 mm²
Conductor cross section flexible max.	1.5 mm²
Conductor cross section AWG min.	24
Conductor cross section AWG max.	16
Stripping length	8 mm

Safety-related characteristic data

Stop category	0
Stop category	1
Designation	IEC 61508 - High demand
Safety Integrity Level (SIL)	3 (for delayed contacts SIL 2)
Designation	IEC 61508 - Low demand
Safety Integrity Level (SIL)	3 (for delayed contacts SIL 2)

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Safety-related characteristic data

Designation	EN ISO 13849
Performance level (PL)	e (for delayed contacts PL d)
Category	4 (Undelayed contacts)
Designation	EN 62061
Safety Integrity Level Claim Limit (SIL CL)	3 (for delayed contacts SILCL 2)

Standards and Regulations

Shock	15g
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 housingSafe isolation, reinforced insulation 6 kV:between 13/14, 23/24, 33/34, and the remaining current pathsbetween 13/14, 23/24, 33/34 among one another
Degree of pollution	2
Overvoltage category	III
Vibration (operation)	10 Hz ...150 Hz, 2g
Conformance	CE-compliant

Environmental Product Compliance

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

Classifications

eCl@ss

eCl@ss 4.0	27371102
eCl@ss 4.1	27371102
eCl@ss 5.0	27371901
eCl@ss 5.1	27371901
eCl@ss 6.0	27371819
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
ETIM 5.0	EC001449
ETIM 6.0	EC001449

UNSPSC

UNSPSC 6.01	30211901

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Classifications

UNSPSC

UNSPSC 7.0901	39121501
UNSPSC 11	39121501
UNSPSC 12.01	39121501
UNSPSC 13.2	39121501

Approvals

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

Approval details

UL Listed

cUL Listed

Functional Safety

EAC

cULus Listed

Drawings

Circuit diagram