

Safety relays - PSR-SPP- 24DC/ESD/5X1/1X2/T10S - 2981509

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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, automatic or manual activation, 3 N/O contacts, 1 N/C contact, 2 N/O contacts with a fixed dropout delay of 10.0 s, pluggable Push-in terminal block


The figure shows a version of the product

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 for undelayed contacts
- ✓ Up to Cat. 3/PL d according to ISO 13849-1, SILCL 2 for delayed contacts
- ✓ For emergency stop and safety door monitoring, plus evaluation of light grids
- ✓ Fixed delay times of 10 s
- ✓ 3 undelayed and 2 dropout delay contacts
- ✓ Single and two-channel control
- ✓ Time saving push-in connection, tools not required
- ✓ Potentials can be easily looped through – ideal for BUS applications
- ✓ Intuitive use through colour coded actuation lever
- ✓ Can be combined with the MSTB 2,5 range
- ✓ Quick and convenient testing using integrated test option



Key Commercial Data

Packing unit	1 pc
GTIN	 4 017918 981105
GTIN	4017918981105
Weight per Piece (excluding packing)	445.000 g
Custom tariff number	85371098
Country of origin	Germany

Technical data

Note

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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 (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)
Maximum altitude	≤ 2000 m (Above sea level)

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)
	< 40 mA (with U_s/I_x to S10)
	< 150 mA (with U_s/I_x to S12)
	> -60 mA (with U_s/I_x to S22)
	< 40 mA (with U_s/I_x to S34)
	< 40 mA (with U_s/I_x to S35)
Current consumption	< 40 mA (with U_s/I_x to S10)
	< 40 mA (with U_s/I_x to S12)
	> -40 mA (with U_s/I_x to S22)
	0 mA (with U_s/I_x to S34)
	< 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)
	< 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)
	< 20 ms (when controlled via A1)
Concurrence input 1/2	∞
Recovery time	< 1 s
Operating voltage display	1 x green LED
Status display	4 x green LEDs
Protective circuit	Surge protection Suppressor diode
Maximum switching frequency	0.5 Hz

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Input data

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)
	max. 1.5 ms (at S10, S12; test pulse width)
	7.5 ms (at S10, S12; test pulse rate)
	Test pulse rate = 5 x Test pulse width

Output data

Contact type	5 enabling current paths 1 signaling current path
Contact material	AgSnO ₂
Maximum switching voltage	250 V AC/DC (Observe the load curve)
Minimum switching voltage	5 V AC/DC
Limiting continuous current	6 A (N/O contact, pay attention to the derating) 6 A (N/C contact)
Maximum inrush current	20 A (Δt # 100 ms, undelayed contacts) 8 A (delayed contacts)
Inrush current, minimum	10 mA
Sq. Total current	55 A ² (observe derating)
Interrupting rating (ohmic load) max.	144 W (24 V DC, $\tau = 0$ ms) 288 W (48 V DC, $\tau = 0$ ms) 110 W (110 V DC, $\tau = 0$ ms, delayed contacts: 77 W) 88 W (220 V DC, $\tau = 0$ ms) 1500 VA (250 V AC, $\tau = 0$ ms, delayed contacts: 2000 VA)
Maximum interrupting rating (inductive load)	42 W (24 V DC, $\tau = 40$ ms, delayed contacts: 48 W) 42 W (48 V DC, $\tau = 40$ ms, delayed contacts: 40 W) 42 W (110 V DC, $\tau = 40$ ms, delayed contacts: 35 W) 42 W (220 V DC, $\tau = 40$ ms, delayed contacts: 33 W)
Switching capacity min.	50 mW
Mechanical service life	10x 10 ⁶ cycles
Switching capacity (360/h cycles)	4 A (24 V DC) 4 A (230 V AC)
Output fuse	10 A gL/gG (N/O contact) 6 A gL/gG (N/C contact)

General

Relay type	Electromechanical relay with forcibly guided contacts in accordance with EN 50205
Nominal operating mode	100% operating factor
Net weight	445 g
Mounting position	any
Mounting type	DIN rail mounting

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Technical data

General

Degree of protection	IP20
	IP54
Min. degree of protection of inst. location	IP54
Housing material	PBT
Housing color	yellow

Connection data

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

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	Basic insulation 4 kV: between all current paths and housing Safe isolation, reinforced insulation 6 kV: between 13/14, 23/24, 33/34, and the remaining current paths between 13/14, 23/24, 33/34 among one another
Degree of pollution	2
Overvoltage category	III
Shock	15g
Vibration (operation)	10 Hz ... 150 Hz, 2g

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Standards and Regulations

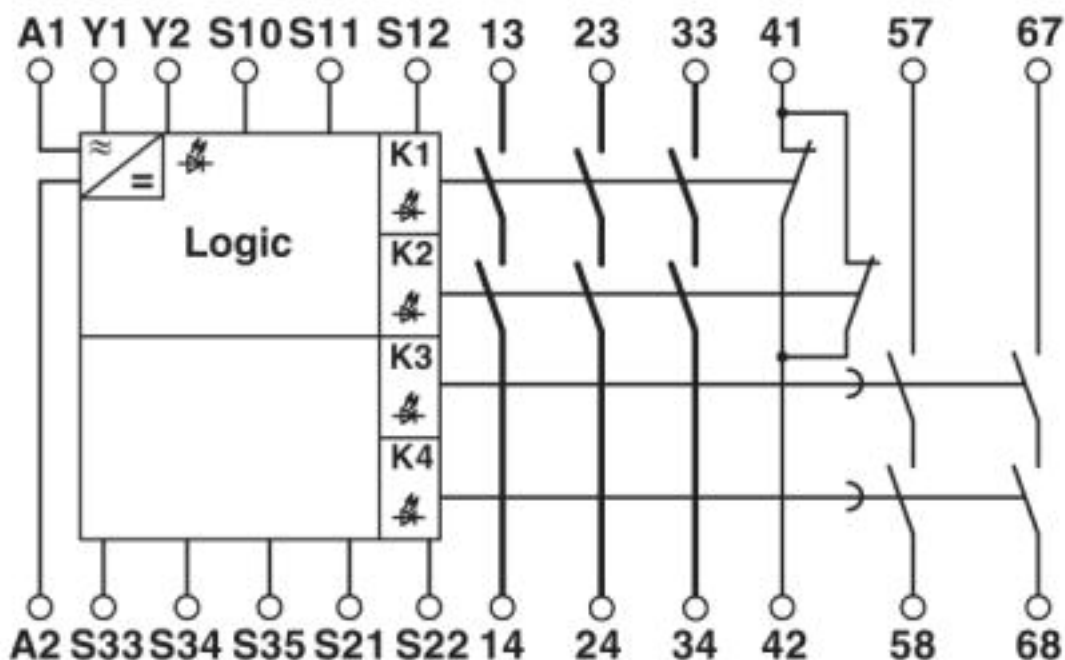
Conformance	CE-compliant
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Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50
	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

Drawings

Circuit diagram



Classifications

eCl@ss

eCl@ss 4.0	40020600
eCl@ss 4.1	40020600
eCl@ss 5.0	27371900
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

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Classifications

ETIM

ETIM 2.0	EC001449
ETIM 3.0	EC001449
ETIM 4.0	EC001449
ETIM 5.0	EC001449
ETIM 6.0	EC001449
ETIM 7.0	EC001449

UNSPSC

UNSPSC 6.01	30211901
UNSPSC 7.0901	39121501
UNSPSC 11	39121501
UNSPSC 12.01	39121501
UNSPSC 13.2	39121501
UNSPSC 18.0	39122205
UNSPSC 19.0	39122205
UNSPSC 20.0	39122205
UNSPSC 21.0	39122205

Approvals

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

Ex Approvals

Approval details

UL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 140324
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cUL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 140324
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Functional Safety		01/205/5347.01/16
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cUL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 140324
Functional Safety			01/205/5347.01/16
EAC			RU C- DE.A*30.B.01082
EAC			RU C- DE.A*30.B.01082