

# Safety relays - PSR-SPP-24DC/MXF3/4X1/2X2/B - 2903258

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Multifunctional safety relay for emergency stop, safety doors, and light grid up to SIL 3, Cat. 4, PL e, automatically or manually monitored activation, 4 N/O contacts, 3 safety functions, 2 shutdown levels, plug-in spring-cage terminal block

## Your advantages

- Up to Cat.4/PL e according to EN ISO 13849-1, SILCL 3 according to EN 62061, SIL 3 according to IEC 61508
- 3 safety functions in one device
- Low housing width of only 22.5mm
- No software configuration required
- Also available with push-in connection



## Key commercial data

package_quantity	1
GTIN	4046356729826

## 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	117.4 mm
Depth	114.5 mm

### Ambient conditions

Ambient temperature (operation)	-20 °C ... 45 °C (see derating curve)
Ambient temperature (storage/transport)	-25 °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 <sub>N</sub>	24 V DC
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### Input data

Input voltage range in reference to U <sub>N</sub>	0.85 ... 1.1
Typical input current at U <sub>N</sub>	125 mA (with actuated relays)
Typical input current at U <sub>N</sub>	55 mA (Two-channel 24 V/0 V + max. 200 mA control (message outputs 32/62) with non-actuated relays)
Current consumption	typ. 5 mA (I <sub>max</sub> /I <sub>x</sub> inputs)
Current consumption	20 mA (in electric torque)
Voltage at input/start and feedback circuit	24 V -15 %; +10 % (first channel: 24 V; second channel: 0 V)
Typical response time	175 ms (monitored/manual start)
Typical response time	250 ms (automatic start)
Typ. starting time with U <sub>s</sub>	250 ms (when controlled via A1)
Typical release time	25 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 (Availability time after activation of sensor circuit: 100ms)
Status display	5 green LEDs
Maximum switching frequency	0.5 Hz
Max. permissible overall conductor resistance	100 Ω
Filter time	max. 1.5 ms (Test pulse duration; for all equivalent inputs)
Filter time	min. 7.5 ms (Test pulse rate; for all equivalent inputs)

### Output data

Contact type	4 enabling current paths
Contact type	2 semiconductor alarm outputs
Contact material	AgCuNi, +0,2 -0,4 μm Au
Minimum switching voltage	10 V AC/DC
Maximum switching voltage	250 V AC/DC
Limiting continuous current	6 A (N/O contact)
Limiting continuous current	max. 100 mA (Alarm output (24 V DC))
Inrush current, minimum	10 mA
Maximum inrush current	6 A
Sq. Total current	$72 \text{ A}^2$ ( $I_{TH}^2 = I_1^2 + I_2^2 + I_3^2 + I_4^2$ (note derating))
Interrupting rating (ohmic load) max.	1500 VA (250 V AC, τ = 0 ms)
Interrupting rating (ohmic load) max.	66 W (220 V DC, τ = 0 ms)
Interrupting rating (ohmic load) max.	66 W (110 V DC, τ = 0 ms)
Interrupting rating (ohmic load) max.	100 W (48 V DC, τ = 0 ms)
Interrupting rating (ohmic load) max.	144 VA (24 V DC, τ = 0 ms)
Maximum interrupting rating (inductive load)	48 W (24 V DC, τ = 40 ms)
Maximum interrupting rating (inductive load)	43 W (48 V DC, τ = 40 ms)
Switching capacity min.	0.1 W
Output fuse	6 A gL/gG NEOZED (N/O contact)
Output fuse	4 A gL/gG NEOZED (for low-demand applications)

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## Technical data

### General

<b>Relay type</b>	Electromechanical relay with forcibly guided contacts in accordance with EN 50205
<b>Mechanical service life</b>	10 x 10 <sup>6</sup> cycles
<b>Nominal operating mode</b>	100% operating factor
<b>Net weight</b>	26.1 g
<b>Mounting type</b>	DIN rail mounting
<b>Assembly instructions</b>	See derating curve
<b>Mounting position</b>	vertical or horizontal
<b>Degree of protection</b>	IP20
<b>Min. degree of protection of inst. location</b>	IP54
<b>Control</b>	one and two channel
<b>Housing color</b>	yellow

### Connection data

<b>Connection method</b>	Spring-cage connection
<b>pluggable</b>	Yes
<b>Conductor cross section solid min.</b>	0.2 mm <sup>2</sup>
<b>Conductor cross section solid max.</b>	1.5 mm <sup>2</sup>
<b>Conductor cross section flexible min.</b>	0.2 mm <sup>2</sup>
<b>Conductor cross section flexible max.</b>	1.5 mm <sup>2</sup>
<b>Conductor cross section AWG min.</b>	24
<b>Conductor cross section AWG max.</b>	16
<b>Stripping length</b>	8 mm
<b>Screw thread</b>	M3

### Safety-related characteristic data

<b>Stop category</b>	0
<b>Safety Integrity Level (SIL)</b>	3
<b>Safety Integrity Level (SIL)</b>	3
<b>Designation</b>	EN ISO 13849
<b>Performance level (PL)</b>	e (5 A DC13; 3 A AC15; 8760 cycles/year)
<b>Category</b>	4
<b>Safety Integrity Level Claim Limit (SIL CL)</b>	3
<b>Designation</b>	EN 50156
<b>Safety Integrity Level (SIL)</b>	3

### Standards and Regulations

<b>Designation</b>	Air clearances and creepage distances between the power circuits
<b>Standards/regulations</b>	DIN EN 50178/VDE 0160
<b>Rated insulation voltage</b>	250 V AC
<b>Rated surge voltage/insulation</b>	4 kV/basic isolation (safe isolation, reinforced insulation and 6 kV between input circuit, enabling current paths and safety circuit 1 (13/14, 23/24) and safety circuit 2 (43/44, 53/54).)
<b>Degree of pollution</b>	2

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### Standards and Regulations

<b>Overvoltage category</b>	III
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### Environmental Product Compliance

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

## Classifications

### eCl@ss

<b>eCl@ss 4.0</b>	27371102
<b>eCl@ss 4.1</b>	27371102
<b>eCl@ss 5.0</b>	27371901
<b>eCl@ss 5.1</b>	27371901
<b>eCl@ss 6.0</b>	27371819
<b>eCl@ss 7.0</b>	27371819
<b>eCl@ss 8.0</b>	27371819
<b>eCl@ss 9.0</b>	27371819

### ETIM

<b>ETIM 4.0</b>	EC001449
<b>ETIM 5.0</b>	EC001449
<b>ETIM 6.0</b>	EC001449


### UNSPSC


<b>UNSPSC 13.2</b>	39121501
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## Approvals


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


### Approval details

<b>Functional Safety</b> 
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<b>UL Listed</b> 
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<b>cUL Listed</b> 
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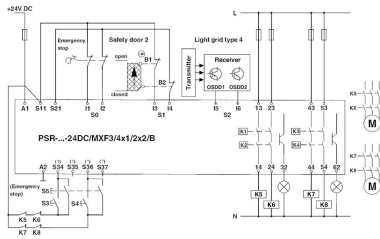
<b>EAC</b> 
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<b>cULus Listed</b> 
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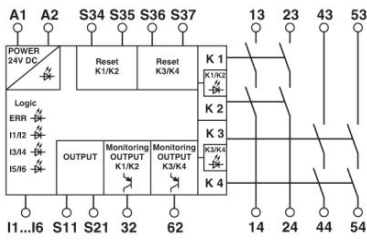
## Drawings

# Safety relays - PSR-SPP-24DC/MXF3/4X1/2X2/B - 2903258

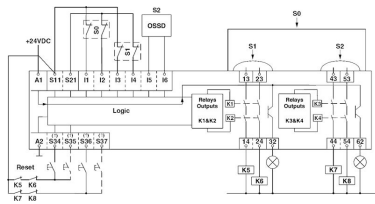
## Application drawing



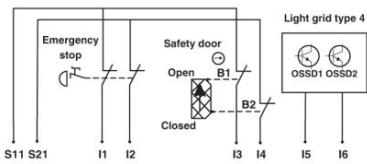
## Circuit diagram



## Circuit diagram



## Circuit diagram



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