

## Datasheet - SRB220XV2 / V.2



Guard door monitors and Safety control modules for Emergency Stop applications / General Purpose safety controllers (Series PROTECT SRB) / SRB220XV2 / V.2

Preferred typ



- 2 safety contacts, STOP 0; 2 safety contacts, STOP 1
- Suitable for signal processing of potential-free outputs, e.g. emergency stop command devices, position switches and solenoid interlocks
- Suitable for signal processing of outputs connected to potentials (AOPDs), e.g. safety light grids/curtains

(Minor differences between the printed image and the original product may exist!)

### Ordering details

Product type description	SRB220XV2 / V.2
Article number	101195578
EAN code	4250116202188
Replaced article number 101188429	
eCl@ss	27-37-19-01

### Approval

Approval




### Classification

Standards	EN ISO 13849-1, IEC 61508, EN 60947-5-1
PL	up e (STOP 0) bis d (STOP 1)
Control category	up 4 (STOP 0) up 3 (STOP 1)
DC	99% (STOP 0) > 60% (STOP 1)
CCF	> 65 points

PFH value	≤ 2,0 x 10 <sup>-8</sup> /h (STOP 0) ≤ 2,0 x 10 <sup>-7</sup> /h (STOP 1)																		
SIL	up 3 (STOP 0) up 2 (STOP 1)																		
Mission time	20 Years																		
- notice	The PFH value is applicable for the combinations listed in the table for contact load (K) (current through enabling paths) and switching cycle number (n-op/y). In case of 365 operating days per year and a 24-hour operation, this results in the specified switching cycle times (t-cycle) for the relay contacts. Diverging applications on request.																		
	<table border="1"> <thead> <tr> <th>K</th> <th>n-op/y</th> <th>t-cycle</th> </tr> </thead> <tbody> <tr> <td>20 %</td> <td>525.800</td> <td>1,0 min</td> </tr> <tr> <td>40 %</td> <td>210.240</td> <td>2,5 min</td> </tr> <tr> <td>60 %</td> <td>75.087</td> <td>7,0 min</td> </tr> <tr> <td>80 %</td> <td>30.918</td> <td>17,0 min</td> </tr> <tr> <td>100 %</td> <td>12.223</td> <td>43,0 min</td> </tr> </tbody> </table>	K	n-op/y	t-cycle	20 %	525.800	1,0 min	40 %	210.240	2,5 min	60 %	75.087	7,0 min	80 %	30.918	17,0 min	100 %	12.223	43,0 min
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## Global Properties

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Product name	SRB220XV2 / V.2
Standards	IEC/EN 60204-1, EN 60947-5-1, EN ISO 13849-1, IEC 61508
Compliance with the Directives (Y/N) 	Yes
Climatic stress	EN 60068-2-78
Mounting	snaps onto standard DIN rail to EN 60715
Terminal designations	IEC/EN 60947-1
Materials	
- Material of the housings	Plastic, glass-fibre reinforced thermoplastic, ventilated
- Material of the contacts	, Ag-Ni, self-cleaning, positive action
Weight	475 g
Start conditions	Automatic or Start button (Optional monitored)
Start input (Y/N)	Yes
Feedback circuit (Y/N)	Yes
Start-up test (Y/N)	No
Reset after disconnection of supply voltage (Y/N)	No
Automatic reset function (Y/N)	Yes
Reset with edge detection (Y/N)	Yes
Pull-in delay	
- ON delay with reset button	20 ms
Drop-out delay	
- Drop-out delay in case of power failure	50 ms
- Drop-out delay in case of emergency stop	≤ 25 ms

## Mechanical data

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Connection type	Screw connection
Cable section	
- Min. Cable section	0,25 mm <sup>2</sup>
- Max. Cable section	2.5 mm <sup>2</sup>
Pre-wired cable	rigid or flexible
Tightening torque for the terminals	0,6 Nm
Detachable terminals (Y/N)	No
Mechanical life	10.000.000 operations
Electrical lifetime	Derating curve available on request
resistance to shock	30 g / 11 ms
Resistance to vibration To EN 60068-2-6	10...55 Hz, Amplitude 0,35 mm, ± 15 %

## Ambient conditions

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### Ambient temperature

- Min. environmental temperature -25 °C
- Max. environmental temperature +60 °C

### Storage and transport temperature

- Min. Storage and transport temperature -40 °C
- Max. Storage and transport temperature +85 °C

### Protection class

- Protection class-Enclosure IP40
- Protection class-Terminals IP20
- Protection class-Clearance IP54

### Air clearances and creepage distances To IEC/EN 60664-1

- Rated impulse withstand voltage  $U_{imp}$  4 kV
- Overvoltage category II To VDE 0110
- Degree of pollution 2 To VDE 0110

## Electromagnetic compatibility (EMC)

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EMC rating conforming to EMC Directive

## Electrical data

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### Rated DC voltage for controls

- Min. rated DC voltage for controls 20.4 V
- Max. rated DC voltage for controls 28.8 V

### Rated AC voltage for controls, 50 Hz

- Min. rated AC voltage for controls, 50 Hz 20.4 V
- Max. rated AC voltage for controls, 50 Hz 26.4 V

### Rated AC voltage for controls, 60 Hz

- Min. rated AC voltage for controls, 60 Hz 20.4 V
- Max. rated AC voltage for controls, 60 Hz 26.4 V

### Contact resistance

max. 100 mΩ

### Power consumption

max. 2.6 W; 5.4 VA

### Type of actuation

AC/DC

### Rated operating voltage $U_e$

24 VDC -15% / +20%, residual ripple max. 10 %  
24 VAC -15% / +10%

### Frequency range

50 / 60 Hz

### Electronic protection (Y/N)

Yes

### Fuse rating for the operating voltage

Internal electronic trip, tripping current > 1.0 A, Reset after disconnection of supply voltage

## Inputs

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### Monitored inputs

- Short-circuit recognition (Y/N) optional
- Wire breakage detection (Y/N) Yes
- Earth connection detection (Y/N) Yes

### Number of shutters

0 piece

### Number of openers

2 piece

### Cable length

1500 m with 1.5 mm<sup>2</sup>;  
2500 m with 2.5 mm<sup>2</sup>

### Conduction resistance

max. 40 Ω


## Outputs

Stop category	0 / 1
Number of safety contacts	4 piece
Number of auxiliary contacts	0 piece
Number of signalling outputs	0 piece
Switching capacity	
- Switching capacity of the safety contacts	max. 250 V, 8 A ohmic (inductive in case of appropriate protective wiring)
Fuse rating	
- Protection of the safety contacts	8 A slow blow
Utilisation category To EN 60947-5-1	
- Stop category 0	13-14, 23-24: AC-15: 230 V / 6 A DC-13: 24 V / 6 A
- Stop category 1	37/38, 47 - 48: AC-15: 230 V / 3 A DC-13: 24 V / 2 A
Number of undelayed semi-conductor outputs with signaling function	0 piece
Number of undelayed outputs with signaling function (with contact)	0 piece
Number of delayed semi-conductor outputs with signaling function.	0 piece
Number of delayed outputs with signalling function (with contact).	0 piece
Number of secure undelayed semi-conductor outputs with signaling function	0 piece
Number of secure, undelayed outputs with signaling function, with contact.	2 piece
Number of secure, delayed semi-conductor outputs with signaling function	0 piece
Number of secure, delayed outputs with signaling function (with contact).	2 piece

### LED switching conditions display

LED switching conditions display (Y/N)	Yes
Number of LED's	5 piece
LED switching conditions display	
- The integrated LEDs indicate the following operating states.	
- Position relay K1	
- Position relay K4	
- Position relay K3	
- Position relay K2	
- Supply voltage	
- Internal operating voltage $U_i$	

### Miscellaneous data

Applications	 Emergency-Stop button  Pull-wire emergency stop switches  Guard system  Safety light curtain
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### Dimensions

Dimensions	
- Width	45 mm

- Height	100 mm
- Depth	121 mm

## notice

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Inductive loads (e.g. contactors, relays, etc.) are to be suppressed by means of a suitable circuit.

## notice - Wiring example

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2 channel control shown for a guard-door monitor with two contacts, of which at least one contact has positive break, with external reset button (R).

**Relay outputs:** Suitable for 2 channel control, for increase in capacity or number of contacts by means of contactors or relays with positive-guided contacts.

(H2) = Feedback circuit

The control recognises cross-short, cable break and earth leakages in the monitoring circuit.

The time-delayed safety outputs 37-38 and 47-48 meet the requirements of STOP category 1 to EN 60204-1. The non-delayed safety outputs meet the requirements of STOP category 0 to EN 60204-1.

Setting of the drop-out delay time is carried out by means of a DIP switch from the front of the enclosure.

The wiring diagram is shown with guard doors closed and in de-energised condition.

## Documents

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**Operating instructions and Declaration of conformity** (nl) 599 kB, 29.10.2014

Code: mrl\_srb\_220xv2\_v2\_nl

**Operating instructions and Declaration of conformity** (pl) 620 kB, 23.09.2014

Code: mrl\_srb\_220xv2\_v2\_pl

**Operating instructions and Declaration of conformity** (es) 606 kB, 15.09.2014

Code: mrl\_srb\_220xv2\_v2\_es

**Operating instructions and Declaration of conformity** (de) 615 kB, 22.04.2014

Code: mrl\_srb\_220xv2\_v2\_de

**Operating instructions and Declaration of conformity** (fr) 602 kB, 23.09.2014

Code: mrl\_srb\_220xv2\_v2\_fr

**Operating instructions and Declaration of conformity** (jp) 694 kB, 17.10.2014

Code: mrl\_srb\_220xv2\_v2\_jp

**Operating instructions and Declaration of conformity** (it) 608 kB, 17.09.2014

Code: mrl\_srb\_220xv2\_v2\_it

**Operating instructions and Declaration of conformity** (en) 606 kB, 22.04.2014

Code: mrl\_srb\_220xv2\_v2\_en

**Operating instructions and Declaration of conformity** (da) 677 kB, 27.08.2013

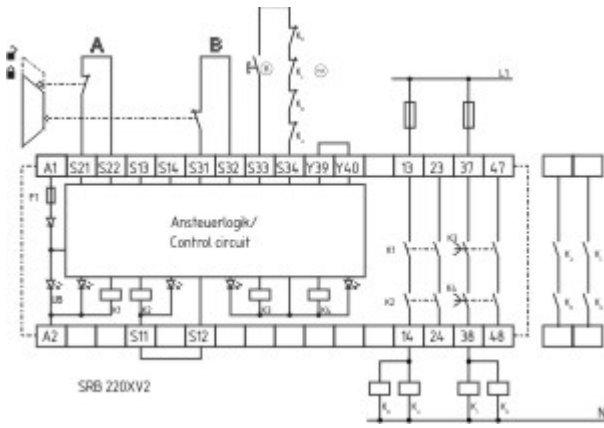
Code: mrl\_srb\_220xv2\_v2\_da

**Wiring example** (99) 19 kB, 04.08.2008

Code: ksr2112

## Images

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Wiring example

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The data and values have been checked thoroughly. Technical modifications and errors excepted.

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