

## Datasheet - SRB402EM

Output expanders / SRB402EM

☒ Preferred typ

- Expander module for contact expansion
- 4 safety contacts, STOP 0
- 2 Signalling outputs

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

### Ordering details

Product type description	SRB402EM
Article number	101170840
EAN Code	4250116201518
Replaced article number 101175611	
eCI@ss	27-37-19-01

### Approval

Approval



### Classification

Standards	EN ISO 13849-1, IEC 61508, EN 60947-5-1
PL	up e (STOP 0)
Control category	up 4 (STOP 0)
DC	99% (STOP 0)
CCF	> 65 points
PFH value	$\leq 2,0 \times 10^{-8}/h$ (STOP 0)
SIL	up 3 (STOP 0)
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.

K	n-op/y	t-cycle
20 %	525.800	1,0 min
40 %	210.240	2,5 min
60 %	75.067	7,0 min
80 %	30.918	17,0 min
100 %	12.223	43,0 min

## Global Properties

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Permanent light	SRB402EM
Standards	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	AgSn0, self-cleaning, positive action
Weight	250
Start conditions	Automatic
Start input (Y/N)	No
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)	No
Pull-in delay	
- ON delay with automatic start	typ. 30 ms / max. 45 ms
Drop-out delay	
- Drop-out delay in case of emergency stop	typ. 25 ms / max. 35 ms

## Mechanical data

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Connection type	Screw connection
Cable section	
- Min. Cable section	0,25
- Max. Cable section	2.5
Pre-wired cable	rigid or flexible
Tightening torque for the terminals	0,6
Detachable terminals (Y/N)	Yes
Mechanical life	10.000.000 operations
Electrical lifetime	Derating curve available on request
restistance to shock	30 g / 11 ms
Resistance to vibration To EN 60068-2-6	10...55 HZ, Amplitude 0,35 mm, ± 15 %
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	+45 °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 <sub>imp</sub>	4 kV
- Overvoltage category	III To VDE 0110
- Degree of pollution	2 To VDE 0110

## Electromagnetic compatibility (EMC)

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EMC rating	conforming to EMC Directive
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## Electrical data

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Rated DC voltage for controls	
- Max. rated DC voltage for controls	20.4
- Max. rated DC voltage for controls	28.8
Rated AC voltage for controls, 50 Hz	
- Min. rated AC voltage for controls, 50 Hz	20.4
- Max. rated AC voltage for controls, 50 Hz	26.4
Rated AC voltage for controls, 60 Hz	
- Min. rated AC voltage for controls, 60 Hz	20.4
- Max. rated AC voltage for controls, 60 Hz	26.4
Contact resistance	max. 100 mΩ
Power consumption	1.0 W; 1.0 VA
Type of actuation	AC/DC
Rated operating voltage U <sub>e</sub>	24 VDC -15% / +20%, residual ripple max. 10%; 24 VAC -15% / +10%
Operating current I <sub>e</sub>	0,05 A
Frequency range	50 / 60 HZ
Electronic protection (Y/N)	No
Fuse rating for the operating voltage	1.0 A slow blow

## Inputs

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<b>Monitored inputs</b>	
- Short-circuit recognition (Y/N)	No
- Wire breakage detection (Y/N)	Yes
- Earth connection detection (Y/N)	Yes
Number of shutters	0 piece
Number of openers	1 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

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Stop category	0
Number of safety contacts	4 piece
Number of auxiliary contacts	2 piece

Number of signalling outputs	0 piece
Switching capacity	
- Switching capacity of the safety contacts	max. 250 V, 6 A ohmic (inductive in case of appropriate protective wiring)
- Switching capacity of the auxiliary contacts	24 VDC, 2 A
Fuse rating	
- Protection of the safety contacts	6 A slow blow
- Fuse rating for the auxiliary contacts	2 A slow blow
Utilisation category To IEC/EN 60947-5-1	AC-15: 230 V / 6 A DC-13: 24 V / 6 A
Utilisation category To EN 60947-5-1	depending on the connected safety relay module
Number of undelayed semi-conductor outputs with signaling function	0 piece
Number of undelayed outputs with signaling function (with contact)	2 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.	4 piece
Number of secure, delayed semi-conductor outputs with signaling function	0 piece
Number of secure, delayed outputs with signaling function (with contact).	0 piece

## LED switching conditions display

LED switching conditions display (Y/N)	Yes
Number of LED's	1
LED switching conditions display	
- The integrated LEDs indicate the following operating states.	
- Position relay K1/K2	

## Miscellaneous data

Applications	 Output expanders depending on the connected safety relay module
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## Dimensions

Dimensions	
- Width	22.5 mm
- Height	120 mm
- Depth	121 mm

## notice

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

## notice - Wiring example

Relay outputs: 1-channel control of the expander module is suitable for contact reinforcement or multiplication of the connected safety relay module. Terminals X1 and X2 of the expander module must be connected to the feedback circuit or reset circuit of the safety relay module. The wiring diagram shows the control of the expander module by a SRB... safety relay module with the guard doors closed and in de-energised condition.

## Documents

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**Operating instructions and Declaration of conformity** (fr) 220 kB, 10.10.2018

Code: mrl\_srb\_402em\_fr

**Operating instructions and Declaration of conformity** (da) 209 kB, 10.10.2018

Code: mrl\_srb\_402em\_da

**Operating instructions and Declaration of conformity** (pt) 231 kB, 10.10.2018

Code: mrl\_srb\_402em\_pt

**Operating instructions and Declaration of conformity** (it) 218 kB, 10.10.2018

Code: mrl\_srb\_402em\_it

**Operating instructions and Declaration of conformity** (de) 208 kB, 10.10.2018

Code: mrl\_srb\_402em\_de

**Operating instructions and Declaration of conformity** (es) 233 kB, 10.10.2018

Code: mrl\_srb\_402em\_es

**Operating instructions and Declaration of conformity** (en) 207 kB, 10.10.2018

Code: mrl\_srb\_402em\_en

**Operating instructions and Declaration of conformity** (pl) 246 kB, 10.10.2018

Code: mrl\_srb\_402em\_pl

**Operating instructions and Declaration of conformity** (jp) 460 kB, 10.10.2018

Code: mrl\_srb\_402em\_jp

**Operating instructions and Declaration of conformity** (cn) 388 kB, 23.11.2018

Code: mrl\_srb\_402em\_cn

**Operating instructions and Declaration of conformity** (nl) 218 kB, 10.10.2018

Code: mrl\_srb\_402em\_nl

**Wiring example** (99) 15 kB, 04.08.2008

Code: ksr402

**CCC certification** (cn) 292 kB, 16.01.2017

Code: q\_srbp06

**CCC certification** (en) 310 kB, 16.01.2017

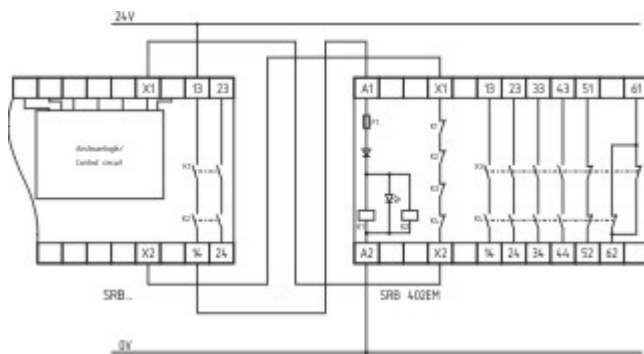
Code: q\_srbp05

**EAC certification** (ru) 1 MB, 15.03.2018

Code: q\_aesp01

## 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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