Datasheet - SRB101EXI-1R

Safety control modules for specific applications / Safety relay modules with intrinsically safe monitoring circuits (ATEX) / SRB101EXI

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

- 1 safety contact
- Reset with trailing edge
- Suitable for signal processing of emergency stop control devices, interlocking equipment, etc

Ordering details

Product type description	SRB101EXI-1R
Article number	101196283
EAN Code	4250116202355
eCl@ss	27-37-19-01

Approval

Approval	IECEx INMETRO

Classification

Standards	EN ISO 13849-1, IEC 61508, EN 60947-5-1
PL	bis e (STOP 0)
Control category	bis 4 (STOP 0)
DC	99% (STOP 0)
CCF	> 65 points
PFH value	≤ 2,0.0 x 10^{-8}/h (STOP 0)
SIL	bis 3 (STOP 0)
Mission time	15 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 %	525.600	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

Global Properties

Permanent light	SRB101EXI
Standards	EN 60079-0, EN 60079-11, EN 60079-15
Compliance with the Directives (Y/N) CE	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	220
Start conditions	Start button
Start input (Y/N)	Yes
Feedback circuit (Y/N)	Yes
Start-up test (Y/N)	No
Reset after disconnection of supply voltage (Y/N)	
Automatic reset function (Y/N)	No
Reset with edge detection (Y/N)	Yes
Pull-in delay	
- ON delay with automatic start	typ. 300 ms
- ON delay with reset button	typ. 20 ms
Drop-out delay	
- Drop-out delay in case of power failure	typ. 20 ms
- Drop-out delay in case of emergency stop	≤ 20

Mechanical data

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)	No
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

Ambient conditions

Ambient temperature	
- Min. environmental temperature	−25
- Max. environmental temperature	+60
Storage and transport temperature	

- Min. Storage and transport temperature	−40
- Max. Storage and transport temperature	+85
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	III To IEC/EN 60664-1
- Degree of pollution	2 To IEC/EN 60664-1

Electromagnetic compatibility (EMC)

EMC rating	conforming to EMC Directive

Electrical data

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	
- Max. rated AC voltage for controls, 50 Hz	
Rated AC voltage for controls, 60 Hz	
- Min. rated AC voltage for controls, 60 Hz	
- Max. rated AC voltage for controls, 60 Hz	
Contact resistance	max. 100 mΩ
Power consumption	max. 3 W
Type of actuation	DC
Rated operating voltage U_e	24 VDC−15% / +20%, residual ripple max. 10%
Frequency range	
Electronic protection (Y/N)	No
Fuse rating for the operating voltage	Internal electronic trip, F1: T50 mA / 250 V F2: T100 mA / 250 A V
Bridging in case of voltage drops	typ. 15 ms
Voltage, tension U_o	33.6 V
Current I_o	57.0 mA
Capacity P_o	478.8 mW (linear characteristic)
external capacity C_o	Refer to tables in the operating manual
external inductivity L_o	Refer to tables in the operating manual

Inputs

Monitored inputs	
- Short-circuit recognition (Y/N)	Yes
- Wire breakage detection (Y/N)	Yes
- Earth connection detection (Y/N)	Yes
Number of shutters	0
Number of openers	2
Cable length	Reference values to EN 60079-14
Conduction resistance	max. 30 Ω

Outputs

Stop category	0
Number of safety contacts	1
Number of auxiliary contacts	1
Number of signalling outputs	0
Switching capacity	
- Switching capacity of the safety contacts	max. 230 VAC, 3 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	3.15 A slow blow
- Fuse rating for the auxiliary contacts	2 A slow blow
Utilisation category To EN 60947-5-1	AC-15: 230 V / 2 A DC-13: 24 V / 2 A
Number of undelayed semi-conductor outputs with signaling function	0
Number of undelayed outputs with signaling function (with contact)	1
Number of delayed semi-conductor outputs with signaling function.	0
Number of delayed outputs with signalling function (with contact).	0
Number of secure undelayed semi-conductor outputs with signaling function	0
Number of secure, undelayed outputs with signaling function, with contact.	1
Number of secure, delayed semi-conductor outputs with signaling function	0
Number of secure, delayed outputs with signaling function (with contact).	0

LED switching conditions display

LED switching conditions display (Y/N)	Yes
Number of LED´s	5
LED switching conditions display	
- The integrated LEDs indicate the following operating states.	
- Position relay K1	1
- Position relay K2	1
- Supply voltage U_B	1
- Internal operating voltage Ui	1
- Internal operating voltage U_{EXi}	1

ATEX

EX-marking	EX II (2) G [Ex ib Gb] IIC EX II (2) D [Ex ib Db] IIIC EX II 3 G Ex nA nC IIC T5 Gc (installation SRB, in Zone 2)
Explosion protection categories for gases	2G
Explosion protection Zones for gases	1
Explosion protected category for dusts	2D
Explosion protection Zones for dusts	21

Miscellaneous data

Applications	 Emergency-Stop button  Pull-wire emergency stop switches  Guard system

 Safety sensor

Dimensions

Dimensions	
- Width	22.5 mm
- Height	100 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

To secure a guard door up to PL 4 and Category #03#

Monitoring 1 guard door(s), each with a magnetic safety sensor of the BNS range

The feedback circuit monitors the position of the contactors Ka and Kb.

If only one external relay or contactor is used to switch the load, the system can be classified in Control Category 3 to EN 954-1, if exclusion of the fault “Failure of the external contactor” can be substantiated and is documented, e.g. by using a reliable down-rated contactor. A second contactor leads to an increase in the level of security by redundant switching to switch the load off.

Automatic start: The automatic start is programmed by connecting the feedback circuit to the terminals X1/X2. If the feedback circuit is not required, establish a bridge

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

Documents

Operating instructions and Declaration of conformity (it) 404 kB, 28.05.2018
Code: mrl_protect-srb-101exi-1r_it

Operating instructions and Declaration of conformity (de) 426 kB, 24.05.2018
Code: mrl_protect-srb-101exi-1r_de

Operating instructions and Declaration of conformity (en) 380 kB, 24.05.2018
Code: mrl_protect-srb-101exi-1r_en

Operating instructions and Declaration of conformity (es) 404 kB, 08.06.2018
Code: mrl_protect-srb-101exi-1r_es

Operating instructions and Declaration of conformity (jp) 510 kB, 05.06.2018
Code: mrl_protect-srb-101exi-1r_jp

Operating instructions and Declaration of conformity (br) 385 kB, 24.05.2018
Code: mrl_protect-srb-101exi-1r_br

Operating instructions and Declaration of conformity (pt) 409 kB, 08.06.2018
Code: mrl_protect-srb-101exi-1r_pt

Operating instructions and Declaration of conformity (fr) 409 kB, 08.06.2018
Code: mrl_protect-srb-101exi-1r_fr

Operating instructions and Declaration of conformity (pl) 425 kB, 08.06.2018
Code: mrl_protect-srb-101exi-1r_pl

BG-test certificate (en) 929 kB, 19.05.2015
Code: z_ex-p09

BG-test certificate (en) 945 kB, 19.05.2015
Code: z_ex-p10

BG-test certificate (br) 526 kB, 12.04.2017
Code: q_srbp09

BG-test certificate (en) 399 kB, 12.05.2014
Code: z_exip03

BG-test certificate (de) 249 kB, 12.05.2014
Code: z_exip01

BG-test certificate (de) 683 kB, 12.05.2014
Code: z_exip02

Brochure (pt) 553 kB, 31.05.2017
Code: b_srb-exi_pt

Brochure (en) 550 kB, 17.05.2017
Code: b_srb-exi_en

Brochure (es) 531 kB, 17.08.2017
Code: b_srb-exi_es

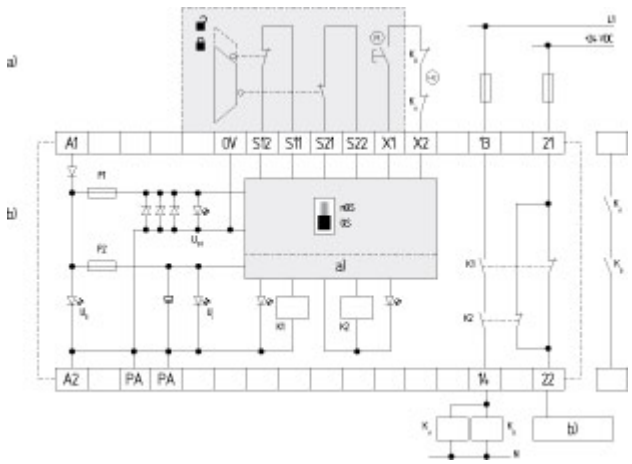
Brochure (de) 566 kB, 04.05.2017
Code: b_srb-exi_de

Brochure (it) 559 kB, 13.06.2017
Code: b_srb-exi_it

Brochure (fr) 539 kB, 07.09.2017
Code: b_srb-exi_fr

EAC certification (ru) 1 MB, 15.03.2018
Code: q_aesp01

Images



Wiring example