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Datasheet - SRB211AN (V.2)

Guard door monitors and Safety control modules for Emergency Stop applications / Micro Processor based safety controllers (Series AES) / SRB211AN

☒ Preferred typ

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

Ordering details

Product type description	SRB211AN (V.2)
Article number	101209242
EAN Code	4030661446530
Replaced article number 101211935	
eCl@ss	27-37-19-01

Approval

Approval	USA/CAN BG EAC

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) bis 3 (STOP 1)
DC	99 % (STOP 0) > 60% (STOP 1)

CCF	>65 points
PFH value	≤ 2 x 10-8 /h (STOP 0) ≤ 2 x 10-7 /h (STOP 1)
SIL	up 3 (STOP 0) bis 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.

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	SRB211AN
Standards	IEC/EN 60204-1, EN 60947-5-1, EN ISO 13849-1, IEC 61508
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, Ag-Ni, self-cleaning, positive action
Weight	320
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 automatic start	typ. 120 ms, max. 130 ms
- ON delay with reset button	typ. 10 ms, max. 15 ms
Drop-out delay	
- Drop-out delay in case of power failure	typ. 55 ms
- Drop-out delay in case of emergency stop	typ. 15 ms, max. 20 ms

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)	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 %

Ambient conditions

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	III To VDE 0110
- Degree of pollution	2 To VDE 0110

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	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	2.4 W; 5.9 VA, plus signalling output
Type of actuation	AC/DC
Rated operating voltage U_e	24 VDC −15% / +20%, residual ripple max. 10% 24 VAC −15% / +10%
Operating current I_e	
Frequency range	50 / 60 HZ
Electronic protection (Y/N)	Yes
Fuse rating for the operating voltage	Internal electronic trip, tripping current F1: > 750 mA, tripping current F2: > 75 mA Reset after disconnection of supply voltage tripping current F3: > 140 mA
Current and tension on control circuits	
- S13, S14, S21, S22	24 VDC, Test current: 10 mA
- x1, x2	24 VDC, Test current: 10 mA, Start pulse: 25 mA / 25 ms
- x1, x3	24 VDC, Test current: 10 mA, Start pulse: 950 mA / 10 ms
Bridging in case of voltage drops	≤ 40 ms

Inputs

Monitored inputs	
- Short-circuit recognition (Y/N)	Yes
- Wire breakage detection (Y/N)	Yes
- Earth connection detection (Y/N)	Yes
Number of shutters	1 piece
Number of openers	1 piece
Cable length	1500 m with 1.5 mm²; 2500 m with 2.5 mm²
Conduction resistance	max. 40 Ω

Outputs

Stop category	0 / 1
Number of safety contacts	3 piece
Number of auxiliary contacts	0 piece
Number of signalling outputs	1 piece
Switching capacity	
- Switching capacity of the safety contacts	(13-14; 23-24) max. 250 V, 8 A ohmic (inductive in case of appropriate protective wiring); min. 5 V, 5 mA (37-38) max. 250 V, 6 A ohmic (inductive in case of appropriate protective wiring); min. 10 V, 10 mA
- Switching capacity of the signaling/diagnostic outputs	24 VDC, 100 mA
Fuse rating	
- Protection of the safety contacts	Safety fuse 8 A slow blow, 10 A quick-blow (13-14; 23-24) Safety fuse 6.3 A slow blow 8 A quick-blow (37-38)
- Fuse rating for the signaling/diagnostic outputs	Internal electronic trip, tripping current > 0,1 A
Utilisation category To EN 60947-5-1	
- Stop category 0	13-14, 23-24: AC-15: 230 V / 1,5 A DC-13: 24 V / 1,2 A
- Stop category 1	37-38: AC-15: 230 V / 3 A DC-13: 24 V / 2 A
Number of undelayed semi-conductor outputs with signaling function	1 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).	1 piece

LED switching conditions display

LED switching conditions display (Y/N)	Yes
Number of LED´s	6
LED switching conditions display	
- The integrated LEDs indicate the following operating states.	
- Position relay K3/K4	
- Position relay K2	
- Position relay K1	
- Supply voltage	
- Internal operating voltage Ui	

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

Input level: The example shows a 2-channel control of a guard door monitoring with two position switches, whereof one with positive break, external reset button (R) and feedback circuit (H2).

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

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.

Time delay: The time-delayed safety enable 37/38 is adjustable for 1 to 30 seconds drop-out delay (see setting intructions).

The safety enabling circuit 37/38 conforms to EN 60204-1 for STOP Category 1. The safety enabling circuits 13/14 and 23/24 conform to EN 60204-1 for STOP Category 0.

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

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

Documents

Operating instructions and Declaration of conformity (en) 617 kB, 22.08.2017

Code: mrl_srb_211an_v2_en

Operating instructions and Declaration of conformity (es) 633 kB, 29.08.2017

Code: mrl_srb_211an_v2_es

Operating instructions and Declaration of conformity (fr) 639 kB, 25.10.2017

Code: mrl_srb_211an_v2_fr

Operating instructions and Declaration of conformity (nl) 633 kB, 03.08.2018

Code: mrl_srb_211an_v2_nl

Operating instructions and Declaration of conformity (pt) 640 kB, 30.11.2017

Code: mrl_srb_211an_v2_pt

Operating instructions and Declaration of conformity (it) 629 kB, 04.10.2017

Code: mrl_srb_211an_v2_it

Operating instructions and Declaration of conformity (jp) 716 kB, 06.12.2013

Code: mrl_srb_211an_v2_JP

Operating instructions and Declaration of conformity (de) 605 kB, 22.08.2017
Code: mrl_srb_211an_v2_de

Operating instructions and Declaration of conformity (pl) 657 kB, 30.11.2017
Code: mrl_srb_211an_v2_pl

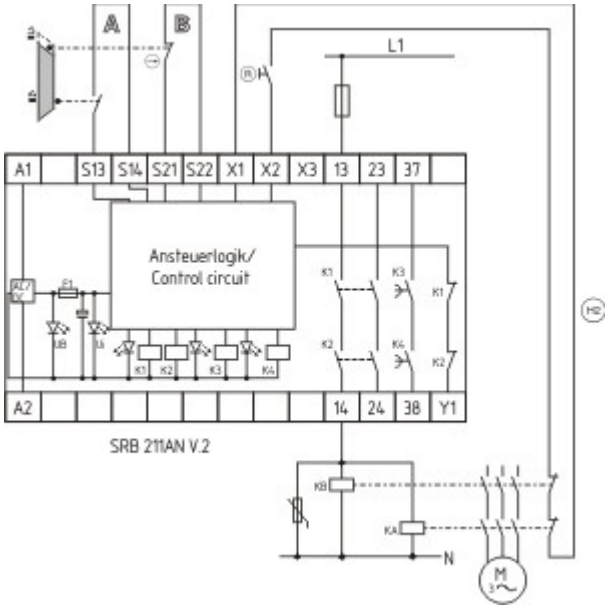
Wiring example (99) 20 kB, 04.08.2008
Code: ksrb2l09

BG-test certificate (de) 822 kB, 14.01.2015
Code: z_211p01

BG-test certificate (en) 809 kB, 14.01.2015
Code: z_211p02

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

Images



Wiring example