Datasheet - SRB211ST/CC (V.2)

Guard door monitors and Safety control modules for Emergency Stop applications / Micro Processor based safety controllers (Series AES) / SRB211ST

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

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

Ordering details

Product type description	SRB211ST/CC (V.2)
Article number	101210352
EAN Code	4030661444703
Replaced article number 101211929	
eCl@ss	27-37-19-01

Approval

Approval	BG USA/CAN 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) up 3 (STOP 1)
DC	99% (STOP 0) > 60% (STOP 1)

CCF	> 65 points
PFH value	≤ 2,0 x 10^{-8}/h (STOP 0) ≤ 2,0 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	SRB211ST
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	280
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
- ON delay with reset button	≤ 25 ms
Drop-out delay	
- Drop-out delay in case of power failure	≤ 55 ms
- Drop-out delay in case of emergency stop	typ. 15 ms, max. 20 ms

Mechanical data

Connection type	Spring pulley connection
Cable section	
- Min. Cable section	0,25
- Max. Cable section	1.5
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

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; 5.9 , plus signalling output
Type of actuation	AC/DC
Rated operating voltage	24 −15 / +20, residual ripple 10; 24 −15 / +10
Operating current I_e	0,24 A
Frequency range	50 / 60 HZ
Electronic protection (Y/N)	Yes
Fuse rating for the operating voltage	Internal electronic trip, tripping current F1: > 750 , tripping current F2: > 75 Reset after disconnection of supply voltage tripping current F3: > 140
Current and tension on control circuits	
- S11, S12, S21, S22	24 , Test current: 10
- X1, X2	24 , Test current: 10, Start pulse: 25 / 25
- X1, X3	24 , Test current: 10, Start pulse: 950 / 10
Bridging in case of voltage drops	typ. 40 ms

Inputs

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 mm²; 2500 m with 2.5 mm²
Conduction resistance	max. 40 Ω

Outputs

- Stop category 0	13-14, 23-24: AC-15: 230 V / 6 A DC-13: 24 V / 5 A
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	8 A slow blow (13-14; 23-24) 6.3 A slow 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 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 K2	
- Position relay K1	
- Position relay K3/K4	
- Supply voltage	
- Internal operating voltage	

Miscellaneous data

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

F1 = hybrid fuse

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.

For 1-channel control, connect NC contact to S11/S12 and bridge S12/S22

Connect potential p-type outputs of safety light grids/curtains to S12/S22. The devices must have the same reference potential.

Automatic start: The automatic start is programmed by connecting the feedback circuit to the terminals X1/X3. If the feedback circuit is not required, establish a bridge

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 (pt) 594 kB, 10.10.2018

Code: mrl_srb_211st_v2_pt

Operating instructions and Declaration of conformity (en) 603 kB, 10.10.2018

Code: mrl_srb_211st_v2_en

Operating instructions and Declaration of conformity (pl) 611 kB, 10.10.2018

Code: mrl_srb_211st_v2_pl

Operating instructions and Declaration of conformity (it) 593 kB, 10.10.2018

Code: mrl_srb_211st_v2_it

Operating instructions and Declaration of conformity (es) 607 kB, 10.10.2018
Code: mrl_srb_211st_v2_es

Operating instructions and Declaration of conformity (nl) 593 kB, 10.10.2018
Code: mrl_srb_211st_v2_nl

Operating instructions and Declaration of conformity (da) 610 kB, 10.10.2018
Code: mrl_srb_211st_v2_da

Operating instructions and Declaration of conformity (de) 580 kB, 10.10.2018
Code: mrl_srb_211st_v2_de

Operating instructions and Declaration of conformity (jp) 851 kB, 10.10.2018
Code: mrl_srb_211st_v2_jp

Operating instructions and Declaration of conformity (fr) 597 kB, 10.10.2018
Code: mrl_srb_211st_v2_fr

Operating instructions and Declaration of conformity (cs) 1 MB, 27.02.2012
Code: mrl_srb_ 211st_v2_cs

Wiring example (99) 19 kB, 04.08.2008
Code: Ksrb2l03

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

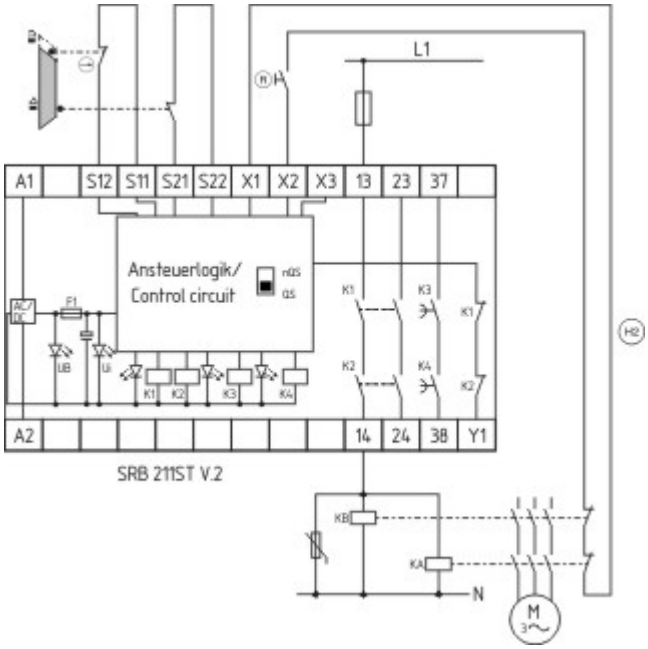
BG-test certificate (en) 809 kB, 14.01.2015
Code: z_211p02

CCC certification (cn) 290 kB, 16.01.2017
Code: q_srbp08

CCC certification (en) 311 kB, 16.01.2017
Code: q_srbp07

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

Images



Wiring example

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