

Datasheet - SRB301ST 230V



Guard door monitors and Safety control modules for Emergency Stop applications / General Purpose safety controllers (Series PROTECT SRB) / SRB301ST 230V

Preferred typ



- Suitable for signal processing of potential-free outputs, e.g. emergency stop command devices, position switches and solenoid interlocks
- 3 safety contacts, STOP 0
- 1 Signalling output

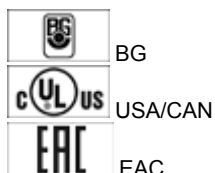
(Minor differences between the printed image and the original product may exist!)

Ordering details

Product type description	SRB301ST 230V
Article number	101170099
EAN Code	4250116201822
Replaced article number 101177167	
eCl@ss	27-37-19-01

Approval

Approval



Classification

Standards	EN ISO 13849-1, IEC 61508, EN 60947-5-1
PL	up e
Control category	up 4
DC	99% (High)
CCF	> 65 points
PFH value	≤ 2,0 x 10 ⁻⁸ /h

SIL
Mission time
- notice

up 3
20 Years


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 %	75.087	7,0 min
80 %	30.918	17,0 min
100 %	12.223	43,0 min

Global Properties

Permanent light	SRB301ST 230V
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	AgSn0, self-cleaning, positive action
Weight	250
Start conditions	Automatic or 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)	Yes
Reset with edge detection (Y/N)	Yes
Pull-in delay	
- ON delay with automatic start	typ. 30 ms, max. 35 ms
- ON delay with reset button	typ. 15 ms, max. 20 ms
Drop-out delay	
- Drop-out delay in case of power failure	typ. 100 ms (48 VAC); typ. 300 ms (240 VAC)
- Drop-out delay in case of emergency stop	typ. 20 ms, max. 25 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

Ambient conditions

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_{imp}	4 kV
Overtoltage category	
- Degree of pollution	2 To VDE 0110

Electromagnetic compatibility (EMC)

EMC rating	conforming to EMC Directive
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Electrical data

Rated DC voltage for controls	
- Max. rated DC voltage for controls	-
- Max. rated DC voltage for controls	-
Rated AC voltage for controls, 50 Hz	
- Min. rated AC voltage for controls, 50 Hz	48
- Max. rated AC voltage for controls, 50 Hz	240
Rated AC voltage for controls, 60 Hz	
- Min. rated AC voltage for controls, 60 Hz	48
- Max. rated AC voltage for controls, 60 Hz	240
Contact resistance	max. 100 mΩ
Power consumption	max. 2.8 VA
Type of actuation	AC
Switch frequency	max. 5 HZ
Rated operating voltage U_e	48 ... 240 VAC
Frequency range	50 / 60 HZ
Electronic protection (Y/N)	Yes
Fuse rating for the operating voltage	primary side F1: Safety fuse, tripping current > 0,5 A secondary side: Internal electronic trip, tripping current > 0,12 A
Current and tension on control circuits	
- S11, S12, S21, S22, X2, X3	24 VDC, Test current: approx. 45 mA
Bridging in case of voltage drops	
	typ. 70 ms (48 VAC); typ. 270 ms (240 VAC)

Inputs

Monitored inputs

- 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	2 piece
Cable length	1500 m with 1.5 mm ² ; 2500 m with 2.5 mm ²

Conduction resistance max. 40 Ω

Outputs

Stop category	0
Number of safety contacts	3 piece
Number of auxiliary contacts	1 piece
Number of signalling outputs	0 piece
Switching capacity	
- Switching capacity of the safety contacts	max. 250 VAC, 6 A ohmic (inductive in case of appropriate protective wiring)
- Switching capacity of the auxiliary contacts	24 VDC, 2 A
Fuse rating	
- Fuse rating for the auxiliary contacts	external fuse ($I_k = 1000$ A) To EN 60947-5-1 Safety fuse 2.5 A quick-blow, 2 A slow blow
- Protection of the safety contacts	external fuse ($I_k = 1000$ A) To EN 60947-5-1 Safety fuse 8 A quick-blow, 6 A slow blow
- Fuse rating for the auxiliary contacts	2 A slow blow
Utilisation category To EN 60947-5-1	AC-15: 230 V / 6 A DC-13: 24 V / 6 A
Number of undelayed semi-conductor outputs with signaling function	0 piece
Number of undelayed outputs with signaling function (with contact)	1 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.	3 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	3
LED switching conditions display	
- The integrated LEDs indicate the following operating states.	
- Position relay K2	
- Position relay K1	
- Supply voltage U_B	

Miscellaneous data

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

Dimensions

Dimensions	
- Width	22.5 mm
- Height	100 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 cable break 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.

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

Automatic start: The automatic start is programmed by connecting the feedback circuit to the terminals S12/X3. 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 (pt) 317 kB, 10.10.2018

Code: mrl_srb_301st_230_pt

Operating instructions and Declaration of conformity (pl) 324 kB, 10.10.2018

Code: mrl_srb_301st_230_pl

Operating instructions and Declaration of conformity (jp) 585 kB, 10.10.2018

Code: mrl_srb_301st_230_jp

Operating instructions and Declaration of conformity (nl) 323 kB, 10.10.2018

Code: mrl_srb_301st_230_nl

Operating instructions and Declaration of conformity (cn) 403 kB, 10.10.2018

Code: mrl_srb_301st_230_cn

Operating instructions and Declaration of conformity (en) 307 kB, 10.10.2018

Code: mrl_srb_301st_230_en

Operating instructions and Declaration of conformity (it) 313 kB, 10.10.2018

Code: mrl_srb_301st_230_it

Operating instructions and Declaration of conformity (fr) 315 kB, 10.10.2018

Code: mrl_srb_301st_230_fr

Operating instructions and Declaration of conformity (es) 313 kB, 10.10.2018

Code: mrl_srb_301st_230_es

Operating instructions and Declaration of conformity (de) 296 kB, 10.10.2018

Code: mrl_srb_301st_230_de

BG-test certificate (de) 51 kB, 03.05.2005

Code: z_301p01

TÜV certification (de, en) 599 kB, 27.09.2016

Code: z_srbp07

CCC certification (cn) 292 kB, 16.01.2017

Code: q_srbp06

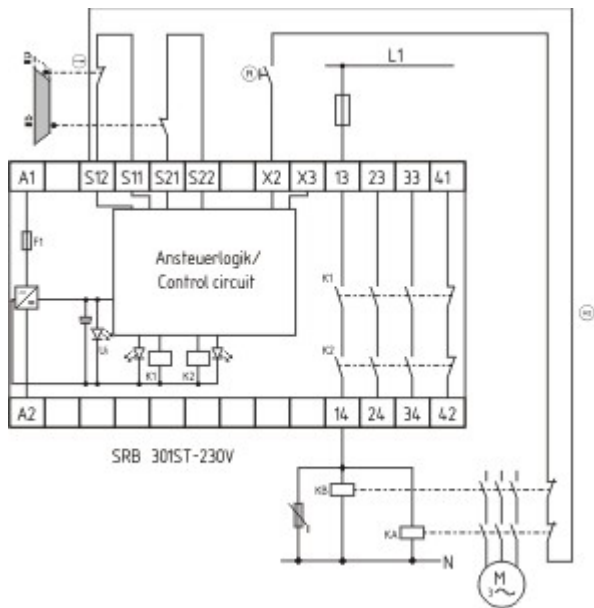
CCC certification (en) 310 kB, 16.01.2017

Code: q_srbp05

EAC certification (ru) 1 MB, 15.03.2018

Code: q_aesp01

Images



Wiring example

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

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