

Datasheet - SRB 301MC-24V



Guard door monitors and Safety control modules for Emergency Stop applications / General Purpose safety controllers (Series PROTECT SRB) / SRB 301MC

Preferred typ



- Fit for signal evaluation of outputs of safety magnetic switches
- 3 safety contacts, STOP 0
- 1 Signalling output
- 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

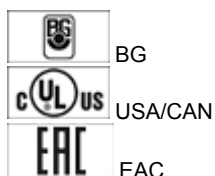
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Ordering details

Product type description	SRB 301MC-24V
Article number	101190684
EAN Code	4250116202249
eCl@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	≤ 2,0 x 10 ⁻⁸ /h (STOP 0)
SIL	up 3 (STOP 0)

Mission time

- notice

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

SRB 301MC

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, Ag-Ni, 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

Automatic reset function (Y/N)

Yes

Reset with edge detection (Y/N)

No

Pull-in delay

- ON delay with automatic start

typ. 100 ms

- ON delay with reset button

typ. 20 ms

Drop-out delay

- Drop-out delay in case of power failure

typ. 80 ms

- Drop-out delay in case of emergency stop

≤ 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)

No

Mechanical life

10.000.000 operations

Electrical lifetime

Derating curve available on request

resistance 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 IEC/EN 60664-1
- Degree of pollution	2 To IEC/EN 60664-1

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	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 W; 4.9 VA
Type of actuation	AC/DC
Switch frequency	
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 > 0,5 A, Reset after approximately 1 second/s
Current and tension on control circuits	
- S11, S12, S21, S22	24 VDC, Test current: 10 mA
Bridging in case of voltage drops	typ. 80 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 mm ² ; 2500 m with 2.5 mm ²
Conduction resistance	max. 40 Ω




Outputs

Stop category	0 / 1
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, 8 A ohmic (inductive in case of appropriate protective wiring) min. 10 V / 10 mA
- Switching capacity of the auxiliary contacts	24 VDC, 2 A
Fuse rating	
- Protection of the safety contacts	8 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	4
LED switching conditions display	
- The integrated LEDs indicate the following operating states.	
- Position relay K1	
- Position relay K2	
- Supply voltage	
- Internal operating voltage Ui	

Miscellaneous data

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

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

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.

Switch setting: The cross-wire short detection function (factory default) is programmed by means of the switch located underneath the front cover of the module:

Position nQS (top):

no cross-wire short protection, suitable for 1-channel applications and applications with outputs with potential in the control circuits.

Position QS (bottom):

cross-wire short protection, suitable for 2-channel applications without outputs with potential in the control circuits.

For 1-channel control, connect NC contact to S11/S12 and bridge S12/S22 (QS-switch = nQS)

Connect potential p-type outputs of safety light grids/curtains to S12/S22. The devices must have the same reference potential. (QS-switch = nQS)

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 (fr) 371 kB, 10.10.2018

Code: mrl_srb_301mc_fr

Operating instructions and Declaration of conformity (pl) 385 kB, 10.10.2018

Code: mrl_srb_301mc_pl

Operating instructions and Declaration of conformity (en) 371 kB, 10.10.2018

Code: mrl_srb_301mc_en

Operating instructions and Declaration of conformity (it) 369 kB, 10.10.2018

Code: mrl_srb_301mc_it

Operating instructions and Declaration of conformity (br) 1 MB, 11.12.2018

Code: ACE_mrl_srb_301mc_br-en-es

Operating instructions and Declaration of conformity (pt) 378 kB, 10.10.2018

Code: mrl_srb_301mc_pt

Operating instructions and Declaration of conformity (es) 378 kB, 10.10.2018

Code: mrl_srb_301mc_es

Operating instructions and Declaration of conformity (de) 371 kB, 10.10.2018

Code: mrl_srb_301mc_de

Operating instructions and Declaration of conformity (nl) 350 kB, 10.10.2018

Code: mrl_srb_301mc_nl

Wiring example (99) 17 kB, 04.08.2008

Code: ksr318

TÜV certification (de, en) 596 kB, 05.07.2016

Code: z_srbp01

CCC certification (en) 739 kB, 24.07.2017

Code: q_srbp03

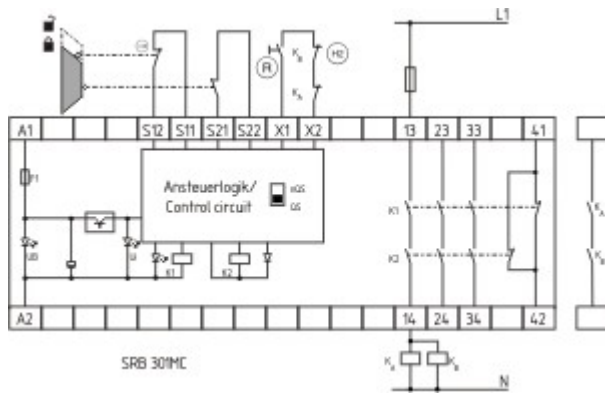
CCC certification (cn) 738 kB, 24.07.2017

Code: q_srbp04

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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