

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

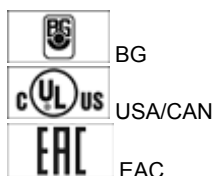
(Minor differences between the printed image and the original product may exist!)

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	$\leq 2,0 \times 10^{-8}/h$ (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, 21.10.2016

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

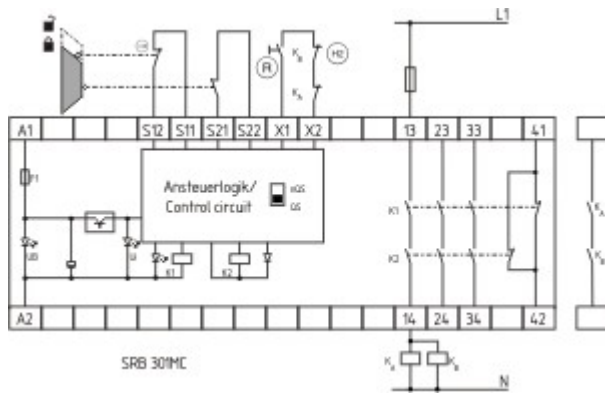
CCC certification (cn) 738 kB, 24.07.2017

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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