

Datasheet - SRB301MA-24V



Guard door monitors and Safety control modules for Emergency Stop applications / General Purpose safety controllers (Series PROTECT SRB) / SRB301MA

Preferred typ



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

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

Ordering details

Product type description	SRB301MA-24V
Article number	101212415
EAN Code	4030661446561
Replaced article number	101215369
eCI@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	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 %	525.800	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	SRB301MA
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	230
Start conditions	Start button (monitored)
Start input (Y/N)	Yes
Feedback circuit (Y/N)	Yes
Start-up test (Y/N)	No
Automatic reset function (Y/N)	No
Reset with edge detection (Y/N)	Yes
Pull-in delay	
- ON delay with automatic start	typ. 100 ms
- ON delay with reset button	typ. 15 ms, max. 20 ms
Drop-out delay	
- Drop-out delay in case of power failure	typ. 80 ms
- Drop-out delay in case of emergency stop	typ. 10 ms, max. 15 ms

Mechanical data

Connection type	Screw 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)	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

Ambient conditions

Ambient temperature

- Min. environmental temperature	-25
- Max. environmental temperature	+60
Storage and transport temperature	
- Min. Storage and transport temperature	-40
- Max. Storage and transport temperature	+85
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 / 2
- 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	max. 1.8 W; 4.4 VA
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
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)	Yes
- Wire breakage detection (Y/N)	Yes
- Earth connection detection (Y/N)	Yes
Number of shutters	0
Number of openers	2
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
Number of auxiliary contacts	1
Number of signalling outputs	0
Switching capacity	
- Switching capacity of the safety contacts	(13-14; 23-24; 33-34) max. 250 V, 8 A ohmic (inductive in case of appropriate protective wiring) min. 10 V / 10 mA
- Switching capacity of the auxiliary contacts	(41-42): 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
Number of undelayed outputs with signaling function (with contact)	1
Number of delayed semi-conductor outputs with signaling function.	0
Number of delayed outputs with signalling function (with contact).	0
Number of secure undelayed semi-conductor outputs with signaling function	0
Number of secure, undelayed outputs with signaling function, with contact.	3
Number of secure, delayed semi-conductor outputs with signaling function	0
Number of secure, delayed outputs with signaling function (with contact).	0

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 K2	
- Position relay K1	
- 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)

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

Documents

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

Code: mrl_srb301ma_nl

Operating instructions and Declaration of conformity (en) 375 kB, 10.10.2018

Code: mrl_srb301ma_en

Operating instructions and Declaration of conformity (en) 801 kB, 29.11.2010

Code: mrl_srb301ma_en

Operating instructions and Declaration of conformity (fr) 373 kB, 10.10.2018

Code: mrl_srb301ma_fr

Operating instructions and Declaration of conformity (pl) 381 kB, 10.10.2018

Code: mrl_srb301ma_pl

Operating instructions and Declaration of conformity (pt) 370 kB, 10.10.2018

Code: mrl_srb301ma_pt

Operating instructions and Declaration of conformity (jp) 480 kB, 10.10.2018

Code: mrl_srb301ma_jp

Operating instructions and Declaration of conformity (de) 365 kB, 10.10.2018

Code: mrl_srb301ma_de

Operating instructions and Declaration of conformity (es) 366 kB, 10.10.2018

Code: mrl_srb301ma_es

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

Code: mrl_srb301ma_da

Operating instructions and Declaration of conformity (it) 366 kB, 10.10.2018

Code: mrl_srb301ma_it

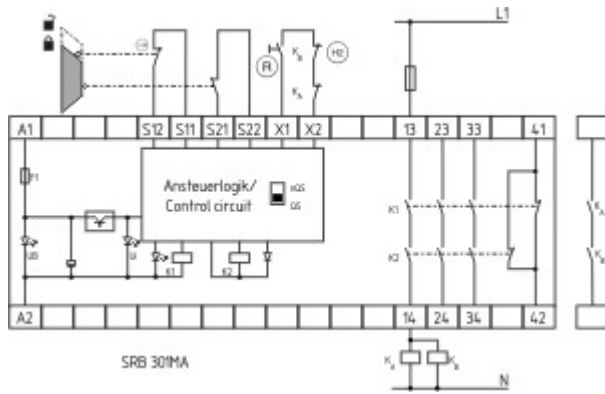
TÜV certification (de, en) 596 kB, 05.07.2016

Code: z_srbp08

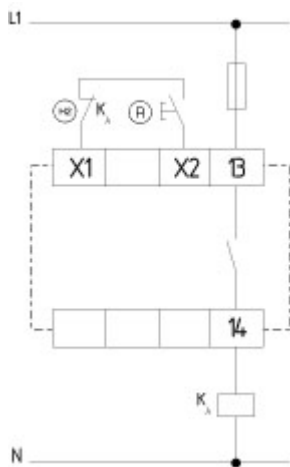
EAC certification (ru) 1 MB, 15.03.2018

Code: q_aesp01

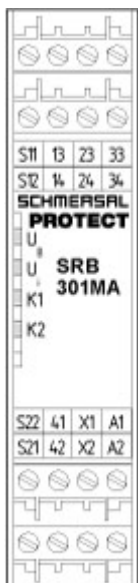
Images



Wiring example



Wiring example



Wiring example

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