Datasheet - SRB301AN 24VAC/DC

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

☒ Preferred typ

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

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

Ordering details

Product type description	SRB301AN 24VAC/DC
Article number	101162240
EAN Code	4250116201693
Replaced article number 101165473	
eCl@ss	27-37-19-01

Approval

Approval	BG USA/CAN EAC

Classification

Standards	EN ISO 13849-1, IEC 61508, IEC/EN 60947-1
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 %	525.600	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	SRB301AN 24VAC/DC
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	245
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. 170 ms
- ON delay with reset button	typ. 25 ms
Drop-out delay	
- Drop-out delay in case of power failure	typ. 20 ms
- Drop-out delay in case of emergency stop	typ. 15 ms, max. 23 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, ± 15 %

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
- Overvoltage category	II 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	max. 2.1 W; 3.5 VA
Type of actuation	AC/DC
Switch frequency	max. 3 HZ
Rated operating voltage U_e	24 VDC −10% / +20%, residual ripple max. 10% 24 VAC −15% / +10%
Operating current I_e	0,08 A
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
Bridging in case of voltage drops	typ. 15 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	1 piece
Number of openers	1 piece
Cable length	1500 m with 1.5 mm²; 2500 m with 2.5 mm²
Conduction resistance	max. 40 Ω

Outputs

Stop category	0
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	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	Y1: 24 VDC / 100 mA
Fuse rating	
- 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 signaling/diagnostic outputs	Y1: 500 mA (Internal electronic trip)
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	
- Internal operating voltage Ui	

Miscellaneous data

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

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

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

Start button (S) with edge detection

The feedback circuit monitors the position of the contactors K3 and K4.

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

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

Documents

Operating instructions and Declaration of conformity (sv) 292 kB, 10.10.2018
Code: mrl_srb301an_sv

Operating instructions and Declaration of conformity (pl) 326 kB, 10.10.2018
Code: mrl_srb301an_pl

Operating instructions and Declaration of conformity (es) 298 kB, 10.10.2018
Code: mrl_srb301an_es

Operating instructions and Declaration of conformity (pt) 301 kB, 10.10.2018
Code: mrl_srb301an_pt

Operating instructions and Declaration of conformity (en) 294 kB, 10.10.2018
Code: mrl_srb301an_en

Operating instructions and Declaration of conformity (it) 298 kB, 10.10.2018
Code: mrl_srb301an_it

Operating instructions and Declaration of conformity (nl) 308 kB, 10.10.2018
Code: mrl_srb301an_nl

Operating instructions and Declaration of conformity (de) 282 kB, 10.10.2018
Code: mrl_srb301an_de

Operating instructions and Declaration of conformity (cs) 308 kB, 10.10.2018
Code: mrl_srb301an_cs

Operating instructions and Declaration of conformity (fr) 299 kB, 10.10.2018
Code: mrl_srb301an_fr

Operating instructions and Declaration of conformity (jp) 381 kB, 10.10.2018
Code: mrl_srb301an_jp

Wiring example (99) 18 kB, 04.08.2008
Code: ksrb3l20

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

Image: ksrb3l20
Wiring example