

## SRB202CA/QT 24VDC



- 2 Signalling outputs
- Two-functions safety monitoring module (double evaluation)
- Level 1: Reset with edge detection, Short-circuit recognition, Level 2 Opener (NC): Opener (NC) /
- 2 enabling paths with different shut-down behaviour, e.g. emergency exit opens both enabling paths (level 1); guard door monitoring only opens the second enabling path (level 2)
- Suitable for signal processing of potential-free contacts, e.g. Emergency Stop command devices (level 1), position switches with safety function, solenoid interlocks and safety sensors (level 2)

### Data

#### Ordering data

|                               |                   |
|-------------------------------|-------------------|
|                               | SRB202CA/QT 24VDC |
|                               | 101176214         |
| EAN (European Article Number) | 4250116201952     |
| eCl@ss number, Version 9.0    | 27-37-18-19       |
| Available until               | 31.12.2022        |
| Replacement article number    | 101177151         |

#### Approval - Standards

cULus  
EAC

#### General data

SRB202CA/QT 24VDC

IEC 61508  
IEC/EN 60204-1  
ISO 13849-1  
EN 60947-5-1  
EN 60068-2-78

|                                      |                                                  |
|--------------------------------------|--------------------------------------------------|
| Enclosure material                   | Glass-fibre reinforced thermoplastic, ventilated |
| Material of the contacts, electrical | Ag-Ni, self-cleaning, positive drive             |
| Gross weight                         | 235 g                                            |

#### General data - Features

|                                     |     |
|-------------------------------------|-----|
| Stop-Category                       | 0   |
| Electronic Fuse                     | Yes |
| Wire breakage detection             | Yes |
| Short-circuit recognition           | Yes |
| Removable Terminals                 | Yes |
| Start input                         | Yes |
| Feedback circuit                    | Yes |
| Automatic reset function            | Yes |
| Reset edge detection                | Yes |
| Earth connection detection          | Yes |
| Integral System Diagnostics, status | Yes |
| Number of auxiliary contacts        | 2   |
| Number of inputs for NC             | 3   |
| Number of inputs for NO             | 1   |
| Number of LEDs                      | 6   |
| Number of safety contacts           | 2   |

#### Safety appraisal

EN 60947-5-1  
IEC 61508

#### Safety appraisal - Relay outputs

|                                        |                                  |
|----------------------------------------|----------------------------------|
| Performance level, stop 0, up to       | e                                |
| Category, Stop 0                       | 4                                |
| Diagnostic Coverage (DC) Level, Stop 0 | ≥ 99 %                           |
| PFH-Value Stop 0                       | $2.00 \times 10^{-8} / \text{h}$ |

|                                                      |            |
|------------------------------------------------------|------------|
| Safety Integrity Level (SIL), Stop 0, applicable for | 3          |
| Mission time                                         | 20 Year(s) |
| Common Cause Failure (CCF), minimum                  | 65         |

#### Mechanical data

|                          |                                          |
|--------------------------|------------------------------------------|
| Mounting                 | Snaps onto standard DIN rail to EN 60715 |
| Mechanical life, minimum | 10,000,000 Operations                    |

#### Mechanical data - Connection technique

|                            |                                                               |
|----------------------------|---------------------------------------------------------------|
| Terminal Connector         | Screw connection<br>rigid or flexible                         |
| Terminal designations      | IEC/EN 60947-1<br>0.25 mm <sup>2</sup><br>2.5 mm <sup>2</sup> |
| Tightening torque of Clips | 0.6 Nm                                                        |

#### Mechanical data - Dimensions

|        |         |
|--------|---------|
| Width  | 22.5 mm |
| Height | 100 mm  |
| Depth  | 121 mm  |

#### Ambient conditions

|                                            |                                                 |
|--------------------------------------------|-------------------------------------------------|
|                                            | IP40                                            |
|                                            | IP54                                            |
|                                            | IP20                                            |
| Ambient temperature, minimum               | -25 °C                                          |
| Ambient temperature, maximum               | +45 °C                                          |
| Storage and transport temperature, minimum | -40 °C                                          |
| Storage and transport temperature, maximum | +85 °C                                          |
| Resistance to vibrations to EN 60068-2-6   | 10 ... 55 Hz, Amplitude 0.35 mm<br>10 g / 11 ms |

### Ambient conditions - Insulation value

|                                    |      |
|------------------------------------|------|
| Rated impulse<br>withstand voltage | 4 kV |
|                                    | III  |
|                                    | 2    |

### Electrical data

|                                                            |                                            |
|------------------------------------------------------------|--------------------------------------------|
| Rated operating voltage                                    | 24 VDC -15%/+20%, residual ripple max. 10% |
| Rated AC voltage for<br>controls at DC minimum             | 20.4 VDC                                   |
| Rated control voltage at<br>DC, maximum                    | 28.8 VDC                                   |
| Electrical power<br>consumption                            | 4.4 W                                      |
| Contact resistance,<br>maximum                             | 0.1 $\Omega$                               |
| Note (Contact<br>resistance)                               | in new state                               |
| Drop-out delay in case<br>of power failure,<br>typically   | 80 ms                                      |
| Drop-out delay in case<br>of emergency, typically          | 20 ms                                      |
| Pull-in delay at<br>automatic start,<br>maximum, typically | 100 ms                                     |
| ON delay at automatic<br>start                             | Adjustable                                 |
| Pull-in delay at RESET,<br>typically                       | 20 ms                                      |

### Electrical data - Safe relay outputs

|                                        |         |
|----------------------------------------|---------|
| Voltage, Utilisation<br>category AC15  | 250 VAC |
| Current, Utilisation<br>category AC-15 | 6 A     |
| Voltage, Utilisation<br>category DC13  | 24 VDC  |
| Current, Utilisation<br>category DC13  | 6 A     |
| Switching capacity,<br>minimum         | 10 VDC  |
| Switching capacity,<br>minimum         | 10 mA   |

|                                |         |
|--------------------------------|---------|
| Switching capacity,<br>maximum | 250 VAC |
| Switching capacity,<br>maximum | 8 A     |

**Electrical data - Digital inputs**

|                                   |      |
|-----------------------------------|------|
| Conduction resistance,<br>maximum | 40 Ω |
|-----------------------------------|------|

**Electrical data - Relay outputs (auxiliary contacts)**

|                                |        |
|--------------------------------|--------|
| Switching capacity,<br>maximum | 24 VDC |
| Switching capacity,<br>maximum | 2 A    |

**Electrical data - Electromagnetic compatibility (EMC)**

|            |               |
|------------|---------------|
| EMC rating | EMC-Directive |
|------------|---------------|

**Status indication**

|                               |                                           |
|-------------------------------|-------------------------------------------|
| Indicated operating<br>states | Position relay K2                         |
|                               | Position relay K1                         |
|                               | Internal operating voltage U <sub>i</sub> |
|                               | Position relay K3                         |

**Other data**

|                     |                                   |
|---------------------|-----------------------------------|
| Note (applications) | Safety sensor                     |
|                     | Guard system                      |
|                     | Pull-wire emergency stop switches |
|                     | Emergency stop button             |

**Notes**

|                                     |                                                                                                      |
|-------------------------------------|------------------------------------------------------------------------------------------------------|
| Note (General)                      | Inductive loads (e.g. contactors, relays, etc.) are to be suppressed by means of a suitable circuit. |
| Note (Short-circuit<br>recognition) | Level 1                                                                                              |

**Circuit example**

The wiring diagram is shown with guard doors closed and in de-energised condition.  
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.  
The control recognises cross-short, cable break and earth leakages in the monitoring circuit.

#### Note (Wiring diagram)

Input level: the example shows a 2-channel control of an Emergency Stop command device (level 1) with external reset button (R), and guard door monitoring (level 2) with feedback circuit (H2).

Automatic start (level 1): The automatic start is programmed by connecting the feedback circuit to the terminals X1/+24 V DC. Automatic start (level 2): The automatic start is programmed by connecting the feedback circuit to the terminals X2/+24 V DC. If the feedback circuit is not required, establish a bridge.

1 NC contact each time communicates the status of level 1 and level 2

## Pictures

### Photo/Product/Catalogue



ID: ksrb2f04

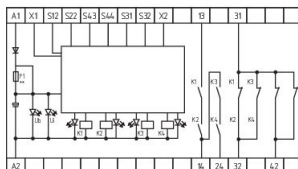
| 100,7 kB | .png | 74.083 x 173.919 mm - 210 x 493

Pixel - 72 dpi

| 808,9 kB | .jpg | 265.994 x 625.122 mm - 754 x 1772

Pixel - 72 dpi

### Graphic/Product/Wiring



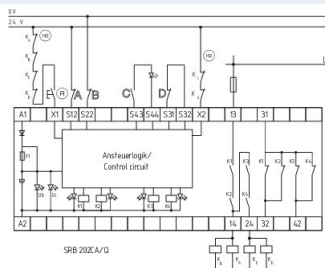
ID: 1srb2l06

| 31,0 kB | .cdr |

| 108,8 kB | .jpg | 352.778 x 248.003 mm - 1000 x 703

Pixel - 72 dpi

### Graphic/Product/Wiring



ID: ksrb2l06

| 159,4 kB | .jpg | 352.778 x 291.394 mm - 1000 x 826

Pixel - 72 dpi

| 53,2 kB | .cdr |

### Graphic/Product/Icon

| 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 |

ID: kformm02

| 191,1 kB | .jpg | 352.778 x 246.592 mm - 1000 x 699  
Pixel - 72 dpi

K.A. Schmersal GmbH & Co. KG, Möddinghofe 3, D-42279 Wuppertal

The details and data referred to have been carefully checked. Images may diverge from original. Further technical data can be found in the manual. Technical amendments and errors possible.

Generated on 472021-01-31T12:36:47+01:001201Europe/BerlinSun, 31 Jan 2021 12:36:47

+010047pmSunday.31pm31Europe/BerlinCET3601Europe/BerlinJanuary2021Sun, 31 Jan 2021 12:36:47

+010001pm31