



## SRB-E-402ST

- Two-functions safety monitoring module (double evaluation), 2 x STOP 0
- 2 x 1 oder 2-channel control
- 2 x Start button / Auto-start
- 1 x Monitoring two-hand control panels to ISO 13851
- 2 safety contacts
- 2 Safety outputs

## Data

### Ordering data

|                               |               |
|-------------------------------|---------------|
| Product type description      | SRB-E-402ST   |
| Article number (order number) | 103007221     |
| EAN (European Article Number) | 4030661478524 |
| eCl@ss number, Version 9.0    | 27-37-18-19   |
| eCl@ss number, Version 11.0   | 27-37-18-19   |
| ETIM number, version 6.0      | EC001449      |

### Approval - Standards

|              |                                    |
|--------------|------------------------------------|
| Certificates | TÜV<br>cULus<br>CCC<br>EAC<br>CNCA |
|--------------|------------------------------------|

### General data

|           |                                                                        |
|-----------|------------------------------------------------------------------------|
| Standards | EN ISO 13849-1<br>EN 60947-5-1<br>EN 60204-1<br>IEC 62061<br>IEC 61508 |
|-----------|------------------------------------------------------------------------|

|                                      |                                                  |
|--------------------------------------|--------------------------------------------------|
| Climatic stress                      | EN 60068-2-78                                    |
| Enclosure material                   | Glass-fibre reinforced thermoplastic, ventilated |
| Material of the contacts, electrical | Ag-Ni, self-cleaning, positive drive             |
| Gross weight                         | 190 g                                            |

## General data - Features

|                                      |     |
|--------------------------------------|-----|
| Stop-Category                        | 0   |
| Electronic Fuse                      | Yes |
| Wire breakage detection              | Yes |
| Short-circuit recognition            | 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         | 1   |
| Number of LEDs                       | 6   |
| Number of openers                    | 4   |
| Number of shutters                   | 2   |
| Number of Safety contacts, STOP 0    | 2   |
| Number of fail-safe outputs, Stop 0  | 2   |
| Number of Signalling outputs, STOP 0 | 1   |

## Safety appraisal

|           |                                          |
|-----------|------------------------------------------|
| Standards | IEC 62061<br>IEC 61508<br>EN ISO 13849-1 |
|-----------|------------------------------------------|

## Safety appraisal - Relay outputs

|                             |   |
|-----------------------------|---|
| Performance Level, up to    | e |
| Control category to EN13849 | 4 |

|                                                            |                          |
|------------------------------------------------------------|--------------------------|
| Diagnostic Coverage (DC) Level                             | > 94 %                   |
| PFH-value                                                  | $1.25 \times 10^{-8}$ /h |
| PFD value                                                  | $5.30 \times 10^{-5}$    |
| Safety Integrity Level (SIL), suitable for applications in | 3                        |
| Mission time                                               | 20 Year(s)               |
| Common Cause Failure (CCF), minimum                        | 65                       |

### Safety appraisal - Fail-safe digital outputs

|                                                            |                          |
|------------------------------------------------------------|--------------------------|
| Performance level, up to                                   | e                        |
| Control category to EN13849                                | 4                        |
| PFH-value                                                  | $2.66 \times 10^{-9}$ /h |
| PFD value                                                  | $2.42 \times 10^{-5}$    |
| Safety Integrity Level (SIL), suitable for applications in | 3                        |
| Mission time                                               | 20 Year(s)               |

### Mechanical data

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

### Mechanical data - Connection technique

|                            |                                                |
|----------------------------|------------------------------------------------|
| Terminal Connector         | Screw connection, plug-in<br>rigid or flexible |
| Terminal designations      | IEC/EN 60947-1                                 |
| Cable section, minimum     | 0.25 mm <sup>2</sup>                           |
| Cable section, maximum     | 2.5 mm <sup>2</sup>                            |
| Tightening torque of Clips | 0.5 Nm                                         |

### Mechanical data - Dimensions

|        |         |
|--------|---------|
| Width  | 22.5 mm |
| Height | 98 mm   |
| Depth  | 115 mm  |

## Ambient conditions

|                                            |                                 |
|--------------------------------------------|---------------------------------|
| Degree of protection of the enclosure      | IP40                            |
| Degree of protection of the mounting space | IP54                            |
| Degree of protection of clips or terminals | IP20                            |
| Ambient temperature, minimum               | -25 °C                          |
| Ambient temperature, maximum               | +60 °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 |
| Resistance to shock                        | 30 g / 11 ms                    |

## Ambient conditions - Insulation value

|                                                                 |              |
|-----------------------------------------------------------------|--------------|
| Rated insulation voltage $U_i$                                  | 250 V / 50 V |
| Rated impulse withstand voltage, relay output $U_{imp}$         | 4 kV         |
| Rated impulse withstand voltage, semiconductor output $U_{imp}$ | 0.8 kV       |
| Overvoltage category                                            | III          |
| Degree of pollution to IEC/EN 60664-1                           | 2            |

## Electrical data

|                                                      |                                            |
|------------------------------------------------------|--------------------------------------------|
| Rated operating voltage                              | 24 VDC -20%/+20%, residual ripple max. 10% |
| Operating current                                    | 150 mA                                     |
| Rated AC voltage for controls at DC minimum          | 19.2 VDC                                   |
| Rated control voltage at DC, maximum                 | 28.8 VDC                                   |
| Electrical power consumption                         | 3.6 W                                      |
| Contact resistance, maximum                          | 0.1 $\Omega$                               |
| Note (Contact resistance)                            | in new state                               |
| Drop-out delay in case of power failure, typically   | 10 ms                                      |
| Drop-out delay in case of emergency, typically       | 10 ms                                      |
| Pull-in delay at automatic start, maximum, typically | 150 ms                                     |
| Pull-in delay at RESET, typically                    | 150 ms                                     |

|                              |        |
|------------------------------|--------|
| Switching frequency, maximum | 0.3 Hz |
|------------------------------|--------|

#### Electrical data - Fail-safe digital outputs

|                                    |        |
|------------------------------------|--------|
| Voltage drop $U_d$ , maximum       | 0.5 V  |
| Current leakage $I_r$              | 1 mA   |
| Voltage, Utilisation category DC12 | 24 VDC |
| Current, Utilisation category DC12 | 2 A    |
| Voltage, Utilisation category DC13 | 24 VDC |
| Current, Utilisation category DC13 | 2 A    |

#### Electrical data - Safe relay outputs

|                                     |         |
|-------------------------------------|---------|
| Voltage, Utilisation category AC15  | 230 VAC |
| Current, Utilisation category AC-15 | 4 A     |
| Voltage, Utilisation category DC13  | 24 VDC  |
| Current, Utilisation category DC13  | 4 A     |
| Switching capacity, minimum         | 10 VDC  |
| Switching capacity, minimum         | 10 mA   |
| Switching capacity, maximum         | 250 VAC |
| Switching capacity, maximum         | 6 A     |

#### Electrical data - Digital inputs

|                                |             |
|--------------------------------|-------------|
| Conduction resistance, maximum | 40 $\Omega$ |
|--------------------------------|-------------|

#### Electrical data - Digital Output

|                                    |        |
|------------------------------------|--------|
| Voltage, Utilisation category DC12 | 24 VDC |
| Current, Utilisation category DC12 | 0.1 A  |

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

|                             |        |
|-----------------------------|--------|
| Switching capacity, maximum | 24 VDC |
| Switching capacity, maximum | 1 A    |

## Electrical data - Electromagnetic compatibility (EMC)

EMC rating

## EMC-Directive

## Status indication

### Indicated operating states

Internal operating voltage  $U_i$   
Baustein-Status  
Fault codes

## Other data

Note (applications)

- Safety sensor
- hinged safety guard
- Emergency-Stop button
- Pull-wire emergency stop switches
- Safety light curtain
- Safety light barriers
- Two-hand control panels

## Pictures

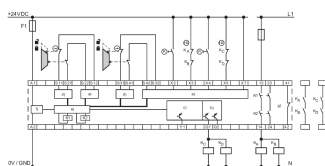
**Product picture (catalogue individual photo)**

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| 1.0 MB | .jpg | 281.869 x 655.814 mm - 799 x 1859 px - 72 dpi

| 126.5 kB | .png | 74.083 x 172.156 mm - 210 x 488 px - 72 dpi

## Wiring example



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| 1.3 MB | .ai | 297 x 210.002 mm - 841 x 595 px - 72 dpi

| 107.2 kB | .jpg | 352.778 x 172.861 mm - 1000 x 490 px - 72 dpi

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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.

