

Technical data sheet

Safety relay

Part no.: 50133023

MSI-SR-ES31-03

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- Dimensioned drawings
- Electrical connection
- Circuit diagrams
- Notes



Figure can vary



Technical data

Basic data

| | |
|-------------|-------------------------------------|
| Series | MSI-SR-ES31 |
| Application | Base device for E-Stop applications |

Functions

| | |
|-----------|----------------------------------|
| Functions | Monitoring of E-Stop circuits |
| | Monitoring of position switches |
| | Monitoring of proximity switches |
| Restart | Automatic |
| | Manual |

Characteristic parameters

| | |
|---|---|
| SIL | 2, IEC 61508 |
| SILCL | 2, IEC/EN 62061 |
| Performance Level (PL) | d, EN ISO 13849-1 |
| MTTF _d | 73 years, EN ISO 13849-1 |
| PFH _D | 8,6E-10 per hour |
| Mission time T _M | 20 years, EN ISO 13849-1 |
| Category | 3, EN ISO 13849 |
| B10 _d at DC13 (inductive load) | 300,000 number of cycles, (5 A, 230 V), 700,000 (1 A, 230 V) |
| B10 _d at AC15 (inductive load) | 200,000 number of cycles, (5 A, 230 V), 380,000 (1 A, 230 V) |

Electrical data

Supply circuit

| | |
|---|--|
| Nominal voltage U _N | 24 V AC/DC |
| Nominal frequency | 50 ... 60 Hz |
| Operating voltage | 0.85 ... 1.1 x U _N |
| Rated power DC | 1.3 W |
| Galvanic isolation between supply and control circuit | Yes (when U _N ≥ AC 115-120 V, AC 230 V) |

Output circuit

| | |
|---|---|
| Number of outputs, safety-oriented, undelayed, contact-based | 3 Piece(s) |
| Number of outputs, signaling function, undelayed, contact-based | 1 Piece(s) |
| Release current paths | NO |
| Signaling current paths | NC |
| Contact material | Ag alloy, gold-plated |
| Usage category AC-15 (NO contact) | Ue 230V, Ie 5A |
| Usage category DC-13 (NO contact) | Ue 24V, Ie 5A |
| Short circuit protection (NO contact) | gG class safety fuse 6A, melting integral |
| Nominal switching voltage, release current paths AC | 230 V |
| Nominal switching voltage, signaling current paths AC | 230 V |
| Max. thermal continuous current I _{th} , release current paths | 8 A |
| Max. thermal continuous current I _{th} , signaling current paths | 5 A |
| Max. total current I ² of all current paths | 9 A ² |
| Mechanical life time | 100,000,000 switching cycles |

Control circuit

| | |
|--|---|
| Evaluation of the inputs | one- or two-channel |
| Nominal output voltage DC | 24 V |
| Input current at the control inputs (safety circuit/reset circuit) | 90 mA |
| Max. peak current at the control inputs (safety circuit/reset circuit) | 1,500 mA |
| Max. cable resistance, per channel | ≤ (5 + (1.333 x U _B / U _N - 1) x 200) Ω |
| Minimum switch-on time | 60 ms |
| Response time (automatic start t _{A2}) | 60 ms |
| Release time t _R | 60 ms |
| Recovery time t _w | 200 ms |

Connection

| | |
|-----------------------|------------|
| Number of connections | 1 Piece(s) |
|-----------------------|------------|

Connection 1

| | |
|--------------------|----------------------|
| Function | Signal IN |
| | Signal OUT |
| | Voltage supply |
| Type of connection | Terminal |
| Type of terminal | Spring-cage terminal |
| No. of pins | 15 -pin |

Cable properties

| | |
|---------------------------|---|
| Connection cross sections | 2 x 0.2 to 1.5 mm ² , wire |
| | 2 x 0.2 to 1.5 mm ² , wire |
| | 2 x 0.25 to 1.5 mm ² , wire with wire-end sleeve |

Mechanical data

| | |
|-----------------------|-----------------------------|
| Dimension (W x H x L) | 22.5 mm x 106.5 mm x 114 mm |
| Net weight | 200 g |
| Housing color | Gray |
| Type of fastening | Snap-on mounting |

Certifications

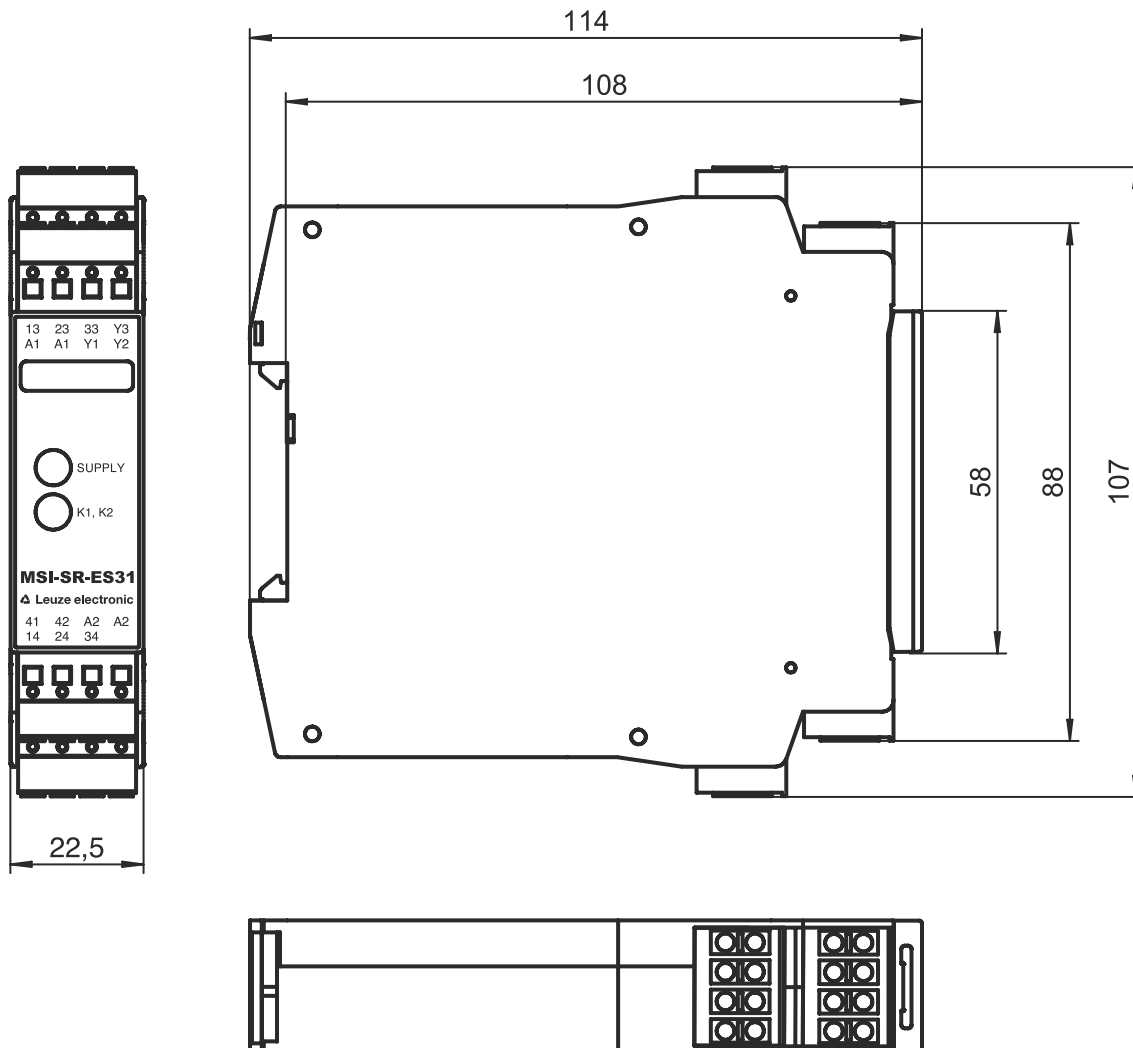
| | |
|----------------|---------------|
| Certifications | c UL US |
| | TÜV Rheinland |

Classification

| | |
|-----------------------|----------|
| Customs tariff number | 85364900 |
| ECLASS 5.1.4 | 27371800 |
| ECLASS 8.0 | 27371819 |
| ECLASS 9.0 | 27371819 |
| ECLASS 10.0 | 27371819 |
| ECLASS 11.0 | 27371819 |
| ECLASS 12.0 | 27371819 |
| ECLASS 13.0 | 27371819 |
| ETIM 5.0 | EC001449 |
| ETIM 6.0 | EC001449 |
| ETIM 7.0 | EC001449 |
| ETIM 8.0 | EC001449 |

Dimensioned drawings

All dimensions in millimeters



Electrical connection

Connection 1

| | |
|--------------------|----------------------|
| Function | Signal IN |
| | Signal OUT |
| | Voltage supply |
| Type of connection | Terminal |
| Type of terminal | Spring-cage terminal |
| No. of pins | 15 -pin |

Terminal

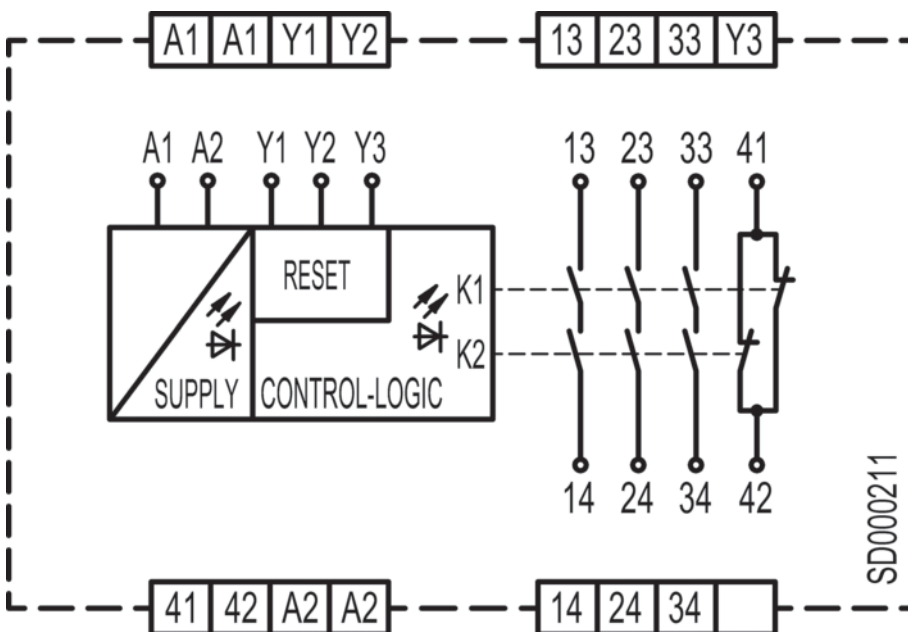
Assignment

| | |
|----|-------------------------------------|
| 13 | Release current path 1 (NO contact) |
| 14 | Release current path 1 (NO contact) |
| 23 | Release current path 2 (NO contact) |
| 24 | Release current path 2 (NO contact) |
| 33 | Release current path 3 (NO contact) |

Electrical connection

| Terminal | Assignment |
|----------|---|
| 34 | Release current path 3 (NO contact) |
| 41 | Signaling current path (NC contact) |
| 42 | Signaling current path (NC contact) |
| A1 | +24 V |
| A1 | +24 V |
| A2 | GND |
| A2 | GND |
| Y1 | Control circuit of reset button |
| Y2 | Control circuit of reset button (automatic reset) |
| Y3 | Control circuit of reset button (manual reset) |

Circuit diagrams



Notes



Observe intended use!



- ⌘ The product may only be put into operation by competent persons.
- ⌘ Only use the product in accordance with its intended use.