

## Technical data sheet

### Safety relay

Part no.: 50133008

MSI-SR-LC21-01

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Figure can vary



## Technical data

### Basic data

|             |                                                     |
|-------------|-----------------------------------------------------|
| Series      | MSI-SR-LC21                                         |
| Application | Base device for E-Stop and safety door applications |

### Functions

|           |                                                                                                                                                                                            |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Functions | Monitoring of E-Stop circuits<br>Monitoring of optoelectronic protective devices<br>Monitoring of position switches<br>Monitoring of proximity switches<br>Monitoring of solenoid switches |
| Restart   | Automatic<br>Manual                                                                                                                                                                        |

### Characteristic parameters

|                                           |                                                                |
|-------------------------------------------|----------------------------------------------------------------|
| SIL                                       | 3, IEC 61508                                                   |
| SILCL                                     | 3, IEC/EN 62061                                                |
| Performance Level (PL)                    | e, EN ISO 13849-1                                              |
| MTTF <sub>d</sub>                         | 78 years, EN ISO 13849-1                                       |
| Mission time T <sub>M</sub>               | 20 years, EN ISO 13849-1                                       |
| Category                                  | 4, EN ISO 13849                                                |
| DC <sub>AVG</sub>                         | 99 %                                                           |
| B10 <sub>d</sub> at DC13 (inductive load) | 435,000 number of cycles, (2.5 A, 230 V), 700,000 (1 A, 230 V) |
| B10 <sub>d</sub> at AC15 (inductive load) | 230,000 number of cycles, (3 A, 230 V), 380,000 (1 A, 230 V)   |

### Electrical data

|                                                                           |                                           |
|---------------------------------------------------------------------------|-------------------------------------------|
| <b>Supply circuit</b>                                                     |                                           |
| Nominal voltage U <sub>N</sub>                                            | 24 V AC/DC                                |
| Nominal frequency                                                         | 50 ... 60 Hz                              |
| Operating voltage                                                         | 0.85 ... 1.1 x U <sub>N</sub>             |
| Rated power DC                                                            | 2 W                                       |
| Galvanic isolation between supply and control circuit                     | No                                        |
| <b>Output circuit</b>                                                     |                                           |
| Number of outputs, safety-oriented, undelayed, contact-based              | 2 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 3A                            |
| Usage category DC-13 (NO contact)                                         | Ue 24V, Ie 2,5A                           |
| Short circuit protection (NO contact)                                     | gG class safety fuse 6A, melting integral |
| Max. thermal continuous current I <sub>th</sub> , release current paths   | 6 A                                       |
| Max. thermal continuous current I <sub>th</sub> , signaling current paths | 3 A                                       |
| Max. total current I <sup>2</sup> of all current paths                    | 9 A <sup>2</sup>                          |
| Mechanical life time                                                      | 100,000,000 switching cycles              |

### Control circuit

|                                                                        |                                                             |
|------------------------------------------------------------------------|-------------------------------------------------------------|
| Evaluation of the inputs                                               | Two-channel                                                 |
| Input current at the control inputs (safety circuit/reset circuit)     | 40 mA                                                       |
| Max. peak current at the control inputs (safety circuit/reset circuit) | 100 mA                                                      |
| Max. cable resistance, per channel                                     | $\leq (5 + (1.176 \times U_B / U_N - 1) \times 100) \Omega$ |
| Minimum switch-on time                                                 | 50 ms                                                       |
| Response time (automatic start t <sub>A2</sub> )                       | 500 ms                                                      |
| Response time (manual start t <sub>A1</sub> )                          | 40 ms                                                       |
| Test pulse time permitted t <sub>TP</sub>                              | 1 ms                                                        |
| Release time t <sub>R</sub>                                            | 25 ms                                                       |
| Synchronous time monitoring t <sub>s</sub>                             | 200 ms                                                      |
| Recovery time t <sub>w</sub>                                           | 150 ms                                                      |

### Connection

|                       |                                           |
|-----------------------|-------------------------------------------|
| Number of connections | 1 Piece(s)                                |
| <b>Connection 1</b>   |                                           |
| Function              | Signal IN<br>Signal OUT<br>Voltage supply |
| Type of connection    | Terminal                                  |
| Type of terminal      | Screw terminal                            |
| No. of pins           | 16 -pin                                   |

### Cable properties

|                           |                                                                                                                                                                                                                                                                                                |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Connection cross sections | 1 x 0.2 to 2.5 mm <sup>2</sup> , wire<br>1 x 0.2 to 2.5 mm <sup>2</sup> , wire<br>1 x 0.25 to 2.5 mm <sup>2</sup> , wire with wire-end sleeve<br>2 x 0.2 to 1.0 mm <sup>2</sup> , wire<br>2 x 0.2 to 1.0 mm <sup>2</sup> , wire<br>2 x 0.25 to 1.0 mm <sup>2</sup> , wire with wire-end sleeve |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### Mechanical data

|                       |                            |
|-----------------------|----------------------------|
| Dimension (W x H x L) | 22.5 mm x 96.5 mm x 114 mm |
| Net weight            | 210 g                      |
| Housing color         | Gray                       |
| Type of fastening     | Snap-on mounting           |

### Certifications

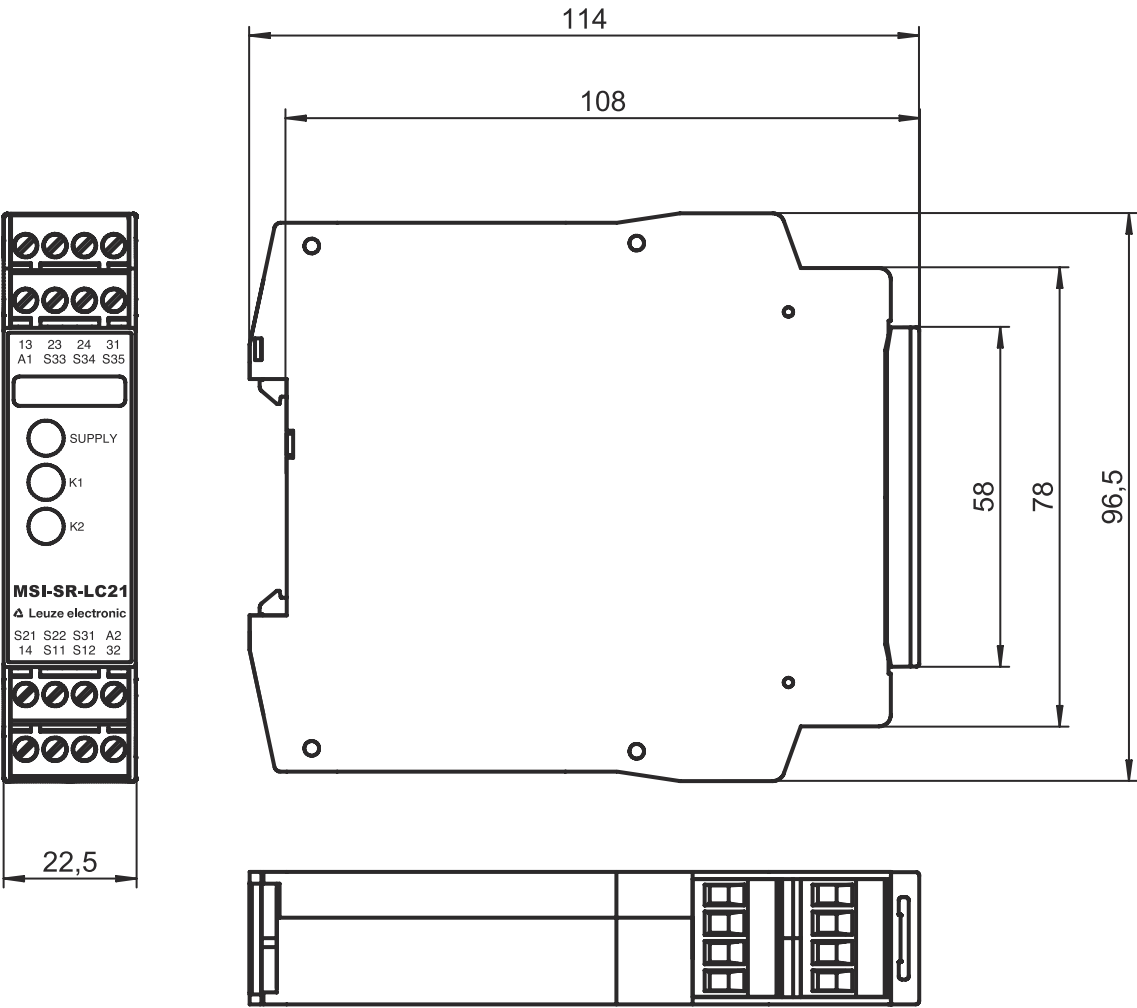
|                |                          |
|----------------|--------------------------|
| Certifications | c UL US<br>TÜV Rheinland |
|----------------|--------------------------|

### Classification

|                       |          |
|-----------------------|----------|
| Customs tariff number | 85364900 |
| eCl@ss 8.0            | 27371819 |
| eCl@ss 9.0            | 27371819 |
| ETIM 5.0              | EC001449 |
| ETIM 6.0              | 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   | Screw terminal |
| No. of pins        | 16 -pin        |

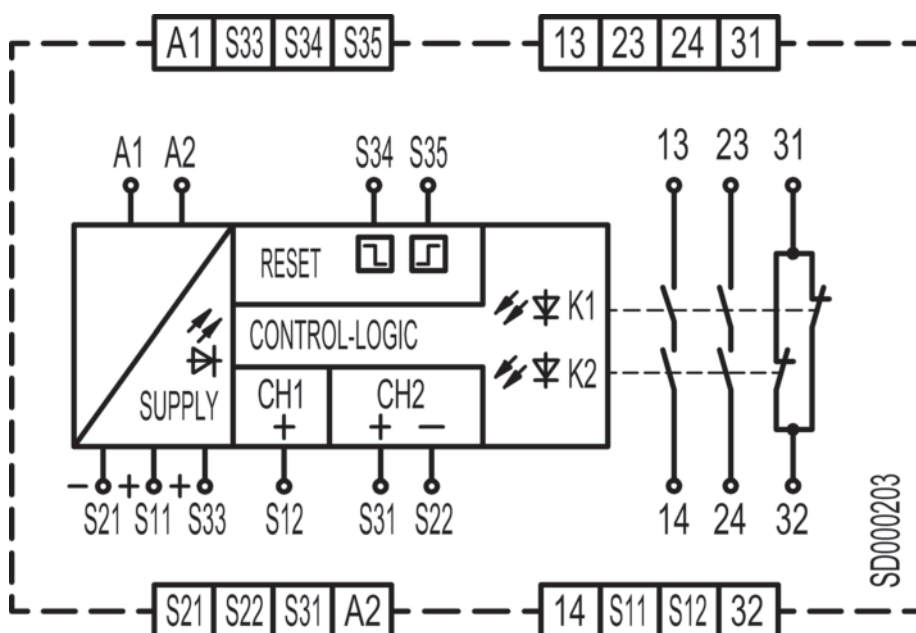
Pin Pin assignment

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

## Electrical connection

| Pin | Pin assignment                            |
|-----|-------------------------------------------|
| 4   | Release current path 2 (NO contact)<br>31 |
| 5   | Signaling current path (NC contact)<br>32 |
| 6   | Signaling current path (NC contact)<br>A1 |
| 7   | +24V<br>A2                                |
| 8   | GND<br>S11                                |
| 9   | Control circuit 1<br>S12                  |
| 10  | Control circuit 1<br>S21                  |
| 11  | Control circuit 2<br>S22                  |
| 12  | Control circuit 2<br>S31                  |
| 13  | Feedback path (NC contact)<br>S33         |
| 14  | Feedback path (NC contact)<br>S34         |
| 15  | Control circuit of reset button<br>S35    |
| 16  | Control circuit of reset button           |

## Circuit diagrams



Notes

|                                                                                                                |                                                                                                                                                                                  |
|----------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <b>Observe intended use!</b> |                                                                                                                                                                                  |
|                                | <div><div></div><div>The product may only be put into operation by competent persons.</div><div></div><div>Only use the product in accordance with its intended use.</div></div> |