# Technical data sheet
# Safety relay
Part no.: 50133016
MSI-SR-2H21-01


Figure can vary

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# Technical data

Leuze

## Basic data

| | |
|---|---|
| **Series** | MSI-SR-2H21 |
| **Application** | Evaluation unit for two-hand control devices |

## Characteristic parameters

| | |
|---|---|
| **SIL** | 3, IEC 61508 |
| **SILCL** | 3, IEC/EN 62061 |
| **Performance Level (PL)** | e, EN ISO 13849-1 |
| **$PFH_D$** | 3E-08 per hour |
| **Mission time $T_M$** | 20 years, EN ISO 13849-1 |
| **Category** | 4, EN ISO 13849 |

## Electrical data

### Supply circuit

| | |
|---|---|
| **Nominal voltage $U_N$** | 24 V AC/DC |
| **Nominal frequency** | 50 ... 60 Hz |
| **Rated control supply voltage $U_S$ at AC 60 Hz** | 20.4 V |
| **Rated control supply voltage $U_S$ at AC 50 Hz** | 26.4 V |
| **Max. rated control supply voltage at AC 50 Hz** | 26.4 V |
| **Min. rated control supply voltage $U_S$ at AC 50 Hz** | 20.4 V |
| **Min. rated control supply voltage $U_S$ at DC** | 20.4 V |
| **Max. rated control supply voltage at DC** | 26.4 V |
| **Min. rated control supply voltage at DC** | 20.4 V |
| **Rated power DC** | 2.4 W |
| **Galvanic isolation between supply and control circuit** | Yes (when $U_N$ ≥ AC 115-230 V, AC 230 V) |

### Output circuit

| | |
|---|---|
| **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 |
| **Nominal switching voltage, release current paths AC** | 230 V |
| **Max. thermal continuous current $I_{th}$, release current paths** | 6 A |
| **Max. thermal continuous current $I_{th}$, signaling current paths** | 2 A |
| **Max. total current $I^2$ of all current paths** | 9 $A^2$ |
| **Mechanical life time** | 100,000,000 switching cycles |

### Control circuit

| | |
|---|---|
| **Executing the switching function of the inputs** | Changeover |
| **Nominal output voltage DC** | 24 V |
| **Input current at the control inputs (safety circuit/reset circuit)** | 60 mA |
| **Max. peak current at the control inputs (safety circuit/reset circuit)** | 1,000 mA |
| **Max. cable resistance, per channel** | ≤ (5 + (1.333 x $U_B$ / $U_N$ - 1) x 200) Ω |
| **Response time (automatic start $t_{A2}$)** | 40 ms |
| **Response time (manual start $t_{A1}$)** | 40 ms |
| **Release time $t_R$** | 50 ms |
| **Sychronous time monitoring $t_S$** | 500 ms |
| **Recovery time $t_W$** | 250 ms |

## Connection

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

### Connection 1

| | |
|---|---|
| **Function** | Signal IN |
| | Signal OUT |
| | 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 mm², wire |
| | 1 x 0.2 to 2.5 mm², wire |
| | 1 x 0.25 to 2.5 mm², wire with wire-end sleeve |
| | 2 x 0.2 to 1.0 mm², wire |
| | 2 x 0.2 to 1.0 mm², wire |
| | 2 x 0.25 to 1.0 mm², 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** | 200 g |
| **Housing color** | Gray |
| **Type of fastening** | Snap-on mounting |

## Certifications

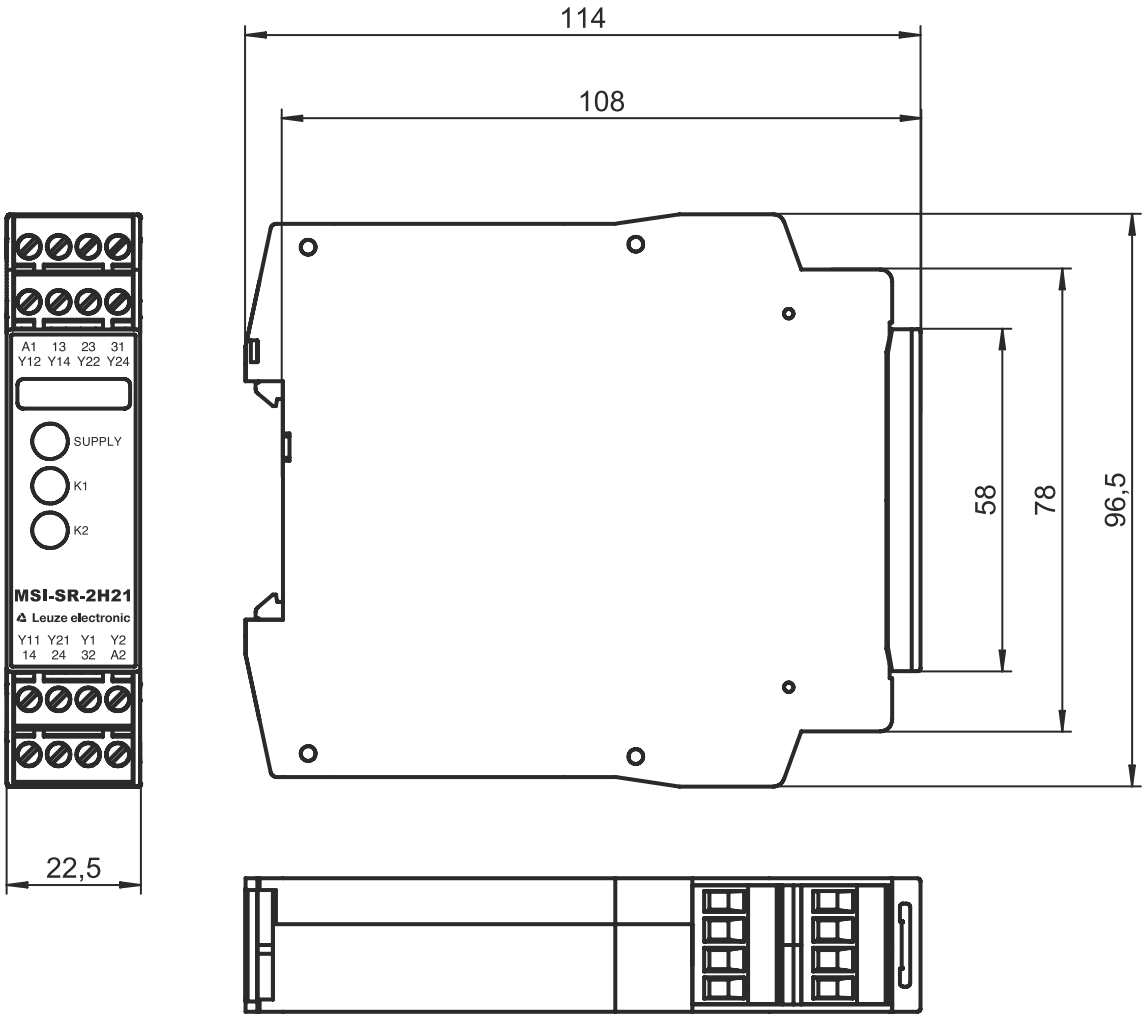
| | |
|---|---|
| **Certifications** | c UL US |
| | TÜV Rheinland |

## Classification

| | |
|---|---|
| **Customs tariff number** | 85364900 |
| **eCl@ss 5.1.4** | 27371905 |
| **eCl@ss 8.0** | 27371821 |
| **eCl@ss 9.0** | 27371821 |
| **eCl@ss 10.0** | 27371821 |
| **eCl@ss 11.0** | 27371821 |
| **ETIM 5.0** | EC001452 |
| **ETIM 6.0** | EC001452 |
| **ETIM 7.0** | EC001452 |

# Dimensioned drawings

All dimensions in millimeters




# Electrical connection

## Connection 1

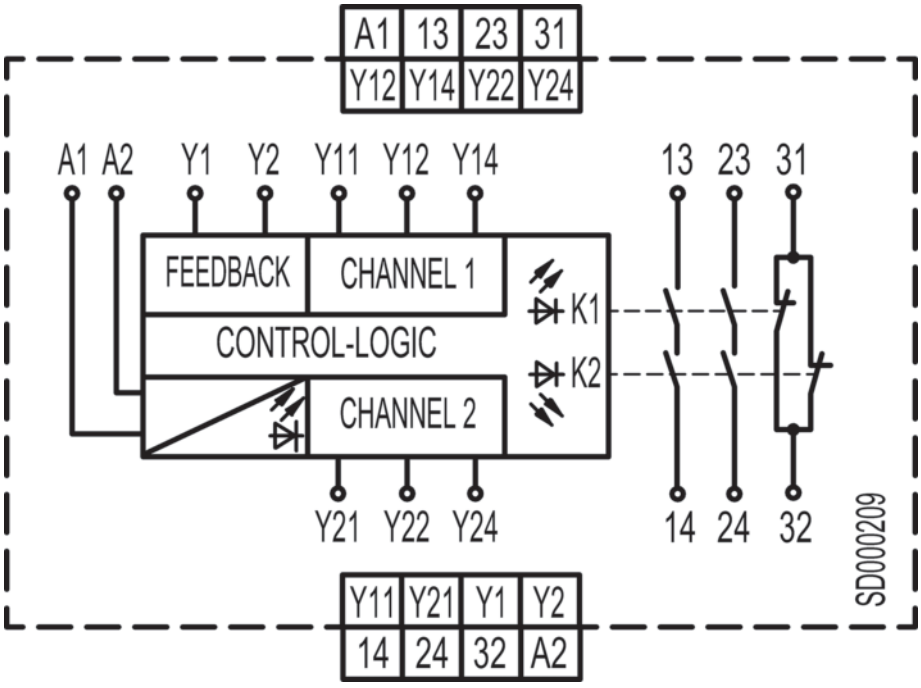
| | |
|---|---|
| **Function** | Signal IN |
| | Signal OUT |
| | Voltage supply |
| **Type of connection** | Terminal |
| **Type of terminal** | Screw terminal |
| **No. of pins** | 16 -pin |

| 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) |

# Electrical connection

| Pin | Pin assignment |
|---|---|
| | 24 |
| 4 | Release current path 2 (NO contact) |
| | 31 |
| 5 | Signaling current path (NC contact) |
| | 32 |
| 6 | Signaling current path (NC contact) |
| | A1 |
| 7 | +24V |
| | A2 |
| 8 | GND |
| | Y1 |
| 9 | Feedback path (NC contact) |
| | Y2 |
| 10 | Feedback path (NC contact) |
| | Y11 |
| 11 | Control circuit 1 of two-hand button |
| | Y12 |
| 12 | Control circuit 1 of two-hand button |
| | Y14 |
| 13 | Control circuit 1 of two-hand button |
| | Y21 |
| 14 | Control circuit 2 of two-hand button |
| | Y22 |
| 15 | Control circuit 2 of two-hand button |
| | Y24 |
| 16 | Control circuit 2 of two-hand button |

# Circuit diagrams



# Notes

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