



Part no.: 50133005  
**MSI-SR-LC31AR-03**  
Safety relay



Figure can vary

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## Technical data

<b>Basic data</b>	
Series	MSI-SR-LC31
Application	Base device for E-Stop and safety door applications
<b>Functions</b>	
Functions	Monitoring of position switches Monitoring of solenoid switches Monitoring of E-Stop circuits Monitoring of proximity switches Monitoring of optoelectronic protective devices
Restart	Automatic
<b>Characteristic parameters</b>	
SIL	3, IEC 61508
SILCL	3, IEC/EN 62061
Performance Level (PL)	e, EN ISO 13849-1
PFH <sub>D</sub>	0.00000003 per hour
PFH <sub>D</sub>	3E-08 per hour
Mission time T <sub>M</sub>	20 years, EN ISO 13849-1
Category	4, EN ISO 13849
<b>Electrical data</b>	
<b>Supply circuit</b>	
Nominal voltage U <sub>N</sub>	24 V AC/DC
Nominal frequency	50 ... 60 Hz
Rated control supply voltage U <sub>S</sub> at AC 60 Hz	20.4 V
Rated control supply voltage U <sub>S</sub> 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 <sub>S</sub> at AC 50 Hz	20.4 V
Min. rated control supply voltage U <sub>S</sub> 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 AC	2.9 V·A
Rated power DC	1.6 W
Galvanic isolation between supply and control circuit	Yes (when U <sub>N</sub> ≥ AC 42-48 V, AC 115-230 V, AC 230 V)

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<b>Output circuit</b>	
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 3A
Usage category DC-13 (NO contact)	Ue 24V, Ie 3A
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	25 A <sup>2</sup>
Mechanical life time	100,000,000 switching cycles

<b>Control circuit</b>	
Evaluation of the inputs	Two-channel
Nominal output voltage DC	24 V
Input current at the control inputs (safety circuit/reset circuit)	25 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	100 ms
Response time (automatic start $t_{A2}$ )	350 ms
Response time (manual start $t_{A1}$ )	350 ms
Test pulse time permitted $t_{TP}$	1 ms
Release time $t_R$	10 ms
Recovery time $t_W$	750 ms

<b>Connection</b>	
Number of connections	1 Piece(s)

<b>Connection 1</b>	
Type of connection	Terminal
Function	Signal OUT Voltage supply Signal IN
Type of terminal	Spring-cage terminal
No. of pins	16 -pin

<b>Cable properties</b>	
Connection cross sections	2 x 0.25 to 1.5 mm <sup>2</sup> , wire with wire-end sleeve 2 x 0.2 to 1.5 mm <sup>2</sup> , wire 2 x 0.2 to 1.5 mm <sup>2</sup> , wire

<b>Mechanical data</b>	
Dimension (W x H x L)	22.5 mm x 106.5 mm x 114 mm
Net weight	210 g
Housing color	Gray
Type of fastening	Snap-on mounting

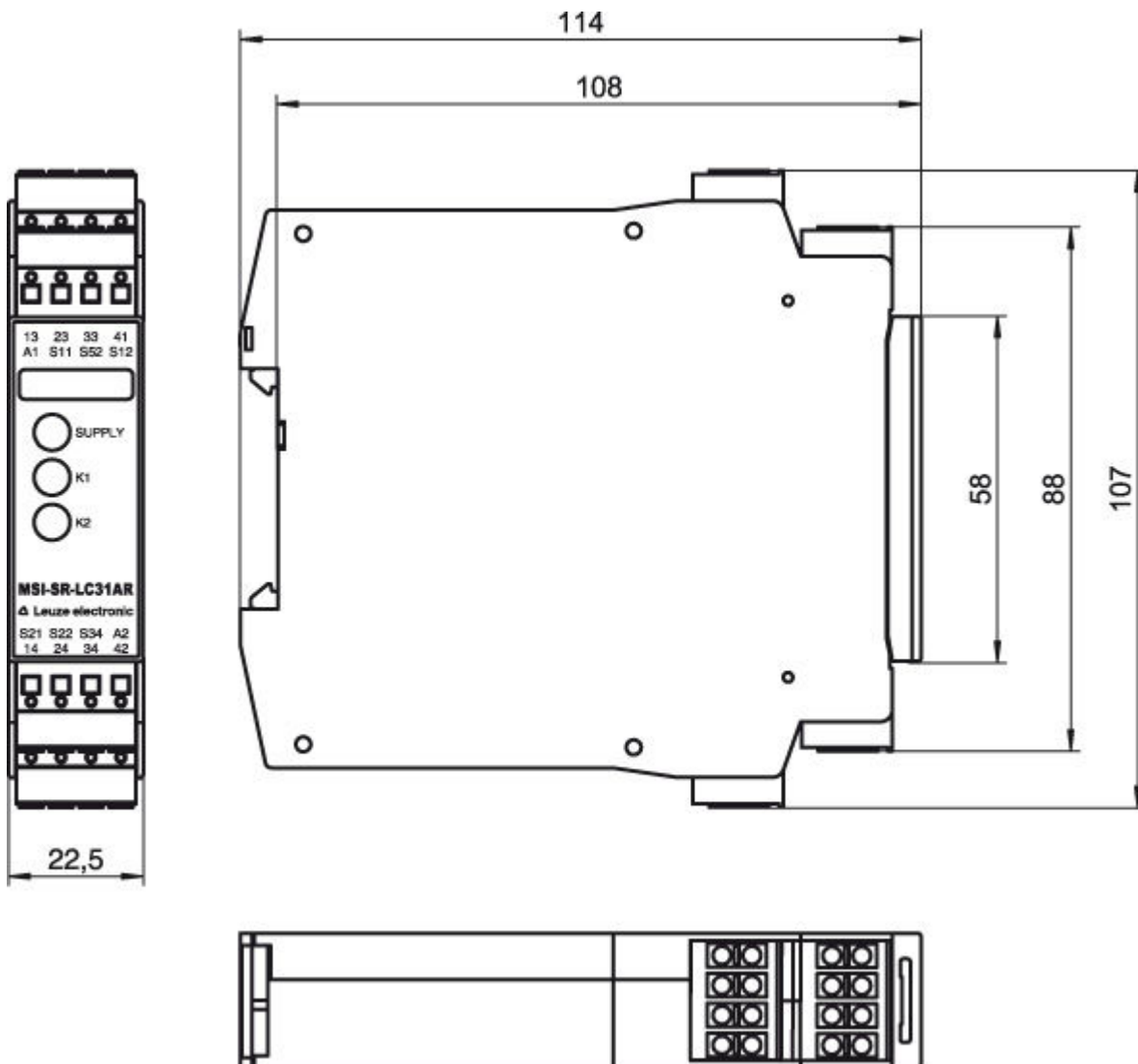
<b>Certifications</b>	
Certifications	c UL US TÜV Rheinland

**Classification**

eCl@ss 8.0	27371819
eCl@ss 9.0	27371819
ETIM 5.0	EC001449

**Dimensioned drawings**

All dimensions in millimeters



**Electrical connection**

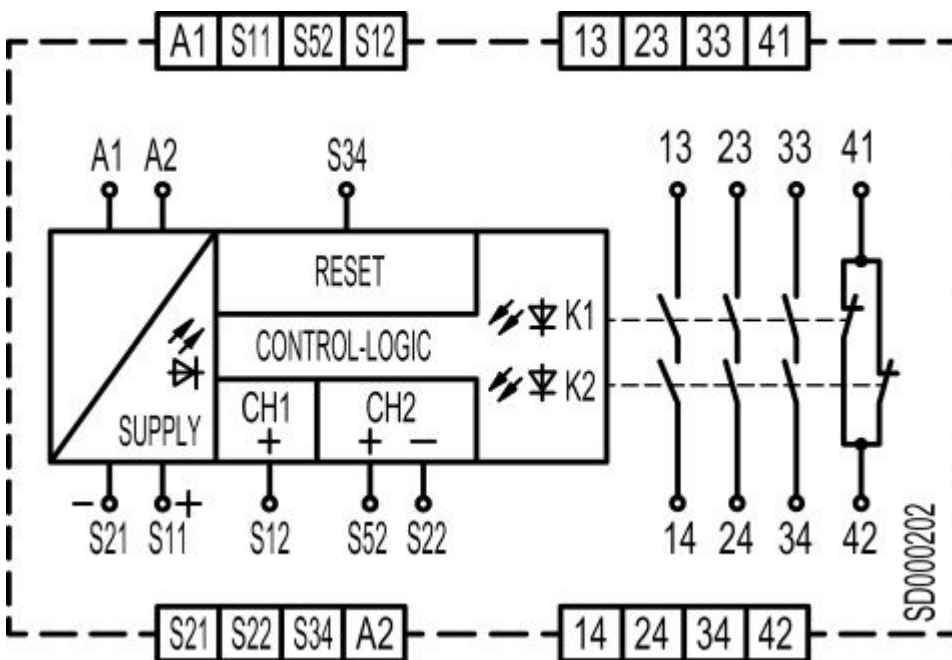
Connection 1	
Type of connection	Terminal
Function	Signal OUT Voltage supply Signal IN
Type of terminal	Spring-cage terminal

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<b>Connection 1</b>	
No. of pins	16 -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)
34	Release current path 3 (NO contact)
41	Signaling current path (NC contact)
42	Signaling current path (NC contact)
A1	+24V
A2	GND
S11	Control circuit 1
S12	Control circuit 1
S21	Control circuit 2
S22	Control circuit 2
S34	Control circuit of reset button
S52	Control circuit 2

**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.