

Technical data sheet

Safety relay

Part no.: 50133005

MSI-SR-LC31AR-03

Contents

- Technical data
- Dimensioned drawings
- Electrical connection
- Circuit diagrams
- Notes



Figure can vary



Technical data

Basic data

Series	MSI-SR-LC31
Application	Base device for E-Stop and safety door applications

Functions

Functions	Monitoring of E-Stop circuits Monitoring of optoelectronic protective devices Monitoring of position switches Monitoring of proximity switches Monitoring of solenoid switches
Restart	Automatic

Characteristic parameters

SIL	3, IEC 61508
SILCL	3, IEC/EN 62061
Performance Level (PL)	e, EN ISO 13849-1
PFH _D	0.00000003 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 AC	2.9 V·A
Rated power DC	1.6 W
Galvanic isolation between supply and control circuit	Yes (when U _N ≥ AC 42-48 V, AC 115-230 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 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 ²
Mechanical life time	100,000,000 switching cycles

Control circuit

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	≤ (5 + (1.176 × U _B / U _N - 1) × 100) Ω
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

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	16 -pin
Cable properties	
Connection cross sections	2 × 0.2 to 1.5 mm ² , wire 2 × 0.2 to 1.5 mm ² , wire 2 × 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	210 g
Housing color	Gray
Type of fastening	Snap-on mounting

Technical data

Certifications

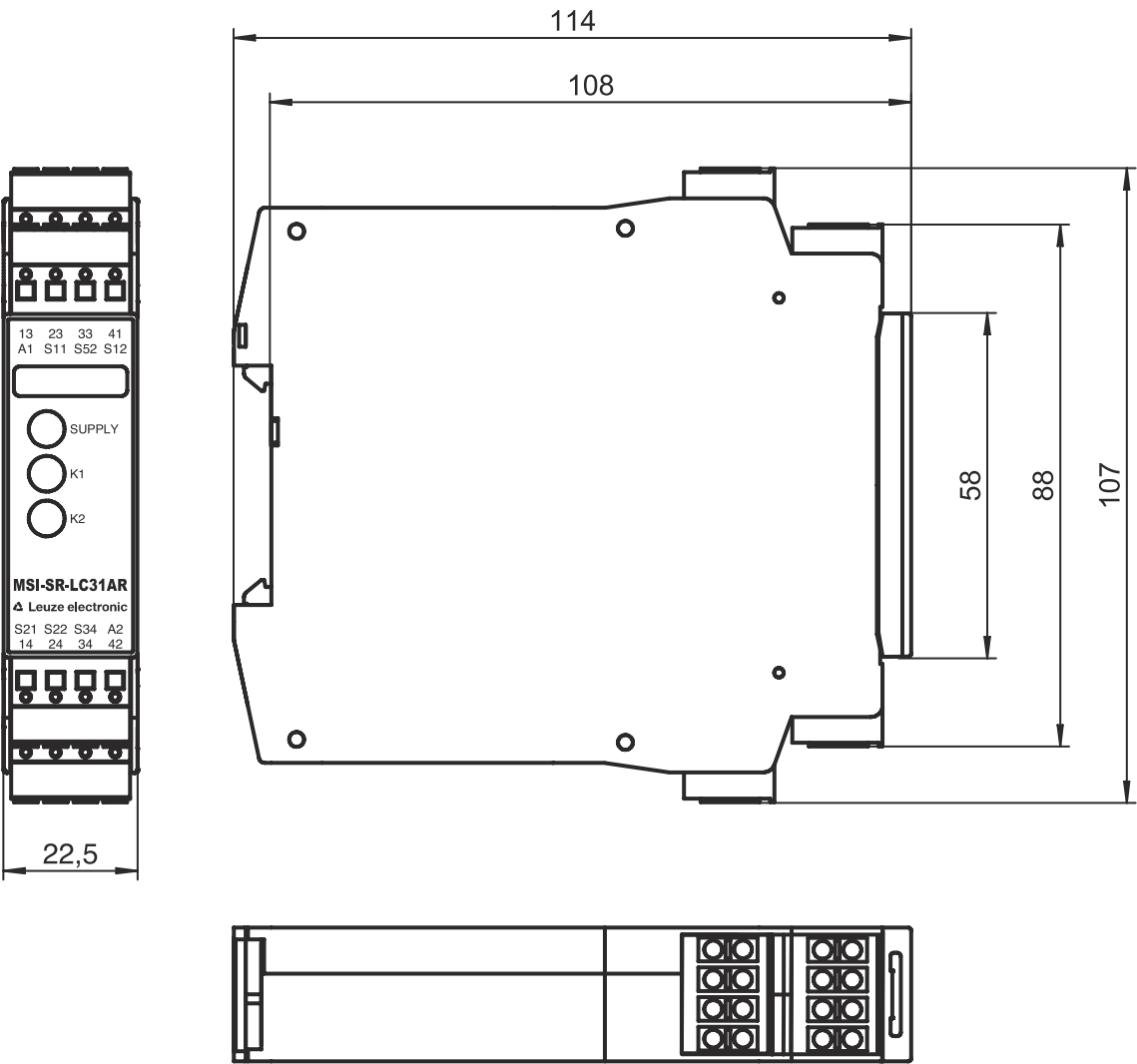
Certifications	c UL US
	TÜV Rheinland

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



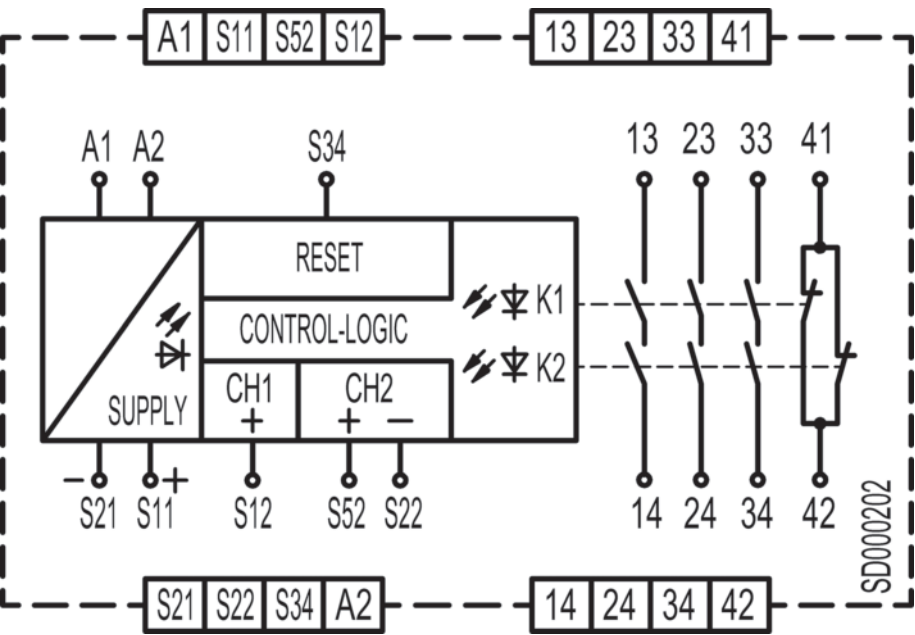
Electrical connection

Connection 1

Function	Signal IN
	Signal OUT
	Voltage supply
Type of connection	Terminal
Type of terminal	Spring-cage 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
4	Release current path 2 (NO contact)
	33
5	Release current path 3 (NO contact)
	34
6	Release current path 3 (NO contact)
	41
7	Signaling current path (NC contact)
	42
8	Signaling current path (NC contact)
	A1
9	+24V
	A2
10	GND
	S11
11	Control circuit 1
	S12
12	Control circuit 1
	S21
13	Control circuit 2
	S22
14	Control circuit 2
	S34
15	Control circuit of reset button
	S52
16	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.