

## Technical data sheet

### Safety relay

Part no.: 50133009

MSI-SR-LC21-03

#### Contents

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



For illustration purposes only



## Technical data

### Basic data

Series	MSI-SR-LC21
Application	E-Stop circuits Optoelectronic protective devices Position switches (mechanical contacts) Solenoid switches (reed contacts, equivalent) Transponder switches (OSSD outputs)

### Functions

Functions	Contacting monitoring (EDM) Start/restart interlock (RES)
Restart	Automatic 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
PFH <sub>d</sub>	1,7E-09 per hour
Mission time T <sub>M</sub>	20 years, EN ISO 13849-1
Category	4, EN ISO 13849-1
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

Continuous current per current path, max.	6 A
<b>Performance data</b>	
Supply voltage U <sub>B</sub>	24 V, AC/DC, -15 ... 10 %
Power consumption, max.	2 W
<b>Supply circuit</b>	
Nominal voltage U <sub>N</sub>	24 V
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

### Output circuit

Number of outputs, safety-oriented, undelayed, contact-based	2 Piece(s)
Number of outputs, safety-oriented, delayed, contact-based	0 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	≤ (5 + (1.176 x U <sub>B</sub> / U <sub>N</sub> - 1) x 100) Ω
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

### Time behavior

Regression delay	25 ms
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### Connection

Number of connections	1 Piece(s)
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#### 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 x 0.2 to 1.5 mm <sup>2</sup> , wire 2 x 0.2 to 1.5 mm <sup>2</sup> , wire 2 x 0.25 to 1.5 mm <sup>2</sup> , wire with wire-end sleeve
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### 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

### Environmental data

Ambient temperature, operation	-25 ... 55 °C
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### Certifications

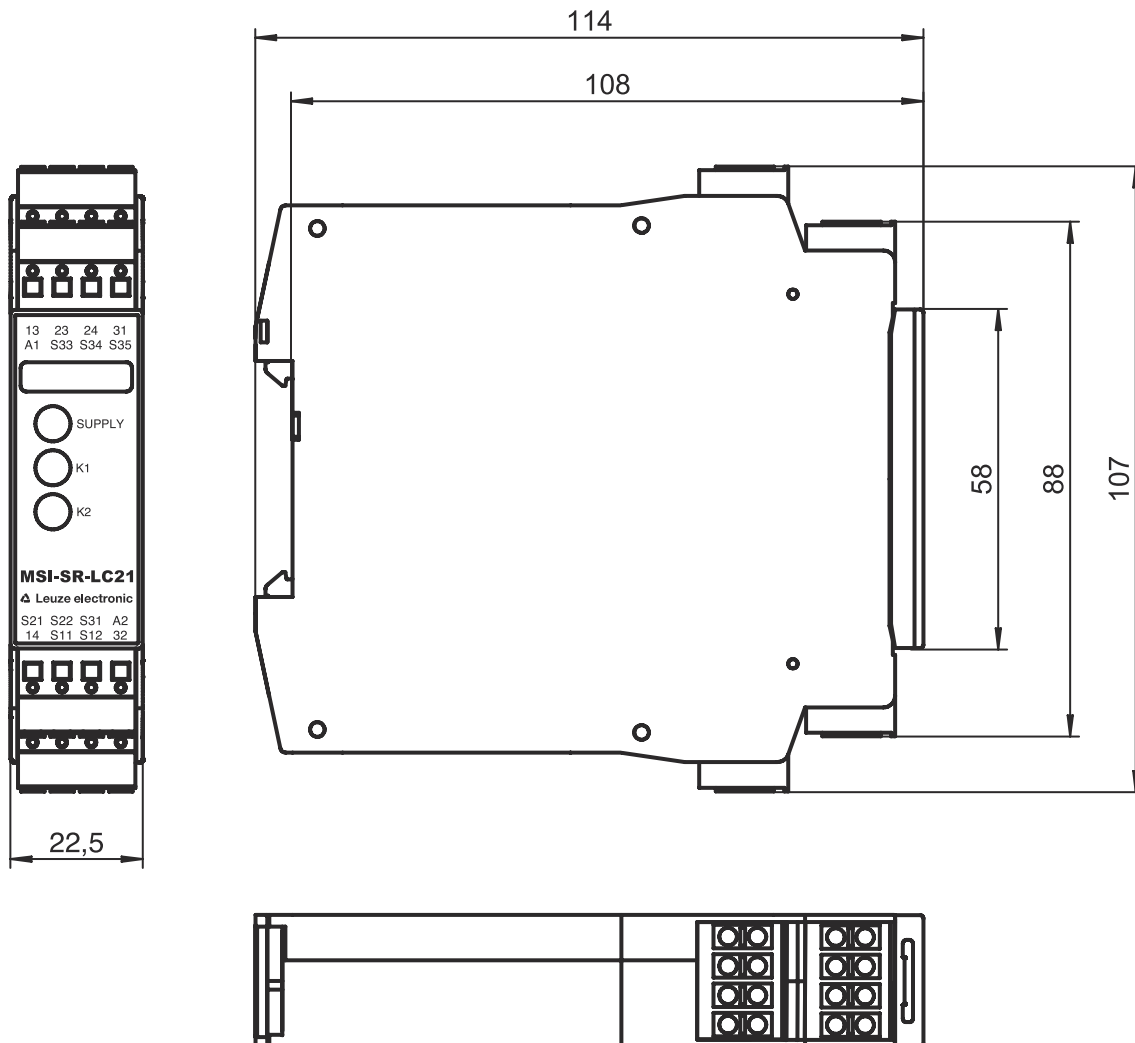
Certifications	c UL US
	TÜV Rheinland

### 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
ECLASS 14.0	27371819
ETIM 5.0	EC001449
ETIM 6.0	EC001449
ETIM 7.0	EC001449
ETIM 8.0	EC001449
ETIM 9.0	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

### Terminal

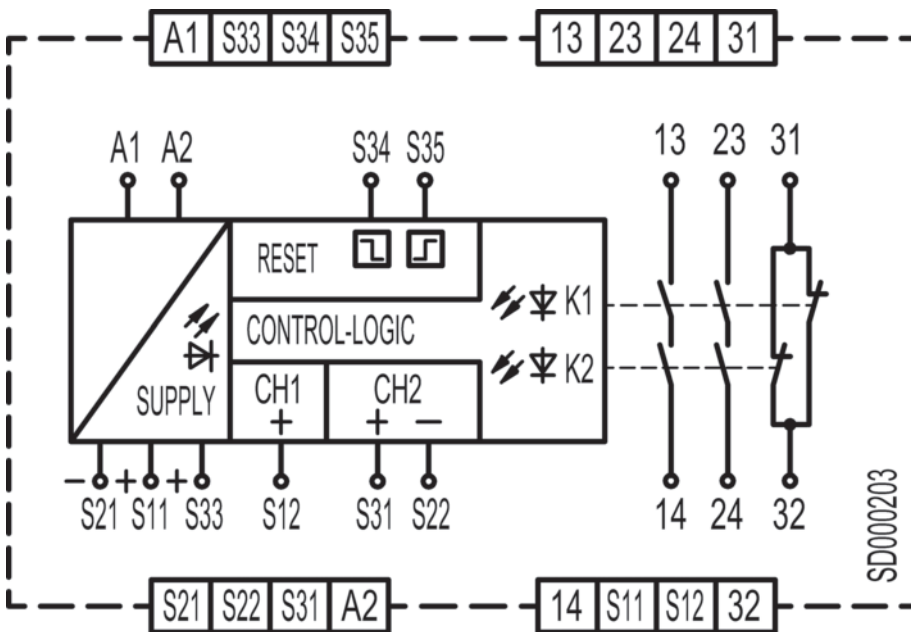
### Assignment

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)
31	Signaling current path (NC contact)

## Electrical connection

Terminal	Assignment
S32	Signaling current path (NC contact)
A1	+24 V
A2	GND
S11	Control circuit 1
S12	Control circuit 1
S21	Control circuit 2
S22	Control circuit 2
S31	Feedback path (NC contact)
S33	Feedback path (NC contact)
S34	Control circuit of reset button
S35	Control circuit of reset button

## 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.