



Part no.: 50133023
MSI-SR-ES31-03
Safety relay



Figure can vary

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Technical data

Basic data	
Series	MSI-SR-ES31
Application	Base device for E-Stop applications

Functions	
Functions	Monitoring of E-Stop circuits Monitoring of position switches Monitoring of proximity switches
Restart	Automatic Manual

Characteristic parameters	
SIL	2 , IEC 61508
SILCL	2 , IEC/EN 62061
Performance Level (PL)	d , EN ISO 13849-1
MTTF _d	73 years , EN ISO 13849-1
PFH _D	8,6E-10 per hour
Mission time T _M	20 years , EN ISO 13849-1
Category	3 , EN ISO 13849
B10 _d at DC13 (inductive load)	300,000 number of cycles , (5 A, 230 V), 700,000 (1 A, 230 V)
B10 _d at AC15 (inductive load)	200,000 number of cycles , (5 A, 230 V), 380,000 (1 A, 230 V)

Electrical data	
Supply circuit	
Nominal voltage U _N	24 V AC/DC
Nominal frequency	50 ... 60 Hz
Operating voltage	0.85 ... 1.1 x U _N
Rated power DC	1.3 W
Galvanic isolation between supply and control circuit	Yes (when U _N ≥ AC 115-120 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 5A
Usage category DC-13 (NO contact)	Ue 24V, Ie 5A
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	9 A ²
Mechanical life time	100,000,000 switching cycles

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Control circuit

Evaluation of the inputs	one- or two-channel
Nominal output voltage DC	24 V
Input current at the control inputs (safety circuit/reset circuit)	90 mA
Max. peak current at the control inputs (safety circuit/reset circuit)	1,500 mA
Max. cable resistance, per channel	$\leq (5 + (1.333 \times U_B / U_N - 1) \times 200) \Omega$
Minimum switch-on time	60 ms
Response time (automatic start t_{A2})	60 ms
Release time t_R	60 ms
Recovery time t_W	200 ms

Connection

Number of connections	1 Piece(s)
Connection 1	
Type of connection	Terminal
Function	Signal IN Signal OUT Voltage supply
Type of terminal	Spring-cage terminal
No. of pins	15 -pin
Cable properties	
Connection cross sections	2 x 0.2 to 1.5 mm ² , wire 2 x 0.2 to 1.5 mm ² , wire 2 x 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	200 g
Housing color	Gray
Type of fastening	Snap-on mounting

Certifications

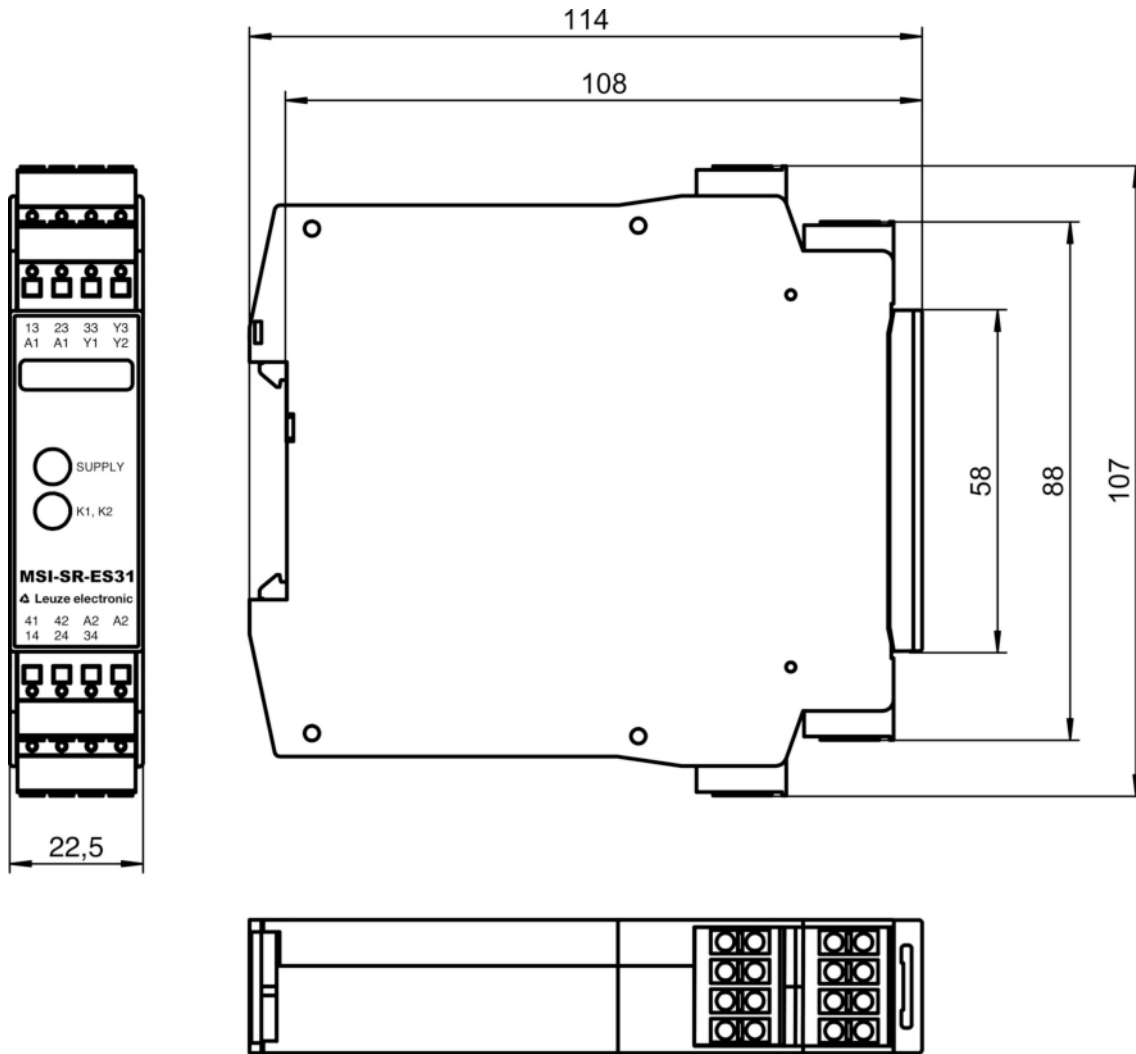
Certifications	c UL US TÜV Rheinland
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Classification

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



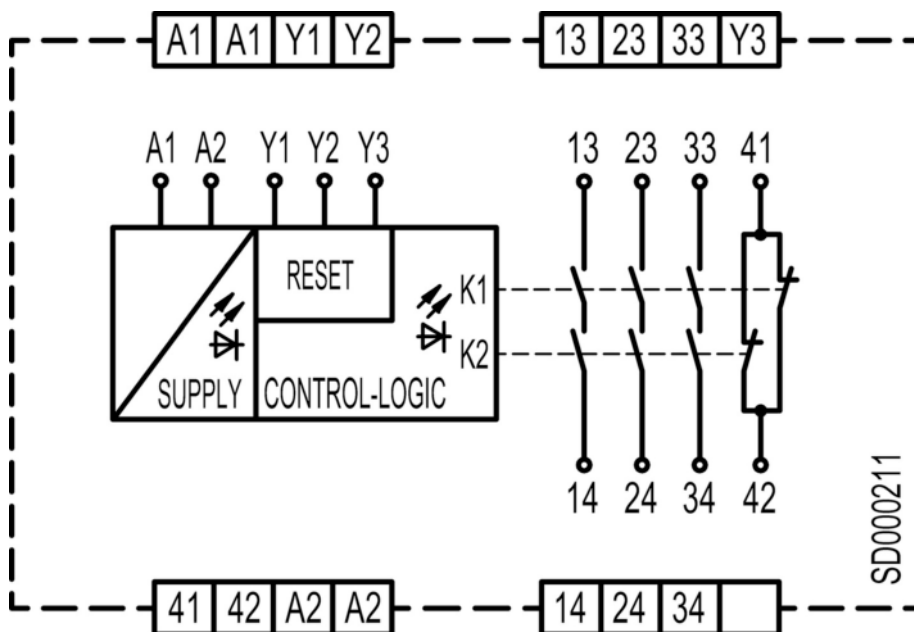
Electrical connection

Connection 1	
Type of connection	Terminal
Function	Signal IN Signal OUT Voltage supply
Type of terminal	Spring-cage terminal
No. of pins	15 -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

Terminal	Assignment
A1	+24V
A2	GND
A2	GND
Y1	Control circuit of reset button
Y2	Control circuit of reset button (automatic reset)
Y3	Control circuit of reset button (manual reset)

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.