Technical data sheet
Safety relay
Part no.: 547931
MSI-TRMB-01



For Illustration purposes only

Contents

- Technical data
- Dimensioned drawings
- Electrical connection
- Notes

Technical data

Basic data

Series	MSI-TRM
Application	Evaluation unit for type 4 single beam safety devices in accordance with IEC/EN 61496

Functions

Functions	Contactor monitoring (EDM)
	Periodic function test
	Start/restart interlock (RES)
Restart	Automatic
	Manual

Characteristic parameters

Type	4, IEC/EN 61496
SIL	3, IEC 61508
SILCL	3, IEC/EN 62061
Performance Level (PL)	e, EN ISO 13849-1
$MTTF_d$	100 years, EN ISO 13849-1
PFH_D	2.15E-09 per hour
Mission time T_M	20 years, EN ISO 13849-1
Category	4, EN ISO 13849-1

Electrical data

Protective circuit	Polarity reversal protection
	Short circuit protected
Continuous current per current path, max.	3 A

Performance data

Supply voltage U_B	24 V, DC, -20 ... 20 %
Current consumption, max.	200 mA
Power consumption, max.	3 W
Residual ripple	0 ... 15 %
Fuse	External with max. 3 A

Inputs

Number of safety-related switching inputs	2 Piece(s)
Number of digital switching inputs	2 Piece(s)

Switching inputs

Type	Digital switching input
Switching voltage high, min.	18.2 V
Switching voltage low, max.	2.5 V
Switching voltage, type.	23 V
Voltage type	DC

Digital switching input 1

Function	Control input for start/restart interlock (RES)

Digital switching input 2

Function	Control input for start/restart interlock (RES)

Safety-related switching inputs

Type	Safety switching input
Voltage type	DC
Switching voltage high, min.	18.2 V
Switching voltage low, max.	2.5 V
Switching voltage, type.	23 V

Outputs

Number of safety-related switching outputs (OSSDs)	2 Piece(s)
Number of digital switching outputs	3 Piece(s)

Safety-related switching outputs

Type	Safety-related switching output OSSD
Voltage type	AC/DC

Safety-related switching output 1

Switching element	Relay, NO

Safety-related switching output 2

Switching element	Relay, NO

Switching outputs

Type	Digital switching output
Switching voltage high, min.	18.2 V
Switching voltage low, max.	2.5 V
Switching voltage, type.	23 V
Voltage type	DC

Switching output 1

Switching element	Transistor, PNP
Function	Switching output

Switching output 2

Switching element	Transistor, PNP
Function	Switching output

Switching output 3

Switching element	Transistor, PNP
Function	"Error" signal output

Output circuit

Number of outputs, safety-oriented, non-delayed, contact-based	2 Piece(s)
Number of outputs, safety-oriented, delayed, contact-based	0 Piece(s)
Number of outputs, signaling function, non-delayed, contact-based	0 Piece(s)

Time behavior

Response time	130 ms
Regression delay	130 ms
Sensor response time on test request	0.5 ... 8.5 ms

Connection

Number of connections	1 Piece(s)

Connection 1

Function	Connection to receiver
	Connection to transmitter
	Voltage supply
Type of connection	Terminal
Type of terminal	Screw terminal
No. of pins	16 -pin

Cable properties

Connection cross sections	0.2 to 1.5 mm²

Technical data

Mechanical data

Dimension (W x H x L)	22.5 mm x 99 mm x 114.1 mm
Housing material	Plastic
Plastic housing	Unreinforced polyamide PA
Net weight	155 g
Housing color	Gray
Type of fastening	Snap-on mounting

Operation and display

Type of display	LED
Number of LEDs	6 Piece(s)

Environmental data

Ambient temperature, operation	-25 ... 55 °C
Ambient temperature, storage	-25 ... 75 °C
Relative humidity (non-condensing)	0 ... 75 %

Certifications

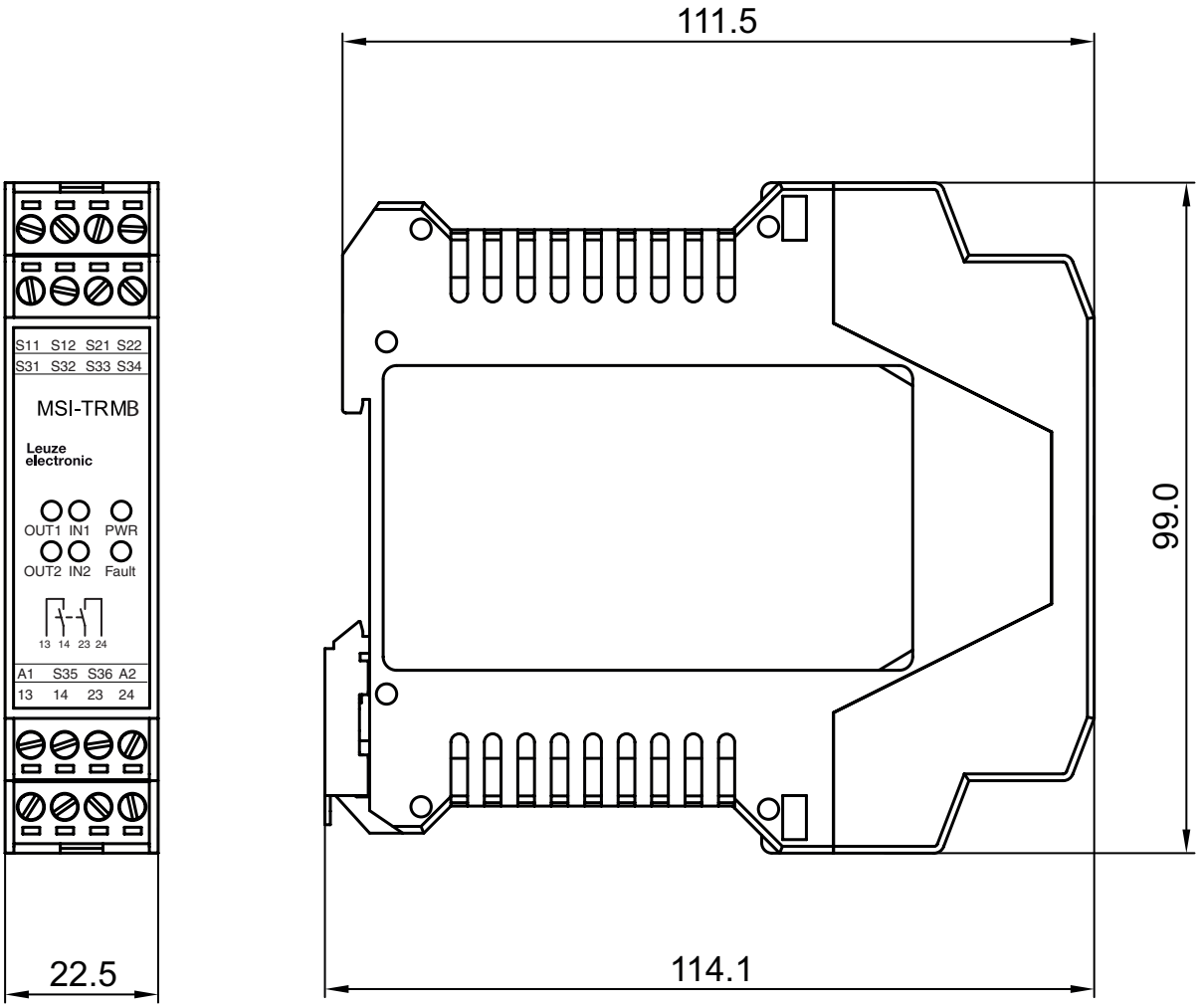
Degree of protection	IP 20 (housing)
	IP 20 (terminals)
Protection class	III
Approvals	c UL US

Classification

Customs tariff number	85364190
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
ECLASS 15.0	27371819
ETIM 5.0	EC001449
ETIM 6.0	EC001449
ETIM 7.0	EC001449
ETIM 8.0	EC001449
ETIM 9.0	EC001449
ETIM 10.0	EC001449

Dimensioned drawings

All dimensions in millimeters



Electrical connection

Connection 1

Function	Connection to receiver
	Connection to transmitter
	Voltage supply
Type of connection	Terminal
Type of terminal	Screw terminal
No. of pins	16 -pin

Terminal	Assignment
S11	OUT 1
S12	IN1
S21	OUT 2
S22	IN1
S31	ERROR
S32	n.c.

Electrical connection

Terminal	Assignment
S33	RES/Start
S34	RES/Start
A1	+24 V
S35	Restart interlock
S36	Restart interlock
A2	GND
13	OSSD1
14	OSSD1
23	OSSD2
24	OSSD2

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.