

Technical data sheet

Safety relay

Part no.: 547953

MSI-SR5B-02

Contents

- Technical data
- Electrical connection
- Operation and display



Figure can vary



Technical data

Basic data

Series	MSI-SR5B
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Functions

Functions	Automatic start/restart
	Contact monitoring (EDM)
	Cross circuit monitoring
	Double sensor monitoring
	Start/restart interlock (RES), selectable
Restart	Automatic
	Manual

Characteristic parameters

SIL	3, IEC 61508
SILCL	3, IEC/EN 62061
Performance Level (PL)	e, EN ISO 13849-1
MTTF _d	73 years, EN ISO 13849-1
PFH _D	1E-08 per hour
PFH _D , nop = 4800	0.00000001 per hour
PFH _D , nop = 28800	0.00000002 per hour
PFH _D , nop = 86400	0.00000005 per hour
Mission time T _M	20 years, EN ISO 13849-1
Category	4, EN ISO 13849
STOP category	0, IEC/EN 60204-1
B10 _d at AC1 (ohmic load)	400,000 number of cycles
B10 _d at DC13 (inductive load)	4,000,000 number of cycles

Electrical data

Protective circuit	Fuse on switching output, upstream
Continuous current per current path, max.	2 A
Input current, max.	150 mA
External safeguarding for supply circuit	200 mA delay-action
External contact fuse protection per current path	5 A quick-action, or 3.15 A delay-action
Permissible input line resistance, max.	30 Ω

Performance data

Supply voltage U _B	24 V, DC, -20 ... 20 %
Current consumption, additional note	Without external load

Outputs

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

Type	Safety-related switching output OSSD
Voltage type	DC

Safety-related switching output 1

Switching element	Relay, NO
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Safety-related switching output 2

Switching element	Relay, NO
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Timing

Pickup delay, automatic start	350 ms
Pickup delay, manual start	50 ms
Regression delay	10 ms
Test pulse acceptance, max.	1 ms
Time window between 2 channels of a sensor, max.	60 ms

Connection

Number of connections	1 Piece(s)
Connectible safety sensors (AOPDs)	Up to 2 AOPDs type 4, type 3 or type 2 self-testing
Connectible electro-mechanical safety devices	E-Stop command devices, 1 and 2-channel Safety switches

Connection 1

Function	Connection to device
Type of connection	Terminal
Type of terminal	Spring-cage terminal
No. of pins	16 -pin

Cable properties

Connection cross sections	0.2 to 1.5 mm ²
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Mechanical data

Dimension (W x H x L)	22.5 mm x 111 mm x 114.1 mm
Housing material	Plastic, PA 66
Net weight	170 g
Housing color	Gray
Type of fastening	Snap-on mounting
Mechanical life time	10,000,000 actuation cycles

Operation and display

Type of display	LED
Number of LEDs	4 Piece(s)

Environmental data

Ambient temperature, operation	0 ... 55 °C
Ambient temperature, storage	-25 ... 70 °C
Relative humidity (non-condensing)	0 ... 95 %

Certifications

Degree of protection	IP 20 (terminals) IP 40 (housing)
Protection class	II
Certifications	c TÜV NRTL US c UL US TÜV Süd
US patents	US 6,418,546 B

Classification

Customs tariff number	85371098
eCl@ss 8.0	27371819
eCl@ss 9.0	27371819
ETIM 5.0	EC001449
ETIM 6.0	EC001449

Electrical connection

Connection 1

Function	Connection to device
Type of connection	Terminal
Type of terminal	Spring-cage terminal
No. of pins	16 -pin

Pin	Pin assignment
	5
1	+24V
	6
2	0 V
	7
3	Sensor input 1 channel 2, 24V
	8
4	Sensor input 2 channel 2, 24V
	13
5	Sensor input 1 channel 2, 0V
	14
6	Sensor supply, contacts 24V OUT
	15
7	Sensor input 2 channel 2, 0V
	16
8	Restart input
	21
9	Sensor input 1 channel 1, 24V
	22
10	Sensor supply contacts 0V OUT
	23
11	Sensor input 2 channel 1, 24V
	24
12	Restart automatic output
	29
13	Relay contact 1 IN
	30
14	Relay contact 1 OUT
	31
15	Relay contact 2 IN
	32
16	Relay contact 2 OUT

Operation and display

LED	Display	Meaning
1	Green, continuous light	Supply voltage on
2	Green, continuous light	Channel 1
3	Green, continuous light	Channel 2
4	Orange, continuous light	Start/restart interlock locked