

## **Technical data sheet** Safety relay Part no.: 547935

**MSI-DT30B-01** 



Contents

- Technical data
- Electrical connection
- Operation and display

We reserve the right to make technical changes eng • 2021-01-28

Δ

FS

()

The Sensor People In der Braike 1, 73277 Owen

Leuze electronic GmbH + Co. KG info@leuze.com • www.leuze.com Phone: +49 7021 573-0 • Fax: +49 7021 573-199

## **Technical data**

#### Basic data

Duolo uutu		Cable
Series	MSI-DT	Conn
Functions		Mechar
Functions	Cross circuit monitoring	
	One- or two-channel operation	Dimensi
	Start/restart interlock (RES), selectable	Housing
	Time-delayed shutdown (STOP1)	Plastic I
Restart	Automatic	Net weight
	Manual	Housing
Characteristic parameters		Type of Mechan
SIL	3, IEC 61508	Operat
SILCL	3, IEC/EN 62061	
Performance Level (PL)	e, EN ISO 13849-1	Type of
MTTF	124 years, EN ISO 13849-1	Number
PFH <sub>D</sub>	1,8E-09 per hour	Enviro
Mission time T <sub>M</sub>	20 years, EN ISO 13849-1	Enviro
Category	4, EN ISO 13849	Ambien
STOP category	0, IEC/EN 60204-1	Ambien
B10 <sub>d</sub> at DC13 (inductive load)	400,000 number of cycles	
B10 <sub>d</sub> at AC15 (inductive load)	400,000 number of cycles	Certific
Electrical data		Degree
Protective circuit	Short circuit protected	Certifica
Control circuit Executing the switching function of the inputs	Changeover	Classif
Nominal output voltage DC	24 V	Custom
Voltage permitted at the input	30 V	eCl@ss
Test pulse time permitted $t_{TP}$	1 ms	eCl@ss
Release time t <sub>R</sub> , time-delayed contacts (tolerance)	0.1 s 30 s ± 40 %	eCl@ss eCl@ss
Connection		eCl@ss ETIM 5.
Number of connections	1 Piece(s)	ETIM 6. ETIM 7.
Connection 1		
Function	Connection to device	
	Voltage supply	
Type of connection	Terminal	

Screw terminal

16 -pin

Connection cross sections1 x 0.2 to 2.5 mm², wire 1 x 0.2 to 2.5 mm², wireMechanical dataDimension (W x H x L)22.5 mm x 99 mm x 114.5 mmHousing materialPlasticPlastic housingUnreinforced polyamide PANet weight231 gHousing colorGrayType of fasteningSnap-on mountingMechanical life time100,000,000 actuation cyclesOperation and displayLEDNumber of LEDs3 Piece(s)Environmental data-20 55 °CAmbient temperature, operation-20 55 °CAmbient temperature, storage-40 70 °CCertificationsIP 20 (terminals) TÜV RheinlandCassificationsIV RheinlandClassification27371819Customs tariff number85371098eCl@ss 8.027371819eCl@ss 9.027371819eCl@ss 11.027371819ETIM 5.0EC001449ETIM 5.0EC001449	Cable properties		
Mechanical data     Dimension (W x H x L)   22.5 mm x 99 mm x 114.5 mm     Housing material   Plastic     Plastic housing   Unreinforced polyamide PA     Net weight   231 g     Housing color   Gray     Type of fastening   Snap-on mounting     Mechanical life time   100,000,000 actuation cycles     Operation and display   LED     Number of LEDs   3 Piece(s)     Environmental data   -20 55 °C     Ambient temperature, operation   -20 55 °C     Ambient temperature, storage   -40 70 °C     Certifications   IP 20 (terminals)     IP 40 (housing)   c UL US     TUV Rheinland   TUV Rheinland     Classification   27371819     ecl@ss 5.1.4   27371819     ecl@ss 9.0   27371819     ecl@ss 10.0   27371819     ecl@ss 11.0   27371819     ecl@ss 11.0   27371819     ETIM 5.0   Eco01449		1 x 0.2 to 2.5 mm <sup>2</sup> , wire	
Housing materialPlasticPlastic housingUnreinforced polyamide PANet weight231 gHousing colorGrayType of fasteningSnap-on mountingMechanical life time100,000,000 actuation cyclesOperation and displayLEDNumber of LEDs3 Piece(s)Environmental data-20 55 °CAmbient temperature, operation-20 55 °CAmbient temperature, storage-40 70 °CCertificationsIP 20 (terminals) IP 40 (housing)Certifications210 UL US TÜV RheinlandClassification27371819ecl@ss 5.1.427371819ecl@ss 8.027371819ecl@ss 9.027371819ecl@ss 11.027371819ETIM 5.0Ecou1449ETIM 6.0Ecou1449			
Dimension (W x H x L)22.5 mm x 99 mm x 114.5 mmHousing materialPlasticPlastic housingUnreinforced polyamide PANet weight231 gHousing colorGrayType of fasteningSnap-on mountingMechanical life time100,000,000 actuation cyclesOperation and displayLEDNumber of LEDs3 Piece(s)Environmental data-20 55 °CAmbient temperature, operation-20 55 °CAmbient temperature, storage-40 70 °CCertificationsIP 20 (terminals) IP 40 (housing) CertificationsClassificationS5371098Classification27371819Cigges 5.1.427371800eCl@ss 8.027371819eCl@ss 9.027371819eCl@ss 11.027371819ETIM 5.0EC001449ETIM 6.0EC001449			
Housing materialPlasticPlastic housingUnreinforced polyamide PANet weight231 gHousing colorGrayType of fasteningSnap-on mountingMechanical life time100,000,000 actuation cyclesOperation and displayLEDNumber of LEDs3 Piece(s)Environmental data-20 55 °CAmbient temperature, operation-20 55 °CAmbient temperature, storage-40 70 °CCertificationsIP 20 (terminals) IP 40 (housing)Certifications210 UL US TÜV RheinlandClassification27371819ecl@ss 5.1.427371819ecl@ss 8.027371819ecl@ss 9.027371819ecl@ss 11.027371819ETIM 5.0Ecou1449ETIM 6.0Ecou1449	Mechanical data		
Plastic housing Net weight 231 g Housing color Gray Type of fastening Snap-on mounting Mechanical life time 100,000,000 actuation cycles Operation and display Type of display LED Number of LEDs 3 Piece(s) Environmental data Ambient temperature, operation -20 55 °C Ambient temperature, storage -40 70 °C Certifications Degree of protection IP 20 (terminals) IP 40 (housing) Certifications Classification Customs tariff number 85371098 eCl@ss 5.1.4 27371810 eCl@ss 8.0 27371819 eCl@ss 10.0 27371819 eCl@ss 11.0 27371819 ETIM 5.0 EC001449 ETIM 6.0 EC001449	Dimension (W x H x L)	22.5 mm x 99 mm x 114.5 mm	
Net weight231 gHousing colorGrayType of fasteningSnap-on mountingMechanical life time100,000,000 actuation cyclesOperation and displayLEDNumber of LEDs3 Piece(s)Environmental data-20 55 °CAmbient temperature, operation-20 55 °CAmbient temperature, storage-40 70 °CCertificationsIP 20 (terminals) IP 40 (housing)Certificationsc UL US TÜV RheinlandClassification2737180eCl@ss 5.1.427371819eCl@ss 8.027371819eCl@ss 9.027371819eCl@ss 11.027371819ETIM 5.0EC001449ETIM 6.0EC001449	Housing material	Plastic	
Housing colorGrayType of fasteningSnap-on mountingMechanical life time100,000,000 actuation cyclesOperation and displayLEDType of displayLEDNumber of LEDs3 Piece(s)Environmental data-20 55 °CAmbient temperature, operation-20 55 °CAmbient temperature, storage-40 70 °CCertificationsIP 20 (terminals) IP 40 (housing)Certificationsc UL US TÜV RheinlandClassification27371800ecl@ss 5.1.4273771800ecl@ss 8.027371819ecl@ss 9.027371819ecl@ss 11.027371819ETIM 5.0EC001449ETIM 6.0EC001449	Plastic housing	Unreinforced polyamide PA	
Type of fasteningSnap-on mountingMechanical life time100,000,000 actuation cyclesOperation and displayLEDType of displayLEDNumber of LEDs3 Piece(s)Environmental data-20 55 °CAmbient temperature, operation-20 55 °CAmbient temperature, storage-40 70 °CCertificationsIP 20 (terminals) IP 40 (housing)CertificationsIV RheinlandClassification200 (terminals) IP 40 (housing)Classification27371800Classification27371819ecl@ss 5.1.427371819ecl@ss 9.027371819ecl@ss 10.027371819ecl@ss 11.027371819ETIM 5.0EC001449ETIM 6.0EC001449	Net weight	231 g	
Mechanical life time100,000,000 actuation cyclesOperation and displayLEDType of displayLEDNumber of LEDs3 Piece(s)Environmental data-20 55 °CAmbient temperature, operation-20 55 °CAmbient temperature, storage-40 70 °CCertificationsIP 20 (terminals) IP 40 (housing)CertificationsIP 20 (terminals) IP 40 (housing)Certifications20 UL US TÜV RheinlandClassification27371800ecl@ss 5.1.427371819ecl@ss 8.027371819ecl@ss 9.027371819ecl@ss 11.027371819ETIM 5.0EC001449ETIM 6.0EC001449	Housing color	Gray	
Operation and displayLEDType of displayLEDNumber of LEDs3 Piece(s)Environmental data-20 55 °CAmbient temperature, operation-20 55 °CAmbient temperature, storage-40 70 °CCertificationsIP 20 (terminals) IP 40 (housing)CertificationsIP 20 (terminals) IP 40 (housing)Certifications20 LU US TÜV RheinlandClassification27371800Classification27371819ecl@ss 8.027371819ecl@ss 9.027371819ecl@ss 11.027371819ETIM 5.0EC001449ETIM 6.0EC001449	Type of fastening	Snap-on mounting	
Type of displayLEDNumber of LEDs3 Piece(s)Environmental data-20 55 °CAmbient temperature, operation-20 55 °CAmbient temperature, storage-40 70 °CCertificationsIP 20 (terminals) IP 40 (housing)CertificationsIP 20 (terminals) IV RheinlandClassification27371819Class s 5.1.427371819eCl@ss 5.027371819eCl@ss 10.027371819eCl@ss 11.027371819ETIM 5.0EC001449ETIM 6.0EC001449	Mechanical life time	100,000,000 actuation cycles	
Type of displayLEDNumber of LEDs3 Piece(s)Environmental data-20 55 °CAmbient temperature, operation-20 55 °CAmbient temperature, storage-40 70 °CCertificationsIP 20 (terminals) IP 40 (housing)CertificationsIP 20 (terminals) IV RheinlandClassification27371819Class s 5.1.427371819eCl@ss 5.027371819eCl@ss 10.027371819eCl@ss 11.027371819ETIM 5.0EC001449ETIM 6.0EC001449	Or creation and display		
Number of LEDs3 Piece(s)Environmental data-20 55 °CAmbient temperature, operation Ambient temperature, storage-40 70 °CCertificationsIP 20 (terminals) IP 40 (housing) C UL US TÜV RheinlandCertifications20 (terminals) IP 40 (housing) C ustoms tariff numberClassification85371098 27371819eCl@ss 5.1.427371819 27371819eCl@ss 9.027371819 27371819eCl@ss 11.027371819 ETIM 5.0ETIM 5.0EC001449ETIM 6.0EC001449			
Environmental dataAmbient temperature, operation Ambient temperature, storage-20 55 °CAmbient temperature, storage-40 70 °CCertificationsIP 20 (terminals) IP 40 (housing) C UL US TÜV RheinlandCertificationsc UL US TÜV RheinlandClassification27371800 eCl@ss 8.0 eCl@ss 9.0 eCl@ss 11.0eCl@ss 11.0 ETIM 5.027371819 EC001449ETIM 6.0EC001449		LED	
Ambient temperature, operation   -20 55 °C     Ambient temperature, storage   -40 70 °C     Certifications   IP 20 (terminals)     Degree of protection   IP 40 (housing)     Certifications   c UL US     Certifications   TÜV Rheinland     Classification   27371800     eCl@ss 5.1.4   27371819     eCl@ss 8.0   27371819     eCl@ss 9.0   27371819     eCl@ss 11.0   27371819     ETIM 5.0   EC001449     ETIM 6.0   EC001449	Number of LEDs	3 Piece(s)	
Ambient temperature, operation     -20 55 °C       Ambient temperature, storage     -40 70 °C       Certifications     IP 20 (terminals) IP 40 (housing)       Certifications     c UL US TÜV Rheinland       Classification     85371098       eCl@ss 5.1.4     27371819       eCl@ss 8.0     27371819       eCl@ss 10.0     27371819       eCl@ss 11.0     27371819       ETIM 5.0     EC001449       ETIM 6.0     EC001449	Environmental data		
Ambient temperature, storage-40 70 °CCertificationsIP 20 (terminals) IP 40 (housing) c UL US TÜV RheinlandCertificationsClassificationClassification85371098 27371800ecl@ss 5.1.427371800 27371819ecl@ss 9.027371819 27371819ecl@ss 11.027371819 	Environmental data		
Certifications   IP 20 (terminals)     Degree of protection   IP 40 (housing)     Certifications   c UL US     Classification   TÜV Rheinland     Classification   85371098     ecl@ss 5.1.4   27371800     ecl@ss 8.0   27371819     ecl@ss 9.0   27371819     ecl@ss 10.0   27371819     ecl@ss 11.0   27371819     ETIM 5.0   EC001449     ETIM 6.0   EC001449	Ambient temperature, operation		
Pegree of protectionIP 20 (terminals) IP 40 (housing) c UL US TÜV RheinlandCertificationsc UL US TÜV RheinlandClassification85371098 27371800ecl@ss 5.1.427371800ecl@ss 8.027371819ecl@ss 9.027371819ecl@ss 10.027371819ecl@ss 11.027371819ETIM 5.0EC001449ETIM 6.0EC001449	Ambient temperature, storage	-40 70 °C	
Pegree of protectionIP 20 (terminals) IP 40 (housing) c UL US TÜV RheinlandCertificationsc UL US TÜV RheinlandClassification85371098 27371800ecl@ss 5.1.427371800ecl@ss 8.027371819ecl@ss 9.027371819ecl@ss 10.027371819ecl@ss 11.027371819ETIM 5.0EC001449ETIM 6.0EC001449	Cortifications		
IP 40 (housing)       Certifications     C UL US TÜV Rheinland       Classification     85371098       Customs tariff number     85371098       eCl@ss 5.1.4     27371800       eCl@ss 8.0     27371819       eCl@ss 9.0     27371819       eCl@ss 11.0     27371819       ETIM 5.0     EC001449       ETIM 6.0     EC001449			
Certifications     c UL US TÜV Rheinland       Classification     85371098       Customs tariff number     85371098       eCl@ss 5.1.4     27371800       eCl@ss 8.0     27371819       eCl@ss 9.0     27371819       eCl@ss 11.0     27371819       ETIM 5.0     EC001449       ETIM 6.0     EC001449	Degree of protection		
TÜV Rheinland       Classification       Customs tariff number     85371098       eCl@ss 5.1.4     27371800       eCl@ss 8.0     27371819       eCl@ss 9.0     27371819       eCl@ss 10.0     27371819       eCl@ss 11.0     27371819       ETIM 5.0     EC001449       ETIM 6.0     EC001449			
Classification       Customs tariff number     85371098       eCl@ss 5.1.4     27371800       eCl@ss 8.0     27371819       eCl@ss 9.0     27371819       eCl@ss 10.0     27371819       eCl@ss 11.0     27371819       ETIM 5.0     EC001449       ETIM 6.0     EC001449	Certifications		
Customs tariff number     85371098       eCl@ss 5.1.4     27371800       eCl@ss 8.0     27371819       eCl@ss 9.0     27371819       eCl@ss 10.0     27371819       eCl@ss 11.0     27371819       ETIM 5.0     EC001449       ETIM 6.0     EC001449		TÜV Rheinland	
Customs tariff number     85371098       eCl@ss 5.1.4     27371800       eCl@ss 8.0     27371819       eCl@ss 9.0     27371819       eCl@ss 10.0     27371819       eCl@ss 11.0     27371819       ETIM 5.0     EC001449       ETIM 6.0     EC001449	Classification		
eCl@ss 5.1.4 27371800   eCl@ss 8.0 27371819   eCl@ss 9.0 27371819   eCl@ss 10.0 27371819   eCl@ss 11.0 27371819   ETIM 5.0 EC001449   ETIM 6.0 EC001449			
eCl@ss 8.0   27371819     eCl@ss 9.0   27371819     eCl@ss 10.0   27371819     eCl@ss 11.0   27371819     ETIM 5.0   EC001449     ETIM 6.0   EC001449	Customs tariff number	85371098	
eCl@ss 9.0   27371819     eCl@ss 10.0   27371819     eCl@ss 11.0   27371819     ETIM 5.0   EC001449     ETIM 6.0   EC001449		07074000	
eCl@ss 10.0 27371819   eCl@ss 11.0 27371819   ETIM 5.0 EC001449   ETIM 6.0 EC001449	•		
eCl@ss 11.0     27371819       ETIM 5.0     EC001449       ETIM 6.0     EC001449	eCl@ss 8.0	27371819	
ETIM 5.0 EC001449 ETIM 6.0 EC001449	eCl@ss 8.0 eCl@ss 9.0	27371819 27371819	
ETIM 6.0 EC001449	eCl@ss 8.0 eCl@ss 9.0 eCl@ss 10.0	27371819 27371819 27371819	
	eCl@ss 8.0 eCl@ss 9.0 eCl@ss 10.0 eCl@ss 11.0	27371819 27371819 27371819 27371819 27371819	
ETIM 7.0 EC001449	eCl@ss 8.0 eCl@ss 9.0 eCl@ss 10.0 eCl@ss 11.0 ETIM 5.0	27371819 27371819 27371819 27371819 EC001449	
	eCl@ss 8.0 eCl@ss 9.0 eCl@ss 10.0 eCl@ss 11.0 ETIM 5.0 ETIM 6.0	27371819 27371819 27371819 27371819 EC001449 EC001449	
	eCl@ss 8.0 eCl@ss 9.0 eCl@ss 10.0 eCl@ss 11.0 ETIM 5.0 ETIM 6.0	27371819 27371819 27371819 27371819 EC001449 EC001449	
	eCl@ss 8.0 eCl@ss 9.0 eCl@ss 10.0 eCl@ss 11.0 ETIM 5.0 ETIM 6.0	27371819 27371819 27371819 27371819 EC001449 EC001449	

Leuze

## **Electrical connection**

#### **Connection 1**

Type of terminal

No. of pins

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

## **Electrical connection**

Pin assignment

Pin

# Leuze

	· ····································
	A1
1	+24V
	S35
2	Start circuit
	S34
3	Start circuit
	A2
4	GND
	S11
5	Sensor input 1
	S12
6	Sensor input 1
	S21
7	Sensor input 2
	S22
8	Sensor input 2
	13
9	1 release circuit, undelayed
	14
10	1 release circuit, undelayed
	23
11	2 release circuit, undelayed
	24
12	2 release circuit, undelayed
	37
13	Release circuit 1, delayed
	38
14	Release circuit 1, delayed
	47
15	Release circuit 2, delayed
	48
16	Release circuit 2, delayed

## **Operation and display**

Display LED 1	Display LED 2	Display LED 3	Meaning
Green, continuous light	Off	Off	Operational readiness
Green, continuous light	Green, continuous light	Green, continuous light	Device is active. Release circuits are closed.
Green, quickly flashing	Off	Off	Internal error - device defective. Replace the device!
Green, slowly flashing	Off	Off	External error - check the wiring and power supply! In event of manual reset: check the time sequence!
Green, slowly flashing	Green, slowly flashing	Off	Configuration error - repeat the configuration! If this cannot be performed: check the wiring and power supply!
Green, slowly flashing	Green, slowly flashing	Green, slowly flashing	Configuration necessary - positioner for delay time was readjusted. Configure again!