

## Technical data sheet

### Optical distance sensor

Part no.: 50138066  
ODS110L1.3/LTX-M12



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## Technical data

### Basic data

Series	110
Application	Collision protection for transport vehicles Fill-level monitoring Length measurement in material cutting
Type of scanning system	Against object

### Optical data

Beam path	Collimated
Light source	Laser, Red
Laser light wavelength	655 nm
Laser class	1, IEC/EN 60825-1:2007
Transmitted-signal shape	Pulsed
Light spot size [at sensor distance]	5.5 mm x 7 mm [5,000 mm]
Type of light spot geometry	Oval

### Measurement data

Measurement range (6 ... 90 % diffuse reflection)	60 ... 3,000 mm
Measurement range (90 % diffuse reflection)	60 ... 5,000 mm
Resolution	1.0 mm
Reproducibility (1 sigma)	, see diagram
Temperature drift	2 mm/K
Standard measurement object	50 x 50 mm <sup>2</sup>
Optical distance measurement principle	Time of flight
Linearity error	30 mm

### Electrical data

Protective circuit	Polarity reversal protection Short circuit protected
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#### Performance data

Supply voltage $U_B$	18 ... 30 V, DC
Open-circuit current	60 mA

#### Inputs

Number of teach inputs	1 Piece(s)
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#### Teach inputs

Voltage type	DC
Switching voltage	high: $+U_B$

#### Teach input 1

Assignment	Connection 1, pin 2
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#### Outputs

Number of digital switching outputs	1 Piece(s)
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IO-Link note Two switching outputs via IO-Link process data (SSC 1 & SSC 2)

#### Switching outputs

Voltage type	DC
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#### Switching output 1

Assignment	Connection 1, pin 4
Switching element	Transistor, Push-pull
Switching principle	IO-Link / light switching (PNP)/dark switching (NPN)

### Timing

Response time	4 ms, Axial object approach / 20 ms, lateral object entry
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### Interface

Type	IO-Link
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#### IO-Link

COM mode	COM2
Profile	Common Profile
Frame type	2.2
Port type	A
Specification	V1.1
Device ID	0x00087E
SIO-mode support	Yes
Process data, length	24 bit
Min. cycle time	COM2 = 2.7 ms

### Connection

Number of connections	1 Piece(s)
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#### Connection 1

Function	Signal IN Signal OUT Voltage supply
Type of connection	Connector, Turning, 90°
Thread size	M12
Type	Male
Material	Plastic
No. of pins	4 -pin
Encoding	A-coded

### Mechanical data

Design	Cubic
Dimension (W x H x L)	23 mm x 50 mm x 50 mm
Housing material	Plastic, ABS
Lens cover material	Plastic / PMMA
Net weight	42 g
Housing color	Red
Type of fastening	Through-hole mounting Via optional mounting device

### Operation and display

Type of display	LED
Number of LEDs	2 Piece(s)
Operational controls	Control buttons PC software

### Environmental data

Ambient temperature, operation	-40 ... 50 °C
Ambient temperature, storage	-40 ... 80 °C
Extraneous light protection, max.	5,000 lx

### Certifications

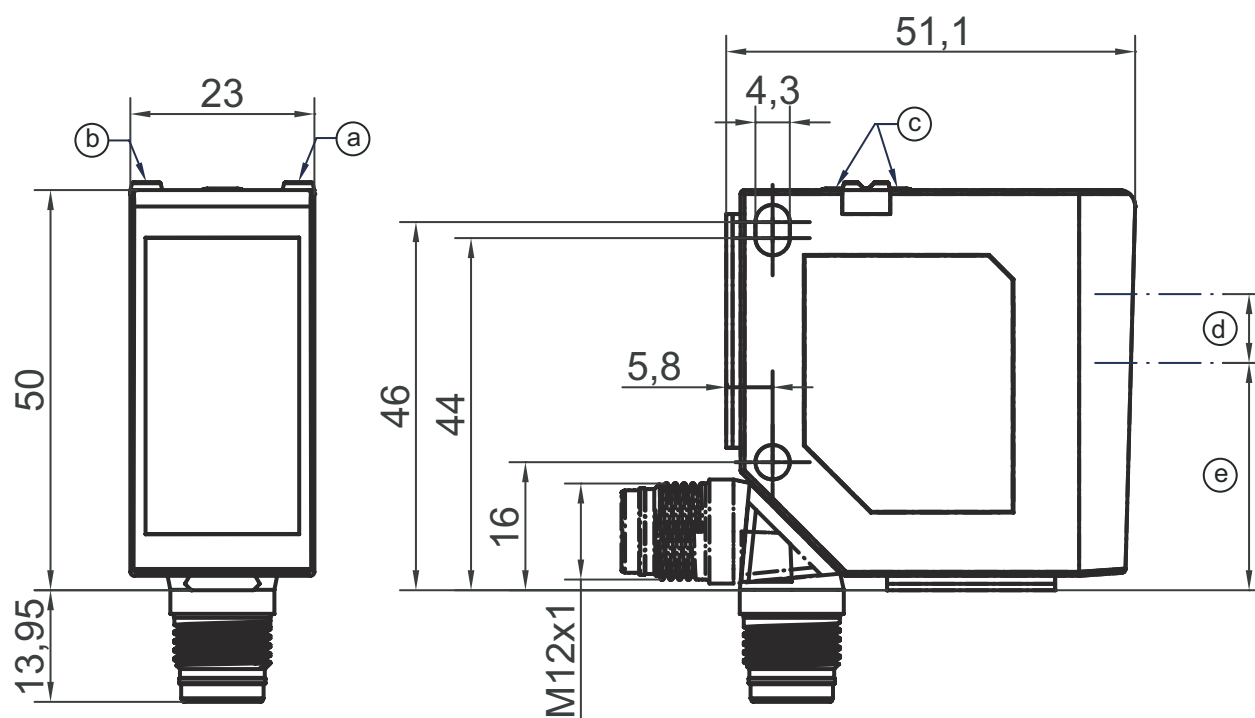
Degree of protection	IP 67 IP 69K
Protection class	III
Certifications	c UL US
Standards applied	IEC/EN 60947-5-2

## Technical data

Customs tariff number	90318080
eCl@ss 8.0	27270801
eCl@ss 9.0	27270801
ETIM 5.0	EC001825
ETIM 6.0	EC001825

## Dimensioned drawings

All dimensions in millimeters



- a Yellow LED
- b Green LED
- c Control buttons
- d Transmitter
- e Receiver

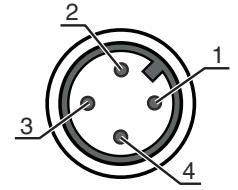
## Electrical connection

### Connection 1

Function	Signal IN
	Signal OUT
	Voltage supply
Type of connection	Connector
Thread size	M12
Type	Male
Material	Plastic
No. of pins	4 -pin
Encoding	A-coded

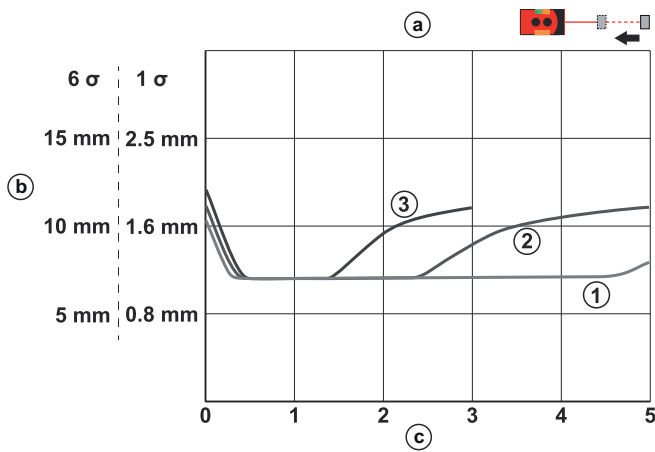
## Electrical connection

Pin	Pin assignment
1	18 ... 30 V DC +
2	Teach-in
3	GND
4	IO-Link / OUT 1



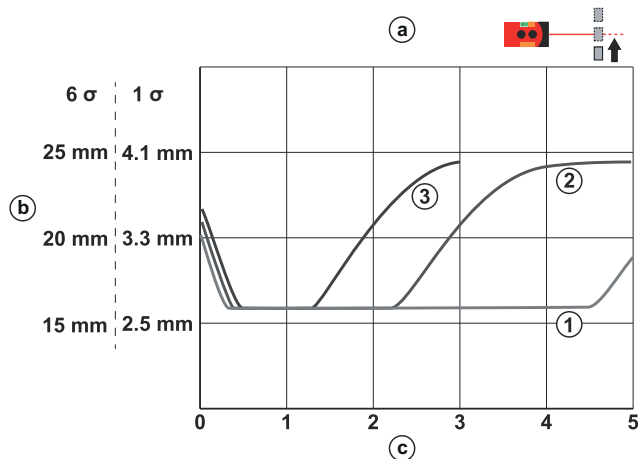
## Diagrams

### Repeatability (50 Hz)



- a Axial object approach
- b Repeatability (50 Hz)
- c Distance [m]
- 1 White 90%
- 2 Gray 18%
- 3 Black 6%

### Repeatability (250 Hz)



- a Lateral object approach
- b Repeatability (250 Hz)
- c Distance [m]
- 1 White 90%
- 2 Gray 18%
- 3 Black 6%

## Operation and display

LED	Display	Meaning
1	Yellow, continuous light	Switching output/switching state
2	Green, continuous light	Operating voltage applied
	Yellow, continuous light	Analog output status display

# Part number code

Part designation: XXX110YY.Z/ABC-DDD

<b>XXX110</b>	<b>Operating principle</b> ODS110: Optical distance sensor HT110: diffuse reflection sensor with background suppression
<b>YY</b>	<b>Light source</b> L1: laser class 1
<b>Z</b>	<b>Equipment</b> 3: Control buttons for configuration
<b>A</b>	<b>Switching output/function OUT 1/IN: Pin 4 or black conductor</b> L: IO-Link
<b>B</b>	<b>Switching output / function OUT 2/IN: pin 2 or white conductor</b> 6: push-pull switching output, PNP light switching, NPN dark switching C: Current output T: teach-in V: Voltage output
<b>C</b>	<b>Switching output / function OUT 3/IN: Pin 5</b> X: pin not used T: teach-in
<b>DDD</b>	<b>Electrical connection</b> M12: M12 connector

Note	
	<ul style="list-style-type: none"> <li>A list with all available device types can be found on the Leuze website at <a href="http://www.leuze.com">www.leuze.com</a>.</li> </ul>

## Notes

! Observe intended use!	
	<ul style="list-style-type: none"> <li>This product is not a safety sensor and is not intended as personnel protection.</li> <li>The product may only be put into operation by competent persons.</li> <li>Only use the product in accordance with its intended use.</li> </ul>

! WARNING! LASER RADIATION – CLASS 1 LASER PRODUCT	
	<ul style="list-style-type: none"> <li>Observe the applicable statutory and local laser protection regulations.</li> </ul>







! WARNING! LASER RADIATION – CLASS 1 LASER PRODUCT	
	<p>The device satisfies the requirements of IEC 60825-1:2007 (EN 60825-1:2007) safety regulations for a product of <b>laser class 1 as well as the U.S. 21 CFR 1040.10 regulations with deviations corresponding to "Laser Notice No. 50" from June 24, 2007.</b></p> <ul style="list-style-type: none"> <li>Observe the applicable statutory and local laser protection regulations.</li> <li>The device must not be tampered with and must not be changed in any way. There are no user-serviceable parts inside the device. Repairs must only be performed by Leuze electronic GmbH + Co. KG.</li> </ul>

## Further information


- Ambient temperature, operation: UL: max. +45°
- Warmup time: minimum 20 min at +24 VDC and an ambient temperature of 20 °C
- Response time: depending on the entry direction of the object to be measured

## Accessories

### Connection technology - Connection cables

	Part no.	Designation	Article	Description
	50130654	KD U-M12-4A-P1-020	Connection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 4 -pin Connection 2: Open end Shielded: No Cable length: 2,000 mm Sheathing material: PUR
 	50130657	KD U-M12-4A-P1-050	Connection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 4 -pin Connection 2: Open end Shielded: No Cable length: 5,000 mm Sheathing material: PUR
	50130648	KD U-M12-4A-V1-020	Connection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 4 -pin Connection 2: Open end Shielded: No Cable length: 2,000 mm Sheathing material: PVC
 	50130652	KD U-M12-4A-V1-050	Connection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 4 -pin Connection 2: Open end Shielded: No Cable length: 5,000 mm Sheathing material: PVC

### Mounting technology - Rod mounts

	Part no.	Designation	Article	Description
	50117252	BTU 300M-D12	Mounting system	Design of mounting device: Mounting system Fastening, at system: For 12 mm rod, Sheet-metal mounting Mounting bracket, at device: Screw type, Suited for M4 screws Type of mounting device: Clampable, Adjustable, Turning, 360° Material: Metal

#### Note



A list with all available accessories can be found on the Leuze website in the Download tab of the article detailed page.