

Technical data sheet

Optical distance sensor

Part no.: 50138063
ODS110L1.3/LCT-M12



For illustration purposes only

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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 |
| 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 | 300 ... 3,000 mm, Factory setting of the analog output |
| Measurement range (6 ... 90 % diffuse reflection) | 100 ... 3,000 mm |
| Measurement range (90 % diffuse reflection) | 100 ... 5,000 mm |
| Resolution | 1.0 ... 5.0 mm |
| Reproducibility (1 sigma) | , see diagram |
| Temperature drift | 2 mm/K |
| Standard measurement object | 50 x 50 mm ² |
| Optical distance measurement principle | Time of flight |
| Linearity error | 30 mm |

Electrical data

| | |
|--------------------|---|
| Protective circuit | Polarity reversal protection Short circuit protected |
|--------------------|---|

Performance data

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

Inputs

| | |
|------------------------|------------|
| Number of teach inputs | 1 Piece(s) |
|------------------------|------------|

Teach inputs

| | |
|-------------------|--------------|
| Voltage type | DC |
| Switching voltage | high: $+U_B$ |

Teach input 1

| | |
|------------|---------------------|
| Assignment | Connection 1, pin 5 |
|------------|---------------------|

Outputs

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

Analog outputs

Analog output 1

| | |
|------------|---------------------|
| Type | Current |
| Assignment | Connection 1, pin 2 |

Switching outputs

| | |
|--------------|----|
| Voltage type | DC |
|--------------|----|

Switching output 1

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

Time behavior

| | |
|---------------|---|
| Response time | 20 ms, Axial object approach / 4 ms, lateral object entry |
|---------------|---|

Interface

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

Connection

| | |
|-----------------------|---|
| Number of connections | 1 Piece(s) |
| 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 | 5 -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 |
| Plastic housing | ABS |
| Lens cover material | Plastic |
| 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 |

Technical data

Certifications

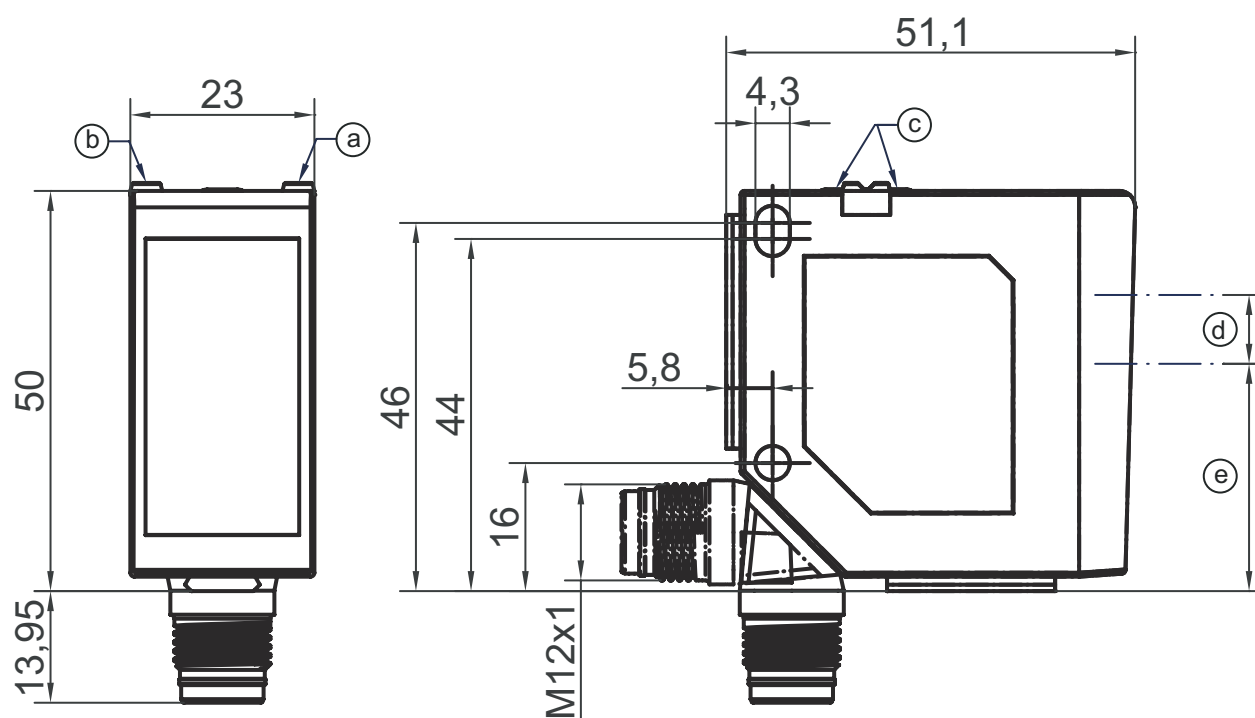
| | |
|----------------------|------------------|
| Degree of protection | IP 67 |
| | IP 69K |
| Protection class | III |
| Certifications | c UL US |
| Standards applied | IEC/EN 60947-5-2 |

Classification

| | |
|-----------------------|----------|
| Customs tariff number | 90318080 |
| ECLASS 5.1.4 | 27270801 |
| ECLASS 8.0 | 27270801 |
| ECLASS 9.0 | 27270801 |
| ECLASS 10.0 | 27270801 |
| ECLASS 11.0 | 27270801 |
| ECLASS 12.0 | 27270916 |
| ECLASS 13.0 | 27270916 |
| ETIM 5.0 | EC001825 |
| ETIM 6.0 | EC001825 |
| ETIM 7.0 | EC001825 |
| ETIM 8.0 | EC001825 |

Dimensioned drawings

All dimensions in millimeters



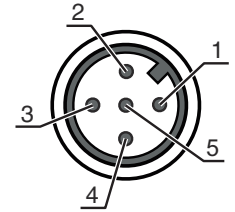
- a Yellow LED
- b Green LED
- c Control buttons
- d Transmitter
- e Receiver

Electrical connection

Connection 1

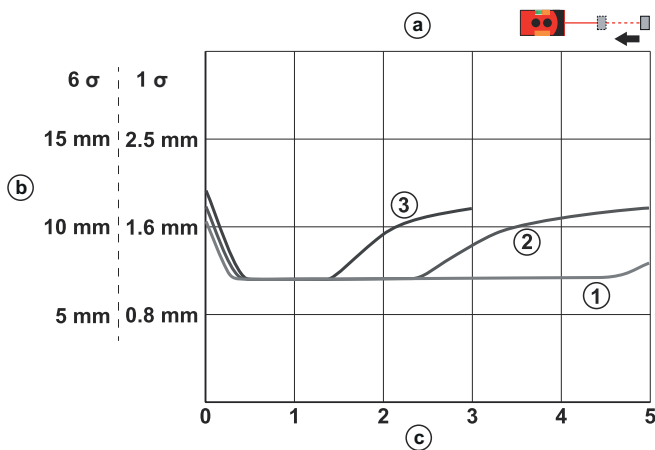
| | |
|--------------------|----------------|
| Function | Signal IN |
| | Signal OUT |
| | Voltage supply |
| Type of connection | Connector |
| Thread size | M12 |
| Type | Male |
| Material | Plastic |
| No. of pins | 5 -pin |
| Encoding | A-coded |

| Pin | Pin assignment |
|-----|------------------|
| 1 | 18 ... 30 V DC + |
| 2 | OUT mA |
| 3 | GND |
| 4 | IO-Link / OUT 1 |
| 5 | Teach-in |



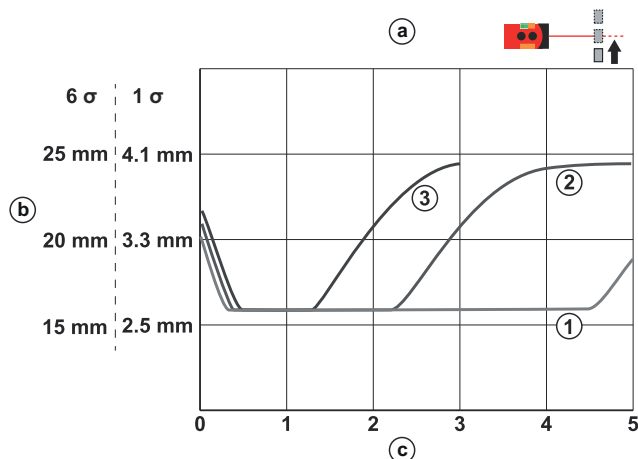
Diagrams

Repeatability (50 Hz)



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

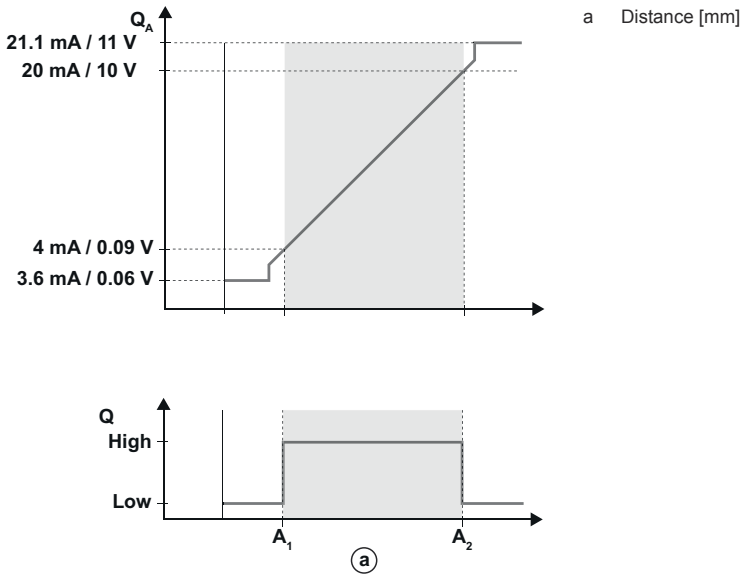
Repeatability (250 Hz)



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

Diagrams

Analog characteristic curve



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

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

Note

| | |
|--|--|
| | A list with all available device types can be found on the Leuze website at www.leuze.com . |
|--|--|

Notes

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

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

| ⚠ 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 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.</p> <ul style="list-style-type: none"> ↪ Observe the applicable statutory and local laser protection regulations. ↪ 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. |

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 |
|--|----------|--------------------|------------------|--|
| | 50133855 | KD S-M12-5A-V1-020 | Connection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connector, LED: No Connection 2: Open end Shielded: Yes Cable length: 2.000 mm Sheathing material: PVC |
| | 50133856 | KD S-M12-5A-V1-050 | Connection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connector, LED: No Connection 2: Open end Shielded: Yes Cable length: 5.000 mm Sheathing material: PVC |

Accessories

| | Part no. | Designation | Article | Description |
|--|----------|--------------------|------------------|---|
| | 50132077 | KD U-M12-5A-V1-020 | Connection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connector, LED: No Connection 2: Open end Shielded: No Cable length: 2.000 mm Sheathing material: PVC |
| | 50132079 | KD U-M12-5A-V1-050 | Connection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connector, LED: No 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.