

Technical data sheet

Optical distance sensor

Part no.: 50129531
ODS10L1.8/LAK



Figure can vary

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- Electrical connection
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Technical data

Basic data

| | |
|-------------------------|--|
| Series | 10 |
| Application | Collision protection for transport vehicles Fill-level monitoring |
| Type of scanning system | Against object |

Special version

| | |
|-----------------|---|
| Special version | Activation input Deactivation input Teach input |
|-----------------|---|

Characteristic parameters

| | |
|------|----------|
| MTTF | 29 years |
|------|----------|

Optical data

| | |
|--------------------------------------|------------------------|
| Beam path | Collimated |
| Light source | Laser, Red |
| Laser light wavelength | 658 nm |
| Laser class | 1, IEC/EN 60825-1:2007 |
| Transmitted-signal shape | Pulsed |
| Light spot size [at sensor distance] | 7 mm x 7 mm [8,000 mm] |
| Type of light spot geometry | Rectangular |

Measurement data

| | |
|--|---|
| Measurement range | 50 ... 8,000 mm |
| Resolution | 1.0 mm |
| Accuracy | 15 mm |
| Measurement time, measure mode | "Fast": response time = 15 ms/output time = 3.4 ms "Fast": response time = 50 ms/output time = 3.4 ms "High precision": response time = 1000 ms/output time = 3.4 ms "Individual": response time = 3.4 ... 1020 ms/output time = 3.4 ms "Outlier suppression": response time = 17 ... 1020 ms/output time = 17 ... 1020 ms "Precision": response time = 200 ms/output time = 3.4 ms Individual measure modes, see diagram |
| Reproducibility (1 sigma) | 4 mm |
| Temperature drift | 2 mm/K |
| Referencing | No |
| Black/white behavior | 10 mm |
| Standard measurement object | 50 x 50 mm ² |
| Optical distance measurement principle | Time of flight |

Electrical data

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

Performance data

| | |
|----------------------|------------------------|
| Supply voltage U_B | 18 ... 30 V, DC |
| Residual ripple | 0 ... 15 %, From U_B |
| Open-circuit current | 0 ... 150 mA |

Inputs

| | |
|------------------------------------|------------|
| Number of digital switching inputs | 1 Piece(s) |
|------------------------------------|------------|

Switching inputs

| | |
|-------------------|-------|
| Voltage type | DC |
| Switching voltage | U_B |

Digital switching input 1

| | |
|------------|---|
| Assignment | Connection 1, conductor 5 |
| Function | Activation input Deactivation input Teach input |

Outputs

| | |
|-------------------------------------|------------|
| Number of analog outputs | 1 Piece(s) |
| Number of digital switching outputs | 1 Piece(s) |

Analog outputs

Analog output 1

| | |
|------------|--|
| Type | Configurable, factory setting: current |
| Assignment | Connection 1, conductor 2 |

Switching outputs

| | |
|-------------------|--|
| Voltage type | DC |
| Switching voltage | high: $\geq(U_B-2V)$ Low: $\leq 2V$ |

Switching output 1

| | |
|---------------------|--|
| Assignment | Connection 1, conductor 4 |
| Switching element | Transistor, Push-pull |
| Switching principle | IO-Link / light switching (PNP)/dark switching (NPN) |
| Function | Independently adjustable switching outputs |

Timing

| | |
|-----------------|--------|
| Readiness delay | 300 ms |
|-----------------|--------|

Interface

| | |
|------|---------|
| Type | IO-Link |
|------|---------|

IO-Link

| | |
|--------------------------|---------------|
| COM mode | COM2 |
| Frame type | 2.V |
| Port type | A |
| Specification | V1.1 |
| SIO-mode support | Yes |
| Process data IN | 3 byte |
| Process data OUT | 0 byte |
| Dual-core operating mode | Yes |
| Min. cycle time | COM2 = 2.3 ms |

Connection

| | |
|-----------------------|------------|
| Number of connections | 1 Piece(s) |
|-----------------------|------------|

Technical data

Connection 1

| | |
|----------------------|----------------------|
| Function | Signal IN |
| | Signal OUT |
| | Voltage supply |
| Type of connection | Cable |
| Cable length | 2,000 mm |
| Sheathing material | PUR |
| Cable color | Black |
| Number of conductors | 5 -wire |
| Wire cross section | 0.14 mm ² |

Mechanical data

| | |
|-----------------------|------------------------------|
| Design | Cubic |
| Dimension (W x H x L) | 25 mm x 65 mm x 55 mm |
| Lens cover material | Glass |
| Net weight | 133 g |
| Housing color | Red |
| Type of fastening | Through-hole mounting |
| | Via optional mounting device |

Operation and display

| | |
|----------------------|-----------------|
| Type of display | LED |
| | OLED display |
| Number of LEDs | 5 Piece(s) |
| Operational controls | Control buttons |
| | PC software |

Environmental data

| | |
|--------------------------------|---------------|
| Ambient temperature, operation | -40 ... 50 °C |
| Ambient temperature, storage | -40 ... 70 °C |

Certifications

| | |
|----------------------|---------|
| Degree of protection | IP 67 |
| Protection class | III |
| Certifications | c UL US |

Classification

| | |
|-----------------------|----------|
| Customs tariff number | 90318020 |
| eCl@ss 5.1.4 | 27270801 |
| eCl@ss 8.0 | 27270801 |
| eCl@ss 9.0 | 27270801 |
| eCl@ss 10.0 | 27270801 |
| eCl@ss 11.0 | 27270801 |
| ETIM 5.0 | EC001825 |
| ETIM 6.0 | EC001825 |
| ETIM 7.0 | EC001825 |

Electrical connection

Connection 1

| | |
|----------------------|----------------------|
| Function | Signal IN |
| | Signal OUT |
| | Voltage supply |
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| Cable length | 2,000 mm |
| Sheathing material | PUR |
| Cable color | Black |
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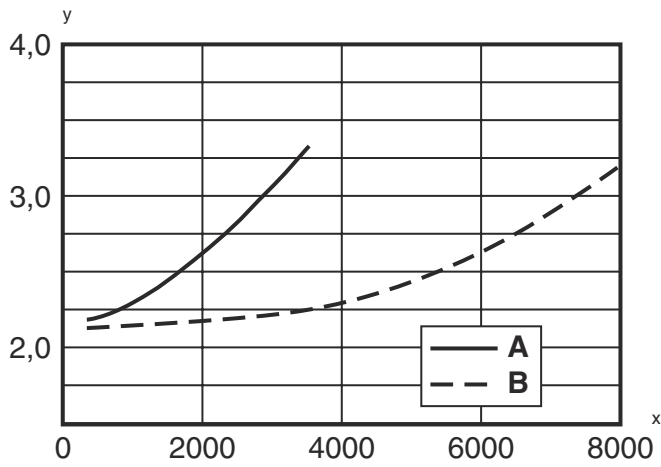
Conductor color

| | |
|-------|------------------|
| Brown | 18 ... 30 V DC + |
| White | OUT mA / V |
| Blue | GND |
| Black | IO-Link / OUT 1 |
| Gray | IN 1 |

Conductor assignment

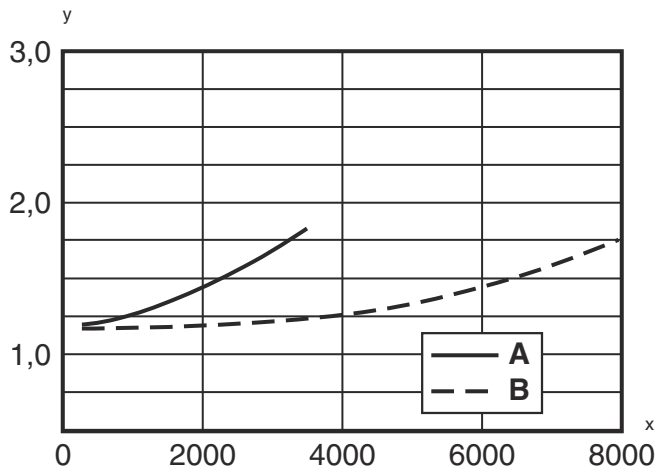
Diagrams

Typical reproducibility: "Fast" measure mode



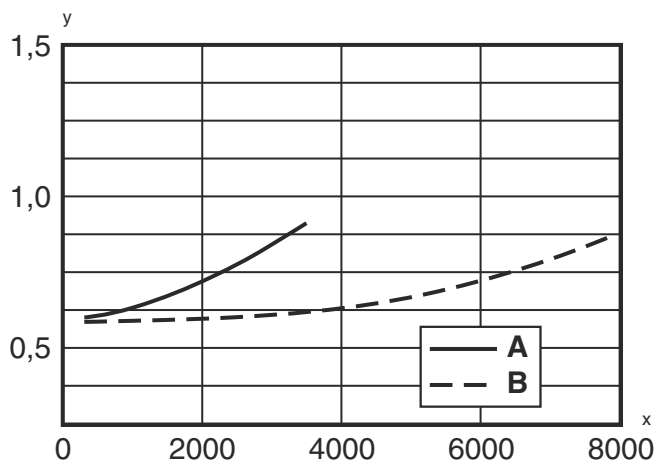
x Distance [mm]
 y Reproducibility [mm]
 A At 6% diffuse reflection
 B At 90% diffuse reflection

Typical reproducibility: "Standard" measure mode



x Distance [mm]
 y Reproducibility [mm]
 A At 6% diffuse reflection
 B At 90% diffuse reflection

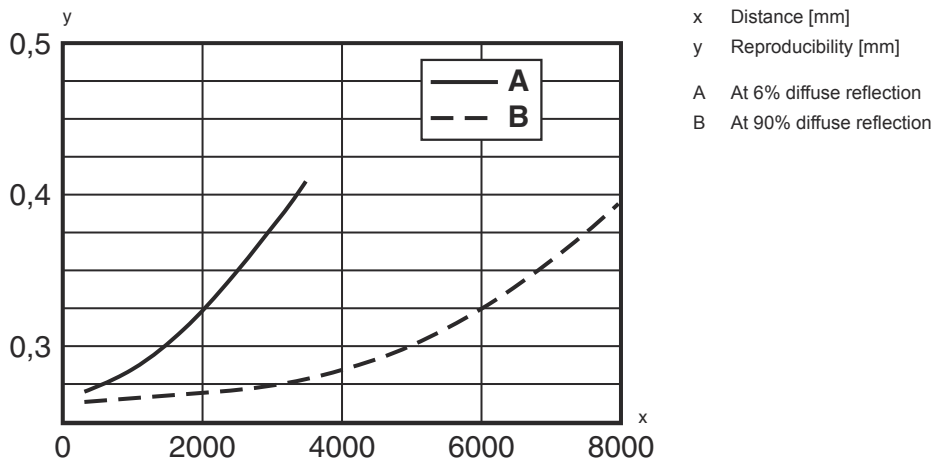
Typical reproducibility: "Precision" measure mode



x Distance [mm]
 y Reproducibility [mm]
 A At 6% diffuse reflection
 B At 90% diffuse reflection

Diagrams

Typical reproducibility: "High precision" measure mode



Operation and display

| LED | Display | Meaning |
|-------|--|-----------------------|
| 1 PWR | Green, continuous light | Operational readiness |
| | Red, continuous light | Sensor error |
| | Orange, continuous light | No function reserve |
| | Off | No supply voltage |
| 2 Q1 | Yellow, continuous light | Object detected |
| 3 Q2 | Yellow, continuous light | Object detected |
| 4 | Yellow, continuous light (behind lens cover) | Object detected |
| 5 | Yellow, continuous light (behind lens cover) | Object detected |

Part number code

Part designation: ODS10XX-YYY.Z/ABC,DDD-EEE

| | |
|-------|---|
| ODS10 | Operating principle ODS10: Optical distance sensor |
| XX | Light source L1: laser class 1 |
| YYY | Measurement range 25M: Extended measurement range 50 ... 25000mm, measurement on HighGain tape REF 7-A-100x100 |
| Z | Equipment 8: OLED display and membrane keyboard for configuration |
| A | Assignment pin 4 L: IO-Link (with dual channel, also push/pull switching output) |
| B | Assignment pin 2 A: Analog output current (factory setting) and voltage 6: push-pull switching output, PNP light switching, NPN dark switching |

Part number code

| | |
|----------------|---|
| C | <p>Assignment pin 5 K: Multifunction input (factory setting: deactivation input) 6: push-pull switching output, PNP light switching, NPN dark switching X: pin not used</p> |
| DDD-EEE | <p>Electrical connection M12: M12 connector, 5-pin 200-M12: Cable, length 200 mm with M12 connector, 5-pin YYYY: Cable, length YYYY mm with wire-end sleeves, 5-wire (no information = standard length 2000 mm)</p> |
| Note | |
| | <p>A list with all available device types can be found on the Leuze website at www.leuze.com.</p> |

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. |
|--|---|

For UL applications:

| | |
|--|---|
| | <ul style="list-style-type: none"> ⌘ For UL applications, use is only permitted in Class 2 circuits in accordance with the NEC (National Electric Code). |
|--|---|

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. |
|--|---|


Accessories

Mounting technology - Mounting brackets


| | Part no. | Designation | Article | Description |
|--|----------|-------------|------------------|---|
| | 50118543 | BT 300M.5 | Mounting bracket | Design of mounting device: Angle, L-shape Fastening, at system: Through-hole mounting Mounting bracket, at device: Screw type, Suited for M4 screws Type of mounting device: Adjustable Material: Stainless steel |

Accessories

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 |

Configuration devices

| | Part no. | Designation | Article | Description |
|--|----------|------------------------------|-----------------|--|
|  | 50121098 | SET MD12-US2-IL1.1 + Zub. | Diagnostics set | Interface: USB Connections: 2 Piece(s) Degree of protection: IP 20 |

Note



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