

Technical data sheet

Optical distance sensor

Part no.: 50127853

ODS10L1.8/LAK-M12



Figure can vary

Contents

- Technical data
- Electrical connection
- Diagrams
- Operation and display
- Part number code
- Notes
- Accessories



Technical data

Basic data

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

Special design

Special design	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, pin 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, pin 2

Switching outputs

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

Switching output 1

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

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)
-----------------------	------------

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

Technical data

Mechanical data

Design	Cubic
Dimension (W x H x L)	25 mm x 65 mm x 55 mm
Lens cover material	Glass
Net weight	70 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 8.0	27270801
eCl@ss 9.0	27270801
ETIM 5.0	EC001825
ETIM 6.0	EC001825

Electrical connection

Connection 1

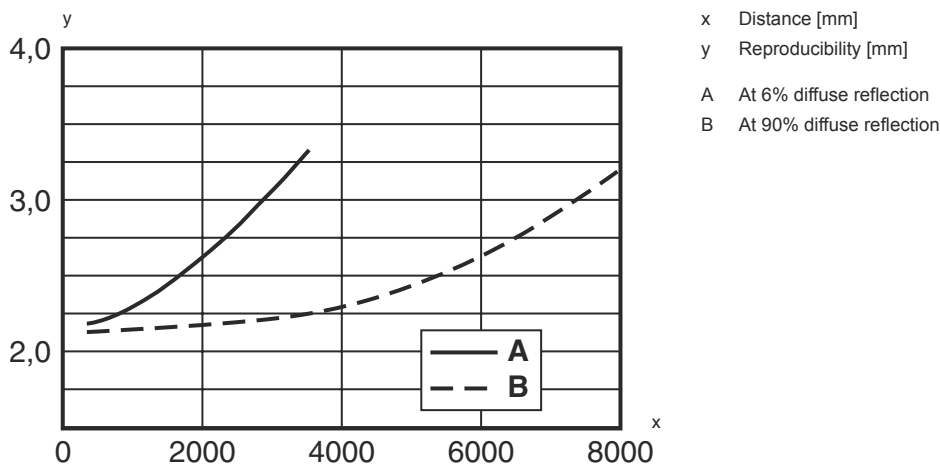
Function	Signal IN Signal OUT Voltage supply
Type of connection	Connector
Thread size	M12
Type	Male
Material	Plastic
No. of pins	5 -pin
Encoding	A-coded

Pin Pin assignment

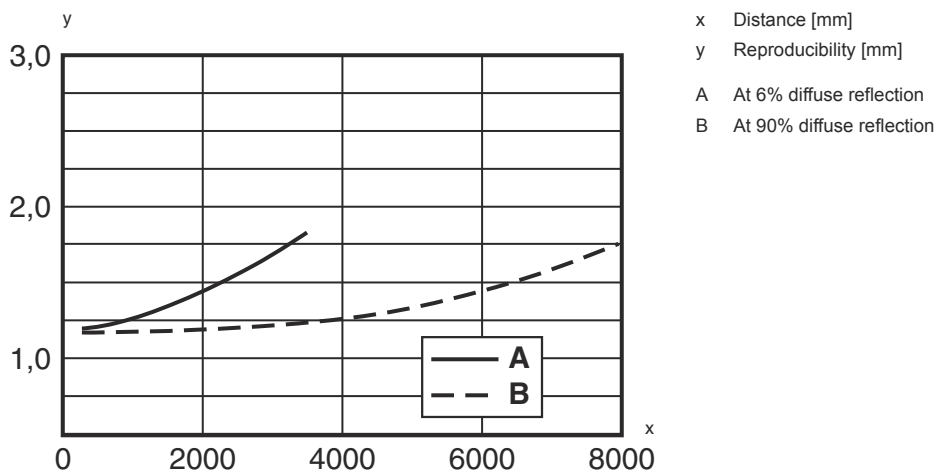
1	18 ... 30 V DC +
2	OUT mA / V
3	GND
4	IO-Link / OUT 1
5	IN 1

Diagrams

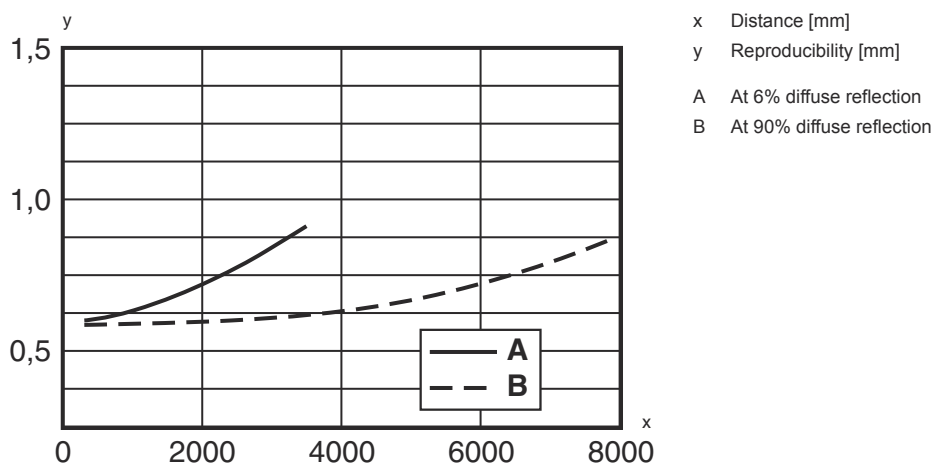
Typical reproducibility: "Fast" measure mode



Typical reproducibility: "Standard" measure mode

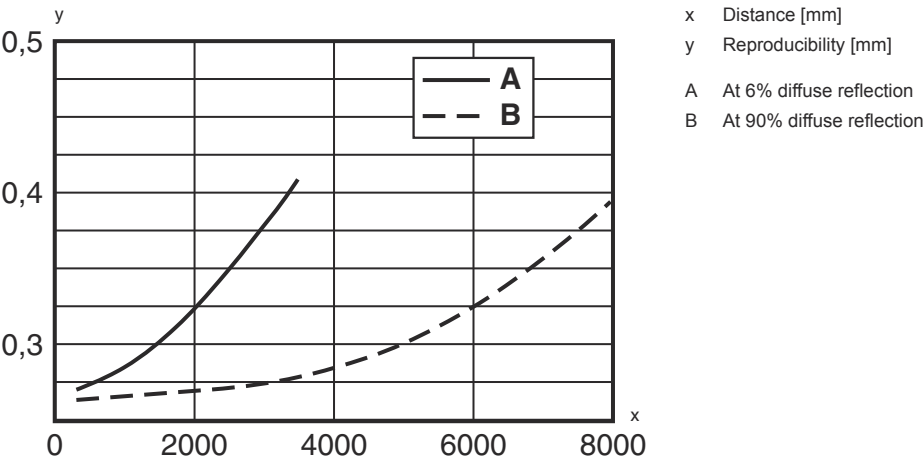


Typical reproducibility: "Precision" measure mode



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 ... 25000 mm, 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	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
DDD-EEE	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)
Note  A list with all available device types can be found on the Leuze website at www.leuze.com .	

Notes

 Observe intended use!	
	- 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:	
	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	
	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. - 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

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 Connection 2: Open end Shielded: Yes Cable length: 2,000 mm Sheathing material: PVC

Accessories

	Part no.	Designation	Article	Description
	50133856	KD S-M12-5A-V1-050	Connection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connection 2: Open end Shielded: Yes Cable length: 5,000 mm Sheathing material: PVC
	50132077	KD U-M12-5A-V1-020	Connection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin 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 Connection 2: Open end Shielded: No Cable length: 5,000 mm Sheathing material: PVC

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

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

Accessories

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