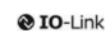




Figure can vary

Part no.: 50127853
ODS10L1.8/LAK-M12
Optical distance sensor



Contents

- Technical data
- Electrical connection
- Diagrams
- Operation and display
- Part number code
- 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 profile	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)

Part no.: 50127853 – ODS10L1.8/LAK-M12 – Optical distance sensor

Connection 1

Type of connection	Connector , Turning, 90°
Function	Signal IN Signal OUT Voltage supply
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)	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

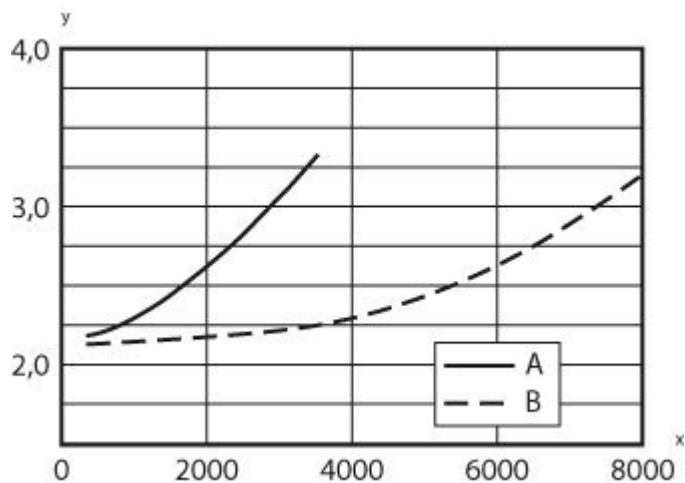
Connection 1	
Type of connection	Connector
Function	Signal IN Signal OUT Voltage supply

Connection 1	
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

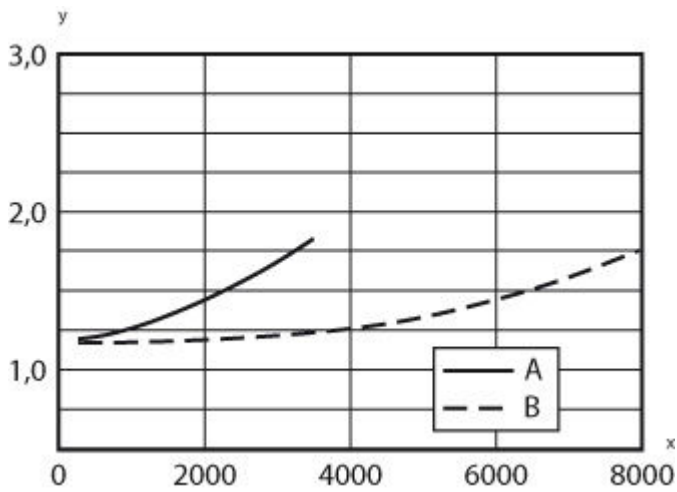
Diagrams

Typical reproducibility: "Fast" measure mode



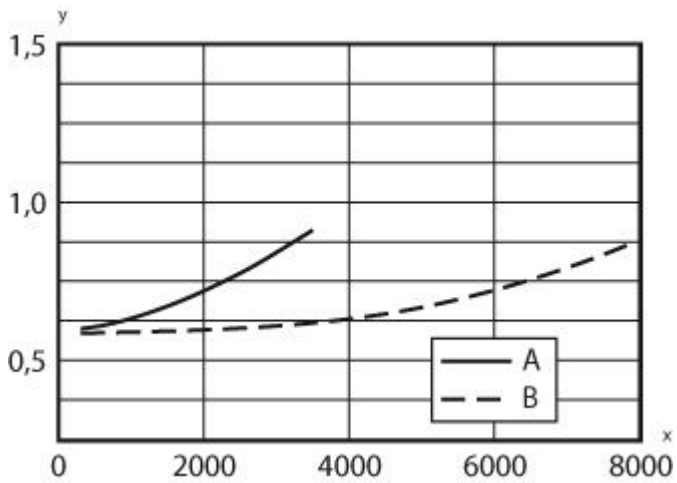
x Distance [mm]
y Reproducibility [mm]
A At 6% diffuse reflection
B At 90% diffuse reflection

Typical reproducibility: "Standard" measure mode



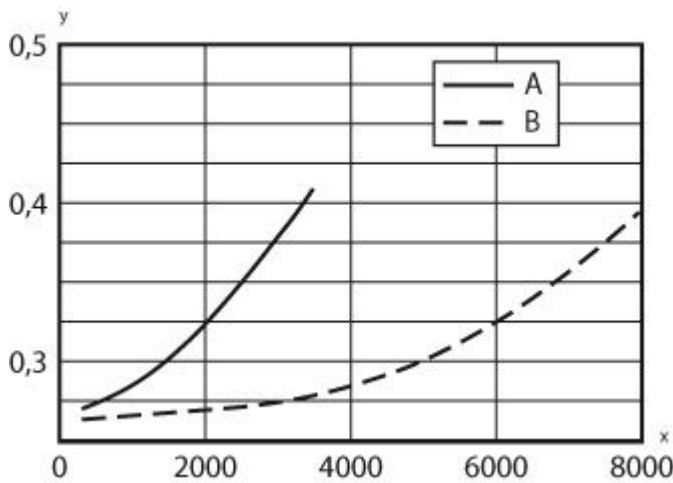
x Distance [mm]
 y Reproducibility [mm]
 A At 6% diffuse reflection
 B At 90% diffuse reflection

Typical reproducibility: "Precision" measure mode



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

Typical reproducibility: "High precision" measure mode



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

Operation and display

LEDs

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

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
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





Part no.: 50127853 – ODS10L1.8/LAK-M12 – Optical distance sensor

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)
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Note
A list with all available device types can be found on the Leuze electronic website at www.leuze.com .

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
	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 Type of mounting device: Adjustable Material: Stainless steel

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Mounting technology - Rod mounts

	Part no.	Designation	Article	Description
	50117252	BTU 300M-D12	Mounting system	Contains: 2x M4 x 25 screw, 2x M4 x 20 screw, 4x position washers Design of mounting device: Mounting system Fastening, at system: For 12 mm rod, Sheet-metal mounting Mounting bracket, at device: Screw type Type of mounting device: Clampable, Adjustable, Turning, 360° Material: Metal

	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