SMART
SENSOR
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the sensor people

Figure can vary

Part no.: 50129529
ODS10L1.8/LA6-M12
Optical distance sensor

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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

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

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

Outputs	
Number of analog outputs	1 Piece(s)
Number of digital switching outputs	2 Piece(s)
Analog outputs	
Analog output 1	
Type	Configurable, factory setting: current
Assignment	Connection 1, pin 2
Switching outputs	
Voltage type	DC
Setting for the switching outputs	Independently adjustable switching outputs
Switching voltage	High: ≥(U_B-2V) Low: ≤2V
Switching output 1	
Assignment	Connection 1, pin 4
Switching element	Transistor , Push-pull
Switching principle	IO-Link / light switching (PNP)/dark switching (NPN)
Switching output 2	
Assignment	Connection 1, pin 5
Switching element	Transistor , Push-pull
Switching principle	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 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)	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

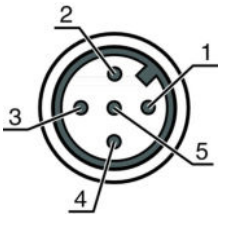
Certifications	
Degree of protection	IP 67
Protection class	III
Certifications	c UL US

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

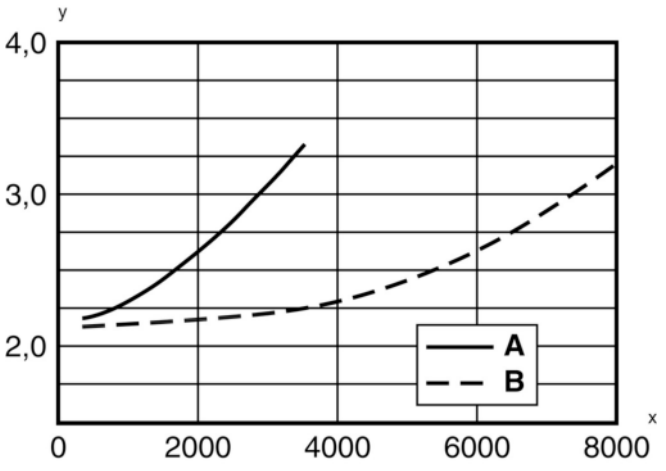
Connection 1	
Function	Signal OUT Voltage supply
Type of connection	Connector
Thread size	M12
Type	Male
Material	Plastic
No. of pins	5 -pin
Encoding	A-coded

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



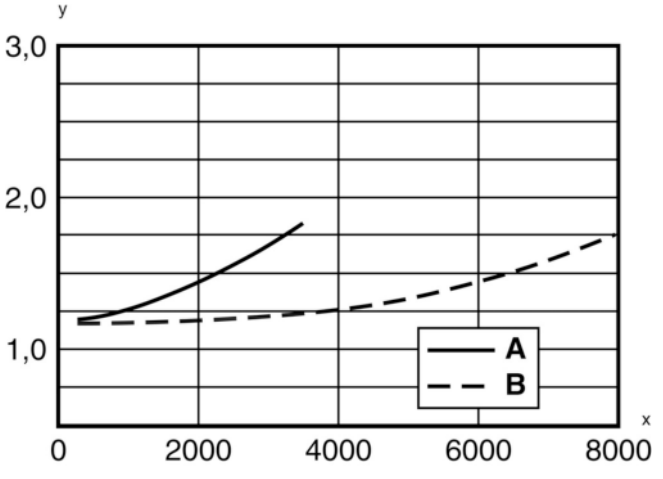
Diagrams

Typical reproducibility: "Fast" measure mode



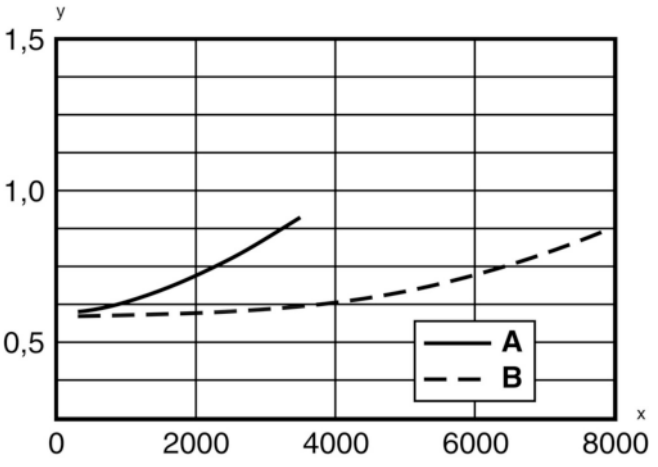
x Distance [mm]
y Reproducibility [mm]
A At 6% diffuse reflection
B At 90% diffuse reflection

Typical reproducibility: "Standard" measure mode



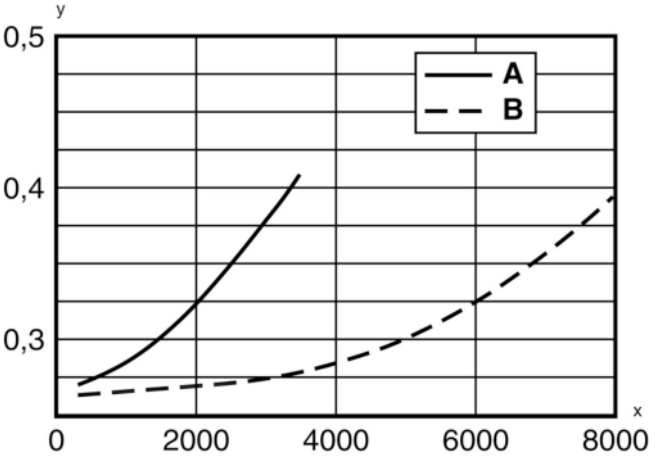
x Distance [mm]
y Reproducibility [mm]
A At 6% diffuse reflection
B At 90% diffuse reflection

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

LED		Display	Meaning
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
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 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

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	Part no.	Designation	Article	Description
	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
	50133842	KD U-M12-5W-V1-020	Connection cable	Connection 1: Connector, M12, Angled, Female, A-coded, 5 -pin Connection 2: Open end Shielded: No Cable length: 2,000 mm Sheathing material: PVC
	50133802	KD U-M12-5W-V1-050	Connection cable	Connection 1: Connector, M12, Angled, 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

	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 electronic website in the Download tab of the article detailed page.