

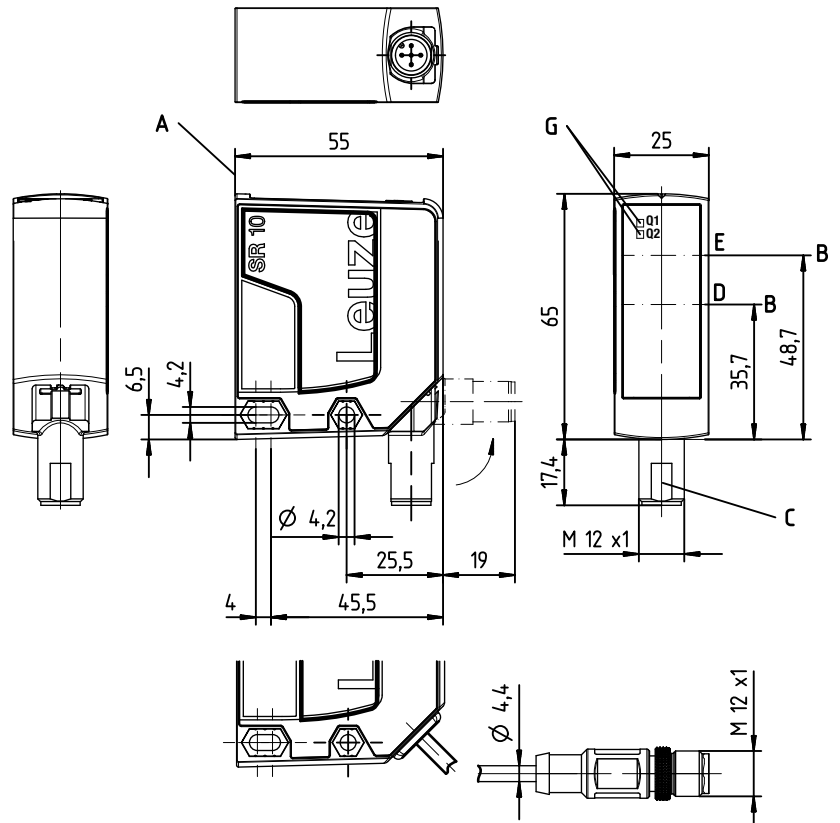
ODS10

Optical distance sensors

en 01-2015/09 50129320



Dimensioned drawing



- A Reference edge for the measurement
- B Optical axis
- C Turning M12 connector, 90°
- D Receiver
- E Transmitter
- F OLED display
- G Indicator diodes green/red (control panel)  
2 x yellow (control panel and lens cover)
- H Key pad

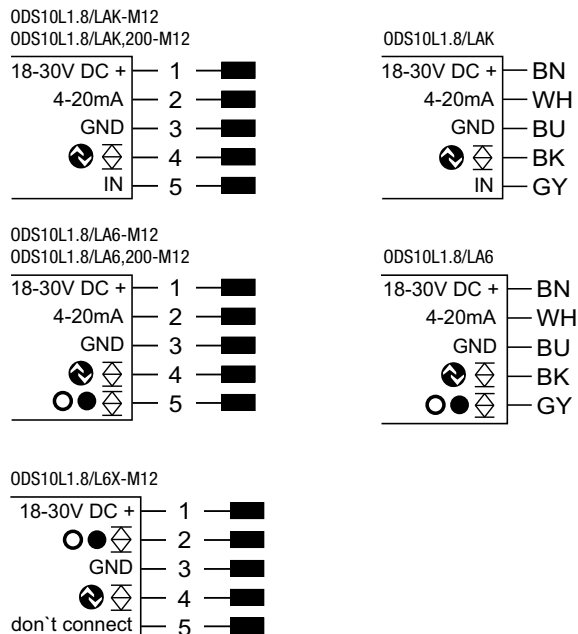
50 ... 8000mm

18 - 30 V DC

IO-Link

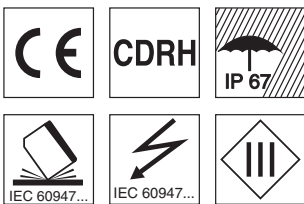
- Reflection-independent distance information up to 4000mm
- Analog current and voltage output (factory setting: current output)
- OLED display and membrane keyboard for configuration
- Configurable measurement range and measure mode
- IO-Link version 1.1
- Measurement value is indicated in mm on OLED display
- Optional input for deactivation of the laser (factory setting) or for teach-in

Electrical connection



Accessories:

- (available separately)
- Mounting systems
  - Cable with M12 connector (K-D ...)
  - IO-Link master set  
SET MD12-US2-IL1.1 + accessories -  
diagnostics set (part no. 50121098)



We reserve the right to make changes • DS\_ODS10L18\_en\_50129320.fm

## Specifications

### Optical data

Measurement range	50 ... 8000mm (90 % diffuse reflection), 50 ... 3500mm (6 ... 90 % diffuse reflection)
Resolution	3mm
Light source	laser
Laser class	1 (acc. to IEC 60825-1:2007)
Wavelength	658nm (visible red light)
Impulse duration	6ns
Max. output power (peak)	391 mW
Light spot	approx. 7x7mm <sup>2</sup> at 8m

### Error limits

Accuracy <sup>1)</sup>	± 30mm
Reproducibility <sup>2)</sup>	4mm
B/W detection thresh. (6 ... 90% rem.)	± 10mm
Temperature drift	± 2mm/K

### Timing

Measurement time	"Fast" operating mode: 3.5ms "Standard" operating mode: 20ms "Precision" operating mode: 50ms (factory setting)
Delay before start-up	≤ 300ms

### Electrical data

Operating voltage U <sub>B</sub>	18 ... 30VDC (incl. residual ripple)
Residual ripple	≤ 15% of U <sub>B</sub>
Open-circuit current	≤ 150mA
Switching output	push-pull switching output <sup>3)</sup> , PNP light switching, NPN dark switching
Signal voltage high/low	≥ (U <sub>B</sub> -2 V)/≤ 2V
Analog output	ODS10L1.8/LA... voltage 1 ... 10V / 0 ... 10V / 1 ... 5V / 0 ... 5V, R <sub>L</sub> ≥ 2kΩ current 4 ... 20mA, R <sub>L</sub> ≤ 500Ω (factory setting)
IO-Link	COM2 (38.4kBaud), vers. 1.1, min. cycle time 2.3ms, SIO is supported

### Indicators

Green/red LED	green continuous light	ready
	red	no signal
	orange	warning, weak signal
	off	no voltage
Yellow LEDs Q1/Q2 on		object detected

### Mechanical data

Housing	plastic
Optics cover	glass
Weight	70g (M 12 connector) 133g (2m cable) 90g (cable with M 12 connector)
Connection type	turning M 12 connector, 90° 2m cable, core cross section 5 x 0.14mm <sup>2</sup> (5 x 26 AWG) 0.2m cable with M12 connector

### Environmental data

Ambient temp. (operation/storage)	-40 °C ... +50 °C / -40 °C ... +70 °C
Protective circuit <sup>4)</sup>	1, 2, 3
VDE safety class	III
Degree of protection	IP 67
Standards applied	IEC 60947-5-2

- 1) For 50 ... 3500mm measurement range, luminosity coefficient 6% ... 90%, "Precision" operating mode, at 20 °C after 20 min. warmup time, medium range of U<sub>B</sub>, measurement object ≥ 50x50mm<sup>2</sup>
- 2) Same object, identical environmental conditions, "Precision" operating mode, measuring value noise 1 sigma, after 20 min. warmup time, measurement object ≥ 50x50mm<sup>2</sup>
- 3) The push-pull switching outputs must not be connected in parallel
- 4) 1=transient protection, 2=polarity reversal protection, 3=short circuit protection for all outputs

## Tables

## Diagrams

## Remarks

### Operate in accordance with 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 the intended use.

**Laser safety notices**



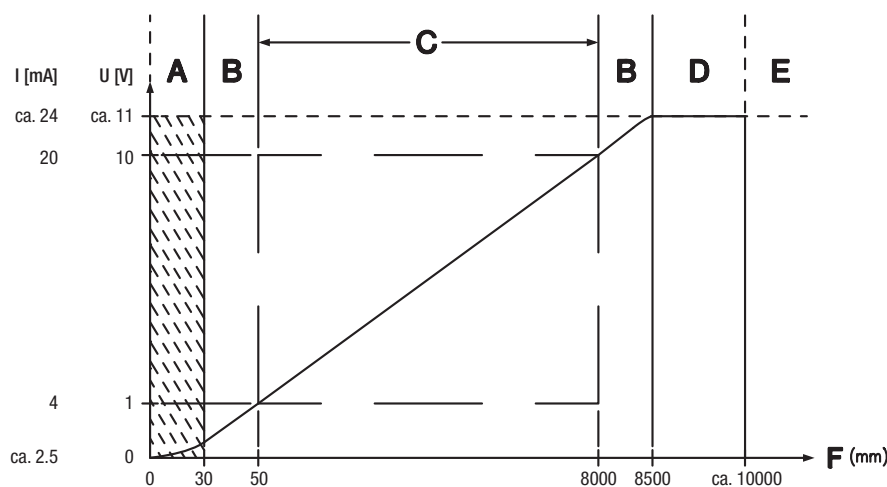
**ATTENTION, LASER RADIATION – LASER CLASS 1**

The device satisfies the requirements of IEC 60825-1:2007 (EN 60825-1:2007) safety regulations for a product in **laser class 1** as well as the U.S. 21 CFR 1040.10 regulations with deviations corresponding to "Laser Notice No. 50" from June 24th, 2007.

- ↳ Adhere to the applicable legal and local regulations regarding protection from laser beams.
- ↳ 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.

**Analog output: characteristic curve for factory setting**



**Factory setting**

- A** Area not defined
- B** Linearity not defined
- C** Measurement range
- D** Object present
- E** No object detected
- F** Measurement distance

## Part number code

O	D	S	1	0	L	1	.	8	/	L	A	K	,	2	0	0	-	M	1	2
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### Operating principle

**ODS** Optical distance sensor

### Series

**10** Series 10

### Laser class

**L1** Laser class 1 (acc. to IEC 60825-1:2007)

### Equipment

**8** OLED display and membrane keyboard for configuration

### Assignment pin 4

**L** IO-Link (with dual channel, also push/pull switching output)

### Assignment pin 2

**A** Analog output current (factory setting) and voltage  
**6** push/pull switching output

### Assignment pin 5

**K** Multifunction input (factory setting: deactivation input)  
**6** Push/pull switching output  
**X** Do not connect

### Electrical connection

**-M12** M12 connector, 5-pin  
**N/A** Cable, length 2000mm with wire-end sleeves, 5-wire  
**,200-M12** Cable, length 200mm with M12 connector, 5-pin

## Order guide

	Designation	Part no.
<b>Connection: M12 connector, 5-pin</b>		
IO-Link 1.1, analog output, multifunction input, 1 push/pull switching output	ODS10L1.8/LAK-M12	50127853
IO-Link 1.1, analog output, 2 push/pull switching outputs	ODS10L1.8/LA6-M12	50129529
IO-Link 1.1, dual channel, 2 push/pull switching outputs	ODS10L1.8/L6X-M12	50129528
<b>Connection: cable, length 2000mm with wire-end sleeves, 5-wire</b>		
IO-Link 1.1, analog output, multifunction input, 1 push/pull switching output	ODS10L1.8/LAK	50129531
IO-Link 1.1, analog output, 2 push/pull switching outputs	ODS10L1.8/LA6	50129532
<b>Connection: cable, length 200mm with M12 connector, 5-pin</b>		
IO-Link 1.1, analog output, multifunction input, 1 push/pull switching output	ODS10L1.8/LAK,200-M12	50129534
IO-Link 1.1, analog output, 2 push/pull switching outputs	ODS10L1.8/LA6,200-M12	50129535
<b>Accessories</b>		
Mounting system for mounting on rods Ø 10 mm	BTU 460M-D10	50128379
Mounting system for mounting on rods Ø 12 mm	BTU 460M-D12	50128380
Connection cable with M12 connector, angled, 5-pin, length 2m, PVC sheathing (many other connection cables are available)	K-D M12W-5P-2m-PVC	50104556
IO-Link master set	SET MD12-US2-IL1.1 + accessories - diagnostics set	50121098