

## Technical data sheet

### Optical distance sensor

Part no.: 50138327

### ODS9L2.8/LFH-450-M12

#### Contents

- Technical data
- Electrical connection
- Diagrams
- Operation and display
- Notes
- Accessories



Figure can vary



## Technical data

### Basic data

Series	9
Type of scanning system	Against object

### Characteristic parameters

MTTF	36 years
------	----------

### Optical data

Beam path	Divergent
Light source	Laser, Red
Laser light wavelength	655 nm
Laser class	2, IEC / EN 60825-1:2014
Transmitted-signal shape	Pulsed
Light spot size [at sensor distance]	1 mm
Type of light spot geometry	Round

### Measurement data

Measurement range	50 ... 450 mm
Resolution	0.1 mm
Accuracy	1 %
Reference value, accuracy	Measurement distance
Repeatability	0.5 %
Reference value repeatability	Measurement distance
Temperature drift, relative	0.02 %/K
Referencing	No
Black/white behavior	0.5 %
Standard measurement object	50 x 50 mm <sup>2</sup>
Optical distance measurement principle	Triangulation

### Electrical data

Protective circuit	Polarity reversal protection
	Short circuit protected
	Transient protection

### Performance data

Supply voltage $U_B$	10 ... 30 V, DC
Residual ripple	0 ... 15 %, From $U_B$
Open-circuit current	0 ... 180 mA

### Outputs

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

### Switching outputs

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

### Switching output 1

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

### Timing

Response time	1 ms, Under constant ambient conditions, 90% diffuse reflection, standard measure mode
Readiness delay	300 ms

### Interface

Type	RS 232
------	--------

### RS 232

Function	Process
Transmission speed	2,400 ... 230,400 Bd
Data format	Adjustable
Start bit	1
Data bit	8
Stop bit	1
Transmission protocol	Adjustable
Data encoding	14 bit HEX
	16 bit HEX
	24 bit HEX
	ASCII
	Decimal measurement value
	Remote Control (ASCII)

### 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)	21 mm x 50 mm x 50 mm
Housing material	Plastic, PC
Lens cover material	Glass
Net weight	50 g
Housing color	Red
Type of fastening	Through-hole mounting
	Via optional mounting device

### Operation and display

Type of display	OLED display
Number of LEDs	2 Piece(s)
Type of configuration	Software
Operational controls	Control buttons
	LC Display
	PC software

### Environmental data

Ambient temperature, operation	-20 ... 50 °C
Ambient temperature, storage	-30 ... 70 °C

### Certifications

Degree of protection	IP 67
Protection class	II
Certifications	c UL US
Standards applied	IEC 60947-5-2

## Technical data

Customs tariff number	90318020
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

## Electrical connection

### Connection 1

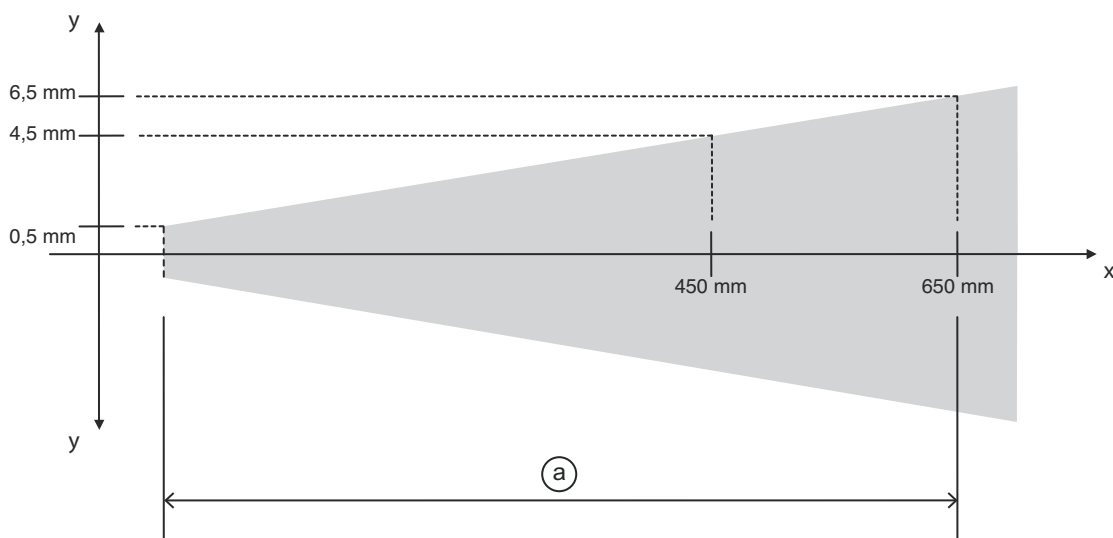
Function	Signal OUT
	Voltage supply
Type of connection	Connector
Thread size	M12
Type	Male
Material	Plastic
No. of pins	5 -pin
Encoding	A-coded

### Pin Pin assignment

1	18 ... 30 V DC +
2	RS 232 RxD
3	GND
4	IO-Link / OUT 1
5	RS 232 TxD

## Diagrams

### Accuracy of measurement



- x Measurement distance
- y Max. measurement error
- a 1% of measurement value

## Operation and display

LED	Display	Meaning
1	Green, continuous light	Operational readiness
	Green, flashing	Fault
	Off	No supply voltage
2	Yellow, continuous light	Object in the measurement range
	Off	No object in the measurement range

## 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.



### WARNING! LASER RADIATION – CLASS 2 LASER PRODUCT



#### Do not stare into beam!

The device satisfies the requirements of IEC 60825-1:2007 (EN 60825-1:2007) safety regulations for a product of laser class 2 as well as the U.S. 21 CFR 1040.10 regulations with deviations corresponding to "Laser Notice No. 50" from June 24, 2007.

- ⚠ Never look directly into the laser beam or in the direction of reflected laser beams! If you look into the beam path over a longer time period, there is a risk of injury to the retina.
- ⚠ Do not point the laser beam of the device at persons!
- ⚠ Interrupt the laser beam using a non-transparent, non-reflective object if the laser beam is accidentally directed towards a person.
- ⚠ When mounting and aligning the device, avoid reflections of the laser beam off reflective surfaces!
- ⚠ CAUTION! Use of controls or adjustments or performance of procedures other than specified herein may result in hazardous light exposure.
- ⚠ 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.

### NOTE




#### Affix laser information and warning signs!

Laser information and warning signs are affixed to the device. In addition, self-adhesive laser information and warning signs (stick-on labels) are supplied in several languages.


- ⚠ Affix the laser information sheet to the device in the language appropriate for the place of use. When using the device in the US, use the stick-on label with the "Complies with 21 CFR 1040.10" note.
- ⚠ Affix the laser information and warning signs near the device if no signs are attached to the device (e.g. because the device is too small) or if the attached laser information and warning signs are concealed due to the installation position.
- ⚠ Affix the laser information and warning signs so that they are legible without exposing the reader to the laser radiation of the device or other optical radiation.

## Accessories


### Connection technology - Connection cables

	Part no.	Designation	Article	Description
	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
	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
	50140174	KDS U-M12-5A-M12-5A-P1-003-25X	Interconnection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connection 2: Connector, M12, Axial, Male, A-coded, 5 -pin Shielded: No Cable, crossed: Connection 1, pin 2 <-> connection 2, pin 5 Cable length: 300 mm Sheathing material: PUR

### Mounting technology - Mounting brackets

	Part no.	Designation	Article	Description
	50036195	BT 8	Mounting device	Design of mounting device: Angle, L-shape Fastening, at system: Through-hole mounting Mounting bracket, at device: Screw type Type of mounting device: Rigid Material: Metal

**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

**Note**

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