

## 3-D LiDAR sensor

### OMD10M-R2300-B23-V1V1D-4S



- High angle resolution
- Can be aligned using an integrated pilot laser
- Measuring method PRT (Pulse Ranging Technology)
- Compact design
- High pollution tolerance

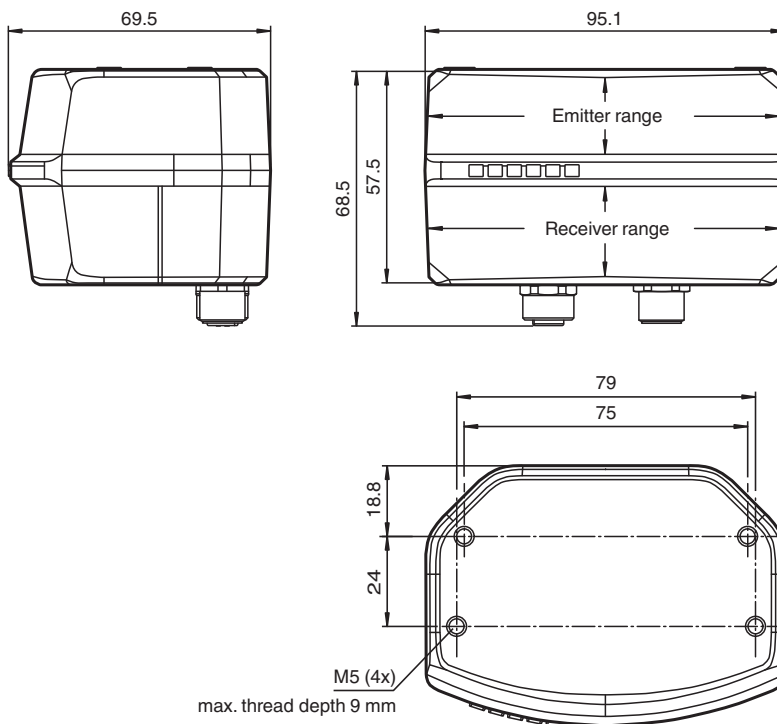
R2300, 3-D LiDAR sensor for object detection and positioning, measuring range to object up to 10 m, Ethernet



### Function

The 3-D LiDAR sensor uses Pulse Ranging Technology (PRT). So the sensor reaches a large detection range for small light spot widths. The device has a measuring angle of 100°. With 4 scanning layers the device produces 3-D-data. The optional switchable pilot laser is projected accurately on the scanning layers. Thus an optimal orientation of the sensor is possible. Output of the measuring values as well as the parameterization takes place via standard Ethernet-interface.

### Dimensions



### Technical Data

#### General specifications

Measurement range	0.2 ... 4 m (bk 10%) 0.2 ... 10 m (wh 90%)
Reference target	Kodak white (90%)
Light source	laser diode

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## Technical Data

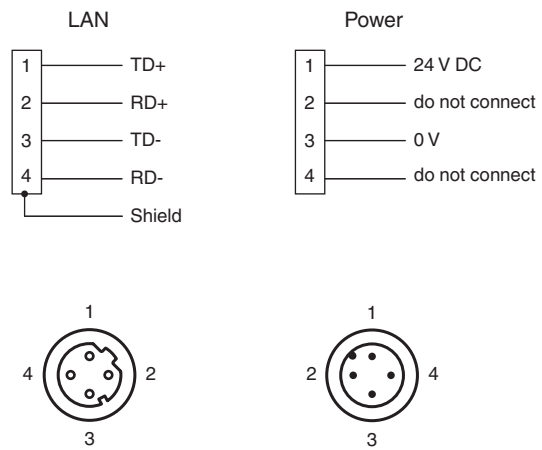
Laser nominal ratings		
Note	LASER RADIATION , DO NOT STARE INTO BEAM	
Laser class	1	
Wave length	Measuring laser infrared light 905 nm Pilot laser red light 650 nm	
Beam divergence	Measuring laser: transversal 2 mrad , longitudinal 9.5 mrad Pilot laser: 0.3 mrad	
Pulse length	Measuring laser: 5.2 ns Pilot laser: 1.1 $\mu$ s	
Repetition rate	90 kHz	
max. pulse energy	Measuring laser: < 81 nJ Pilot laser: < 60 nJ	
Measuring method	Pulse Ranging Technology (PRT)	
Frame rate	25 fps 12.5 fps	
Scan rate	100 s <sup>-1</sup> 50 s <sup>-1</sup>	
Scanning zone	100° horizontal, 9° vertical	
Diameter of the light spot	25 mm x 100 mm at 10 m	
Filter	Maximum, average, median	
Ambient light limit	60000 Lux	
Resolution	1 mm	
<b>Functional safety related parameters</b>		
MTTF <sub>d</sub>	75 a	
Mission Time (T <sub>M</sub> )	20 a	
Diagnostic Coverage (DC)	0 %	
<b>Indicators/operating means</b>		
Operation indicator	LED green	
Data flow indicator	LED yellow: active ethernet LED green: Ethernet link	
Function indicator	LED red: fault	
Control elements	none	
Parameterization indicator	none	
<b>Electrical specifications</b>		
Operating voltage	U <sub>B</sub>	10 ... 30 V
Ripple		10 % within the supply tolerance
No-load supply current	I <sub>0</sub>	≤ 300 mA / 24 V DC
Power consumption	P <sub>0</sub>	< 8 W
Time delay before availability	t <sub>v</sub>	< 20 s
<b>Interface</b>		
Interface type	Fast Ethernet	
Protocol	HTTP , UDP/IP	
<b>Input/Output</b>		
Input/output type	none	
<b>Conformity</b>		
Product standard	EN 60947-5-2	
Laser safety	EN 60825-1:2014	
<b>Measurement accuracy</b>		
Measuring speed	50000 measurements per second	
Measured value noise	typ. 30 mm , 1 sigma	
Angle resolution	0.1° at 12.5 Hz	
Absolute accuracy	typ. ± 30 mm	
Repeat accuracy	< 12 mm	
<b>Approvals and certificates</b>		

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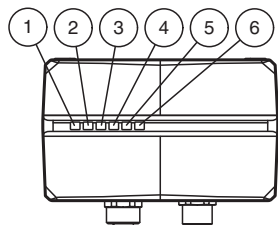
**Technical Data**

Protection class	III (operating voltage 50 V)
CCC approval	CCC approval / marking not required for products rated ≤36 V
<b>Ambient conditions</b>	
Ambient temperature	-30 ... 50 °C (-22 ... 122 °F)
Storage temperature	-30 ... 70 °C (-22 ... 158 °F)
Relative humidity	95 % , no moisture condensation
<b>Mechanical specifications</b>	
Housing width	96 mm
Housing height	57 mm
Degree of protection	IP65
Connection	4-pin, M12x1 connector, standard (supply) , shield connected on both sides 4-pin, M12x1 socket, D-coded (LAN)
<b>Material</b>	
Housing	ABS + PC
Optical face	PC (Polycarbonate)
Mass	approx. 0.27 kg
Tightening torque, fastening screws	1.5 Nm
Number of mounting holes	4 , max. thread depth 9 mm

**Connection Assignment**



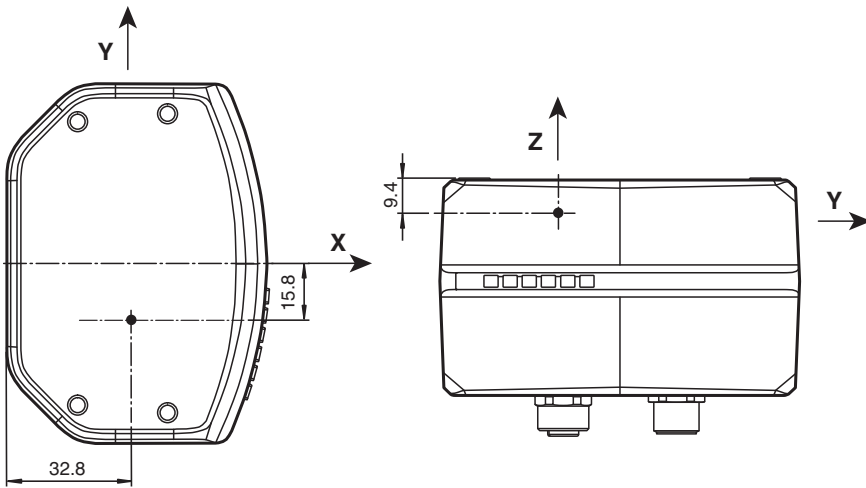
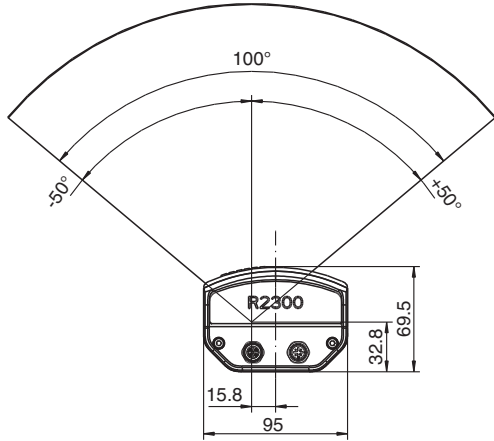
**Assembly**



1	Power ON	green
2	Error indication	red
3	Not used	
4	Not used	
5	Ethernet ACT	yellow
6	Ethernet Link	green

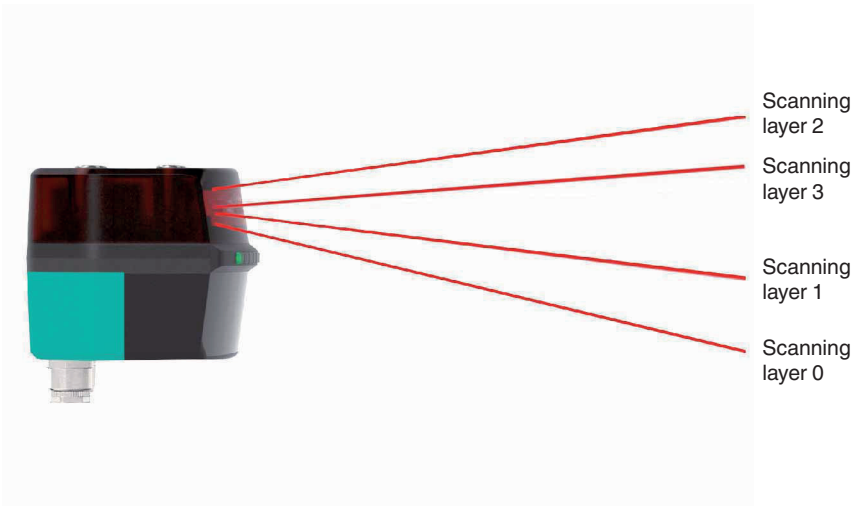
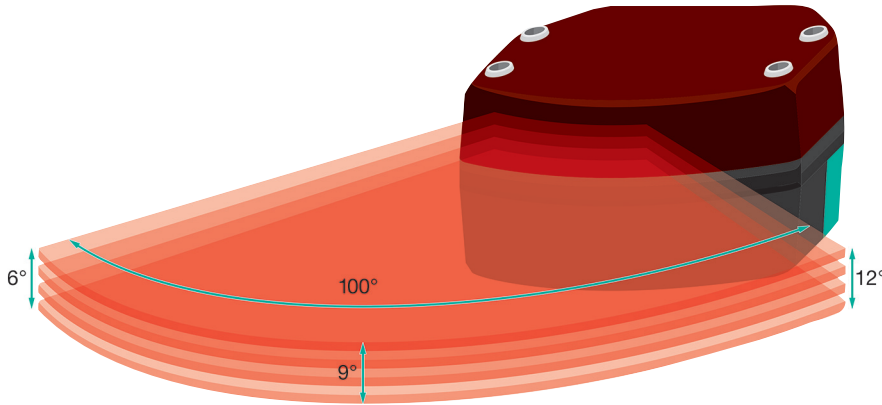
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Technical Features



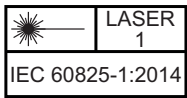
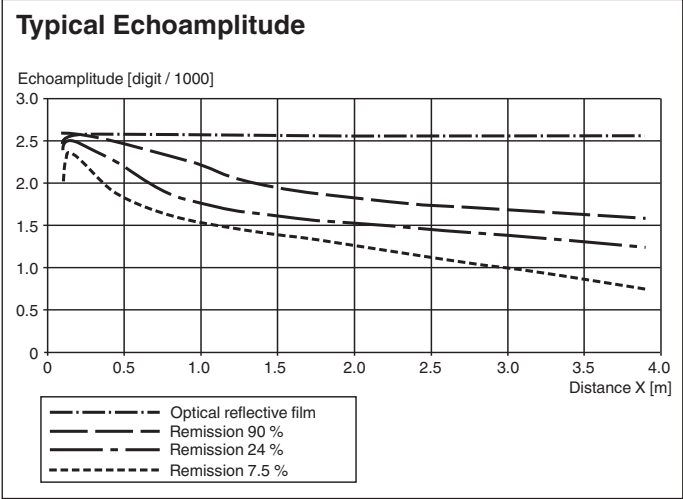
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## Technical Features



## Safety Information

### Laser Class 1 Information

The irradiation can lead to irritation especially in a dark environment. Do not point at people!  
 Maintenance and repairs should only be carried out by authorized service personnel!  
 Attach the device so that the warning is clearly visible and readable.  
 Caution – Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

## Cybersecurity

From the security point-of-view, the responsible plant operator requires to take the following measures:

- Provide physical protection of the device from unauthorized third-party access
- Ensure a point-to-point connection between the device and the higher-level controller
- Ensure that the device is only operated in an isolated network without any direct connection to a company network, the internet, or cloud services;  
 - in this context, the device may only communicate with a higher-level controller or with a defined, trustworthy group of network participants

## Accessories

	<b>Schutzkappe LS610 Zubehoer</b>	M12 protective cap set (connector + socket) for series LS610 / LS611
	<b>V1SD-G-2M-PUR-ABG-V45-G</b>	Connection cable, M12 to RJ-45, PUR cable 4-pin, CAT5e
	<b>V1SD-G-ABG-PG9</b>	Male connector M12 straight D-coded 4-pin, for cable diameter 5 - 8 mm, shielded, field-attachable
	<b>V1SD-90-W-3M-PUR-ABG-V45-G</b>	Ethernet bus cable M12 plug angled D-coded to RJ45 Ethernet-coded, 4-pin, PUR cable blue, Cat5e, shielded
	<b>V1-G-5M-PUR</b>	Female cordset single-ended M12 straight A-coded, 4-pin, PUR cable grey
	<b>V1-G-BK5M-PUR-U</b>	Female cordset single-ended M12 straight A-coded, 4-pin, PUR cable black, UL approved, drag chain suitable, torsion resistant
	<b>V1-W-5M-PUR-ABG</b>	Female cordset single-ended M12 angled A-coded, 4-pin, PUR cable grey, shielded

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