



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

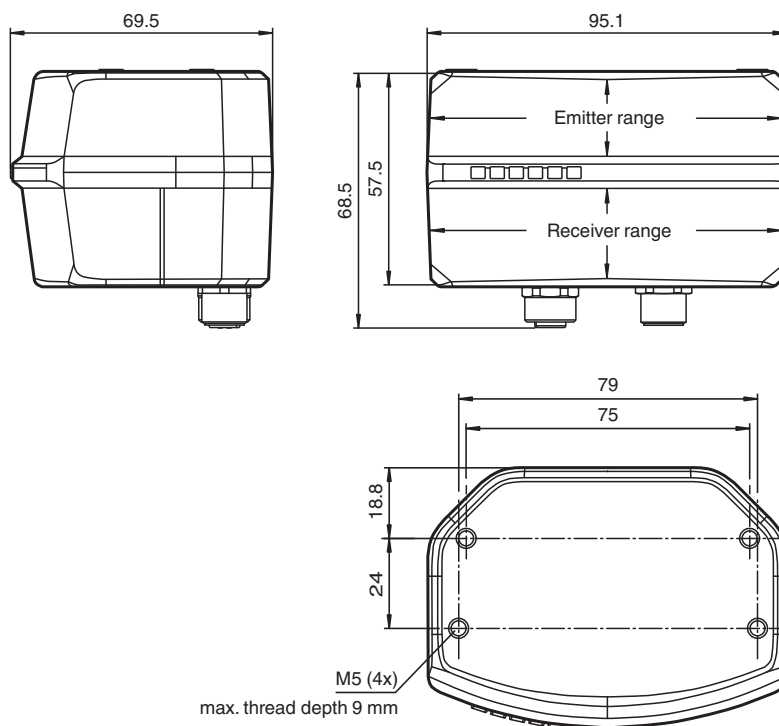
R2300, 3-D LiDAR sensor for object detection and positioning, measuring range to object up to 10 m, Ethernet



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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Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

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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 µs	
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 ⁻¹ 50 s ⁻¹	
Scanning zone	100° horizontal, 9° vertical	
Diameter of the light spot	25 mm x 100 mm at 10 m	
Ambient light limit	60000 Lux	
Resolution	1 mm	
Functional safety related parameters		
MTTF _d	75 a	
Mission Time (T _M)	20 a	
Diagnostic Coverage (DC)	0 %	
Indicators/operating means		
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	
Electrical specifications		
Operating voltage	U _B	10 ... 30 V
Ripple	10 % within the supply tolerance	
No-load supply current	I ₀	≤ 300 mA / 24 V DC
Power consumption	P ₀	< 8 W
Time delay before availability	t _v	< 20 s
Interface		
Interface type	Fast Ethernet	
Protocol	HTTP , UDP/IP	
Input/Output		
Input/output type	none	
Conformity		
Product standard	EN 60947-5-2	
Laser safety	EN 60825-1:2014	
Measurement accuracy		
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	
Approvals and certificates		
Protection class	III (operating voltage 50 V)	

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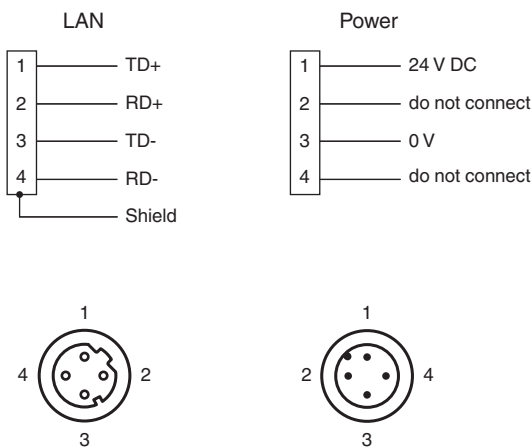
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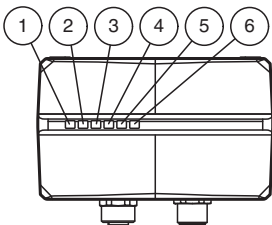
Technical Data

CCC approval		CCC approval / marking not required for products rated ≤36 V	
Ambient conditions			
Ambient temperature		-30 ... 50 °C (-22 ... 122 °F)	
Storage temperature		-30 ... 70 °C (-22 ... 158 °F)	
Relative humidity		95 % , no moisture condensation	
Mechanical specifications			
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)	
Material			
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



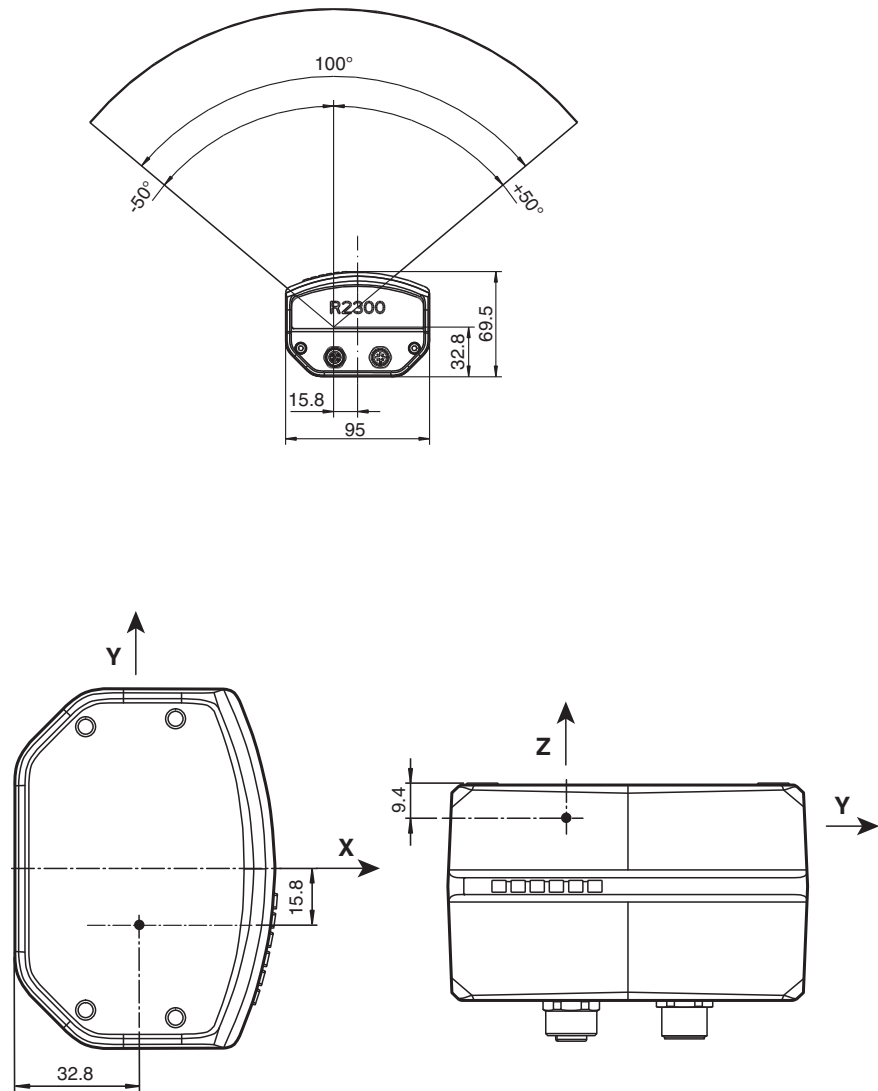
Assembly



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

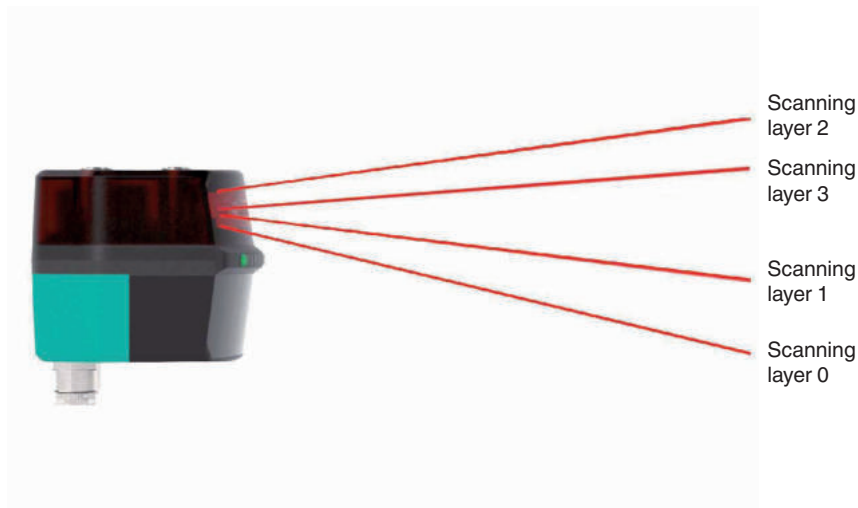
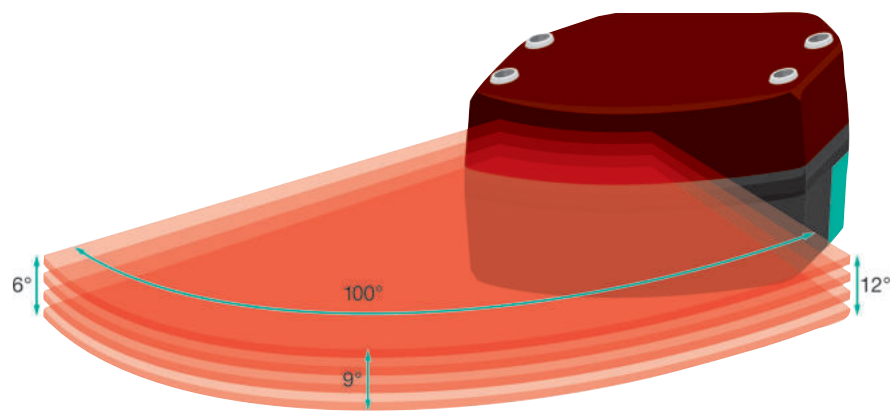
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Technical Features



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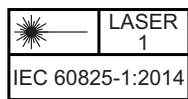
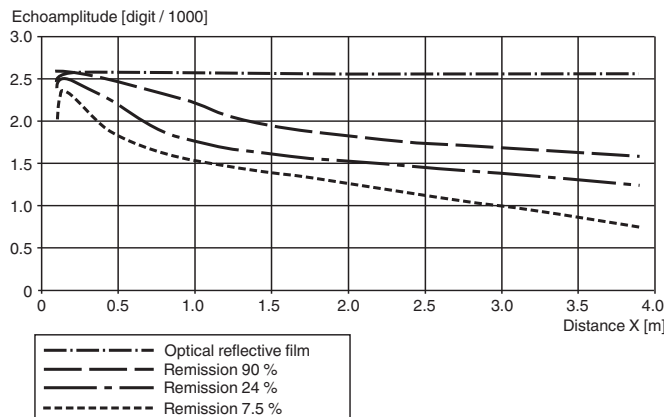
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Technical Features

Typical Echoamplitude



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

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