



2-D LiDAR Sensor

OMD10M-R2300-B23-V1V1D-1S



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

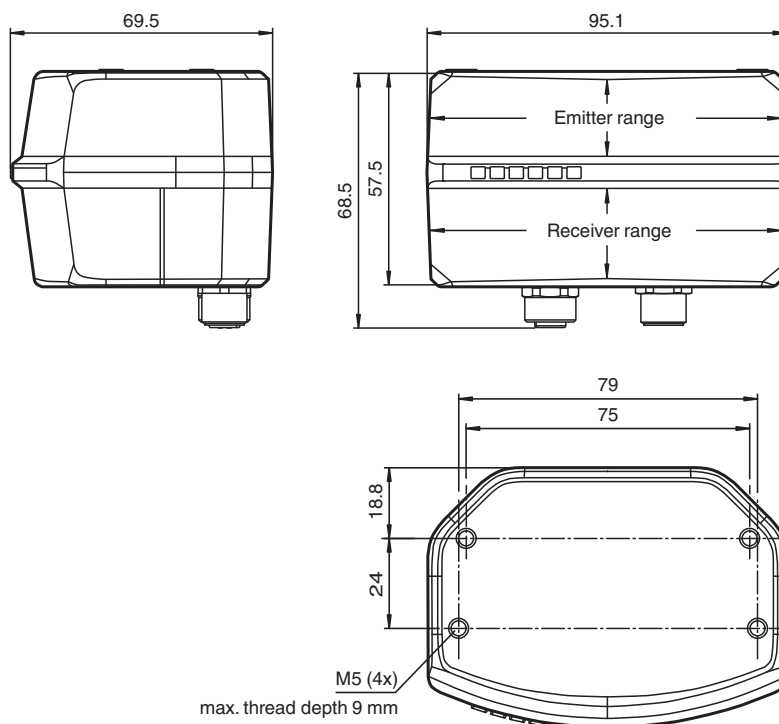
R2300, 2-D LiDAR sensor for object detection and positioning, measuring range to object up to 10 m, Ethernet



Function

The 2-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 1 scanning layer the device produces 2-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)
Scan rate		100 s ⁻¹ 50 s-1
Scanning zone		100° horizontal
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
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 50 Hz
Absolute accuracy		typ. ± 30 mm
Repeat accuracy		< 12 mm
Approvals and certificates		
Protection class		III (operating voltage 50 V)
CCC approval		CCC approval / marking not required for products rated ≤36 V

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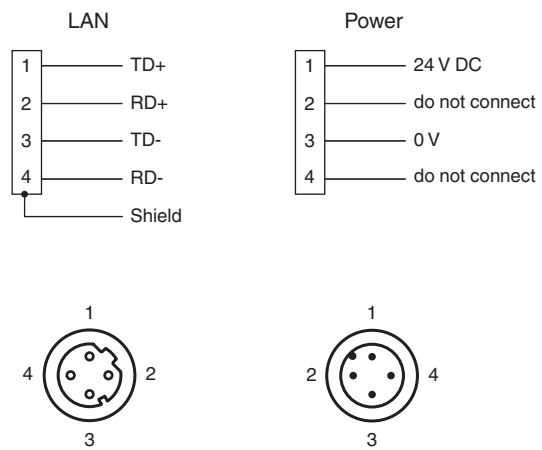
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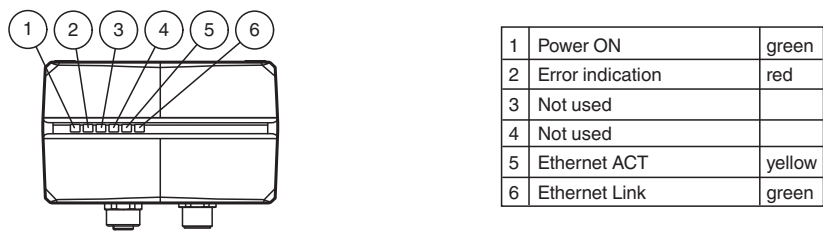
Technical Data

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

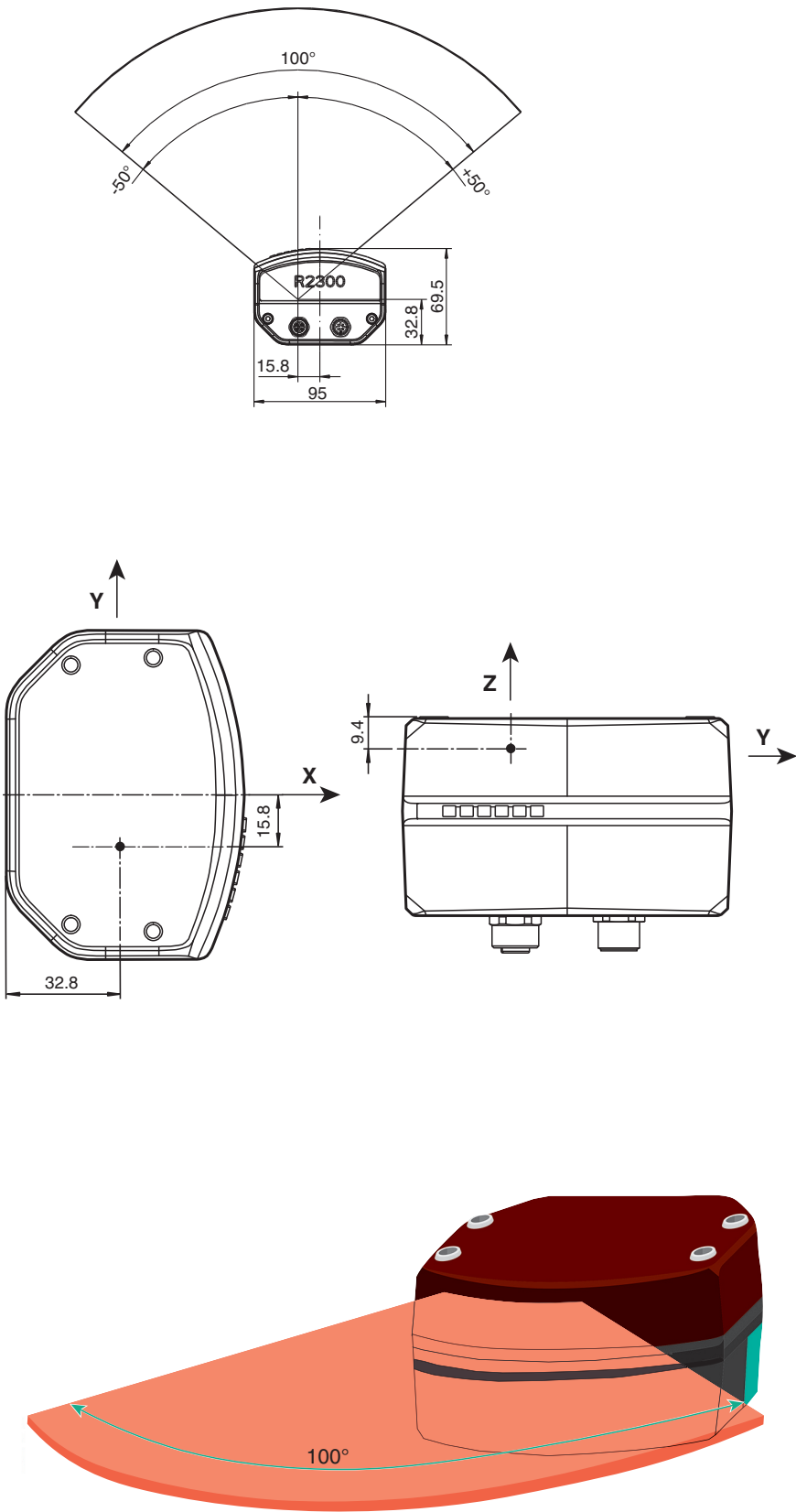


Assembly



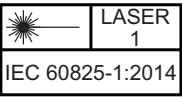
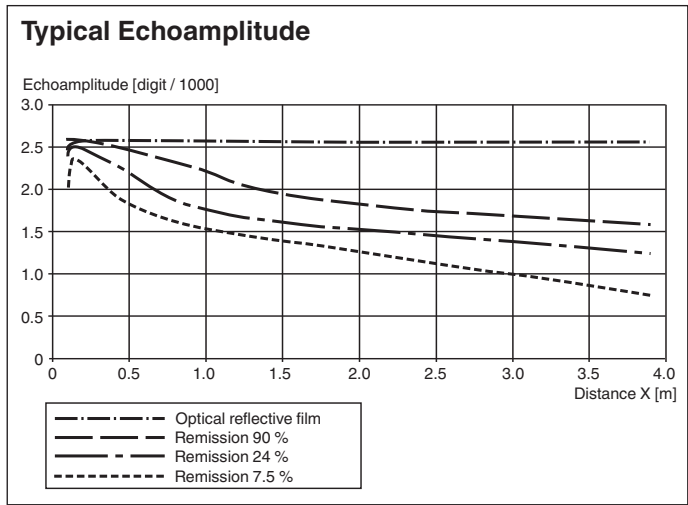
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Technical Features



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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

	Schutzkappe LS610 Zubehoer	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

Accessories

	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