



## 2-D LiDAR Sensor

OMD60M-R2000-B23-V1V1D-T-1L



- High operating range
- Very high angle resolution
- Infrared light
- Deep-freeze applications
- Measuring method PRT (Pulse Ranging Technology)
- Flexible measured data filter

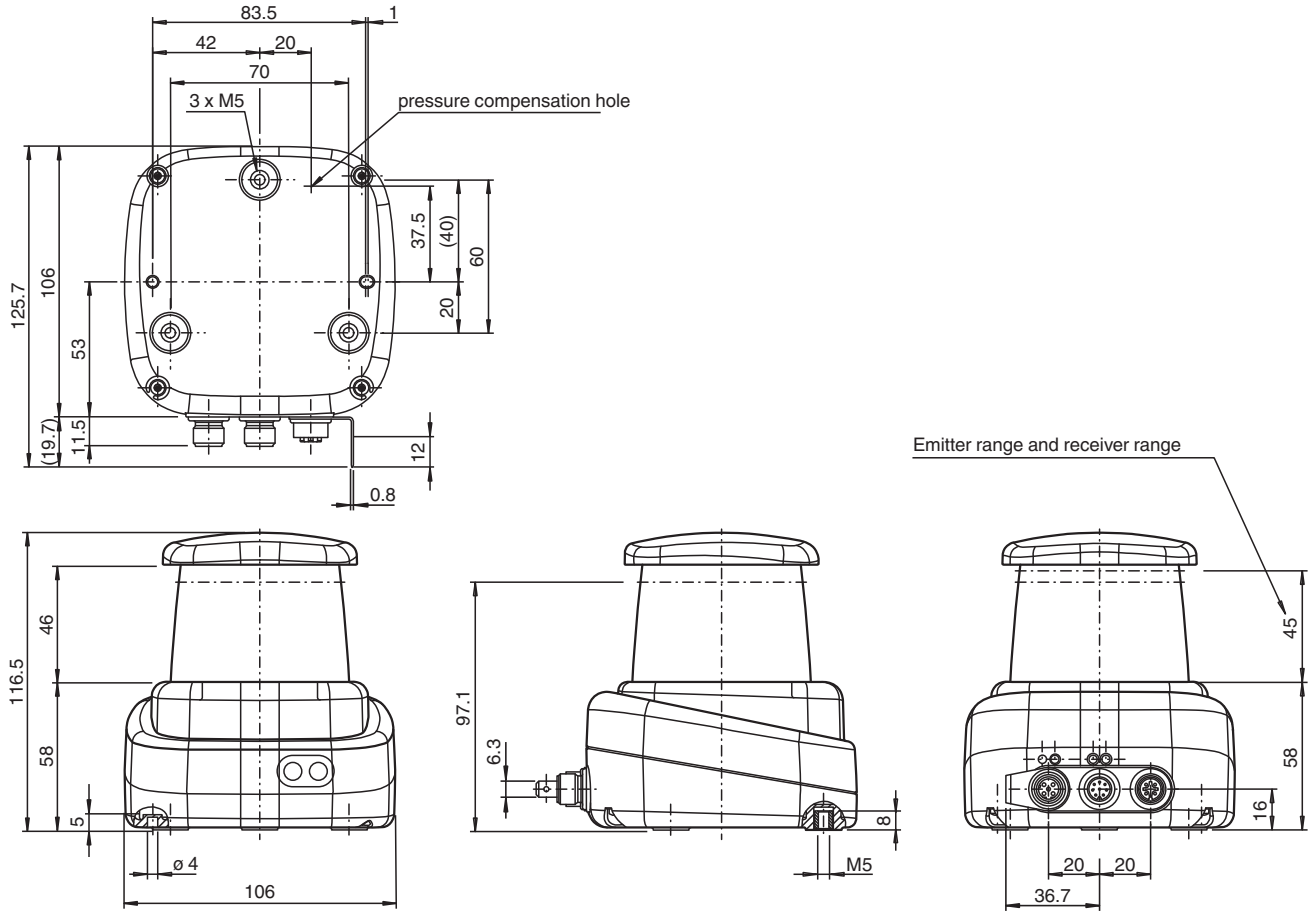
R2000 UHD, 2-D LiDAR sensor for precise and highly dynamic positioning, measuring range to object up to 60 m, Ethernet



### Function

Based on Pulse Ranging Technology (PRT), the sensor is powerful for measurements with a long range and a small light spot. The device scans its environment over the complete measuring angle of 360°. Due to the high scanning frequency, this sensor type is suitable for advanced applications. The device meets laser class 1 and is eye safe. Additional precautions to protect the operating personnel are not required. The interactive all-round display integrated in the optical surface can freely display individual texts and graphics. A wide range of accessories enables the sensor to be used in different applications. A PACTware device type manager (DTM) specially developed for this series offers extensive configuration and diagnostic options.

Dimensions



Technical Data

General specifications	
Measurement range	0.1 ... 20 m (bw 10 %) 0.1 ... 60 m (wb 90 %) 0.1 ... 200 m (reflector) Min. reflectivity 1.8 %
Light source	laser diode
Light type	modulated infrared light
Laser nominal ratings	
Note	LASER RADIATION , DO NOT STARE INTO BEAM
Laser class	1
Wave length	905 nm
Beam divergence	transversal 2 mrad , longitudinal 10 mrad
Pulse length	5 ns
Repetition rate	250 kHz
max. pulse energy	< 94 nJ
Measuring method	Pulse Ranging Technology (PRT)
Scan rate	10 ... 50 s <sup>-1</sup>
Scanning angle	360°
Diameter of the light spot	25 mm x 105 mm at 10 m
Filter	Maximum, average, median, reflectivity
Ambient light limit	50000 Lux
Resolution	1 mm
Functional safety related parameters	

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

## Technical Data

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 LED yellow: Q1 + Q2
Control elements		2 Button
Parameterization indicator		24 x 252 pixels , red
<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>	≤ 400 mA / 24 V DC
Power consumption	P <sub>0</sub>	< 10 W
Time delay before availability	t <sub>v</sub>	< 40 s
<b>Interface</b>		
Interface type		Fast Ethernet, 2 switching outputs
Protocol		HTTP , TCP/IP and UDP/IP
<b>Input/Output</b>		
Input/output type		2 Outputs , Independently configurable , short circuit/reverse polarity protected
<b>Output</b>		
Switching threshold		low: U <sub>a</sub> < 1 V, high: U <sub>a</sub> > U <sub>b</sub> - 2 V
Switching current		100 mA per output
<b>Conformity</b>		
Laser safety		EN 60825-1:2014
<b>Compliance with standards and directives</b>		
Standard conformity		
Product standard		IEC 60947-5-2
Shock and impact resistance		EN 60068-2-6 EN 60068-2-27
<b>Measurement accuracy</b>		
Measuring speed		250000 measurements per second
Measured value noise		typ. ± 12 mm (1 Sigma; max. 20 mm) with measured value filter deactivated
Angle resolution		0.014 °
Absolute accuracy		< 0.5 m: typ. ± 40 mm > 0.5 m: typ. ± 30 mm Reflector: typ. ± 40 mm
Repeat accuracy		< 12 mm
<b>Approvals and certificates</b>		
Protection class		III (operating voltage 50 V)
UL approval		cULus Listed, Class 2 Power Source, Type 1 enclosure
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		-40 ... 70 °C (-40 ... 158 °F)
Relative humidity		95 % , no moisture condensation
<b>Mechanical specifications</b>		
Housing width		106 mm
Housing height		116.5 mm
Degree of protection		IP67

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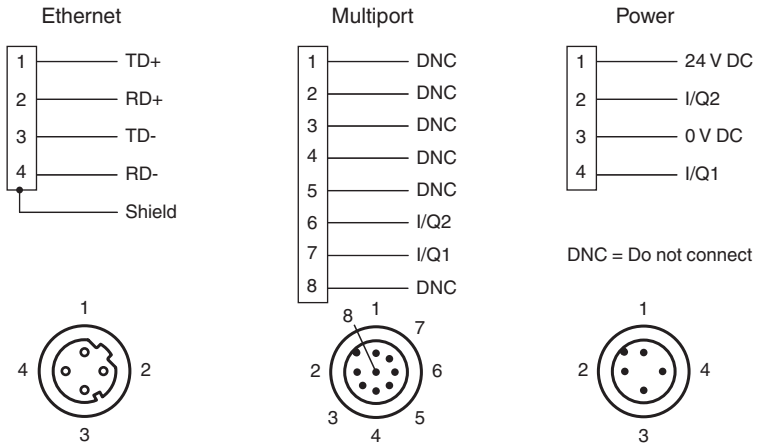
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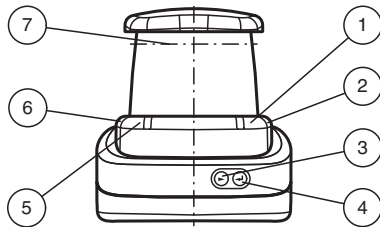
**Technical Data**

Connection	4-pin, M12x1 connector, standard (supply) , 8-pin, M12x1 connector, A-coded (MultiPort) , 4-pin, M12x1 socket, D-coded (LAN)
Material	
Housing	ABS + PC + Aluminum
Optical face	PMMA
Mass	approx. 0.8 kg

**Connection Assignment**

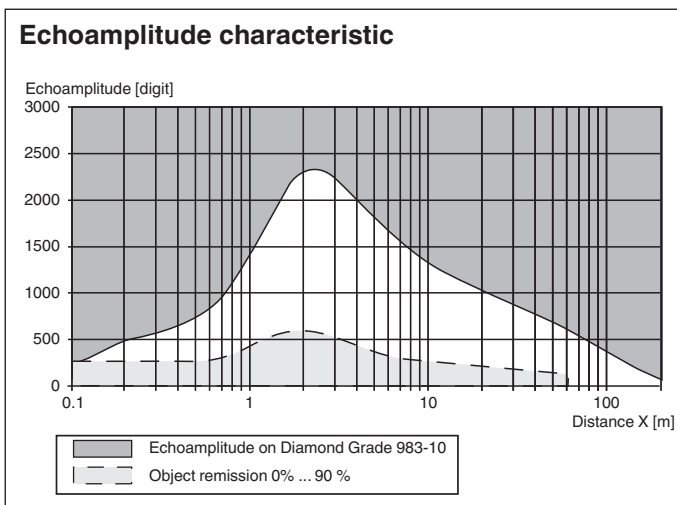


**Assembly**



1	Operating status	green
2	Fault indication	red
3	Menu button	
4	Menu button	
5	Q2 signal indicator	yellow
6	Q1 signal indicator	yellow
7	Laser outlet	

**Characteristic Curve**



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**Safety Information**



**Laser Class 1 Information**

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.

**Accessories**

	<b>Schutzkappe LS610 Zubehoer</b>	M12 protective cap set (connector + socket) for series LS610 / LS611
	<b>Funktionserdung LS610/VDM100 Zubehoer</b>	Function grounding for LS610 / LS611 / VDM100 series
	<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>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>MH-R2000</b>	Mounting aid for R2000 series, Quick clamp and adjustment system
	<b>PACTware 4.1</b>	FDT Framework

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