

2-D LiDAR Sensor

OMD60M-R2000-B23-V1V1D-HD-1L

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

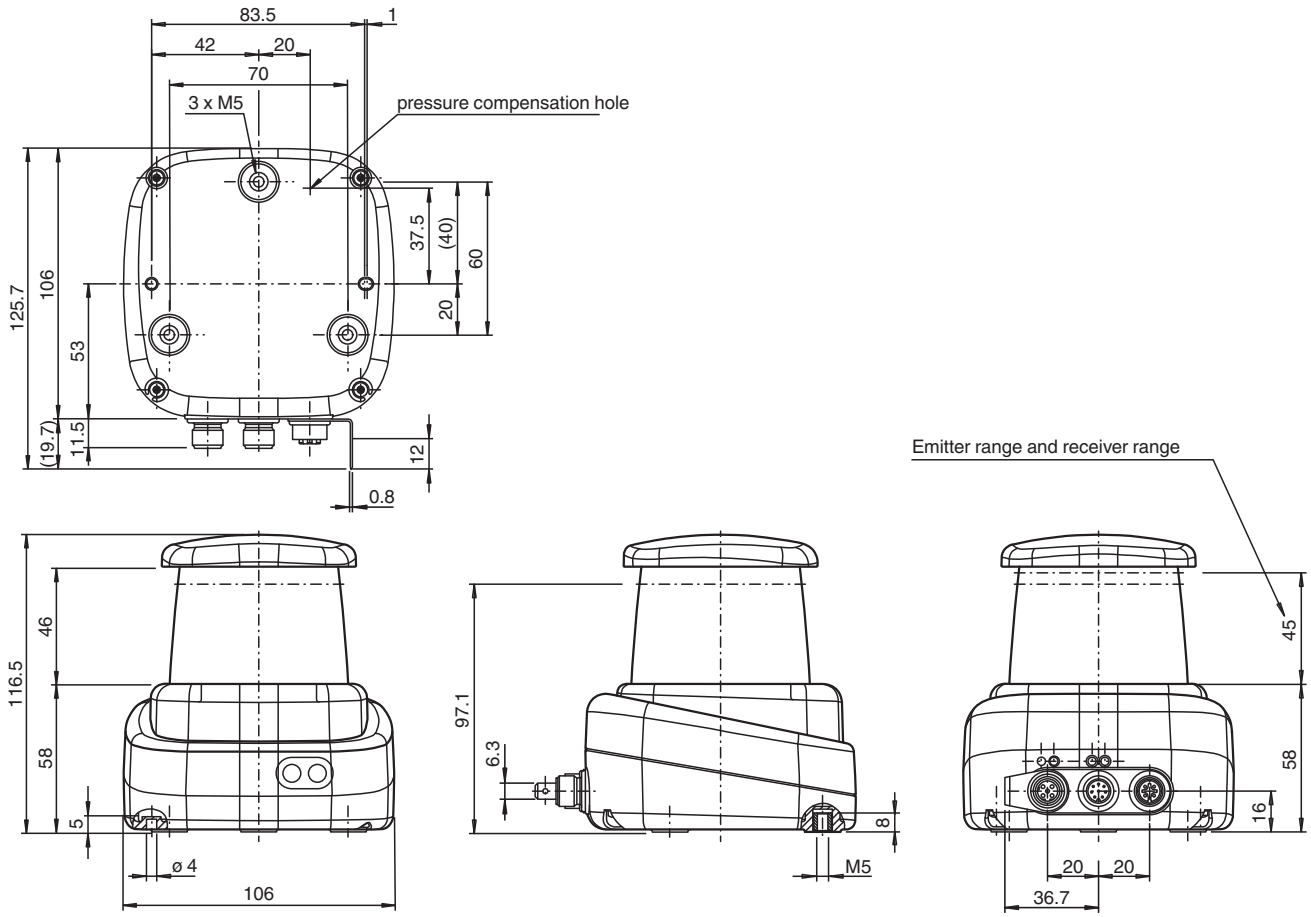
R2000 HD, 2-D LiDAR sensor for precise and highly dynamic positioning, measuring range to object up to 60 m, Ethernet

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.

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Dimensions



Technical Data

General specifications		
Measuring range		0.1 … 20 m (black 10%) 0.1 … 60 m (white 90%) 0.1 … 120 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 Hz
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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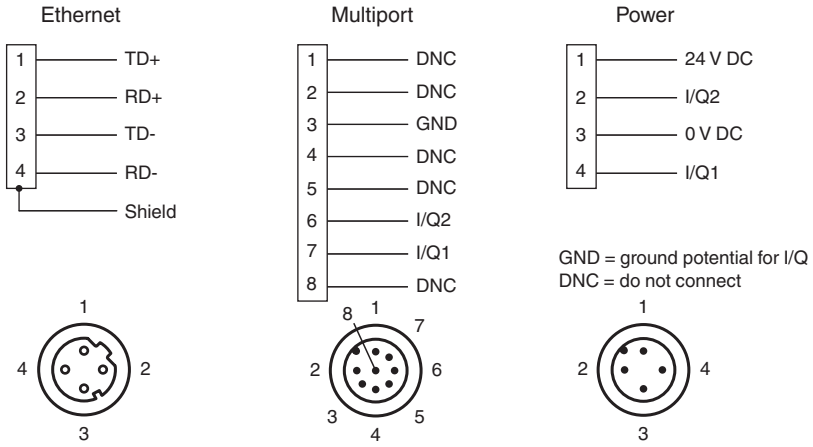
$MTTF_d$		75 a
Mission Time (T_M)		10 a
Diagnostic Coverage (DC)		0 %
Indicators/operating means		
Operation indicator		LED green
Data flow indicator		LED yellow: active ethernet LED green: Ethernet link
Function indicator		LED red: fault LED yellow: Q1 + Q2
Control elements		2 Button
Parameterization indicator		24 x 252 pixels , red
Electrical specifications		
Operating voltage	U_B	10 ... 30 V
Ripple		10 % within the supply tolerance
No-load supply current	I_0	≤ 400 mA / 24 V DC
Power consumption	P_0	< 10 W
Time delay before availability	t_v	< 40 s
Interface		
Interface type		Fast Ethernet, 2 switching outputs
Protocol		HTTP , TCP/IP and UDP/IP
Input/Output		
Input/output type		2 Inputs/Outputs , Independently configurable , short circuit/reverse polarity protected
Output		
Switching threshold		low: Ua < 1.5 V, high: Ua > Ub - 2 V
Switching current		100 mA per output
Conformity		
Product standard		IEC 61000-6-2
Shock resistance		EN 60068-2-27
Vibration resistance		EN 60068-2-6
Laser safety		EN 60825-1:2014
Measurement accuracy		
Measuring speed		84000 measurements per second
Measured value noise		typ. ± 9 mm (1 Sigma; max. 20 mm) with measured value filter deactivated
Angle resolution		0.042 °
Absolute accuracy		< 0.5 m: typ. ± 40 mm > 0.5 m: typ. ± 30 mm
Repeat accuracy		< 12 mm
Approvals and certificates		
Protection class		III
UL approval		cULus Listed, Class 2 Power Source, Type 1 enclosure
CCC approval		CCC approval / marking not required for products rated ≤36 V
FDA approval		IEC 60825-1:2014 Complies with 21 CFR 1040.10 and 1040.11 except for conformance with IEC 60825-1 Ed. 3 as described in Laser Notice 56, dated May 8, 2019.
Ambient conditions		
Ambient temperature		-10 ... 50 °C (14 ... 122 °F)
Storage temperature		-20 ... 70 °C (-4 ... 158 °F)
Relative humidity		95 % , no moisture condensation
Mechanical specifications		
Degree of protection		IP65
Connection		4-pin, M12x1 connector, standard (supply) , 8-pin, M12x1 connector, A-coded (MultiPort) , 4-pin, M12x1 socket, D-coded (LAN)

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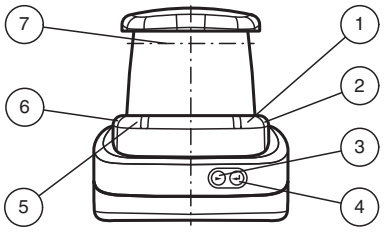
Technical Data

Material	
Housing	ABS + PC + Aluminum
Optical face	PMMA
Mass	approx. 0.8 kg
Dimensions	
Height	116.5 mm
Width	106 mm
Length	106 mm

Connection Assignment



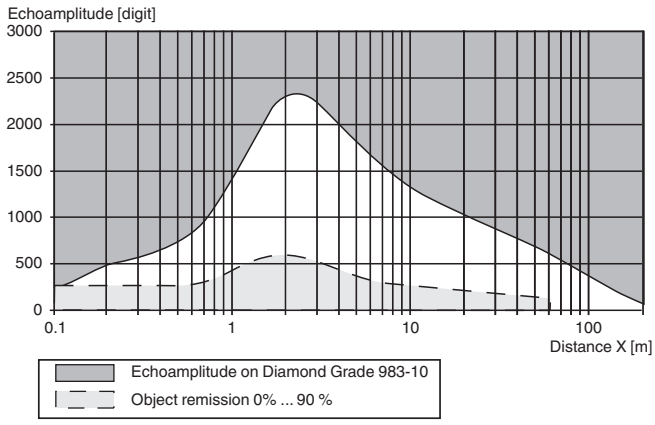
Assembly



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

Echoamplitude characteristic



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