



## 2-D LiDAR Sensor OBD10M-R2000-4EP-V1V17



- 4 freely programmable monitoring fields
- 4 inputs/outputs (selectable)
- High angle resolution
- 360°-angle of measurement
- Measuring method PRT (Pulse Ranging Technology)

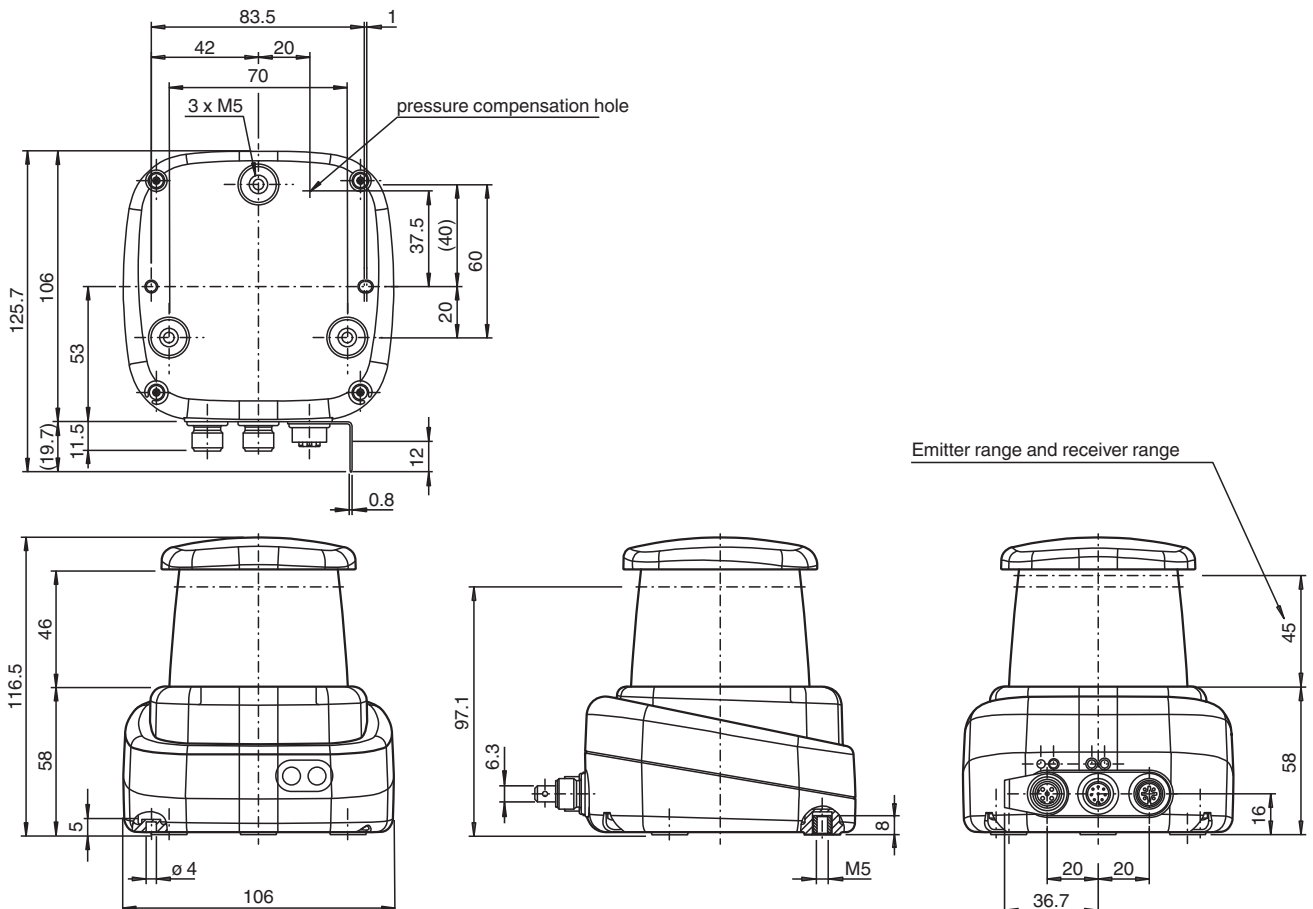
R2000 Detection, 2-D LiDAR sensor for precise field monitoring, measuring range to object up to 10 m



### 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



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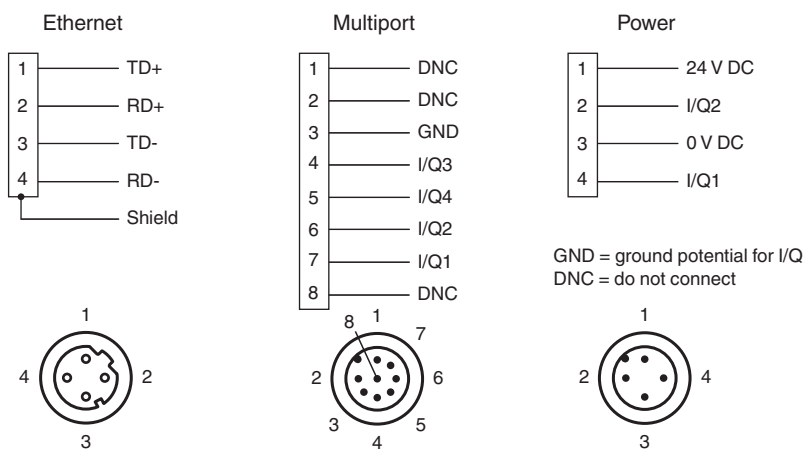
## Technical Data

General specifications		
Measuring range		0.2 ... 3 m (black 10%) 0.2 to 10 m (white 90%) 0.2 to 30 m (reflector)
Light source		laser diode
Light type		modulated visible red light
Laser nominal ratings		
Note		LASER LIGHT , DO NOT STARE INTO BEAM
Laser class		1
Wave length		660 nm
Beam divergence		1 mrad
Pulse length		5 ns
Repetition rate		54 kHz
max. pulse energy		< 4 nJ
Measuring method		Pulse Ranging Technology (PRT)
Scan rate		10 Hz, 20 Hz, 30 Hz
Scanning angle		360°
Diameter of the light spot		< 20 mm at 10 m
Ambient light limit		80000 Lux
Functional safety related parameters		
MTTF <sub>d</sub>		75 a
Mission Time (T <sub>M</sub> )		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 Yellow LED: I/Q1 + I/Q2
Control elements		2 Button
Parameterization indicator		24 x 252 pixels , red
Electrical specifications		
Operating voltage	U <sub>B</sub>	10 ... 30 V DC
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
Integrated application		
Application		Field monitoring
Number of fields		4
Response time		30 ms + 1 Scan duration
Detectable object shape		Almost any
Object size		> 1 mm
Linking fields		Up to 4 x 3 levels
Interface		
Interface type		4 x switching inputs/outputs (selectable)
Input/Output		
Input/output type		4 Inputs/Outputs , Independently configurable , short circuit/reverse polarity protected
Input		
Switching threshold		low: U <sub>e</sub> < 5 V, high: U <sub>e</sub> > 10 V
Output		
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

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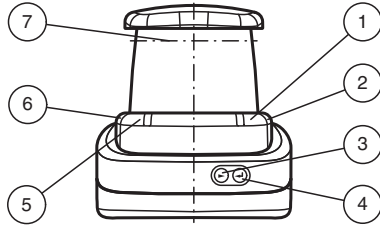
Conformity	
Product standard	IEC 61000-6-2
Shock resistance	EN 60068-2-27
Vibration resistance	EN 60068-2-6
Laser safety	EN 60825-1:2014
Measurement accuracy	
Measuring speed	54000 measurements per second
Angle resolution	0,071°; 0,15°; 0,2°
Repeat accuracy	< 12 mm
Approvals and certificates	
Protection 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
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, A-coded (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
Dimensions	
Height	116.5 mm
Width	106 mm
Length	106 mm

## Connection Assignment



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## 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	