



2-D LiDAR Sensor

OBD30M-R2000-4EP-V1V17-T-1L



- 4 freely programmable monitoring fields
- 4 inputs/outputs (selectable)
- High operating range
- High angle resolution
- Deep-freeze applications
- 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 30 m with three M12 x 1 connector plugs



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.

Technical Data



General specifications		
Measuring range		0.1 ... 10 m (black 10%) 0,1 ... 30 m (white 90 %) 0.1 ... 30 m (reflector) Min. reflectivity 2.5%
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		54 kHz
max. pulse energy		< 94 nJ
Measuring method		Pulse Ranging Technology (PRT)
Scan rate		10 Hz, 20 Hz, 30 Hz
Scanning angle		360°
Diameter of the light spot		25 mm x 105 mm at 10 m
Ambient light limit		80000 Lux
Functional safety related parameters		
MTTF _d		75 a
Mission Time (T _M)		10 a

Technical Data

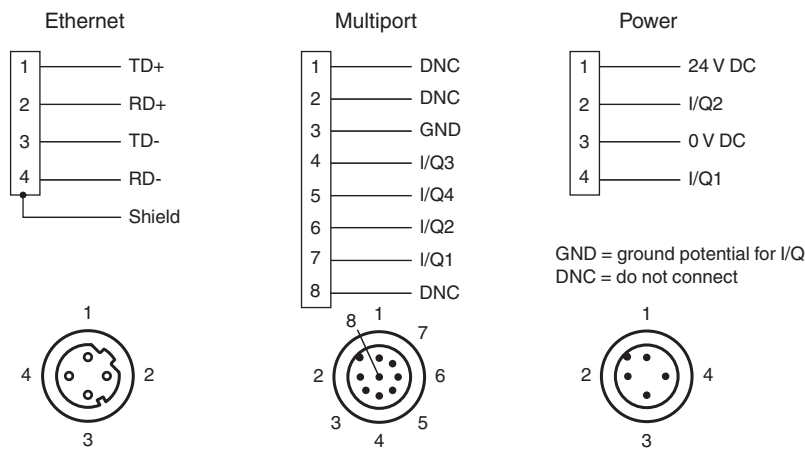
Diagnostic Coverage (DC)		0 %
Indicators/operating means		
Operation indicator		LED green
Data flow indicator		LED yellow: active ethernet LED green: Ethernet link
Function indicator		LED red: fault LED yellow: Q1 + Q2
Control elements		2 Button
Parameterization indicator		24 x 252 pixels , red
Electrical specifications		
Operating voltage	U_B	10 ... 30 V DC
Ripple		10 % within the supply tolerance
No-load supply current	I_0	$\leq 400 \text{ mA} / 24 \text{ V DC}$
Power consumption	P_0	$< 10 \text{ W}$
Time delay before availability	t_v	$< 40 \text{ s}$
Integrated application		
Application		Field monitoring
Number of fields		4
Response time		30 ms + 1 Scan duration
Detectable object shape		Almost any
Object size		$> 1 \text{ mm}$
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: $U_e < 5 \text{ V}$, high: $U_e > 10 \text{ V}$
Output		
Switching threshold		low: $U_a < 1.5 \text{ V}$, high: $U_a > U_b - 2 \text{ V}$
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		54000 measurements per second
Angle resolution		0,071°; 0,15°; 0,2°
Repeat accuracy		$< 12 \text{ mm}$
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 $\leq 36 \text{ V}$
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		-30 ... 50 °C (-22 ... 122 °F)
Storage temperature		-40 ... 70 °C (-40 ... 158 °F)
Relative humidity		95 % , no moisture condensation
Mechanical specifications		
Degree of protection		IP67

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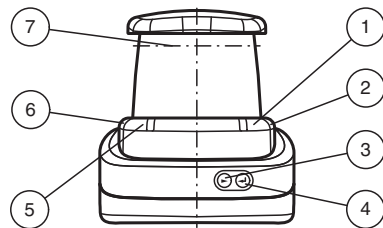
Technical Data

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	
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	

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