Dimensions

Model Number

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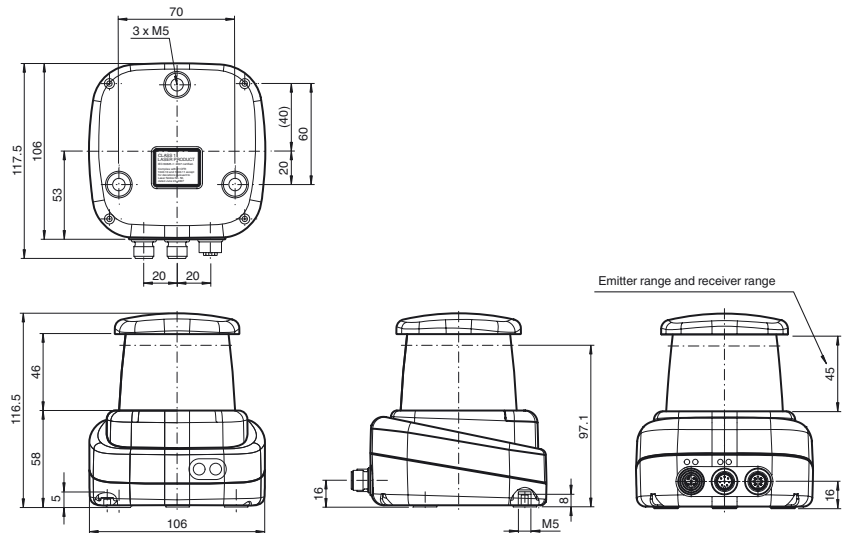
2-D LiDAR Sensor

with three M12 x 1 connectors

Features

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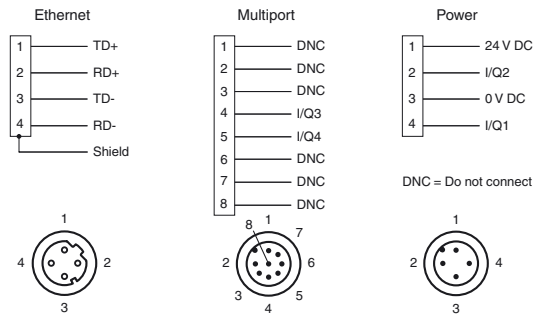- Measuring method PRT (Pulse Ranging Technology)

Product information

The new 2-dimensional sensor operates using tried-and-tested Pulse Ranging Technology and offers a range of unique features. For example, the device features a laser emitter with a visible red light. Users can see where the scanning level is and can align the device accordingly. With its classification in laser class 1, the device can be used in all workspaces, without posing a health hazard to people. The device has a measuring angle of 360° and boasts a measuring frequency of up to 54,000 individual measurements per second. In combination with 4 freely programmable monitoring fields and an extremely flat scanning level, the sensor is easy to integrate, even in challenging applications. Another feature is the display integrated in the lens aperture.
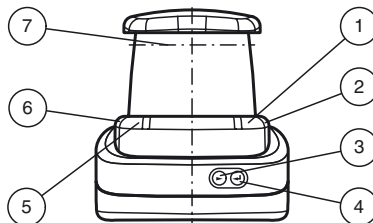
Electrical connection

Ethernet

Pin	Signal
1	TD+
2	RD+
3	TD-
4	RD-
	Shield

Multiport

Pin	Signal
1	DNC
2	DNC
3	DNC
4	I/Q3
5	I/Q4
6	DNC
7	DNC
8	DNC

Power

Pin	Signal
1	24 V DC
2	I/Q2
3	0 V DC
4	I/Q1

DNC = Do not connect

Indicators/operating means

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	

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

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1

Technical data

General specifications

Measurement range	0.2 ... 3 m (bk 10%) 0.2 to 10 m (wh 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

$MTTF_d$	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 Yellow LED: I/Q1 + I/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	≤ 400 mA / 24 V DC
Protection class		III (operating voltage 50 V)
Power consumption	P_0	< 10 W
Time delay before availability	t_v	< 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: Ue < 5 V, high: Ue > 10 V

Output

Switching threshold	low: Ua < 1 V, high: Ua > Ub - 1 V
Switching current	100 mA per output

Measurement accuracy

Measuring speed	54000 measurements per second
Angle resolution	0,071°; 0,15°; 0,2°
Repeat accuracy	< 12 mm

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

Housing width	106 mm
Housing height	116.5 mm
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

Laserlabel

CLASS 1
LASER PRODUCT
IEC 60825-1: 2007 certified.
Complies with 21 CFR
1040.10 and 1040.11 except
for deviations pursuant to
Laser Notice No. 50,
dated June 24, 2007

Accessories

V1SD-G-2M-PUR-ABG-V45-G
Connection cable, M12 to RJ-45, PUR cable 4-pin, CAT5e

V1SD-G-5M-PUR-ABG-V45-G
Connection cable, M12 to RJ-45, PUR cable 4-pin, CAT5e

V1SD-G-ABG-PG9
Cable connector, M12, 4-pin, D-coded, shielded, non pre-wired

V1-G-2M-PUR
Female cordset, M12, 4-pin, PUR cable

V1-G-5M-PUR
Female cordset, M12, 4-pin, PUR cable

V1-G-BK5M-PUR-U
Female cordset, M12, 4-pin, PUR cable

V1-W-2M-PUR
Female cordset, M12, 4-pin, PUR cable

V1-W-BK5M-PUR-U
Female cordset, M12, 4-pin, PUR cable

V17-G-2M-PUR
Female cordset, M12, 8-pin, shielded, PUR cable

V17-G-5M-PUR
Female cordset, M12, 8-pin, shielded, PUR cable

V1S-B
Blind plug for M12 sockets

MH-R2000
Mounting aid for R2000 series, Quick clamp and adjustment system

PACTware 4.1
FDT Framework

Other suitable accessories can be found at www.pepperl-fuchs.com

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Optical face	PMMA
Mass	approx. 0.8 kg
Compliance with standards and directives	
Directive conformity	
EMC Directive 2004/108/EC	EN 60947-5-2:2007
Standard conformity	
Product standard	EN 60947-5-2:2007 , IEC 60947-5-2:2007
Laser class	IEC 60825-1:2007 EN 60825-1:2007

Approvals and certificates	
UL approval	cULus Listed, Class 2 Power Source, Type 1 enclosure
CCC approval	CCC approval / marking not required for products rated ≤36 V

Laser notice laser class 1

- 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!
- Caution – Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

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

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