Dimensions

Model Number

OMD30M-R2000-B23-V1V1D-1L
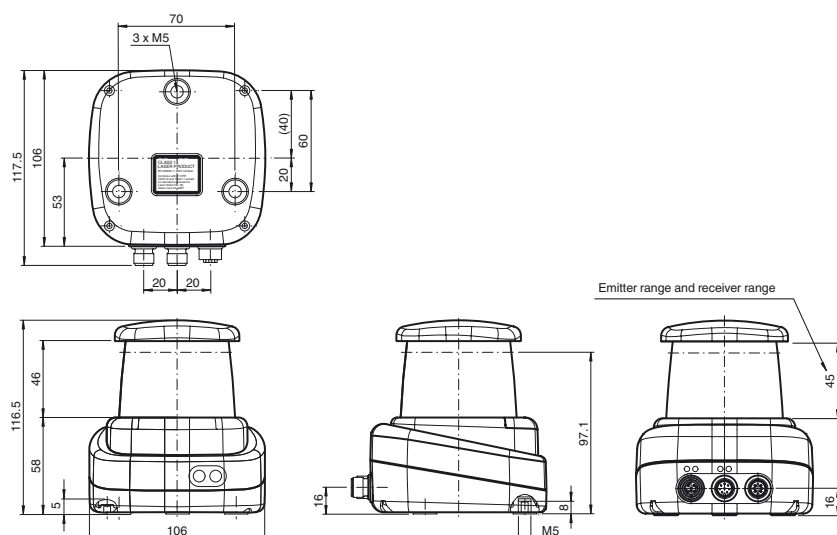
2-D LiDAR Sensor

with three M12 x 1 connectors

Features

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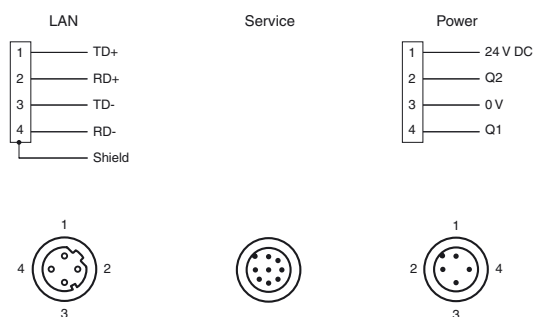- Flexible measured data filter

Product information

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.
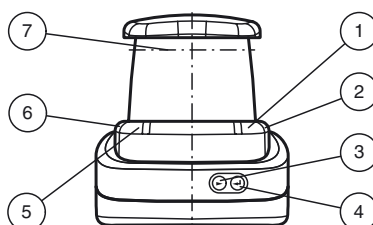
Electrical connection

LAN		Power	
1	TD+	1	24 V DC
2	RD+	2	Q2
3	TD-	3	0 V
4	RD-	4	Q1
	Shield		

Service

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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Technical data

General specifications

Measurement range	0.1 ... 10 m (bk 10%) 0,1 … 30 m (wh 90 %) 0.1 … 200 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	250 kHz
max. pulse energy	< 94 nJ
Measuring method	Pulse Ranging Technology (PRT)
Scan rate	10 ... 50 s^{-1}
Scanning angle	360°
Diameter of the light spot	25 mm x 105 mm at 10 m
Filter	Maximum, average, median, reflectivity
Ambient light limit	> 80000 Lux
Resolution	1 mm

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 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	< 15 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 Outputs , Independently configurable , short circuit/reverse polarity protected

Output

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

Conformity

Laser safety	EN 60825-1:2014

Measurement accuracy

Measuring speed	250000 measurements per second
Measured value noise	typ. ± 10 mm (1 sigma; max 20 mm; 0,1 m ... 8 m) typ. ± 12 mm (1 sigma; max 20 mm; 8 m ... 30 m) with measured value filter deactivated
Angle resolution	0.014 °
Absolute accuracy	typ. ± 25 mm
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, 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

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

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

Schutzkappe LS610 Zubehoer
M12 protective cap set (connector + socket) for series LS610 / LS611

Funktionserdung LS610/VDM100 Zubehoer
Function grounding for LS610 / LS611 / VDM100 series

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

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

MH-R2000
Mounting aid for R2000 series, Quick clamp and adjustment system
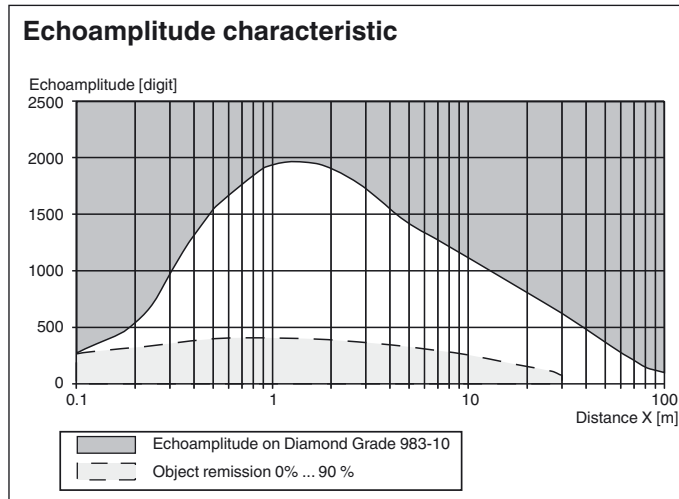
PACTware 4.1
FDT Framework

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

Compliance with standards and directives

Standard conformity	
Product standard	IEC 60947-5-2
Shock and impact resistance	EN 60068-2-6 EN 60068-2-27

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

Curves/Diagrams

Echoamplitude characteristic

Echoamplitude [digit]

Distance X [m]

| Echoamplitude on Diamond Grade 983-10 |
| Object remission 0% ... 90 % |

Laser notice laser class 1

- 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.

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

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