2-D LiDAR Sensor

OMD8000-R2100-R2-2V15

- Measuring method PRT (Pulse Ranging Technology)
- Distance measurement using object
- Two-dimensional measurement with no moving parts
- Measurement using eye-safe LED technology
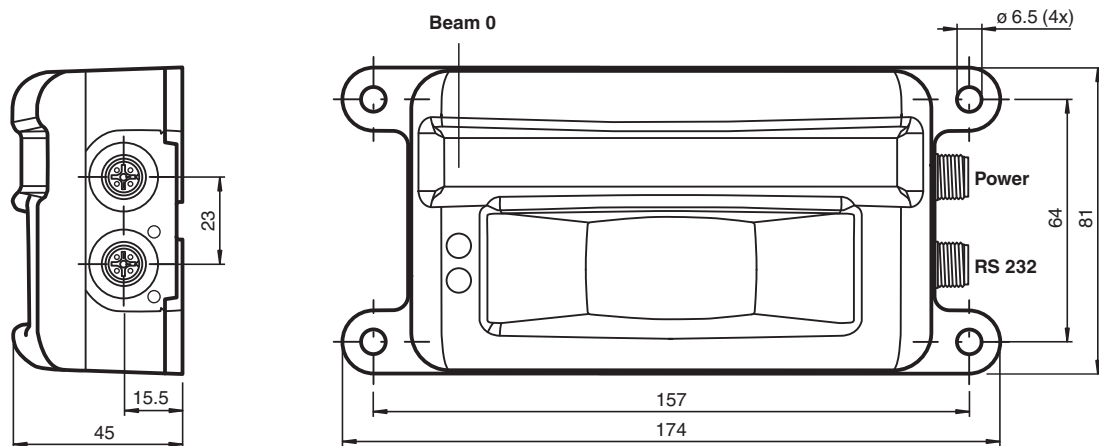- 88° scanning angle

Multi-ray LED scanner for measuring the distance to an object, measuring method: PRT, measuring range: up to 8 m on white, 2x M12 plugs

C E c UL us

Function

The new 2-dimensional multi-ray LED scanner uses tried-and-tested Pulse Ranging Technology and boasts a wide range of user-friendly features. The eye-safe LED technology in the sensor allows it to be used by personnel in all working areas without posing a danger. The 11 emitter elements arranged side by side span a scanning range of 88 degrees, while the emitter LEDs set themselves apart through their large light spot. Measuring on a surface rather than on a point makes it easier to measure inhomogeneous surfaces. A further highlight is the absence of any moving parts such as a motor or bearings, which makes the device less complex in its design and more resistant to mechanical stress.

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

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Dimensions

Technical Data

General specifications

Measurement range	0.2 ... 2 m (bw 6%) 0.2 ... 8 m (wh 90%)
Light source	IRED
Light type	modulated infrared light , 850 nm
Measuring method	Pulse Ranging Technology (PRT)
Scan rate	50 s^{-1} (1 scan = 11 measurements)
Scanning angle	88°
Diameter of the light spot	550 mm at 4 m (orthogonal)
Ambient light limit	> 80000 Lux
Resolution	1 mm

Functional safety related parameters

$MTTF_d$		123 a
Mission Time (T_M)		20 a
Diagnostic Coverage (DC)		0 %

Indicators/operating means

Operation indicator	LED green
Function indicator	LED yellow

Electrical specifications

Operating voltage	U_B	10 ... 30 V DC
Ripple		10 % within the supply tolerance
No-load supply current	I_0	≤ 120 mA / 24 V DC
Protection class		III

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

Technical Data

Time delay before availability	t_v	< 3 s
Interface		
Interface type		RS 232
Protocol		P+F R2100 115k, 8N1
Conformity		
Product standard		EN 60947-5-2
Measurement accuracy		
Measured value noise		20 mm (1 sigma, 4 m on white, orthogonal)
Angle resolution		8 °
Absolute accuracy		+/- 50 mm (orthogonal)
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
Ambient conditions		
Ambient temperature		-30 ... 60 °C (-22 ... 140 °F)
Storage temperature		-30 ... 70 °C (-22 ... 158 °F)
Relative humidity		95 % , no moisture condensation
Mechanical specifications		
Housing width		81 mm
Housing height		45 mm
Degree of protection		IP67
Connection		5-pin, M12x1 connector, standard (supply; color black) 5-pin, M12x1 connector, standard (RS 232; color grey; shielded)
Material		
Housing		plastic
Optical face		Lexan (PC)
Mass		approx. 250 g

Connection Assignment
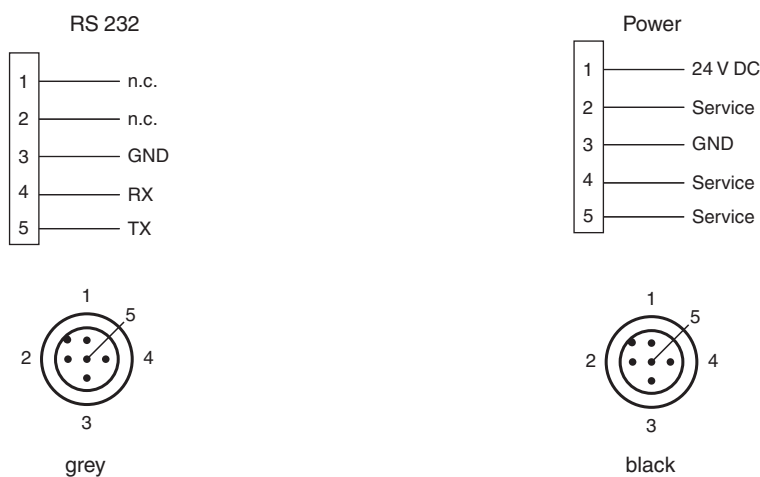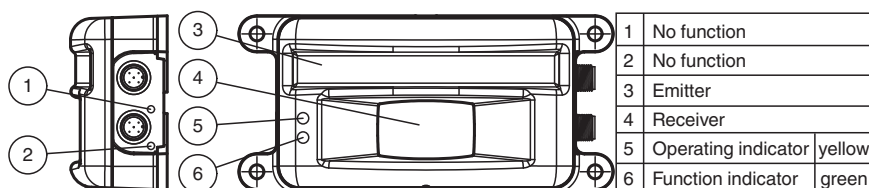
RS 232

Pin	
1	n.c.
2	n.c.
3	GND
4	RX
5	TX

grey

Power

Pin	
1	24 V DC
2	Service
3	GND
4	Service
5	Service

black

Assembly

1	No function	
2	No function	
3	Emitter	
4	Receiver	
5	Operating indicator	yellow
6	Function indicator	green

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Characteristic Curve

Beam geometry

4 m

8°

550 mm

Echoamplitude characteristic

Echoamplitude [digit x 1000]

16
14
12
10
8
6
4
2
0

0.1   1   10   60

Distance X [m]

Echoamplitude on reflectors

Object remission 6% ... 90 %
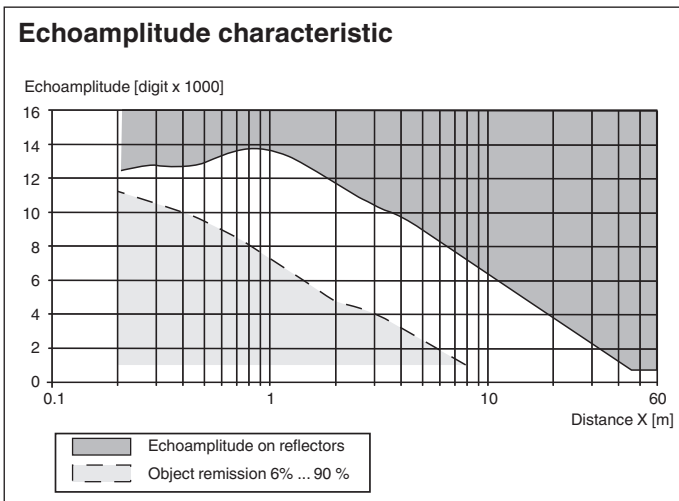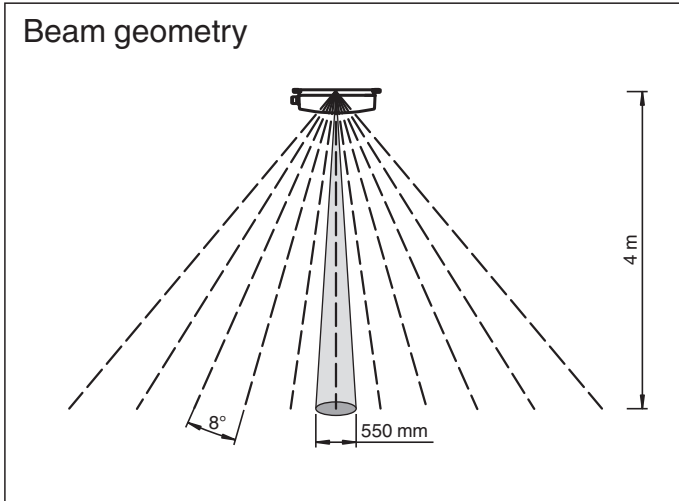
Accessories

	V1-G-2M-PUR	Female cordset, M12, 4-pin, PUR cable
	V1-W-2M-PUR	Female cordset, M12, 4-pin, PUR cable
	V15-G-5M-PUR-ABG	Female cordset single-ended M12 A-coded, 5-pin, PUR cable black, shielded
	V1-G-BK5M-PUR-U	Female cordset, M12, 4-pin, PUR cable
	V1-W-BK5M-PUR-U	Female cordset, M12, 4-pin, PUR cable

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

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Accessories

	V15-G-2M-PVC-SUBD9	Adapter M12 x 1 on Sub-D, 5-pin

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