2-D LiDAR Sensor

OMD8000-R2100-Y317114

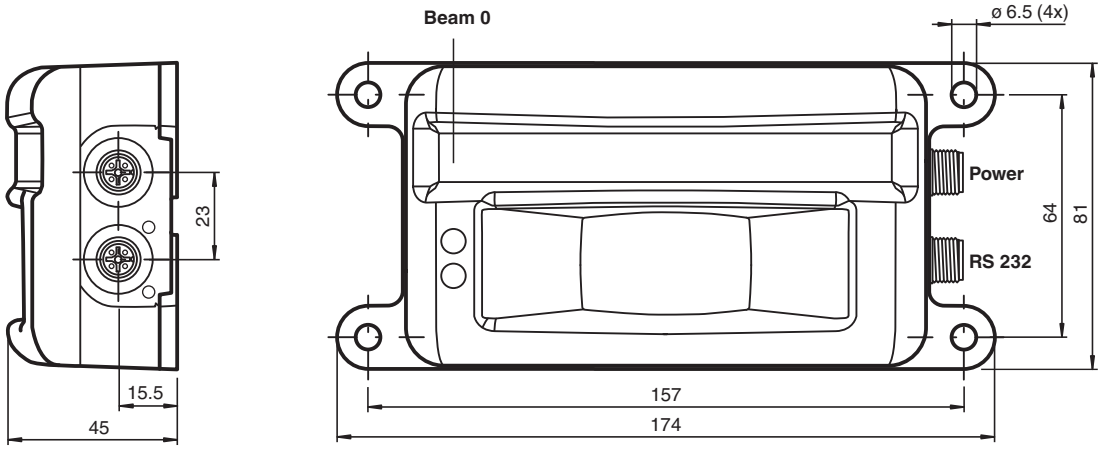
- Distance measurement using object
- Two-dimensional measurement with no moving parts
- Measurement using eye-safe LED technology
- 88° scanning angle
- CANopen interface
- Measuring method PRT (Pulse Ranging Technology)

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

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.

Dimensions



Release date: 2022-08-04 Date of issue: 2022-08-04 Filename: 317114_eng.pdf

Technical Data

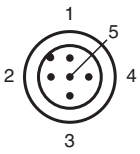
General specifications		
Measurement range		0.2 ... 2 m (bw 6%) 0.2 ... 8 m (wh 90%) Max. 25 m<P>Min. echo pulse width 2500 mm from 0.2 m ... 1 m </P>
Light source		IRED
Light type		modulated infrared light , 850 nm
Measuring method		Pulse Ranging Technology (PRT)
Scan rate		50 s^{-1} (1 scan = 11 measurements)
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
Data flow indicator		LED red: CAN Error LED green: CAN Run
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
Time delay before availability	t_v	< 3 s
Interface		
Interface type		CAN
Protocol		CANopen, 250 kbit/s
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		
EAC conformity		TR CU 020/2011
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) UL: -10 ... 50 °C (14 ... 122 °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

Release date: 2022-08-04 Date of issue: 2022-08-04 Filename: 317114_eng.pdf

Connection Assignment

CAN

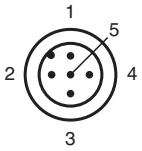
1	Shield
2	24 V DC
3	GND
4	CAN_H
5	CAN_L



grey

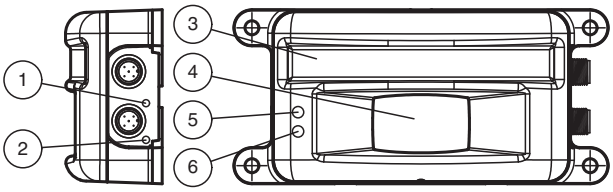
Power

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



black

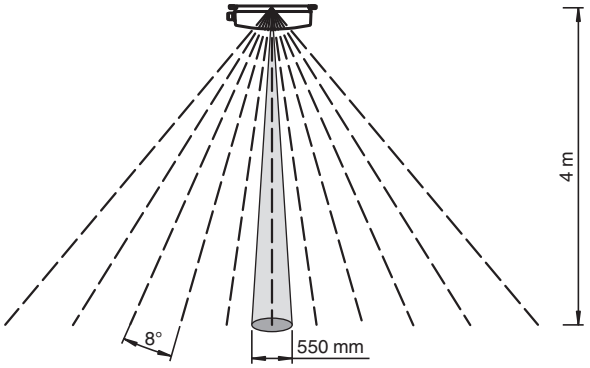
Assembly



1	CAN ERROR	red
2	CAN RUN	green
3	Emitter	
4	Receiver	
5	Operating indicator	green
6	Function indicator	yellow

Characteristic Curve

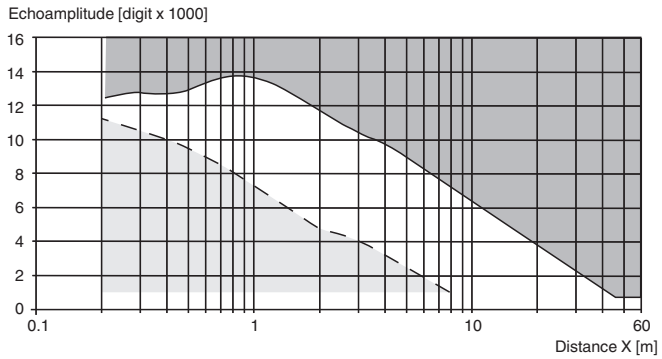
Beam geometry



Release date: 2022-08-04 Date of issue: 2022-08-04 Filename: 317114_eng.pdf

Characteristic Curve

Echoamplitude characteristic



Accessories

	V1-G-2M-PUR	Female cordset single-ended M12 straight A-coded, 4-pin, PUR cable grey
	V1-W-2M-PUR	Female cordset single-ended M12 angled A-coded, 4-pin, PUR cable grey
	V15-G-5M-PUR-ABG	Female cordset single-ended M12 straight A-coded, 5-pin, PUR cable grey, shielded
	V1-G-BK5M-PUR-U	Female cordset single-ended M12 straight A-coded, 4-pin, PUR cable black, UL approved, drag chain suitable, torsion resistant
	V1-W-BK5M-PUR-U	Female cordset single-ended M12 angled A-coded, 4-pin, PUR cable black, UL approved, drag chain suitable, torsion resistant
	MH-R2100-Aperture-8327	Optical Aperture

Release date: 2022-08-04 Date of issue: 2022-08-04 Filename: 317114_eng.pdf