

SICK.COM



DATA SHEET

MRS1104C-111011

MRS1000
3D LiDAR sensors

SICK Sensor Intelligence



3D LIDAR SENSORS

MRS1104C-111011

ORDERING INFORMATION

Type	part no.
MRS1104C-111011	1081208

Further device versions and accessories at www.sick.com/MRS1000



DETAILED TECHNICAL DATA

FEATURES

Application	Outdoor, Indoor	
Measurement principle	HDDM [†]	
Light source	Infrared (850 nm)	
Laser class	1 (IEC 60825-1:2014, EN 60825-1:2014+A11:2021)	
Aperture angle	Horizontal	275°
	Vertical	7.5°, Over 4 scan layers
Scanning frequency	50 Hz, 4 x 12.5 Hz	
Angular resolution	Horizontal	0.0625°, interlaced
		0.125°, interlaced
	Vertical	0.25°
Heating	Self-heating	
Working range	0.2 m ... 64 m	
Scanning range	At 10% remission factor	16 m
	At 90% remission factor	30 m
Spot size	10.4 mrad x 8.7 mrad	
Amount of evaluated echoes	3	

MECHANICS/ELECTRONICS

Connection type	M12 round connectors with swivel connector (stainless steel)
Supply voltage	10 V DC ... 30 V DC
Power consumption	Typ. 13 W Start-up phase max. 30 W for 1 s Max. 37 W
Housing material	AlSi12, Optics cover: polycarbonate
Housing color	Gray (RAL 7042)

Enclosure rating	IP65 (IEC 60529:1989+AMD1:1999+AMD2:2013) IP67 (IEC 60529:1989+AMD1:1999+AMD2:2013)
Protection class	III (IEC 61140:2016-11)
Electrical safety	IEC 61010-1:2010-06
Weight	1.2 kg
Dimensions (L x W x H)	151.9 mm x 150 mm x 92.5 mm
MTBF	50 years
MTTFd	> 100 years

SAFETY-RELATED PARAMETERS

MTTF ₀	> 100 years
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PERFORMANCE

Output data	Contamination indication, IMU (secondary sensor data)
Scan/frame rate	55,000 measurement point/s ... 165,000 measurement point/s
Response time	4 layers, typ. 20 ms ¹⁾ 1 layer, typ. 80 ms
Systematic error	± 60 mm
Statistical error	≤ 30 mm
Integrated application	Field evaluation Output of measurement data
Number of field sets	Up to 64 fields
Simultaneous evaluation cases	Up to 16 evaluations
Filter	Fog filter Particle filter Average filter Median filter Ground reference evaluation Edge filter Echo filter

¹⁾ Depending on the selected filter settings and the object size.

INTERFACES

Ethernet	✓, TCP/IP, UDP/IP
Function	Data interface (read result output), OPC, NTP, Measured data output (distance, RSSI)
Data transmission rate	10/100 MBit/s
Digital inputs/outputs	I/O (8 (Multiport))
Output data	Contamination indication IMU (secondary sensor data)
Optical indicators	2 LEDs
Configuration software	SOPAS ET Web server (display)

AMBIENT DATA

Remission factor	2 % ... > 1,000 % (Reflector)
Electromagnetic compatibility (EMC)	EN 61000-6-2:2005 / EN 61000-6-3:2007+A1:2011
Vibration resistance	10 Hz ... 150 Hz, 5 g, 20 frequency cycles ¹⁾
Shock resistance	15 g, 11 ms, 6 single shocks/axis ²⁾

¹⁾ IEC 60068-2-6:2007.

²⁾ IEC 60068-2-27:2008.

	10 g, 16 ms, 1,000 continuous shocks/axis ²⁾
Ambient operating temperature	-30 °C ... +50 °C
Storage temperature	-40 °C ... +75 °C
Ambient light immunity	80 klx

¹⁾ IEC 60068-2-6:2007.

²⁾ IEC 60068-2-27:2008.

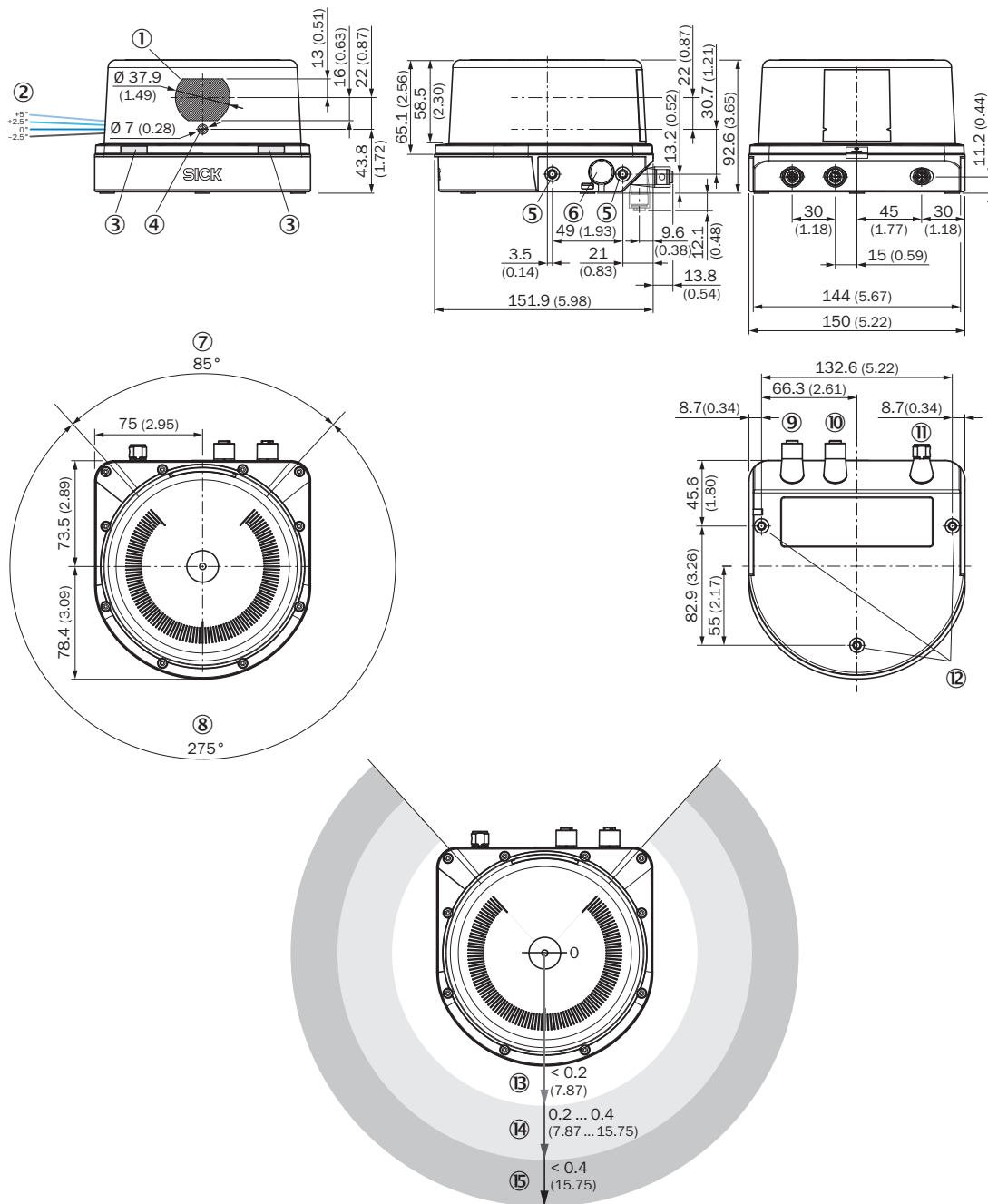
GENERAL NOTES

Note on use	The sensor does not constitute a safety component as defined by relevant legislation on machine safety.
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CERTIFICATES

EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
China RoHS	✓
cTUVus certificate	✓
Information according to Art. 3 of Data Act (Regulation EU 2023/2854)	✓

DIMENSIONAL DRAWING

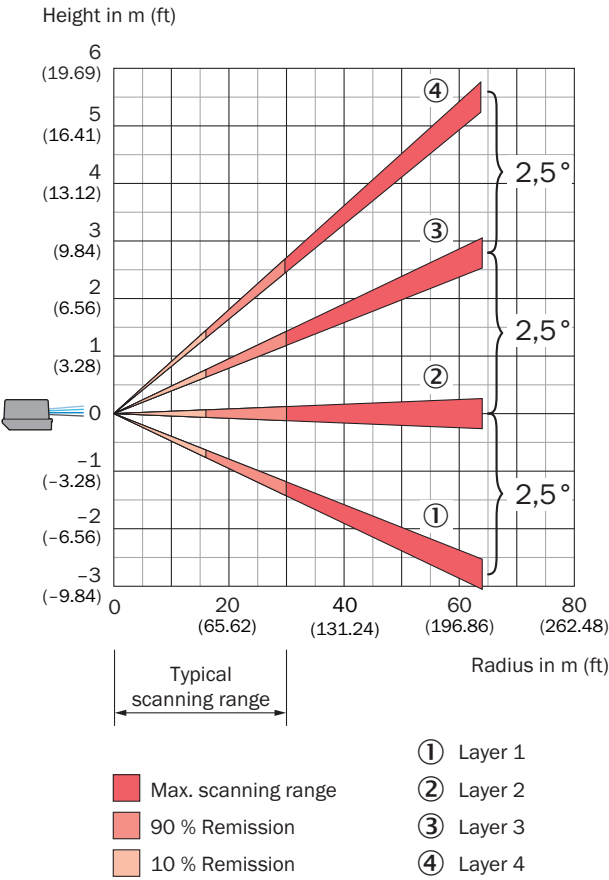


Dimensions in mm (inch)

- ① receiver
- ② Laser aperture angle, layers 1 to 4
- ③ status LEDs
- ④ sender
- ⑤ Mounting hole M5 x 7.5
- ⑥ Pressure compensation element
- ⑦ Blind zone
- ⑧ Field of view
- ⑨ Ethernet connection
- ⑩ I/O connection
- ⑪ POWER connection
- ⑫ Mounting hole M5 x 7.5
- ⑬ Close range (no detection or measurement possible)
- ⑭ Detection zone
- ⑮ measuring range

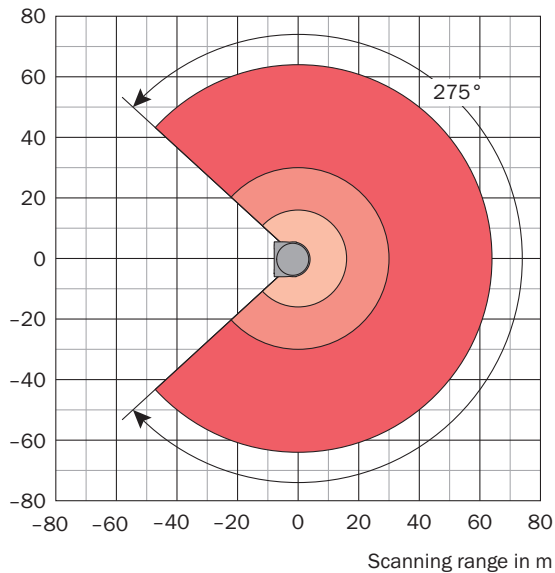
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WORKING RANGE DIAGRAM

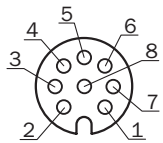


WORKING RANGE DIAGRAM

Scanning range in m

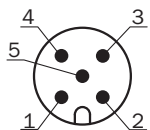


- Scanning range max. 64 m
- Scanning range for objects up to 90 % remission 30 m
- Scanning range for objects up to 10 % Remission 16 m

CONNECTION TYPE I/O

female connector M12, 8-pin, A-coded

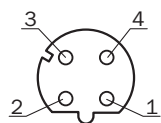
- ① IN1/OUT1
- ② IN2/OUT2
- ③ IN3/OUT3
- ④ IN4/OUT4
- ⑤ IN5/OUT5
- ⑥ IN6/OUT6
- ⑦ GND INx/OUTx
- ⑧ IN7/OUT7

CONNECTION TYPE POWER

Connector M12, 5-pin, A-coded

- ① VS 10...30 V
- ② Reserved
- ③ GND
- ④ IN8/OUT8
- ⑤ Reserved

CONNECTION TYPE ETHERNET



M12 female connector, 4-pin, D-coded

- ① TX+
- ② RX+
- ③ TX-
- ④ RX-

Further information as well as suitable accessories, example applications and downloads such as CAD dimensional models, operating instructions and software can be found at www.sick.com/1081208



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SICK AT A GLANCE

SICK is a leading global technology company for intelligent sensors and integrated solutions in industrial automation. Our technologies set benchmarks, making your industrial processes more efficient, safer and more sustainable – both in logistics and manufacturing operations.

SICK combines sensor intelligence with industry expertise and certified consulting services. We provide the ideal foundation for scalable as well as tailor-made automation solutions and create added value along the entire value chain. Our close partnerships with our customers are more than just a promise: Together, we optimize productivity, improve quality, protect health and safety, and help build a sustainable future. All with empathy and trust.

Since 1946, we have been developing innovative technologies with passion and a pioneering spirit. With a global network in around 40 countries, SICK has a global presence and is always close by. The company's headquarters are located in Waldkirch near Freiburg, Germany. Our customers benefit from our understanding of both local and global requirements, which enables us to deliver tailor-made solutions

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