



MRS1104P-111011

MRS1000

3D LIDAR SENSORS

SICK
Sensor Intelligence.



Ordering information

Type	part no.
MRS1104P-111011	1104278

Other models and accessories → 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)
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
	0.25°
	Vertical 2.5°
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
Supply voltage	10 V DC ... 30 V DC
Power consumption	≤ 13 W, Start-up phase max. 30 W for 1 s
Housing material	AlSi12, Optics cover: polycarbonate
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

Safety-related parameters

MTTF_D	> 100 years
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Performance

Output data LiDAR-LOC	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	Welcome app (Scanview and 3D Viewer)
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
Data transmission rate	10/100 MBit/s
Digital inputs/outputs	I/O (8 (Multiport))
Output data	IMU (secondary sensor data)
Optical indicators	2 LEDs
Configuration software	SICK AppStudio

Ambient data

Object remission	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⁾ 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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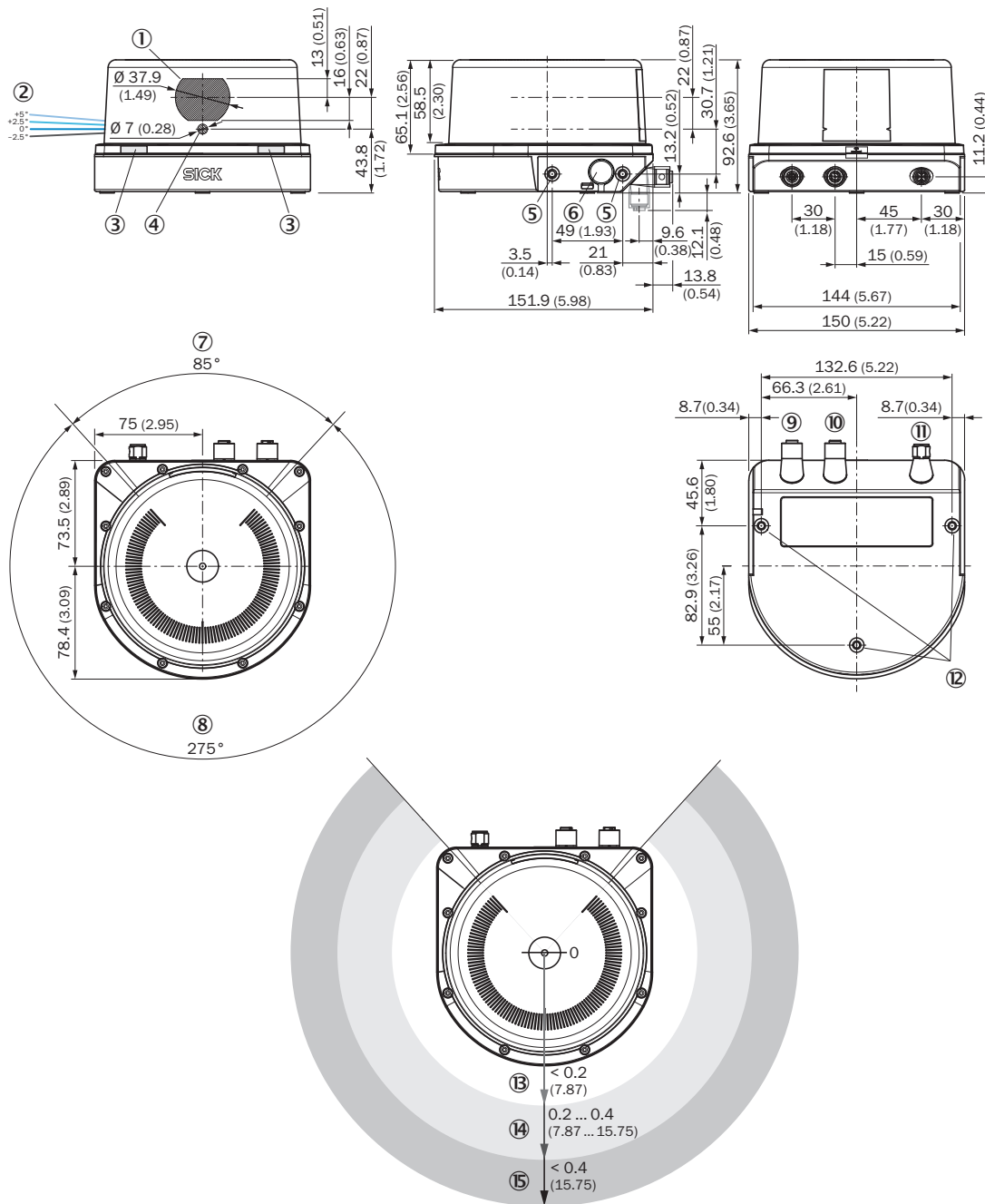
Certificates

EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
China-RoHS	✓

Classifications

ECLASS 5.0	27270990
ECLASS 5.1.4	27270990
ECLASS 6.0	27270913
ECLASS 6.2	27270913
ECLASS 7.0	27270913
ECLASS 8.0	27270913
ECLASS 8.1	27270913
ECLASS 9.0	27270913
ECLASS 10.0	27270913
ECLASS 11.0	27270913
ECLASS 12.0	27270913
ETIM 5.0	EC002550
ETIM 6.0	EC002550
ETIM 7.0	EC002550
ETIM 8.0	EC002550
UNSPSC 16.0901	41111615

Dimensional drawing

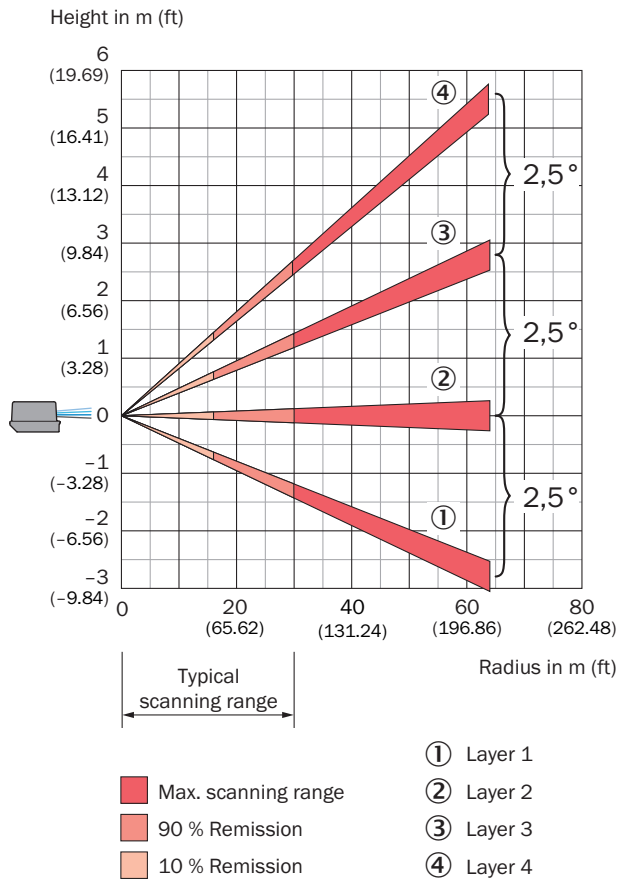


Dimensions in mm (inch)

- 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

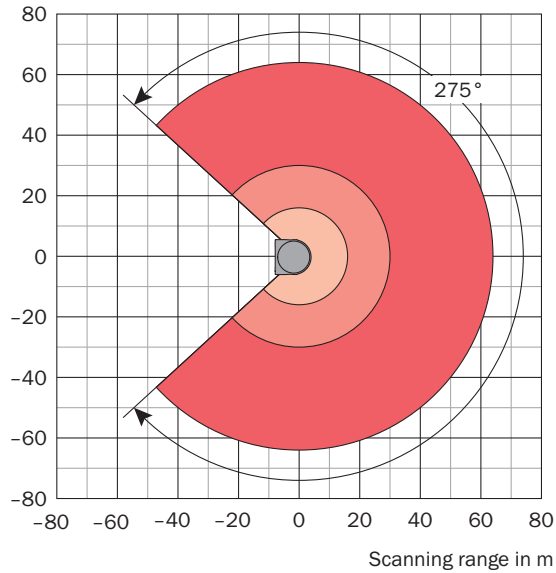
- ⑬ Close range (no detection or measurement possible)
- ⑭ Detection zone
- ⑮ measuring range

Working range diagram



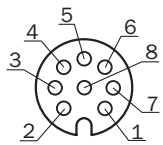
Working range diagram

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

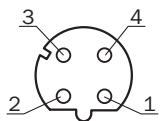
Connection type I/O



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 IN_x/OUT_x
- ⑧ IN7/OUT7

Connection type Ethernet

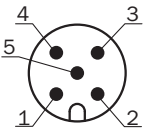


M12 female connector, 4-pin, D-coded

- ① TX+

- ② RX+
- ③ TX-
- ④ RX-

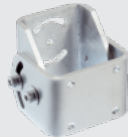
Connection type Power



- Connector M12, 5-pin, A-coded
- ① VS 10...30 V
 - ② Reserved
 - ③ GND
 - ④ IN8/OUT8
 - ⑤ Reserved

Recommended accessories

Other models and accessories → www.sick.com/MRS1000

	Brief description	Type	part no.
Mounting systems			
	• Description: Standard mounting set for weather hood • Material: Stainless steel 1.4301 (V2A) • Details: Stainless steel 1.4301 (V2A) • Items supplied: Mounting bracket, incl. 7 x screws with washer M6 x 12 • Suitable for: 2085937, 2085938, 2085939, 2046459, 2046458, 2082563, 2082560	Mounting bracket	2046025
	• Description: Easy Mount • Dimensions (W x H x L): 86 mm x 46 mm x 180 mm • Material: Stainless steel • Details: X6CRNITI1810 (1.4541) • Items supplied: Mounting kit 1a (2034324), 4 x M5 x 10 countersunk screws, stainless steel • Suitable for: LMS1000, MRS1000, LRS4000	Mounting kit 1a	2093194

SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is “Sensor Intelligence.”

WORLDWIDE PRESENCE:

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