



# 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](http://www.sick.com/MRS1000)



### Detailed technical data

#### Features

<b>Application</b>	Outdoor, Indoor
<b>Measurement principle</b>	HDDM <sup>+</sup>
<b>Light source</b>	Infrared (850 nm)
<b>Laser class</b>	1 (IEC 60825-1:2014, EN 60825-1:2014+A11:2021)
<b>Aperture angle</b>	Horizontal 275°
	Vertical 7.5°, Over 4 scan layers
<b>Scanning frequency</b>	50 Hz, 4 x 12.5 Hz
<b>Angular resolution</b>	Horizontal 0.0625°, interlaced
	0.125°, interlaced
	0.25°
	Vertical 2.5°
<b>Heating</b>	Self-heating
<b>Working range</b>	0.2 m ... 64 m
<b>Scanning range</b>	At 10% remission factor 16 m
	At 90% remission factor 30 m
<b>Spot size</b>	10.4 mrad x 8.7 mrad
<b>Amount of evaluated echoes</b>	3

#### Mechanics/electronics

<b>Connection type</b>	M12 round connectors with swivel connector (stainless steel)
<b>Supply voltage</b>	10 V DC ... 30 V DC
<b>Power consumption</b>	≤ 13 W, Start-up phase max. 30 W for 1 s
<b>Housing material</b>	AlSi12, Optics cover: polycarbonate
<b>Enclosure rating</b>	IP65 (IEC 60529:1989+AMD1:1999+AMD2:2013) IP67 (IEC 60529:1989+AMD1:1999+AMD2:2013)
<b>Protection class</b>	III (IEC 61140:2016-11)
<b>Electrical safety</b>	IEC 61010-1:2010-06

<b>Weight</b>	1.2 kg
<b>Dimensions (L x W x H)</b>	151.9 mm x 150 mm x 92.5 mm
<b>MTBF</b>	50 years
<b>MTTFd</b>	> 100 years

## Safety-related parameters

<b>MTTF<sub>D</sub></b>	> 100 years
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## Performance

<b>Output data LiDAR-LOC</b>	IMU (secondary sensor data)
<b>Scan/frame rate</b>	55,000 measurement point/s ... 165,000 measurement point/s
<b>Response time</b>	4 layers, typ. 20 ms <sup>1)</sup> 1 layer, typ. 80 ms
<b>Systematic error</b>	± 60 mm
<b>Statistical error</b>	≤ 30 mm
<b>Integrated application</b>	Welcome app (Scanview and 3D Viewer)
<b>Number of field sets</b>	Up to 64 fields
<b>Simultaneous evaluation cases</b>	Up to 16 evaluations
<b>Filter</b>	Fog filter Particle filter Average filter Median filter Ground reference evaluation Edge filter Echo filter

<sup>1)</sup> Depending on the selected filter settings and the object size.

## Interfaces

<b>Ethernet</b>	✓ , TCP/IP, UDP/IP
Data transmission rate	10/100 MBit/s
<b>Digital inputs/outputs</b>	I/O (8 (Multiport))
<b>Output data</b>	IMU (secondary sensor data)
<b>Optical indicators</b>	2 LEDs
<b>Configuration software</b>	SICK AppStudio

## Ambient data

<b>Object remission</b>	2 % ... > 1,000 % (Reflector)
<b>Electromagnetic compatibility (EMC)</b>	EN 61000-6-2:2005 / EN 61000-6-3:2007+A1:2011
<b>Vibration resistance</b>	10 Hz ... 150 Hz, 5 g, 20 frequency cycles <sup>1)</sup>
<b>Shock resistance</b>	15 g, 11 ms, 6 single shocks/axis <sup>2)</sup> 10 g, 16 ms, 1,000 continuous shocks/axis <sup>2)</sup>
<b>Ambient operating temperature</b>	-30 °C ... +50 °C
<b>Storage temperature</b>	-40 °C ... +75 °C
<b>Ambient light immunity</b>	80 klx

<sup>1)</sup> IEC 60068-2-6:2007.

<sup>2)</sup> IEC 60068-2-27:2008.

### General notes

<b>Note on use</b>	The sensor does not constitute a safety component as defined by relevant legislation on machine safety.
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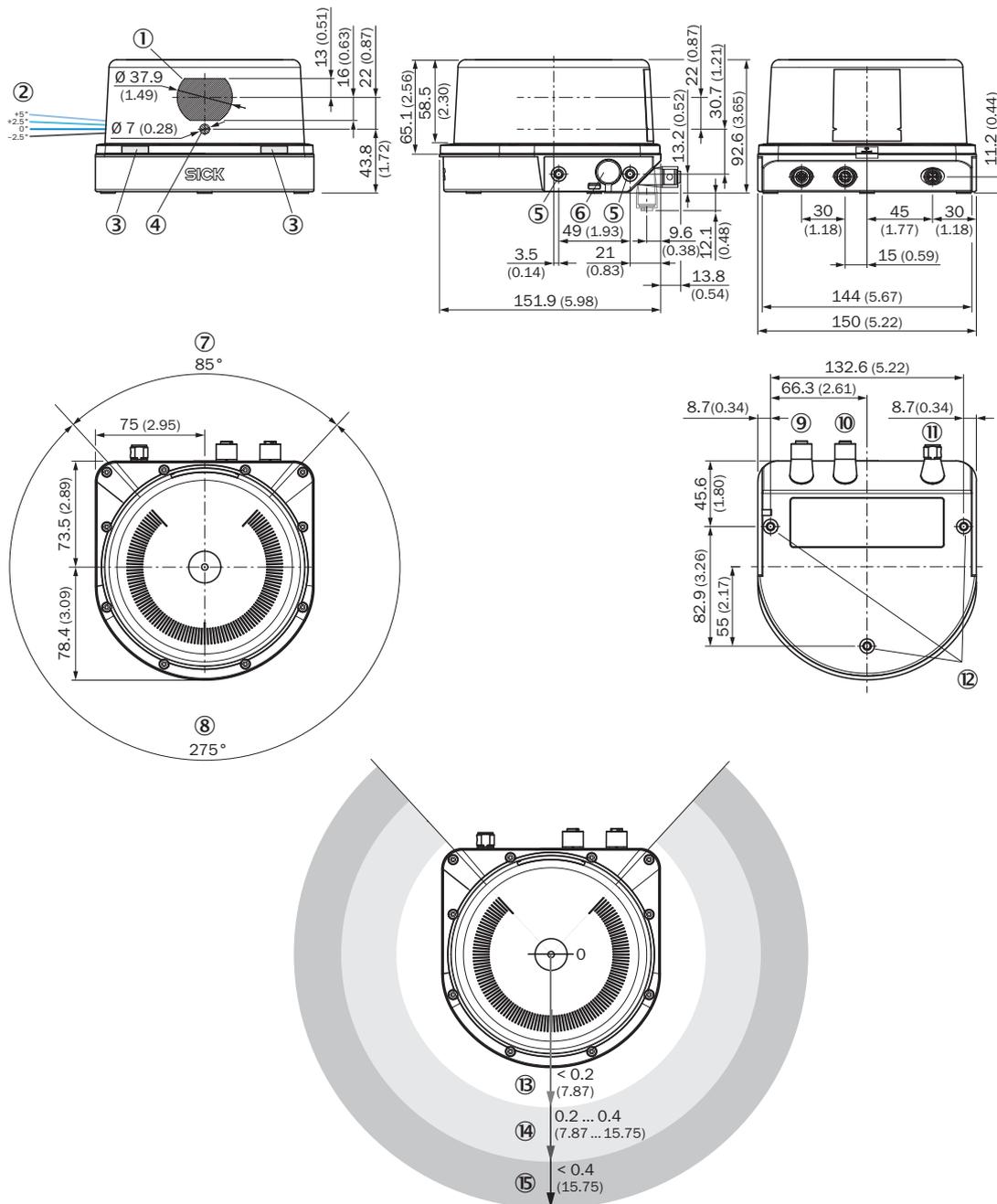
### Certificates

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

### Classifications

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

Dimensional drawing



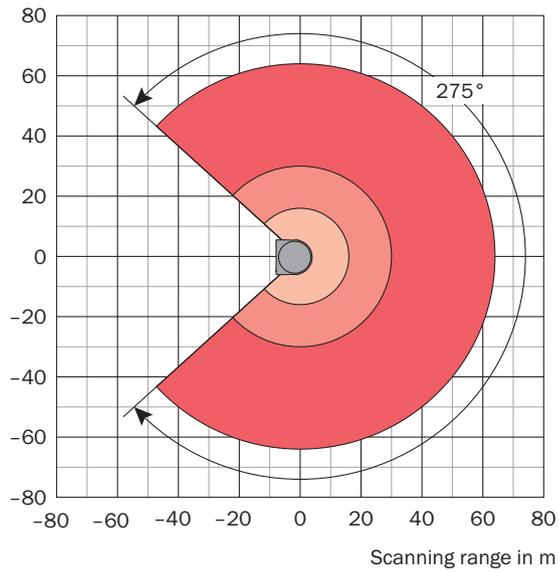
Dimensions in mm (inch)

- 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

- ③ Close range (no detection or measurement possible)
- ④ Detection zone
- ⑤ measuring range

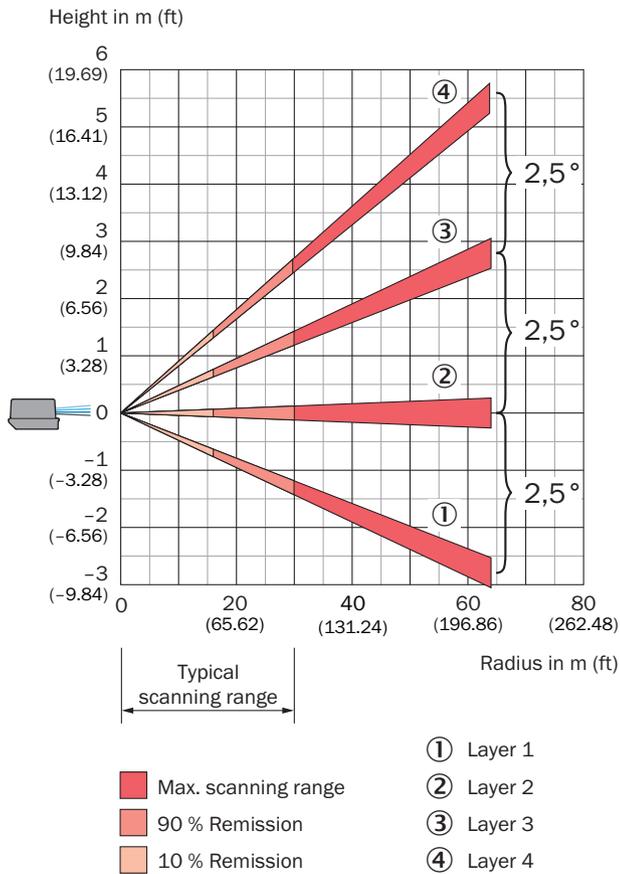
### Working range diagram

Scanning range in m

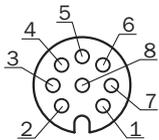


- Scanning range max. 64 m
- Scanning range for objects up to 90 % remission 30 m
- Scanning range for objects up to 10 % Remission 16 m

Working range diagram



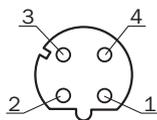
Connection type I/O



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

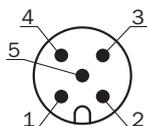
### Connection type Ethernet



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](http://www.sick.com/MRS1000)

	Brief description	Type	part no.
Mounting systems			
	<ul style="list-style-type: none"> <li>• <b>Description:</b> Standard mounting set for weather hood</li> <li>• <b>Material:</b> Stainless steel 1.4301 (V2A)</li> <li>• <b>Details:</b> Stainless steel 1.4301 (V2A)</li> <li>• <b>Items supplied:</b> Mounting bracket, incl. 7 x screws with M6 x 12 washers</li> <li>• <b>Suitable for:</b> 2085937, 2085938, 2085939, 2046459, 2046458, 2082563, 2082560</li> </ul>	Mounting bracket	2046025
	<ul style="list-style-type: none"> <li>• <b>Description:</b> Easy Mount</li> <li>• <b>Dimensions (W x H x L):</b> 86 mm x 46 mm x 180 mm</li> <li>• <b>Material:</b> Stainless steel</li> <li>• <b>Details:</b> X6CRNITI1810 (1.4541)</li> <li>• <b>Items supplied:</b> Mounting kit 1a (2034324), 4 x M5 x 10 countersunk screws, stainless steel</li> <li>• <b>Suitable for:</b> LMS1000, MRS1000, LRS4000</li> </ul>	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:

Contacts and other locations –[www.sick.com](http://www.sick.com)