



**MRS1104P-111011**

MRS1000P

**3D LIDAR SENSORS**

**SICK**  
Sensor Intelligence.



### Ordering information

Type	Part no.
MRS1104P-111011	1104278

Other models and accessories → [www.sick.com/MRS1000P](http://www.sick.com/MRS1000P)



### 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)				
<b>Aperture angle</b>	<table border="0"> <tr> <td>Horizontal</td> <td>275°</td> </tr> <tr> <td>Vertical</td> <td>7.5°, Over 4 scan layers</td> </tr> </table>	Horizontal	275°	Vertical	7.5°, Over 4 scan layers
Horizontal	275°				
Vertical	7.5°, Over 4 scan layers				
<b>Scanning frequency</b>	50 Hz, 4 x 12.5 Hz				
<b>Angular resolution</b>	<table border="0"> <tr> <td>Horizontal</td> <td>0.0625°, interlaced 0.125°, interlaced 0.25°</td> </tr> <tr> <td>Vertical</td> <td>2.5°</td> </tr> </table>	Horizontal	0.0625°, interlaced 0.125°, interlaced 0.25°	Vertical	2.5°
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>	<table border="0"> <tr> <td>At 10% remission factor</td> <td>16 m</td> </tr> <tr> <td>At 90% remission factor</td> <td>30 m</td> </tr> </table>	At 10% remission factor	16 m	At 90% remission factor	30 m
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
<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>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

## 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 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)

## 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>	LEDs
<b>Operator interfaces</b>	Web server, SOPAS ET (diagnostics)
<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>	IEC 60068-2-6:2007
<b>Shock resistance</b>	IEC 60068-2-27:2008
<b>Ambient operating temperature</b>	-30 °C ... +50 °C
<b>Storage temperature</b>	-40 °C ... +75 °C
<b>Ambient light immunity</b>	80 klx

## 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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## Classifications

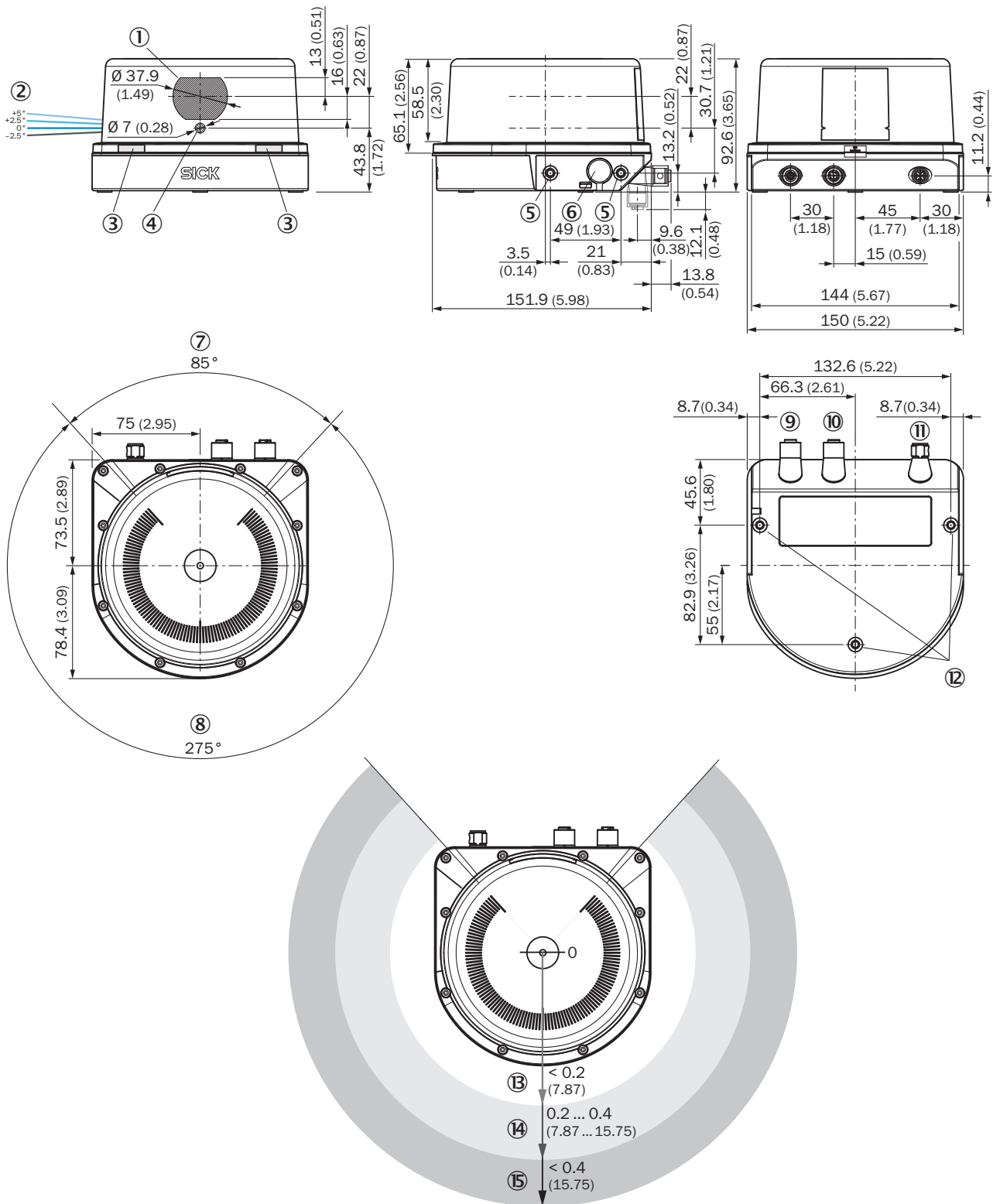
<b>ECLASS 5.0</b>	27270990
<b>ECLASS 5.1.4</b>	27270990
<b>ECLASS 6.0</b>	27270913
<b>ECLASS 6.2</b>	27270913
<b>ECLASS 7.0</b>	27270913
<b>ECLASS 8.0</b>	27270913
<b>ECLASS 8.1</b>	27270913
<b>ECLASS 9.0</b>	27270913
<b>ECLASS 10.0</b>	27270913

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## 3D LIDAR SENSORS

<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

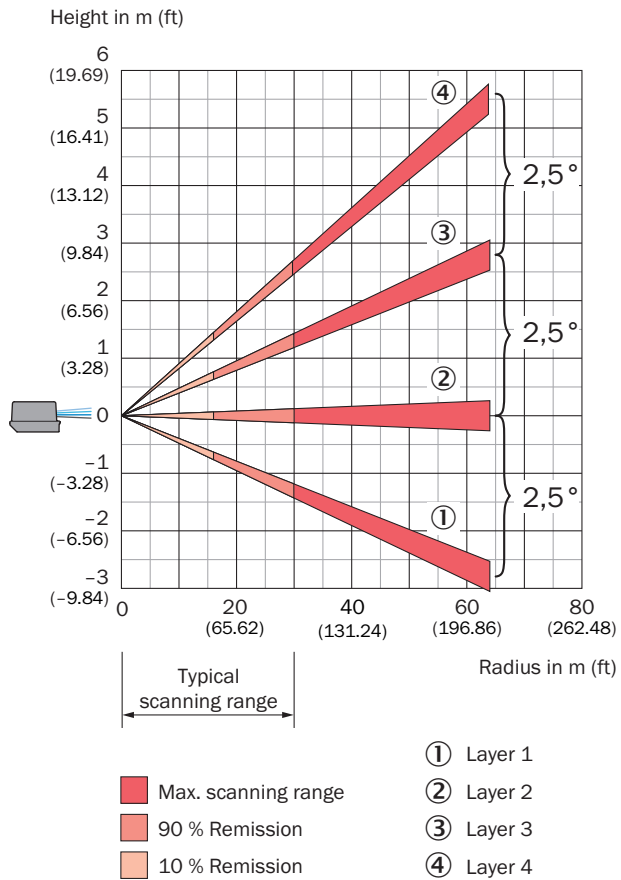
Dimensional drawing (Dimensions in mm (inch))



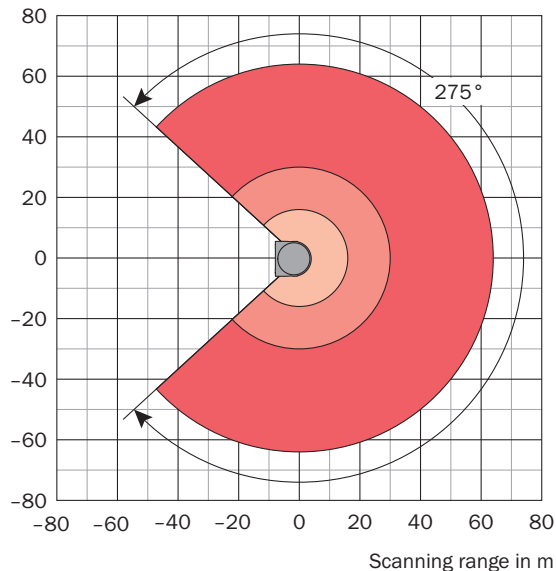
- ① Receiver
- ② Laser aperture angle, layers 1 to 4
- ③ Status LEDs
- ④ Sender
- ⑤ Mounting hole M5 x 7.5
- ⑥ Pressure compensation element

- ⑦ Blind zone
- ⑧ Field of view
- ⑨ Ethernet connection
- ⑩ I/O connection
- ⑪ POWER connection
- ⑫ Mounting hole M5 x 7,5
- ⑬ Close range (no detection or measurement possible)
- ⑭ Detection zone
- ⑮ Measuring range

### Working range diagram



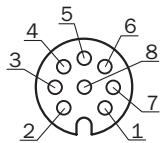
Scanning range in m



- 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

Connection type

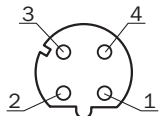
I/O



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

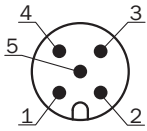
Ethernet



M12 female connector, 4-pin, D-coded

- ① TX+
- ② RX+
- ③ TX-
- ④ RX-

### Power

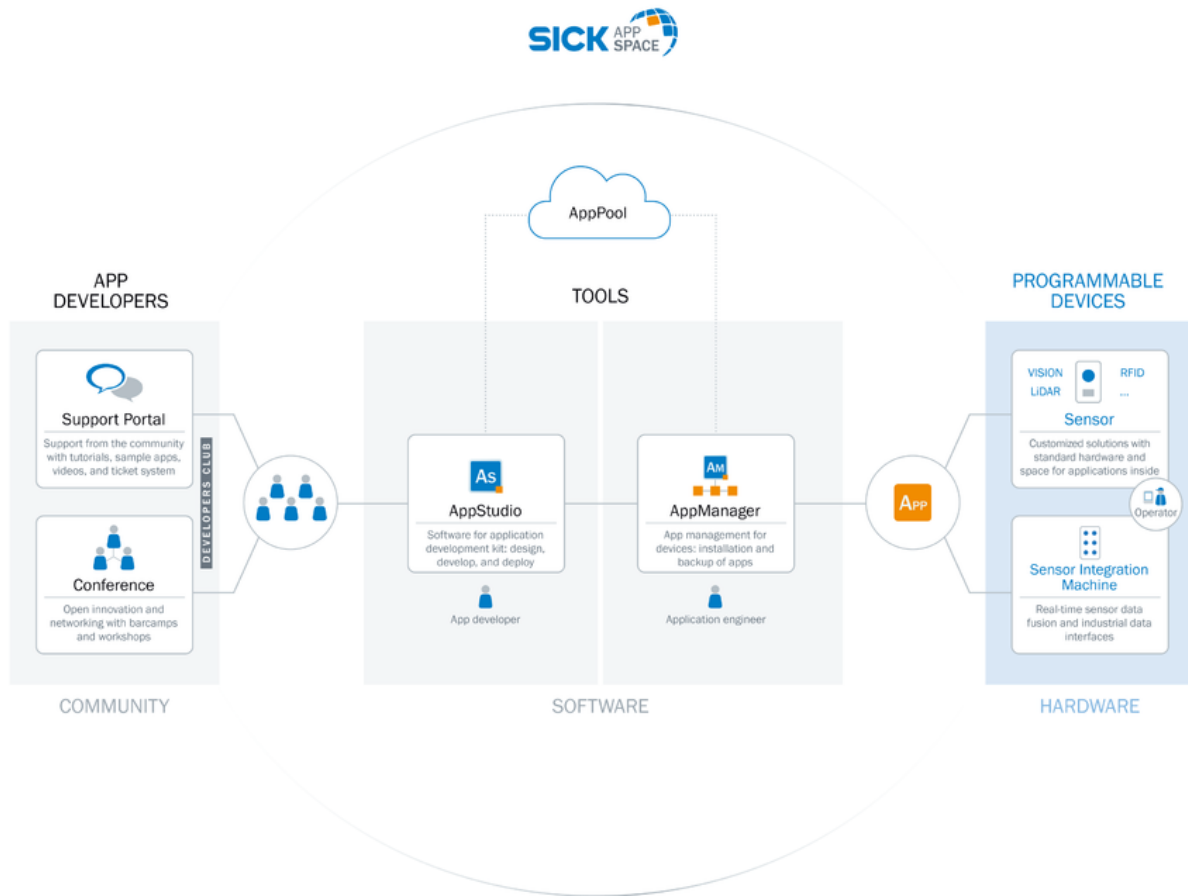


Connector M12, 5-pin, A-coded

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

### Overview







SICK AppSpace





## Recommended accessories

Other models and accessories → [www.sick.com/MRS1000P](http://www.sick.com/MRS1000P)

	Brief description	Type	Part no.
Device protection (mechanical)			
	Optics cover for protecting the front screen from weather conditions, stainless steel, Aluminum, powder coated, 1 x weather protection hood and 1 x mounting kit 1a (2093194), 4 M5 x 6 cylinder head screws with washers, 4 x M5 x 12 countersunk screws, 2 x cylinder head screws, M5 x 10 cap screws with washers, 4 x M5 x 10 countersunk screws	Weather protection hood 210° with mounting kit 1a	2085939
Mounting brackets and plates			
	Standard mounting set for weather hood	Mounting bracket	2046025
Terminal and alignment brackets			
	Easy Mount, X6CRNIT1810 (1.4541), Mounting kit 1a (2034324), 4 x M5 x 10 countersunk screws, stainless steel	Mounting kit 1a	2093194
Others			
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Male connector, M12, 8-pin, straight, A-coded</li> <li>• <b>Connection type head B:</b> Flying leads</li> <li>• <b>Signal type:</b> Sensor/actuator cable</li> <li>• <b>Cable:</b> 5 m, 8-wire, PUR, halogen-free</li> <li>• <b>Description:</b> Sensor/actuator cable, shielded</li> <li>• <b>Connection systems:</b> Flying leads</li> <li>• <b>Application:</b> Zones with oils and lubricants, Drag chain operation</li> </ul>	YM2A28-050UA6XLEAX	6036155
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 5-pin, straight, A-coded</li> <li>• <b>Connection type head B:</b> Flying leads</li> <li>• <b>Signal type:</b> Sensor/actuator cable</li> <li>• <b>Cable:</b> 5 m, 5-wire, PUR, halogen-free</li> <li>• <b>Description:</b> Sensor/actuator cable, shielded</li> <li>• <b>Application:</b> Zones with oils and lubricants, Drag chain operation, Robot</li> </ul>	YF2A25-050UB6XLEAX	2095733
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Male connector, M12, 4-pin, straight, D-coded</li> <li>• <b>Connection type head B:</b> Male connector, RJ45, 4-pin, straight</li> <li>• <b>Signal type:</b> Ethernet, PROFINET</li> <li>• <b>Cable:</b> 5 m, 4-wire, PUR, halogen-free</li> <li>• <b>Description:</b> Ethernet, PROFINET, shielded</li> <li>• <b>Application:</b> Drag chain operation, Zones with oils and lubricants</li> </ul>	YM2D24-050PN1MRJA4	2106184

## Recommended services

Additional services → [www.sick.com/MRS1000P](http://www.sick.com/MRS1000P)

	Type	Part no.
Extended warranty		
<ul style="list-style-type: none"> <li>• <b>Product area:</b> Machine vision, LiDAR sensors, safety camera sensors, Safety laser scanners, Safety radar sensors, Radar sensors, Fixed mount barcode scanners, Image-based code readers, RFID, Mobile handheld scanners</li> <li>• <b>Range of services:</b> The services correspond to the scope of the statutory manufacturer warranty (SICK general terms of delivery).</li> <li>• <b>Duration:</b> Five-year warranty from delivery date.</li> </ul>	Extended warranty for a total of five years from delivery date	1680671

## 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)