MRS1104P-111011

MRS1000P

3D LIDAR SENSORS

SICK
Sensor Intelligence.

MRS1104P-111011 | MRS1000P
3D LIDAR SENSORS

Ordering information

Type	Part no.
MRS1104P-111011	1104278

Other models and accessories ➜ www.sick.com/MRS1000P

Detailed technical data

Features

Task		Determining position - 3D position determination
Application		Outdoor
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		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
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

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 layer, typ. 80 ms
Systematic error	± 60 mm
Statistical error	≤ 30 mm
Integrated application	Welcome app (Scanview and 3D Viewer)

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

General notes

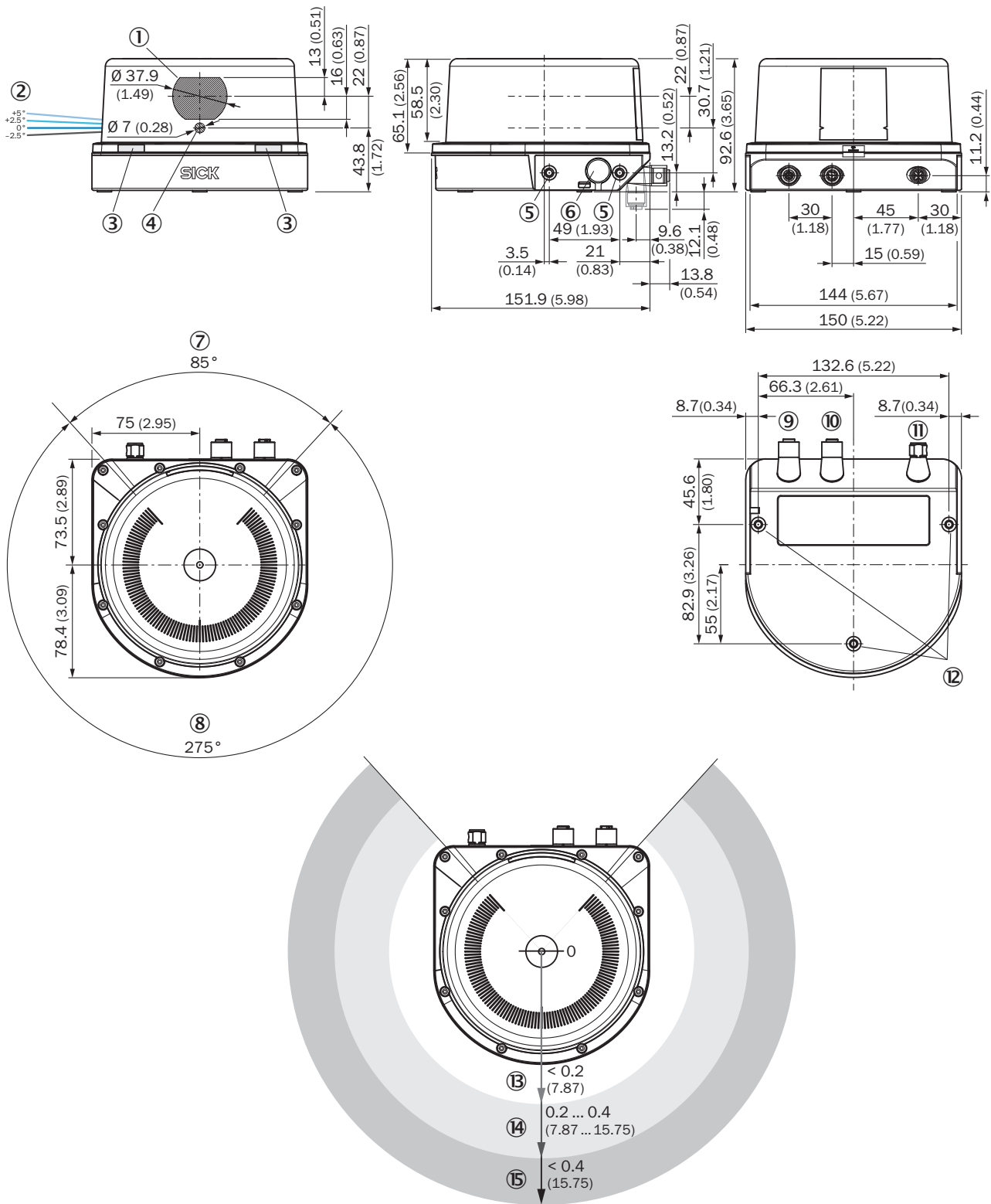| Note on use	The sensor does not constitute a safety component as defined by relevant legislation on machine safety.

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

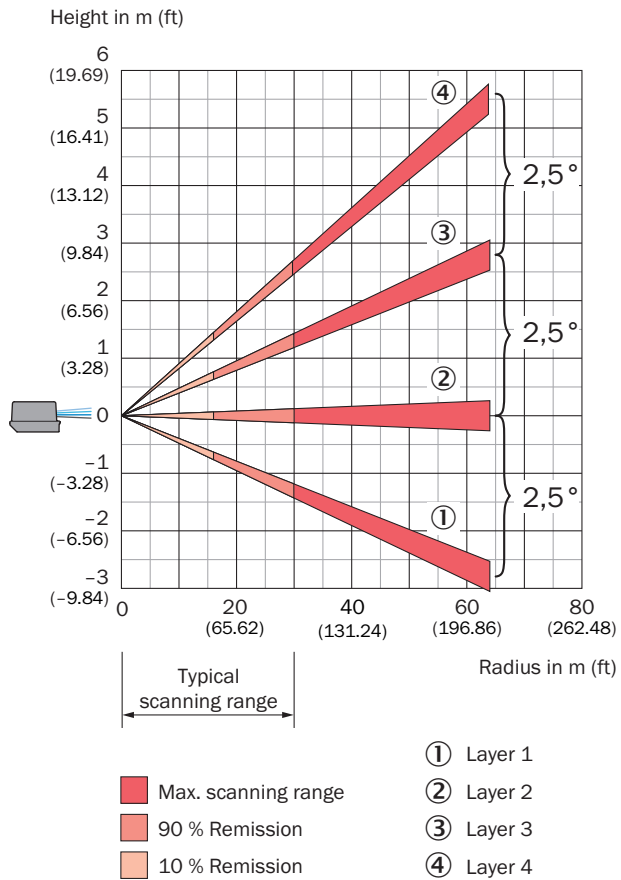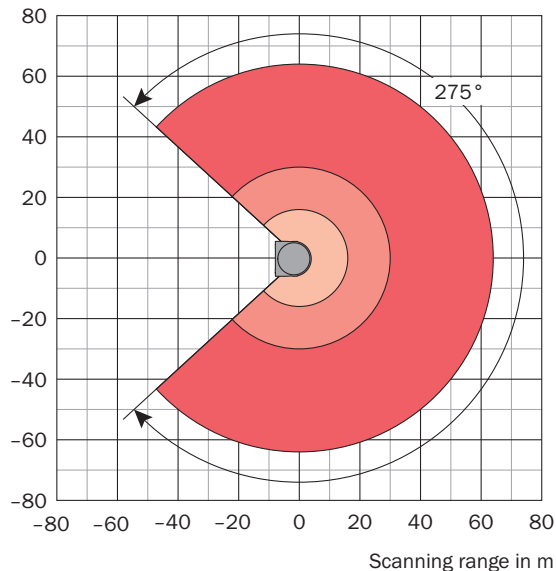## Dimensional drawing (Dimensions in mm (inch))

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

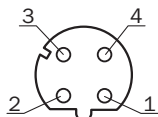Height in m (ft)

Radius in m (ft)

Typical scanning range

■ Max. scanning range	① Layer 1
■ 90 % Remission	② Layer 2
■ 10 % Remission	③ Layer 3
	④ Layer 4

Scanning range in m

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
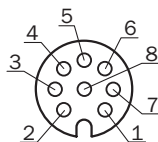
Connection type

Ethernet

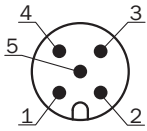M12 female connector, 4-pin, D-coded
① TX+
② RX+
③ TX-
④ RX-

I/O

Connector M12, 8-pin, A-coded
① IN1/OUT1
② IN2/OUT2
③ IN3/OUT3
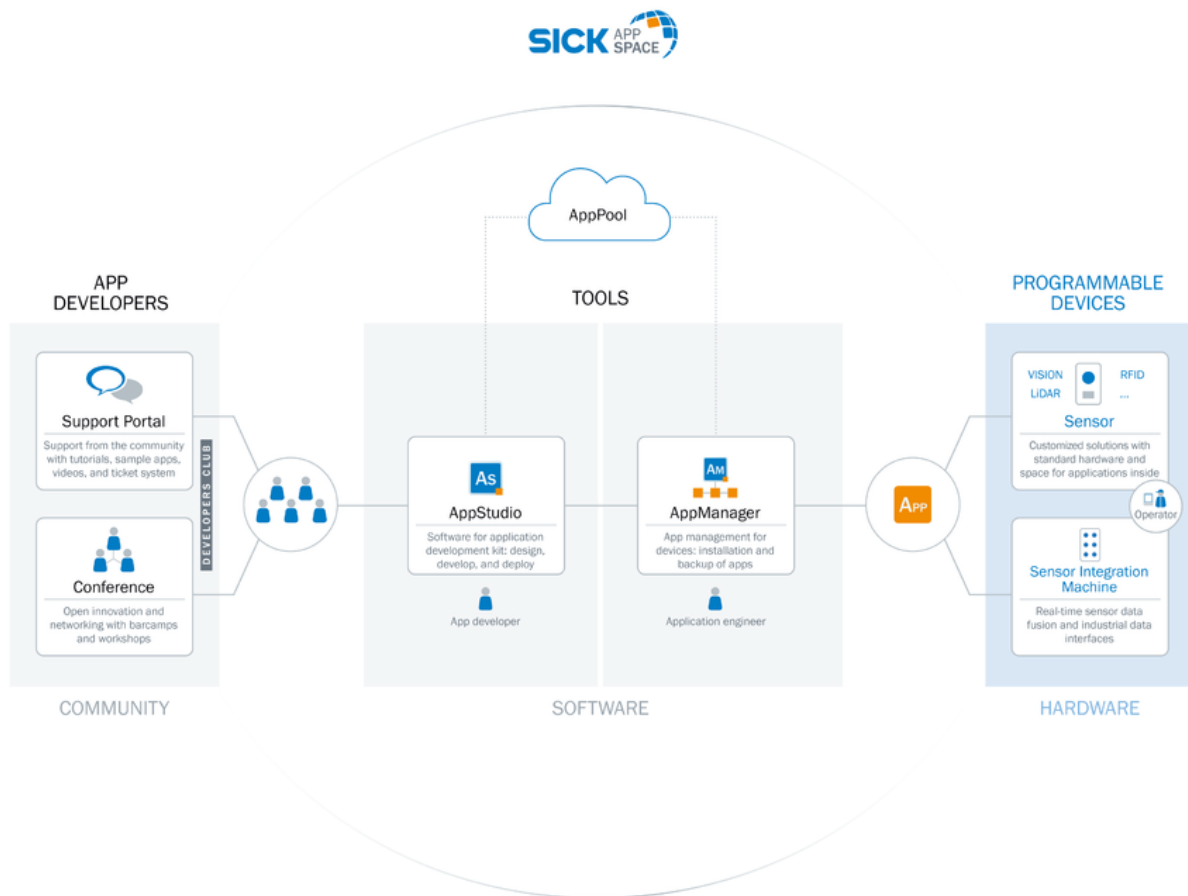④ IN4/OUT4
⑤ IN5/OUT5
⑥ IN6/OUT6
⑦ GND INx/OUTx
⑧ IN7/OUT7

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

	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, X6CRNITI1810 (1.4541), Mounting kit 1a (2034324), 4 x M5 x 10 countersunk screws, stainless steel	Mounting kit 1a	2093194
Others			
	• **Connection type head A:** Male connector, M12, 8-pin, straight, A-coded • **Connection type head B:** Flying leads • **Signal type:** Sensor/actuator cable • **Cable:** 5 m, 8-wire, PUR, halogen-free • **Description:** Sensor/actuator cable, shielded • **Connection systems:** Flying leads • **Application:** Zones with oils and lubricants, Drag chain operation	YM2A28-050UA6XLEAX	6036155
	• **Connection type head A:** Female connector, M12, 5-pin, straight, A-coded • **Connection type head B:** Flying leads • **Signal type:** Sensor/actuator cable • **Cable:** 5 m, 5-wire, PUR, halogen-free • **Description:** Sensor/actuator cable, shielded • **Application:** Zones with oils and lubricants, Drag chain operation, Robot	YF2A25-050UB6XLEAX	2095733
	• **Connection type head A:** Male connector, M12, 4-pin, straight, D-coded • **Connection type head B:** Male connector, RJ45, 4-pin, straight • **Signal type:** Ethernet, PROFINET • **Cable:** 5 m, 4-wire, PUR, halogen-free • **Description:** Ethernet, PROFINET, shielded • **Application:** Drag chain operation, Zones with oils and lubricants	YM2D24-050PN1MRJA4	2106184

Recommended services

Additional services ➜ www.sick.com/MRS1000P

	Type	Part no.
Extended warranty		
• **Product area:** 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 • **Range of services:** The services correspond to the scope of the statutory manufacturer warranty (SICK general terms of delivery). • **Duration:** Five-year warranty from delivery date.	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**