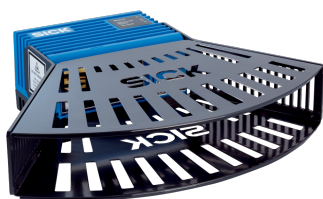


# LMS4121R-13000

LMS4000

2D LIDAR SENSORS

**SICK**  
Sensor Intelligence.



### Ordering information

Type	part no.
LMS4121R-13000	1091393

Other models and accessories → [www.sick.com/LMS4000](http://www.sick.com/LMS4000)



### Detailed technical data

#### Features

<b>Application</b>	Indoor
<b>Reading field</b>	Front
<b>Light source</b>	Visible red light (660 nm)
<b>Laser class</b>	2 (IEC 60825-1:2014, EN 60825-1:2014)
<b>Aperture angle</b>	Horizontal 70°
<b>Scanning frequency</b>	600 Hz
<b>Angular resolution</b>	Horizontal 0.0833°
<b>Working range</b>	0.7 m ... 3 m
<b>Scanning range</b>	At 2% remission 3 m
	At 3,5% remission 3 m
	At 10% remission factor 3 m

#### Mechanics/electronics

<b>Connection type</b>	1 x M12, 5-pin plug (Power + I/O + Sync) 1 x M12, 8-pin female connector (Ethernet) 1 x M12, 5-pin female connector (Encoder + I/O)
<b>Supply voltage</b>	24 V DC, ± 25 %
<b>Power consumption</b>	≤ 16 W, start-up phase max. 29 W
<b>Output current</b>	≤ 100 mA
<b>Housing material</b>	Aluminum die cast
<b>Housing color</b>	Light blue (RAL 5012)
<b>Enclosure rating</b>	IP65
<b>Protection class</b>	III
<b>Electrical safety</b>	IEC 61010-1:2011
<b>Weight</b>	3.7 kg
<b>Dimensions (L x W x H)</b>	397 mm x 370 mm x 107 mm
<b>MTBF</b>	80 years

## Safety-related parameters

<b>MTTF<sub>D</sub></b>	> 100 years
-------------------------	-------------

## Performance

<b>Scan/frame rate</b>	504,600 measurement point/s
<b>Response time</b>	≥ 4.8 ms
<b>Detectable object shape</b>	Almost any
<b>Systematic error</b>	± 1 mm <sup>1)</sup>
<b>Statistical error</b>	1.5 mm <sup>1)</sup>
<b>Integrated application</b>	Output of measurement data
<b>Filter</b>	Rectangular filter Edge filter Median filter Gloss compensation Average filter

<sup>1)</sup> Typical value; actual value depends on environmental conditions.

## Interfaces

<b>Ethernet</b>	✓ , TCP/IP, UDP/IP
Function	Measurement data output (distance, RSSI, angle)
Data transmission rate	100 Mbit/s ... 1,000 Mbit/s, half/full-duplex
<b>Digital inputs/outputs</b>	
Inputs	2
Outputs	3
<b>Encoder inputs</b>	2 (phase A, phase B)
<b>Synchronization inputs/outputs</b>	One (master / slave)
<b>Optical indicators</b>	4 LEDs
<b>Configuration software</b>	SOPAS ET
<b>Maximum encoder frequency</b>	Max. 50 kHz

## Ambient data

<b>Object remission</b>	2 % ... 200 %
<b>Electromagnetic compatibility (EMC)</b>	EN 61000-6-3:2007+A1:2011 / IEC 61000-6-3:2006+AMD1:2010
<b>Vibration resistance</b>	EN 60068-2-6:2007
<b>Shock resistance</b>	EN 60068-2-27:2008
<b>Ambient operating temperature</b>	-10 °C ... +50 °C <sup>1)</sup>
<b>Storage temperature</b>	-20 °C ... +70 °C
<b>Permissible relative humidity</b>	≤ 90 %, Non-condensing
<b>Ambient light immunity</b>	2,000 lx

<sup>1)</sup> Initialization phase: 0 °C ... 50 °C.

## General notes

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

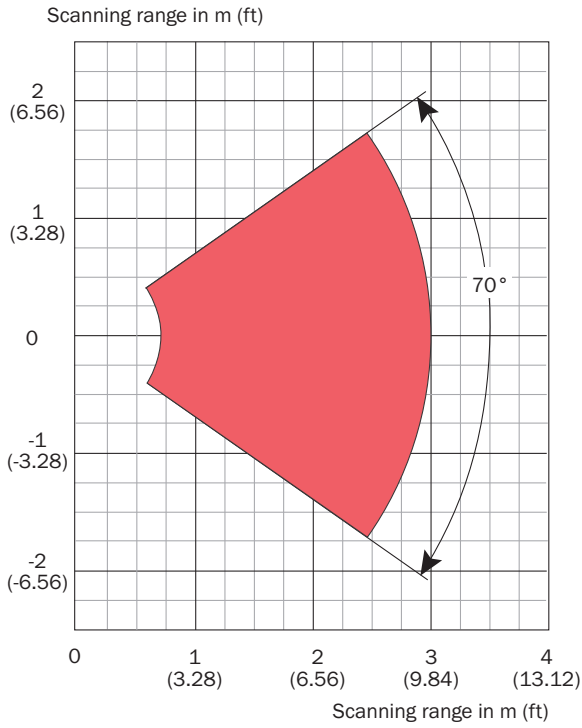
## Classifications

<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

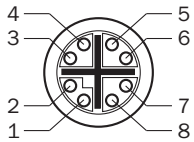


### Working range diagram



■ Working range 0.7 m to 3 m

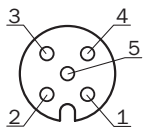
### gigabit Ethernet



M12, 8-pin socket, X-coded (Gigabit Ethernet)

- ① TRD0\_P
- ② TRD0\_N
- ③ TRD1\_P
- ④ TRD1\_N
- ⑤ TRD3\_P
- ⑥ TRD3\_N
- ⑦ TRD2\_P
- ⑧ TRD2\_N

### PIN assignment Encoders

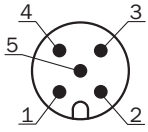


Female connector M12, 5-pin, A-coded

- ① 24 V DC  $\pm$  25 %

- ② Encoders B
- ③ GND
- ④ Encoders A
- ⑤ IN1/OUT1

### PIN assignment Power





Connector M12, 5-pin, A-coded

- ① 24 V DC ± 25 %
- ② SYNC
- ③ GND
- ④ IN2/OUT2
- ⑤ OUT4

### Recommended accessories

Other models and accessories → [www.sick.com/LMS4000](http://www.sick.com/LMS4000)

	Brief description	Type	part no.
connectors and cables			
	Strich		On request
	Strich		On request
	Strich		On request
	Strich		On request
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Male connector, M12, 8-pin, straight, X-coded</li> <li>• <b>Connection type head B:</b> Male connector, RJ45, 8-pin, straight</li> <li>• <b>Signal type:</b> Ethernet, Gigabit Ethernet</li> <li>• <b>Cable:</b> 5 m, 8-wire, PUR, halogen-free</li> <li>• <b>Description:</b> Ethernet, shielded, Gigabit Ethernet</li> <li>• <b>Application:</b> Zones with oils and lubricants</li> </ul>	YM2X18-050EG1M-RJA8	2106259
Power supply units and power supply cables			
	Strich		On request
Mounting systems			
	<ul style="list-style-type: none"> <li>• <b>Description:</b> Holder for Item Profile</li> </ul>	Alignment bracket	2030421
Measuring wheel encoders			
	Strich		On request

## 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)