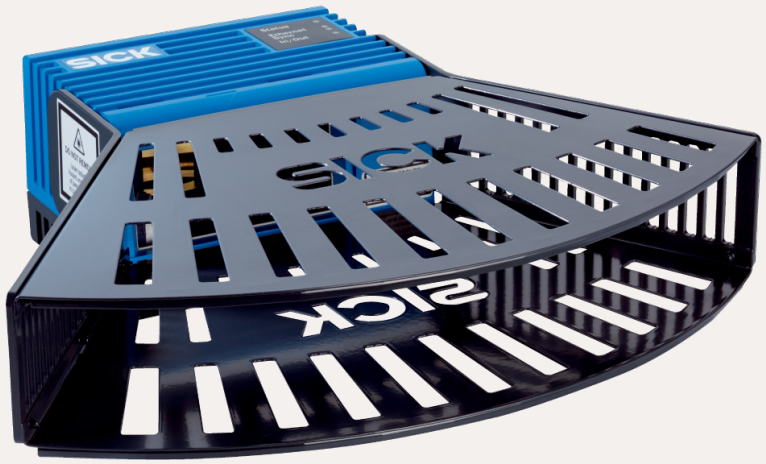
SICK.COM



DATA SHEET

LMS4121R-13000

LMS4000
2D LiDAR sensors

SICK Sensor Intelligence



2D LIDAR SENSORS

LMS4121R-13000

ORDERING INFORMATION

Type	part no.
LMS4121R-13000	1091393

Further device versions and accessories at www.sick.com/LMS4000

DETAILED TECHNICAL DATA

FEATURES

Application	Indoor
Reading field	Front
Light source	Visible red light (660 nm)
Laser class	2 (IEC 60825-1:2014, EN 60825-1:2014)
Aperture angle	
Horizontal	70°
Scanning frequency	600 Hz
Angular resolution	
Horizontal	0.0833°
Working range	0.7 m ... 3 m
Scanning range	
At 2% remission factor	3 m
At 3.5% remission factor	3 m
At 10% remission factor	3 m

MECHANICS/ELECTRONICS

Connection type	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)
Supply voltage	24 V DC, ± 25 %
Power consumption	≤ 16 W, start-up phase max. 29 W
Output current	≤ 100 mA
Housing material	Aluminum die cast
Housing color	Light blue (RAL 5012)
Enclosure rating	IP65
Protection class	III
Electrical safety	IEC 61010-1:2011
Weight	3.7 kg
Dimensions (L x W x H)	397 mm x 370 mm x 107 mm

MTBF	80 years
MTTFd	> 100 years

SAFETY-RELATED PARAMETERS

$MTTF_D$	> 100 years

PERFORMANCE

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

[1] Typical value; actual value depends on environmental conditions.

INTERFACES

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

AMBIENT DATA

Remission factor	2 % ... 200 %
Electromagnetic compatibility (EMC)	EN 61000-6-3:2007+A1:2011 / IEC 61000-6-3:2006+AMD1:2010
Vibration resistance	EN 60068-2-6:2007
Shock resistance	EN 60068-2-27:2008
Ambient operating temperature	–10 °C ... +50 °C [1]
Storage temperature	–20 °C ... +70 °C
Relative humidity	≤ 90 %, Non-condensing
Ambient light immunity	2,000 lx

[1] Initialization phase: 0 °C ... 50 °C.

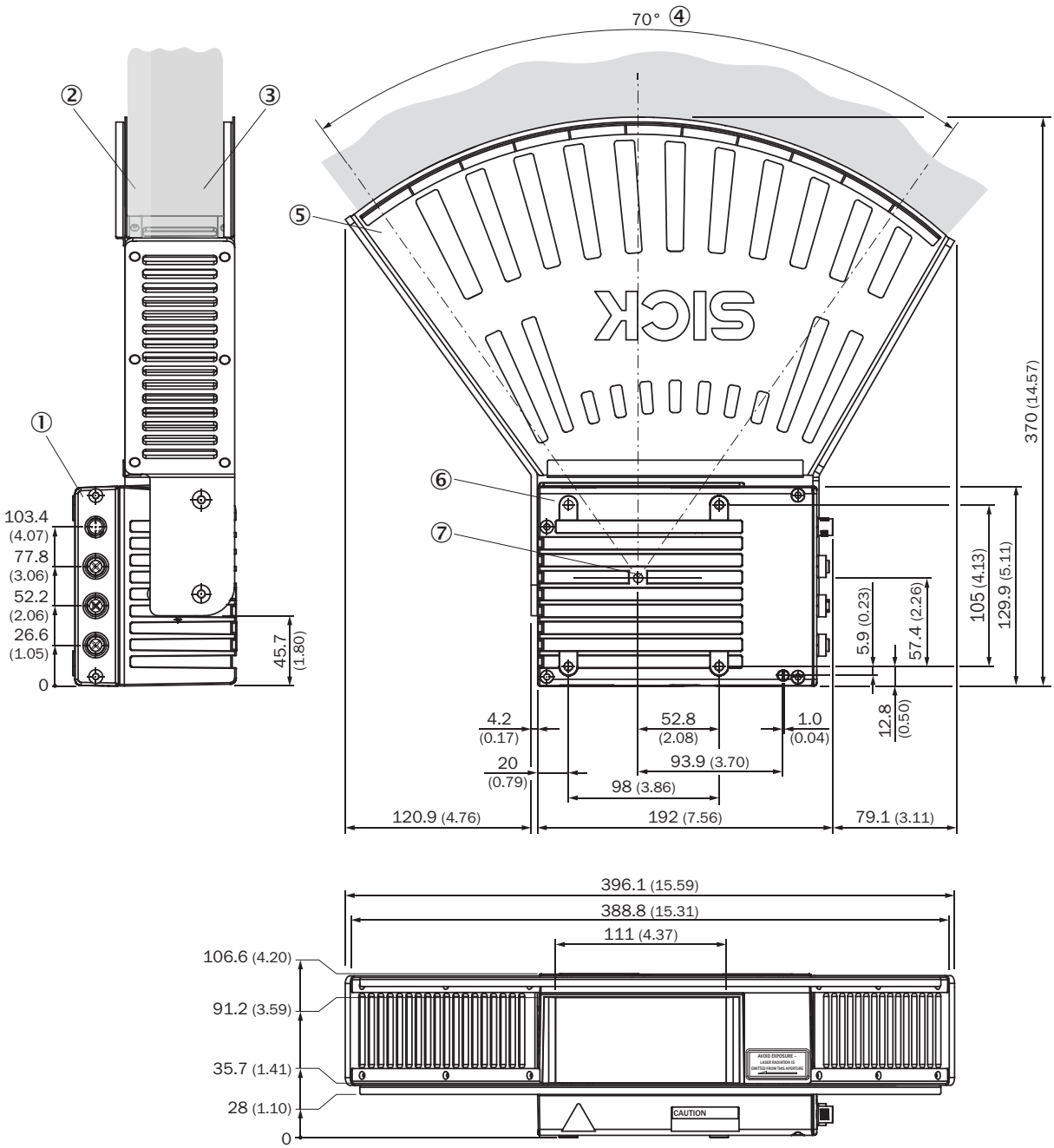
GENERAL NOTES

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

CERTIFICATES

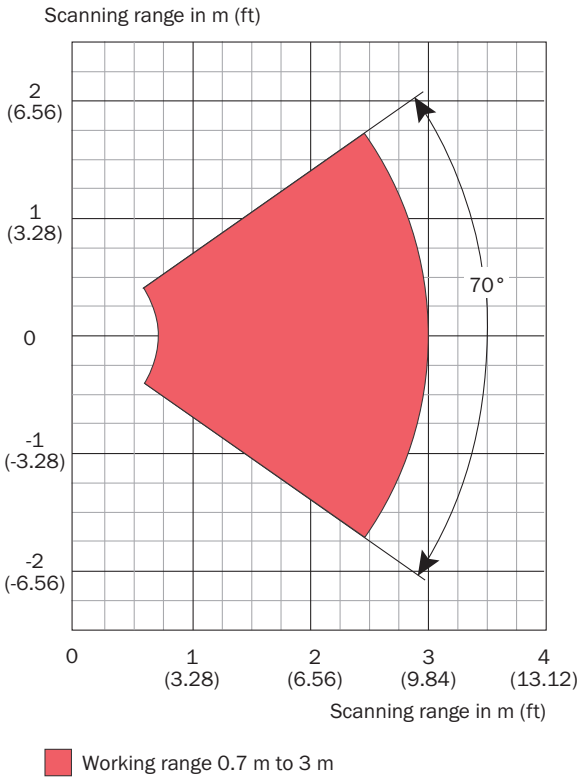
EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
China RoHS	✓
cTUVus certificate	✓

DIMENSIONAL DRAWING LMS4X2X HEAD WITH LASER PROTECTION COVER

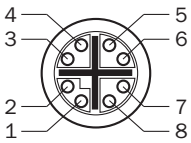


Dimensions in mm (inch)
① interfaces, types and number can vary
② Sending area
③ receiving area
④ aperture angle
⑤ Optical hood
⑥ reference boreholes
⑦ Distance measurement zero point

WORKING RANGE DIAGRAM

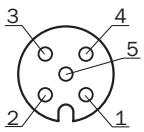


GIGABIT ETHERNET



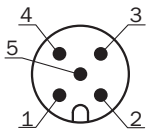
M12, 8-pin socket, X-coded (Gigabit Ethernet)
① TRD0_P
② TRD0_N
③ TRD1_P
④ TRD1_N
⑤ TRD3_P
⑥ TRD3_N
⑦ TRD2_P
⑧ TRD2_N

PIN ASSIGNMENT ENCODERS



Female connector M12, 5-pin, A-coded
① 24 V DC ± 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

Further information as well as suitable accessories, example applications and downloads such as CAD dimensional models, operating instructions and software can be found at www.sick.com/1091393

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GERMANY
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SICK AT A GLANCE

SICK is a leading global technology company for intelligent sensors and integrated solutions in industrial automation. Our technologies set benchmarks, making your industrial processes more efficient, safer and more sustainable – both in logistics and manufacturing operations.

SICK combines sensor intelligence with industry expertise and certified consulting services. We provide the ideal foundation for scalable as well as tailor-made automation solutions and create added value along the entire value chain. Our close partnerships with our customers are more than just a promise: Together, we optimize productivity, improve quality, protect health and safety, and help build a sustainable future. All with empathy and trust.

Since 1946, we have been developing innovative technologies with passion and a pioneering spirit. With a global network in around 40 countries, SICK has a global presence and is always close by. The company's headquarters are located in Waldkirch near Freiburg, Germany. Our customers benefit from our understanding of both local and global requirements, which enables us to deliver tailor-made solutions

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