



# LMS511-10100 PRO

LMS5xx

2D LIDAR SENSORS

**SICK**  
Sensor Intelligence.



### Ordering information

Type	Part no.
LMS511-10100 PRO	1046135

Other models and accessories → [www.sick.com/LMS5xx](http://www.sick.com/LMS5xx)



### Detailed technical data

#### Features

<b>Variant</b>	PRO
<b>Application</b>	Outdoor
<b>Resolution power</b>	Standard Resolution
<b>Light source</b>	Infrared (905 nm, ± 10 nm)
<b>Laser class</b>	1 (EN/IEC 60825-1:2014 (Ed.3), EN/IEC 60825-1:2007 (Ed.2) CAN/CSA-E60825-1:2015-11 (Ed.3))
<b>Aperture angle</b>	Horizontal 190°
<b>Scanning frequency</b>	25 Hz 35 Hz 50 Hz 75 Hz 100 Hz
<b>Angular resolution</b>	0.042°, interlaced 0.083°, interlaced 0.1667° 0.25° 0.333° 0.5° 0.667° 1°
<b>Scan field flatness</b>	Scan field flatness combined: ± 0.72° Typical conical error: 1 sigma value - 0.11° ± 0.1° Typical tilt: 1 sigma value + 0.15° ± 0.08°
<b>Heating</b>	Self-heating with additional integrated heating
<b>Working range</b>	0.2 m ... 80 m
<b>Scanning range</b>	At 10% remission 40 m
<b>Measurement accuracy</b>	± 24 mm
<b>Spot size</b>	Divergence: 11.9 mrad At the viewing window: 13.5 mm

	In 26 m: 322 nm In 40 m: 489 nm
<b>Amount of evaluated echoes</b>	5

## Mechanics/electronics

<b>Connection type</b>	4 x M12 round connector
<b>Supply voltage</b>	24 V DC, $\pm 20\%$
<b>Power consumption</b>	22 W, + 55 W heating (typical)
<b>Housing</b>	AISI12
<b>Housing color</b>	Gray (RAL 7032)
<b>Window material</b>	Polycarbonate, scratch-resistant coating
<b>Enclosure rating</b>	IP65, IP67 (EN 60529, Section 14.2.7)
<b>Protection class</b>	III (IEC 61140:2016-11)
<b>Weight</b>	3.7 kg
<b>Dimensions (L x W x H)</b>	160 mm x 155 mm x 185 mm
<b>MTBF</b>	> 100 years

## Safety-related parameters

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

## Performance

<b>Response time</b>	$\geq 10$ ms
<b>Detectable object shape</b>	Almost any
<b>Systematic error</b>	$\pm 25$ mm (1 m ... 10 m) $\pm 35$ mm (10 m ... 20 m) $\pm 50$ mm (20 m ... 30 m) <sup>1)</sup>
<b>Statistical error</b>	6 mm (1 m ... 10 m) 8 mm (10 m ... 20 m) 14 mm (20 m ... 30 m) <sup>1)</sup>
<b>Integrated application</b>	Field evaluation with flexible fields Data output
<b>Number of field sets</b>	10 fields
<b>Simultaneous evaluation cases</b>	10
<b>Filter</b>	Echo filter Fog filter Particle filter Average filter Glare filter

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

## Interfaces

<b>Ethernet</b>		✓, TCP/IP, UDP/IP
	Function	Host and AUX, OPC, NTP
	Data transmission rate	10/100 MBit/s
<b>Serial</b>		✓, RS-232, RS-422
	Function	Host and AUX
	Data transmission rate	9.6 kBaud ... 500 kBaud
<b>CAN</b>		✓
	Function	Extension of outputs

Data transmission rate	20 kBit/s, 500 kBit/s, 1 MBit/s, Synchronization
<b>USB</b>	✓
	Remark: Mini-USB
	Function: AUX
<b>Digital inputs</b>	4 (Digital, encoder (HTL), synchronization)
<b>Digital outputs</b>	6 (digital)
<b>Optical indicators</b>	5 LEDs (Additional 7-segment display)

### Ambient data

<b>Object remission</b>	2 % ... > 1,000 % (reflectors)
<b>Electromagnetic compatibility (EMC)</b>	Emitted radiation: Industrial environment (IEC 61000-6-3:2020 / EN IEC 61000-6-3:2007+A1:2011)
	Electromagnetic immunity: Industrial environment (IEC 61000-6-2:2016 / EN IEC 61000-6-2:2019)
	<b>Vibration resistance</b>
Sine test	10 Hz ... 150 Hz, Amplitude 0.35 mm to 5 g, 20 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>Impact resistance</b>	IK05, IK06, IK07 (DIN EN 50102:09-1997)
<b>Ambient operating temperature</b>	-30 °C ... +50 °C
<b>Storage temperature</b>	-40 °C ... +70 °C
<b>Ambient light immunity</b>	70,000 lx

<sup>1)</sup> IEC 60068-2-6:2007-12.

<sup>2)</sup> IEC 60068-2-27:2008-02.

### General notes

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

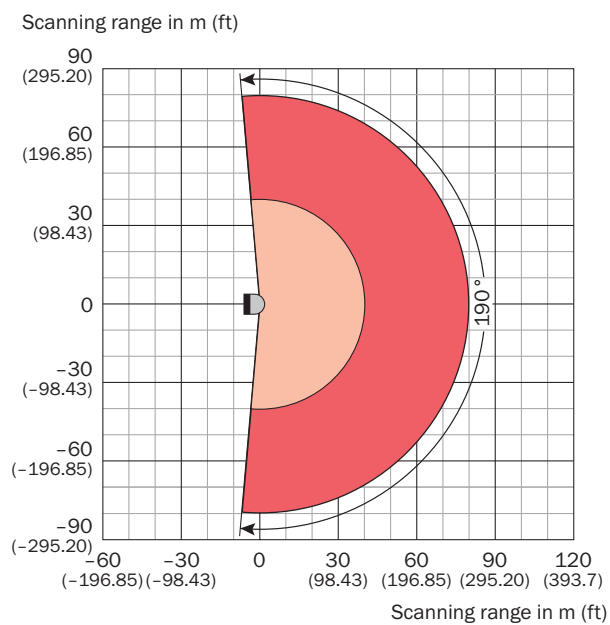
### Classifications

<b>eCl@ss 5.0</b>	27270990
<b>eCl@ss 5.1.4</b>	27270990
<b>eCl@ss 6.0</b>	27270913
<b>eCl@ss 6.2</b>	27270913
<b>eCl@ss 7.0</b>	27270913
<b>eCl@ss 8.0</b>	27270913
<b>eCl@ss 8.1</b>	27270913
<b>eCl@ss 9.0</b>	27270913
<b>eCl@ss 10.0</b>	27270913
<b>eCl@ss 11.0</b>	27270913
<b>eCl@ss 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

UNSPSC 16.0901

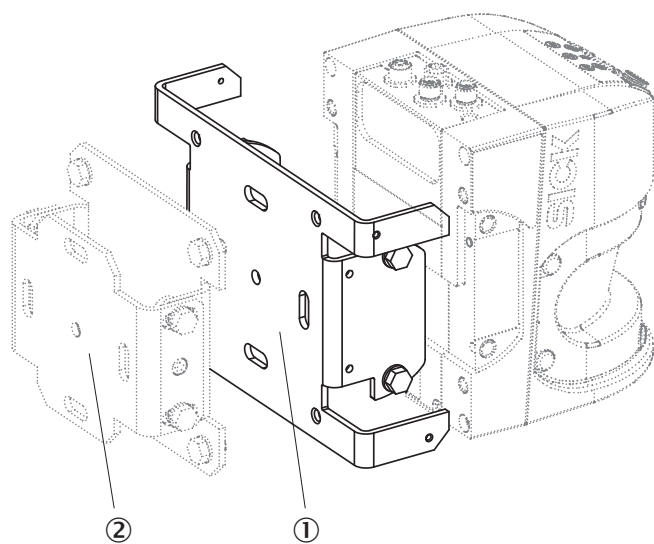
41111615

## Working range diagram

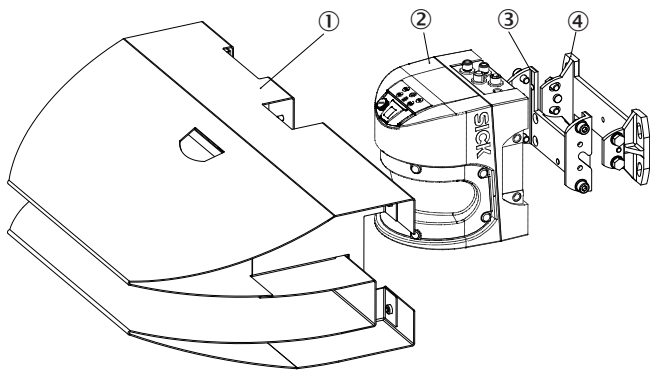


- Scanning range max. 80 m (262.47 ft)
- Scanning range for objects up to 10 % remission 40 m (131.23 ft)

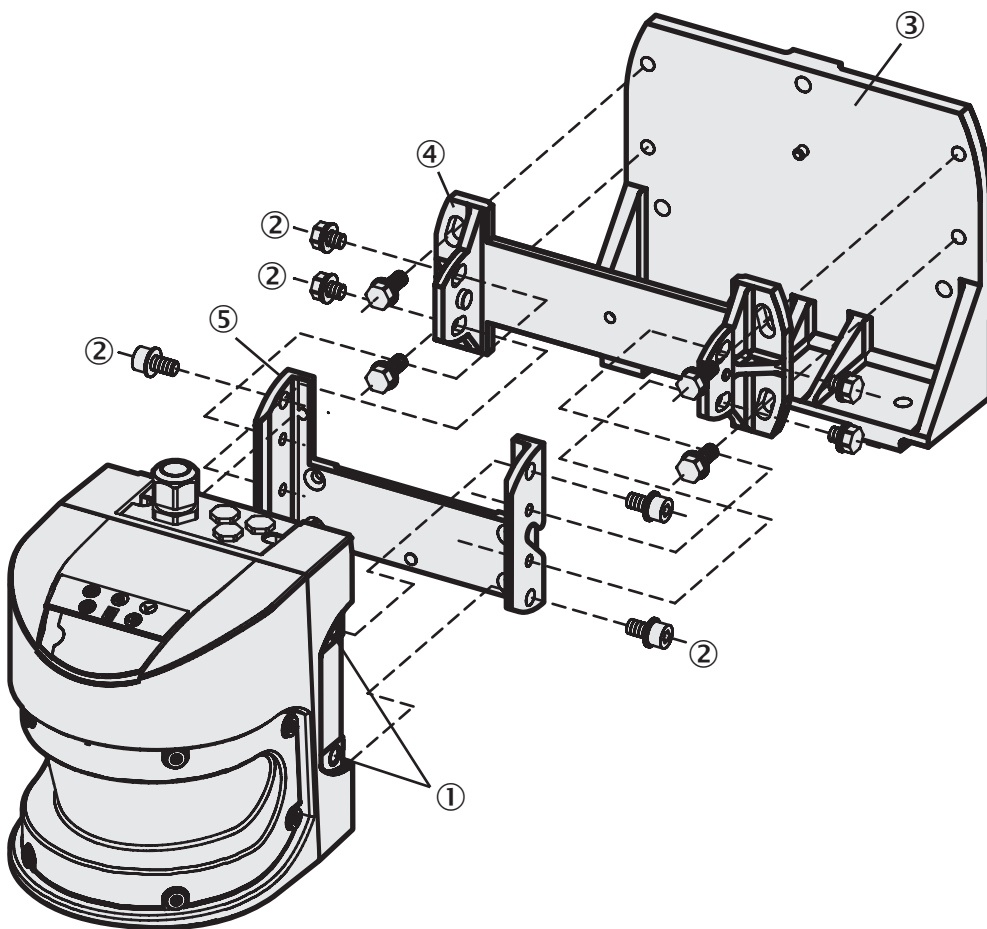
## Assembly note



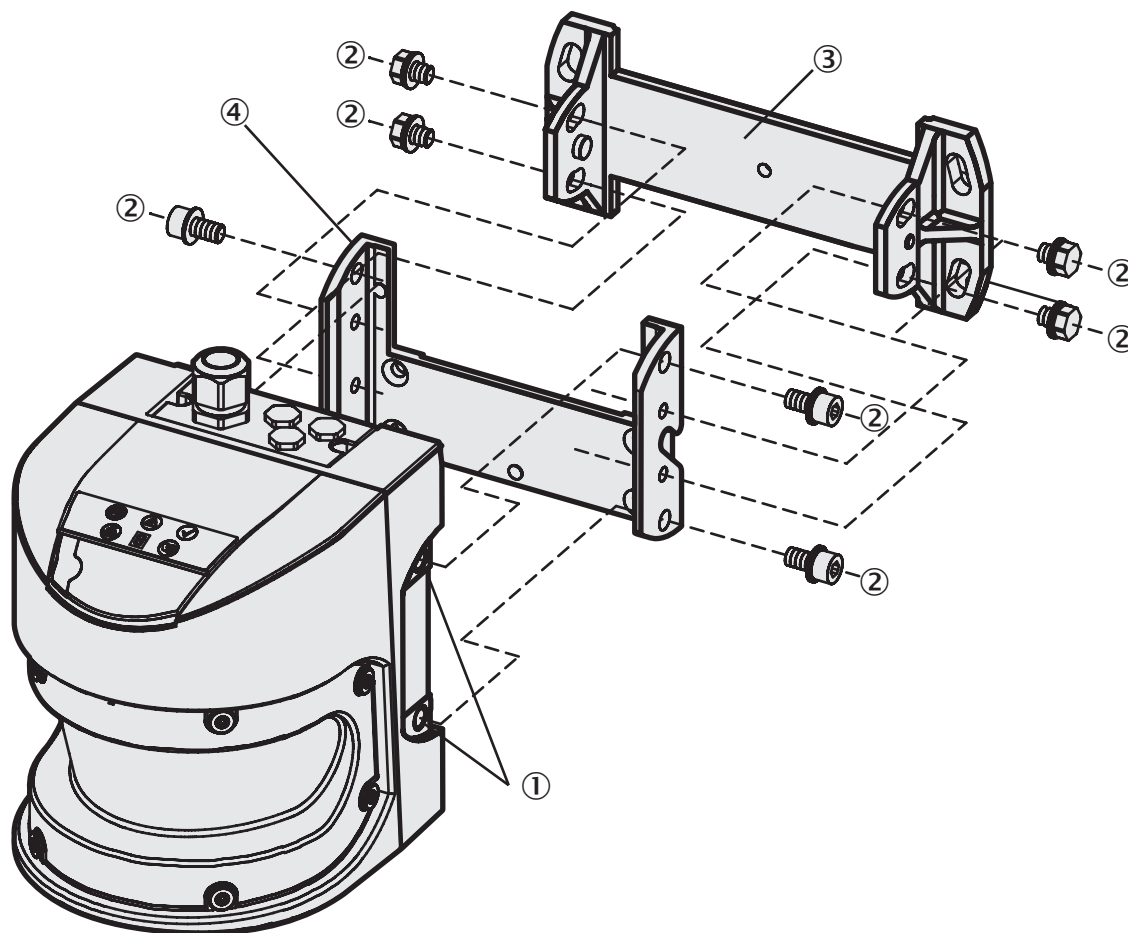
- ① Mounting bracket 2059271
- ② Mounting bracket 2018303



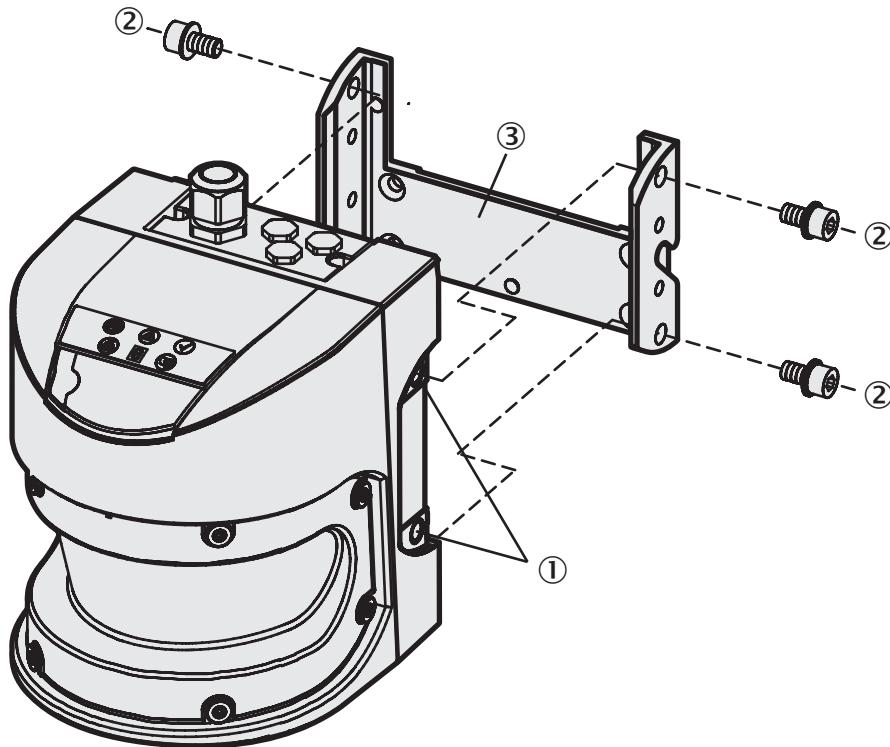
- ① Weather hood
- ② LMS5xx
- ③ Mounting kit 1
- ④ Mounting kit 2



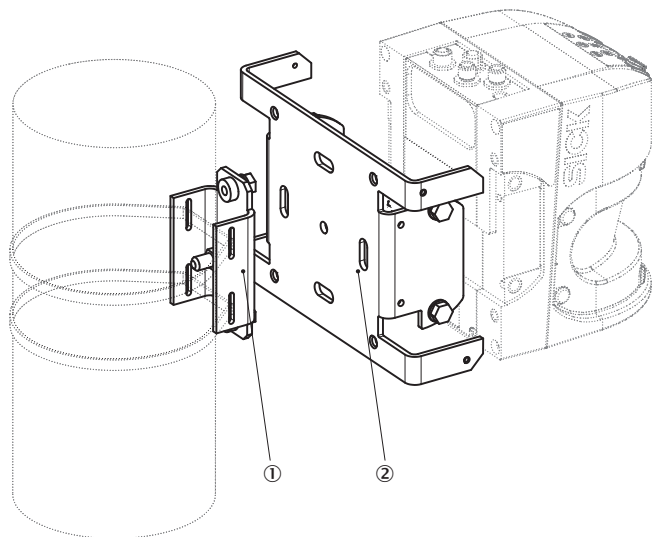
- ① Threaded holes M8x9
- ② Mounting screws
- ③ Mounting kit 3
- ④ Mounting kit 2
- ⑤ Mounting kit 1



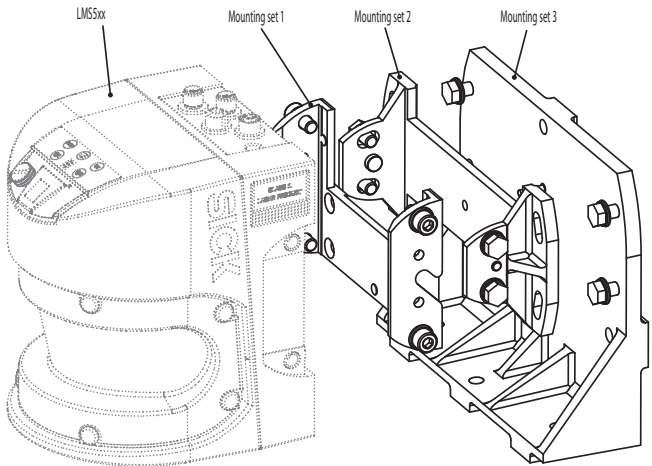
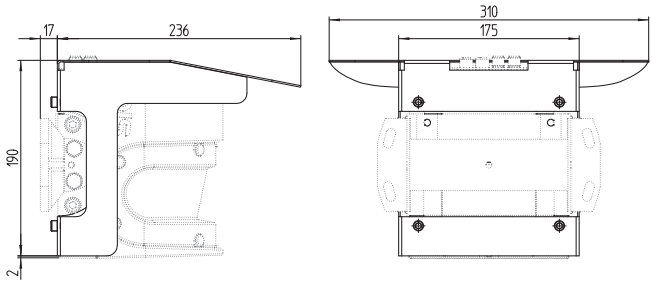
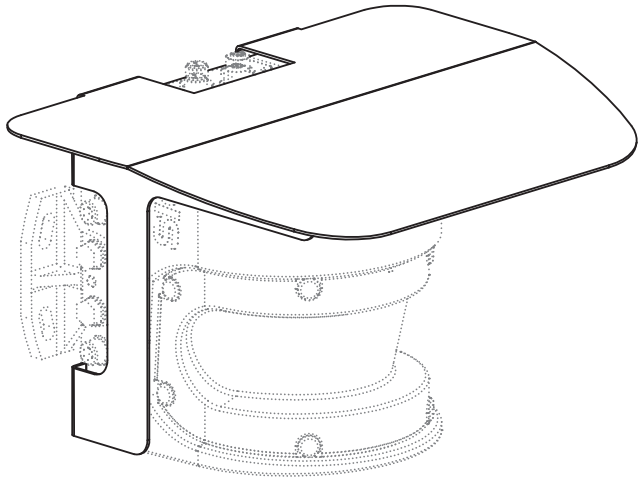
- ① Threaded holes M8x9
- ② Fixing screw
- ③ Mounting kit 2
- ④ Mounting kit 1



- ① Threaded holes M8x9
- ② Mounting screws
- ③ Mounting kit 1

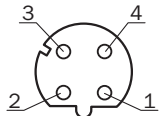


- ① Post bracket
- ② Mounting bracket 2059271



Connection type

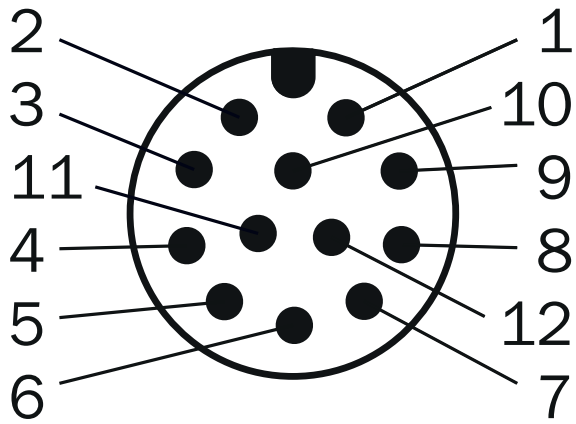
Ethernet



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

### PIN assignment

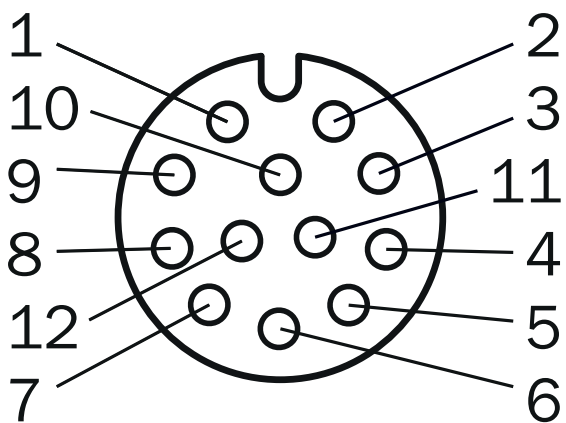
Data



M12, 12-pin male connector, A-coded

- ① V<sub>S</sub> OUT
- ② RD-/RxD
- ③ OUT1
- ④ GND RS/CAN
- ⑤ OUT2
- ⑥ Reserved
- ⑦ TD-/TxD
- ⑧ Reserved
- ⑨ RD+
- ⑩ TD+
- ⑪ CAN LOW
- ⑫ CAN HIGH

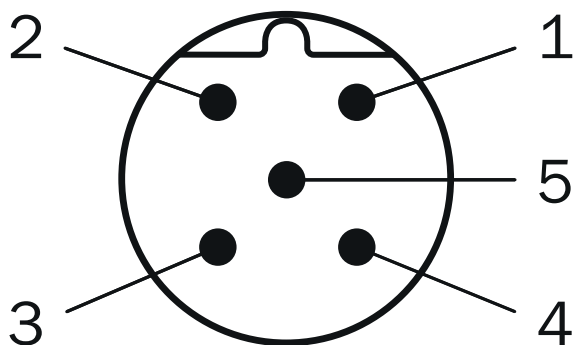
I/O



M12, 12-pin female connector, A-coded (I/O)

- ① V<sub>S</sub> OUT
- ② GND IN1/2
- ③ In<sub>1</sub>
- ④ GND IN3/4/IN Sync
- ⑤ In<sub>2</sub>
- ⑥ In<sub>3</sub>
- ⑦ GND Out 3 ... 6
- ⑧ IN4/IN Sync
- ⑨ OUT3
- ⑩ OUT4
- ⑪ OUT5
- ⑫ OUT6/OUT Sync

POWER connection










Male connector M12, 5-pin, A-coded

- ① V<sub>S</sub>
- ② V<sub>S</sub> Heat.
- ③ GND
- ④ Reserved
- ⑤ GND heat.

### Recommended accessories

Other models and accessories → [www.sick.com/LMS5xx](http://www.sick.com/LMS5xx)

	Brief description	Type	Part no.
Device protection (mechanical)			
	Weather protection hood (180°), vertical mounting. <sup>§</sup> In applications with high shock/vibration requirements, the optics cover must be checked regularly for damage., Aluminum (powder-coating)	Weather protection hood	2063050
Mounting brackets and plates			
	1 piece, mounting bracket for direct mounting, from the rear, on wall or machine, not adjustable, Aluminum	Mounting kit 1	2015623
	1 piece, mounting bracket for rear mounting on wall or machine, adjustable longitudinal and lateral axes, only in conjunction with mounting kit 1 (2015623), Aluminum	Mounting kit 2	2015624

	Brief description	Type	Part no.
Plug connectors and cables			
	Head A: female connector, M12, 12-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, I/O, twisted pair, PUR, halogen-free, shielded, 5 m	YF2A2B-050UD3XLEAX	6042735
	Head A: female connector, M12, 5-pin, straight, A-coded Head B: Flying leads Cable: Power, PUR, halogen-free, shielded, 5 m	YF2A64-050XXXLEAX	6036159
	Head A: male connector, M12, 12-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, I/O, twisted pair, PUR, halogen-free, shielded, 5 m	YM2A2B-050UD3XLEAX	6042732
	Head A: male connector, M12, 4-pin, straight, D-coded Head B: male connector, RJ45, 4-pin, straight Cable: Ethernet, PROFINET, PUR, halogen-free, shielded, 5 m	YM2D24-050PN1MRJA4	2106184

### Recommended services

Additional services → [www.sick.com/LMS5xx](http://www.sick.com/LMS5xx)

	Type	Part no.
Maintenance		
<ul style="list-style-type: none"> <li>• <b>Product area:</b> 2D LiDAR sensors, 3D LiDAR sensors</li> <li>• <b>Range of services:</b> Inspection, analysis and restoring of defined functions, Inspection and adaptation of basic settings, parameters of field application, filters for raw data output, and product-specific configuration</li> <li>• <b>Duration:</b> Additional work will be invoiced separately</li> <li>• <b>Travel expenses:</b> The prices do not include travel costs such as hotel, flight, travel time and expenses.</li> </ul>	Maintenance LMS/MRS/NAV/TiM/LRS/multiScan	1682593
Commissioning		
<ul style="list-style-type: none"> <li>• <b>Product area:</b> 2D LiDAR sensors, 3D LiDAR sensors</li> <li>• <b>Range of services:</b> Inspection of connection, fine adjustment, configuration of monitored areas, configuration and optimization of parameters as well as tests, Setup of previously defined functions of basic settings, parameters of field application, filters for raw data output and product-specific configuration</li> <li>• <b>Travel expenses:</b> The prices do not include travel costs such as hotel, flight, travel time and expenses.</li> <li>• <b>Duration:</b> Additional work will be invoiced separately</li> </ul>	Commissioning LMS/MRS/NAV/TiM/LRS/multiScan (Prime package)	1680672
Extended warranty		
<ul style="list-style-type: none"> <li>• <b>Product area:</b> Identification solutions, machine vision, Distance sensors, Detection and ranging solutions</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)