



# LMS531-11100 Security

LMS5xx

2D LIDAR SENSORS

**SICK**  
Sensor Intelligence.



Ordering information

Type	part no.
LMS531-11100 Security	1055376

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

Detailed technical data

Features

Application	Outdoor, Security, Indoor
Variant	Lite
Resolution power	Standard Resolution
Light source	Infrared (905 nm, ± 10 nm)
Laser class	1 (EN/IEC 60825-1:2014, EN 60825-1:2014+A11:2021)
Aperture angle	Horizontal 190°
Scanning frequency	25 Hz 35 Hz 50 Hz 75 Hz
Angular resolution	Horizontal 0.25° 0.5° 1°
Scan field flatness	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°
Heating	Self-heating with additional integrated heating
Working range	1 m ... 80 m
Scanning range	At 10% remission factor 40 m
Measurement accuracy	± 24 mm
Spot size	Divergence: 11.9 mrad At the viewing window: 13.5 mm In 26 m: 322 mm In 40 m: 489 mm
Amount of evaluated echoes	2

Mechanics/electronics

Connection type	4 x M12 round connector
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<b>Supply voltage</b>	24 V DC, $\pm 20\%$
<b>Power consumption</b>	22 W, + 55 W heating (typical)
<b>Housing material</b>	AlSi12
<b>Housing color</b>	Gray (RAL 7032)
<b>Window material</b>	Polycarbonate, scratch-resistant coating
<b>Enclosure rating</b>	IP65 (EN 60529, Section 14.2.7) 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
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### Performance

<b>Response time</b>	$\geq 13$ 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 Output of measurement data
<b>Number of field sets</b>	4 fields
<b>Simultaneous evaluation cases</b>	4
<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, NTP
Data transmission rate	10/100 MBit/s
<b>USB</b>	✓
Remark	Mini-USB
Function	Service interface
<b>Digital inputs</b>	3 (digital)
<b>Digital outputs</b>	3 (2 relay, 1 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.
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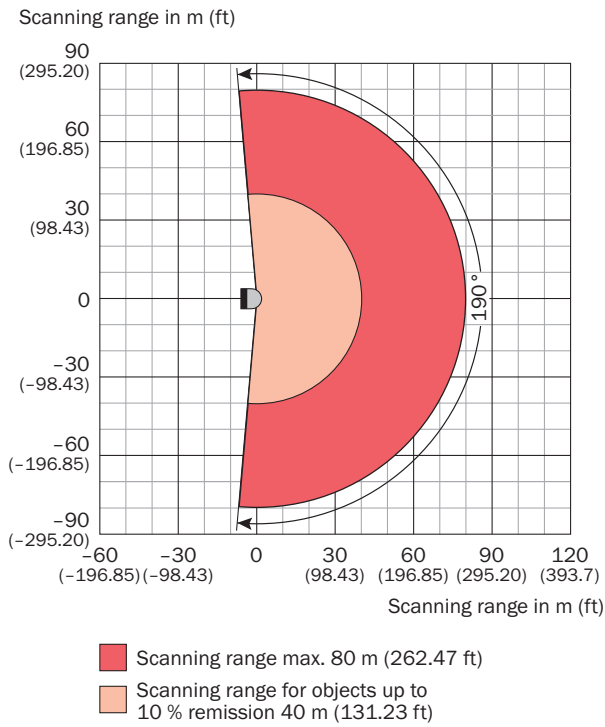
### Certificates

<b>EU declaration of conformity</b>	✓
<b>UK declaration of conformity</b>	✓
<b>ACMA declaration of conformity</b>	✓
<b>China-RoHS</b>	✓
<b>cTUVus certificate</b>	✓

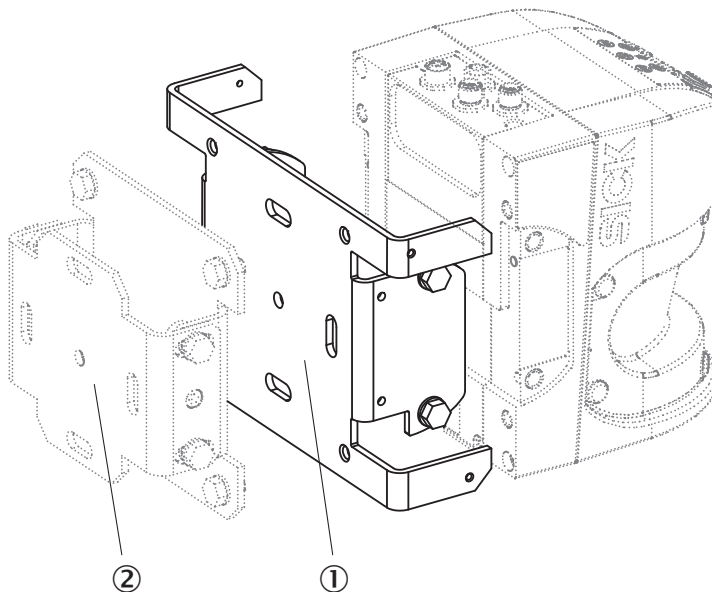
### Classifications

<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

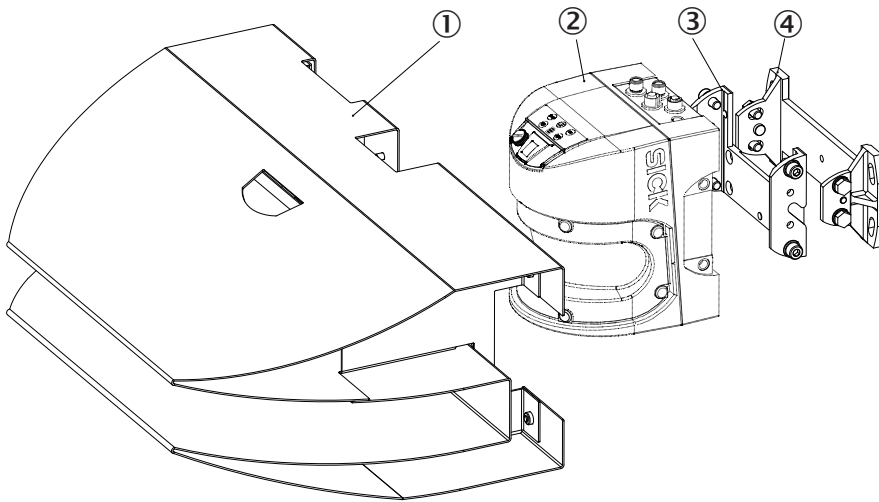


## Assembly note



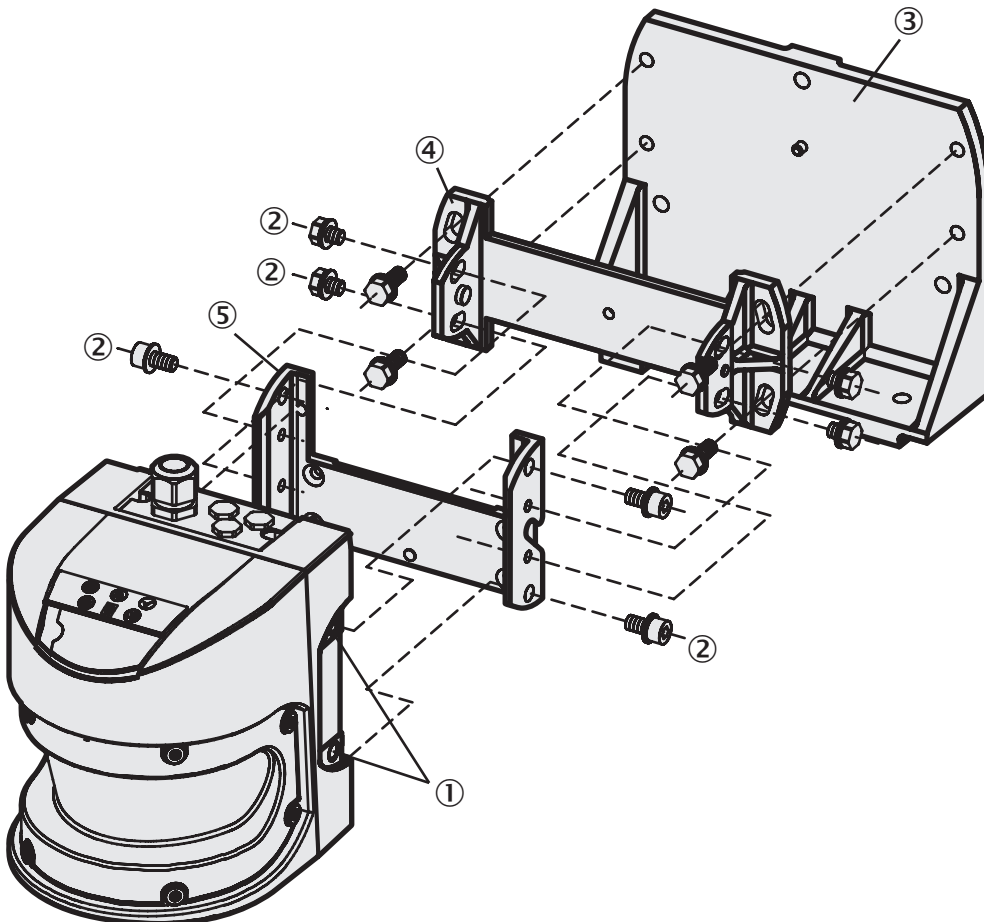
- ① Mounting bracket 2059271
- ② Mounting bracket 2018303

Assembly note



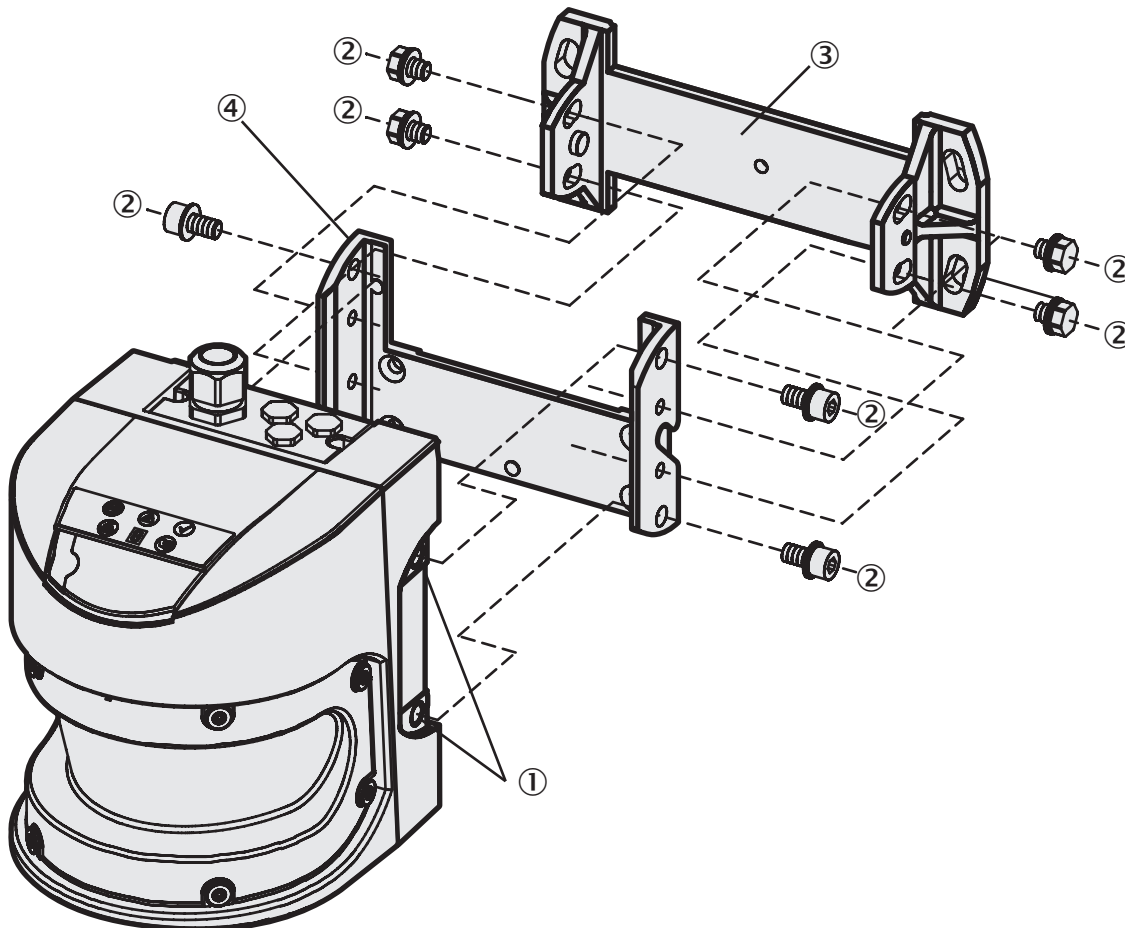
- ① Weather hood
- ② LMS5xx
- ③ Mounting kit 1
- ④ Mounting kit 2

Assembly note



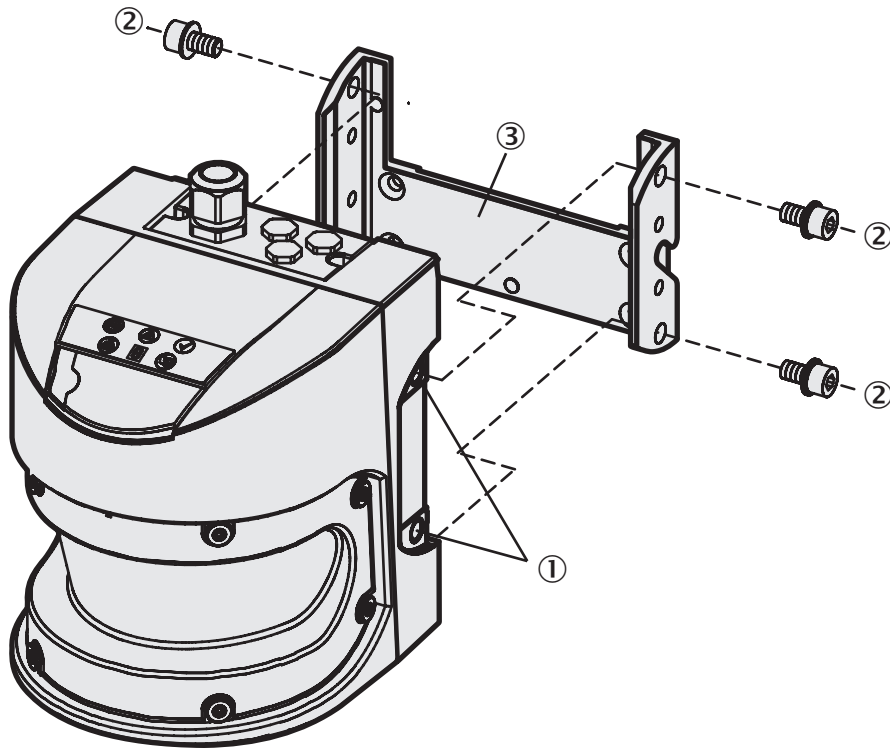
- ① threaded holes M8x9
- ② Mounting screws
- ③ Mounting kit 3
- ④ Mounting kit 2
- ⑤ Mounting kit 1

#### Assembly note



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

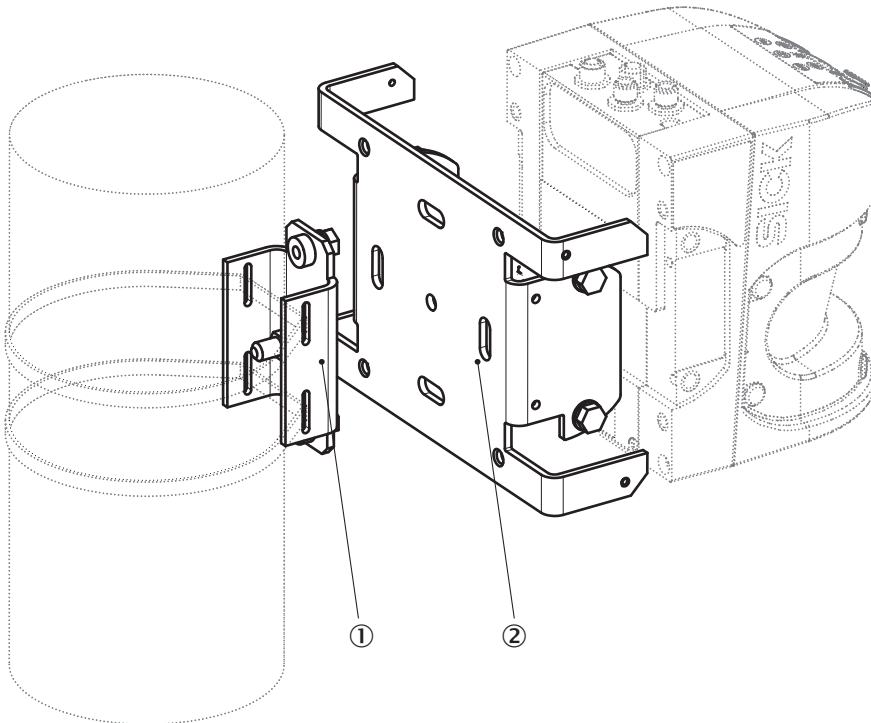
### Assembly note



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

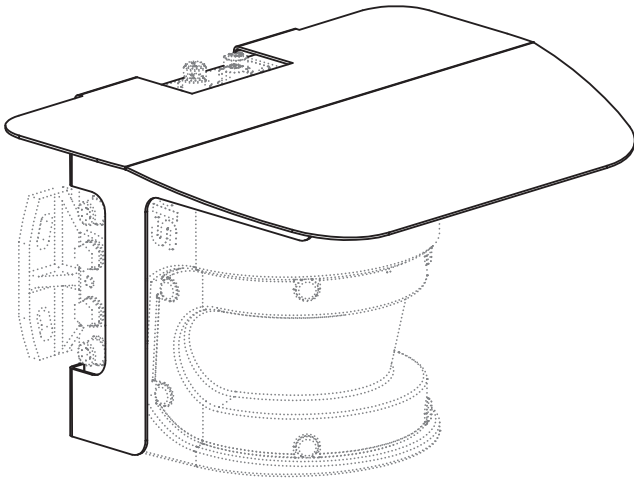


## Assembly note

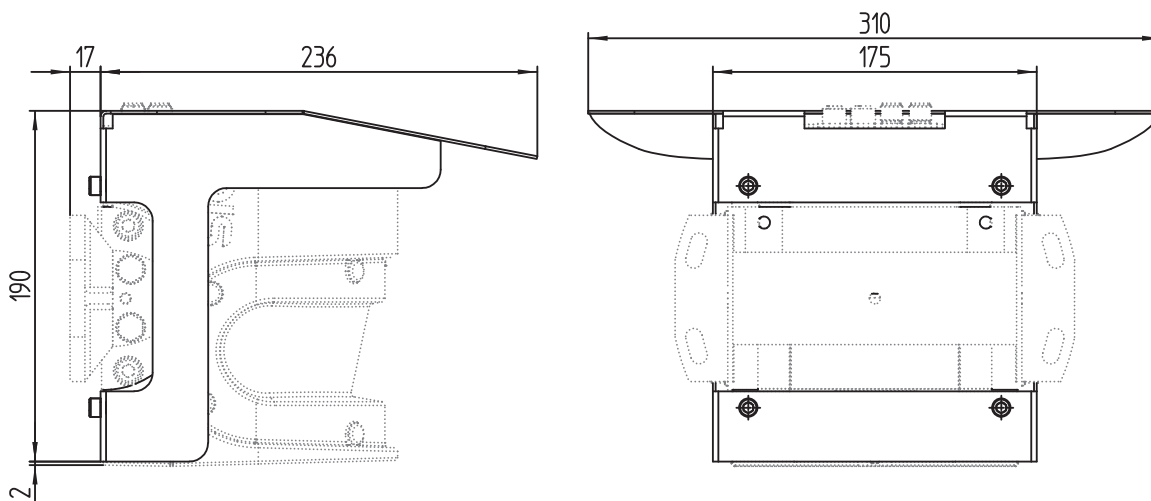


- ① Post bracket
- ② Mounting bracket 2059271

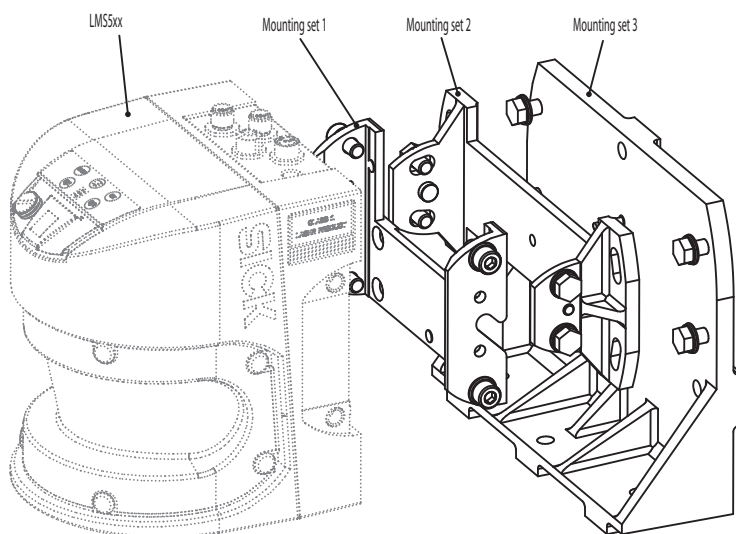
## Assembly note



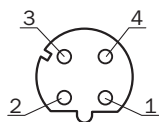
### Assembly note



### Assembly note



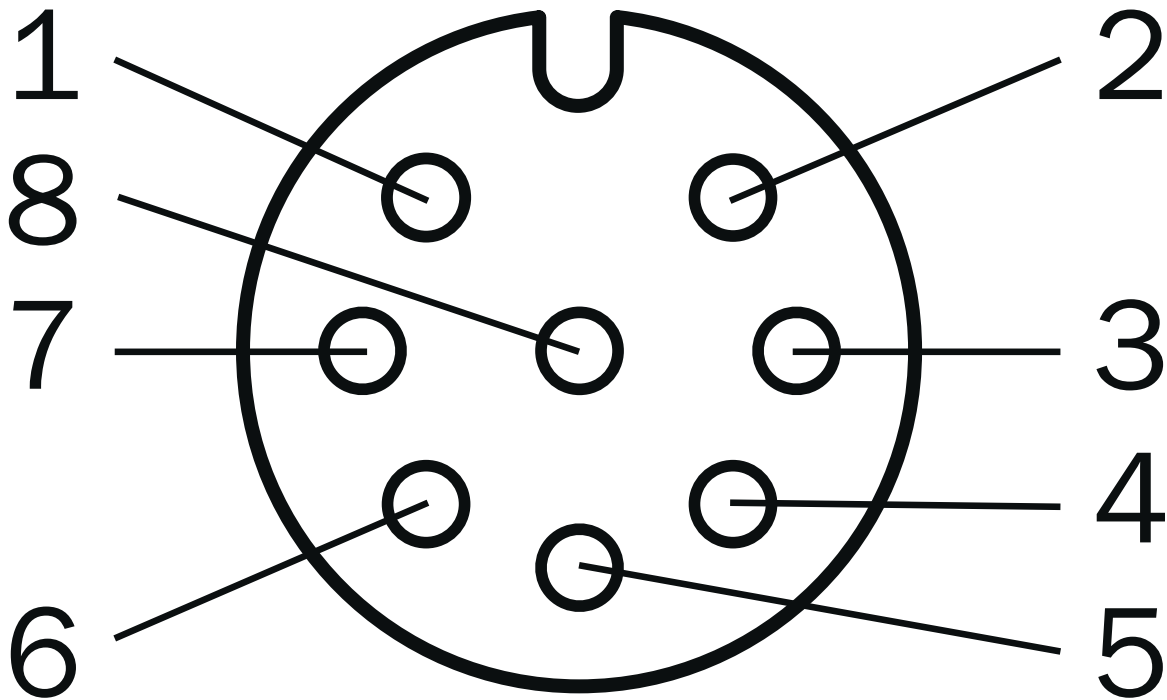
### Connection type Ethernet



M12 female connector, 4-pin, D-coded

- ① TX+
- ② RX+
- ③ TX-
- ④ RX-

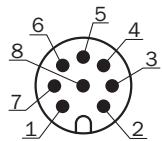
## PIN assignment Alarms



female connector M12, 8-pin, A-coded

- ① Alarm A (OUT1)
- ② Alarm B (OUT1)
- ③ Alarm R A
- ④ Alarm R B
- ⑤ Error A (OUT2)
- ⑥ Error B (OUT2)
- ⑦ Sab (OUT3)
- ⑧ GND Sab

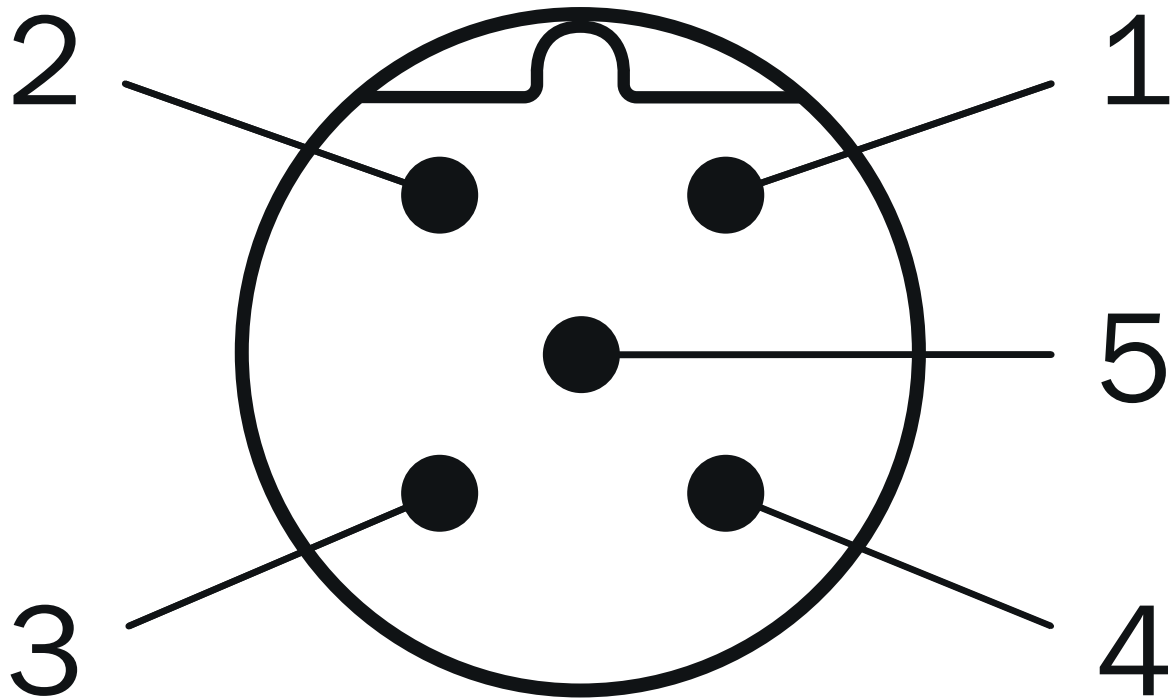
## PIN assignment Inputs



M12 male connector, 8-pin, A-coded

- ① A/DA (IN1)
- ② WT (IN2)
- ③ Reserved
- ④ Reserved
- ⑤ Reserved
- ⑥ Reserved
- ⑦ TEACH (IN3)
- ⑧ GND IN

PIN assignment POWER connection












male connector M12, 5-pin, A-coded

- ①  $V_s$
- ②  $V_s$  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.
Mounting systems			
	<ul style="list-style-type: none"><li>• <b>Description:</b> Mounting bracket for direct mounting, from the rear, on wall or machine, not adjustable</li><li>• <b>Material:</b> Aluminum</li><li>• <b>Details:</b> Aluminum</li><li>• <b>Packing unit:</b> 1 piece</li></ul>	Mounting kit 1	2015623
	<ul style="list-style-type: none"><li>• <b>Description:</b> Mounting bracket for rear mounting on wall or machine, adjustable longitudinal and lateral axes, only in conjunction with mounting kit 1 (2015623)</li><li>• <b>Material:</b> Aluminum</li><li>• <b>Details:</b> Aluminum</li><li>• <b>Packing unit:</b> 1 piece</li></ul>	Mounting kit 2	2015624

	Brief description	Type	part no.
device protection and care			
	<ul style="list-style-type: none"> <li><b>Description:</b> Compact 190 ° weather hood, only suitable for overhead mounting of the LMS5xx, scanner must be mounted overhead</li> <li><b>Material:</b> Stainless steel V4A 1.4404</li> </ul>	Weather hood, 190 °	2089593
connectors and cables			
	<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, CAT5, CAT5e, PUR, halogen-free</li> <li><b>Description:</b> Ethernet, shieldedPROFINET</li> <li><b>Application:</b> Cold bending resistant, Outdoor, Zones with oils and lubricants, seawater resistant</li> </ul>	YM2D34-050P-N4MRJA4	6054493
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female 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>Application:</b> Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>	YF2A28-050UA6XLEAX	2095835
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female 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> 0.6 m, 8-wire, PUR, halogen-free</li> <li><b>Description:</b> Sensor/actuator cable, shielded</li> <li><b>Application:</b> Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>	YF2A28-C60UA6XLEAX	2145470
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female 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> 1 m, 8-wire, PUR, halogen-free</li> <li><b>Description:</b> Sensor/actuator cable, shielded</li> <li><b>Application:</b> Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>	YF2A28-010UA6XLEAX	2145471
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female 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> 2 m, 8-wire, PUR, halogen-free</li> <li><b>Description:</b> Sensor/actuator cable, shielded</li> <li><b>Application:</b> Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>	YF2A28-020UA6XLEAX	2145472
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female 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> 3 m, 8-wire, PUR, halogen-free</li> <li><b>Description:</b> Sensor/actuator cable, shielded</li> <li><b>Application:</b> Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>	YF2A28-030UA6XLEAX	2145473

## 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.”**

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Contacts and other locations –[www.sick.com](http://www.sick.com)