

LMS500-20000S01

LMS5xx

2D LIDAR SENSORS





Ordering information

| Туре | part no. |
|-----------------|----------|
| LMS500-20000S01 | 1056468 |

Other models and accessories → www.sick.com/LMS5xx

Illustration may differ







Detailed technical data

Features

| Application | | Indoor |
|---------------------|------------------------|---|
| Variant | | PRO |
| Resolution power | | High 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 100 Hz |
| Angular resolution | | |
| | Horizontal | 0.042°, interlaced |
| | | 0.083°, interlaced |
| | | 0.1667° |
| | | 0.25° |
| | | 0.333° |
| | | 0.5° |
| | | 0.667° |
| | | 1° |
| Scan field flatness | | Scan field flatness combined: \pm 0.72° Typical conical error: 1 sigma value - 0.11° \pm 0.1° Typical tilt: 1 sigma value + 0.15° \pm 0.08° |
| Heating | | Self-heating |
| Working range | | 0.2 m 80 m |
| Scanning range | | |
| A | t 10% remission factor | 26 m |

| Measurement accuracy | ± 12 mm |
|----------------------------|---|
| Spot size | Divergence: 4.7 mrad At the viewing window: 13.5 mm In 26 m: 136 mm In 40 m: 202 mm |
| Amount of evaluated echoes | 5 |
| Fog correction | No |

Mechanics/electronics

| Connection type | 1 x M12 round connector 1 x System plug with screw terminal block, incl. 2 x cable glands |
|------------------------|--|
| Supply voltage | 24 V DC, ± 20 % |
| Power consumption | 22 W |
| Housing material | AlSi12 |
| Housing color | Light blue (RAL 5012) |
| Window material | Polycarbonate, scratch-resistant coating |
| Enclosure rating | IP65 (EN 60529, Section 14.2.7) |
| Protection class | III (IEC 61140:2016-11) |
| Weight | 3.7 kg |
| Dimensions (L x W x H) | 160 mm x 155 mm x 185 mm |
| MTBF | > 100 years |

Safety-related parameters

| MTTF _D | > 100 years |
|-------------------|-------------|
|-------------------|-------------|

Performance

| CHOMINATION | |
|-------------------------------|--|
| Response time | ≥ 10 ms |
| Detectable object shape | Almost any |
| Systematic error | ± 25 mm (1 m 10 m) ± 35 mm (10 m 20 m) ¹⁾ |
| Statistical error | 7 mm (1 m 10 m) 9 mm (10 m 20 m) ¹⁾ |
| Integrated application | Field evaluation Output of measurement data |
| Number of field sets | 10 fields |
| Simultaneous evaluation cases | 10 |
| Filter | Echo filter Fog filter Particle filter Average filter Glare filter |

 $^{^{1)}\ \}mbox{Typical value;}$ actual value depends on environmental conditions.

Interfaces

| Ethernet | ✓, TCP/IP, UDP/IP |
|------------------------|--------------------|
| Remark | OPC DA |
| Function | Host and AUX, NTP |
| Data transmission rate | 10/100 MBit/s |
| Serial | ✓ , RS-232, RS-422 |

| Function | Host and AUX |
|------------------------|--|
| Data transmission rate | 9.6 kBaud 500 kBaud |
| CAN | ✓ |
| Function | Extension of outputs |
| Data transmission rate | 20 kBit/s, 500 kBit/s, 1 MBit/s, Synchronization |
| USB | ✓ |
| Remark | Mini-USB |
| Function | Service interface |
| Digital inputs/outputs | |
| Inputs | 4 (Digital, encoder (HTL), synchronization) |
| Outputs | 6 (digital) |
| Optical indicators | 5 LEDs (Additional 7-segment display) |

Ambient data

| Object remission | 2 % > 1,000 % (reflectors) |
|-------------------------------------|---|
| Electromagnetic compatibility (EMC) | |
| 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) |
| Vibration resistance | |
| Sine test | 10 Hz 150 Hz, Amplitude 0.35 mm to 5 g, 20 cycles $^{1)}$ |
| Shock resistance | 15 g, 11 ms, 6 single shocks/axis ²⁾ 10 g, 16 ms, 1,000 continuous shocks/axis ²⁾ |
| Impact resistance | IK05, IK06, IK07 (DIN EN 50102:09-1997) |
| Ambient operating temperature | 0 °C +50 °C |
| Storage temperature | -40 °C +70 °C |
| Ambient light immunity | 70,000 lx |

¹⁾ IEC 60068-2-6:2007-12.

General notes

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

Certificates

| EU declaration of conformity | ✓ |
|---|---|
| UK declaration of conformity | ✓ |
| ACMA declaration of conformity | ✓ |
| China RoHS | ✓ |
| cTUVus certificate | ✓ |
| Information according to Art. 3 of Data Act (Regulation EU 2023/2854) | ✓ |

Classifications

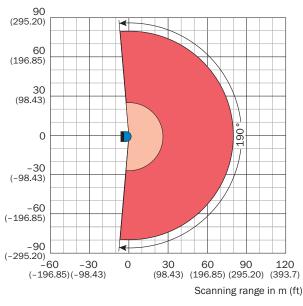
| ECLASS 5.0 | 27270990 |
|--------------|----------|
| ECLASS 5.1.4 | 27270990 |
| ECLASS 6.0 | 27270913 |

²⁾ IEC 60068-2-27:2008-02.

| ECLASS 6.2 | 27270913 |
|----------------|----------|
| | 07070040 |
| 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 |

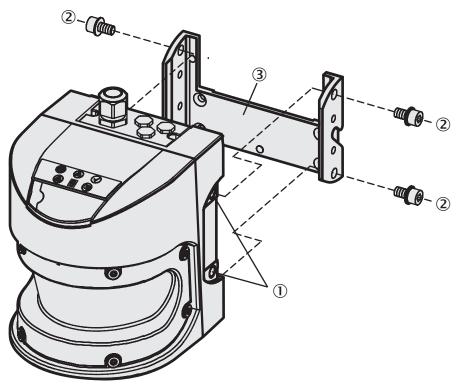
Working range diagram



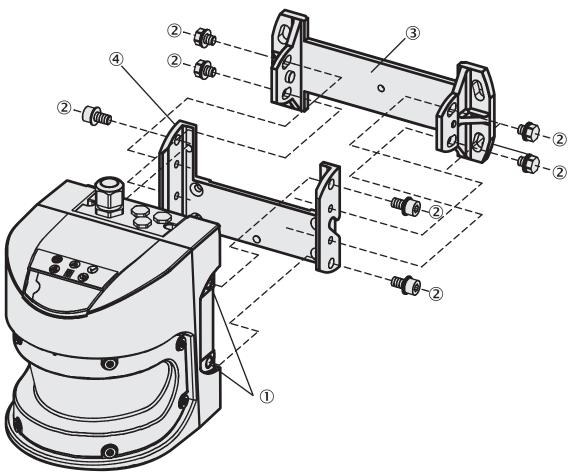


Scanning range max. 80 m (262.47 ft)

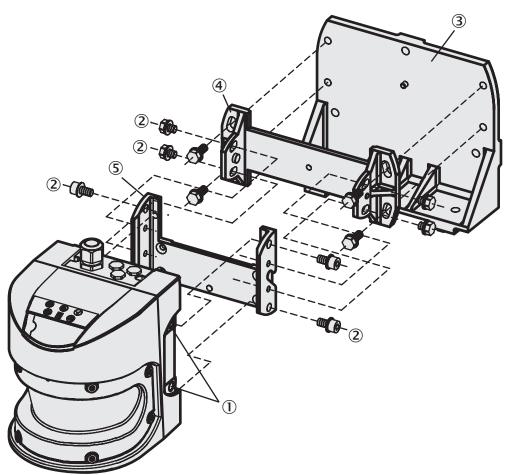
Scanning range for objects up to 10 % remission 26 m (85.3 ft)



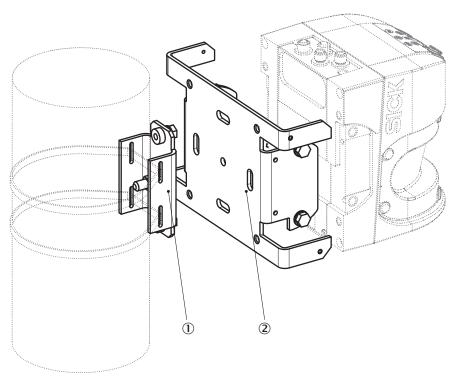
- 1) threaded holes M8x9 2) Mounting screws
- 3 Mounting kit 1



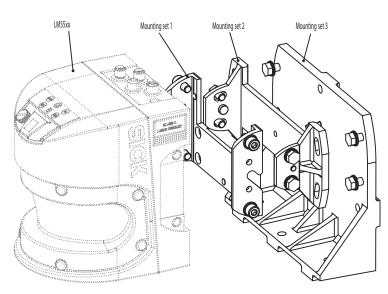
- ① threaded holes M8x9
- ② Fixing screw
- 3 Mounting kit 2
- 4 Mounting kit 1

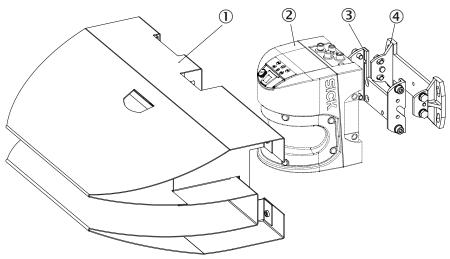


- ① threaded holes M8x9
- ② Mounting screws
- 3 Mounting kit 3
- 4 Mounting kit 2
- ⑤ Mounting kit 1

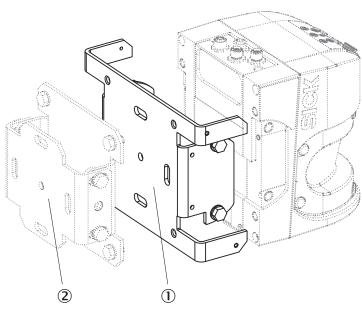


- ① Post bracket
- ② Mounting bracket 2059271

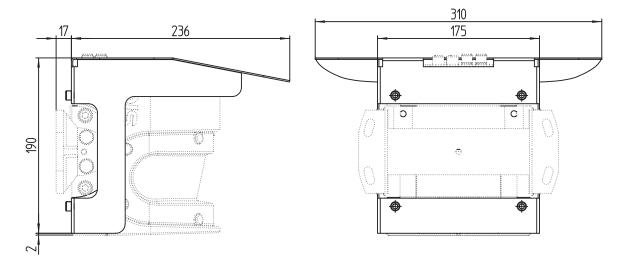




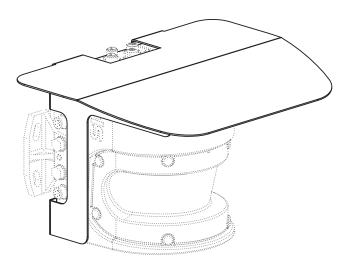
- ① Weather hood
- ② LMS5xx
- 3 Mounting kit 14 Mounting kit 2



- ① Mounting bracket 2059271
- ② Mounting bracket 2018303



Assembly note



Connection type Ethernet



M12 female connector, 4-pin, D-coded

- ① TX+
- ② RX+
- ③ TX-
- 4 RX-

Recommended accessories

Other models and accessories → www.sick.com/LMS5xx

| | Brief description | Туре | part no. |
|-----------------------|--|-------------------------|----------|
| Mounting systems | | | |
| | Description: Mounting bracket for direct mounting, from the rear, on wall or machine, not adjustable Material: Aluminum Details: Aluminum Packing unit: 1 piece | Mounting kit 1 | 2015623 |
| | Description: Mounting bracket for rear mounting on wall or machine, adjustable longitudinal and lateral axes, only in conjunction with mounting kit 1 (2015623) Material: Aluminum Details: Aluminum Packing unit: 1 piece | Mounting kit 2 | 2015624 |
| connectors and cables | | | |
| 8 8 | 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, shielded, PROFINET Application: Drag chain operation, Zones with oils and lubricants | YM2D24-050P- N1MRJA4 | 2106184 |

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