

LMS1xx

**SICK**  
Sensor Intelligence.



### Ordering information

| Type                        | part no. |
|-----------------------------|----------|
| LMS142-15100 Security Prime | 1070410  |

Other models and accessories → [www.sick.com/LMS1xx](http://www.sick.com/LMS1xx)



### Detailed technical data

#### Features

|                                   |                                                              |
|-----------------------------------|--------------------------------------------------------------|
| <b>Application</b>                | Security, Outdoor, Indoor                                    |
| <b>Light source</b>               | Infrared (905 nm)                                            |
| <b>Laser class</b>                | 1 (IEC 60825-1:2014, EN 60825-1:2014+A11:2021)               |
| <b>Aperture angle</b>             | Horizontal 270°                                              |
| <b>Scanning frequency</b>         | 25 Hz<br>50 Hz                                               |
| <b>Angular resolution</b>         | Horizontal 0.25°, 0.5°                                       |
| <b>Heating</b>                    | Yes                                                          |
| <b>Working range</b>              | 0.5 m ... 40 m                                               |
| <b>Scanning range</b>             | At 10% remission factor 30 m<br>At 90% remission factor 40 m |
| <b>Amount of evaluated echoes</b> | 2                                                            |
| <b>Fog correction</b>             | Yes                                                          |

#### Mechanics/electronics

|                          |                                  |
|--------------------------|----------------------------------|
| <b>Connection type</b>   | 1 x M12 round connector          |
| <b>Supply voltage</b>    | 9 V DC ... 30 V DC <sup>1)</sup> |
| <b>Power consumption</b> | Typ. 8 W, heating typ. 35 W      |
| <b>Housing color</b>     | Black (RAL 9005)                 |
| <b>Enclosure rating</b>  | IP67 (EN 60529, Section 14.2.7)  |
| <b>Protection class</b>  | III (EN 50178 (1997;10))         |
| <b>Weight</b>            | 1.1 kg                           |

<sup>1)</sup> With heating 21.6 V DC ... 28.8 V DC.

|                               |                          |
|-------------------------------|--------------------------|
| <b>Dimensions (L x W x H)</b> | 105 mm x 102 mm x 162 mm |
| <b>MTBF</b>                   | > 100 years              |

<sup>1)</sup> With heating 21.6 V DC ... 28.8 V DC.

## Safety-related parameters

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

## Performance

|                                      |                                                                                         |
|--------------------------------------|-----------------------------------------------------------------------------------------|
| <b>Response time</b>                 | ≥ 20 ms                                                                                 |
| <b>Detectable object shape</b>       | Almost any                                                                              |
| <b>Systematic error</b>              | ± 30 mm <sup>1)</sup>                                                                   |
| <b>Statistical error</b>             | Typ. 12 mm (0.5 m ... 10 m)<br>Typ. 20 mm (10 m ... 20 m)<br>Typ. 35 mm (20 m ... 40 m) |
| <b>Integrated application</b>        | Field evaluation<br>Security conform parameterization<br>Easy Teach lite and pro        |
| <b>Number of field sets</b>          | 10 fields                                                                               |
| <b>Simultaneous evaluation cases</b> | 10                                                                                      |

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

## Interfaces

|                           |                                                                                                    |
|---------------------------|----------------------------------------------------------------------------------------------------|
| <b>Ethernet</b>           | ✓ , TCP/IP                                                                                         |
| Function                  | Data interface (read result output)                                                                |
| Data transmission rate    | 10/100 MBit/s                                                                                      |
| <b>Serial</b>             | ✓ , RS-232                                                                                         |
| Function                  | Service interface                                                                                  |
| Data transmission rate    | 9.6 kBaud ... 115.2 kBaud                                                                          |
| <b>CAN</b>                | ✓                                                                                                  |
| Function                  | Extension of outputs                                                                               |
| <b>Digital inputs</b>     | 4 digital                                                                                          |
| <b>Digital outputs</b>    | 3 (2 relay, 1 digital)                                                                             |
| <b>Optical indicators</b> | 7-segment display (plus 5 LEDs showing device status, contamination warning and initial condition) |

## Ambient data

|                                            |                                               |
|--------------------------------------------|-----------------------------------------------|
| <b>Object remission</b>                    | 2 % ... > 1,000 % (reflectors)                |
| <b>Electromagnetic compatibility (EMC)</b> | EN 61000-6-2:2005 / EN 61000-6-3:2007+A1:2011 |
| <b>Vibration resistance</b>                | EN 60068-2-6 (1995-04)                        |
| <b>Shock resistance</b>                    | EN 60068-2-27 (1993-03)                       |
| <b>Ambient operating temperature</b>       | -40 °C ... +60 °C                             |
| <b>Storage temperature</b>                 | -40 °C ... +70 °C                             |
| <b>Ambient light immunity</b>              | 80,000 lx                                     |

## General notes

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

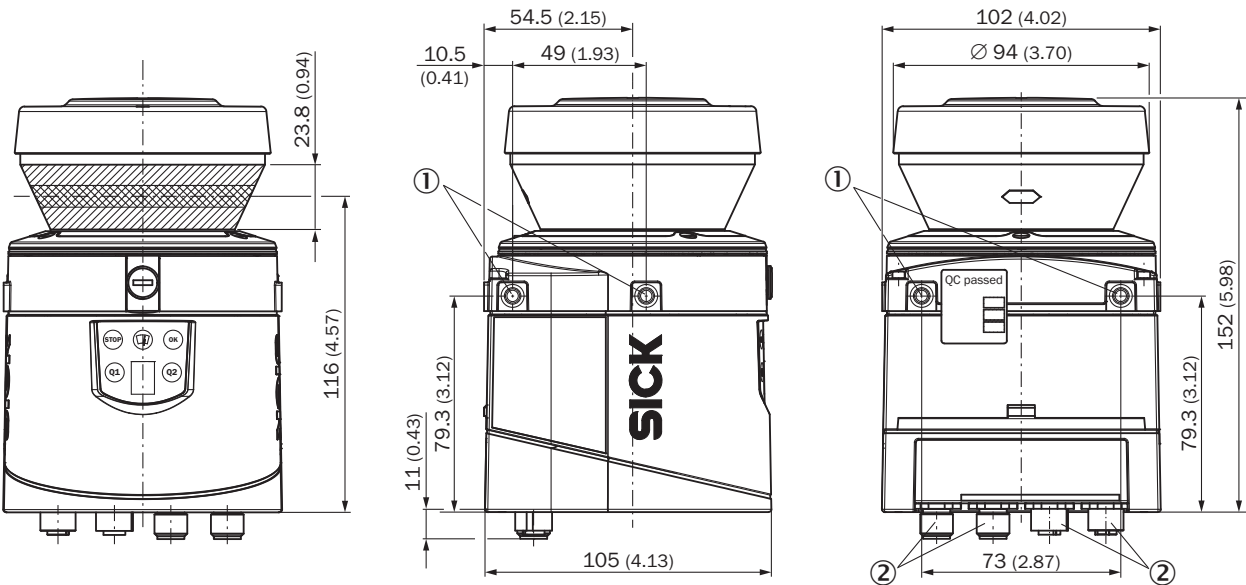
Certificates

|                                       |   |
|---------------------------------------|---|
| <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

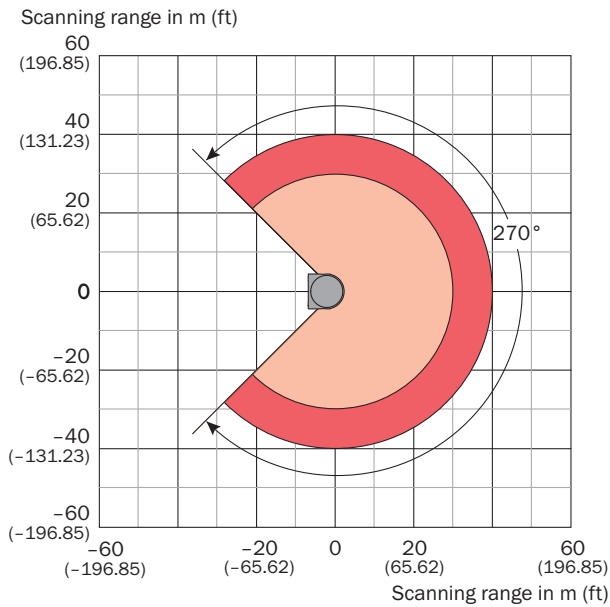
|                       |          |
|-----------------------|----------|
| <b>ECLASS 5.0</b>     | 27270990 |
| <b>ECLASS 5.1.4</b>   | 27270990 |
| <b>ECLASS 6.0</b>     | 27270913 |
| <b>ECLASS 6.2</b>     | 27270913 |
| <b>ECLASS 7.0</b>     | 27270913 |
| <b>ECLASS 8.0</b>     | 27270913 |
| <b>ECLASS 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 |

Dimensional drawing



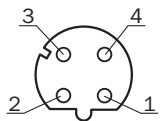
- Dimensions in mm (inch)
- ① Mounting hole M5 x 7.5
  - ② Connector M12

## Working range diagram



- Scanning range max. 40 m (131.23 ft)
- Scanning range for objects up to 10 % remission 30 m (98.42 ft)

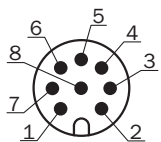
## Connection type Ethernet



M12 female connector, 4-pin, D-coded

- ① TX+
- ② RX+
- ③ TX-
- ④ RX-

## PIN assignment Inputs

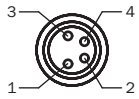


male connector M12, 5-pin, A-coded

- ① A/DA (IN1)

- ② WT (IN2)
- ③ CAN H
- ④ CAN L
- ⑤ GND CAN
- ⑥ D/N (IN3)
- ⑦ TEACH (IN4)
- ⑧ GND IN

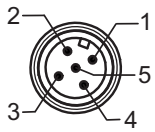
### PIN assignment Service interface



female connector M8, 4-pin

- ① Reserved
- ② RxD AUX
- ③ GND RS
- ④ TxD AUX

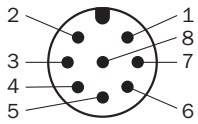
### PIN assignment Power



Connector M12, 5-pin, A-coded

- ①  $V_s$
- ②  $V_s$  heat.
- ③ GND
- ④ Reserved
- ⑤ GND heat.

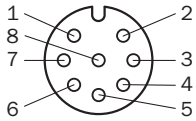
### PIN assignment "data" connection



M12 male connector, 8-pin, A-coded

- ① RxD (HOST)
- ② TxD (HOST)
- ③  $CAN_H$
- ④  $CAN_L$
- ⑤ GND RS/CAN
- ⑥  $In_1$
- ⑦  $In_2$
- ⑧ GND  $IN1/2$

## PIN assignment I/O connection

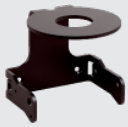


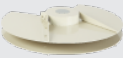
female connector M12, 8-pin, A-coded

- ① LMS11x: INC1 A / LMS15x/LMS16x: INC1 A or IN4 (switchable, pins 1 and 2 must be switched together)
- ② LMS11x: INC1 B / LMS15x/LMS16x: INC1 B or IN3 (switchable, pins 1 and 2 must be switched together)
- ③ GND INC1
- ④ OUT1 A
- ⑤ OUT2 A
- ⑥ OUT3 A
- ⑦ OUT1 ... 3 B
- ⑧ OUT1 ... 3 R

## Recommended accessories

Other models and accessories → [www.sick.com/LMS1xx](http://www.sick.com/LMS1xx)

|                                                                                     | Brief description                                                                                                                                                                                                                                                                                                                                                                                            | Type             | part no. |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|----------|
| Mounting systems                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                              |                  |          |
|   | <ul style="list-style-type: none"> <li><b>Description:</b> Mounting bracket for rear mounting on wall or machine</li> <li><b>Packing unit:</b> 1 piece</li> </ul>                                                                                                                                                                                                                                            | Mounting kit 1a  | 2034324  |
|  | <ul style="list-style-type: none"> <li><b>Description:</b> Mounting bracket for rear mounting on wall or machine with protection of optics hood</li> <li><b>Packing unit:</b> 1 piece</li> </ul>                                                                                                                                                                                                             | Mounting kit 1b  | 2034325  |
|  | <ul style="list-style-type: none"> <li><b>Description:</b> Mounting bracket, adjustable lateral axis, only in conjunction with mounting kit 1a (2034324) or 1b (2034325)</li> <li><b>Packing unit:</b> 1 piece</li> </ul>                                                                                                                                                                                    | Mounting kit 2   | 2039302  |
|  | <ul style="list-style-type: none"> <li><b>Description:</b> Mounting plate, adjustable longitudinal axis, only in conjunction with mounting kit 2 (2039302)</li> <li><b>Packing unit:</b> 1 piece</li> </ul>                                                                                                                                                                                                  | Mounting kit 3   | 2039303  |
|  | <ul style="list-style-type: none"> <li><b>Description:</b> Standard mounting set for weather hood</li> <li><b>Material:</b> Stainless steel 1.4301 (V2A)</li> <li><b>Details:</b> Stainless steel 1.4301 (V2A)</li> <li><b>Items supplied:</b> Mounting bracket, incl. 7 x screws with washer M6 x 12</li> <li><b>Suitable for:</b> 2085937, 2085938, 2085939, 2046459, 2046458, 2082563, 2082560</li> </ul> | Mounting bracket | 2046025  |
|  | <ul style="list-style-type: none"> <li><b>Description:</b> Quick-action lock system for weather hood</li> <li><b>Suitable for:</b> 2085937, 2085938, 2085939, 2046459, 2046458, 2082563, 2082560</li> </ul>                                                                                                                                                                                                  | Quick release    | 2046989  |

|                                                                                     | Brief description                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Type                               | part no. |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|----------|
| 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, PUR, halogen-free</li> <li><b>Description:</b> Ethernet, shieldedPROFINET</li> <li><b>Application:</b> Drag chain operation, Zones with oils and lubricants</li> </ul>              | YM2D24-050P-N1MRJA4                | 2106184  |
|    | <ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 5-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Power</li> <li><b>Cable:</b> 5 m, 4-wire, PUR, halogen-free</li> <li><b>Description:</b> Power, shielded</li> <li><b>Connection systems:</b> Flying leads</li> </ul>                                                                                              | YF2A64-050XXXXLEAX                 | 6036159  |
|    | <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> Untaminated 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> Untaminated 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> Untaminated 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> Untaminated 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> Untaminated zones, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>   | YF2A28-030UA6XLEAX                 | 2145473  |
| device protection and care                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                    |          |
|  | <ul style="list-style-type: none"> <li><b>Description:</b> Weather hood, 190°</li> <li><b>Suitable for:</b> LMS10x, LMS11x, LMS12x, LMS13x, LMS14x, LMS15x, S100</li> </ul>                                                                                                                                                                                                                                                                                               | Weather protec-<br>tion cover 190° | 2046459  |
|  | <ul style="list-style-type: none"> <li><b>Description:</b> Weather protection hood 270°</li> <li><b>Suitable for:</b> LMS10x, LMS11x, LMS12x, LMS13x, LMS14x, LMS15x, S100</li> </ul>                                                                                                                                                                                                                                                                                     | Weather protec-<br>tion cover 270° | 2046458  |

## 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)