



Laser Measurement Systems of the LMS100 Product Family

In full view in all weathers – compact and economical

The Laser Measurement Systems of the LMS100 Product Family: small and innovative

The laser measurement systems of the LMS100 product family are the “small” and economical option in SICK’s family of laser measurement systems, and an alternative to other existing solutions, particularly when long ranges and speeds are not the highest priorities. The systems are practical regarding dimensions and weight, space-saving (with its transmitter and receiver in a single housing), and have a low purchase price with low operating costs. The innovation involved here, however, is “big”: double-pulse technology increases outdoor availability and can even be mounted behind glass.



IP 67

Traffic telematics

The use of products with low operating costs is particularly important for increasing the efficiency of existing traffic infrastructures. The laser measurement systems of the LMS100 family are also particularly suitable here due to the possibility of mounting them directly below the roof and monitoring two lanes simultaneously with a single device. Thus neither additional installation of posts for lightgrids nor underground wiring (loops) efforts are required.

Special advantages in this application

- No wiring necessary between transmitter and receiver
- Installation position protected against weather and collisions
- Simple mounting due to low weight of device
- Separate field evaluation of two lanes with one device
- Configuration while mounted via M8 socket on front of device

IP 67



Anti-collision

During the operating of loading cranes, e.g. at container ports, it is often not the visible elements but the hidden obstacles on the ground that make it difficult for the crane driver to avoid collisions and thus prevent damage. The LMS100 laser measurement system assists the crane driver in narrow aisles by offering definable monitoring fields (also dynamic fields).

Special advantages in this application

- Reasonably priced alternative when operating ranges of up to 20 m are sufficient
- Housing alloy with excellent weather resistance
- Rugged housing with enclosure rating of IP 67
- Field evaluation using intelligent algorithms

IP 65



Building security

It is impossible for the security staff at museums and exhibitions, who are supposed to prevent theft and vandalism, to keep their eyes on everything at all times. Monitored fields can be clearly delineated with the LMS100 laser measurement systems LMS122/123 Security and, when a defined area is infringed, there is an immediate alarm when someone gets too close to the protected object.

Special advantages in this application

- Small size for invisible mounting
- Connection to existing 12 V DC system is possible
- Reduction of false alarms through precise teach-in of field limits
- Field evaluation using intelligent algorithms
- Color variations of the basic unit, with up to 200 RAL compatible colors available
- Quick Start menu according to VdS compatible settings

LMS100 product technology: overview and definitions



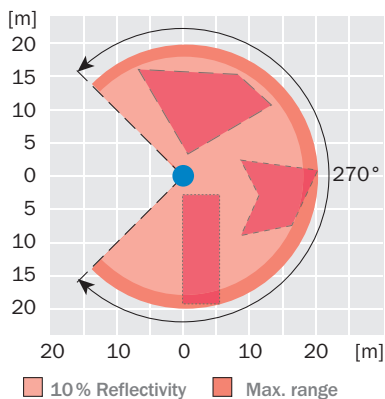
Safety note:
LMS100 laser measurement systems are not devices for personal protection within the sense of valid safety standards for machines.

The LMS100 family at a glance:

- Small, light and economical measurement systems
- Operation possible with supply voltages from 10.8 V DC (Security variants from DC 9 V)
- Real-time measurement data output via Ethernet interface
- Number of switching outputs can be expanded via external modules (Security variants with relay outputs)
- Scanning frequency: 25 Hz to 50 Hz
- Power consumption: typically 8.4 W to 12 W
- Parameterisation interface accessible from the front while device mounted
- Further potential areas of use, e.g. at automated guided vehicles
- Versions available for outdoor use and for adverse conditions (ports, traffic, perimeter security)

Freely definable fields

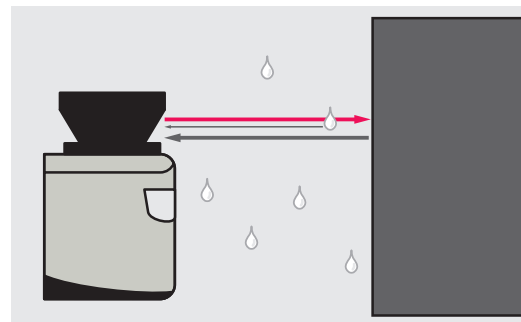
- Creation of evaluation strategies
- Dynamic field adaptation (e.g. dependent on vehicle speed)
- Object blanking possible
- Contour of surroundings is used as a reference



Double-pulse technology

The distance between the LMS100 laser measurement system and an object is calculated from the time-of-flight of the emitted pulse. The LMS100 can evaluate two reception signals per emitted measurement beam.

- Protected mounting behind glass possible
- High availability during outdoor use






Raindrops reflect earlier, smaller pulses back to the LMS100 than the target object



Technical features of LMS100 products

- Up to ten fields can be defined
- All fields are monitored in parallel
- Fields offer rectangular or free segmentation
- Speed-dependent dynamic fields can be defined
- Defined objects within fields can be blanked out
- Evaluation cases adjustable
- Two inputs are available for switching and setting fields
- Fields can be logically linked (logical and/or)
- All outputs are potential-free (like relay contacts)
- Measurement output can be parametrized (time stamp etc.)
- Monitor functions with parameter software

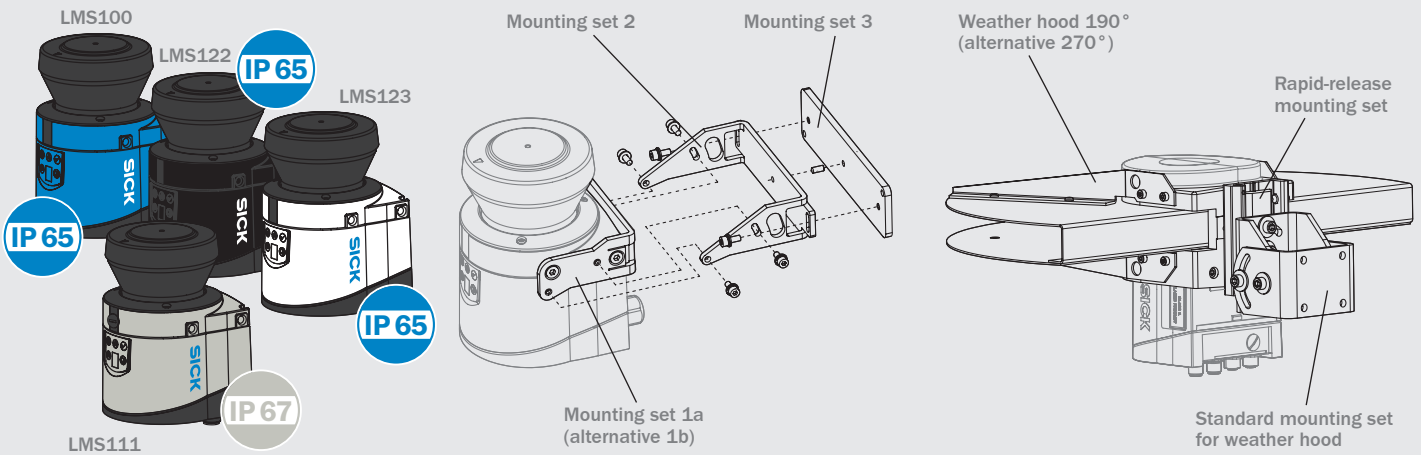
Technical data

Type	LMS100-10000 	LMS111-10100 	LMS122-10000 LMS123-10000 LMS122-11000 
Max. range	20 m / 18 m (at 10% reflectivity)		
Scanning angle	Max. 270°		
Angular resolution	0.5°/0.25° adjustable		
Scanning frequency	50 Hz / 25 Hz		
Response time	20 ms / 40 ms		
Statistical error (1 s)	Typical 12 mm		
Systematic error	Typical ± 30 mm (temperature drift max. 0.32 mm / °C)		
Sender	Pulsed laser diode		
Divergence of collimated beam (full angle)	15 mrad (equals 15 mm/m or 0.86°)		
Light spot size at optical hood	8 mm		
Switching inputs	2	2	2 x IN, 2 x Increment (1 phase)
Switching outputs/Relay outputs	3/-	3/-	1 ¹⁾ /2
Data interface	Ethernet 100 Mbit TCP/IP; RS 232		
Supply voltage (electronics)	10.8 V to 30 V DC	10.8 V to 30 V DC heating 24 V DC	9 to 30 V DC
Laser protection class	Laser Class 1 (IEC 60825-1, corresponds to 21 CFR 1040.10 and 1040.11)		
Enclosure rating	IP 65 acc. to EN 60529, section 14.2.5	IP 67 acc. to EN 60529, section 14.2.7	IP 65 acc. to EN 60529, section 14.2.5
Protection class	III acc. to EN 50178 (1997-10)		
EMC test	Acc. to EN 61000-6-2 (2005-08), EN 61000-6-3 (2007-01)		
Housing alloy	Excellent weather resistance acc. to DIN/EN 1061988, Table 3		
Color of basic unit	Blue (RAL 5012)	Gray (RAL 7032)	LMS122: black (RAL 9005) LMS123: white (RAL 9003)
Dimensions (W x H x D)	102 mm x 152 mm x 105 mm ²⁾	102 mm x 162 mm x 105 mm	102 mm x 152 mm x 105 mm ²⁾
Weight ³⁾	Approx. 1.1 kg		
Operating ambient temperature	0 °C to +50 °C	-30 °C to +50 °C	0 °C to +50 °C
Humidity	Acc. to DIN EN 60068-2-61, Method 1 (taking into account operating ambient temperature range)		
Vibration test	Acc. to EN 60068-2-6 (1995-04)		
Frequency range/Amplitude	10 Hz to 150 Hz / Min. 5 g RMS		
Shock test	Acc. to EN 60068-2-27 (1993-03), EN 60068-2-29 (1993-04)		
Single shock/Continuous shock	15 g, 11 ms / 10 g, 16 ms		

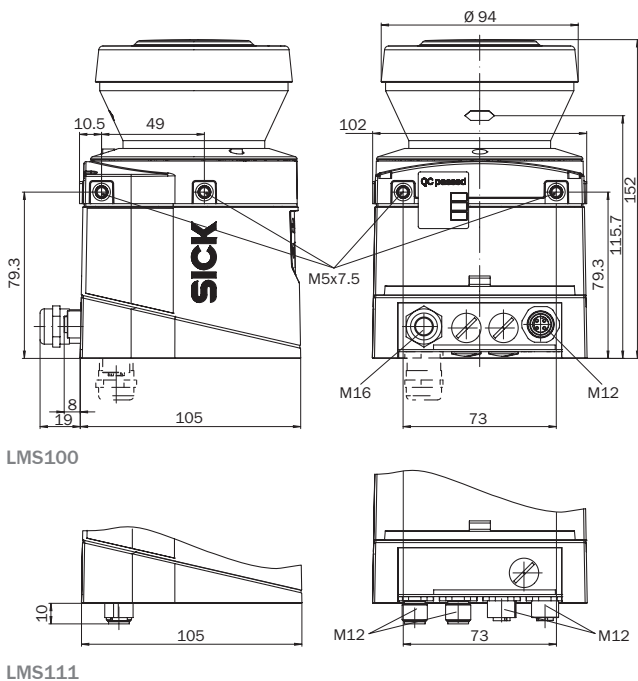
¹⁾ Only sabotage output; ²⁾ Without projecting cable gland / M12 socket; ³⁾ Without connection cables

Dimensional drawings and order information

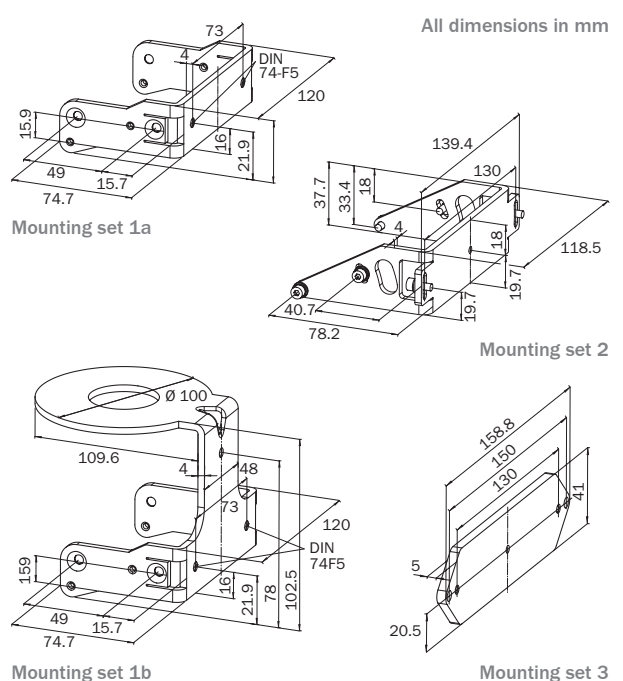
Select from the device variants, mounting sets, weather hoods and other accessories.



Dimensional drawings, devices

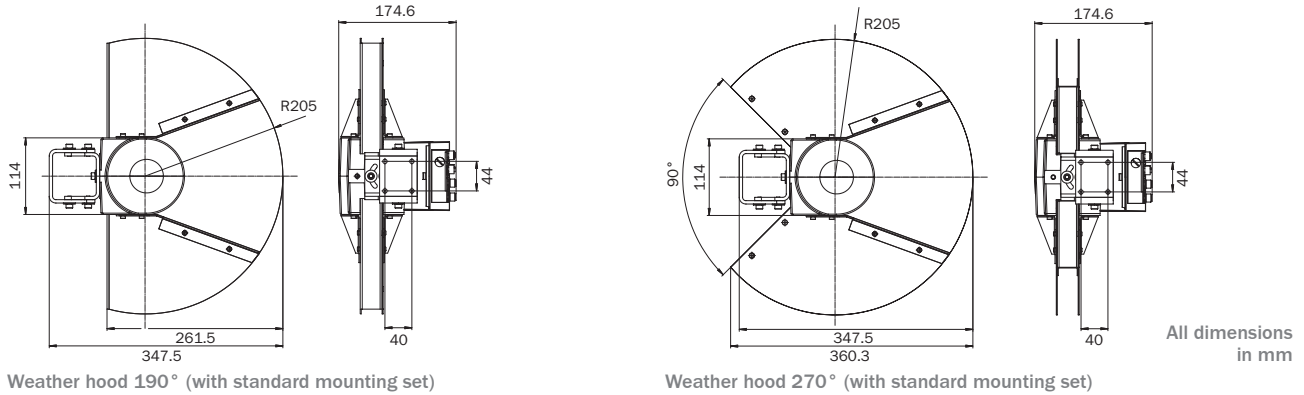


Dimensional drawings, mounting sets





Dimensional drawings, weather hoods



Order information, devices¹⁾

Part no.	Type	Description
1041113	LMS100-10000	Indoor variant, blue, IP 65, system plug with M16 screw cable gland / threaded terminals and M12 socket (4-pin)
1041114	LMS111-10100	Outdoor variant, gray, with heating, IP 67, system plug with 2 x M12 plugs (5-pin/8-pin) and 2 x M12 sockets (4-pin/8-pin)
1044322	LMS122-10000	Security variant (indoor) ²⁾ , black, system plug with M16 cable gland / threaded terminals and M12 socket (4-pin), additional sabotage output (tampering)
1044321	LMS123-10000	Security variant (indoor) ²⁾ , white, system plug with M16 cable gland / threaded terminals and M12 socket (4-pin), additional sabotage output (tampering)
1050208	LMS123-11000	Security variant VdS (indoor) ²⁾ , white, system plug with M16 cable gland / threaded terminals and M12 socket (4-pin), additional sabotage output (tampering)

¹⁾ Scope of delivery: ordered device and CD-ROM "Manuals & Software Auto Ident"; ²⁾ Optimized for using in building security equipment

Order information, accessories

Part no.	Type	Description
2034324	Mounting Set 1a ³⁾	Bracket for mounting to wall or machine from the back
2034325	Mounting Set 1b ³⁾	Bracket for mounting to wall or machine from the back, with cover protection
2039302	Mounting Set 2 ³⁾	Bracket, only in combination with bracket 1a or 1b, adjustment possible around transverse axis
2039303	Mounting Set 3 ³⁾	Retention plate, only in combination with bracket 2, adjustment possible around longitudinal axis
2046459		Weather hood, 190°
2046458		Weather hood, 270°
2046025		Standard mounting set for 190° / 270° weather hood
2046989		Rapid-release mounting set for 190° / 270° weather hood
6034415 / 6030928 / 6036158		Ethernet M12x4/RJ-45 cable for connection of LMS100/122/123 Ethernet interface to PC, 5 m / 10 m / 20 m
6036159 / 6036160 / 6036161		Supply cable for LMS111-10100, M12x5, 4 open wires, 5 m / 10 m / 20 m
6036155 / 6036156 / 6036157		I/O cable for LMS111-10100, M12x8, 8 open wires, 5 m / 10 m / 20 m
6036153 / 6028420 / 6036154		RS 232 cable for LMS111-10100, M12x8, 8 open wires, 5 m / 10 m / 20 m
6021195 / 2027649		Connection cable M8x4 / D-Sub 9-pin (DIN 41642) for connection of serial auxiliary interface with the PC serial interface, 2 m / 10 m
6038825		External CAN extension module for up to 8 additional outputs

³⁾ Including mounting materials

Worldwide presence with subsidiaries in the following countries:

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- Nederland
- Norge

- Österreich
- Polska
- Republic of Korea
- Republika Slovenija
- România
- Russia
- Schweiz
- Singapore
- Suomi
- Sverige
- Taiwan
- Türkiye
- United Arab Emirates
- USA/Canada/México

Please find detailed addresses and additional representatives and agencies in all major industrial nations at www.sick.com

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Our Business Segment Expertise

Factory automation

With its intelligent sensors, safety systems, and automatic identification applications, SICK provides comprehensive solutions for factory automation.



- Non-contact detecting, counting, classifying, and positioning of any type of object
- Accident protection and personal safety using sensors, as well as safety software and services

Logistics automation

Sensors made by SICK form the basis for automating material flows and the optimization of sorting and warehousing processes.



- Automated identification with bar-code and RFID reading devices for the purpose of sorting and target control in industrial material flow
- Detecting volume, position, and contours of objects and surroundings with laser measurement systems

Process automation

Optimized system solutions from SICK ensure efficient acquisition of environmental and process data in many industrial processes.



- Precise measurement of gases, liquids and dust concentrations for continuous monitoring of emissions and the acquisition of process data in production processes
- Gas flow measurements with maximum accuracy thanks to compact gas meters