SICK.COM





PRODUCT OVERVIEW

LMS5xx

LiDAR sensors

SICK Sensor Intelligence



2D LIDAR SENSORS

LMS5xx

High-performance 2D LiDAR sensor for accurate detection of far away objects

The LMS5xx 2D LiDAR sensor is the successor of the successful LMS2xx family. With numerous innovative functions, the LMS5xx increases the productivity of existing applications and opens up entirely new application possibilities. The new, ultra-fast multi-echo technology makes laser measurement applications less sensitive to weather conditions and increases the reliability of captured data. Reduced power consumption as well as intelligent self-monitoring functions ensures extraordinarily low total cost of ownership. With the two Lite and PRO variants, the right version is available for every application. The LMS5xx boasts the best price-performance ratio on the market in this sensor class.

LMS5xx AT A GLANCE

BENEFITS

- Extremely powerful in countless applications
- Quick, reliable detection of objects under nearly any ambient conditions
- Extensive product family with various product series and types for all requirements regarding performance and cost
- Low power consumption minimizes the total cost of ownership
- Quick and easy commissioning with SOPAS engineering tool
- Self-check function for increasing system availability

FEATURES

- Powerful, efficient 2D LiDAR sensor for measuring ranges up to 130 m
- Excellent performance even under unfavorable weather conditions due to multi-echo technology
- Compact housing up to enclosure rating IP 67 and integrated heating for outdoor devices
- Low power consumption
- Quick signal processing
- Several inputs and outputs
- Synchronization of several sensors possible

TECHNICAL DATA OVERVIEW

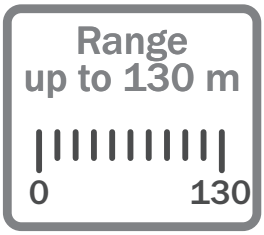
Application	Indoor Outdoor Security
Integrated application	Field evaluation, output of measurement data
Aperture angle	
Horizontal	190°
Working range	0.2 m ... 130 m
Scanning range	
At 10% remission factor	26 m ... 52 m
Amount of evaluated echoes	2 / 5
Scanning frequency	25 Hz, 35 Hz, 50 Hz, 75 Hz, 100 Hz
Heating	Self-heating / Self-heating with additional integrated heating
Ambient operating temperature	–40 °C ... +60 °C
Ethernet	✓
Serial	✓
USB	✓
CAN	✓
Digital inputs	2 (digital) 4 (Digital, encoder (HTL), synchronization) 3 (digital) 4 (digital)
Digital outputs	3 (digital) 6 (digital) 3 (2 relay, 1 digital) 4 (4 digital outputs in relay function)
Weight	3.7 kg

ADVANTAGES



In the field of 2D LiDAR sensors, SICK is setting standards worldwide for industrial applications: The sensor manufacturer knows how to protect the sensitive technology of intelligent sensors so that they can work reliably and economically for many years, even under unfavorable ambient conditions. This knowledge is an integral part of LMS5xx 2D LiDAR sensors.







5-echo technology for precise measurements
The 5-echo technology from SICK enables reliable and high-precision laser measurements in nearly all weather conditions.

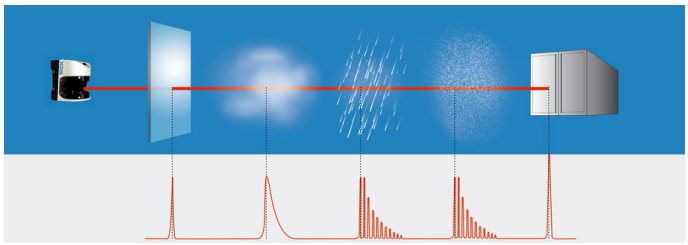
A very high level of performance
Peak values for the sensing range, resolution and frequency, paired with a compact design, countless inputs and outputs as well as flexible integration into the communication infrastructures of the customer and the powerful SICK SOPAS ET software: That is why the LMS5xx is the right sensor for so many applications.

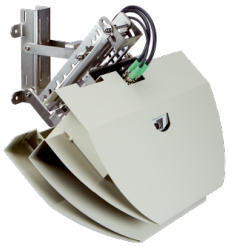
High economic efficiency throughout the entire product life.cycle
The LMS5xx stands for sophisticated self-monitoring and low energy consumption. The sensor offers extreme economic efficiency throughout its entire product life-cycle.

→ The LMS5xx combines precision with intelligence and a rugged design to offer the best performance all along the line: The highest level of detection, recording and transmission of measured values. Throughout the entire product life-cycle.



The multi-echo evaluation combined with intelligent scanning technology is what allows for the best possible compensation of weather influences when recording measured values and increases the reliability of collected data. This outstanding performance can be improved even more with additional digital filters for preparation and optimization of distance values measured by the LMS5xx. With these filters, users can perfectly and efficiently adjust the LMS5xx settings to the specific requirements of the respective application. The special heavy-duty variants of the LMS5xx are used under very challenging application conditions, for example in ports.

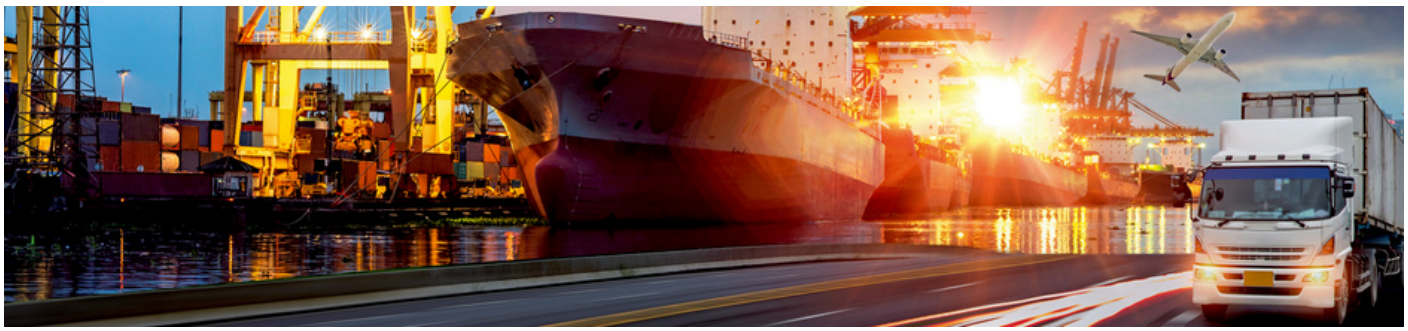




Compensation of weather conditions thanks to 5-echo technology
The 5-echo technology is perfectly suited for applications that require the reliable detection of objects in changing or unfavorable weather conditions. The LMS5xx receives up to five echos per transmitted pulse, which is more than other sensors. In the example shown, the first four measurements (e.g. glass, fog, rain or dust) are above the trigger threshold — however, none of these measurements detects the target object. With the fifth echo, the LMS5xx reliably detects the object.

High-quality components in a rugged housing
The rugged design and the special alloy of the housing protect the sensor from mechanical influences and unfavorable ambient conditions. In addition, the self-monitoring and -calibration functions increase the availability of the sensor: For example, the integrated contamination monitoring function of the LMS5xx automatically signals the exact time required for maintenance, thereby reducing maintenance effort.

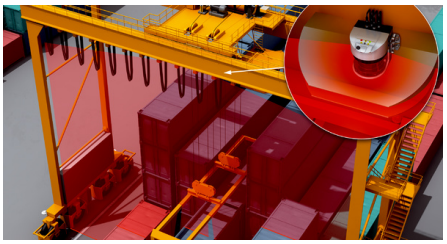
→ Maximum availability and outdoor performance due to intelligent 5-echo technology, protected by a rugged housing.



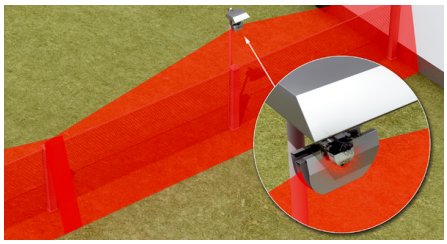
The LMS5xx is the ideal solution for outdoor applications: Even under harsh ambient conditions such as rain and snow, the 2D LiDAR sensor impresses with quick, reliable object detection and very high performance.



Collision avoidance
In ports, collision avoidance has utmost priority. The AGVs used there are equipped with LMS511 devices. Using the monitored areas previously defined for the AGVs, the sensors prevent collisions between these and other vehicles or objects such as cranes and containers: If an AGV comes too close, the LMS511s detects any protective field violations. The AGV then reduces its speed or stops.



Profile measurement
SICK's sensors assist in correctly positioning and detecting freight and other objects. The sensors record the respective data and transmit it to the relevant control. to ensure that every item of cargo reaches its destination in one piece. The LMS511 2D LiDAR sensor scans the yard area below the gantry crane, then the measurement points are used to create a contour profile of the yard area. This is used as the basis for further software processing so as to avoid collisions when using the spreader to pick up and set down containers.



Horizontal and vertical monitoring
In building safety and security, the protection of buildings, property and access areas is very important, as is the protection of persons and valuables. SICK sensors therefore protect buildings and property against intrusion and jailbreak. A 2D LiDAR sensor detects individuals crawling beneath or otherwise crossing the perimeter of a standard fence with high detection speed and unaffected by interference from the weather. The sensor generates a vertical field. If anyone penetrates this field, the 2D LiDAR sensor triggers an alarm.

→ They allow for versatile use in industrial applications – and are very reliable during object detection under challenging ambient conditions.



SICK LifeTime Services

From consulting to modernization: SICK LifeTime Services increase the productivity of plants and machines, improve the safety of your employees, and provide a solid foundation for sustainable business operations. As a solution provider, SICK works with you to manage the holistic implementation of projects relating to industrial automation, safety and digitalization.

→ Comprehensive industry know-how and more than 75 years of practical experience create ideas and provide knowledge for your solutions. Find out more

Select the right product variant and accessories directly online. There you will also find example applications as well as downloads such as CAD dimensional models, operating instructions and software.
www.sick.com/LMS5xx

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SICK AT A GLANCE

SICK is a leading global technology company for intelligent sensors and integrated solutions in industrial automation. Our technologies set benchmarks, making your industrial processes more efficient, safer and more sustainable – both in logistics and manufacturing operations.

SICK combines sensor intelligence with industry expertise and certified consulting services. We provide the ideal foundation for scalable as well as tailor-made automation solutions and create added value along the entire value chain. Our close partnership with our customers is more than just a promise: Together, we optimize productivity, elevate quality, protect health and safety, and sustain the future. All with empathy and trust.

Since 1946, we have been developing innovative technologies with passion and a pioneering spirit. With a global network in around 40 countries, SICK has a global presence and is always close by. The company's headquarters are located in Waldkirch near Freiburg, Germany. Our customers benefit from our understanding of both local and global requirements, which enables us to deliver tailor-made solutions.

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