NEW
LD Family

Product Information

LD Laser Scanners

A powerful family of measurement devices in Time of Flight technology

SICK

SICK Sensors connect companies and markets

SICK – one of the world's leading producers of sensors and sensor systems for industrial applications. SICK is a technology and market leader in factory automation. Founded in 1946 and based in Waldkirch, Germany, the company today has a global presence through numerous subsidiaries, participations and sales offices.

LMS Outdoor Measurement scanner

S 3000 Safety scanner

LMS Indoor Measurement scanner

LD OEM Measurement scanner

Laser scanners: the key to a world of applications

The measuring laser scanners have a special position in the SICK portfolio of products. Based on the Time of Flight (TOF) technology, these scanners are able to measure distances and profiles of target objects.

NAV 200 Positioning system for vehicles

LMS 400 Measurement scanner

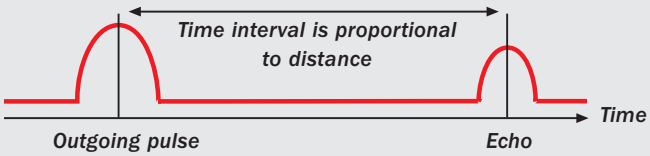
LD CS Cone Scanner for container positioning

LD PeCo People Counter

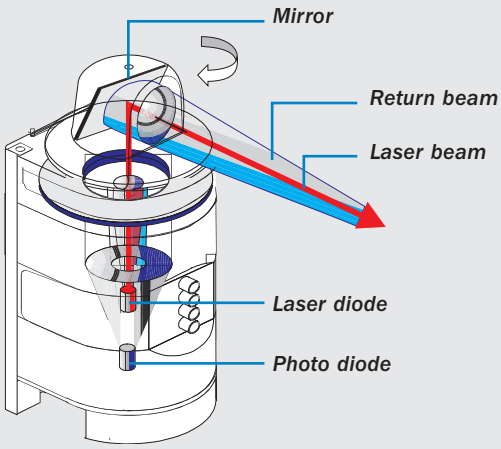
Using the TOF scanners, SICK provides solutions, throughout the world. Even the most demanding applications are being served: anti-collision for large harbour cranes, automatic parking of planes, vehicle classification in free-flow traffic, guidance and protection of autonomous vehicles, anti-intrusion in building security, people counting in crowded public areas.

Laser scanners: virtual eyes to measure, control and protect

SICK is the leader in Time of Flight (TOF) technology. This principle forms the basis of many of SICK's most successful products and systems. TOF makes it possible to measure long distances in straight lines and profiles across a plane. In our product portfolio, we have "1-D" TOF Distance Sensors (using a single laser beam) and "2-D" TOF Scanners (measuring profiles and areas by means of a rotating laser beam and an encoder).



The LD Laser Scanner:



Technology at the speed of light

The distance between the sensor and an object is calculated by measuring the time interval between an outgoing laser pulse and its echo (return signal) reflected by the object. The amplitude of the echo signal can be used to calculate the reflectivity of the object's surface.

LD family – the new generation of measurement laser scanners: flexibility and high performance

Powerful and compact, SICK's new LD OEM adds new performance to the SICK product family opening up new possibilities for your applications.

General technical features

Scanning frequency	5–20 Hz, programmable
Range (standard LD)	> 24 m on black (5 % reflectivity) > 100 m on white (90 % reflectivity)
Range (LD Galileo with extended range)	> 75 m on black (5 % reflectivity) > 200 m on white (90 % reflectivity)
Angular resolution	0.5°–0.25°–0.125° programmable
Max. scan rate	14,400 Hz.
Laser type	Infrared 905 nm, eyesafe Class I
Operating temp. range	0 °C to 45 °C
Size	115 x 120.5 x 222 mm^3
Weight	3.2 kg
Data interface	CANBUS, ARCNET RS 232/422, 4 x static outputs

An infallible eye at your service

Introducing the new family of LD Laser Scanners: 360 degrees of accurate measurement and a powerful processor, combined to meet your demands for a number of applications

A powerful brain to take in your competence and experience!

LD CS
Cone Scanner for container positioning

LD PeCo
People Counter

LD PDS
for surveillance

NAV 200
Positioning system for vehicles

LD Galileo
long range scanner

The basis of the LD family is the LD OEM laser scanner. This powerful and flexible device is based on a dual-processor hardware structure. The first DSP (Digital Signal Processor) controls the laser measurement and the I/O data flow, while a second DSP is dedicated to run application programs, such as profile recognition for robots or positioning algorithms for autonomous vehicles. The two processors are connected by means of a high-speed bus which enables efficient real-time data collection and processing.

Learn how to program the LD OEM's application processor and become one of SICK's Application Partners!

We offer you the possibility of taking your experience 'on board'!

LD PDS

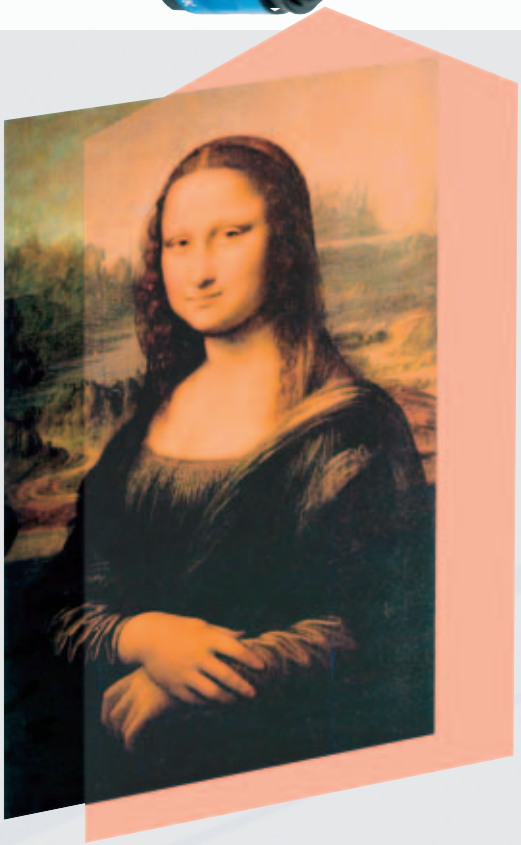
Eyes to protect your assets ...

You may protect horizontal or vertical areas from intrusions by installing a laser scanner. By means of a simple configuration software, you can define the shape and size of the area to be monitored, taking into account all fixed features and objects.

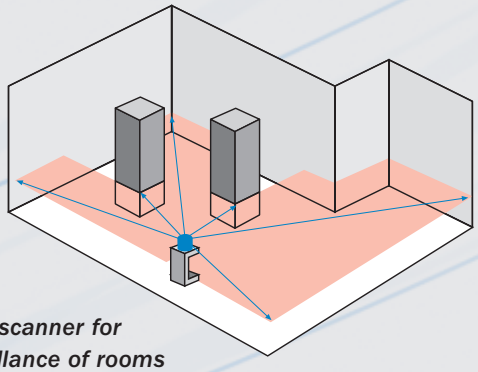
Paintings on a wall can be safeguarded by an invisible vertical barrier generated by a LD PDS Laser Scanner hidden in the ceiling. The scanner will detect any object penetrating the scanned area.

In the same way, a horizontally mounted laser scanner can be used at night to prevent intrusions in gardens, on roofs, in rooms and any other areas.

Indoor or outdoor, the laser scanner will detect any person trespassing on your property and report it to you immediately.



The “Mona Lisa” is at the Louvre Museum, Paris

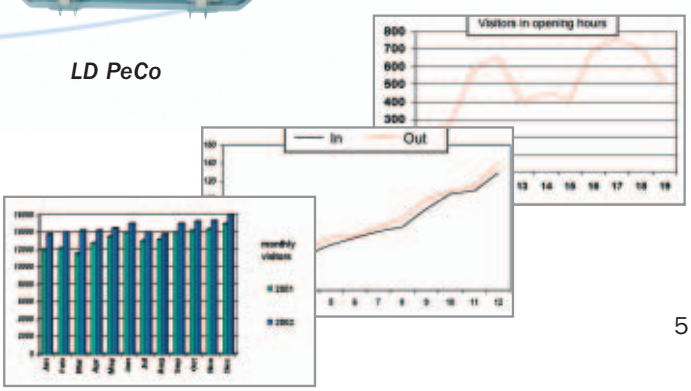


Laser scanner for surveillance of rooms

...and to count people in public areas

LD PeCo

LD PeCo is used to count people crowding in public areas, such as stations, museums and shopping malls, for security reasons or to generate statistics and reports for commercial purposes.

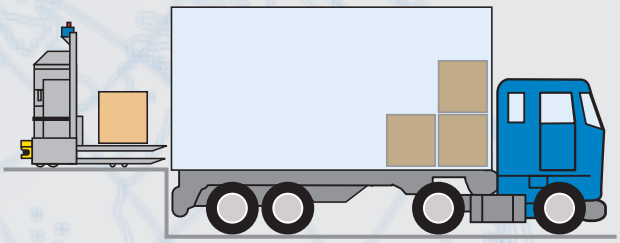


Eyes to drive vehicles and robots

SICK's laser scanners are at the heart of numerous AGV navigation systems developed by successful manufacturers throughout the world. SICK is now introducing the new LD NAV scanner to open up further new possibilities for operating AGVs. By using the LD NAV scanner, the AGV can "see" and measure the immediate environment and "decide" on the appropriate route to take.

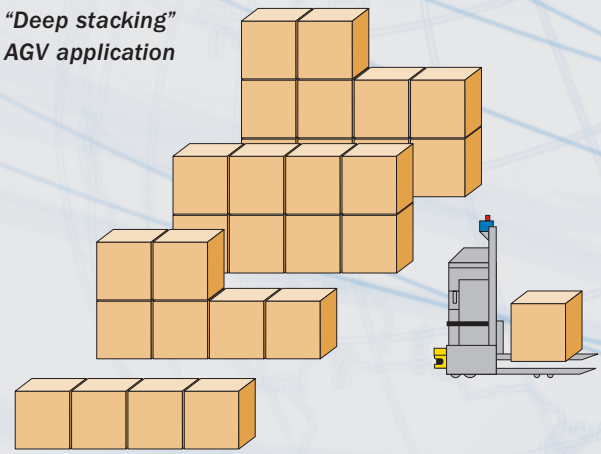
LD NAV opens new horizons to vehicles automation: *MIX-MODE NAVIGATION* for AGVs

With the LD NAV, SICK pioneers a new era of AGV navigation. New application perspectives are in fact opened by the use of the laser scanner for navigating on both reflectors and natural targets.



Automatic "truck loading" using an AGV

"Deep stacking" AGV application

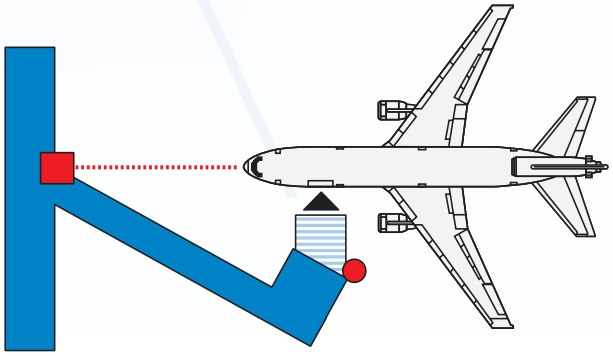


In order to navigate correctly, traditional laser-guided AGVs need to stay in view of at least three reflectors. This is often not possible in several common situations, such as the "deep stacking" of pallets in open areas and in the operation of loading trucks. In both cases the reflectors are not continuously visible. They are either concealed by stacked pallets or by the walls of the truck.
By using the LD NAV, the AGV can easily find its way by means of traditional triangulation on reflectors, when they are visible, and continue navigating by measuring the profile of the surrounding environment, when the reflectors become obscured.

Eyes to guide aeroplanes

Automatic docking system for aircraft

The TOF capabilities of LD scanners have been exploited to provide accurate measurements of the shape of aeroplanes in order to guide them precisely to the docking area.
The long-distance scanner LD Galileo is able to fulfill its measurement duties in bad weather conditions and on any target. Benefit from its constant accuracy and reliability.



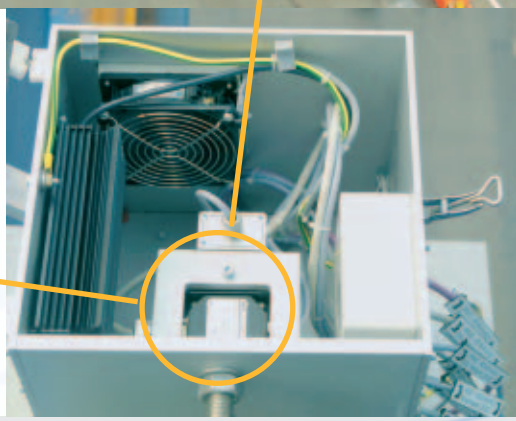
Eyes to detect containers, operate and protect cranes...

The sophisticated laser technology of the LD family of laser scanners and its powerful internal “application” processor, have been at the basis of a successful joint-development by SICK and LASE GmbH, for crane automation.

The LD CS Cone Scanner is able to detect the exact position of the corners of a container and its relative position to the transport truck. The crane’s position is consequently automatically adjusted to pick or place the container. The system developed by SICK and LASE allows the automation of the containers’ handling by STS or Gantry Cranes and makes the operation at the quay-side much faster and safer.

LD devices are also used in harsh port environments for anticollision purposes between cranes and objects on the quays.

LD CS



We are confident that, whatever your measurement and control application may be, the LD is the right device for you. Several demanding applications have already been solved using LD scanners in various industrial areas, ranging from metallurgy to civil engineering:

- Measurement and flow-control of bulk material
- Profiling of tunnels
- Anticollision of semi-automatic vehicles
- Driver assistance in agricultural harvesting machinery
- Measurement and positioning of red-hot steel slabs

We look forward to discussing your application and working out how to improve it with the LD family!

... and finally for your own application!

The LD family: the right solution for your application!

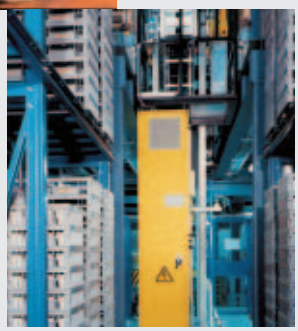
The LD family includes several different devices, based on the LD OEM platform:

- LD OEM: the basic module and the platform for new OEM developments (OEM is the abbreviation for Original Equipment Manufacturer), is open for taking customized software programs on board and offers the possibilty of incorporating your own application experience.
- LD PeCo: people counting in public areas
- LD PDS: surveillance and security of buildings
- LD CS: container handling, crane automation
- LD NAV: guidance of autonomous vehicles
- LD Galileo: long range measurement

Our complete range of sensors provides answers to suit any application in the field of automation. Even under rugged ambient conditions objects are reliably detected, counted and positioned in respect of their form, location and surface finish, as well as their distances established with pin-point accuracy.

Comprehensive safeguarding of both personnel and machinery! As specialists in Sensor Technology, SICK develops and manufactures pioneering products for providing protection in hazardous zones, dangerous locations and for safeguarding access points. By providing services, which encompass all aspects of machine safety and security, SICK is setting new standards in Safety Technology.

System control, maintaining setpoints, optimising process control and monitoring the flow of materials – the instruments and services for Analysis and Process Measurement, supplied by SICK-MAIHAK, are setting the standards for these applications in terms of Technology and Quality.



Whether the tasks involve identification, handling, classification or volume measurement, innovative Auto Ident systems and laser measuring systems function extremely reliably, even under rapid cycle times. They conform to the latest Standards and can be simply and speedily integrated in all industrial environments and external applications.

SICK. Detect the Difference

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8 010 603/01-04 · JB/FD · Printed in Germany (01-04) · Subject to change without notice · 05 WB int43

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