Leuze

ROD 300/500

New laser scanner series for contour measurement and navigation

The Sensor People

Maximum efficiency in manufacturing and logistics processes thanks to high angle resolution and predictive maintenance

The new laser scanners in the ROD 300 series for contour measurement and the ROD 500 series as a high-resolution variant for navigation tasks stand out for their high scanning rates with simultaneously high angular resolution.

Manufacturing and logistics processes can thus be designed with maximum efficiency. With a scanning frequency of 80 Hz, even fast-moving objects can be reliably detected. The integrated window monitoring supports predictive maintenance and ensures high system availability.

Thanks to their compact design, the laser scanners can also be integrated into confined production environments and small automated guided vehicles (AGVs).

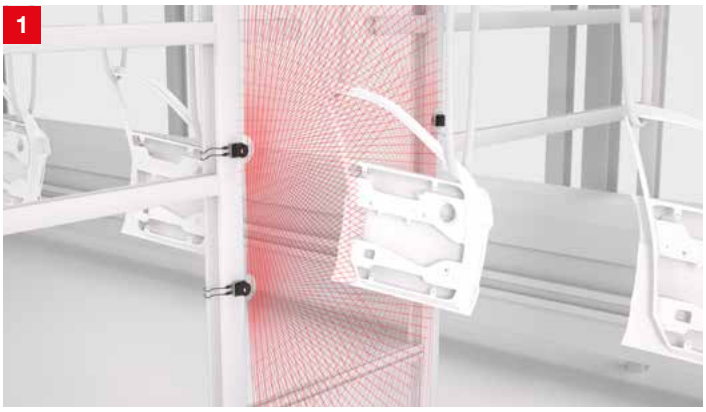
Your advantages at a glance

- **Maximum precision and attention to detail thanks to high angular resolution**
  The precise detection and contour measurement of different parts in production means that manufacturing processes can be carried out with maximum efficiency, including in terms of the use of resources. The high resolution also allows automated guided vehicles (AGVs) to be positioned very precisely.
- **Detection of fast objects thanks to high scanning frequency of 80 Hz**
  Thanks to the high scanning frequency of 80 Hz, fast-moving objects on continuous conveyors can be reliably detected, thus maximizing system efficiency.
- **Predictive maintenance through window monitoring**
  The integrated window monitoring allows soiling to be detected in good time and a high level of system availability to be achieved.
- **Excellent integration due to compact design**
  Thanks to its compact size of just 80 x 80 x 80 mm, the laser scanner can be integrated into the smallest installation spaces in production and intralogistics as well as in AGVs.
- **For use in high and low temperature ranges:**
  Whether for deep-freeze storage or applications with increased temperature requirements, such as in the battery manufacturing environment, the ROD 300/500 can be used from –30 °C to +60 °C.
- **Robust design**
  The new ROD 300/500 laser scanner has a robust design thanks to protection class IP 67 and the built-in 905 nm laser diode.
- **With LiDAR technology (Light Detection and Ranging)**
  For highly accurate navigation and precise detection and localization of objects.

Applications

Contour measurement in production

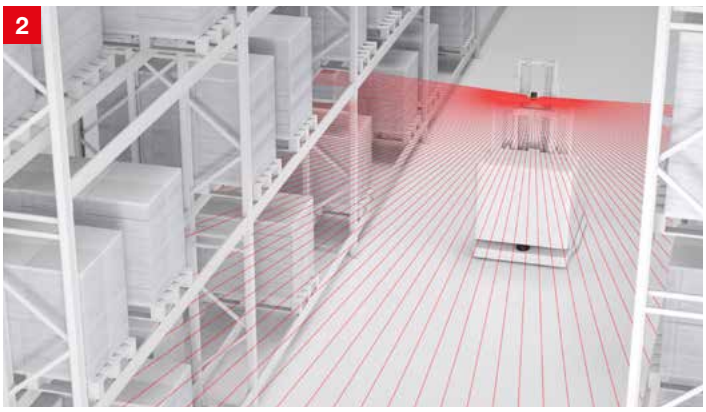
Requirement: Before parts are fed into an automated painting system, their contours must be measured so that the paint can then be applied in a targeted manner. The surface of the parts must not impact the precision of the contour determination.



Solution: With their high resolution of 0.025°, the laser scanners of the ROD 500 series can precisely determine the contours of the parts, even with different surfaces (high-gloss or matt). The exact contour measurement allows the paint to be applied precisely to the object.

Navigation of automated guided vehicles (AGV)

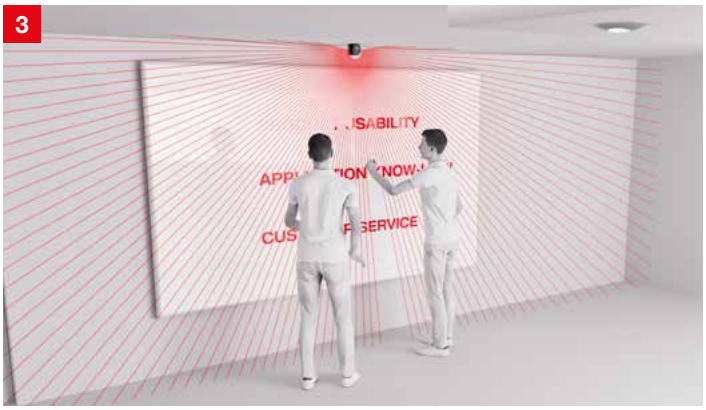
Requirement: An AGV is to be used to transport materials in a warehouse. The first step is to map the environment before the AGV executes the goods movements.



Solution: With their very high resolution of 0.025°, the ROD 500 laser scanners can map their surroundings with extreme precision and create an initial map of the warehouse environment. During ongoing logistics operations, the ROD 500 is suitable for natural navigation of the AGV and for avoiding collisions.

Media control

Requirement: A video wall is to be used interactively. The cursor movements of a classic mouse will be imitated by the user's hand or individual fingers. A sensor is needed to scan the entire interaction surface and output where the hands are located.



Solution: With its scan plane directly above the display, an ROD 300 laser scanner localizes all objects located in the scan area above a media wall. The scanner outputs the position of the objects and they are assigned to the hand movements via a conversion. This allows one person to control the media wall with the associated software.

Contour detection in warehouse logistics

Requirement: In a logistics center, pallets need to be checked for contours during both storage and retrieval so that the subsequent logistics processes can be carried out smoothly. It must not matter whether pallets are loaded with a single or mixed type of goods, or by the surface of the goods.

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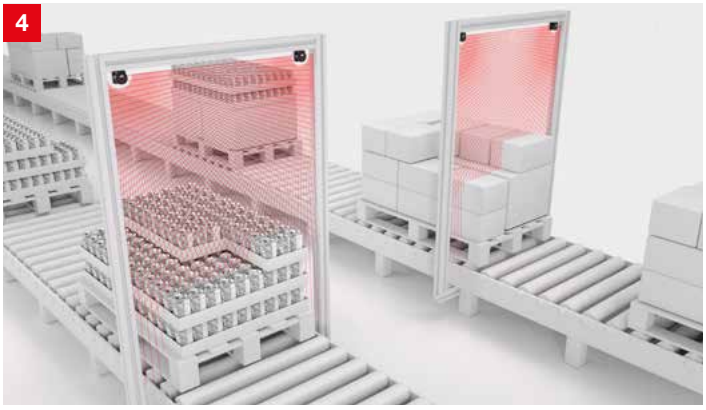

Solution: Two ROD 300 series laser scanners are mounted above the continuous conveyor. This allows the contour of the pallets to be measured before they are stored or retrieved.
The laser scanners deliver stable measured values regardless of the pallet load or the surface of the goods (high-gloss or matt).

Container checking

Requirement: In a logistics center, containers on the conveyor system are to be checked to see if they are filled with goods or not.
The speed of the continuous conveyor should be maximized to achieve maximum system efficiency.

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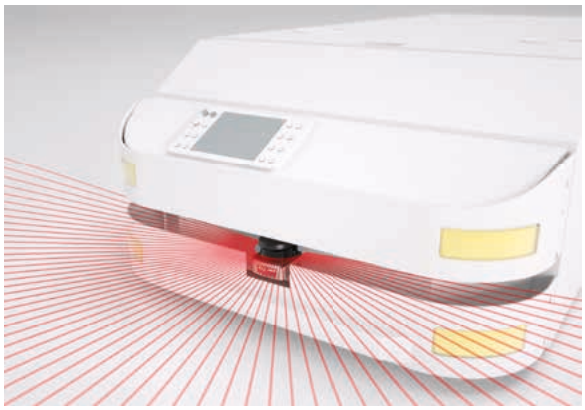
Solution: A ROD 300 series laser scanner is mounted above the conveyor system. The frequency of the individual scans of the ROD 300 can be increased so that the blind areas between two measurements are minimized and the objects can be detected even faster. This maximizes production throughput and system efficiency.

Highlights

Predictive maintenance through window monitoring

The ROD 300/500 series laser scanners can check the window for contamination by monitoring the window. If the set warning threshold is exceeded, a maintenance message is issued. Predictive maintenance allows a high level of system availability to be achieved.



Flexible integration thanks to compact design

Thanks to their compact design of 80 x 80 x 85 mm, the laser scanners are ideal for integration in small installation spaces in mobile vehicles and in applications where space is limited.

Robust design and wide temperature range

The ROD 300/500 series laser scanners stand out for their robust housing and a wide temperature range. They can be used in environments from –30 °C to +60 °C and are suitable for applications at low temperatures in the deep-freeze sector as well as for high temperature requirements, such as those in battery production.

Overview of technical data

		ROD 300	ROD 500
Technical data	Scanning angle	275°	275°
	Angular resolution	0.1° at 40 Hz 0.2° at 80 Hz 0.2° at 50 Hz	0.025° at 10 Hz 0.05° at 20 Hz 0.1° at 40 Hz 0.2° at 80 Hz 0.2° at 50 Hz
	Measuring distance	5.5 m at 2% 15 m at 10% 25 m at 90%	5.5 m at 2% 15 m at 10% 25 m at 90%
	Interfaces	EtherNet (TCP / UDP)	EtherNet (TCP / UDP)
	Protection class	IP 67	IP 67
	Dimensions	80 mm x 80 mm x 85 mm	80 mm x 80 mm x 85 mm
	Temperature range	–30 … +60 °C	–30 … +60 °C
	LED wavelength	905 nm	905 nm
	Function	Measuring	Measuring (high-resolution version)

Our product range at a glance

Switching sensors
- Optical sensors
- Inductive sensors
- Capacitive sensors
- Ultrasonic sensors
- Fiber optic sensors
- Fork sensors
- Light curtains
- Special sensors

Measuring sensors
- Distance sensors
- Sensors for positioning
- 3D sensors
- Light curtains
- Barcode positioning systems
- Fork sensors

Safety
- Safety solutions
- Safety laser scanners
- Safety light curtains
- Single and multiple light beam safety devices
- Safety radar sensors
- Safe locking devices, switches and proximity sensors
- Safety controls and relays
- Machine safety services

Identification
- Barcode identification
- 2D-code identification
- RF identification

Data transmission
- Optical data transmission systems

Network and connection technology
- Connection technology
- Modular connection units

Industrial image processing
- Light section sensors
- Industrial IP cameras
- Vision sensors

Accessories and supplementary products
- Signaling devices
- Mounting systems
- Reflectors

Contact

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