Leuze electronic

HVS
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the sensor people

The optical distance sensors ODSL 8/9/30 and ODS 96B

Precise and unmatched in speed even at long distances

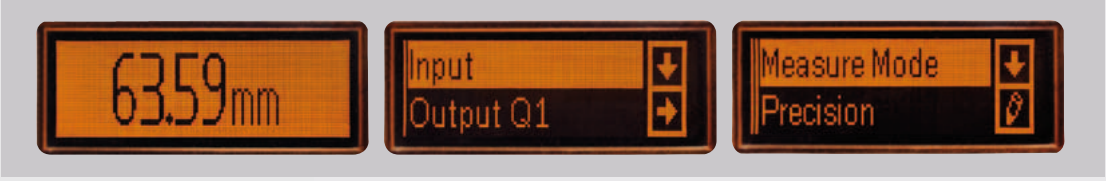
PRODUCT INFORMATION

How one measures **distances** today – **fast** and with **absolute** precision.

The one standard here is top quality.

Independent of their operating principle – triangulation, time of flight (TOF) or phase measurement – distance sensors from Leuze electronic stand for high accuracy with a resolution of up to 0.01 mm. And specific light spots enable the reliable measurement of small parts, measurement over large operating ranges or even the measurement of objects with openings.

Selectable measurement modes – fast, standard, precise – facilitate fast adaptation to special applications. With protection class IP67 or IP69K, the devices are very robust and work reliably at temperatures from -40°C to +50°C. All sensors are characterized by simple operation with measurement value visualization on the display or a teach-in process. And, because even the best device is only as good as its connection options, the distance sensors from Leuze electronic offer modern interfaces for integration in all established control and field-bus environments.



The most important **advantages** at a glance.

Plain-text display

Easy-to-comprehend display of the measurement values.

Short-stroke keys

Sensor configuration with graphical menu.

Precise laser measurement

Resolution up to 0.01 mm with exact factory calibration.

Selectable measurement mode

Fast, standard or precision for application adaptation.

Large measurement range

50 – 650 mm with compact design.

Range of interfaces

Analog, IO-Link, gateways for fieldbuses.

Flexible mounting

M12 turning connector with selectable cable outlet direction.

Three **principles**, one advantage – the highest **precision**.

Triangulation

Distance measuring procedure, which determines the distance of an object by the incidence angle of the light reflected from the object.

Products:
ODSL 8, ODSL 9, ODS 96B, ODSL 96B

Benefits:
- High precision at short range
- Resolution capability of up to 0.01 mm for short distances
- Ideal for measuring small parts and small structures and quickly moving objects

Business sectors:
- Packaging technology
- Mounting / handling technology
- Wood working industry

Time of flight (TOF)

Distance measurement procedure, which determines the distance to an object by the propagation time of a light pulse emitted by the transmitter and reflected from the object.

Products:
ODSL 96B, ODSIL 96B, ODKL 96B

Benefits:
- Large operating ranges
- Robust measurement procedure
- Maximum insensitivity to ambient light
- Accurate measurement results on all surfaces (also glossy, textured...)

Business sectors:
- Conveyor and storage systems
- Packaging technology
- Wood working industry

Phase measurement

Distance measurement procedure, which determines the distance of an object by the shift of the phase angle of the light reflected from the object.

Products:
ODSL 30

Benefits:
- Large operating ranges
- Operating range up to 30 m on black surfaces
- Maximum accuracy through integrated sensor referencing

Business sectors:
- Conveyor and storage systems
- Automotive industry
- Wood working industry

Triangulation	**ODSL 8**		20 – 500 mm	Resolution 0.03 / 0.1 mm	
	ODSL 9		50 – 650 mm	Resolution 0.01 / 0.1 mm	
	ODS 96B **ODSL 96B**		60 – 2,000 mm	Resolution 0.1 / 1 mm	
TOF	**ODSL 96B** **ODSIL 96B** **ODKL 96B**		300 – 25,000 mm	Resolution 3 mm	
Phase	**ODSL 30**		200 – 65,000 mm	Resolution 1 mm	

State-of-the-art **connectivity**.

Analog interfaces: current / voltage

The industrial, standard design for distance sensors. Distance sensors from Leuze electronic are characterized by highly accurate digital-analog conversion. The analog interface is comfortably configured via a display, PC or by teach-in.

Digital interfaces

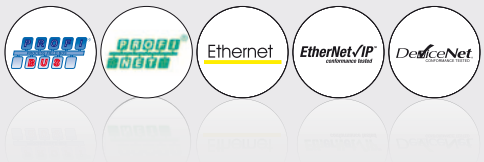
Experts agree – the future belongs to digital interfaces. Digital interfaces prevent conversion losses in the sensor, in the control and during measurement data transfer. Distance sensors from Leuze electronic demonstrate their true potential for precision with digital interfaces.

RS 232 / 485

Serial interfaces have long been established for operation on controls and PCs. The RS485 interface facilitates address assignment and, thus, operation of up to 15 distance sensors on one interface.

IO-Link

IO-Link is the most economical solution for digital measurement data transfer and the PLC configuration of optical distance sensors. Through the use of conventional, 3-pin, M12-cables, wiring work is kept to a minimum. Commissioning for the user is about as easy as with an analog interface.



Fieldbus and Ethernet with modular interfacing units

ODSL 9, ODSL 96B, ODKL 96B or ODSL 30 with RS232 are connected to MA 2xx*i* gateways with M12 connection technology. Gateways from the MA 2xx*i* family are modular interfacing units that facilitate simple and convenient access to Ethernet, EtherNet-IP and DeviceNet as well as PROFIBUS and PROFINET networks.

Optical distance sensors with **triangulation principle**.

Laser light spot

Laser light spot

Focused

ODSL 8 with small light spot

Measurement range:	25 – 45 mm / 20 – 200 mm
Light spot dimensions:	1 × 1 mm
Resolution:	0.03 / 0.1 mm
Measurement time:	2 – 7 ms
Operation:	Rotary switch for teach-in
Output:	Analog current / voltage

- For position and height measurement of small components or objects
- Robust design in metal housing
- Fast commissioning by means of teach-in

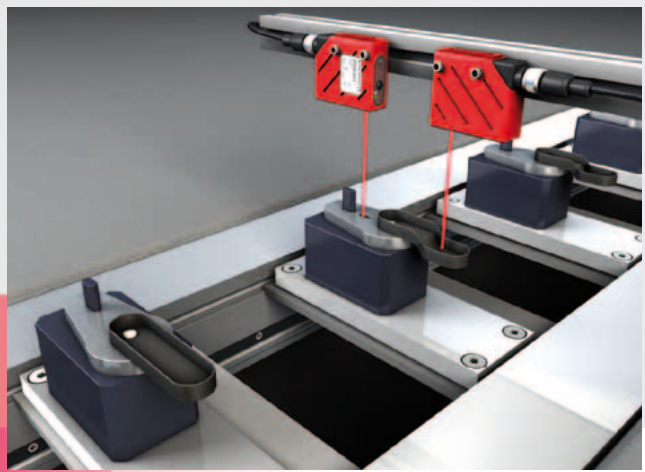
Robust

ODSL 8 with large light spot

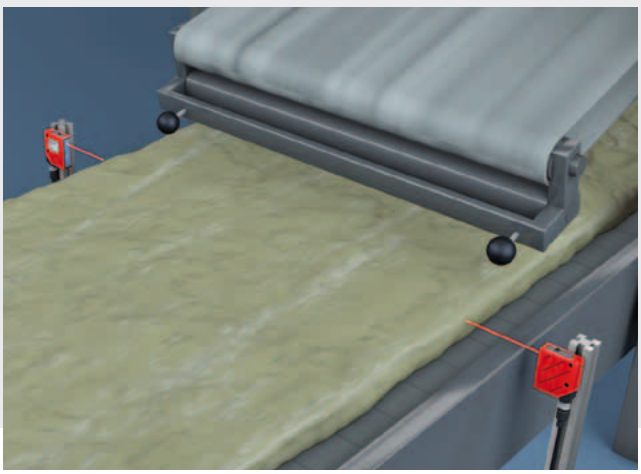
Measurement range:	20 – 500 mm
Light spot dimensions:	1 × 6 mm
Resolution:	0.1 mm
Measurement time:	2 – 7 ms
Operation:	Rotary switch for teach-in
Output:	Analog current / voltage

- For measuring larger objects
- Large temperature range: -40°C to +50°C
- Robust: IP67, IP69K

Variant monitoring



Width measurement of dough



Laser light spot

Laser light spot

Precise

ODSL 9 high resolution

Measurement range:	50 – 100 mm
Light spot dimensions:	1 × 1 mm
Resolution:	0.01 mm
Measurement time:	2 ms
Operation:	Display, PC, IO-Link
Output:	Analog current / voltage, IO-Link, RS232 / 485

- For quality control on assembly lines
- Contour measurement of moving objects

Fast

ODSL 9

Measurement range:	50 – 650 mm
Light spot dimensions:	1 × 1 mm
Resolution:	0.1 mm
Measurement time:	2 ms
Operation:	Display, PC, IO-Link
Output:	Analog current / voltage, IO-Link, RS232 / 485

- For positioning actuators and robots
- Height and width measurement and diameter determination

Assembly inspection

Width measurement of timber

Optical distance sensors with **triangulation principle**.

Laser light spot

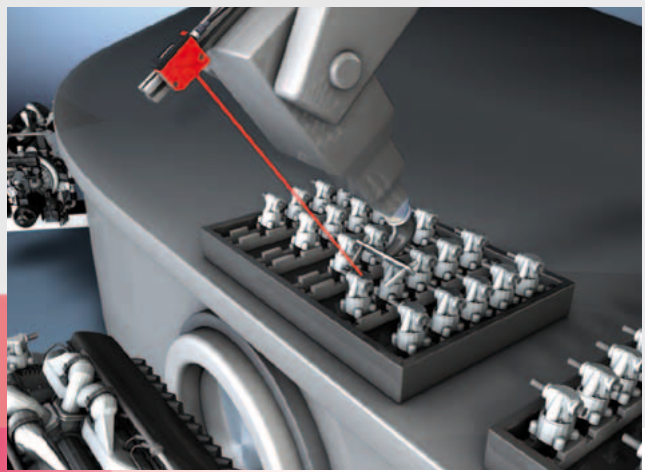
Ideal for glossy and structured surfaces

ODSL 96B "S"

Measurement range:	150 – 800 mm
Light spot dimensions:	1 × 1 mm
Resolution:	0.1 mm
Measurement time:	1 – 5 ms
Operation:	Display, PC
Output:	Analog current / voltage, RS232/485

- Small laser light spot for precise measurements on small objects, objects with colored structure or on metallic surfaces

Robot arm positioning



Laser light spot

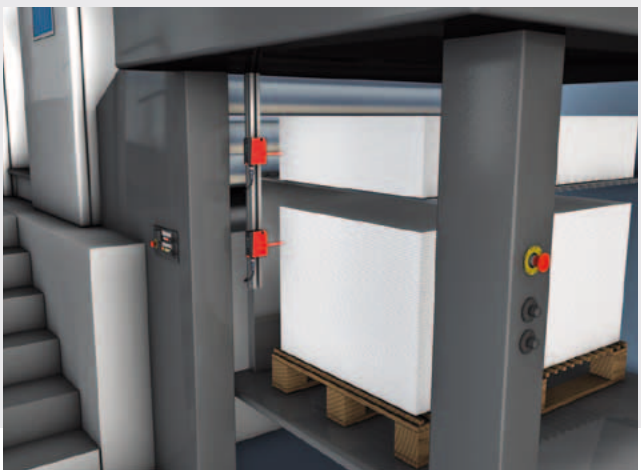
Ideal for objects with openings

ODSL 96B "XL"

Measurement range:	150 – 1,200 mm
Light spot dimensions:	15 × 4 mm (for 800 mm)
Resolution:	0.1 mm
Measurement time:	1 – 5 ms
Resolution:	0.1 mm
Operation:	Display, PC
Output:	Analog current / voltage

- Elongated light spot for precise measurements on porous objects and objects with openings (e.g. corrugated cardboard) as well as on objects that are not aligned precisely

Lateral stack positioning



LED light spot

Laser light spot

Robust

ODS 96B with LED

(available as either infrared or red-light device)

Measurement range:	100 – 1,400 mm
Light spot dimensions:	15 × 15 mm
Resolution:	0.1 mm
Measurement time:	1 – 5 ms
Operation:	Display, PC
Output:	Analog current / voltage

- For measurements on objects with large surface area, e.g. bulk material, band materials, plate materials
- brightVision®, very bright light spot with red-light LED, indicator diodes visible from all sides

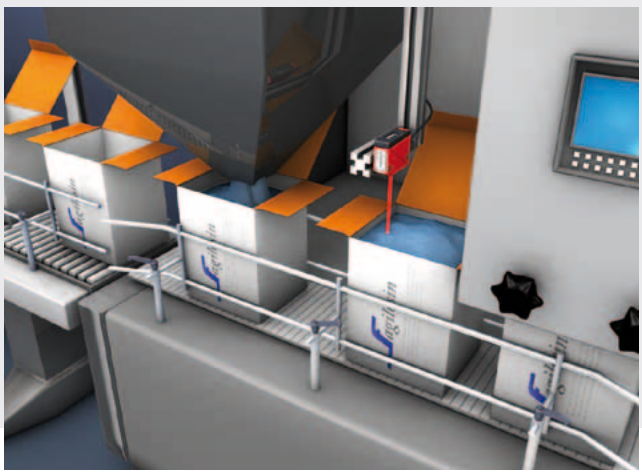
Universal

ODSL 96B

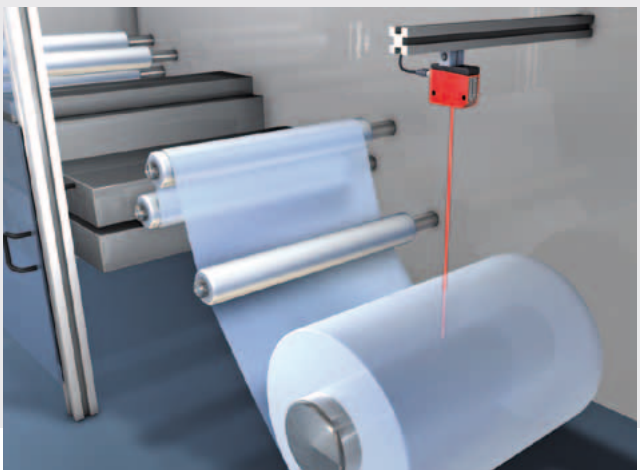
Measurement range:	60 – 2,000 mm
Light spot dimensions:	2 × 6 mm
Resolution:	1 mm
Measurement time:	1 – 5 ms
Operation:	Display, PC, IO-Link
Output:	Analog current / voltage, IO-Link, RS232 / 485

- For measurements in ms cycle at large operating ranges
- Stable, precise measurement values, even with varying temperatures and object variations

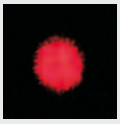
Filling level measurement



Diameter detection



Optical distance sensors with **time of flight principle (TOF) / pulse propagation time measurement.**



Laser light spot

Infrared laser spot

For measurements on objects up to 10 m

ODSL 96B

Measurement range:	300 – 10,000 mm
Light spot dimensions:	7 × 7 mm
Resolution:	3 mm
Measurement time adjustable:	1.4 – 50 ms
Operation:	Display, PC, IO-Link
Output:	Analog current / voltage, IO-Link, RS232 / 485

- Large operating range even with dark objects
- Operating modes for fast or precise measurements

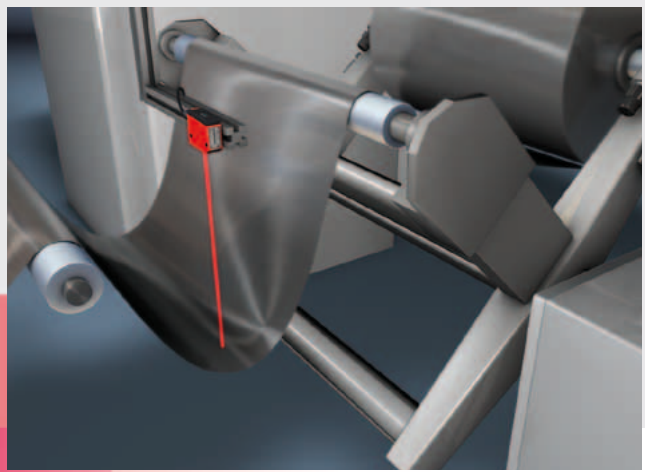
Without visible laser beam

ODSIL 96B

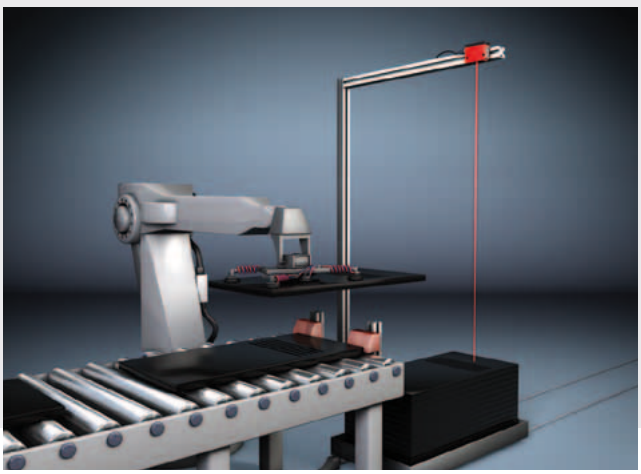
Measurement range:	300 – 10,000 mm
Light spot dimensions:	7 × 7 mm
Resolution:	3 mm
Measurement time adjustable:	2.8 – 100 ms
Operation:	Display, PC
Output:	Analog current / voltage

- Infrared laser with improved measurement behavior on dark objects
- Invisible measurement beam, no influence by people
- Integrated red light laser alignment aid

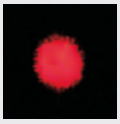
Sag control of band materials



Stack height measurement



Optical distance sensors with **phase measurement**.



Laser light spot

Laser light spot

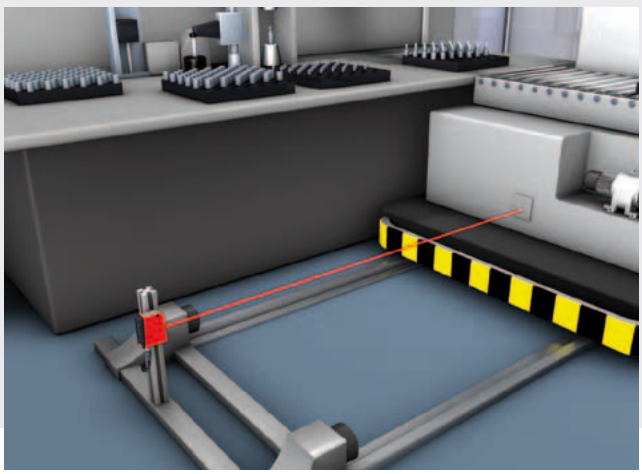
Measurements on reflective tape, up to 25 m

ODKL 96B

Measurement range:	300 – 25,000 mm
Light spot dimensions:	7 × 7 mm
Resolution:	3 mm
Measurement time adjustable:	1.4 – 50 ms
Operation:	Display, PC, IO-Link
Output:	Analog current / voltage, IO-Link, RS232 / 485

- Fast and simple alignment with highly visible laser light spot
- Large operating range in compact construction

Positioning of side-tracking skates



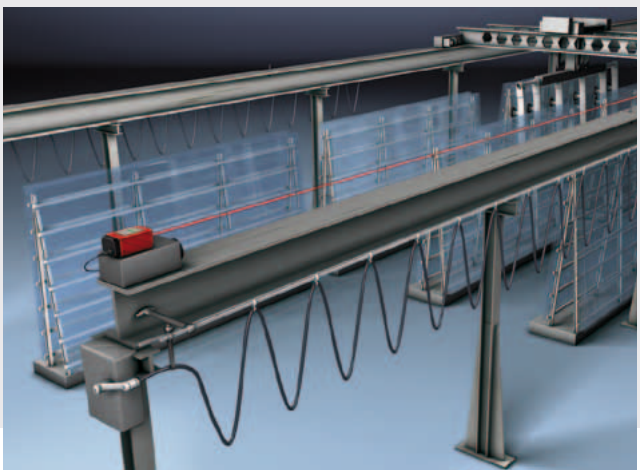
Far and highly accurate

ODSL 30

Measurement range:	200 – 65,000 mm
Light spot dimensions:	6 × 6 mm
Resolution:	1 mm
Measurement time adjustable:	30 – 100 ms
Operation:	Display
Output:	Analog current / voltage, RS232/485

- Operating range of up to 30 m on black surfaces, up to 65 m for light objects
- Integrated sensor referencing enables highly accurate measurement (+/-2 mm) over long distances

Crane positioning



Optoelectronic Sensors

Cubic Series
Cylindrical Sensors, Mini Sensors, Fiber Optic Sensors
Measuring Sensors
Special Sensors
Light Curtains
Forked Sensors
Double Sheet Monitoring, Splice Detection
Inductive Switches
Accessories

Identification Systems
Data Transmission Systems
Distance Measurement

Bar Code Readers
RF-IDent-Systems
Modular Interfacing Units
Industrial Image Processing Systems
Optical Data Transmission Systems
Optical Distance Measurement/Positioning
Mobile Code Readers

Safety Sensors
Safety Systems
Safety Services

Safety Laser Scanners
Safety Light Curtains
Transceivers and Multiple Light Beam Safety Devices
Single Light Beam Safety Devices
AS-i-Safety Product Range
Safety Sensor Technology for PROFIBUS DP
Safety Switches, Safety Locking Devices, Safety Command Devices
Safety Relays
Sensor Accessories and Signal Devices
Safety Engineering Software
Machine Safety Services

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