



OLV

THE NEW DIMENSION IN NON-CONTACT LENGTH
AND SPEED MEASUREMENT

Linear Measurement Sensors

SICK
Sensor Intelligence.

INNOVATIVE MEASURING TECHNOLOGY AGAINST WASTE



Tactile measuring wheels, measuring rollers or tachometers often cause measuring errors and damage to measured objects due to slippage, vibrations, contamination and wear. The compact OLV range of linear measurement sensors from SICK offer an accurate, user-friendly and durable solution for such systems.

These non-contact, material-independent sensors, which are based on the laser-Doppler principle, offer a typical measurement accuracy of $\pm 0.05\%$. The OLV sensors are lightweight, maintenance-free, permanently calibrated and measure practically any surface or color without parameter reconfiguration.

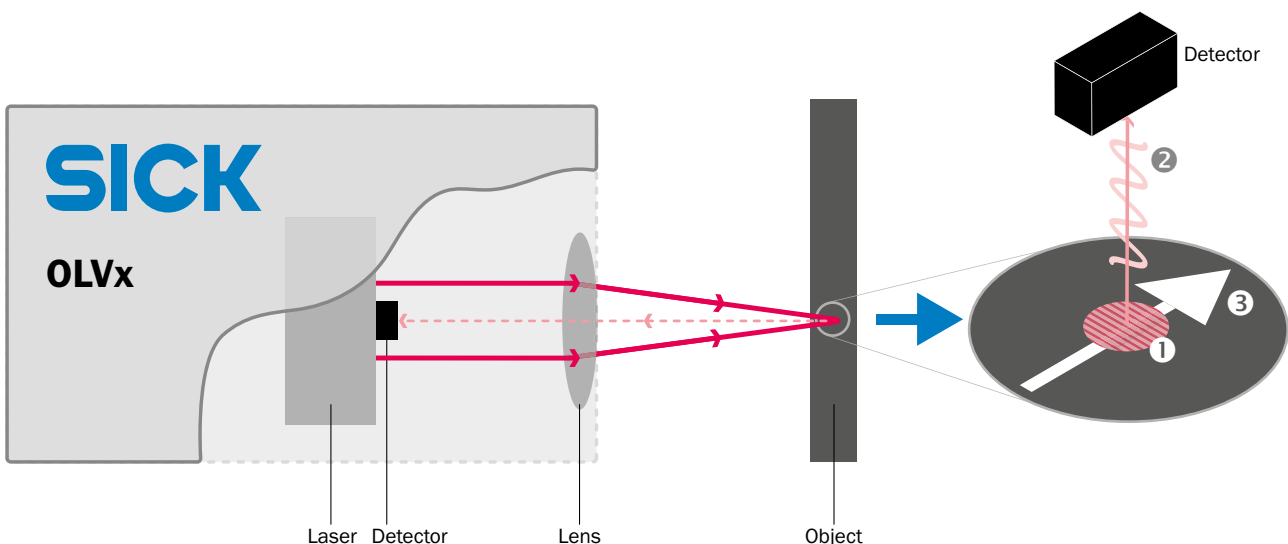
Technology and principle of operation

The principle of operation is based on laser-Doppler technology.

A striped pattern is generated on the measured object by two laser beams (laser class 3B) ①. The backscattered light picked up by the detector ② is modulated in intensity by the movement of the object surface ③.

The frequency of the intensity modulation corresponds to the laser-Doppler frequency and is proportional to the speed of the object.

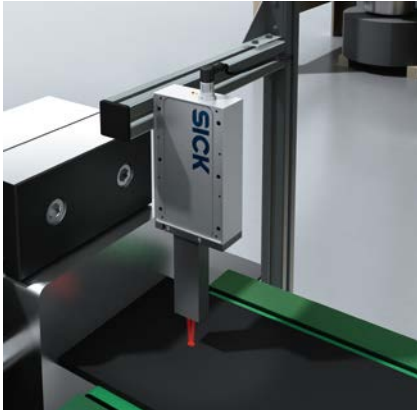
The use of special markers or scales on the measured object is not necessary. The scattered light is subsequently converted into an electrical signal by means of a light sensor. This signal is then fed via an analog/digital converter to a digital signal processor (DSP), which calculates the current speed and length based on the digital signal.



Fields of application and industries

The OLV sensor product family is designed for non-contact speed monitoring and control in production processes. They are especially useful for length measurement as well as cutting and shearing control for endless products.

Tire and rubber industry



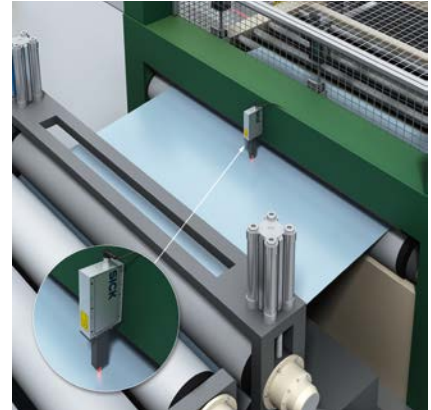
The OLV product family can be used for velocity synchronization tasks, among other things, due to its accurate speed and length measurement. This makes it possible to achieve consistent material quality (e.g. profile thickness) and realize cutting process control systems for tire production machinery (extruders).

Steel industry



The OLV sensor product family offers reliable speed measurement for manufacturing products such as steel rods, sheet steel, wire or pipes – even on hot material surfaces up to 1,100 °C.

Printing and paper industry



Length measurement (for example, for incoming goods and pre-delivery inspection) and velocity and differential speed measurement (two sensors) belong to the OLV product family's scope of application as well as slip detection and control of cutting and pressing processes.

OLV – your benefits in overview

High material independence due to non-contact measurement

Material reduction through slip-free velocity and cutting control

Reduced costs through maintenance-free non-contact measurement

Reduced material costs through delivery of correct material lengths

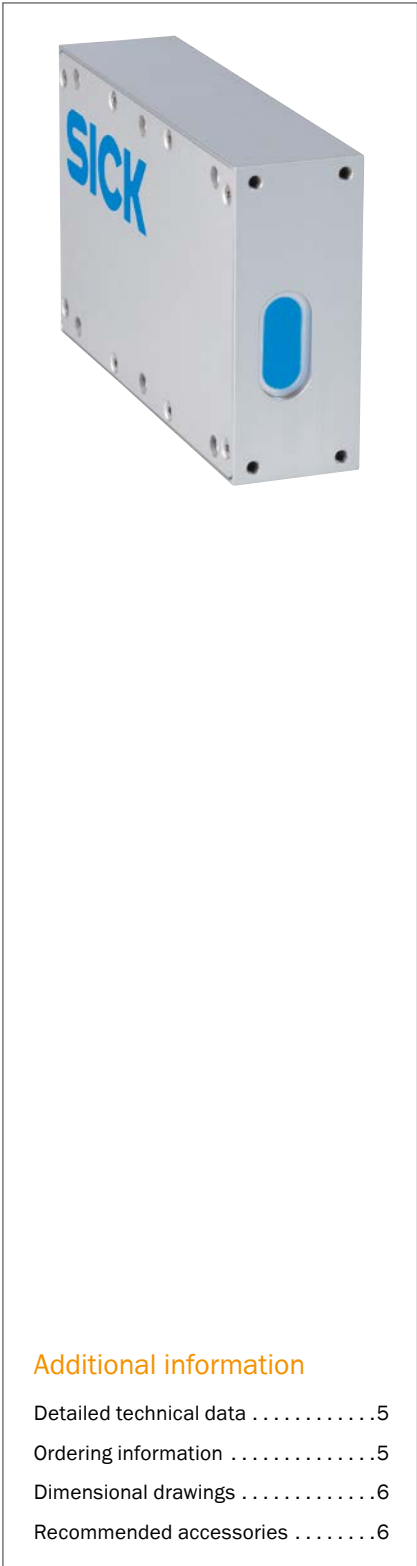
Easy implementation into wide range of applications due to its compact design

Flexible in use through material-independent, non-contact measurement

Process optimization with the help of a permanently calibrated system

Saves time due to easy installation and operation

THE NEW DIMENSION IN NON-CONTACT LENGTH AND SPEED MEASUREMENT



Product description

Tactile measuring wheels, measuring rollers or tachometers often cause measuring errors and damage to measured objects due to slippage, vibration, contamination and wear. The compact OLV range of linear measurement sensors from SICK offers an accurate, user-friendly and durable solution for such systems. Your decisive advantage: they provide a non-contact,

material-independent measurement. These non-contact, material-independent sensors, which are based on the laser-Doppler principle, deliver a typical measurement accuracy of $\pm 0.05\%$. The OLV sensors are lightweight, maintenance-free, permanently calibrated and measure practically any surface or color without parameter reconfiguration.

At a glance

- Non-contact, material-independent length and speed measurement
- Permanently calibrated, maintenance-free measuring system
- Measurement accuracy of up to $\pm 0.05\%$ (depends on total measuring length)
- Sensing range: 120 mm (optional 240 mm)
- Compact dimensions: 167 mm x 94 mm x 39 mm (l x w x h)
- Rugged aluminum housing
- Weight: approx. 1 kg
- Quick configuration and plug and play commissioning

Your benefits

- Non-contact measurement ensures high level of repeatability
- Process and quality optimization thanks to precise speed and material detection
- Significant reduction in material costs due to non-slip cutting control
- High degree of flexibility thanks to material-independent measurement
- Cost-effective solutions with an attractive price-performance ratio
- User-friendly process integration using configurable multifunctional interface
- Easy replacement of existing mechanical systems
- The maintenance-free, non-contact measuring system significantly reduces maintenance costs

Additional information

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→ www.mysick.com/en/OLV

For more information, just enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.



Detailed technical data

Performance

Accuracy ¹⁾	± 0.05 %
Light source	Laser (780 nm) ²⁾
Laser protection class	3B

¹⁾ Accuracy of measurement: at lengths from 5 m: 1σ, from 10 m: 2σ, from 20 m: 3σ.

²⁾ Laser output type < 15 mW, in single fault case maximum 40 mW.

Interfaces

Laser-OFF input	Laser-off
Data interface	3 x 5 V, TTL freely configurable ¹⁾
Configuration interface	RS-232

¹⁾ Possible configuration: quadrature output (A/B), RS-422, RS-485, digital inputs and outputs.

Mechanics/electronics

Supply voltage V_s ¹⁾	DC 18 V ... 30 V
Housing material	Aluminium
Weight	Approx. 1 kg

¹⁾ Limit values, reverse polarity protected.

Ambient data

Enclosure rating	IP 67 (DIN EN 60529)
Ambient temperature ¹⁾	Operation: +10 °C ... +45 °C Storage: -25 °C ... +75 °C

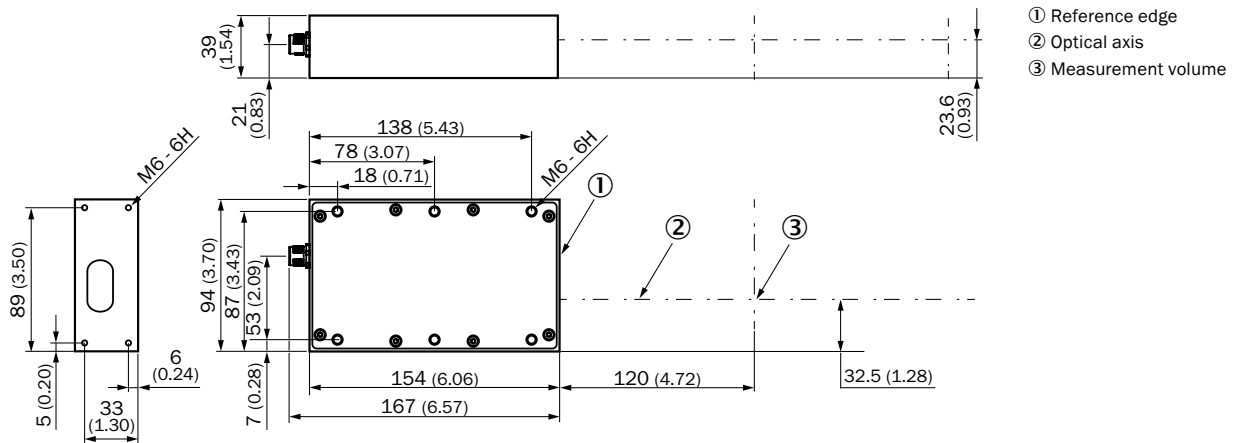
Maximum 95 % humidity, non-condensing.

Ordering information

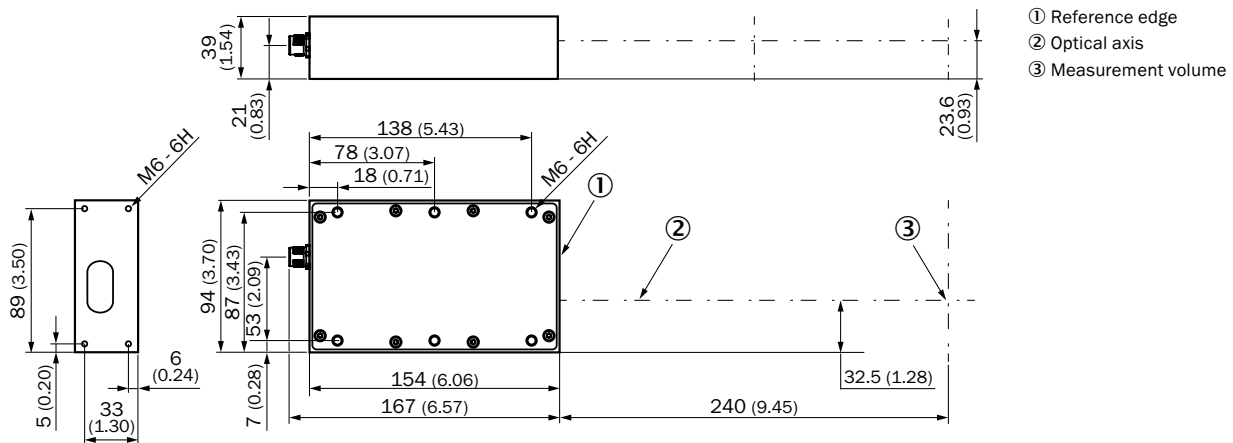
Operating distance	Object speed	Type	Part no.
120 mm ± 5 mm	1.5 m/min ... 2,400 m/min	OLV40-11134	6049093
240 mm ± 10 mm	3 m/min ... 4,800 m/min	OLV80-11234	6049092

Dimensional drawings (Dimensions in mm (inch))

OLV40x



OLV80x



Recommended accessories

Plug connectors and cables

Figure	Description	Length of cable	Type	Part no.
	Connection cable: connector M12, 12-pin, angled; Plug: Sub D, 15-pin, shielded. PUR or PVC	10 m	DSL-2D15-W10MACS01	6048589

Modules and gateways

Figure	Description	Type	Part no.
	Interface unit for electrical integration of the OLV	SBX-OLV	6048590

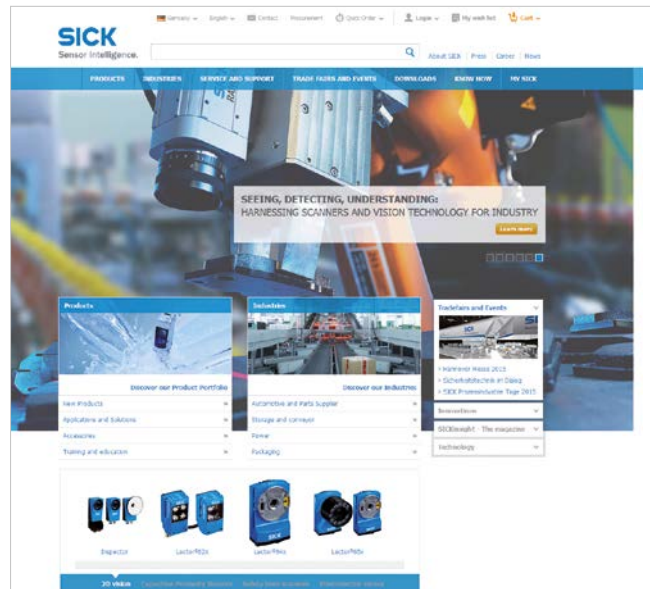
Mounting systems

Figure	Description	Type	Part no.
	Water cooling plates with heat protection optic	BEF-KP-OLV	5327434
	Laser protection tube, length: 110 mm	TB110-OLV	5327435

Additional accessories as well as connection and mounting systems available on request.

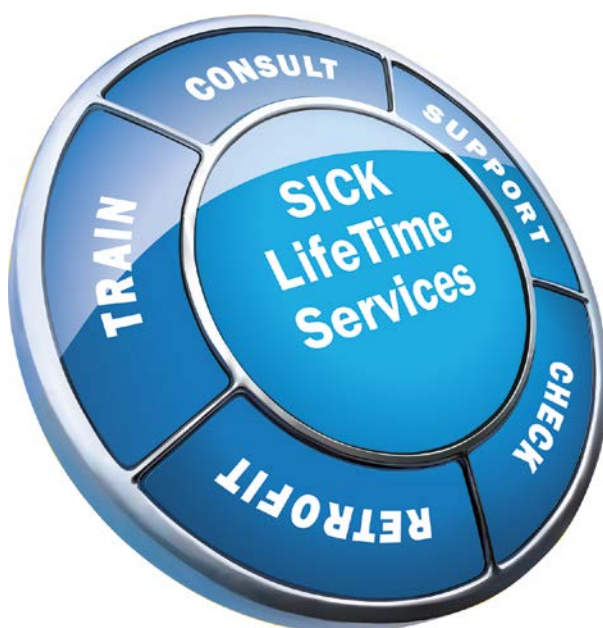
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Training and education
 Practical, focused and professional

SICK AT A GLANCE

SICK is a leading manufacturer of intelligent sensors and sensor solutions for industrial applications. With almost 7,000 employees and over 50 subsidiaries and equity investments as well as numerous representative offices worldwide, we are always close to our customers. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in various industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services round out our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is “Sensor Intelligence.”

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Detailed addresses and additional representatives → www.sick.com