Product family overview

SPEETEC 1D

Captures motion. Without contact.

LASER SURFACE MOTION SENSORS

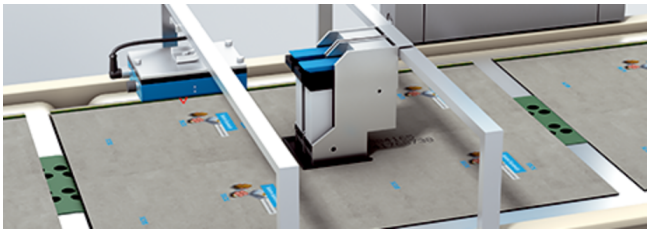
SICK
Sensor Intelligence.

Advantages

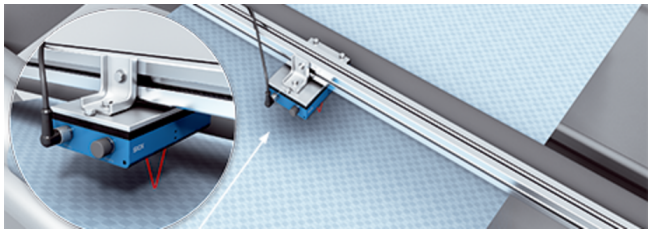
Opening up new fields of application in motion monitoring

SPEETEC 1D shows what's possible. Using the laser Doppler process, the sensor measures the length, speed and position of piece goods as well as endless materials quickly and precisely. Since it measures without making contact, it enables new applications in automation: Where direct measurements on sensitive or soft surfaces used to be avoided because tactile sensors damage them, it can now perform non-contact motion data recording with the SPEETEC. Thanks to the compact dimensions and standardized TTL or HTL interface, it is also easy to integrate into new or existing plant and can be put into operation quickly.

No measurement errors due to slip. Short response times and very high measurement accuracy in the first few centimeters: With its optical measurement principle, the SPEETEC is setting new standards in speed measurement in dynamic and clocked processes.



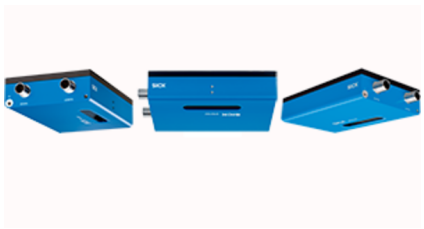
High measurement accuracy in start-stop operation and with short measurement lengths.



Slip-free measurements in dynamic processes increase the process quality and productivity of the plants.

Smart design

The long laser window and the rounded edges indicate the direction of movement.



High-quality plug connectors meet minimalistic and functional design.

DESIGN AWARD 2020

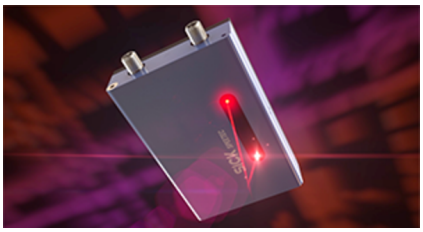
The clear and elegant design of the SPEETEC was presented the iF Design Award 2020.

Increases the measurement horizon: SPEETEC closes the gap between tactile measuring wheel systems and complex laser Doppler sensors – and is suitable for almost all surfaces and objects thanks to the non-contact measurement.

More convenient handling – safety with laser class 1 from the factory

The SPEETEC is much more economic than other laser speed sensors: Thanks to laser class 1, no protective measures such as housing, eye protection and safety areas are required for integration of the device, and no specially trained staff is needed. Installation work is minimal: Simply mount and go. The laser Doppler process of the infrared laser delivers exact speed values of up to 10 m/s with very high repeatability. Whether endless materials or piece goods – the high resolution of the laser enables a maximum resolution of 4 µm and, on a path of one meter, the sensor measures material lengths down to the last millimeter. It therefore offers maximum reliability for countless applications.

Practical technology



The infrared laser measures with a wavelength of 850 nm outside visible light.

Thanks to laser class 1, damage caused by laser beams is ruled out – even with direct eye contact.

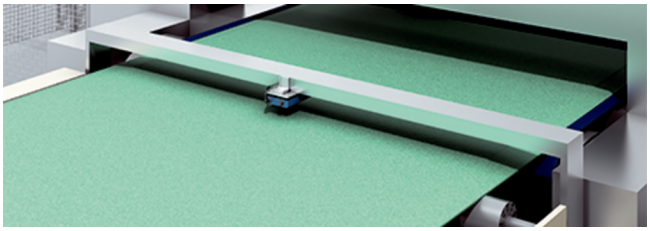
The optical sensor of the SPEETEC is insensitive to ambient light and always delivers reliable measured values.

High-precision, reliability and very simple use: The SPEETEC makes laser class 1 the new standard for non-contact speed measurement.

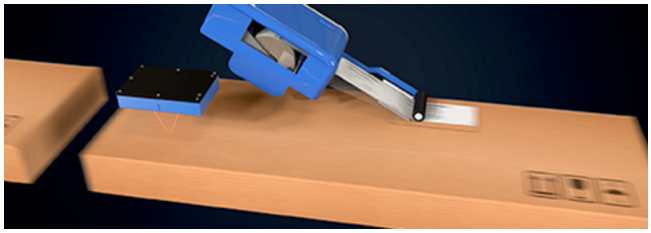
Gentle and economic measurement of sensitive surfaces

The measurement system is specially suited for the measurement of particularly sensitive materials. Surfaces which get dented or damaged or undergo material changes due to the contact pressure of conventional measuring wheel systems can now be measured simply and reliably. The laser-based technology also prevents contamination on the material surface to be measured. In addition to movements of endless materials, the SPEETEC also precisely detects movements of piece goods without a problem. In addition, the laser is wear-free, ensuring more process reliability with minimal maintenance costs.

Smooth speed measurement: The SPEETEC enables exact non-contact movement measurement on very soft and sensitive surfaces, and with minimal maintenance effort.

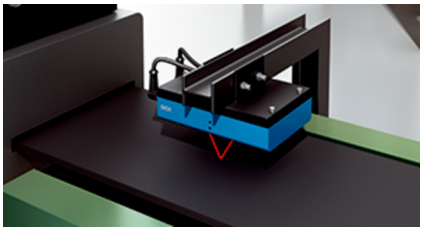


With precise length values of piece goods, the SPEETEC delivers the foundation for automated statistical process control, optimal processes and cost-effective system control.

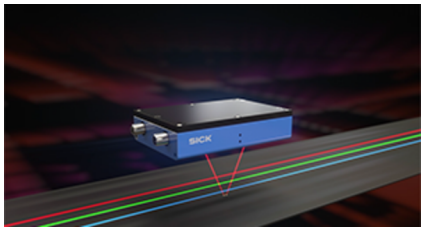


The SPEETEC detects positions on piece goods. As a result, it is possible to process piece goods at the right position.

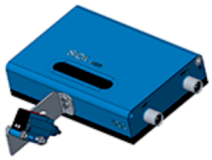
Measurements which are gentle on materials



The optical sensors prevent damage to especially sensitive materials such as thin film, soft rubber or insulating material.



The SPEETEC measures without wear and delivers reliable and exact values after many thousands of hours of use.



Mounting the trigger sensor directly on the housing of the SPEETEC enables exact length measurement of piece goods.

Smooth speed measurement: The SPEETEC enables exact non-contact movement measurement on very soft and sensitive surfaces, and with minimal maintenance effort.

Product description

The wear-and-tear and maintenance-free SPEETEC 1D laser surface motion sensor detects the movements of object surfaces without contacting them. This detection requires no scale or measuring elements. The laser Doppler effect based technology enables the SPEETEC 1D to measure the speed, length, movement direction and position of objects on almost any surfaces. The non-contact measurement method used by the sensor makes it particularly suitable for applications with soft or sensitive surfaces that would be damaged by tactile measurement. The SPEETEC 1D is also ideal for encoder applications with fast and dynamic processes that are unsuitable for encoders. The sensor can be monitored and logic functions configured via an interface.

At a glance

- Non-contact measurement of speed, length and position without measuring elements
- Compatible with many materials, colors and surfaces
- Very high measurement accuracy and repeatability
- Laser class 1
- Rugged design, compact dimensions, low weight
- TTL or HTL interface
- Diagnostics and parameterization function.

Your benefits

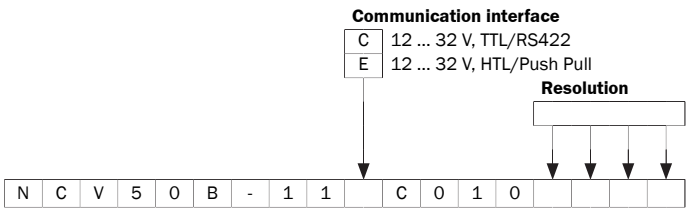
- Opens up new possibilities for measuring sensitive, soft or smooth objects
- Optical sensors avoid damage to, and contamination of the surfaces being measured and ensure a high product quality
- Slip-free measurement increases the measurement accuracy thereby optimizing productivity and process quality
- Thanks to the use of class 1 lasers, no expensive laser protection measures and no specially trained personnel are required
- High measurement accuracy, including in start-stop operation and at short measurement lengths
- Configuration interface allows application and sensor diagnostics as well as parameterization
- Easy to retrofit, wear and maintenance free

Fields of application

- Consumer goods industry, e.g., packaging, digital printing
- Mechanical engineering, e.g., extrusion, metal processing, surface treatment
- Tire manufacturing, e.g., tire building
- Construction materials industry, e.g., insulating materials, dry construction
- Quality control
- Cutting processes

Type code

Other models and accessories ➜ www.sick.com/SPEETEC_1D



Available resolutions

Designation in the type code	Resolution/Measurement step (90° electrical)	Resolution/Measurement step (360° electrical)
0004	4 µm	16 µm
0020	20 µm	80 µm
0100	100 µm	400 µm
0200	200 µm	800 µm
1000	1000 µm	4000 µm

Permissible lengths of cable

Speed (m/s)	Resolution/Measurement step (90° electrical)	Frequency	Permissible lengths of cable for TTL	Permissible lengths of cable for HTL
0.1	4 µm	6.25 kHz	350 m	100 m
1	4 µm	62.5 kHz	350 m	20 m
4	4 µm	250 kHz	350 m	5 m
5	4 µm	312.5 kHz	250 m	2 m
10	4 µm	625 kHz	250 m	–
For four-fold evaluation, differential, the frequency is calculated as follows:				
Frequency = (speed/resolution) / 4				
Example:				
(5.0 m/s / 4 µm) / 4 = 312.5 kHz				

Ordering information

Other models and accessories ➜ www.sick.com/SPEETEC_1D

SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. 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 a wide range of 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 complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is “Sensor Intelligence.”

WORLDWIDE PRESENCE:

Contacts and other locations –www.sick.com