More Precision.

thicknessGAUGE // Sensor system for inline thickness measurements
Thickness measurement with high precision

Thickness measurement principle

The principle of dimensional, geometric thickness measurement is based on one optical distance sensor on each side of the material. The distance (= operating range) of both sensors is determined in a calibration process based on a measurement standard certified by DAkkS (German Accreditation Body) of which the thickness is added to the sum of the sensor signals in order to determine the current operating range.

Available options

• Selectable cable lengths
• Customized axis length
• Encoder
• Interface for fieldbus connection
• Digital inputs/outputs

Compact complete solution for precise inline thickness measurements up to 25 mm

For many types of surfaces / materials due to different sensor technologies

Traversing sensors on linear axis

Fully automatic calibration

24 V supply for the entire system

Integrated software

For many types of surfaces / materials due to different sensor technologies

Traversing sensors on linear axis

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Integrated software
The new class for inline thickness measurements

ThicknnessGAUGE sensor systems are used in industrial environments for precise thickness measurements of strip and plate materials. A linear unit with electromechanical drive enables thickness measurements in traversing mode. Alternatively, fixed track measurements are possible for center-line measurements (center thickness) or for thickness measurements on the edges.

These compact systems are comprised of an integrated linear unit including motor control, a compact bus terminal box, an automatic calibration unit as well as a multi-touch PC with pre-installed software. The entire system is powered via a 24 V source.

100% quality control during production

The thicknessGAUGE sensor systems are used in strip processes and plate production in order to measure the thickness continuously at individual measuring points. These systems are designed in such a way that they can be used as both initial equipment and for retrofitting of existing facilities. Based on high precision and equipped with intelligent sensor technology, these sensor systems are used in various industries.

Metal production
Thicknness measurement of metal film, metal strips and metal plates

Energy industry
Thicknness measurement of fuel cells and battery film (coated and uncoated)

Material engineering
Thicknness measurement of film, plastic plates, woven materials, wood and ceramics
Models

**thicknessGAUGE C.L**
Sensor technology used: Laser triangulation displacement sensors
- Measuring range (thickness): 10 / 25 mm
- Accuracy: ±2 / ±5 µm
- Measuring rate: up to 4 kHz
Reasonably priced sensor system for common surfaces from plastics to metals
Compact design meets high performance & excellent price/performance ratio

**thicknessGAUGE C.C**
Sensor technology used: Confocal chromatic displacement sensors
- Measuring range (thickness): 2 mm
- Accuracy: ±0.4 µm
- Measuring rate: up to 5 kHz
Ideal for high resolution measurements of highly reflective and shiny surfaces
Also for transparent and semi-transparent film

**thicknessGAUGE C.LP**
Sensor technology used: Blue Laser profile sensors
- Measuring range (thickness): 8 mm
- Accuracy: ±0.75 µm
- Measuring rate: up to 100 Hz
For structured materials, e.g., perforated and embossed plates
Best-fit line possible
Compensation for tilted strips

**Powerful analysis and control software**
thicknessGAUGE systems are equipped with a multi-touch capable software package for analysis, presentation and archiving of monitored production data. This software enables different measurement modes such as fixed track thickness measurement at any position, measurement of the thickness profile, measurement of several longitudinal trends, an SPC package and automated verification of the measuring system's capability. It ensures easy and fast verification of the measuring system capability which is individually adjustable.

**Features for documentation and process control**
- Article database
- Production archive
- Statistical evaluations
- Limit value monitoring with return back to production (optional fieldbus interfaces)
- Verification of measuring system capability

**Interfaces**

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EtherNet/IP

PROFINET

OPC UA
### Technical data and dimensions

#### Model | C.L-10/200 | C.L-10/400 | C.L-25/200 | C.L-25/400
--- | --- | --- | --- | ---
**Article no.** | 4350127.800 | 4350127.801 | 4350127.802 | 4350127.803
**Measuring width** | 200 mm | 400 mm | 200 mm | 400 mm
**Operating range** | 46 mm | 71 mm | 20 mm | 25 mm
**Measuring range** | 10 mm | 25 mm | 10 mm | 25 mm
**Max. travel path** | 280 mm as standard, other lengths on request | 480 mm as standard, other lengths on request | 280 mm as standard, other lengths on request | 480 mm as standard, other lengths on request
**Accuracy** | < ±2 µm a) | < ±5 µm b) | < ±2 µm a) | < ±5 µm b)
**Resolution** | 0.7 µm | 3.2 µm | 0.7 µm | 3.2 µm
**Measuring rate** | up to 4 kHz | | | |
**Calibration** | automatic | | | |
**Weight** | approx. 13 kg | approx. 14 kg | approx. 13 kg | approx. 14 kg
  - Axis, drive and C-frame | approx. 13 kg | approx. 14 kg | approx. 13 kg | approx. 14 kg
  - Bus terminal box and panel IPC | approx. 22 kg | | | |
**Dimensions of bus terminal box** | 300 mm x 300 mm x 210 mm | | | |
**Power supply** | 24 V | | | |
**Protection class (DIN EN 60529)** | IP40 | | | |
**Temperature range** | Storage: -5 … +50 °C | | | |
  - Operation: +5 … +45 °C | | | | |

1) 2 sigma; the specified data apply for a diffuse reflecting, metallic measurement standard certified by DAkkS (German Accreditation Body)
2) Thermal drift: ±0.015 % FSO / K

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Dimensions in mm, not to scale.
Drawing of industrial PC see page 8.
### Technical data and dimensions

<table>
<thead>
<tr>
<th>Model</th>
<th>C.C-2/200</th>
<th>C.C-2/400</th>
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<tbody>
<tr>
<td>Article no.</td>
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<tr>
<td>Measuring width</td>
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<tr>
<td>Operating range</td>
<td>32 mm</td>
<td>400 mm</td>
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<td>Measuring range</td>
<td>2 mm</td>
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<tr>
<td>Max. travel path</td>
<td>280 mm as standard, other lengths on request</td>
<td>480 mm as standard, other lengths on request</td>
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<td>Accuracy (^1)</td>
<td>&lt; ±0.4 µm (^2)</td>
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<tr>
<td>Resolution</td>
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<td>Measuring rate</td>
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<td>Calibration</td>
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<tr>
<td>Axis, drive and C-frame</td>
<td>approx. 15 kg</td>
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<td>Bus terminal box and panel IPC</td>
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<td>Dimensions of bus terminal box</td>
<td>300 mm x 400 mm x 210 mm</td>
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<td>Power supply</td>
<td>24 V</td>
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<td>Protection class (DIN EN 60529)</td>
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<td>Temperature range</td>
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<td>Operation: +5 ... +45 °C</td>
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</tbody>
</table>

\(^1\) 2 sigma; the specified data apply for a high-gloss, metallic measurement standard certified by DAkkS (German Accreditation Body)

\(^2\) ±1 µm with one-sided measurement

Dimensions in mm, not to scale.
Drawing of industrial PC see page 8.
<table>
<thead>
<tr>
<th>Model</th>
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<th>C.LP-8/400</th>
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<td>480 mm as standard, other lengths on request</td>
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<tr>
<td>Max. travel path</td>
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<td>480 mm as standard, other lengths on request</td>
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<tr>
<td>Accuracy ¹⁾</td>
<td>&lt; ±0.75 µm</td>
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<tr>
<td>Resolution</td>
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<tr>
<td>Measuring rate</td>
<td>up to 100 Hz</td>
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<td>Calibration</td>
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<td></td>
<td>Control cabinet and panel IPC</td>
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<tr>
<td>Dimensions of bus terminal box</td>
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¹⁾ 2 sigma; the specified data apply for a diffuse reflecting, metallic measurement standard certified by DAkkS (German Accreditation Body)

Dimensions in mm, not to scale. Drawing of industrial PC see page 8.
Industrial PC with touchscreen

Dimensions in mm, not to scale.