More Precision

scanCONTROL // 2D/3D laser scanners (laser profile sensors)
Sensor for series applications
scanCONTROL 25xx laser scanners are designed for industrial measurement tasks. The combination of compact design, versatility and signal stability enables an excellent price/performance ratio, especially for measurement tasks involving large quantities.

COMPACT and SMART performance classes for automation
The COMPACT sensors (scanCONTROL 2500) are integrated in the customer software to transmit the raw profiles. Therefore, numerous libraries including detailed documentation are available. In addition, direct integration into industrial image processing systems is possible since the sensors operate according to the international GigE Vision standard which enables individual integration of the scanners.

The SMART sensors (scanCONTROL 2510) are parameterized via the scanCONTROL Configuration Tools software and deliver direct measurement results without requiring any additional computer or controller. The sensor autonomously executes up to 4 measuring programs in parallel while delivering 4 measurement results per profile.

The scanCONTROL 2510 scanners are suitable for versatile profile measurement tasks. They measure and evaluate angles, steps, gaps, distances, extreme values and many more.

Comprehensive accessories for numerous measurement tasks
With three measuring ranges and comprehensive accessories including protective housings, cable types and interface converters, the scanCONTROL 25xx models are ideal for series integration in production lines and machine building.

<table>
<thead>
<tr>
<th>Article designation</th>
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<tbody>
<tr>
<td>LLT 25 00 -25</td>
</tr>
<tr>
<td>Measuring range</td>
</tr>
<tr>
<td>25 mm</td>
</tr>
<tr>
<td>50 mm</td>
</tr>
<tr>
<td>100 mm</td>
</tr>
<tr>
<td>Class</td>
</tr>
<tr>
<td>00 = COMPACT</td>
</tr>
<tr>
<td>10 = SMART</td>
</tr>
<tr>
<td>Series</td>
</tr>
<tr>
<td>LLT25xx</td>
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No options available for scanCONTROL 25xx.
## Technical Data

### Model

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<tr>
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<tr>
<td>Z-axis Standard measuring range</td>
<td>Start of measuring range</td>
<td>53.5 mm</td>
<td>70 mm</td>
</tr>
<tr>
<td></td>
<td>Mid of measuring range</td>
<td>66 mm</td>
<td>95 mm</td>
</tr>
<tr>
<td></td>
<td>End of measuring range</td>
<td>78.5 mm</td>
<td>120 mm</td>
</tr>
<tr>
<td></td>
<td>Height of measuring range</td>
<td>25 mm</td>
<td>50 mm</td>
</tr>
<tr>
<td></td>
<td>Extended measuring range</td>
<td>Start of measuring range</td>
<td>53 mm</td>
</tr>
<tr>
<td></td>
<td>End of measuring range</td>
<td>79 mm</td>
<td>125 mm</td>
</tr>
<tr>
<td>Linearity 1) (2 sigma)</td>
<td>±0.10 % FSO</td>
<td>±0.10 % FSO</td>
<td>±0.13 % FSO</td>
</tr>
<tr>
<td>Reference resolution 2) 3)</td>
<td>2 µm</td>
<td>4 µm</td>
<td>12 µm</td>
</tr>
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</table>

### X-axis

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<thead>
<tr>
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<tbody>
<tr>
<td>Standard measuring range</td>
<td>Start of measuring range</td>
<td>23.4 mm</td>
<td>42 mm</td>
</tr>
<tr>
<td></td>
<td>Mid of measuring range</td>
<td>25 mm</td>
<td>50 mm</td>
</tr>
<tr>
<td></td>
<td>End of measuring range</td>
<td>29.1 mm</td>
<td>58 mm</td>
</tr>
<tr>
<td>Extended measuring range</td>
<td>Start of measuring range</td>
<td>23.2 mm</td>
<td>40 mm</td>
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<tr>
<td></td>
<td>End of measuring range</td>
<td>29.3 mm</td>
<td>60 mm</td>
</tr>
<tr>
<td>Resolution (x-axis)</td>
<td>640 points/profile</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Profile frequency</td>
<td>up to 300 Hz</td>
<td></td>
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### Interfaces

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<th>Ethernet GigE Vision</th>
<th>Output of measurement values</th>
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<td>Sensor control</td>
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<tr>
<td></td>
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<td>Profile data transmission</td>
</tr>
<tr>
<td>Multi-function port</td>
<td>Digital inputs</td>
<td>Mode switching</td>
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<tr>
<td></td>
<td></td>
<td>Encoder (counter)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Trigger</td>
</tr>
<tr>
<td>RS422 (half-duplex) 4)</td>
<td>Output of measurement values</td>
<td>Sensor control</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Trigger</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Synchronization</td>
</tr>
</tbody>
</table>

### Output of measurement values

- Ethernet (UDP / Modbus TCP), RS422 (ASCII / Modbus RTU) analog 5; switch signal 5;
- PROFINET 6; EtherCAT 6; EtherNet/IP 6

### Display (LED)

- 1x laser ON/OFF, 1x power/error/status

### Light source

- Semiconductor laser 658 nm (red)

### Aperture angle of laser line

- 20°
- 25°
- 25°

### Laser power

- ≤ 8 mW (laser class 2M)
- via software

### Permissible ambient light (fluorescent light) 2)

- 10,000 lx

### Protection class (sensor)

- IP65

### EMC requirements

- according to: EN 61326-1: 2006-10
- DIN EN 55011: 2007-11 (group 1, B class)
- EN 61000-6-2: 2006-03

### Vibration

- 2 g / 20 ... 500 Hz

### Shock

- 15 g / 6 ms

### Operating temperature

- 0 ... +45 °C

### Storage temperature

- -20 ... +70 °C

### Dimensions

- 96 x 85 x 33 mm

### Sensor weight (without cable)

- 380 g

### Supply

- 11 ... 30 VDC, nominal value 24 V, 500 mA, IEEE 802.3af class 2, Power over Ethernet

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1) Measuring range (standard)
2) Measurement object: Micro-Epsilon standard object (metallic, diffusely reflecting material)
3) According to a one-time averaging across the measuring field (640 points)
4) RS422 interface, programmable either as serial interface or as input for triggering/synchronization
5) Only with Output Unit
6) Only with scanCONTROL Gateway
FSO = Full Scale Output
LLT25x0/LLT26x0/29x0-25

Recommended attachment point

Recommended attachment point

MR ext. >= 53
53.5  SMR
66  MMR
78.5  EMR

MR ext. <= 79
89
96

Z

Z

standard range
extended range
Dimensions and measuring range

LLT25x0/LLT26x0/29x0-50

- Recommended attachment point
- Recommended attachment point
- Standard range
- Extended range
- MR ext. >= 65
- 70 SMR
- 95 MMR
- 120 EMR
- MR ext. <= 125
- 89
- 96
- 5.2 x 90°
- 4.1
- +0.1
- 3
- H7
- 71.5
- 75
- 75.5
- 79
- 85.75
- 64.8
- 47.2
- ~19°
- Recommended attachment point
- Recommended attachment point
- Standard range
- Extended range
Sensors and Systems from Micro-Epsilon

Sensors and systems for displacement, distance and position

Sensors and measurement devices for non-contact temperature measurement

Measuring and inspection systems for metal strips, plastics and rubber

Optical micrometers and fiber optics, measuring and test amplifiers

Color recognition sensors, LED analyzers and inline color spectrometers

3D measurement technology for dimensional testing and surface inspection