The sensors from the latest LASE 1000T Black-Line Series are contactless one-dimensional distance meters especially built for the operation in harsh industrial environments.

The LASE 1000T Black-Line Series is typically used for contactless distance, thickness or width measurements - both at short and long standoff positions. The devices produce a visible laser point onto an object while the relative position of this laser point is evaluated by a high resolution CCD line camera. From the position of this point along the CCD line, the distance is computed to the object. Due to this procedure an accuracy of up to 0.001 mm depending on its measuring range can be achieved and the range on natural surfaces amounts to max. 750 mm. The sensors incorporate an automatic regulation of the light intensity and thereby provide unsurpassed measuring characteristics.

The LASE 1000T Sensor Series are compact devices because all optical elements are integrated with the electronic components in a highly durable aluminium housing. The sensors do not contain mobile parts and are appropriate for measurement tasks in heavy industrial environments or where precision demands have to be better than 1 mm, e.g. at thickness measurements or quality control.

Features and Benefits:
- Contactless distance measurement
- Measurement range from 50 mm up to 750 mm
- Highest accuracy in the μm-area
- High measuring rate (up to 2 kHz)
- Interfaces: analog, digital (RS 232 or RS 422) and Ethernet
- Suitable for measurements on nearly all surfaces
- Applicable for target temperatures of up to 450 °C
- Simple installation at each position
- Rugged construction type to IP 65
- Optional cooling/protection housing for hot environments

LASE 1000T Black-Line Series - Extended versions:
- HT-Version for target temperatures of up to 1000 °C
- VHT-Version for target temperatures of up to 1300 °C
- VVHT-Version for target temperatures of up to 2200 °C
- All HT-Versions are available with laser class 3R and 3B

Typical applications
- Measurement length, width, height, level and position of objects
- Positioning of machine parts
- Quality control of paper, steel or aluminum coils
- Slab width and thickness measurement
- Measurement of liquid levels and solid materials
- Measurement and regulation of slack
Technical data

**ENVIRONMENT DATA**

- Temperature range operation: 0°...45° C
- Storage: -20° C...+70° C
- Humidity max. 90% relative humidity

**SCAN AND PROFILE MEASUREMENT**

- Resolution (at short range): 0,01 mm
- Resolution (at long range): 0,02 mm, 0,03 mm, 0,04 mm, 0,09 mm, 0,20 mm, 0,06 mm, 0,15 mm, 0,30 mm
- Temperature deviation (0°...40° C): ± 0,3 mm FS/C°
- Measuring frequency: 2/1 kHz
- Wave length: 650 nm

**INTERFACES**

- Analog: 4-20 mA, 1-9 V
- Digital: RS 232 or RS 422

**ELECTRICAL & MECHANICAL**

- Power supply: 22...36 V DC
- Power consumption: max. 4,5 W
- Protection class: IP 65
- Dimensions: 95 x 120 x 31,5 mm
- Weight: approx. 390 g

**DISTANCE MEASUREMENT**

<table>
<thead>
<tr>
<th>Measuring range</th>
<th>LASE 1000T 205</th>
<th>LASE 1000T 230</th>
<th>LASE 1000T 280</th>
<th>LASE 1000T 330</th>
<th>LASE 1000T 445</th>
<th>LASE 1000T 455</th>
<th>LASE 1000T 510</th>
<th>LASE 1000T 550</th>
<th>LASE 1000T 650</th>
<th>LASE 1000T 775</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full Scale</td>
<td>50 mm</td>
<td>100 mm</td>
<td>200 mm</td>
<td>300 mm</td>
<td>500 mm</td>
<td>100 mm</td>
<td>200 mm</td>
<td>300 mm</td>
<td>500 mm</td>
<td>750 mm</td>
</tr>
<tr>
<td>Normal Scale</td>
<td>180 - 230 mm</td>
<td>180 - 280 mm</td>
<td>180 - 380 mm</td>
<td>180 - 480 mm</td>
<td>200 - 700 mm</td>
<td>400 - 500 mm</td>
<td>400 - 600 mm</td>
<td>400 - 700 mm</td>
<td>400 - 800 mm</td>
<td>400 - 1150 mm</td>
</tr>
<tr>
<td>Center distance</td>
<td>205 mm</td>
<td>230 mm</td>
<td>280 mm</td>
<td>330 mm</td>
<td>450 mm</td>
<td>500 mm</td>
<td>550 mm</td>
<td>650 mm</td>
<td>775 mm</td>
<td></td>
</tr>
<tr>
<td>Spot size</td>
<td>Ø 0,5 mm</td>
<td>Ø 0,6 mm</td>
<td>Ø 0,7 mm</td>
<td>Ø 0,8 mm</td>
<td>Ø 0,5 mm</td>
<td>Ø 0,6 mm</td>
<td>Ø 0,7 mm</td>
<td>Ø 0,8 mm</td>
<td>Ø 1 mm</td>
<td></td>
</tr>
</tbody>
</table>

**Laser safety class**

- IEC 2

**DECLARATIONS:**

- *1) Laser class IEC 3R at HT and VHT sensor series with a frequency of 1 or 2 kHz.
- *2) Resolution, Linearity and Frequency valid for static measurements on white paper.
- *3) Analog output: 14 Bit DAC’s are used for the conversion of the digital distance result (nominal resolution 0,01 mm).
- *4) Analog and digital output are updated at the measuring frequency of 2 kHz (exception at activating Simple Average Filter).

**Scope of delivery:**

- Sensor
- Operating instruction
- Configuration Software

**Options:**

- Type /2: 2 meter cable length
- Type /10: 10 meter cable length
- Type /10HT*: 10 meter cable length (HT indicates high temperature specification cable - Environment temperature max. 260°C)

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