The long-range outdoor laser scanners from the LASE 2000D-13x Series are contactless two-dimensional distance measuring systems especially built for harsh industrial environments and numerous outdoor purposes.

The scanner outputs contour data of the recorded surroundings as constant raw data which incorporates distance and angle values. The 2D profile of the surrounding is scanned by multiple pulsed IR laser beams transmitted via a rotating lens head. The scanners out of the LASE 2000D-13x Series send extremely short light pulses, measure the running time of these pulses to the object calculates the distance as well as determines the angle of the pulses which are sent back. This process is produced with a max. rate of 10 times per second and provides a captured profile of the complete environment, including all surrounding objects. The LASE 2000D-13x Series has a capture range of up to 120 m radius on dark surfaces and up to 250 m on bright surfaces with an 360° field of view.

Features and Benefits:
- Contactless far reaching 2D profile measurement
- Range of up to 120 m on dark natural surfaces
- Range of up to 250 m on natural surfaces
- High accuracy, high resolution and fast measuring rate
- Intelligent onboard PC for parameter value setting
- RS 232/RS 422; Ethernet TCP/IP, CAN BUS interfaces
- Self-test incorporated
- User friendly software
- Simple installation at each position
- Rugged construction type to IP 67
- Outdoor applicable due to integrated heating

With its large measuring range, unrestricted scan angle and high angular resolution the LASE 2000D-13x Series is suitable for a huge variety of industries and applications such as:
- Measurement of dimensions, profiles or levels of objects and environments
- Object positioning
- Container recognition/measurement in ports
- Support of crane open-loop controls by goods detection
- Object protection
- Bulk material measurement at heaps, piles, bunkers or trucks

Typical applications

Updated: 29.08.2014
### Technical data

<table>
<thead>
<tr>
<th>Model</th>
<th>LASE 2000D-138</th>
<th>LASE 2000D-139</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DISTANCE MEASUREMENT</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measurement range (<em>1</em>)</td>
<td>2.5 … &gt; 80 m</td>
<td>5 … &gt; 120 m</td>
</tr>
<tr>
<td>System error</td>
<td>± 38 mm</td>
<td>20 … 98 % reflectivity</td>
</tr>
<tr>
<td>Beam divergency</td>
<td>2.8 mrad</td>
<td>0.18”</td>
</tr>
<tr>
<td>Light source</td>
<td>laser diode with rotating scanner head</td>
<td>0.18”</td>
</tr>
<tr>
<td>Pulse repetition frequency</td>
<td>max. 14/4 kHz</td>
<td>10.8 kHz with mean across 360 °</td>
</tr>
<tr>
<td>Laser safety class</td>
<td>class 1</td>
<td>1,000 kHz</td>
</tr>
<tr>
<td><strong>SCAN AND PROFILE MEASUREMENT</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Usable scan angle</td>
<td>360°</td>
<td>360°</td>
</tr>
<tr>
<td>Angular step width</td>
<td>0.0625° … 1°</td>
<td>choosable</td>
</tr>
<tr>
<td>Scan frequency</td>
<td>5 … 15 Hz ± 5 %</td>
<td>1 Hz steps</td>
</tr>
<tr>
<td><strong>INTERFACES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RS-422</td>
<td>4800, 9600, 19200, 38400, 57600, default, 115200 Baud</td>
<td>data transmission rate</td>
</tr>
<tr>
<td>Data format</td>
<td>8 data bits</td>
<td>1 stop bit, no parity, fixed output format</td>
</tr>
<tr>
<td>Ethernet</td>
<td>100 Mbit/s</td>
<td>TCP/IP</td>
</tr>
<tr>
<td><strong>ELECTRICAL &amp; MECHANICAL</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power connections</td>
<td>1 x 20-pin Harting connection</td>
<td></td>
</tr>
<tr>
<td>Power supply</td>
<td>electronic: DC 24 V ± 15 %</td>
<td>to IEC 364-4-41 [VDE 0100 part 410]</td>
</tr>
<tr>
<td>Supply electronic</td>
<td>switched on: max. 1.5 A</td>
<td>max. 6 V ripple / max. 6 A cyclic</td>
</tr>
<tr>
<td>Protection class</td>
<td>IP 67</td>
<td>to DIN 40 050</td>
</tr>
<tr>
<td>Housing (<strong>3</strong>)</td>
<td>PUR-IHS</td>
<td></td>
</tr>
<tr>
<td>Safety class</td>
<td>class 3</td>
<td></td>
</tr>
<tr>
<td>Shock &amp; Vibration</td>
<td>IEC 68</td>
<td>to part 2-26, 2c</td>
</tr>
<tr>
<td>Weight</td>
<td>approx. 9.1 kg</td>
<td></td>
</tr>
<tr>
<td><strong>ENVIRONMENT DATA</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temperature range</td>
<td>operation: -25°C … +45°C</td>
<td></td>
</tr>
<tr>
<td>Max. relative humidity</td>
<td>5 … 85 %</td>
<td>non-condensing</td>
</tr>
<tr>
<td>Attachment</td>
<td>4 x securing threads M8 x 9 mm</td>
<td></td>
</tr>
</tbody>
</table>

---

**Note:**
- (*) Condition: laser spot completely on the object; kept warming time 30 min
- (**2**) By using without close range blanking
- (**3**) PUR-IHS: Polyurethan integral foam

### Scope of delivery:
- Sensor
- Operating instruction
- Configuration software