LASER SENSORS FOR DIMENSIONAL MEASUREMENT IN INDUSTRY AND CRAFTS
LAP laser sensors measure dimensions without touching the surface. Production processes can be monitored permanently, ensuring quality and reducing rejects. LAP measurement systems are flexible and easy to integrate. Having no contact with the object to be measured, you may also measure soft, sticky, hot or other sensitive surfaces. There will be no wear or tear on the sensor. There will be no traces on the surface.

LAP has more than 30 years of experience and expertise in development, construction and production of complex, customized measuring systems and solutions. We deliver worldwide and commission at your location. Don’t hesitate to contact us!
**MEASURING METHODS**

**LASER-TRIANGULATION**
A laser beam emitted from the sensor creates a visible spot on the surface of the measured object. Depending on the distance, a CCD line scan camera besides the laser “views” this spot under varying angles. Using this angle and the known distance of laser and camera, the Digital Signal Processor computes the distance between the sensor and the measured object.

**SHADOWING METHOD**
One sensor consists of emitter and receiver in separate housings. In the emitter, a laser beam hits a rotating polygon mirror. The deflected beam is converted into a beam that periodically runs through the measuring area, building a virtual light-band. In the receiver, the parallel moving beam is focused on a light-sensitive diode. Any object within the measuring field partially shadows the receiver. The time interval of shadowing precisely determines the dimension of the object.

**LASER LIGHT SECTION METHOD**
The sensor contains a line laser, a CCD camera and electronics for processing the camera signals. The laser projects a straight line perpendicular to the surface to be measured. The camera is fixed at a certain angle to the laser line. Any deformation of the surface causes a deformation of the laser line from the camera’s angle of view. Using the basic calibration as reference, the sensor calculates the dimensional values.
Laser sensors can handle wide fields of classical dimensional measurement – fast and precise. Laser measuring data is available in-process and immediately.

### HIGH PRECISION MEASUREMENT DURING PRODUCTION AND IN QUALITY MANAGEMENT

**LAP LASER-SENSORS AT A GLANCE**

<table>
<thead>
<tr>
<th></th>
<th>ATLAS</th>
<th>POLARIS</th>
<th>ANTARIS</th>
<th>CALIX</th>
<th>MEDIT</th>
<th>OPTARIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measuring Range</td>
<td>10, 40, 100 mm</td>
<td>10 ... 400 mm</td>
<td>500 ... 4000 mm</td>
<td>10 mm, 30 mm</td>
<td>45 ... 230 mm</td>
<td></td>
</tr>
<tr>
<td>Measurement uncertainty</td>
<td>from ± 2 µm</td>
<td>from ± 1 µm</td>
<td>from ± 140 µm</td>
<td>from ± 2.5 µm</td>
<td>from ± 8 µm</td>
<td></td>
</tr>
<tr>
<td>Sampling frequency</td>
<td>up to 4 kHz</td>
<td>4 kHz</td>
<td>4 kHz</td>
<td>4 kHz</td>
<td>up to 2 kHz</td>
<td></td>
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<tr>
<td>Enclosure rating</td>
<td>IP 67</td>
<td>IP 65</td>
<td>IP 65</td>
<td>IP 65</td>
<td>IP 65</td>
<td></td>
</tr>
<tr>
<td>Special features</td>
<td>Small, fast, precise</td>
<td>Highest precision</td>
<td>High-precision for large measuring ranges, also available as ANTARIS SCAN</td>
<td>High-precision thickness measurement, highest stability</td>
<td>For diameters from 0.2 to 2000 mm, detection and simultaneous measurement of up to 10 edges</td>
<td>Customized</td>
</tr>
<tr>
<td>Analog 4 ... 20 mA</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td>RS 485 SynchroNet</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td>Profibus DP (by Interface)</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td>Ethernet (by Interface)</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes*</td>
<td>yes</td>
<td></td>
</tr>
</tbody>
</table>

*Option: internal Ethernet module
ATLAS SERIES

SMALL, PRECISE, VERSATILE:
ATLAS sensors work by the triangulation principle. Single sensors measure displacement, depending on combination and arrangement you may measure thickness, width, height, straightness, flatness, position or you may check for completeness or double layers. The pure digital data processing from CMOS to evaluation software eliminates all sources of errors occurring in analogue measurement. Still an analogue output 4 ... 20 mA is available.

BENEFITS:
- Smallest size
- Maximum accuracy
- Digital from measurement to evaluation
- Fast measurement, up to 4 kHz
- Parametrizable

APPLICATIONS:

Single Sensors:
- Displacement, Distance

Combinations:
- Thickness, Straightness
- Width, Flatness
- Height, Completeness
- Double Layer, Position

Technical Data
- Laser type, wavelength: Diode, 670 nm, red
- Laser power: 1 mW
- Laser class: 2
- Sampling frequency: parametrizable, up to 4 kHz
- Interfaces:
  - Analog 4 ... 20 mA (galv. separated), digital RS485 (optically isolated)
- Power supply: 18 ... 30 VDC, < 250 mA
- Ambient conditions:
  - 0 ... 40 °C, 35 ... 85 % rel. humidity, non-condensing
- Dimensions (L × W × H): 80 mm × 65 mm × 32 mm
- Weight: ca. 250 g
- Enclosure rating: IP 67

MODELS

<table>
<thead>
<tr>
<th>Type</th>
<th>Measuring Range [mm]</th>
<th>Offset [mm]</th>
<th>Repeatability (time)* [µm]</th>
<th>Measurement uncertainty (Accuracy) [µm]%**</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATLAS 10</td>
<td>10</td>
<td>25</td>
<td>± 1</td>
<td>± 2 / 0.02</td>
</tr>
<tr>
<td>ATLAS 40</td>
<td>40</td>
<td>60</td>
<td>± 3</td>
<td>± 6 / 0.015</td>
</tr>
<tr>
<td>ATLAS 100</td>
<td>100</td>
<td>100</td>
<td>± 10</td>
<td>± 15 / 0.015</td>
</tr>
</tbody>
</table>

* derived from DIN 39277, average from 64 single values
** % of measuring range

DRAWING (1:1.5):
POLARIS
SERIES

HIGH-PRECISION, ROBUST, FLEXIBLE:

POLARIS sensors work by the triangulation principle. Single sensors measure displacement, depending on combination and arrangement you may measure thickness, width, height, straightness, flatness, position or you may check for completeness or double layers. Based on a Digital Signal Processor (DSP), the intelligent signal processing controls exposure time of the CCD array and laser power in realtime. Due to this concept, LAP laser sensors measure very precise and very fast – even on surfaces with changing colours and reflectivity.

BENEFITS:
- Highest precision
- Digital from measurement to evaluation
- Fast measurement, up to 4 kHz
- One switching output (option)
- Parametrizable

APPLICATIONS:

Single Sensors:
- Displacement, Distance

Combinations:
- Thickness
- Width
- Height
- Double Layer
- Straightness
- Flatness
- Completeness
- Position

Technical Data

- Laser type, wavelength: Diode, 670 nm, red
- Laser power: 1 mW (optional 3 … 7 mW)
- Laser class: 2 (high power 3R, 3B)
- Sampling frequency: parametrizable, up to 4 kHz
- Interfaces: analog 4 … 20 mA (galv. separated), digital RS485 (optically isolated)
- Power supply: 18 … 30 VDC, < 250 mA
- Ambient conditions: 0 … 40 °C, 35 … 85 % rel. humidity, non-condensing
- Dimensions: 168 mm × 109 mm × 39 mm
- Weight: ca. 1100 g
- Enclosure rating: IP 65

MODELS

<table>
<thead>
<tr>
<th>Type</th>
<th>Measuring Range [mm]</th>
<th>Offset [mm]</th>
<th>Repeatability (time)* [µm]</th>
<th>Measurement uncertainty (Accuracy) [µm]* / %**</th>
</tr>
</thead>
<tbody>
<tr>
<td>POLARIS 10</td>
<td>10</td>
<td>51</td>
<td>± 0,4</td>
<td>± 1 / 0,01</td>
</tr>
<tr>
<td>POLARIS 30</td>
<td>30</td>
<td>100</td>
<td>± 1</td>
<td>± 3 / 0,01</td>
</tr>
<tr>
<td>POLARIS 70</td>
<td>70</td>
<td>150</td>
<td>± 1,5</td>
<td>± 7 / 0,01</td>
</tr>
<tr>
<td>POLARIS 130</td>
<td>130</td>
<td>220</td>
<td>± 3</td>
<td>± 13 / 0,01</td>
</tr>
<tr>
<td>POLARIS 250</td>
<td>250</td>
<td>380</td>
<td>± 7</td>
<td>± 25 / 0,01</td>
</tr>
<tr>
<td>POLARIS 400</td>
<td>400</td>
<td>440</td>
<td>± 10</td>
<td>± 40 / 0,01</td>
</tr>
</tbody>
</table>

* derived from DIN 32877, average from 64 single values
** % of measuring range
ANTARIS SERIES

THE BEST SENSOR BY FAR:

ANTARIS sensors work by the triangulation principle. Single sensors measure displacement, depending on combination and arrangement you may measure thickness, width, height, straightness, flatness or position.

Based on a Digital Signal Processor (DSP), the intelligent signal processing controls exposure time of the CCD array and laser power in real time. Due to this concept, LAP laser sensors measure very precise and very fast – even on surfaces with changing colours and reflectivity.

If large measurement ranges or offsets are needed, ANTARIS is the right match. Besides standard models, you may get customized sensors. There are two special versions: ANTARIS BAND and ANTARIS SCAN. ANTARIS BAND has a short line instead of the measuring spot. ANTARIS SCAN oscillates the triangulation spot over a certain surface area.

BENEFITS:
- Measuring ranges up to 4000 mm
- Measuring range and offset customizable
- Measuring frequency up to 4 kHz
- Also available with line
- Also available as triangulation-line-scanner

APPLICATIONS:

Single Sensors:
- Displacement, Distance, Position

Combinations:
- Thickness
- Width
- Height
- Length
- Diameter
- Straightness
- Flatness
- Position
- Radius
- Center

MODELS

<table>
<thead>
<tr>
<th>Type</th>
<th>Measuring Range [mm]</th>
<th>Offset [mm]</th>
<th>Repeatability (time)* [µm]</th>
<th>Measurement uncertainty (Accuracy) [µm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTARIS S 500</td>
<td>500</td>
<td>620</td>
<td>± 50</td>
<td>± 140 / 0.04</td>
</tr>
<tr>
<td>ANTARIS S 800</td>
<td>800</td>
<td>500</td>
<td>± 100</td>
<td>± 320 / 0.04</td>
</tr>
<tr>
<td>ANTARIS S 1250</td>
<td>1250</td>
<td>750</td>
<td>± 150</td>
<td>± 500 / 0.04</td>
</tr>
<tr>
<td>ANTARIS L 500</td>
<td>500</td>
<td>890</td>
<td>± 70</td>
<td>± 200 / 0.04</td>
</tr>
<tr>
<td>ANTARIS L 1000</td>
<td>1000</td>
<td>1000</td>
<td>± 130</td>
<td>± 400 / 0.04</td>
</tr>
<tr>
<td>ANTARIS L 2000</td>
<td>2000</td>
<td>1300</td>
<td>± 260</td>
<td>± 800 / 0.04</td>
</tr>
<tr>
<td>ANTARIS L 4000</td>
<td>4000</td>
<td>1550</td>
<td>± 520</td>
<td>± 1600 / 0.04</td>
</tr>
</tbody>
</table>

* derived from DIN 32977, average from 64 single values

** % of measuring range

Technical Data
- Laser type, wavelength: Diode, 670 nm, red
- Laser power: 1 mW (optional 3 - 7 mW)
- Laser class: 2 (high power 3R, 3B)
- Sampling frequency: up to 4 kHz
- Interfacing: analog 4 ... 20 mA (galv. separated), digital RS485 (optically isolated)
- Power supply: 18 ... 30 VDC, < 250 mA
- Ambient conditions: 0 ... 40 °C, 35 ... 85 % rel. humidity, non-condensing
- Dimensions (L × W × H): S: 320 mm × 200 mm × 124 mm
  L: 560 mm × 200 mm × 124 mm
- Weight: S: ca. 9.8 kg, L: ca. 13.4 kg
- Enclosure rating: IP 65

ANTARIS S (1:6): DRAWING ANTARIS L (1:6):
**CALIX SERIES**

**DOUBLE-PACK:**
CALIX series is the first family of LAP sensors for differential thickness measurement in one housing. They replace measuring frames, that need time-consuming recalibration and temperature control due to their temperature characteristics.

The alignment of measuring beams is optimised during production at LAP. CALIX sensors don’t need complicated adjustments of opposing sensors in the measurement frame. Errors related to alignment won’t occur. LAP CALIX sensors can easily be integrated into production lines. They reach over the objects to be measured from the side, without the need for O-frames or bridges.

CALIX sensors are offered with two measuring ranges and three throat depths. Measuring depth determines the distance between the edge of the material and the measuring point. LAP also offers traversing systems. For more details, have a look at our CALIX brochure.

**BENEFITS:**
- Factory calibrated thickness measuring system
- Highest precision and stability
- Fast measurement, up to 4 kHz
- Ethernet interface
- Temperature stabilised

**APPLICATIONS:**
- Thickness

**MODELS**

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>CALIX S 10</td>
<td>10</td>
<td>260</td>
<td>300</td>
<td>200</td>
<td>0.2</td>
<td>± 0.35</td>
<td>± 2.5</td>
<td>623 × 164 × 511</td>
<td>ca 20</td>
</tr>
<tr>
<td>CALIX S 30</td>
<td>30</td>
<td>260</td>
<td>300</td>
<td>200</td>
<td>0.5</td>
<td>± 1</td>
<td>± 7.5</td>
<td>623 × 164 × 511</td>
<td>ca 20</td>
</tr>
<tr>
<td>CALIX XL 30</td>
<td>30</td>
<td>1020</td>
<td>1300</td>
<td>200</td>
<td>0.5</td>
<td>± 0.5</td>
<td>± 2</td>
<td>800 × 300 × 1645</td>
<td>ca 230</td>
</tr>
</tbody>
</table>

**Technical Data**
- Laser type, wavelength: Diode, 670 nm, red
- Laser class: 2 (3B)
- Sampling frequency: up to 4 kHz
- Interfaces: Ethernet, RS485
- Power supply: 24 VDC, max 500 mA
- Ambient conditions: 0 … 40 °C, 35 … 85 % rel. humidity, non-condensing
- Enclosure rating: IP 65
APPLICATIONS:

Single Sensors (Sender and Receiver):
- Diameter
- Gap
- Width
- Position (y)

Combinations:
- Large Diameter
- Width
- Ovality
- Straightness
- Position (x, y)
- Length

LASER SCAN MICROMETER:
Laser sensors of LAP METIS series work by laser scanning. One sensor consists of emitter and receiver. If there are one or several objects between them, the sensor measures the distance between the edges of shadowing and/or the edges of the gap. Single sensors measure diameter, width, gap, position in one axis or completeness. Depending on arrangement, you may also measure ovality, length, straightness or position in two axes.

BENEFITS:
- Measuring Diameters from 0.2 ... 2000 mm
- Detection of several object edges
- Intelligent evaluation software
- Limit switches
- Flexible interfacing

METIS SERIES

TECHNICAL DATA

- Laser type, wavelength: Diode, 670 nm, red
- Laser power: 1 mW
- Laser class: 2
- Sampling frequency: 800 Hz, optional 1600 or 2000 Hz
- Interfaces: RS485, up to 1 MBit/s
- Power supply: 24 VDC ± 20 %
- Ambient conditions: 0 … 40 °C, 35 … 85 % rel. humidity, non-condensing
- Enclosure rating: IP 65

APPLICATIONS:

Single Sensors (Sender and Receiver):
- Diameter
- Gap
- Width
- Position (y)

Combinations:
- Large Diameter
- Width
- Ovality
- Straightness
- Position (x, y)
- Length

BENEFITS:
- Measuring Diameters from 0.2 ... 2000 mm
- Detection of several object edges
- Intelligent evaluation software
- Limit switches
- Flexible interfacing

TECHNICAL DATA

- Laser type, wavelength: Diode, 670 nm, red
- Laser power: 1 mW
- Laser class: 2
- Sampling frequency: 800 Hz, optional 1600 or 2000 Hz
- Interfaces: RS485, up to 1 MBit/s
- Power supply: 24 VDC ± 20 %
- Ambient conditions: 0 … 40 °C, 35 … 85 % rel. humidity, non-condensing
- Enclosure rating: IP 65

MODELS

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>METIS 45</td>
<td>45</td>
<td>0.2</td>
<td>2.9</td>
<td>± 2</td>
<td>± 8</td>
<td>(S) 135 × 75 × 60</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>(E) 135 × 75 × 60</td>
<td></td>
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<tr>
<td>METIS 90</td>
<td>90</td>
<td>0.5</td>
<td>5.9</td>
<td>± 3</td>
<td>± 15</td>
<td>(S) 165 × 102 × 61</td>
<td>2.6</td>
</tr>
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<td></td>
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<td></td>
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<td></td>
<td>(E) 165 × 102 × 61</td>
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<tr>
<td>METIS 120</td>
<td>120</td>
<td>1</td>
<td>7.8</td>
<td>± 4</td>
<td>± 20</td>
<td>(S) 235 × 164 × 62</td>
<td>5.3</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>(E) 235 × 164 × 62</td>
<td></td>
</tr>
<tr>
<td>METIS 150</td>
<td>150</td>
<td>1</td>
<td>9.8</td>
<td>± 6</td>
<td>± 25</td>
<td>(S) 300 × 180 × 85</td>
<td>8.9</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(E) 270 × 180 × 85</td>
<td></td>
</tr>
<tr>
<td>METIS 180</td>
<td>180</td>
<td>1</td>
<td>11.7</td>
<td>± 8</td>
<td>± 30</td>
<td>(S) 337 × 220 × 85</td>
<td>11.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(E) 300 × 220 × 85</td>
<td></td>
</tr>
<tr>
<td>METIS 230</td>
<td>230</td>
<td>1</td>
<td>15.0</td>
<td>± 10</td>
<td>± 40</td>
<td>(S) 400 × 270 × 85</td>
<td>14.6</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(E) 270 × 230 × 85</td>
<td></td>
</tr>
</tbody>
</table>

** Measuring conditions: 20 °C, surface matte white, integration time 100 ms, 2σ, RS485
* Measuring conditions: 24 VDC, ± 20 %, 2σ
**LAP SENSORS - LASER MEASUREMENT SYSTEM**

**DCU (DIGITAL CONTROL UNIT)**

The LAP DCU is used to collect, process, visualize and output measurement values of up to 6 LAP sensors. It works with all models of ATLAS, POLARIS, ANTARIS, CALIX and METIS series. Collected values may be processed by functions using addition, subtraction, multiplication, division, get minimum or get maximum. There is an explicit function for thickness calculation of up to three tracks (6 laser displacement sensors). Furthermore, DCU mathematics offers three filters: median, average and peak-to-peak. Values may be displayed in numbers or by graphics. LAP DCU offers 4 limit switches, triggered by internally defined tolerances. Two input channels accept external incident signals. Results may be transferred digitally or via analog output 4-20 mA.

**DIGITAL AND ANALOG I/O-MODULE FOR INPUT OF PROCESS SIGNALS**

Each of the Digital IN and Digital OUT modules have 8 inputs/outputs. The modules Analog IN and Analog OUT have 4 input/outputs each. Every module can query the temperature, for example to detect excess temperature in the control cabinet. Digital IN can simultaneously evaluate the quadrature encoder data or counting pulses in pairs.

**RS485-PROFIBUS GATEWAY**

The RS485-Profinet Gateway establishes the connection between the serial RS485 bus that typically features in LAP devices and Profinet DP. The module contains a communication controller to operate the ports and to execute the protocol, as well as two ports to communicate with the sensors and the Profinet DP. The LAP RS485-Profinet Gateway can be used as a slave user on the Profinet DP. RS485 is used as the transmission medium. The device supports the DP expansion V1 in terms of parameterisation, configuration and diagnosis.

**RS485-ETHERNET GATEWAY**

The RS485-Ethernet Gateway establishes the connection between the serial RS485 bus that typically features in LAP devices and Ethernet via 10/100 BASE-T. During this process, data that are available on the RS485 side in the LAP SynchroNet protocol are converted to data in UDP or TCP format and vice-versa. The RS485-Ethernet Gateway features an Ethernet interface that operates with 10 Mbit and 100 Mbit network connections. The corresponding network connection (10/100 Mbit/s) is detected automatically via the „autonegotiation“ process.

**Technical Data**

- **Power supply**: 12 ... 30 VDC
- **Consumption**: < 250 mA (24 V)
- **Interfaces**: RS485, optically coupled isolator, max. 460 kbit/s, LAP SynchroNet
- **Analog output**: 0/4 ... 20 mA, max. working resistance 500 Ω
- **Gate input**: 2.5 ... 34 VDC (2x)
- **Output switches**: Max. 80 V, max. 30 mA
- **Limit switches**: NPN Open Collector (4×)
- **Dimensions (L × W × H)**: 220 × 138 × 34 mm
- **Display**: 5.7", TFT LCD color display, touch panel
- **Weight**: 1000 g
- **Enclosure rating**: IP 40
- **Ambient conditions**: -10 °C ... 50 °C / 35 ... 85 % rel. humidity, non-condensing

**RS485-USB GATEWAY**

LAP offers the following modules:
- Digital IN
- Digital OUT
- Analog IN
- Analog OUT

Each of the Digital IN and Digital OUT modules has 8 inputs/outputs. The modules Analog IN and Analog OUT have 4 input/outputs each. Every module can query the temperature, for example to detect excess temperature in the control cabinet. Digital IN can simultaneously evaluate the quadrature encoder data or counting pulses in pairs.

**Technical Data**

- **Operating voltage**: 14 ... 34 VDC
- **Current input**: max. 250 mA
- **Interface**: RS485 galvanically isolated, SynchroNet, up to 921.6 kbit/s
- **Contacting**: 5 poles via top hat rail, 4×4 poles for signals
- **Housing**: Plastic in-line housing on DIN top hat rail
- **Dimensions (W × H × D)**: 22.5 × 102 × 130 mm
- **Weight**: 200 g
- **Enclosure rating**: IP 20
- **Ambient conditions**: 0 ... 40 °C at 35 ... 85 % humidity, non-condensing
BRING COLOUR TO YOUR LIFE.
LAP ALSO PROJECTS OUTLINES AND TEMPLATES. MULTICOLOURED.

www.LAP-LASER.com

NEVER GO WRONG AGAIN:
LAP LINE LASERS FOR ALIGNMENT AND POSITIONING

www.LAP-LASER.com

SERVICE PACKAGE
LAP stays right by your side before, during and after the installation of a LAP system. International experience acquired over decades in the installation and maintenance of laser systems across virtually all industries makes us a reliable and competent partner. Before you make your decision, we will give you plenty of advice and explain both the possibilities and also the limitations of the technology. We will support you in the planning and installation of the system onsite. After commissioning, we will stay with you during your first steps using the laser measuring system until its use has been optimised. Each customer has different requirements regarding maintenance cycles, reaction times and protection from down times. LAP therefore offers each customer an individually tailored package, which can extend far beyond the guarantee and standard working hours. Do you want to have replacement equipment on site? Emergency service available at all times? 24-hour hotline? Or is replacement within 24 hours, support during the working day, and regular training of your personnel sufficient for your needs? Just tell us what you want – we will find a suitable solution for you.

Customer-specific adaptations of the system
- Support during the planning of the measurement system
- Supply of individual accessories closely related to the system (mounting options, measuring frames, traversing systems …)
- Software adaptations and extensions (connection to the company network, databases, visualisation …)

Installation and commissioning
Training
Maintenance
- Replacement equipment (loaners)
- Replacement of expendable parts
- Cleaning
- Adjustment
Updates for software and firmware
Repair
For more than 30 years, LAP has been developing, manufacturing and distributing laser measurement systems, line lasers and laser template projectors for industrial and medical applications. LAP products are high-precision devices Made in Germany. Using LAP laser systems, our customers improve performance and increase the quality of their products as well as the effectiveness of their processes. As a result of continuous product innovation, LAP has become a world leader in lasers for projection and measurement. LAP products are setting the standards in a wide range of markets from manufacturing to heavy industrial environments and medical applications. Environmental protection is important to us. We use solar panels, green electricity and roofs planted with grass. Our production is planned by standards of sustainability. Quality has always been part of our commitment. We are content if you are. We know your high demands. To meet your requirements, the quality management of LAP is certified by DIN EN ISO 9001:2008 for industrial products and by EN ISO 13485:2007 for medical engineering products.

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