

**LASER
APPLICATIONS**

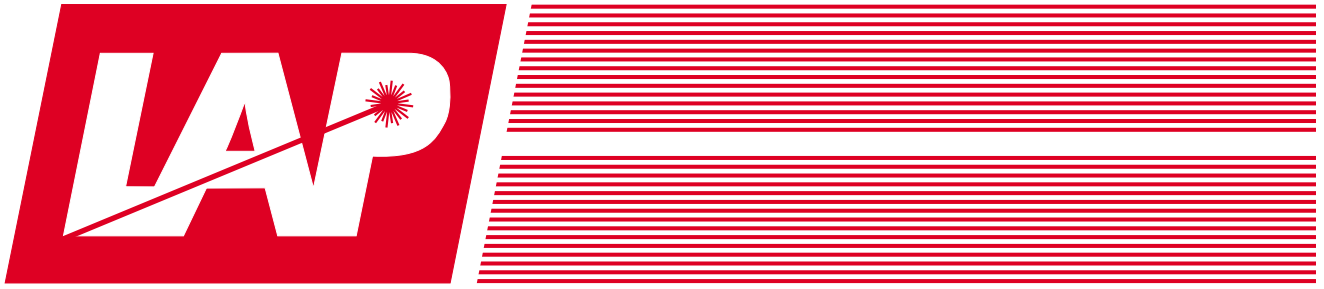
LAP



Laser Probe LMS 30

Non-contact Measurement Probes for Distance and Thickness

Fast response • High precision • Industrial design • Maintenance free

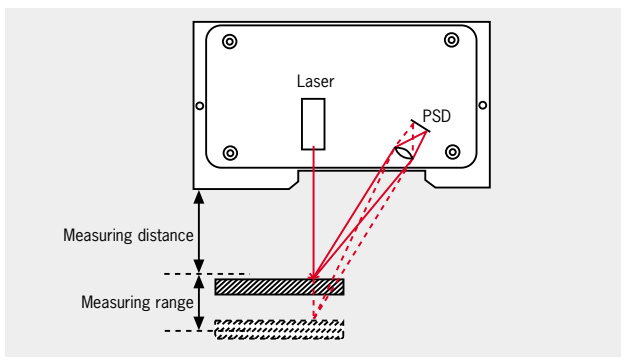


Non-contact Measurement

Non-contact measurement provides a new approach to production and quality control. Sensitive materials (e. g. hot, soft, sticky, elastic, sterile or moving), previously considered difficult, or even impossible to measure, can now be measured precisely. The rapid response of these non-contact measuring systems insures their easy integration into production processes with the effect of improving process control and preventing product ejects. The provision of continuous, high resolution measuring data not only allows on-line dimensional checking but also creates detailed records of each production run, thus meeting the demands of ISO 9000 Quality Management procedures.

Measuring Principle

The probe uses triangulation as the principle of operation. A laser beam is projected from the probe to form a small spot of light onto the surface of the measured object. Some of this laser light is reflected back through the sensor optic onto a Position Sensitive Detector (PSD) mounted inside the probe. As the distance from the laser probe to the measured object changes, the reflected laser light strikes a different position on the PSD resulting in distance proportional electrical signals. Integrated electronics register and compensate in real time for varying reflective properties of different measured objects and also suppress any unwanted signals from ambient lighting. Any material which gives diffused reflection can be measured, such as wood, plaster, rubber, plastics, metal, paper, concrete, asphalt and stone. Mirror-like surfaces and transparent materials cannot be measured; translucent objects may show deviations caused by the penetration of the beam into the material.



Measuring Performance

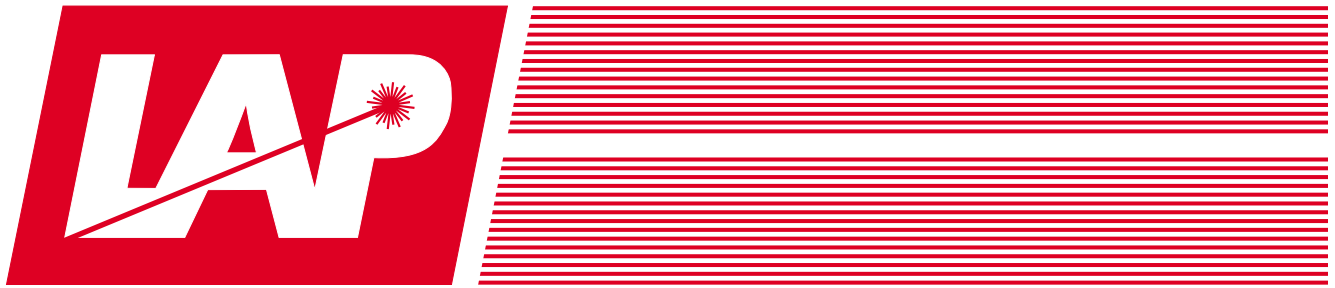
Probes

Each probe contains a laser diode to provide a powerful, collimated beam of visible light. The integrated electronics incorporating a "constant-accuracy" filter with a gliding start ensure consistent accuracy for changing surface conditions and fast reaction on object/interval/object situations. The analog output either retains the last valid value or, optionally, jumps to a minimum. Built in limit switches monitor the measured values and activate an alarm output, when the object has left the measuring range. The probe housing is delivered ready to accept an air purge valve designed to keep the windows clean and dust free. The probes provide a linearized output signal.

Options

- Customized brackets and frames
- Special housings: heated, air- or water-cooled
- Air curtain for dirty environment
- Large displays, alarm keys, min./max. memory
- Application software for complete measurement stations
- Dataprocessing and -documentation on PC
- ThickCheck, customized industrial measurement systems, e.g. for particle board and plasterboard





Technical Data

Probes

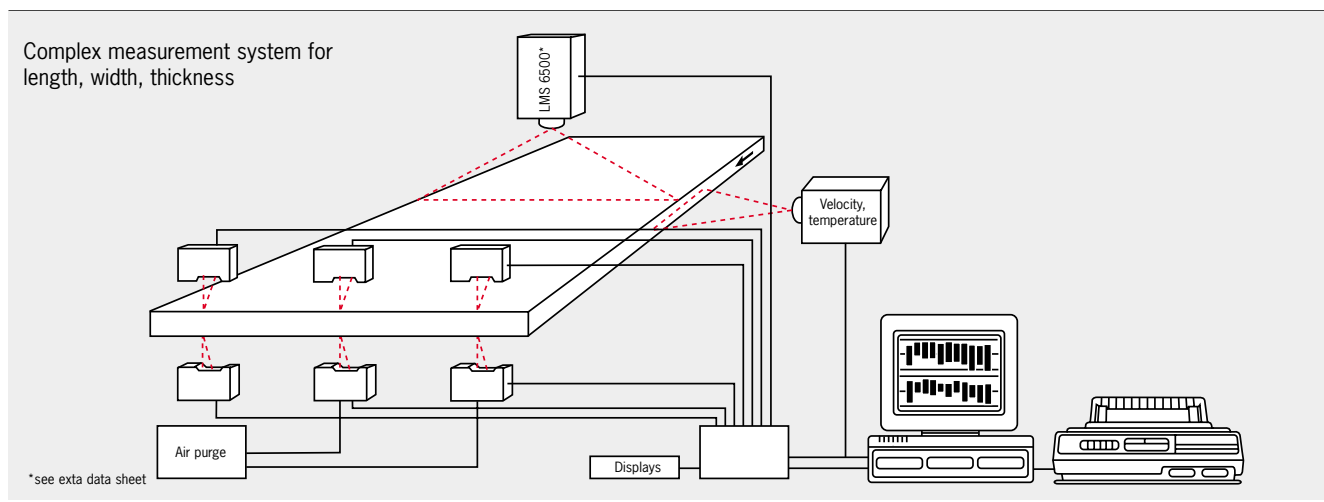
Model	Measuring range	Measuring distance	Resolution	Repeatability*	Linearity*
LMS 10	0.4 inch 10 mm	1.8 inch 45 mm	± 0.0001 inch 3 µm	± 0.0005 inch ± 12 µm	± 0.001 inch ± 25 µm
LMS 20	0.8 inch 20 mm	2.8 inch 70 mm	± 0.0002 inch 5 µm	± 0.0009 inch ± 24 µm	± 0.002 inch ± 50 µm
LMS 30	1.2 inch 30 mm	3.6 inch 90 mm	± 0.0003 inch 7.5 µm	± 0.0014 inch ± 35 µm	± 0.003 inch ± 75 µm
LMS 50	2.0 inch 50 mm	4.6 inch 115 mm	± 0.0005 inch 13 µm	± 0.0023 inch ± 60 µm	± 0.005 inch ± 125 µm
LMS 70	2.8 inch 70 mm	4.0 inch 100 mm	± 0.0007 inch 18 µm	± 0.0031 inch ± 80 µm	± 0.007 inch ± 175 µm
LMS 100	4.0 inch 100 mm	4.4 inch 110 mm	± 0.001 inch 25 µm	± 0.0047 inch ± 120 µm	± 0.010 inch ± 0.25 mm
LMS 150	6.0 inch 150 mm	4.8 inch 120 mm	± 0.0016 inch 40 µm	± 0.0075 inch ± 190 µm	± 0.016 inch ± 0.4 mm
LMS 200	8.0 inch 200 mm	6.4 inch 160 mm	± 0.0019 inch 50 µm	± 0.0090 inch ± 230 µm	± 0.019 inch ± 0.5 mm

Other measurement ranges, distances, frequencies on request.

*Measuring conditions: 52 °F, surface white mat, Integration 100 ms, 2 ð

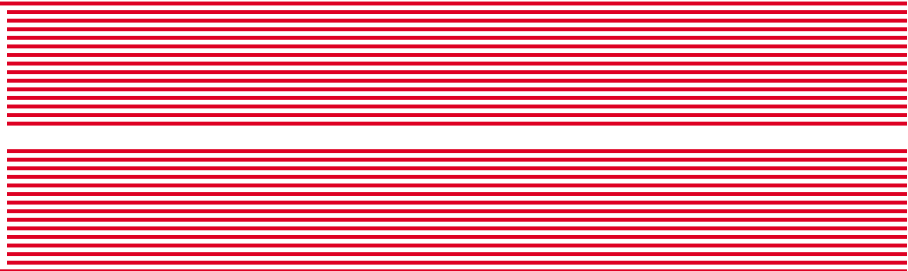
Wavelength	670 nm (red)
Output	1 mW (5 mW)
Laser class	2 (3B)
Power supply	+ 24 V DC
Ambient temperature	32 to + 104 °F (0–40 °C)
Weight	1.5 lbs (680 g)
Dimensions	1.34 x 3.53 x 6.30 inch (34 x 90 x 160 mm)

Output signal	4–20 mA
Ambient light	<= 40.000 lux
Measuring frequency	<= 2 kHz
Modulation frequency	20 kHz
Protection	IP 65
Spotsize	0.02 x 0.05 inch (0.5 x 1.2 mm)

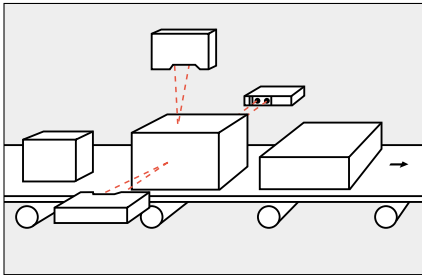


Touches nothing,
measures everything:
distance, thickness,
length, width, diameter,
velocity ...

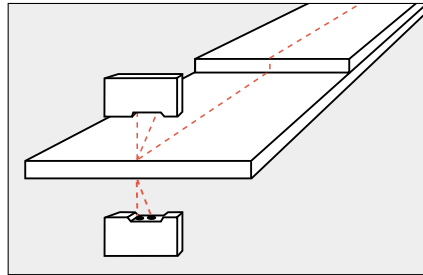
Measures all dimensions!



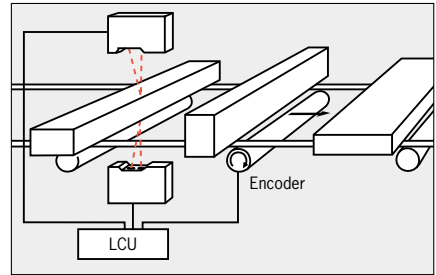
Applications



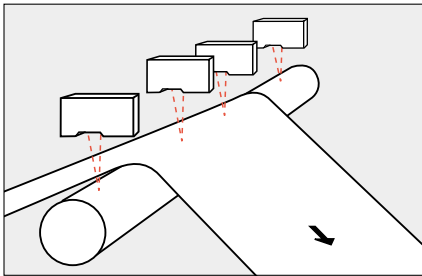
Width, Height, Sorting, Classification



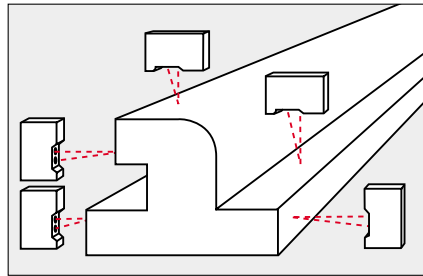
Thickness, Recognition of Doubling and Folds,
Length profile



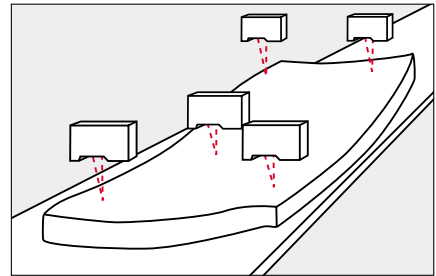
Width and Thickness



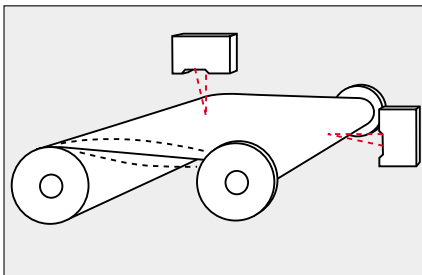
Thickness against roller, compensation wobble,
detection of wedges



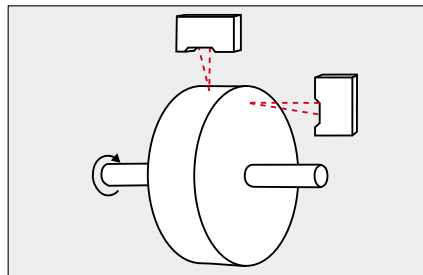
Dimension control after forming



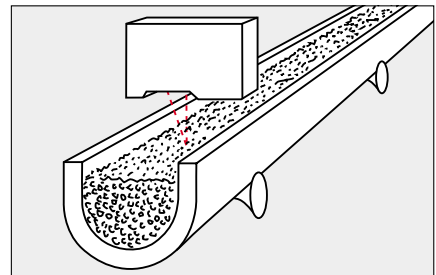
Flatness, Position, Thickness



Loop control, web control, swinging, vibration



Roundness, Wobble, Centricity, Ovality



Level, grade of filling



**We are constantly available with advice,
service and expertise, based on over a
decade of innovation.**

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Laser Measurement Systems: Non-contact Measurement
Alignment · Positioning

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Measures all dimensions!