POLARIS

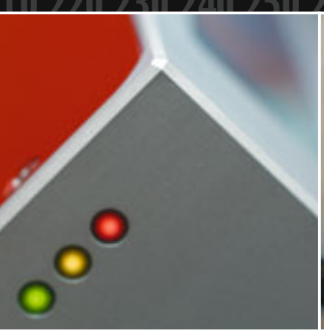
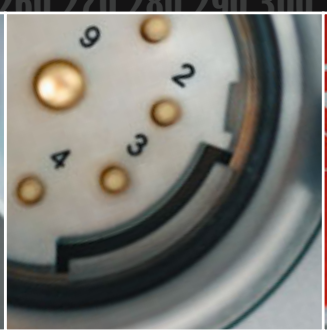
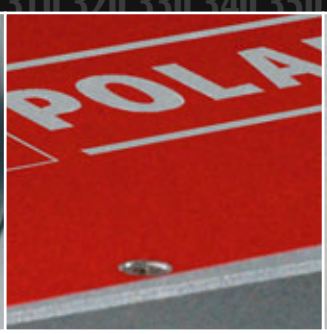
DIGITAL LASER SENSORS

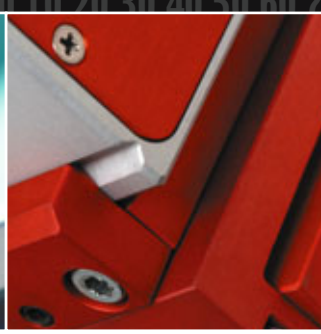
with measuring ranges from 10 mm to 400 mm (0.4" – 15.7")

non-contact laser measurement

10

400



LAP LASER

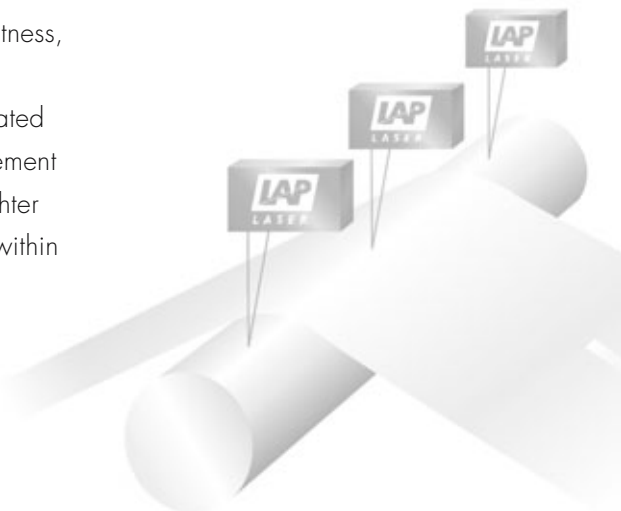
LAP POLARIS LASER TRIANGULATION SENSORS.

HIGHLIGHTS.

- Extremely high resolution (down to 0.2 µm / 7.9 µin)
- Self-contained, compact housing
- Fast measurement (up to 4 kHz)
- Very high precision on virtually all surfaces
- CCD line array with powerful built-in DSP
- Programmable filter functions
- Flexible interfacing options

NON-CONTACT, HIGH-PRECISION, PROFITABLE.

The LAP POLARIS series sensors have proven successful in hundreds of difficult, high tolerance applications due to their extreme precision and rugged reliability. They provide non-contact measurement of dimensions such as distance, thickness, width, height, and flatness, without the need to stop the material for measurement.
Thanks to their high-resolution CCD line array and the integrated Digital Signal Processor (DSP), they provide accurate measurement results for online process monitoring and control. Through tighter process control, return on investment (ROI) can be achieved within a short period of time.



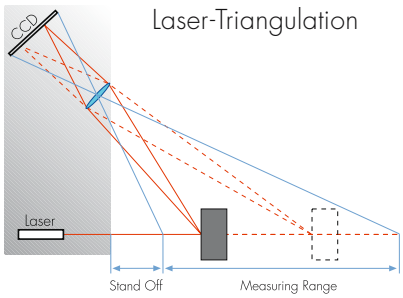
VERSATILE AND FLEXIBLE.

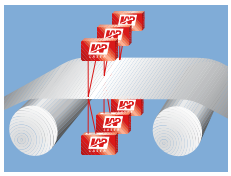
LAP POLARIS series sensors provide precise results on virtually all materials at any production speed. They automatically adapt to changing colors and surfaces. Even measurements on shiny aluminum, non-vulcanized black rubber, and on soft or sticky materials are possible.

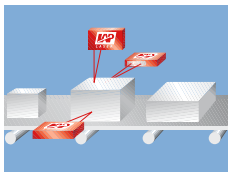
SOLUTIONS FOR YOUR COMPANY.

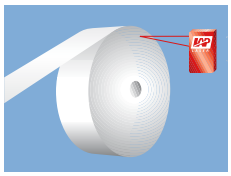
THE OPERATING PRINCIPLE.

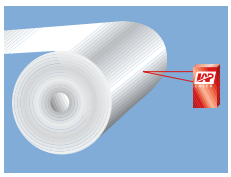
The LAP POLARIS sensors operate according to the triangulation method. A laser beam emitted from the sensor creates a visible spot on the surface of the measured object. Depending on the distance, a CCD line scan camera besides the laser "views" this spot under varying angles. Using this angle and the known distance of laser and camera, the Digital Signal Processor computes the distance between the sensor and the measured object.

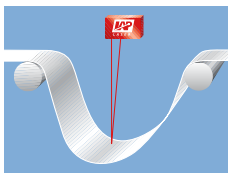


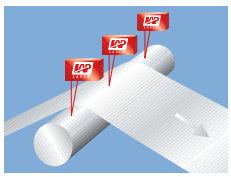

Multi-track differential thickness measurement: strip, web, boards

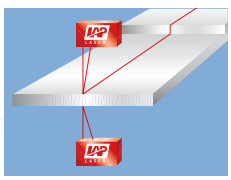

Width, height, sorting, classification

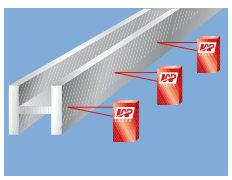

Coil: face profile measurement

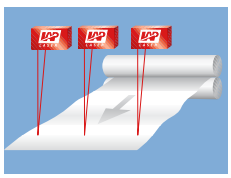

Distance measurement, diameter of coils, rolls


Sag, buffer loop


Thickness measurement against roll, roll runout compensation, detection of taper


Thickness, double-layer detection, doubling, folding, longitudinal profile


Straightness


Edge waviness, flatness

THE COMPLETE SOLUTION.

LAP POLARIS sensors measure distance, thickness, width, height, straightness, flatness, profiles and a whole lot more. They simplify measurement by combining easy operator setup and flexible interface modules. Multi-sensor applications, which in the past would have required external processors and programming, are now done easily in LAP POLARIS using the on-board DSP and multi-drop RS 485 capability, providing easy communication and math capabilities.

LAP POLARIS also provides unrivaled real-time process monitoring. Immediate and precise feedback of process parameters allows corrections to be made quickly with minimal downtime. Simple control tasks like loop control and accept/reject are a breeze using the programmable discrete outputs.

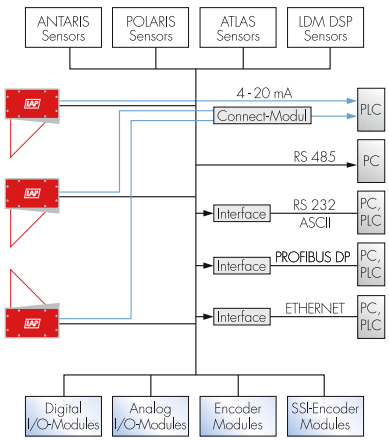
EXAMPLE APPLICATIONS.

- Bar material (endless/piece): distance, width, thickness, straightness, longitudinal profile, cross profile
- Web material and boards: distance, width, thickness, flatness, longitudinal profile, cross profile, sag
- Materials on drums: diameter, face profile
- Other examples: position, alignment, deflection, sag, concentricity, clearance, runout

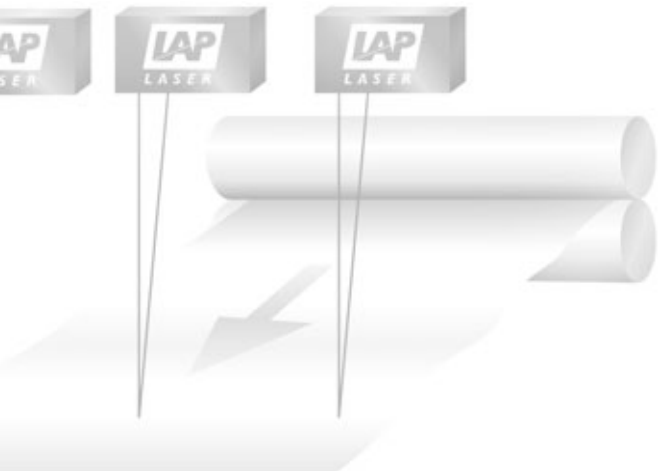
SIMPLE INTEGRATION IN YOUR PROCESSES.

DIGITAL PRECISION.

In contrast to conventional laser sensors, LAP POLARIS sensors combine a high resolution CCD line scan camera with a DSP to provide pure digital acquisition and processing of measured values. This combination provides for a very stable output signal, regardless of surface conditions.
LAP POLARIS sensors can communicate directly via their RS 485 interface, and compute results, e.g. material thickness, without a "third box". Multiple digital parametric filters provide low-pass filtering, peak or valley detection and fixed or floating setpoint monitoring. The RS 485 interface guarantees precise transmission in noisy industrial environments, even over long distances. A Windows® setup and softscope software allows full configuration of the LAP POLARIS sensor parameters for special requirements.



The integrated signal processing and the wide range of interfaces lets you easily handle applications from individual sensors up to complex multi-sensor measuring systems.



EASY INTEGRATION.

LAP POLARIS sensors are equipped with:

- RS485 serial interface
- 4 - 20 mA analog output
- 2 discrete outputs (optional)

Additional interface modules are available for:

- RS232 ASCII
- Ethernet UDP
- Profibus DP

DATA ACQUISITION AND SPC SOFTWARE.

LAP offers software for data collection, visualization and documentation. For archiving it can be provided with a SQL database or it can be linked to existing customer databases. Software versions are available for distance measuring with single sensor to multi-track measurement of thickness, profile or flatness and for profile measurement with traversing sensors.

**Windows is a registered trademark of Microsoft Corporation in the United States and other countries.*

LAP LASER

Sensors, Line Lasers, Projectors
Systems & Solutions

TECHNICAL DATA.

MODELS.

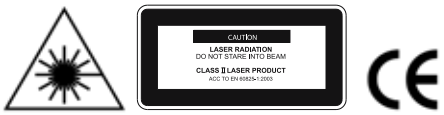
Measuring range and stand off can be modified on customer request.

LAP POLARIS

Model	Measuring Range mm/inch	Stand Off mm/inch	Resolution µm/µinch	Repeatability µm/inch	Linearity µm/inch
LAP POLARIS 10	10/ 0.4	51/ 2.0	0.2/ 7.9	± 4.5/0.0002	± 7/0.0003
LAP POLARIS 30	30/ 1.2	100/ 3.9	0.5/ 19.7	± 10 /0.0004	± 20/0.0008
LAP POLARIS 70	70/ 2.75	190/ 7.5	1 / 39.4	± 20 /0.0008	± 45/0.0018
LAP POLARIS 130	130/ 5.1	220/ 8.7	2 / 78.7	± 45 /0.0018	± 85/0.0033
LAP POLARIS 250	250/ 9.8	380/15	4 /157.5	± 70 /0.0028	±150/0.0059
LAP POLARIS 400	400/15.7	440/17.3	6 /236.2	±140 /0.0055	±250/0.0098

GENERAL DATA.

Laser type, wavelength	Diode, 670 nm (red)
Laser power, class	1 mW, 2
Measuring frequency	up to 4 kHz
Outputs	Analog 4 - 20 mA, 12 bit resolution, programmable serial RS485
External Interface Modules	RS232 ASCII, Ethernet UDP, Profibus DP
Power supply	24 VDC, 100 mA
Protection type	IP 65
Dimensions	39 x 109 x 168 mm; 1.54 x 4.29 x 6.61 "
Weight	1,100 g
Operating conditions	0 - 40 °C (32 – 104 °F) / 35 - 85 % rel. humidity, non-condensing



ACCESSORIES AND OPTIONS.

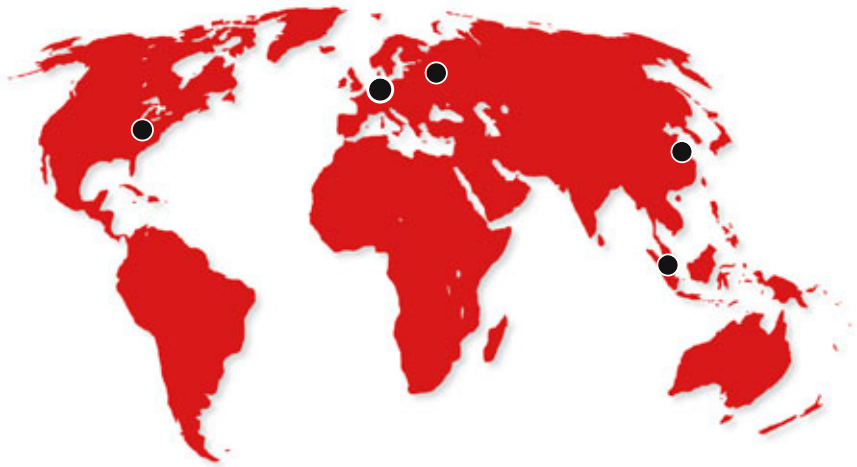
- Adjustable sensor mounting bracket
- Discrete outputs (2), opto-isolated, programmable
- Individual measuring distances and ranges on customer request
- Air purging housing to keep sensors clean and cool
- Customer-specific software
- Panel and large displays

LAP has a great deal of experience with customer-specific turn-key measurement systems in a multitude of different industries. Please inquire!

LAP LASER

Sensors, Line Lasers, Projectors
Systems & Solutions

10/2008 BE/SPECIAL



LAP Laser LLC.

Sales, Service

7669 Wooster Pike
Cincinnati, OH 45227
USA

Phone +1 (513) 271-4529
Fax +1 (513) 271-3821
Email info-us@lap-laser.com

LAP GmbH
Laser Applikationen

Headquarter: Production, Sales, Service

Zeppelinstr. 23
21337 Lueneburg
Germany

Phone +49 (0)4131 9511-95
Fax +49 (0)4131 9511-96
Email info@lap-laser.com

LAP Laser Applications
Asia Pacific Pte Ltd

Sales, Service

Block 750A, #07-02 Suite 8
Technopark at Chai Chee
Singapore 469001
Singapore

Phone +65 6536 9990
Fax +65 6533 6697
Email info-asia@lap-laser.com

LAP GmbH
Laser Applikationen
Представительство в Москве

1, Казачий переулок 7
119017 Москва
Российская Федерация

Тел. +7 495 7304043
Факс +7 495 7304044
Email info-russia@lap-laser.com

LAP Laser Applications
Asia Pacific Pte Ltd
Shanghai Representative Office

Sales, Service

31/F Haitong Securities Tower
689 Guang Dong Road
Shanghai 200001
China

Phone +86 (21) 5047-8881
Fax +86 (21) 5047-8887
Email info-asia@lap-laser.com

Partners

SCANTRON

Scantron Industrial Products Ltd

Monarch Centre, Venture Way
Taunton, Somerset TA2 8DE
England

Phone +44 (0)1823 333343
Fax +44 (0)1823 333684
Email scantron@scantronltd.co.uk
Web www.scantronltd.co.uk

www.LAP-LASER.com

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