



LUMP AND NECKDOWN DETECTION



InteliSENS™ LN Series



HIGH ACCURACY, NON-CONTACT MEASUREMENT
Measure continuous processes with 100% quality inspection
INSPECT, ALARM, REPORT

INTRODUCTION

The IntelliSENS™ TRIPLE-AXIS and DUAL-AXIS lump and neck detectors provide outstanding product quality supervision. Using LED light sources, high-speed digital signal processing (DSP) and specialized optical design technology to INSPECT, ALARM and REPORT Surface Quality Defects (SQD) as they happen, reducing customer complaints and improving your reputation as a quality product supplier.

The LN3030's three LED Constant Light Sources cover the Complete Circumference* of the product, and any immediate change in the surface profile is detected by the LED optical receiver, Alarming and Reporting the height, length and location of lumps and necks along and around the product.

The IntelliSENS™ Lump and Neck Detectors are extremely easy to install, integrate and use. The LN2030 and LN3030 can both be used as stand-alone devices or integrated to the machine PLC. Audio / Visual Alarm, Fault Printer and Datalogging PC Software are available to complement the Lump and Neck Detector, closing the loop on Quality Control.

Applications include production processes such as Wire Drawing, Braiding, Cable Insulating and Jacketing, Rewinding and Coiling, Rubber and Plastic Extrusion Processes for Hose, Tube and Pipe production.

NON-CONTACT MEASUREMENT

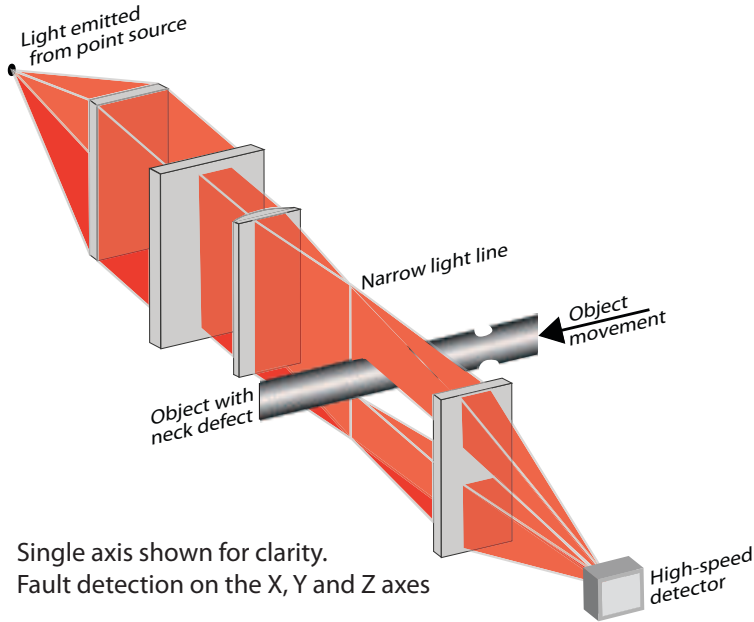
- Non-Contact
- No Moving Parts: No Wear
- Industrial Design: Harsh Environment
- Built-in lens airwipe system
- Easy Integration: Modern Communications
- Easy to Use: Bright Clear Displays
- Reliable: IntelliSENS™ Technology 24/7
- Excellent Value: Low Cost of Ownership
- Fault Report Print Output
- Logging of Faults on X, Y and Z Axes (LN3030)



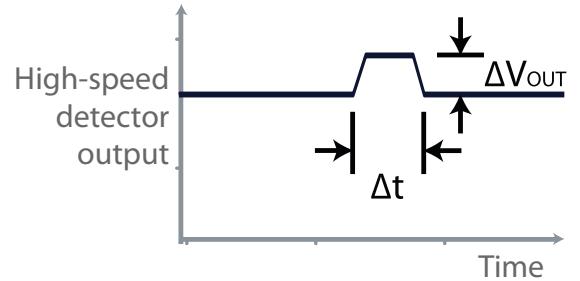
■ **Pipe** ■ **Tube** ■ **Hose** ■ **Wire** ■ **Cable**

* see **Compare** diagram

TECHNOLOGY



PRINCIPLE OF OPERATION



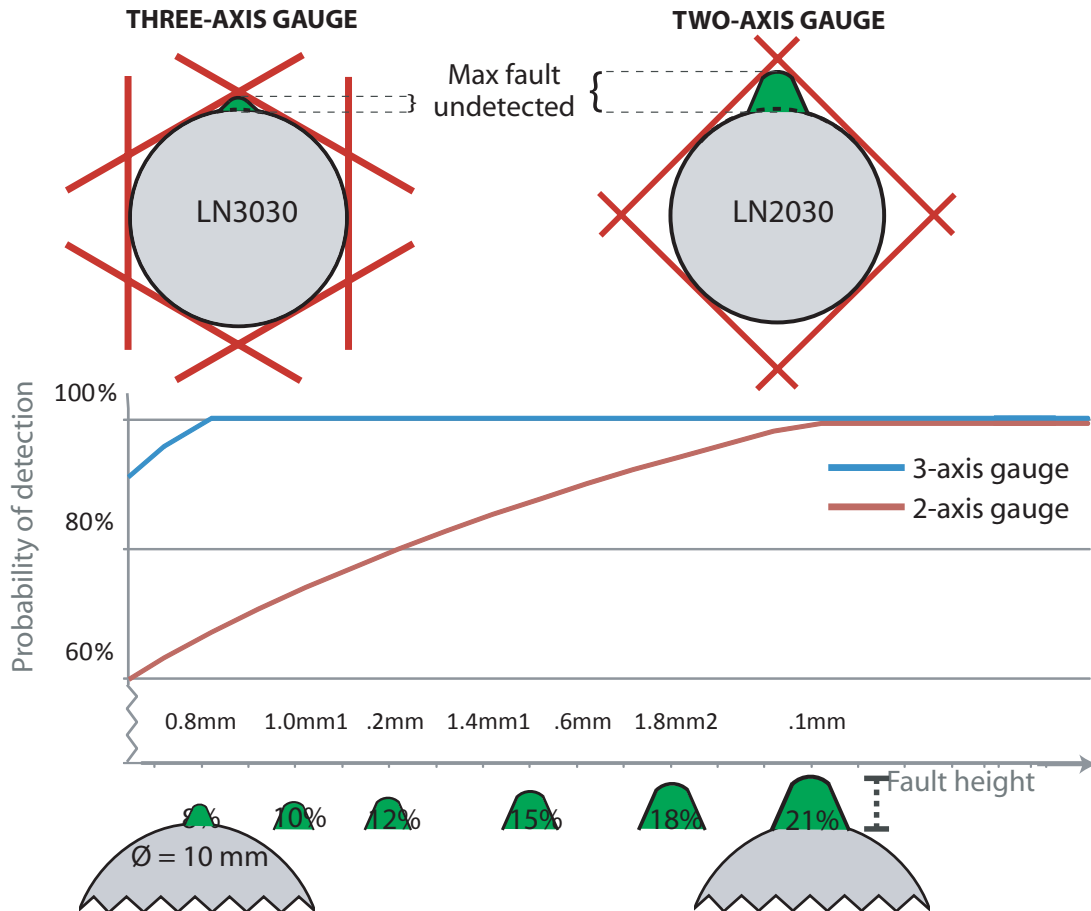
$\Delta t \propto \text{Defect length} / \text{speed}$
 $\Delta V_{OUT} \propto \text{Object diameter change}$

TYPICAL SURFACE QUALITY DEFECTS



DUAL AXIS OR TRIPLE AXIS DETECTION

Defects generally result from a Process Problem or Material Contamination which result in Lumps, Breaks and Neck-downs. InteliSENS™ gauges Detect, Alarm and Report Surface Quality Defects (SQD) as they happen, using advanced 2- Axis or 3-Axis Visible LED Detection Technology, depending on production line requirements. The LN3030 covers the circumference of the product 3 times more effectively than the LN2030.



CONNECT

Complementing the standard communications inputs and outputs is a wide range of factory fitted optional communications to meet your needs.
Connect to your existing indicator / display devices, PLC or PC.



Standard communications

CANBUS **Ethernet TCP IP**



** Bluetooth not available in Europe*

RS232 **RS422** **RS485**

Optional communications



Modbus



Analogue

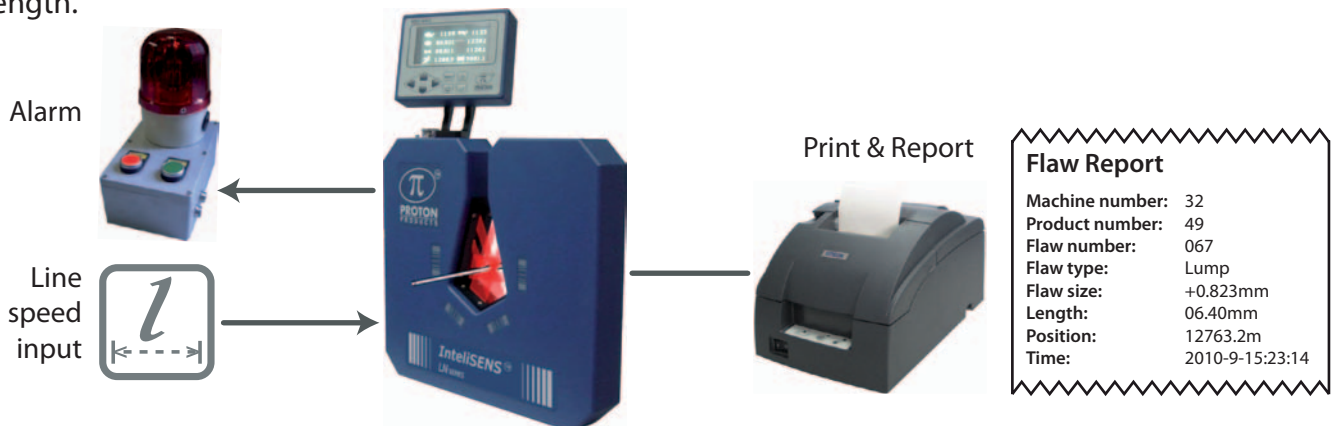
DISPLAY

The AiG2 is a fully featured VFD display and interface unit. Connect to the LN via CANbus: attach to gauge head or mount remotely on a control panel.



REPORT

The IntelliSENS™ LN Series detects faults as they happen, connects to a Visible / Audible Alarm to inform the process operator, and connects to a printer to report the fault dimensions, position and time, producing a Summary Report of all defects at the end of the production length.



ACCESSORIES

The IntelliSENS™ LN Series has a number of accessories that complement the gauge head. The AiG-2 can be connected directly on the gauge head or use one of the CAN cables to position the display in the production line control panel. If you are making several connections, such as for alarms and line speed input, the PSU-BOB makes it simple and easy to wire up. Consult your local Proton Products Representative to discuss which accessories will suit your requirements.

POWER & CONNECT

PSU-BOB



PSU-UNI



Terminal Strip



DISPLAY & RECORD

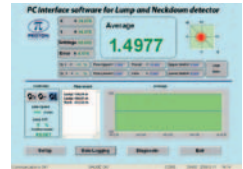
AiG2: Interface, display



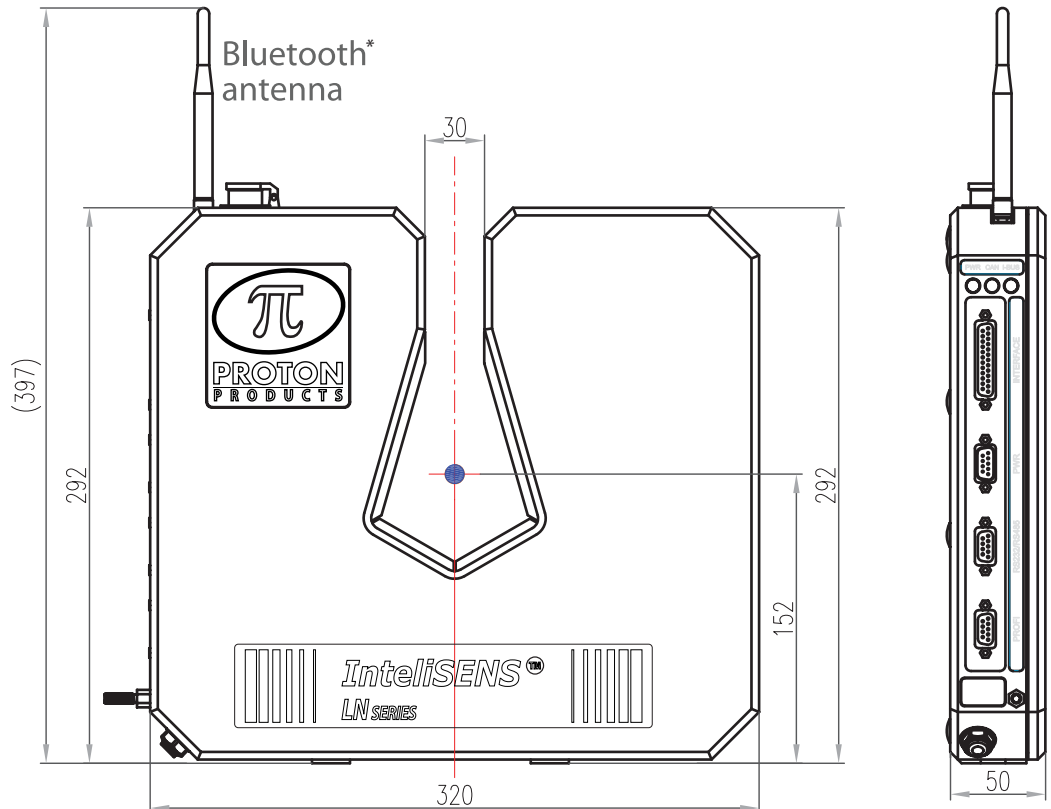
Event printer



PCIS: interface/ logging software



DIMENSIONS



* Bluetooth not available in Europe

SPECIFICATIONS

InteliSENS™ LN Series	LN2030	LN3030
Number of axes	2	3
Light source	2x LED	3x LED
Unit of measurement	mm / inch	
Gate size	30 mm (1.18")	
Minimum object size	0.04 mm (0.0016")	
Maximum object size	25 mm (0.98")	
Minimum fault height	0.04 mm (0.0016") + 1% of object diameter	
Minimum fault length	0.5 mm (0.02")	
Tolerance setting range	0.04 to 10 mm (0.001 increments)	
Tolerance setting resolution	0.01 mm	
Maximum speed	2500 m/min (8200 ft/min), dependent on fault length	
Minimum time between faults	20 microseconds	
Signal processing rate	200 kHz	
Gauge weight	3 kg (6.6 lbs)	
Power requirement	15 ~ 25 Vdc, 20 W max (with AiG2 display)	
Protection rating	IP67	
Airwipe	Built-in airwipe: air input at corner of unit base	
Temperature range	5° ~ 40°C (41°F ~ 104°F)	

InteliSENS™ Standard Communications	
2x Digital inputs	Max input 24 Vdc, Length reset, End of reel / Print Activation
3x Relay outputs	Volt-free contact; Max. voltage 50 Vdc 0.5A Programmable: Gauge OK, Lump, Neck, Flaw Number Exceeded
Speed input	Analogue: 0 ~ 10 Vdc scalable. Pulse: Max. frequency 250 kHz. Max. pulse height 30 V. Scalable for exact speed
Serial I / O	Selectable RS232, RS422, RS485; or Printer
CANbus	Connects to Proton Products AiG2 indicator and Proton NEXiS™ controllers
Ethernet	Ethernet TCP IP
Wireless comms	Bluetooth (<i>Note: Bluetooth not available in Europe</i>)

InteliSENS™ Communications Options	
4x Analogue outputs	+ / - 10 Vdc scalable output. X, Y, Z
Additional protocols	DeviceNet, Modbus, Profibus, ProfiNet, and EtherNet Industrial Protocol
Analogue input	0 ~ 10 Vdc scalable input. For remote setting of flaw height

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