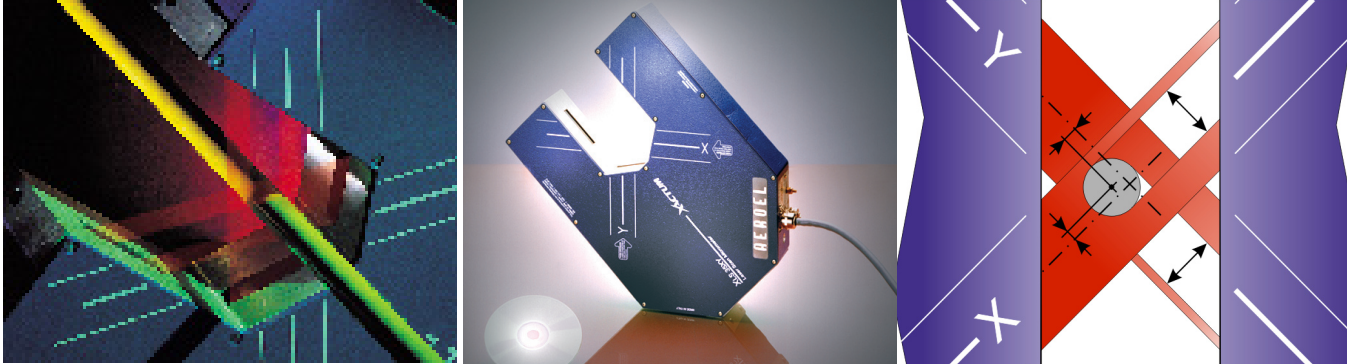


Laser Micrometer for very high accuracy diameter measurement



General Description

Xactum Laser Sensors represent a quantum leap in laser micrometer technology. Digital Signal Processing (DSP) accuracies never before achieved are now available. No other laser micrometer on the market today is as advanced.

With the completely built in electronics, the Xactum laser sensors can be used as a stand alone smart laser micrometer. It can also be connected directly to a PC, PLC or NC via its internal RS 232, RS 485 and Ethernet serial interface. In either the RS 485 or Ethernet mode numerous sensors can be networked on a common line.

The patented autocalibration feature eliminates drift. As a result the Xactum laser sensor never requires recalibration.

Features

- Dual axis gauge
- 35 x 35 mm measuring range
- 0.2 μm repeatability
- 1200 Hz scanning frequency
- Outstanding single shot repeatability
- Excellent linearity
- Permanent self calibration
- Compact size
- 3 years guarantee
- Fully re-programmable
- Direct connection to PC, PLC and NC

Typical Applications

- Extruded tubes and profiles
- Drawn metal wires
- Medical tubes
- Electric cables and conductors

Measurement Modes

Free-Running: it processes continuously groups of k Instant Values to compute the related Extreme Values.

On-Command, Single-Shot: after an external command, it processes only 1 group of k Instant Values to compute the related Extreme Values. The external command is a rising edge on a digital input or a command message via Ethernet.

On-Command, Continuous: during a time interval set by an external command, it processes all the measured Instant Values, to compute their Extreme Values. The measuring time is set by a logic high level on a digital input and / or by Start/Stop messages via Ethernet.

Auto-Sync: like On-Command, Single-Shot, but the measurement is automatically triggered by a valid measurement condition (1 part in the measuring field), after a programmable delay.

Measurement Types with Standard Built-in Software

- **Only 1 part in the measuring field**, opaque or transparent
- **Measured dimensions:** X / Y diameter and X / Y center position

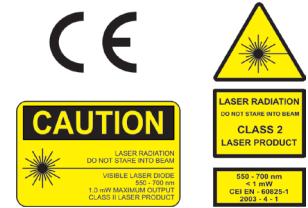
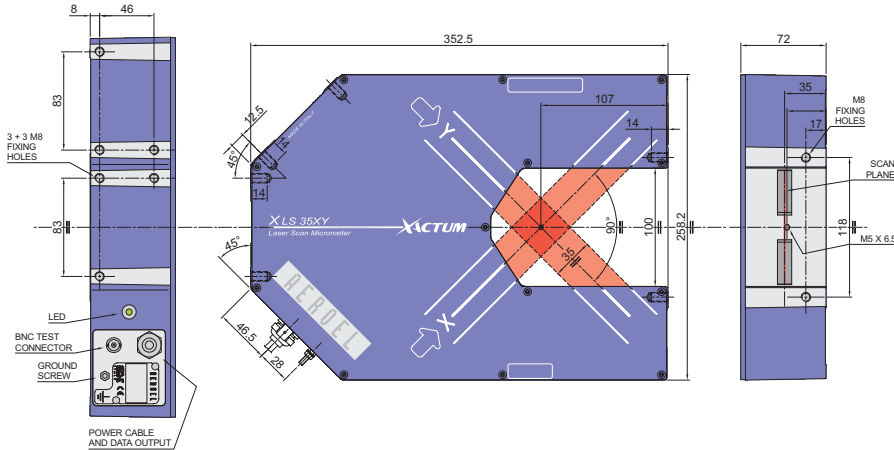
Note: other types of measures are possible by downloading dedicated software

Measurement Processing

- **Instant Values:** simple average over n scans, programmable with $n \geq 1$
- **Extreme Values:** Average, Max, Min and Range = (Max - Min) over k Instant Values, being $k \geq 1$ programmable

Input / Output

- 2 digital inputs / RS232 and RS485, max 115.2 kbaud / Ethernet 10 Base-T / ALS Binary Video



This product conforms to the following standards:
21 CFR 1040.10 (USA) • CEI EN-60825-1; 2003-4-1 (EU)

Type of gauge	XLS35XY/200/A	XLS35XY/200/B	XLS35XY/1200/A	XLS35XY/1200/B
Measuring Field (mm)	35 x 35 ⁽¹⁾			
Measurable Diameters (mm)	0.2 - 32			
Resolution (Selectable) (µm)	10 / 1 / 0.1 / 0.01			
Linearity (Centred Product) ⁽²⁾ (µm)	± 1 ⁽³⁾			
Linearity (Full Range) ⁽⁴⁾ (µm)	± 2.5		± 5	
Linearity (Reduced Field) ⁽⁵⁾ (µm)	± 1.5			
Repeatability (T=1s, ±3 Sigma) (µm)	± 0.3		± 0.2	
Single Shot Repeatability (±3 Sigma) (µm)	± 2			
Beam Spot Size (s,l) ⁽⁶⁾ (mm)	0.2 x 4	0.2 x 0.1	0.2 x 4	0.2 x 0.1
Scanning Frequency (Hz)	200 (X) + 200 (Y)		1200 (X) + 1200 (Y)	
Scanning Speed (m/s)	120		180	
Gauge Thermal Coefficient ⁽⁷⁾ (µm/mm°C)	-0.0184		-0.0090	
Power Supply	24 VDC; 0.3 A (1 A peak)			
Laser Source	VLD (Visible Laser Diode); Lambda = 650 nm			
Dimensions (mm)	352.5 x 258.2 x 72			
Weight (kg)	5.8			
Operating Temperature Range (°C)	0 - 50			
Storage Temperature (°C)	-20 to +70			
Atmospheric Humidity	Max 85% (non-condensing)			
Altitude (m)	0 - 3000 over sea level			
Protection	IP65 (optical windows not included)			
SPECIFICATIONS IN ALS MODE, CONNECTED TO A CE-10 OR IBU-10 EXTERNAL UNIT				
Type of ALS compatible gauge	ALS35XY/100/A	ALS35XY/100/B		
Resolution (Selectable) (µm)	10 / 1			
Linearity (Full Range) ⁽⁴⁾ (µm)	± 1.5			
Linearity (field 20 x 20 mm) (µm)	± 3			
Linearity (field 30 x 30 mm) (µm)	± 5			
Repeatability (T=1s, ±3 Sigma) (µm)	± 0.6			
Single Shot Repeatability (±3 Sigma) (µm)	not specified			
Scanning Frequency (Hz)	100 (X) + 100 (Y)			
Scanning Speed (m/s)	120			

Notes

- ⁽¹⁾ For dia. ≥ 0.3 mm; for smaller diameters the field is proportionally reduced up to 20 x 20 mm for dia. = 0.2 mm.
- ⁽²⁾ Related to the average diameter (X+Y)/2.
- ⁽³⁾ For dia. < 15 mm; for 15 ≤ dia. ≤ 32 mm the linearity is ± 1.5 µm (± 2.5 µm for 1200/B model)
- ⁽⁴⁾ Maximum measurable shift of the average diameter (X+Y)/2, when a master is moved along the two X and Y axes crossing in the center of the field, checked with dia. = 8 mm
- ⁽⁵⁾ The field is 16x16 mm.
- ⁽⁶⁾ The smaller dimension is the spot thickness or diameter.
- ⁽⁷⁾ Typical value. It states the measurement drift due to the room temperature change, when measuring a master with null coefficient of expansion (INVAR).



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PRECISION LASER SYSTEMS



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