# Laser-ultrasonic system

**Optech Ventures AIR-1550-TWM laser-ultrasonic interferometer and Litron Lasers Nano SG 150-10 generation laser**

## Precise non-contact laser-ultrasonic system for testing, measuring, flaw detection and material characterisation.

## Features and benefits

- Exceptional sensitivity with higher bandwidth than conventional ultrasonic probes
- Multi-mode ultrasound
- Offers pulse-echo, through-transmission and pitch-catch detection geometries
- No couplant required
- Operates at high resolution and capable of following complex contours
- Small footprint promotes ease of use

## Some applications

- Process monitoring: can measure parts that are hot or moving at speed
- Post-process evaluation: high-resolution inspection of small parts and fast areal scans of large components
- In-service inspection: inspection of complex structures or under hazardous conditions
- Real-time online applications in the steel, aluminium and casting industries
- Evaluation of microstructure of tubing during hot rolling
- Detection of internal flaws and surface defects
- Detection of foreign particles in molten steel or other liquid metals

## Technical specification

- Interferometer fibre laser programmable from 50mW to 2W continuous-wave; can be maintained below 500mW
- Interferometer laser wavelength of 1550nm and linewidth less than 10MHz
- Interferometer ultrasonic detection bandwidth to 1GHz
- Interferometer aperture size: 25mm, with various lenses providing standoff distances from 40mm to 300mm and corresponding spot sizes from 95µm to 660µm
- Generation laser maximum repetition rate 10Hz, maximum energy output 150mJ and pulse duration 4–6ns
- Two linear translation stages with 5µm step resolution each
- Scan range: 375mm horizontal by 125mm vertical


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