



is-instruments

Spectroscopic solutions for an evolving industrial landscape

Our range of spectrometers and laser-based instrumentation vary from miniature spectrometers through to the world's highest throughput Raman spectrometer and bespoke LIDAR solutions.

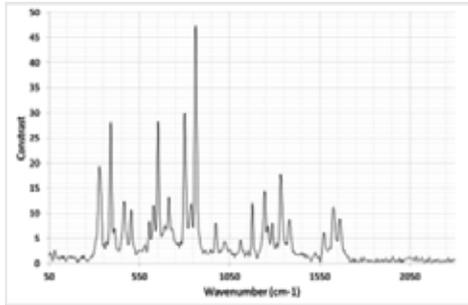
These instruments provide scientists and engineers with a new generation of spectroscopic and laser-based tools across many industries:

- Biotechnologies
- High Value Manufacturing
- Medical research
- Pharmaceutical
- Process Control
- Security

ISI's spectrometer range includes a low-cost miniature spectrometer that matches many of the market leaders at a fraction of the price. Our high throughput models offer unique advantages in terms of light gathering potential and flexibility.

Our bespoke LIDARs have been used across several industries for multiple applications, including monitoring industrial processes in harsh environments, defect detection and locating leaks.

We pride ourselves on providing our customers with the best solution to their problem, which may include off the shelf or bespoke systems, whichever best suits our customers' needs.



HES Spectrometers

Raman and fluorescent spectroscopy
 Spatially offset and Transmission Raman measurements
 Absorption and reflectance spectroscopy

- Up to 500 times improvement in étendue/light throughput
- Fibre coupled, (1, 2 or 3 mm input aperture)
- High spectral resolution option available ($< 4 \text{ cm}^{-1}$)
- Both cooled and uncooled detector options

Typical configuration

Spectral range	200 cm^{-1} - 2300 cm^{-1}
Resolution	4.7 cm^{-1}
Fibre aperture	1mm, 2mm, 3mm
Fibre Na	0.22
Detector dark counts Cooled	$\leq 0.0002 \text{ e/pix/sec}$
Uncooled	$\leq 0.3 \text{ e/pix/sec}$

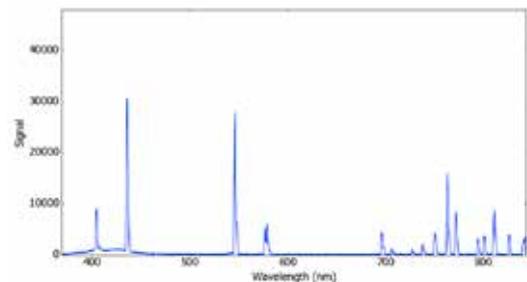
Miniature Spectrometers

Absorbance
 Irradiance
 Reflectance & Transmittance

- Spectral range: from $< 390 \text{ nm}$ to $> 850 \text{ nm}$
- Resolution: $< 2 \text{ nm}$.
- WiFi and Ethernet enabled connectivity
- Easy to use software

Typical configuration

Wavelength range	390 nm - 850nm.
Resolution (FWHM)	$< 2 \text{ nm}$
Exposure time	1 ms – 10 s
Fibre input	SMA 905
Thermal stability	$\Delta 0.4 \text{ nm}/^\circ\text{C}$
Stray Light	$< 2\% @ 633 \text{ nm}$
Linearity	$> 98\% \text{ (corrected)}$



Integrating spheres

- Can be used with minispectrometer for radiometric measurements
- For applications including laser power, flux, reflectance and radiance measurements
- Low cost
- SMA input/output ports

Typical configuration

Ports:	2 or 4 port options
Wavelength Range:	250 to 1600 nm
Reflectance:	$> 97\%$ from 350-850 nm $> 92\%$ from 250-1300 nm
Dimensions:	70 mm x 62 mm x 62 mm
Mass:	125g
Mounting:	M4 Thread at South Pole
Fiber input	SMA (FCPC on request)

Bespoke Solutions

ISI offers a range of consultancy products aimed at developing LIDAR, laser-based remote sensing systems and spectrometers. We are experienced in supplying solutions for difficult environments, including high-pressure and high temperature applications.

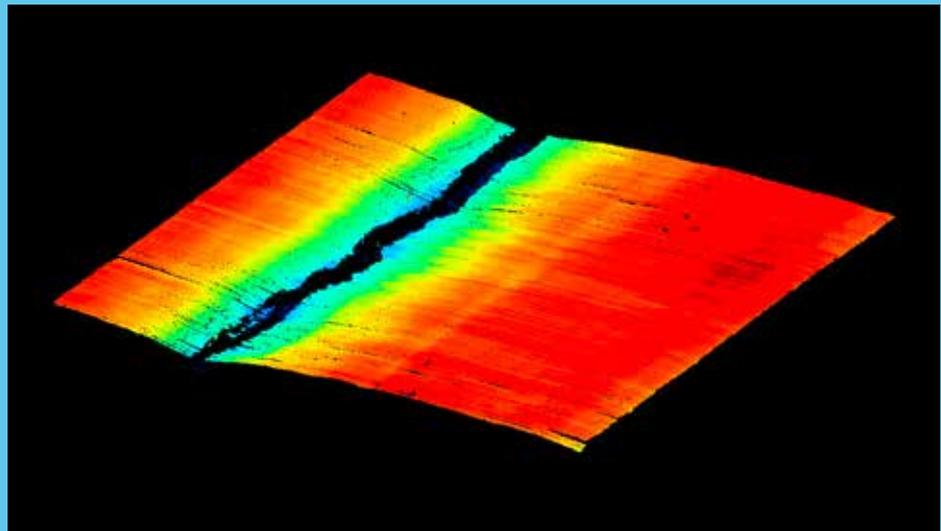
Our team of engineers, scientists and technicians have significant experience in developing optical based instruments. We are focussed on understanding your needs so that we are able to develop a bespoke, correctly engineered and innovative solution for you.

Our approach is to keep you in control. We recognise that a development can be costly and so we consult with you throughout any programme of work. Our unique approach allows costs to be kept at a minimum, giving your control over the programme of work.

Our consultancy and design services evolve and include:

- Market and technology surveys
- Simulation tools included the development of sophisticated LIDAR modelling programs “case study”
- Instrument design
 - 3D measurements for surface defects
 - Imaging LIDAR
 - Photon counting gas analyser

At ISI we pride ourselves on the ability to provide our customers with the best solution to meet their specific needs using our wide range of expertise in optics, electronics and mechanical design, maximising the performance that can be achieved by the instrument. Our developments are based on a modular approach as this aids future instrument support and maintenance. Our inclusive approach allows certification and similar engineering issues to be dealt with efficiently.



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