High Etendue Spectrometer

Technical Specifications

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Technical Specifications

This document shows the technical specifications of the HES range. Further information can be found on the IS-Instruments website, where you can download gold standard scientific articles of the instrument performance when used in the field. The HES range is predominately used for Raman spectroscopy, and the laser and probe are also provided for a complete Raman unit. Bespoke systems are available on request.

Model	**HES1000**	**HES2000**	**HES2003**	**HES2000IR**
Configuration	SHS	SHS	SHS	SHS (Infra-Red)
Wavelength Range **Range can be adjusted as required from 50 – 4000 cm^{-1}**	350 – 1000 nm units available Typical setup for Raman (@532) 200-2500cm^{-1}	350 – 1000 nm units available Typical setup for Raman (@ 785 nm) 200-2500cm^{-1}	350 – 1000 nm units available Typical setup for Raman (@785 nm) 200-2500cm^{-1}	850-2000 nm unit available Typical setup for Raman (@1064 nm) 200-2500cm^{-1}
Resolution (per Fourier bin) **< 1 cm-1 (also available)**	< 3cm^{-1}			< 6cm^{-1}
Slit	No Slit			
Fibre Input	SMA FC/PC		Custom	SMA FC/PC
Fibre diameter	1 mm		3 mm	1 mm (3 mm also available)
Fibre NA	0.22			
Linearity	> 99 %			
Detector Type	Machine vision camera (max integration time 10 seconds)	Cooled CCD	Cooled CCD	Cooled InGaAs CCD
Supply Voltage				
Dimensions				
Weight				
Software				

Example spectra

The most common configuration for the HES instrument is as the main workhouse within a Raman Spectrometer. The Spatial Heterodyne Spectrometer (SHS) configuration provides the system with greater than x100 throughput, allowing the system to be used for standoff Raman measurements, as well as for Raman observations of diffuse targets. Below are examples of Raman spectra observed with a HES2000 instrument.

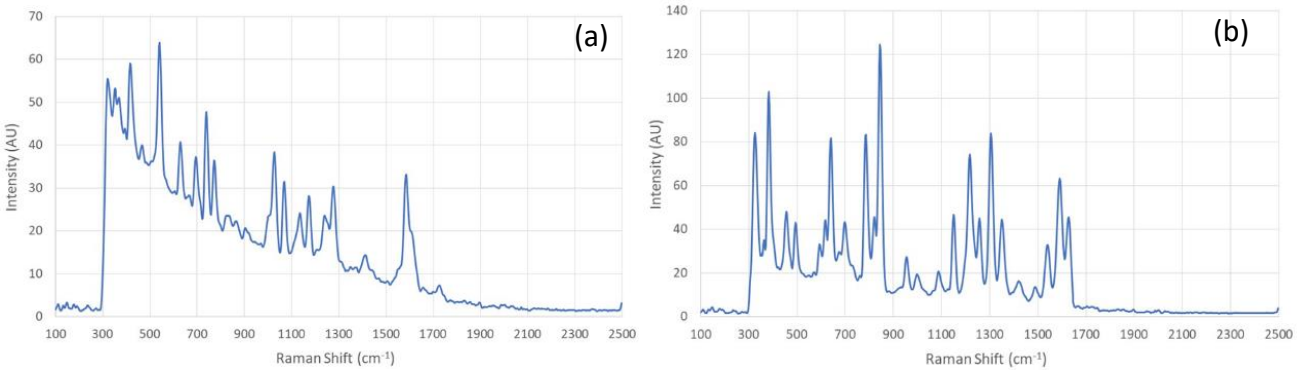


Figure 1: Raman spectra: (a) Aspirin and (b) Paracetamol

The HES range of instrumentsan be constructed with any detector, however ISI's detector of choice is a Cooled CCD from Andor. The Quantum efficiency of these detectors as a function of wavelength is given below.

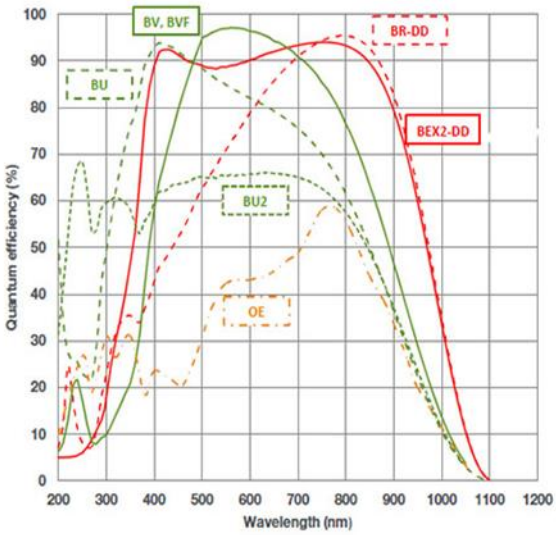
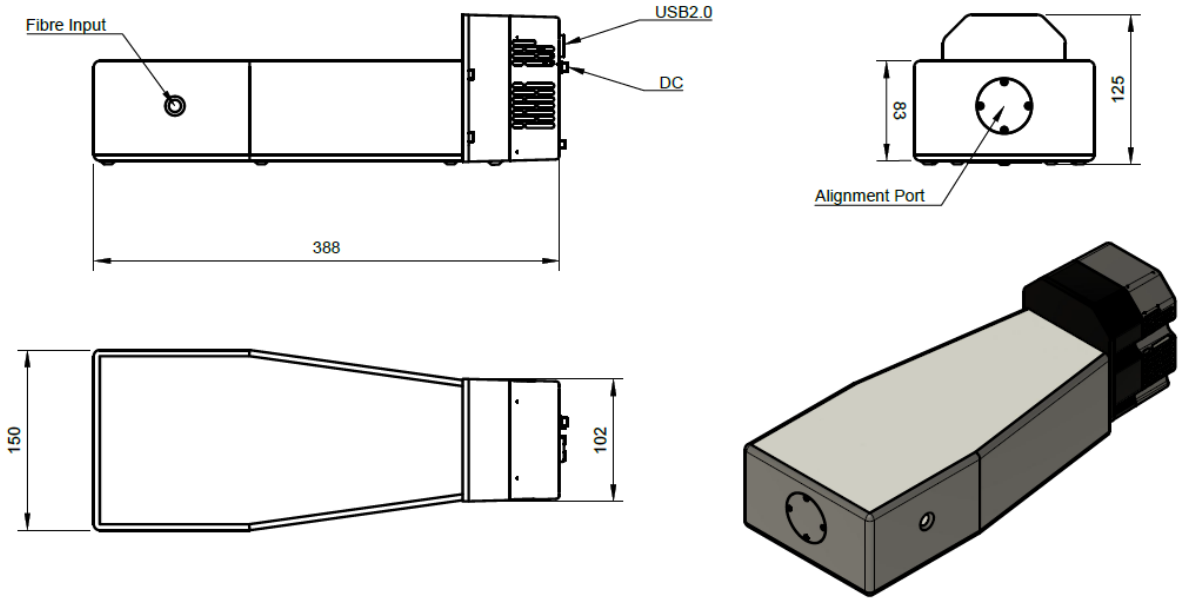


Figure 2: Quantum efficiency of the cooled CCD

Mechanical Drawings



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