

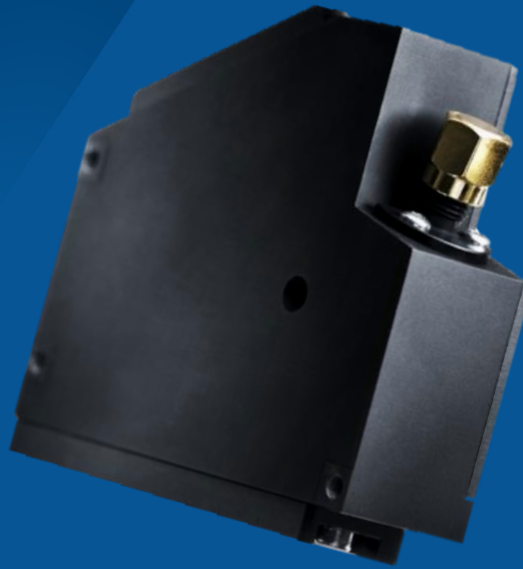
***Ultra compact and robust
Ideal for high resolution Raman
solutions***



Ibsen's FREEDOM mini Raman are ultra compact, robust, and high resolution spectrometers, suited for OEM integration into industrial grade Raman systems at 532, 785 or 830 nm excitation.

The FREEDOM mini Raman series comprises the FHT-101 for low cost, FHT-380 for fast integration time and the FHT-315 for low noise.

Furthermore, if the specifications do not match your requirements, Ibsen can customize an OEM spectrometer to meet your exact needs.



FREEDOM mini Raman

475 – 1100 nm OEM Spectrometer

FREEDOM mini Raman 475 – 1100 nm OEM Spectrometer

Key Benefits



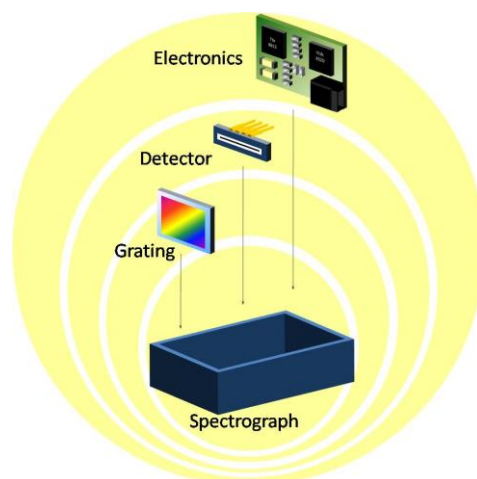
- **High resolution**
- **Wide spectral range**
- **Flexible detector and electronics**
- **Compact and athermal design**

Specifications

Parameter	FHT-101	FHT-315	FHT-380
Wavelength range	475 - 1100 nm	475 - 1100 nm	475 - 1100 nm
Numerical aperture	0.11	0.11	0.11
Typical resolution	0.6 nm/FWHM	0.6 nm/FWHM	0.6 nm/FWHM
Stray light	<0.03%	<0.03%	<0.03%
Detector	Hamamatsu S11639 CMOS	Hamamatsu S10420 BT-CCD	Hamamatsu S11156 BT-CCD
Interface	Direct interface to detector pins (optional electronics available)		
Temperature drift	<0.03 nm/Degree C		
Operating temperature range. Non-condensing	-10 to +45 Degree C		
Dimensions	61 mm x 65 mm x 19 mm		

Modular Approach

Ibsen's OEM spectrometers are based on a modular design, whereby customers can choose to buy a complete spectrometer, a spectrograph or simply a spectrometer grating, depending on the approach that they prefer. Furthermore, our spectrometers can be fitted to almost any detector and electronics.



Specifications are subject to change without notice.