

Ocean HR Series: HR4 Spectrometer



High Resolution and Excellent Thermal Stability

The **HR4** is a high resolution spectrometer with rapid acquisition and low stray light for applications from plasma monitoring to DNA/RNA analysis. The HR4 is compact and robust, with enhanced electronics and excellent thermal wavelength stability to ensure reliable

performance in demanding environments. The HR4 models cover UV-Vis, Vis-NIR and UV-NIR options within the wavelength range from ~190-1100 nm, with a choice of slit width sizes to help users manage throughput and optical resolution.

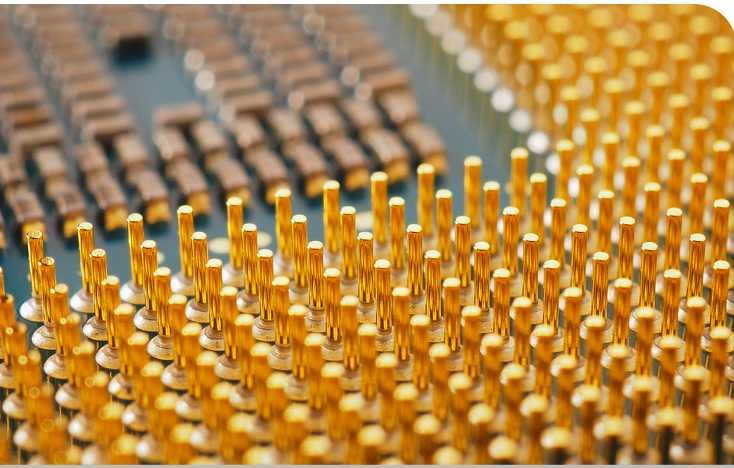
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At a Glance

Wavelength range: ~190-1100 nm

Optical resolution (w/25 μm slit): ~0.13-1.16

Integration time: 3.8 ms-10 s

Dynamic range: 1300:1 (single scan)

**Signal to Noise Ratio (max. per second w/
High Speed Averaging Mode):** 3000:1

Signal to Noise Ratio (single scan @ 10 ms):
250:1

Thermal wavelength drift: 0.02 nm/ $^{\circ}\text{C}$

Interfaces: USB, RS-232, Ethernet

Connector: USB Type-C, Samtec™ TFM-108-02-L-DH, RJ45

Temperature (storage): -30 $^{\circ}\text{C}$ to 70 $^{\circ}\text{C}$

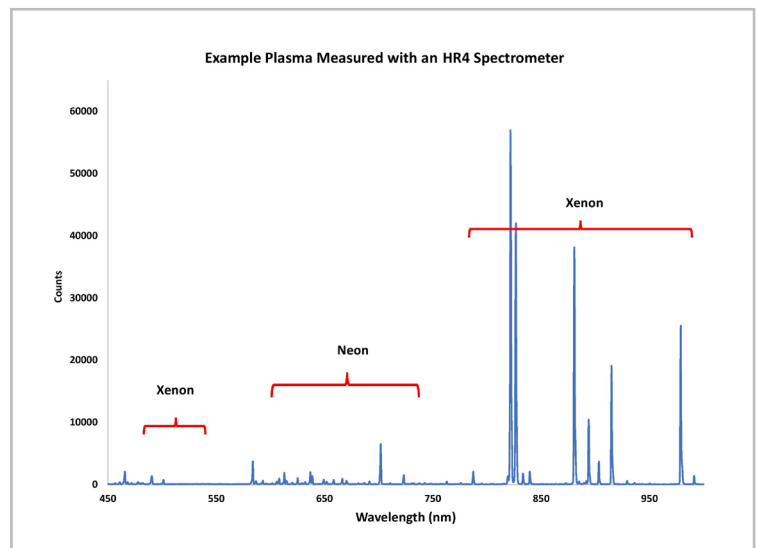
Temperature (operation): 0 $^{\circ}\text{C}$ to 55 $^{\circ}\text{C}$

Dimensions: 149 mm (w) x 106 mm (d) x 48 mm (h)

Weight: 931 g

HR4 is a High Resolution Instrument

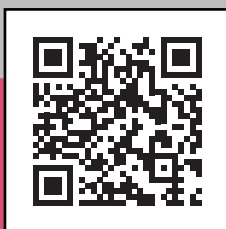
The HR4 spectrometer is compatible with Ocean Optics light sources, accessories and software, allowing users to optimize setups for different applications. With its high resolution performance and thermal stability, the HR4 allows users to discern smaller spectral differences among sample peaks. For example, the HR4 is a good choice for optical emission spectroscopy applications in semiconductor manufacturing, where maintaining accuracy in identifying different spectral features is critical to certain processes.



As a high-resolution, thermally stable spectrometer, the HR4 is ideal for monitoring the emission peaks of gases used in semiconductor and other manufacturing processes.

Software Developers Kit Adds Value

Each HR4 spectrometer comes with OceanDirect, a powerful, cross-platform Software Developers Kit with an Application Programming Interface. OceanDirect provides users with the ability to optimize spectrometer performance, access critical data for analysis, and enable High Speed Averaging Mode, a function available with newer-model Ocean Optics spectrometers that dramatically improves spectrometer signal to noise ratio performance.



For more information on the HR4, please contact an Ocean Optics Application Scientist today.