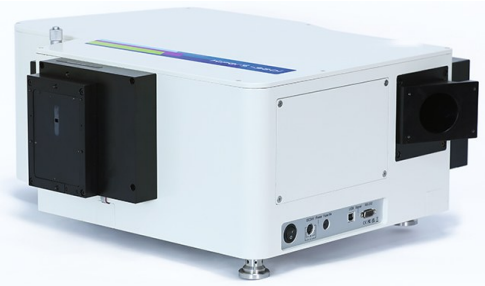
HiperS-320i Aberration-Free Imaging Spectrometer, 320 mm, On-Axis Turret

Model HiperS-320i · waveqvanta.com/products/hipers-320i-aberration-free-imaging-spectrometer

320 mm imaging spectrometer corrected for aberrations across the full focal plane, for multichannel spectroscopy.



HiperS-320i is a 320 mm imaging monochromator/spectrograph that applies full-focal-plane imaging correction to suppress astigmatism across the whole focal plane. An on-axis rotating grating turret and automatic focusing keep resolution and image quality consistent when gratings are changed, so intensity values are reliable over the full CCD. It is suited to LIBS, Raman, fluorescence and other molecular spectroscopy, including multichannel fiber-bundle measurements.

Key features

- Full-focal-plane aberration correction for sharper peak shapes, more precise wavelengths and higher spatial resolution
- On-axis grating rotation increases grating utilization by 15% and keeps grating efficiency consistent
- Automatic focusing moves to the optimum focal plane whenever the grating is switched
- Built-in resolution enhancement module improves spectral resolution by up to about 20%
- Optional two entrance and two exit ports with automatic switching
- Multichannel imaging, demonstrated with a 9-core, 100 µm fiber bundle over a 3.8 mm image height
- Triple turret for up to three 68 × 68 mm gratings, from 150 to 2400 g/mm

Specifications

Focal Length	320 mm
Aperture Ratio	F/4.4
Scan Range (1200 g/mm)	0–1430 nm
Resolution (1200 g/mm)	0.06 nm (PMT, 10 µm slit); 0.12 nm (CCD, 15 µm pixel)
Dispersion (1200 g/mm)	2.29 nm/mm
Wavelength Accuracy / Repeatability (1200 g/mm)	±0.2 nm / ±0.025 nm
Step (1200 g/mm)	0.005 nm
Stray Light	5×10^{-5}
Focal Plane Size	29 mm (W) × 14 mm (H)
Optical Axis Height	156.3–171.3 mm
Grating Size	68 × 68 mm
Grating Mount	On-axis triple turret
Slit Width	0.01–3 mm continuous manual adjustment; motorized slit optional (not on front slit)
Slit Height	2, 4 or 14 mm, switchable
Interface	USB 2.0 or RS-232
Dimensions (L × W × H)	591 × 460 × 260 mm
Weight	30 kg

Supplied Configuration	Manual slits; gratings (up to 3), filter wheel and shutter selected separately
Dispersion by Grating (nm/mm)	2400 g/mm: 0.91; 1800: 1.39; 1200: 2.29; 600: 4.87; 300: 9.97; 150: 20.13
Scan Range by Grating (nm)	2400: 0–715; 1800: 0–953; 1200: 0–1430; 600: 0–2860; 300: 0–4290; 150: 0–11440
Slit Resolution by Grating (nm)	2400: 0.03; 1800: 0.04; 1200: 0.06; 600: 0.12; 300: 0.24; 150: 0.48
CCD Resolution by Grating (nm)	2400: 0.048; 1800: 0.073; 1200: 0.12; 600: 0.256; 300: 0.523; 150: 1.06
CCD Single-Shot Range, 30 mm CCD (nm)	2400: 26.4; 1800: 40.3; 1200: 66.4; 600: 141.2; 300: 289.1; 150: 583.8
Accuracy by Grating (nm)	2400: ±0.1; 1800: ±0.15; 1200: ±0.2; 600: ±0.4; 300: ±0.8; 150: ±1.6
Repeatability by Grating (nm)	2400: 0.015; 1800: 0.02; 1200: 0.025; 600: 0.05; 300: 0.1; 150: 0.4
Step by Grating (nm)	2400: 0.0025; 1800: 0.0035; 1200: 0.005; 600: 0.01; 300: 0.02; 150: 0.04
Test Conditions	Central wavelength 435.83 nm, 10 µm slit width; values typical

Model overview

Model	Entrance	Exit	UV Coating
HiperS-3204i	Side entrance slit	Dual CCD exit ports	–
HiperS-3205i	Side entrance slit	Front exit slit	–
HiperS-3206i	Side entrance slit	Front CCD exit port	–
HiperS-3207i	Side entrance slit	Dual exit slits	–
HiperS-3208i	Side entrance slit	Front CCD port + side exit slit	–
HiperS-3224i	Dual entrance slits	Dual CCD exit ports	–
HiperS-3227i	Dual entrance slits	Dual exit slits	–
HiperS-3228i	Dual entrance slits	Front CCD port + side exit slit	–
HiperS-3247i	Side entrance slit	Dual exit slits	Yes
HiperS-3248i	Side entrance slit	Front CCD port + side exit slit	Yes

Typical applications

- Laser-induced breakdown spectroscopy (LIBS)
- Raman spectroscopy
- Fluorescence and photoluminescence
- Molecular spectroscopy
- Multichannel fiber-bundle spectroscopy