Omni-λ Series Monochromators and Spectrographs, 200–750 mm Focal Length

Model Omni-λ Series · waveqvanta.com/products/omni-lambda-series-monochromators-and-spectrographs

Czerny-Turner imaging monochromators and spectrographs for UV to NIR spectroscopy with single-point or array detectors.



The Omni-λ series are Czerny-Turner imaging spectrographs and monochromators with focal lengths of 200, 320, 500 and 750 mm. They are supplied pre-aligned and pre-calibrated, and can be configured for a wide range of applications and spectral ranges from UV to NIR. Each unit works with single-point detectors, InGaAs cameras or CCDs and accepts accessories such as filter wheels, fiber adapters, shutters and motorized slits.

Key features

- Four focal lengths: 200, 320, 500 and 750 mm (f/3.5 to f/9.7)
- Czerny-Turner imaging design, supplied pre-aligned and pre-calibrated
- Interchangeable triple grating turret on Omni-λ300i/500i/750i (dual turret on Omni-λ200i) for quick changes of wavelength range and resolution
- Resolution down to 0.03 nm (Omni-λ750i, 1200 g/mm, PMT)
- Operates as a monochromator or spectrograph with single-point detectors, InGaAs cameras and CCDs
- Accessories include filter wheels, fiber adapters, shutters, motorized slits and sample chambers
- Control software for single-point detector and CCD acquisition; LabVIEW driver for user programming

Specifications

Optical Design	Czerny-Turner imaging monochromator/spectrograph
Focal Length	200, 320, 500, 750 mm
Aperture Ratio	f/3.5 to f/9.7
Wavelength Accuracy	±0.2 nm (all models)
Wavelength Repeatability	±0.1 nm (200i); ±0.025 nm (300i/500i/750i)
Wavelength Step	0.01 nm (200i); 0.005 nm (300i/500i/750i)
Focal Plane Size	30 mm (W) × 14 mm (H)
Optical Axis Height	146 mm
Slit Width	0.01–3 mm, motorized or manual
Slit Height	2, 4 or 14 mm, selectable
Grating Size	50 × 50 mm (200i); 68 × 68 mm (300i/500i/750i)
Grating Mount	Dual turret (200i); interchangeable triple turret (300i/500i/750i)
Computer Interface	USB 2.0 (200i); USB 2.0 and RS-232 (300i/500i/750i)
Detectors Supported	Single-point detectors, InGaAs cameras, CCDs
Software	Acquisition software for single-point detectors and CCDs; LabVIEW driver
Model Code	Omni-λXXYZi: XX = focal length (20/30/50/75), Y = coating/entrance, Z = exit ports
Coating / Entrance Options (Y)	Standard Al, IR gold, UV, protected silver; single or dual slit entrance
Exit Options (Z)	CCD side or front exit, slit front or side exit, dual CCD or dual slit exits

Test Conditions	1200 g/mm @ 435.8 nm, 10 µm slit; 4 mm slit height (PMT) or 26 µm pixel (CCD)

Model overview

Model	Focal Length (mm)	Aperture	Resolution PMT (nm)	Resolution CCD (nm)	Dispersion (nm/mm)	Repeatability (nm)	Stray Light	Size (mm)	Weight (kg)
Omni-λ200i	200	f/3.5	0.15	0.27	3.58	±0.1	5×10^{-5}	300 × 216 × 213	14
Omni-λ300i	320	f/4.2	0.08	0.173	2.29	±0.025	1×10^{-5}	420 × 295 × 232	16
Omni-λ500i	500	f/6.5	0.05	0.11	1.49	±0.025	1×10^{-5}	550 × 288 × 220	22
Omni-λ750i	750	f/9.7	0.03	0.077	1.02	±0.025	1×10^{-5}	800 × 338 × 218	32.5

Typical applications

- UV–VIS–NIR spectroscopy
- Raman and photoluminescence measurements
- Tunable monochromatic light sources
- Absorption, transmission and reflectance measurements
- Imaging spectroscopy with CCD or InGaAs cameras