Omni-λ180Di, 300Di, 500Di Double Monochromators, Stray Light to 1×10^{-9}

Model Omni-λ300Di / Omni-λ500Di / Omni-λ180Di ·
waveqvanta.com/products/omni-lambda-di-series-double-monochromators

Double monochromators for very low stray light (subtractive mode) or higher resolution (additive mode).



These double monochromators/spectrographs combine two finely aligned monochromators in one housing. In subtractive dispersion mode they reduce stray light for weak-signal work such as Raman spectroscopy; in additive mode the dispersion is doubled for high-resolution measurements. The Omni-λ300Di and Omni-λ500Di support both modes, while the Omni-λ180Di is a dedicated subtractive double monochromator.

Key features

- Omni-λ300Di and Omni-λ500Di operate in either additive or subtractive dispersion mode
- Stray light 1×10^{-9} in subtractive mode and 1×10^{-7} in additive mode
- Additive mode doubles the focal length to 640 mm (300Di) or 1000 mm (500Di) for 0.04 nm or 0.025 nm resolution
- Triple grating turret with 68 × 68 mm gratings spanning UV to NIR
- Motorized or manual slits from 0.01 to 3 mm, plus a 24 mm wide motorized middle slit
- All-in-one housing for easy transport and installation; USB 2.0 software control
- Omni-λ180Di: subtractive double monochromator with stray light below 10^{-9} for UV–VIS–NIR work

Specifications

Configuration	Two monochromators in one housing, additive or subtractive dispersion
Wavelength Accuracy	±0.2 nm (300Di, 500Di)
Wavelength Repeatability	±0.025 nm (300Di, 500Di)
Step	0.005 nm (300Di, 500Di)
Optical Axis Height	146 mm (300Di, 500Di)
Grating Size	68 × 68 mm (300Di, 500Di)
Grating Mount	Triple grating turret (300Di, 500Di)
Slit Width	0.01–3 mm, motorized or manual
Slit Height	2, 4 or 14 mm, selectable
Middle Slit	24 mm wide, motorized (300Di, 500Di)
Interface	USB 2.0, software controlled
Spectral Coverage	UV–VIS–NIR (grating dependent)
Omni-λ180Di	Subtractive mode, stray light below 10^{-9}, USB 2.0, all-in-one design
Test Conditions	1200 g/mm @ 435.8 nm; resolution with 10 µm slit width and 4 mm slit height

Model overview

Model	Mode	Focal Length (mm)	Aperture	Resolution (nm)	Dispersion (nm/mm)	Stray Light	Size (mm)
Omni-λ300Di	Additive	640	F/4.2	0.04	1.15	1×10^{-7}	825 × 500 × 281

Model	Mode	Focal Length (mm)	Aperture	Resolution (nm)	Dispersion (nm/mm)	Stray Light	Size (mm)
Omni-λ300Di	Subtractive	320	F/4.2	0.08	2.29	1×10^{-9}	825 × 500 × 281
Omni-λ500Di	Additive	1000	F/6.5	0.025	0.75	1×10^{-7}	825 × 600 × 281
Omni-λ500Di	Subtractive	500	F/6.5	0.05	1.49	1×10^{-9}	825 × 600 × 281
Omni-λ180Di	Subtractive	–	–	–	–	below 10^{-9}	–

Typical applications

- Low-wavenumber Raman spectroscopy (laser line rejection)
- Tunable monochromatic light sources with broadband lamps
- Detector spectral responsivity calibration, especially in the UV
- High-resolution spectral measurements
- Weak-signal detection requiring low stray light