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Waters 2489 UV/Visible Detector

Operational specifications

Condition	Specification
Wavelength range	190 to 700 nm
Bandwidth	<5 nm
Wavelength accuracy	±1.0 nm
Wavelength repeatability	±0.1 nm
Single λ dry noise	<5 μ AU (at 230 nm, 1-second digital filter, 30-second segments, 10-Hz data rate, analytical cell)
Wet noise	<8 μ AU (at 230 nm, 1-second digital filter, 30-second segments, 10-Hz data rate, 1-mL/min. flow of acetonitrile, analytical cell)
Dual channel noise (dry)	<35 μ AU (measured at 230 nm, running at 230 to 280 nm with 2-second filter at 1-Hz data rate; dry, analytical cell)
Dual channel noise (wet)	<45 μ AU (measured at 230 nm, running at 230 to 280 nm with 2-second filter at 1-Hz data rate, 1mL/min. flow of acetonitrile, analytical cell)
Linearity	<5% at 2.5 AU, propylparaben at 257 nm
Drift	1.0×10^{-4} AU/hr. max ($\Delta T = +2$ °C/hr.)
Thermal drift	1.0×10^{-4} AU/°C max ($\Delta T = +2$ °C/hr.)
Sensitivity setting range	0.0001 to 4.0000 AUFS
Filter setting range	Single-wavelength: 0.1 to 5.0 seconds Dual-wavelength: 1 to 50 seconds
time-constant	0.0- to 5.0-second Hamming filter
Digital data rates	1, 2, 5, 10, 20, 40, 80 Hz (single channel) 1, 2 Hz (dual channel)
Analog output data rates (single λ mode)	10, 20, 40, 80 Hz (channel A) 10 Hz only (channel B)

Optical Component Specifications

Lamp source	30-W High Brightness Deuterium lamp, 0.5 nm aperture, pre-aligned 2000-hour warranty, front accessible
Photodiodes	2 silicon photodiodes (matched pair)
Second-order filter	Automatic for wavelengths > 370nm
Wavelength calibration filter	Erbium filter, used at startup or on demand
Flow cell	TaperSlit™ flow cell design
Nitrogen purge	Purge fitting present on optics bench
Path length	10 mm (standard analytical)
Cell volume	10 µL (standard analytical)
Pressure limit	6895 kPa (69 bar, 1000 psi)
Materials	316 stainless steel, fused silica, Tygon®

Environmental Specifications

Operating temperature	4 to 40 °C (39 to 104 °F)
Operating humidity	20% to <95%, noncondensing
Shipping and storage temperature	-30 to +60 °C
Shipping and storage humidity	0% to <95%, noncondensing

Electrical Specifications

Line frequency	50 to 60 Hz
Line voltage	100 to 240 Vac
Max VA input	185 VA
Fuse ratings	Two fuses: 100 to 240-Vac, 50 to 60-Hz F 3.15-A 250-V fast blo, 5 × 20 mm (IEC)
Attenuated analog output channel: 2 VFS	Attenuation range: 0.0001 to 4.000 AU 2-V output range: -0.1 to +2.1 V
Two event outputs	Type: Contact closure Voltage: +30 V Current: 1 A
Four event inputs	Input voltage: +30 V maximum 100-ms minimum period

Dimensions

Height	20.8 cm (8.2 inches)
Length	50.3 cm (19.8 inches)
Width	28.4 cm (11.2 inches)
Weight	9.3 kg (~20.5 pounds)

Optical specifications

Condition	Specification
Monochromator type	Fastie-Ebert
Grating	Plane holographic 1800 grooves/mm
Optical bandwidth	5 nm
Lamp power	30 W

Optional Waters TaperSlit flow cell specifications

	Volume (μ l)	Path length (mm)	Sample tube internal diameter (Inches) In/Out	Pressure rating psi/bar
Analytical cell	10	10	0.009 - 0.009	1000/70
Semi-prep cell	2.6	3	0.040 - 0.040	1000/70
Microbore cell	2.6	3	0.005 - 0.005	1000/70
Inert (titanium) cell	10	10	0.010 - 0.010	1000/70
High pressure cell for LCMS	10	10	0.009 - 0.009	3000/210
Variable path length flow cell (VPF)	0.69 to 13.72	0.15 – 3 (factory preset at 0.5 mm)	0.04 - 0.04	1000/70
Autopurification cell	2.6	1.0	0.009 IN 1 0.020 IN 2 0.040 OUT	2000/140



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