UVIKON XS and XL UV-Vis spectrophotometers

Technical Specifications

	UVIKON XS	UVIKON XL	Comments
Optical system	High-throughput fully symmetrical double beam system with focused beams at center of sample and reference positions. The sample, reference and dark current signals are measured—and absorbance is calculated—120 times per second. Optics use single 100% reflecting chopper, not a static grid mirror.		Only six reflections per beam (D_2 lamp to detector; seven reflections for visible lamp). Focused beams enable use of 40 µL microcells with standard cell holder with no need for slit masks
Monochromator	Concave blazed holographic diffraction grating with high efficiency and low stray light		Advanced-design Zeiss grating with 1300 lines per mm and space-optimized 175 mm focal length
Spectral bandwidth (SBW)	1.8 nm	0.2, 0.5, 1, 2, 4 and 6 nm; also reduced-height slits of 0.5, 1, 2 and 4 nm	Reduced-height slits allow further reduction of stray light
Wavelength range	190-1100 nm	180-900 nm	Displayed and settable to nearest 0.05 nm
Wavelength accuracy	± 0.3 nm	± 0.25 nm	Includes selectable automatic wavelength calibration at initialization
Wavelength reproducibility	± 0.03 nm	± 0.025 nm	Via scan of sides of steep holmium oxide peaks
Wavelength scan speed	5, 10, 20, 50, 100, 200, 500, 1000, 2000 nm/min	5, 10, 20, 50, 100, 200, 500, 1000, 2000, 5000 nm/min and 'dynamic'	Dynamic scan automatically slows at steep peaks.
Monochromator slew speed	5000 nm/min	7000 nm/min	Also called wavelength 'transfer speed'
Data sampling interval for wavelength scans and time-drive	In wavelength scanning: 0.05, 0.1, 0.2, 0.5, 1, 2 , 5 or 10 nm interval In time drive: 1, 3, 5, 15, 30, 60, 300, 600, 1500 points/min for 1 sample		Wavelength scan 'resolution' = 0.05 nm or wider. Data point interval is in increments as small as 0.1 nm at scan speeds up to 200 nm/min; wavelength data interval 1.0 nm at 2000 nm/min scan speed
Stray light at 220 nm, 1 nm SBW	≤ 0.03% (1.8 nm SBW) typically far less	≤ 0.015%	Measured with NaI, 10 g/L. Even less stray light at higher wavelengths. XS stray light often *much lower*.
Baseline flatness, 200-800 nm, 2 nm SBW	± 0.001 A or better (1.8 nm sbw)	± 0.001 A or better	Often ±0.0005 A (200 nm/min, air-vs.-air, 0.5 nm interval) after warmup with baseline correction
Noise RMS at 0 A, 580 nm, 1 sec response, ASTM E685	0.00003 A (30 µA)	≤ 0.00004 A (≤ 40 µA)	Measured with 2 nm SBW, 1 sec. RMS values are roughly one-third the corresponding "±" values
Drift at 0 A, 580 nm, 1 sec	≤ 0.0001 A/hour		Measured with 2 nm SBW, 2 h warmup
Response time	0.02 - 10 sec		User-selectable
Display range	Beyond ± 5A		Four figures to right of decimal point.
Photometric range	>± 3.5 Abs	± 5 Abs	
Linearity at 250 nm, 1 sec response, 2 nm SBW	3.0 A with $r^2 \geq 0.999$	3.3 A with $r^2 \geq 0.999$	r^2=0.999 is same as r=0.9995. *Uvikons acquire accurate data **well above** the Abs values shown here.*
Photometric accuracy	± 0.003 A or better		Measured at 1 A via NIST filter, 590 nm, 1 sec
Photometric precision	± 0.0005 A		Measured at 1 A via NIST filter, 590 nm
Light sources	Tungsten-halogen-quartz (290-900 nm); deuterium (190-400 nm); lamp switch-over is user-selectable by software between 290-400 nm; 360 nm default		Unneeded lamp can be switched off manually or automatically. Lamp compartment is actively air-cooled to eliminate heat transfer to optical bench.
Photometric detector	One high-sensitivity photodiode	One R955 photomultiplier tube	R955 PMT is high-performance variant of R928 PMT
Real-time Display	The software displays the current wavelength, absorbance, temperature, and autozero status		Put in the sample and the absorbance and wavelength are always displayed—without loading any acquisition method
Data formats	Can save data in ASCII and Excel formats. Graphics can also be saved to the Windows clipboard and/or saved as a file in .BMP format. Optional UVSX software provides one-click copying of data, results, and graphics directly to MS-Excel.		Data acquired on 900-series Uvikons can be read with LabPowerJr software.
Sample compartment size	140 mm wide, 400 mm front-to-back, 146 mm high. Beam separation 120 mm		Unlimited access from top, front, and rear. Front, top, and back covers of sample compartment are quickly removable. Lamp compartment has quick-access panel.
Instrument dimensions and weight	275 mm high; 680 mm x 565 mm (either of latter two dimensions can be placed parallel to front of bench); weight 35 kg		To save space, the PC and monitor (or a laptop PC) can be placed on top of Uvikon
Power requirements	100/115/220/240 VAC ±10% at 50 or 60 Hz; 200 VA max.		Supplied voltage and frequency are auto-detected
Computer requirements	Desktop or notebook PC with Windows 2000/XP, at least 128 MB RAM, 40 MB free disk space, monitor, and serial port COM1; also COM2 (or USB port with available RS232 adapter) for control of Uvikon's optional Peltier accessories		LabPowerJr software can also process its data off-line when run under Win9x/2000/XP on a PC unconnected to the Uvikon

Specifications are from 9/2000 factory announcement and subject to change without notice. You may either provide your own PC with Windows 2000/XP or may purchase from Research Instruments a new Dell Optiplex PC as part of a pre-configured and ready-to-run package with Uvikon spectrophotometer and controlling PC.

For full information, contact Research Instruments International at 858-689-1100.
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