

UVIKON XS/XL

UV-Vis Spectrophotometers



www.schottinstruments.com



EXPERIENCE

Since more than 60 years SCHOTT Instruments provides innovative solutions for the laboratory analysis. Now SCHOTT Instruments introduces the fourth-generation UVIKON UV-Vis Spectrophotometers.

The UVIKON gives you confidence in your data. Its superior and highly efficient true double beam optical design is matched with the latest digital signal processing technology (ADSP, Advanced Digital Signal Processing). ADSP guarantees reliable data acquisition, outstanding sensitivity and extremely low signal noise for consistent linear measurement results – even for solutions with high ground absorption. These unique advantages give you the freedom to accomplish the analyses you want.

THE RIGHT INSTRUMENT

Two UVIKON models – the UVIKON XS and XL – are available to match your budget and analytical needs. Both models include full software for simple reads, standard curves, wavelength scans, wavelength programming, time drive and kinetics. Its software is built to make it quick and easy for all to use – regardless of the analytical method – without sacrificing capabilities.

The UVIKON XS is provided with the software LabPower. The UVIKON XL is provided with the software UVVISION. The UVVISION software is also available in a 21 CFR part 11 compliant version (please refer also to the technical specs of the software).

Make your next UV-VIS an instrument built to give you confidence in your data.

Let us show you how the UVIKON is the instrument of choice to meet your present and future UV-VIS needs.



Reasons to choose UVIKON





The UVIKON's modern optics and advanced electronics are designed to save space in your laboratory.

UVIKON XS

The UVIKON XS offers double beam capability at a very competitive price. It sets the standard for both value and performance. The UVIKON XS is quality-engineered with optimized simplicity to give more productivity to every laboratory. Its advanced double-beam technology, high accuracy and precision, and quick usability assure top-quality results every time.



Ease of operation

UVIKON XL

The UVIKON XL sets the standard for excellence in optics, software and performance. With its low stray light, superior photometric linearity, and high resolution, the UVIKON XL easily meets your lab's advanced UV-VIS requirements. It gives every user the power to accomplish both routine and demanding applications with ease.

The UVIKON XL's automation and data handling capabilities also provide maximum versatility and productivity for your laboratory.



The UVIKON's status display always shows the operating status of the system and the current absorbance and wavelength – all without any software commands.

The UVIKON's sample compartment is engineered to save you time. There is plenty of room to insert samples easily, and it lets you quickly exchange accessories whenever you want. And of course it is designed for easy maintenance.



Superior precision and accuracy begin with a superior optical design. SCHOTT Instruments sets the standard for uncompromised optical performance with the UVIKON's state-of-the-art optical design.

MEASUREMENT STABILITY

- ▲ Reproducibility with every analysis
- ▲ Accurate data for long kinetics
- ▲ Double-beam optics with dark current correction
- ▲ Thermally insulated optical bench
- ▲ High-sensitivity detector

PRECISE DATA

- ▲ Accurate peak wavelength values
- ▲ Superb resolution for fine molecular structure data
- ▲ State-of-the-art grating drive system
- ▲ Precise data uncompromised by noise

MEASUREMENTS EVEN WITH OPEN SAMPLE COMPARTMENT LID

- ▲ Easy use of extra-large accessories
- ▲ Convenient access for larger cuvettes
- ▲ Optimised design of quartz windows in sample compartment

DIRECT USABILITY WITH MICROCUVETTES

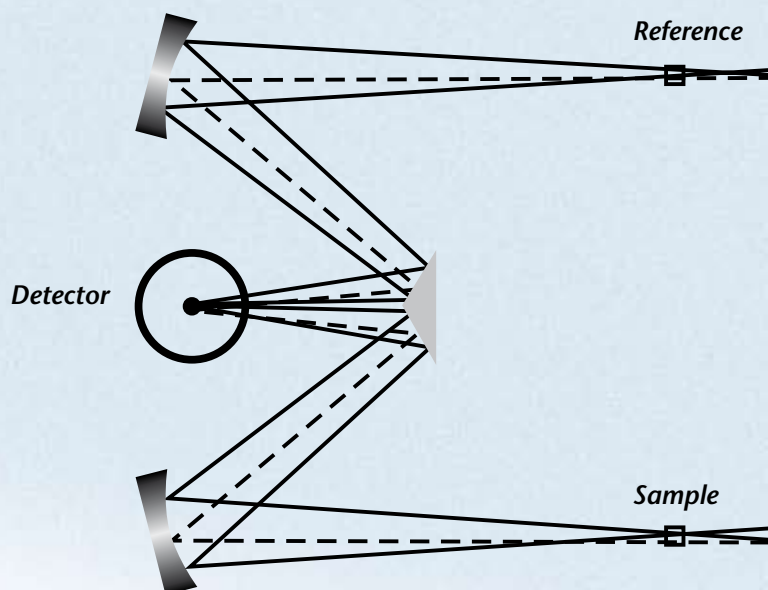
- ▲ Microcuvettes fit directly into the standard cell holder without adapters or beam masks to enable sensitive small-volume measurements.

HIGH ENERGY THROUGHPUT

- ▲ Extended photometric range
- ▲ Accurate measurements even at very high concentrations
- ▲ Modern computer-optimized optics
- ▲ Compact optics design
- ▲ Proven, efficient Zeiss™ monochromator

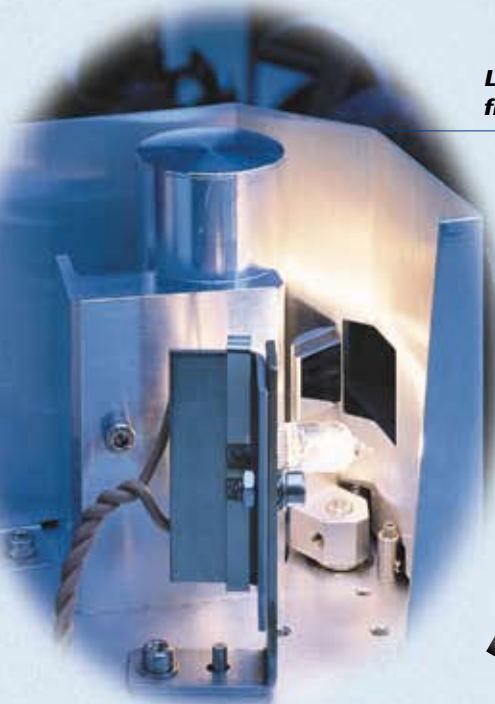
CONSISTENT PERFORMANCE

- ▲ Consistent performance now and in the future.
- ▲ Optics protected from lab environment
- ▲ Reproducible and reliable signal processing
- ▲ True symmetrical optics and electronics
- ▲ Automatic wavelength calibration at switch on

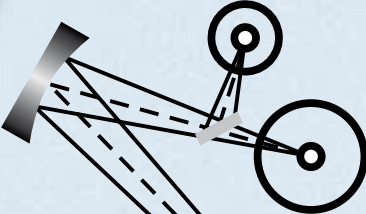


Superior Optics

Lamps compartment thermally isolated from optical bench



Deuterium and Halogen lamp



High-efficiency Zeiss™ grating designed for maximum optical throughput and low stray light

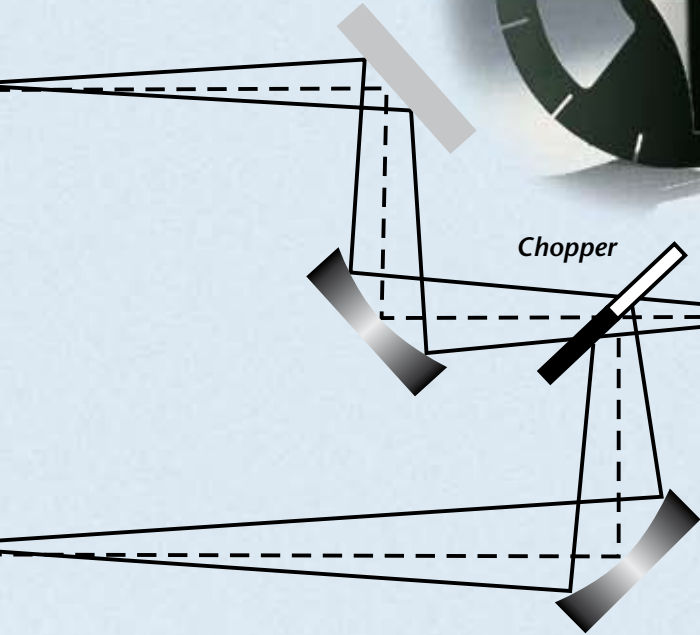


Chopper system corrects for any change in lamp output and dark current 100 times per second (120 at 60Hz)



Chopper

Slit

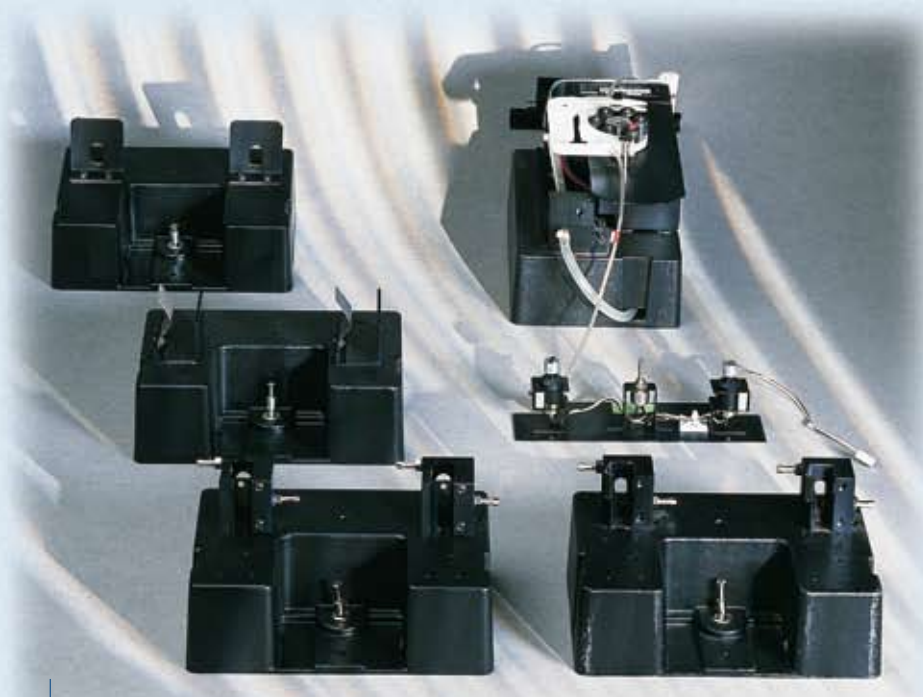


Zeiss™ grating

UVIKON optical design



SCHOTT Instruments offers a complete range of accessories for the UVIKON spectrophotometers. Designed for reliability and built to exacting standards, each accessory is pre-aligned. Each accessory quickly mounts in the sample compartment such that it is already in its optimized location with no need for tools.



- *Peristaltic sipper with sample return and thermostatable flowcell holders*
- *Temperature sensors*
- *Magnetic stirrer*
- *Long path rectangular cell holder (up to 100 mm)*
- *Long path cylindrical cell holder (up to 100 mm)*
- *Filter and solid sample holder*

The UVIKON's QuickLock feature allows installation and exchange of accessories without tools in a matter of seconds.



Gilson auto sampler for laboratory automation

Multifunctional Accessories

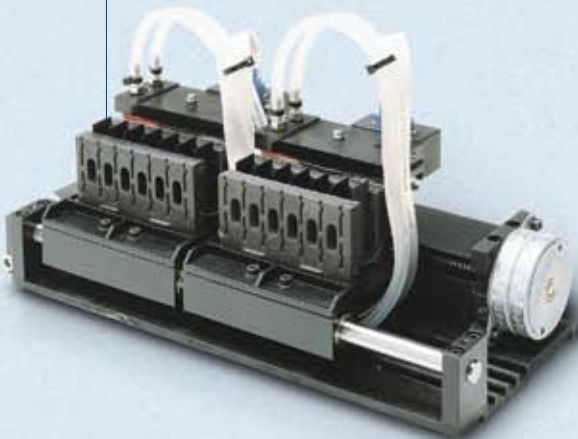


**Thermopack –
external Peltier thermostating
system**



**Automatic water-thermostated
sample changer for simultaneous analysis of up
to 10 enzyme reactions**

**Thermosystem – Software controlled,
Peltier thermostated accessory
for nucleic acid thermal melts**



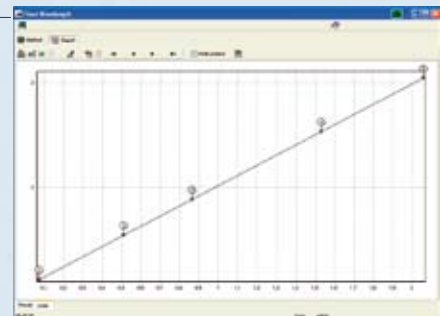
**Performance validation kit with filters and software.
Every Uvikon comes fully tested and includes
a factory Certificate of Performance.
All test data is archived at the factory for full
traceability**



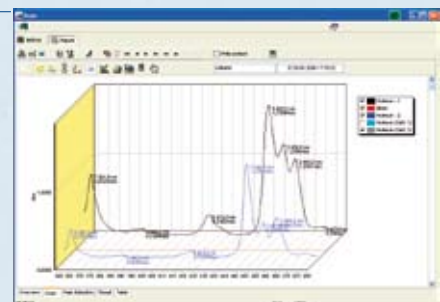


The UV VISION software supports all measurement methods in photometry such as:

Fixed Wavelength:
Readings at a fixed wavelength, with calibration curve

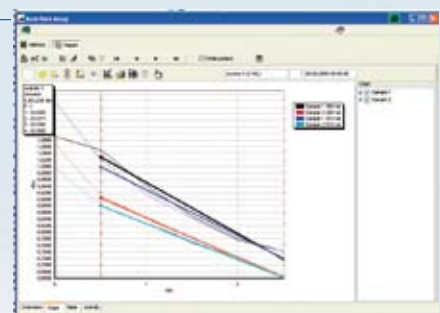


Wavelength Program:
Readings at numerous wavelengths



Wavelength Scan:
Wavelength Scan

Time Drive:
Sequential readings at rapid kinetics



Auto Rate Assay:
Parallel readings from up to 10 samples at slower assay of activity

Software UVVISion

Simple compilation of methods and automation of complex calculations: All parameter of the devices used for the implementation of readings, including the formulas for the calculation of results, are defined as one method and stored in the database. The registered reading data is stored using the corresponding method or a version of the method. Therefore, it is possible at all times to determine with which method the reading data has been generated. If a method is altered, a new version of the method will be produced automatically. The integrated formula editor makes the automation of complex calculations possible. Be it calculations of multiple samples and/or the calculation of one result of various wavelengths – every calculation is fully automated by the formula editor.

Documentation and storage of reading data: Upon completion of a single reading or a reading sequence, an automatic report can be produced. The report records the curves, the original reading data, the calculated results, the method with all reading parameter, the current user, and the date and time of the reading. Further, specific client data such as the company name, department and company logo can be included. The reading data, the corresponding results and methods used, and the report are stored in a secure database. To guarantee further data security, the database can be automatically stored by backup on two separate paths. This makes a loss of data practically impossible.

Data export: All raw data, graphics and results can be directly exported to Excel and therefore be made available to other MSOffice applications.

UVVISion Pharma: The version UVVISion Pharma fully complies with the requirements of the FDA Regulation 21 CFR Part 11 in relation to:

- **User Management:** Three separate user groups with varying rights. The administrator can limit the creation of methods to a small group, for example.
- **Electronic Records:** All reading data, reports, results and the corresponding methods are stored in the data bank. Double data security.
- **Electronic Signature:** The reports can be given a digital signature (login name and password).
- **Audit Trail:** Every alteration of method or report will be automatically registered in the audit trail with the date/time/time zone, the user name and a detailed description of the process.



Software Lab Power

The Lab Power software supports all basic routine applications in photometry such as:

Fixed Wavelength:

Measurements at a single wavelength including calibration curves up to 33 standards

Wavelength Program:

Allows data acquisition at 2–14 wavelengths

Wavelength Scan:

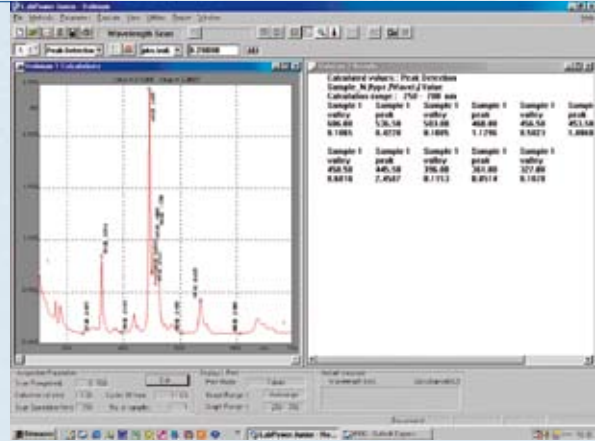
Provides wavelength scans with real time as well as post-run calculations. Peak and valley determinations, overlay of curves and derivative are possible.

Time Drive:

Allows sequential measurements of kinetic data at very high speed (up to 2000 data points/min) or over a long period (15 hours).

Auto Rate Assay:

Provides parallel kinetic measurements up to 10 samples using the cell changer



Further evaluation functions:

- Enzyme activity calculations by linear regression
- Calibration function via linear or quadratic regression as well as linear interpolation
- Curve addition, subtraction, multiplication and division
- Wavelength ratio, difference and base point

Report Capability:

- Automatic printing and storage of individual analytical reports. All measuring data are stored with specific comments and a file extension.

Data Export:

- Simple export in Excel or ASCII.



Specifications

OPTICAL DESIGN

- Well-proven true symmetric double beam optics with only 6 reflecting surfaces per beam
- High energy diffraction Zeiss™ monochromator design using a holographic blazed grating with 1300 lines per mm.
- Very sensitive photodiode (XS)/ photo-multiplier (XL) with a rotating chopper providing 100% energy in sample and reference beams plus dark current correction.
- External source bench providing thermal insulation with optical bench and isolation of the whole photometric assembly against contamination by ozone emitted by deuterium lamp.
- Optical bench base manufactured to a tolerance of 0.01 mm in 1 meter.
- Complete optical system sealed against atmospheric contamination from dust and volatile compounds.

SAMPLE COMPARTMENT

- 140 mm depth, 332 mm width, 162 mm height, with 120 mm beam separation.
- Total and easy access: front top and back covers are quickly removable.
- Three-point positioning of accessories for high reproducibility of results.
- Quartz windows at the beam entrance and exit to the sample compartment prevent the optics from being contaminated.

ACCESSORIES

- Thermostatable standard cell holder directly useable with micro and ultramicro cells for small samples.
- Large family of optional Quick Lock accessories including a variety of cell holders, stirrer, thermostatable automatic cell changer, temperature sensor, thermostatable sipper, Thermopack and Thermosystem (PeltierTechnology).

ENVIRONMENT

- Operating temperature: 15 to 30°C.

CONFIGURATION REQUIREMENTS

- Recommended: PC with Windows XP Pro, 1 free RS 232 port, 128 MB RAM, 50 MB free disk space.
- Optional printer: all standard Windows printers.



Technical Data UVIKON XS

Wavelength range	190–1100 nm
Wavelength steps	0.05–10 nm
Scan speed	5–2000 nm/min
Transfer speed	5000 nm/min
Spectral bandwidth	1.8 nm (fixed)
Wavelength accuracy (Holmium oxide filter at 10 nm/1nm slit)	± 0.3 nm
Wavelength reproducibility (with Holmium oxide filter at 44.4 nm and second wavelength at 536.7 nm; positioning speed 7,000 nm/min)	± 0.03 nm
Baseline flatness, 200–800 nm (1 nm Step, 200 nm/min scanning speed))	< ±1 mAbs
Stray light (NaI (10g/l), 220 nm, 1.8 nm, 1 sec)	< 0.03 %T
Linearity (250 nm, 1.8 nm, 1 sec. $r^2 > 0.999$)	3.3 Abs
Photometric range	±3.5 Abs
Photometric accuracy (0.85 Abs, certified filters, 1 sec., 590 nm)	±3 mAbs
Photometric precision (0.85 Abs, certified filters, 1 sec., 590 nm)	± 0.5 mAbs
Noise (RMS), (measured at 580 nm for 5 min, 1 sec, ASTM E685)	< 30 µAbs
Drift (580 nm, 1 sec, after 2 hrs. of warm-up)	< 0.1 mAbs/h
Response time	0.02–5 sec
Light sources	Deuterium and Tungsten-Halogen
Monochromator	High energy, low stray light diffraction grating with 1300 lines/mm, 175 mm focal length
Dimensions	W 680 mm x D 565 mm x H 275 mm
Weight	35 kg net
Mains Power	100/240 VAC ± 10%, 50/60 Hz
Power Consumption	Max. 200 VA

Technical Data

Technical Data UVIKON XL

Wavelength range	180–900 nm
Wavelength steps	0.05–10 nm
Scan speed	5–2000 nm/min
Transfer speed	7000 nm/min
Spectral bandwidth	0.2 – 0.5 – 1 – 2 – 4 – 6 nm; 0.5 – 1 – 2 – 4 nm, reduced height
Wavelength accuracy (Holmium oxide filter at 10 nm/1 nm slit)	± 0.25 nm
Wavelength reproducibility (with Holmium oxide filter at 44.4 nm and second wavelength at 536.7 nm; positioning speed 7.000 nm/min)	± 0.025 nm
Baseline flatness, 200–800 nm (1 nm Step, 200 nm/min scanning speed)	< ±1 mAbs
Stray light (NaI, 220 nm, 1 nm, 1 sec)	< 0.015 %T
Linearity (250 nm, 2 nm, 1 sec. $r^2 > 0.999$)	3.3 Abs
Photometric range	± 5 Abs
Photometric accuracy (0.85 Abs, certified filters, 1 sec., 590 nm)	± 3 mAbs
Photometric precision (0.85 Abs, certified filters, 1 sec., 590 nm)	± 0.5 mAbs
Noise (RMS), (measured at 580 nm for 5 min, 1 sec, ASTM E685)	40 µ Abs
Drift (580 nm, 1 sec, after 2 hrs. of warm-up)	< 0.1 mAbs/h
Response time	0.02–10 sec
Light sources	Deuterium and Tungsten-Halogen
Monochromator	High energy, low stray light diffraction grating with 1300 lines/mm, 175 mm focal length
Dimensions	B 680 mm x T 565 mm x H 275 mm
Weight	35 kg net
Mains Power	100/240 VAC ± 10% 50/60 Hz
Power Consumption	Max. 200VA



Ordering Information

285600110 (Uvikon XS (CE) (US/CSA)

Includes LabPower software package.

The packages includes: LabPower software, DNA/RNA and validation applications

285600120 Uvikon XL (CE) (US/CSA)

Includes UVVISion Software Package (standard version)

Both UVIKON models include standard thermostatable cell holder compatible with micro and ultra micro cells, accessory controller to allow connection of all UVIKON accessories.

SZ 1015 285600305 **UVVISion**

SZ 1016 285600306 **UVVISion Pharma**, software according to 21 CFR, part 11

SZ 1017 285600307 **Upgrade to UVVISion Pharma**

SZ 1035 285600325 **Thermo system** (6x6 Auto cuvette changer, Peltier thermostated)

SZ 1036 285600326 **Thermo pack** (external water bath with Peltier technology)

SZ 1140 285600430 **Sipper system**

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