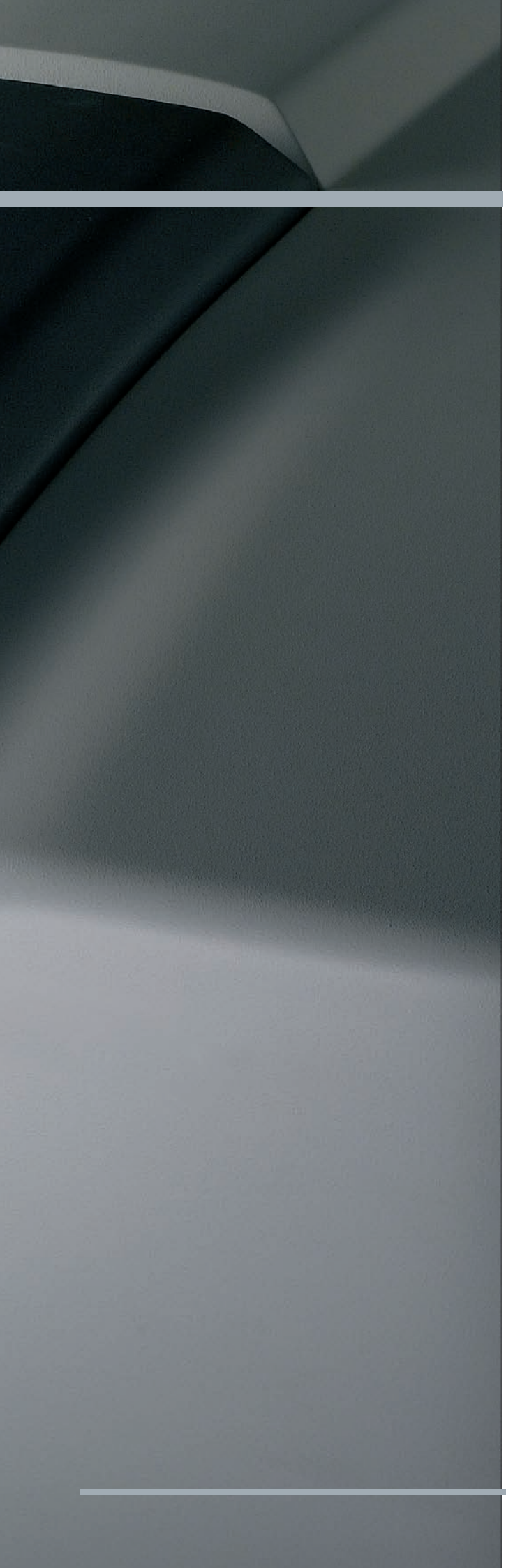
T92+

PRIXMA Spectrophotometers

UV-VIS SPECTROPHOTOMETER

FULLTECH INSTRUMENTS



The T92+ is a high performance double beam spectrophotometer with a variable spectral bandwidth from 0.1-5nm, selected by a continuous variable slit. The instrument is fitted with an embedded PC for extensive local functionality via the UVWin Software.

The Czerny-Turner monochromator with a holographic grating keeps stray light to a minimum and offers excellent optical resolution. The use of a photo-multiplier tube as a detector offers exceptional sensitivity.

The T92+'s true double beam optical system coupled with an efficient and well proven electronic control system ensures high stability and low background noise.

FEATURES & FUNCTIONS

- Photomultiplier tube detection provides exceptional sensitivity.
- Wavelength accuracy ±0.3nm (Automatic Wavelength Correction).
- User selectable spectral bandwidth between 0.1-5nm.
- User friendly design allows easy light source replacement and routine maintenance.
- Sample compartment design enables use of a wide range of optional accessories.
- UV-WIN software offers many operational and data processing capabilities and is supplied as standard with the T92+.

EMBEDDED PC SPECIFICATION

- CPU - Intel® Atom™ processor Z510 1.1 GHz and Z530 1.6 GHz onboard with FSB 400/533 MHz
- Hard Disk – 250GB, ● Memory – 2GB DDR2
- USB – 2 x External USB
- Ethernet – 1 port as 10/100/1000Mbps supports Wake-on-LAN, RPL/PXE Boot ROM with Realtek RTL8111B
- 19" LCD Display – VGA Output with Intel® GMA 500 Graphics Core
- Peripheral – Supplied with USB mini Keyboard Mouse combination.

T92+ continued

OPTICAL SYSTEM & COMPONENTS

The T92+ features an advanced continuous variable bandwidth feature making it the instrument of choice for applications with a demand for precise and accurate control of wavelength resolution. This feature allows the user to specify exactly what bandpass is required in the range of 0.1 - 5nm.

The double beam optical design combined with a high specification holographic grating gives excellent wavelength separation allowing the user to measure close adjacent wavelengths with excellent sensitivity.

The modular design of the sample compartment allows for ease of use of a wide range of optional accessories ensuring accurate analysis of various sample types including liquids, thin films and powders.

The user friendly design of the lamp compartment allows easy replacement and simplified routine maintenance of the Deuterium and Tungsten lamps.

The high specification Embedded PC features in the T92+ provides, full instrument control, data acquisition and processing of measurement data is possible by means of the UV-Win software. For more information please refer to the UV-Win section of this brochure.

Specifications

Specifications	T92+
Optical System	Double beam
Scan Speed	Selectable
Wavelength Range	190 - 900nm
Wavelength Accuracy	± 0.3nm Holmium Oxide Filter, ± 0.1nm at D2 656.1 nm
Wavelength Reproducibility	≤ 0.1nm
Spectral Bandwidth	Continuous slit 0.1 - 5.0nm with 0.1nm interval
Photometric Mode	Transmittance, Absorbance, Energy Concentration, All Using UVWin
Software Photometric Range	-4.0 - 4.0Abs
Photometric Accuracy	0.002A (0 - 0.5A), 0.004A (0.5 - 1.0A), 0.3%T (0 - 100%T)
Photometric Reproducibility	0.001A (0 - 0.5A)
Photometric Noise	0.0004A (500nm) 30min warm-up
Baseline Flatness	0.001A (200 - 850nm)
Baseline Stability	0.0008A/h (500nm, 0Abs), 2hr warm-up
Stray light	≤ 0.01%T (220nm Nal, 340nm $NaNO_2$)
Standard Functionality	No stand alone function
Cell Holder	Fixed position sample and reference
Detector	Photo multiplier tube
Light Source	Tungsten Halogen and Deuterium arc lamps
Display	No display
Printer	Not available
PC Interface	USB
Software Support	UV Win
Power Supply	Switchable 120 - 230VAC 50 - 60Hz
Weight	43Kg
Dimensions (Width, Depth, Height)	545mm, 580mm, 270mm

Each Unit is supplied with the following as standard:

1 x Certificate of conformity
1 x Standard fixed position cell holde (sample and reference)
1 x Pair Quartz cells
1 x Black block for dark current correction
1 x UV Win Software disk
1 x Fuse (2A)
1 x Power cord
1 x Instruction manual
1 x Dust cover
1 x Packing list

UV-Win

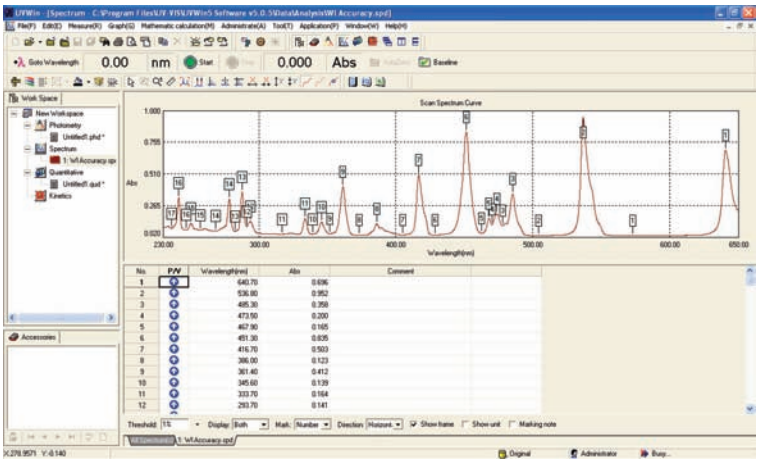
UV-Win is a powerful, intuitive Software product used for connectivity to the PG Instruments range of bench top UV-Vis Spectrophotometers.

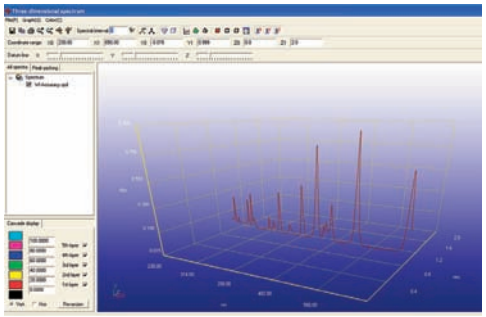
The UV-Win software offers complete instrument control along with data acquisition and a whole host of mathematical tools for interpretation of measurement results. The UV-Win software is separated into four key workspaces:

- Spectral Analysis
- Quantitative Analysis
- Kinetic Analysis
- Photometric Analysis

SPECTRUM WORKSPACE

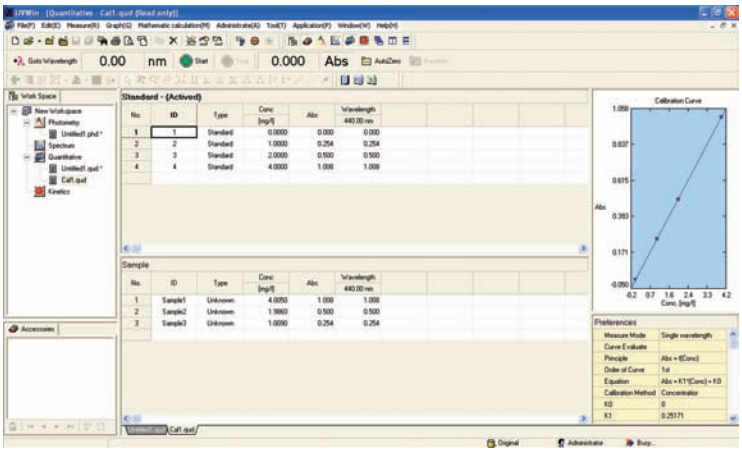
- Use the spectrum workspace to scan across a user-defined spectral range measuring in either absorbance or transmission.
- Use the "Peak Pick" tool to determine the wave-length at which peaks and valleys have occurred whilst also being able to determine their amplitude.
- View spectral overlay in the 3D display mode.
- Perform 1st, 2nd, 3rd and 4th order differentiation on sample scans for Derivative Spectroscopy.
- Export measurement data into Word, Excel, CSV and ASCII formats.
- Create method files for routine analysis whilst also being able to save measurement data.

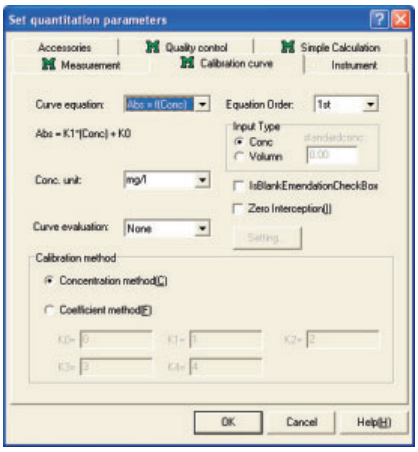




QUANTITATIVE WORKSPACE

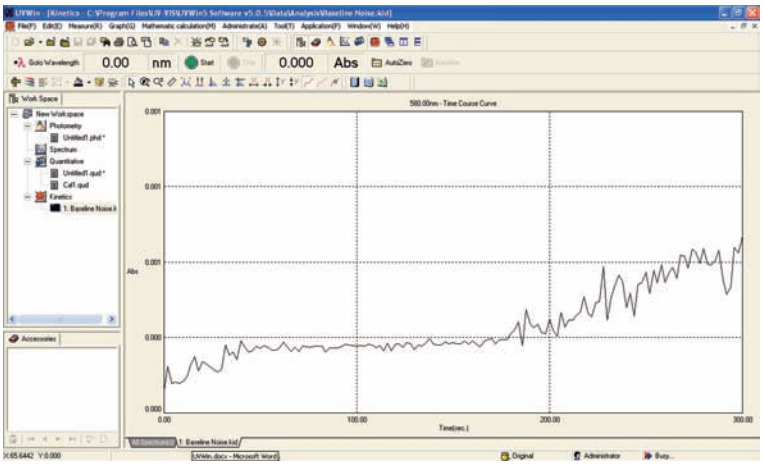
- Use the Quantitative workspace to determine the concentration of unknown samples.
- Create a calibration curve using a series of standard solution or by directly entering the coefficients for the calibration curve equation.
- Specify 1st, 2nd, 3rd and 4th order correlation for the best calibration curve fit.
- Set Quality Control monitors to take user specified action in the event of measurement results falling outside user defined limits.
- Export measurement data into Word, Excel, CSV and ASCII formats.
- Create method files for routine analysis whilst also being able to save measurement data.





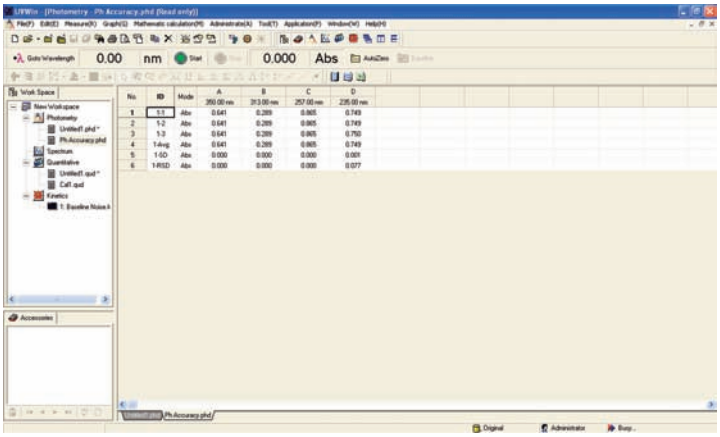
KINETIC WORKSPACE

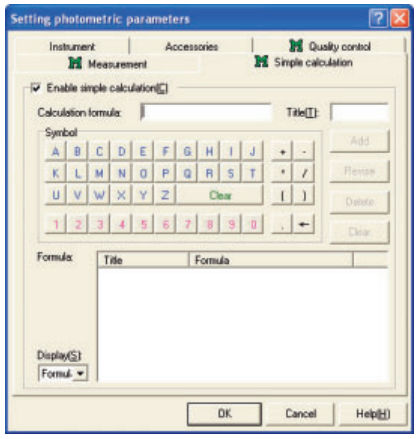
- Monitor the change of Absorbance or Transmission as a function of time for Enzyme type reactions.
- Use in conjunction with a Flowcell for sample introduction or Peltier water circulator for temperature control.
- Specify data intervals and acquisition time for up to 24 hour reactions.
- Export measurement data into Word, Excel, CSV and ASCII formats.
- Create method files for routine analysis whilst also being able to save measurement data



PHOTOMETRIC WORKSPACE

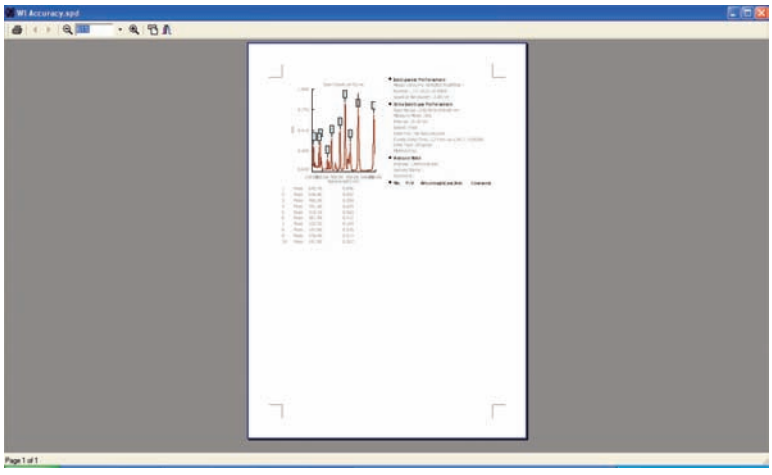
- Perform a series of sequential fixed wavelength measurements in either Absorbance or Transmission.
- Automate sample measurements by configuring the instrument cell changer.
- Calculate concentration of unknown samples quickly using the “Simple Calculation” option where complete calibration is not required.
- Automatically calculate statistics like standard deviation, relative standard deviation, and averages.
- Export measurement data into Word, Excel, CSV and ASCII formats.
- Create method files for routine analysis whilst also being able to save measurement data.





REPORTING

- Produce reports for photometric, spectrum, kinetic and quantitative measurement data.
- Include or remove spectra, calibration curves along with samples measurement tables.

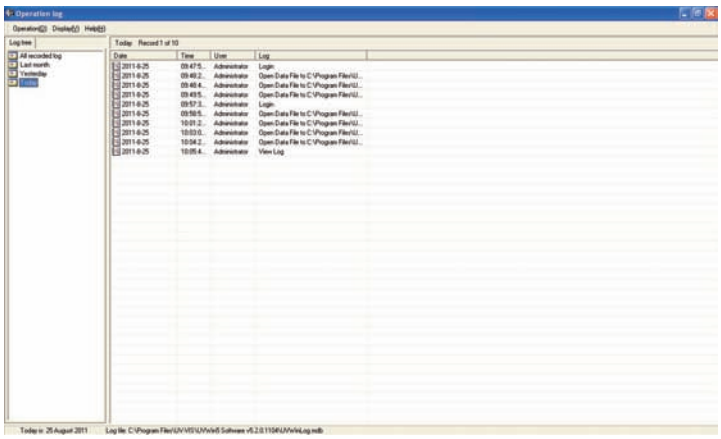


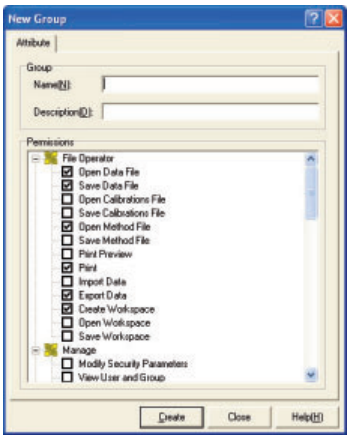
UV-Win GLP

UVWin GLP offers all of the features and functionality of UVWin whilst also offering extensive Administrative capabilities along with a detailed audit trail.

ADMINISTRATION

- Administrative settings can be made where Analysts may require conformity to GLP/GMP/GRP
- Create User groups specifying exactly what actions they are able to perform.
- Add New Users to custom User Groups to determine their privilege settings.
- Automatically log software activity in an Audit Trail.
- Use Password control to ensure Users are logged in for instrument usage.

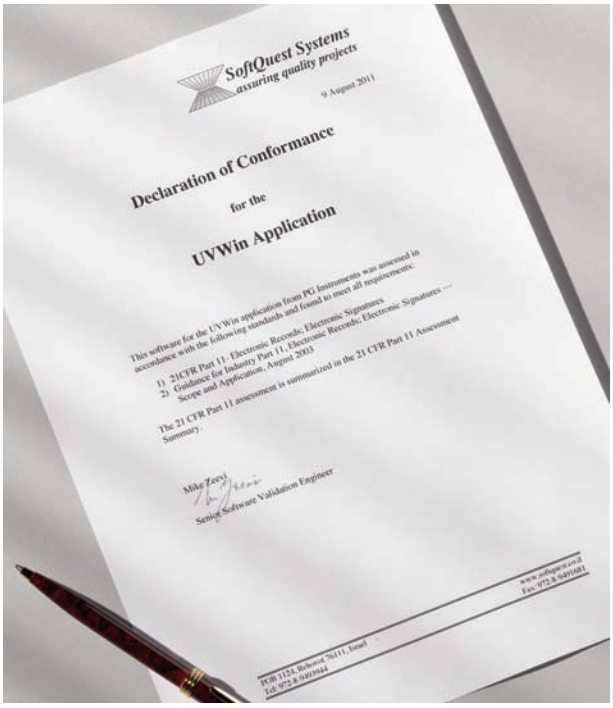




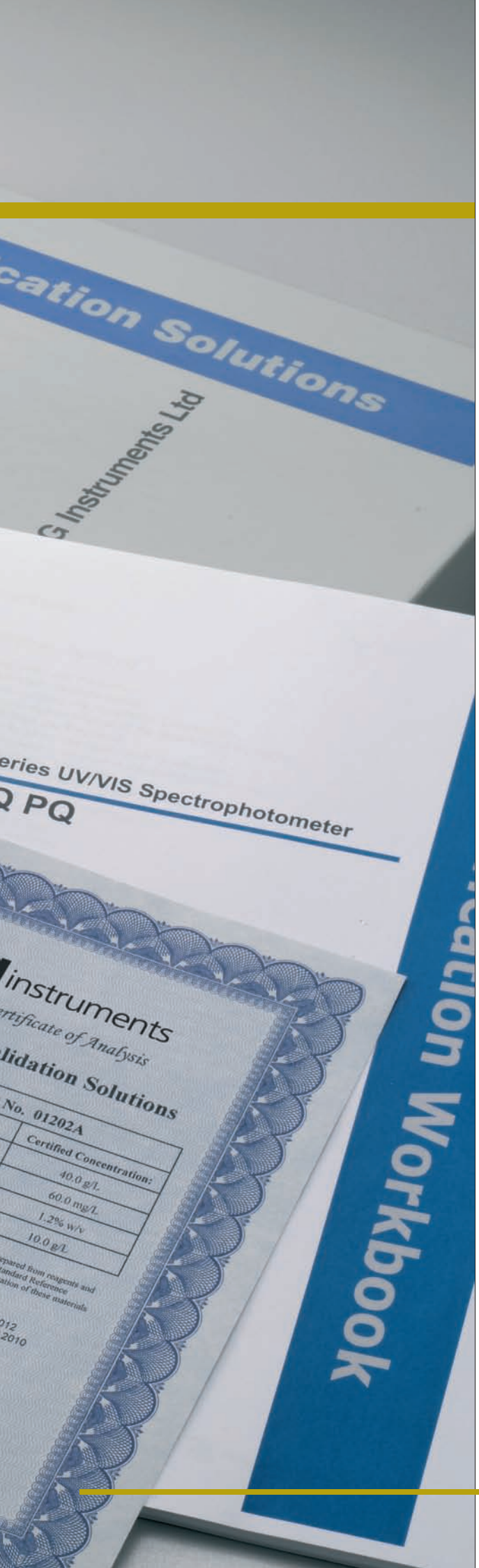
CERTIFICATION

UV-Win GLP has been evaluated and tested by a third party software validation specialist. As a result it was found that UV-Win GLP offers all of the features and functions required for use in compliance with the guidance specified in:

- 21CFR Part 11- Electronic Records; Electronic Signatures
- Guidance for Industry Part 11, Electronic Records; Electronic Signatures — Scope and Application, August 2003



Spectrophotometer Liquid IQ/OQ Qualification Package



The purpose of the Qualification Package is to offer both laboratory analysts and regional distributors the flexibility to perform a full installation, operation and performance qualification on spectrophotometers manufactured by PG Instruments.

The work instructions within the qualification workbook have been developed with considerations of the requirements of the European Pharmacopoeia to ensure compliance with good laboratory practice.

The documentation supplied with the package guides the user through the qualification as it offers detailed instructions on how to carry out the tests, document and record results, and perform any necessary corrective action. The package is comprehensive and offers all the materials required to complete the qualification.

The contents of the package are as follows:

- Holmium Oxide Solution – For determining the wavelength accuracy (NIST srm 2034)
- Potassium Dichromate Solution – For determining the photometric accuracy (NIST srm 935a)
- Potassium Chloride – For determining the stray light @ 200nm
- Sodium Iodide – For determining the stray light @ 220nm
- De-Ionised Water – Reference solution
- Two 10mm path length Quartz Cuvettes – To perform the validation
- Certificate for Solutions
- Qualification Workbook containing Qualification Worksheets
- CD containing Qualification Workbook

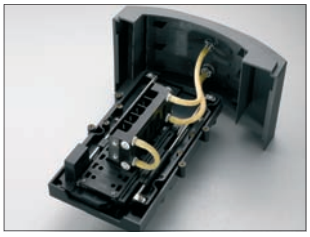
NOTE: UVWin software is a mandatory requirement for performing instrument qualification

Accessories

T60

Available Program cards include:

- Quantitative card 21602-2801-00
- Spectrum scanning/Kinetics card 21604-2801-00
- Multi wavelength card 21605-2801-00
- Palm Oil Analysis Card (DOBI)

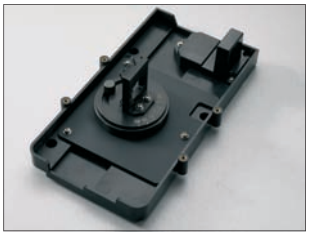


CH16-1
Constant temperature cell holder

- Cell Pathlength: 10mm
- Number of Cells: 5
- Requires PTC-2 Peltier Water Circulator

PS16-2
Sipper Pump

- Pump Speed: 0.1 - 250 RPM
- Speed resolution: 0.1 RPM less than 30 RPM Speed and 1 RPM above 30 RPM Speed

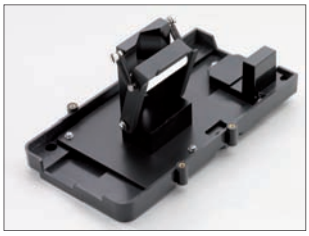


DS16-1
Angle adjustable sample holder

- Maximum angle: 45 Degrees
- Minimum Sample Size: 4mm (Width)
- Maximum Sample Size: 80 x 55 x 5mm

PTC-2
Peltier

- Temperature range: 5 - 75°C
- Use in conjunction with CH16-1



TR16-1
Test tube holder

- Test Tube Diameter: 15 - 25mm
- Test Tube Height: 90 - 120mm

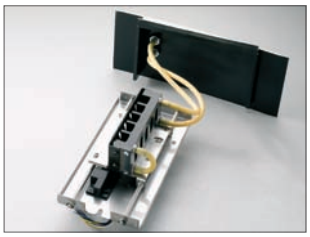
USB Printer driver P2U

- Connect the T60 to specific USB printers

T70

LS181-1
5 cell holder

- Cell Pathlength: 5 - 50mm (adjustable)
- Number of Cells: 5

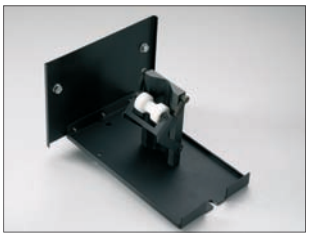


CH181-1
Constant temperature sample holder

- Cell Pathlength: 10mm
- Number of Cells: 5
- Requires PTC-2 Peltier Water Circulator

DS181-1
Angle adjustable holder

- Maximum angle: 45 Degrees
- Minimum Sample Size: 4mm (Width)
- Maximum Sample Size: 80x55xmm



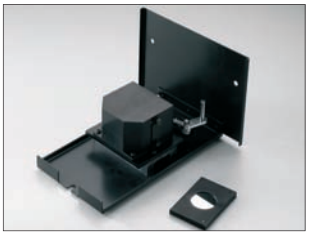
TR181-1
Test tube holder

- Test Tube Diameter: 15 - 25mm
- Test Tube Height: 90 - 120mm

S181-1
Solid Sample Holder

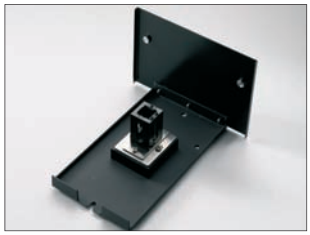
- Maximum sample size: 80mm x 55mm x 5mm

T70 continued



MR181-1
Specular Reflection
- Incidence angle: 5°
- Size of Sample Area Measured: 11 × 9mm to 60 × 40mm
- Spectral Range: 200 - 1100nm

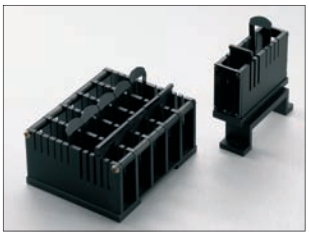
PS181-2
Sipper Pump
- Pump Speed: 0.1 - 250 RPM
- Speed resolution: 0.1 RPM less than 30 RPM Speed and 1 RPM above 30 RPM Speed



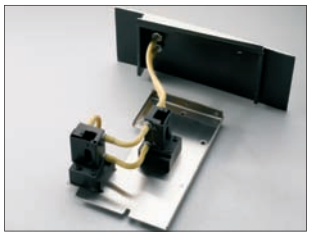
MH181-1
Micro cell holder
- Pathlength: 10mm
- Minimum Cell Window Width: 2mm
- Minimum Cell Window Height: 10mm

PTC-2
Peltier
- Temperature range: 5 - 75°C
- Use in conjunction with CH181-1

T80



LS188-1
5 cell holder
- Cell Pathlength: 5-50mm (adjustable)
- Number of Cells: 5



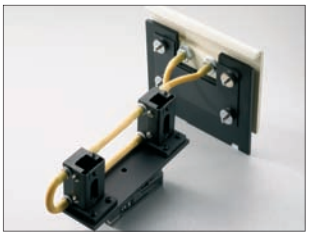
CH188-1
Constant temperature holder
- Cell Pathlength: 10mm
- Number of Cells: 2 Cells (one for Sample and one for Reference)
- Requires PTC-2 Peltier Water Circulator

PS181-2
Sipper Pump
- Pump Speed: 0.1 - 250 RPM
- Speed resolution: 0.1 RPM less than 30 RPM Speed and 1 RPM above 30 RPM Speed

PTC-2
Peltier
- Temperature range: 5 - 75°C
- Use in conjunction with CH188-1

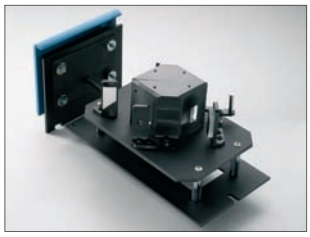
NOTE: All T70 Accessories can be used in the T80 but only single beam measurements can be performed.

T90+ / T92+



CH19-1
Constant temperature holder
- Cell Pathlength: 10mm
- Number of Cells: 2 Cells (one for Sample and one for Reference)
- Requires PTC-2 Peltier Water Circulator

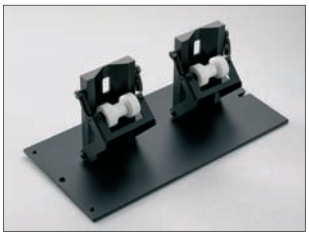
S19-1
Solid Sample Holder
- Maximum Sample Size: 80mm × 55mm x 5mm
- Sample and reference beams



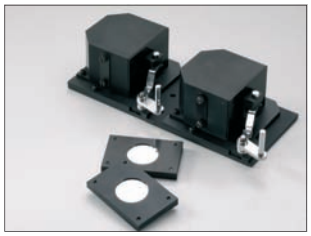
IS19-1
Integrating Sphere
- Incidence angle: Sample 0° reference 8°
- Minimum Sample Size for Diffuse Reflectance: 15mm × 25mm
- Minimum Sample Size for Transmission: 20mm Diameter
- Wavelength Range: 230 - 850nm with a 5nm Bandpass
- Sphere Diameter: 58mm

DS19-1
Angle adjustable cell holder
- Maximum angle: 45 Degrees
- Minimum Sample Size: 4mm (Width)
- Maximum Sample Size: 80 x 55 x 5mm

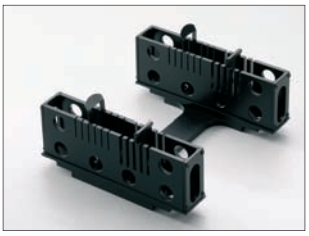
T90+ / T92+ continued



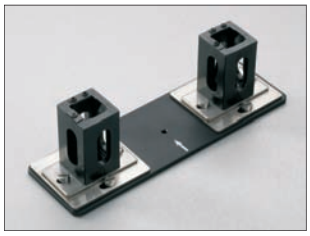
TR19-1
Test tube holder
- Test Tube Diameter: 15 - 25mm
- Test Tube Height: 90 - 120mm



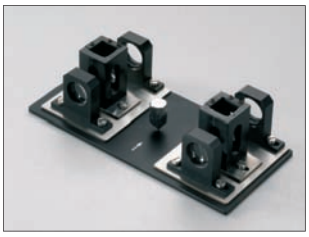
MR19-1
Specular reflection
- Incidence angle: 5°
- Size of Sample Area Measured: 30 x 15mm
- Spectral Range: 200 - 900nm



LS19-1
Long path-length holder
- Pathlength: 5, 10, 20, 30, 40, 50, 100mm
- Number of Cells: 2 Cells (one for Sample and one for Reference)



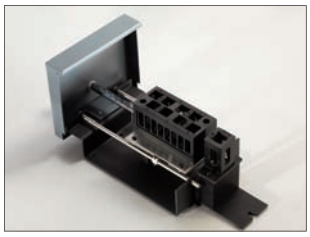
MH19-1
Micro cell holder
- Pathlength: 10mm
- Minimum Cell Window Width: 2mm
- Minimum Cell Window Height: 10mm



MH19-2
Ultra micro cell holder
- Pathlength: 10mm
- Minimum Cell Window Width: 2mm
- Minimum Cell Window Height: 5mm

PS19-2
Sipper Pump
- Pump Speed: 0.1 - 250 RPM
- Speed resolution: 0.1 RPM less than 30 RPM Speed and 1 RPM above 30 RPM Speed

PTC-2
Peltier
- Temperature range: 5 - 75°C
- Use in conjunction with CH19-1



MS19-1
Manual Cell Changer
- 8 position cell changer
- Pathlength: 10mm

P11

170-003
Fibre optic cable

170-002
10mm cell/test tube holder and fibre cable assembly

170-017
Universal 10-50mm pathlength cell holder assembly

Consumables

D2 lamp D2-100 (T60U)

D2 lamp D2-200 (T70, T80, T90, T92)

W lamp W-100 (T60V, T60U)
W lamp W-200 (T70, T80, T90, T92)

Glass and Quartz cuvettes

FULLTECH INSTRUMENTS

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