

# PMT - 3000

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## UV/VIS Spectrophotometer



EPCC / PRODUCTS / APPLICATION / SOFTWARE / ACCESSORIES / CONSUMABLES / SERVICES

**Analytical Technologies Limited**

An ISO 9001 Certified Company

[www.analyticalgroup.net](http://www.analyticalgroup.net)

- The PMT3000 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 UV-Win Software. The Czerny-Turner monochromator with a holographic grating keeps stray light to a minimum and offers excellent optical resolution. The use of a photomultiplier tube as a detector offers exceptional sensitivity.

The PMT3000 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  $\pm 0.3\text{nm}$  (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 PMT3000.

## Feature

The spectral bandwidth is one of the main factors that affect the quantitative analysis error of UV/Vis Spectrophotometer. After studying the influences of spectral bandwidth on the analysis error, T. Owen pointed out that the spectral bandwidth of the UV/Visible Spectrophotometer is very important. When the spectral bandwidth (SBW) / natural bandwidth (NBW)  $\leq 0.1$  (natural bandwidth, which is half width of the sample absorption band), the instrument can meet the requirements of 99% sample analysis, and analysis accuracy can reach up to 99.9%. Below is an application example in drug inspection industry:

SBW	Abs
0.2nm	0.841
0.3nm	0.840
0.4nm	0.842
0.5nm	0.840
0.6nm	0.838
0.7nm	0.839

As we can see, the peak value is the highest when the spectral bandwidth is 0.4nm, indicating that the best spectral bandwidth is 0.4nm. In addition, the most suitable spectral bandwidth for drugs, such as Penicillin Potassium and Cytochrome C solution, can be found through experiments. Thus reduce the measurement steps, reduce testing costs, and save measurement time. The PMT3000 features an advanced continuous variable bandwidth and excellent performance. It meets various demands for spectral bandwidth from users in different industries especially pharmaceutical industry and scientific research field.

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

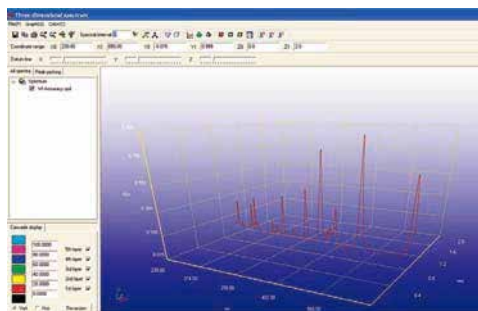
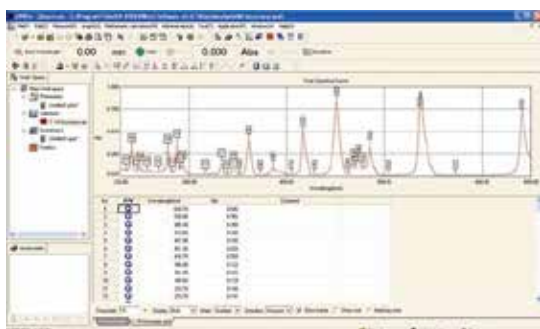
Quantitative Analysis

Kinetic Analysis

Photometric Analysis

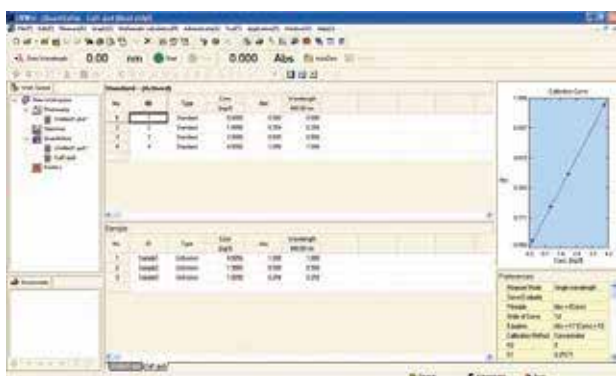
## ►► Spectrum Workspace:

- Use the spectrum workspace to scan across a userdefined spectral range measuring in either absorbance or transmission.
- Use the “Peak Pick” tool to determine the wavelength 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.



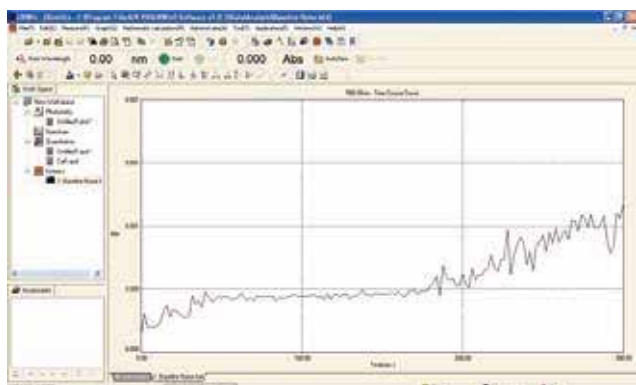
## ►► Quantitative Workspace:

- 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 it.
- 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.



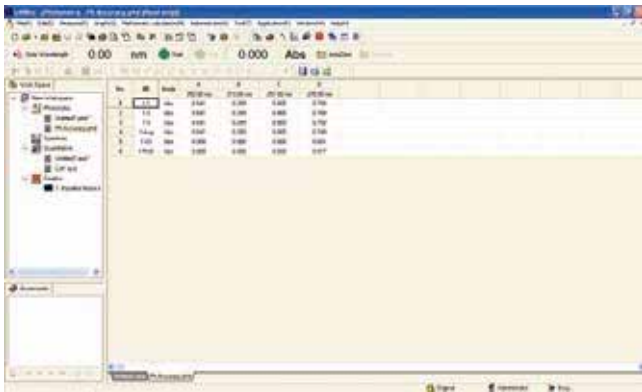
## ►► Kinetic Workspace:

- 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.



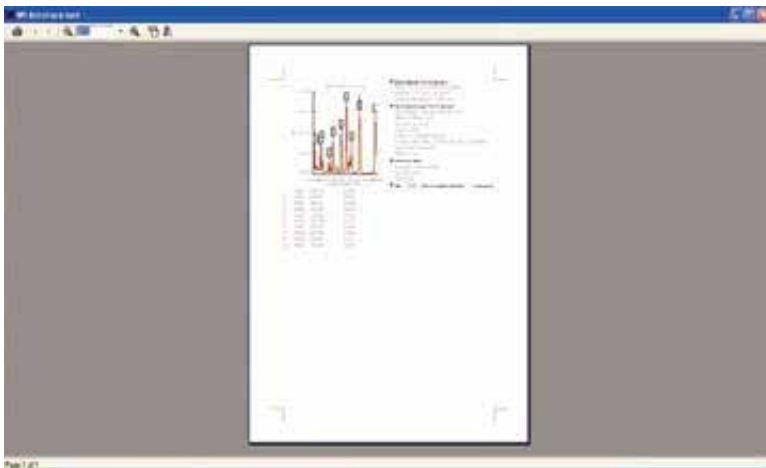
## ►► Photometric Workspace:

- Perform a series of sequential 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:

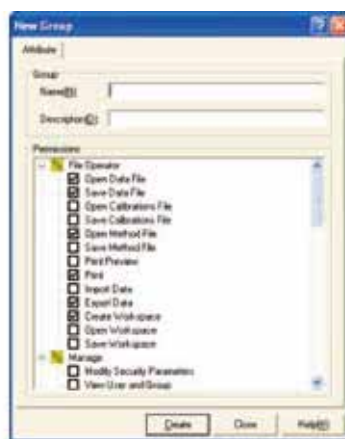
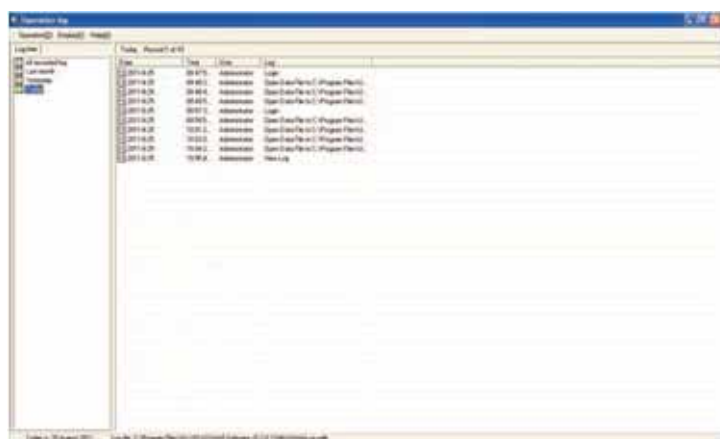
- Produce reports for photometric, spectrum, kinetic and quantitative measurement data. Include or remove spectra, calibration curves along with samples measurement tables.



- ▶▶ **UV-Win GLP offers all of the features and functionality of UV-Win 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.



### ▶▶ Optional Accessories

- Sipper Pump Accessory
- Constant Temperature Cell Holder
- Peltier
- Adjustable Angle Solid Sample Holder
- Solid Sample Holder
- Standard Sample Holder
- Automatic 8 Position Cell Changer
- Universal 5-100mm Path Length Cell Holder
- Micro Cell Holder
- Ultra Micro Cell Holder
- Specular Reflectance Accessory
- Integrating Sphere
- Test Tube Holder 13-16mm Variable
- Short Path-length Cell Holder



Sipper pump



Fixed position constant-temperature cell holder



Peltier



Adjustable angle solid sample holder



Solid sample holder



Automatic 8 Position Cell Changer



Long pathlength cell holder



Micro cell holder



Ultra Micro cell holder



Specular reflection accessory



Integrating Sphere



Test tube holder

## ►► Specifications:

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



## HPLC Servicing, Validation, Trainings and Preventive Maintenance :

**HPLC Servicing** :HPLC Servicing : We have team of service engineers who can attend to any make of HPLC promptly @the most affordable cost.

**Trainings** :We also take up preventive Maintenance to reduce downtime of HPLC's Trainings.

**AMC's/CMC** :AMC's/CMC :We offer user training both in-House and at customer sites on HPLC principles, operations, trouble-shooting.

**Validations** :Validations :We have protocols for carrying out periodic Validations as per GLP/GMP/USFDA norms.

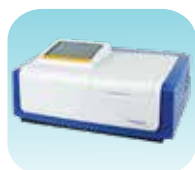
**Instruments** :Instruments :We offer instruments/Renting Services Modules like pumps,detector etc. on Rent.



## About Analytical Technologies

Analytical Technologies is synonymous for offering technologies for doing analysis and is the Fastest Growing Global Brand having presence in at least 96 countries across the global. Analytical Technologies Limited is an ISO:9001 Certified Company engaged in Designing, Manufacturing, Marketing & providing Services for the Analytical, Chromatography, Spectroscopy, Bio Technology, Bio Medical, Clinical Diagnostics, Material Science & General Laboratory Instrumentation. Analytical Technologies, India has across the Country operations with at least 4 Regional Offices, 6 Branch Offices & Service Centers. Distributors & Channel partners worldwide.

## Our Products & Technologies



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Double Beam



Infra FTIR



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Chromatograph  
3007



Optima Gas  
Chromatograph  
2979 Plus



Flash  
Chromatograph



Atomic Absorption  
Spectrophotometer



Liquid Partical  
Counter



Optical Emission  
Spectrophotometer



DSC/TGA



Semi Auto Bio  
Chemistry Analyzer



HEMA 2062  
Hematology  
Analyzer



Micro Plate  
Reader/Washer



URINOVA 2800  
Urine Analyzer



Total Organic  
Carbon 3800



Fully Automated  
CLIA



NOVA-2100  
Chemistry Analyzer



PCR/Gradient PCR/  
RTPCR



TOC  
Analyzer



Laser Particle  
Size Analyzer



Ion Chromatograph



Water purification  
system



## Regulatory compliances



## Corporate Social Responsibility

Analytical Foundation is a nonprofit organization (NGO) found for the purpose of:



**Analytical**  
**Foundation**

1. Research & Innovation Scientist's awards/QC Professional Award : Quality life is possible by innovation only and the innovation is possible by research only, hence ANALYTICAL FOUNDATION is committed to identify such personalities for their contributions across various field of Science and Technology and awarding them yearly. To participate for award, send us your details of research / testing / publication at [Info@analyticalfoundation.org](mailto:Info@analyticalfoundation.org)

2. Improving quality of life by offering YOGA Training courses, Work shops/Seminars etc.

3. ANALYTICAL FOUNDATION aims to DETOXYFY human minds,souls and body by means of yoga, Meditation, Ayurveda, Health Care, Awards, Media, Events, Camps etc.

## Reach us @



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