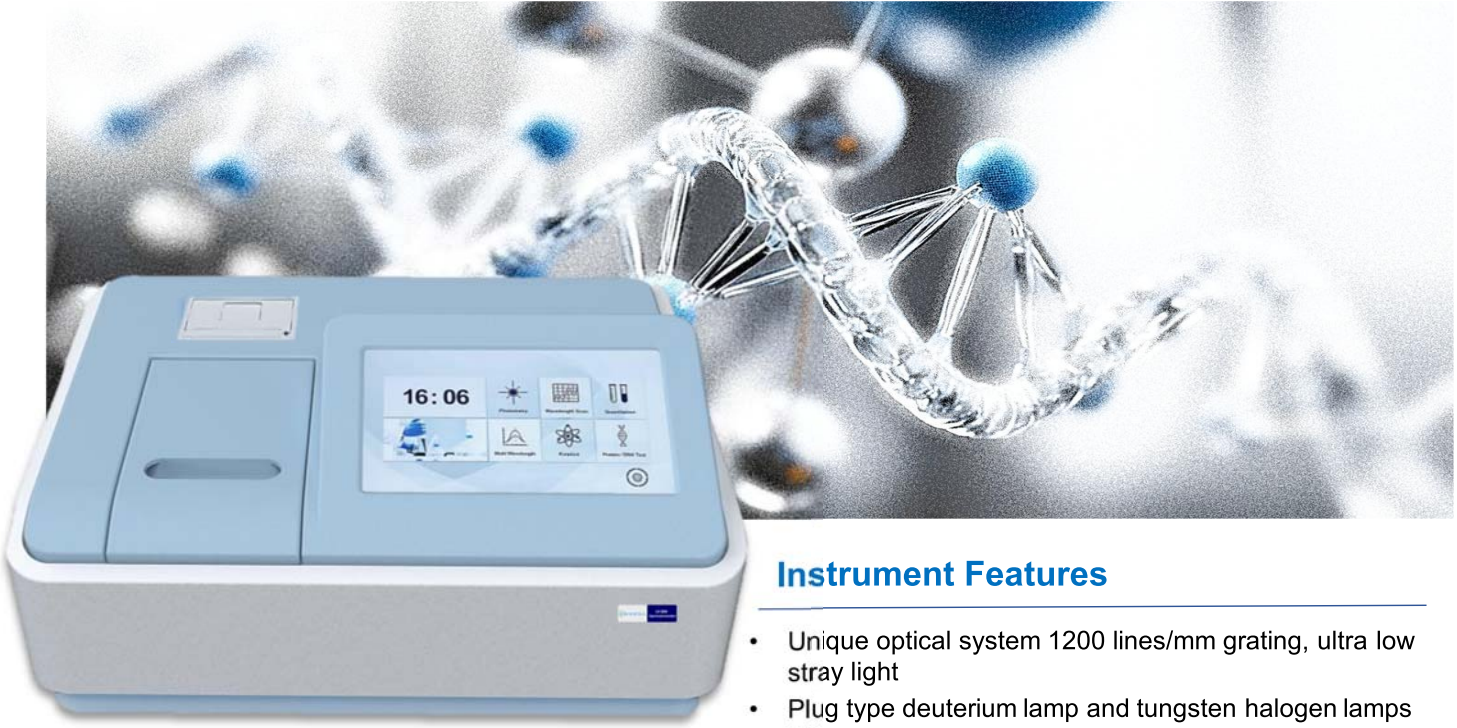
Biometrics
Quality of life

UV 600E

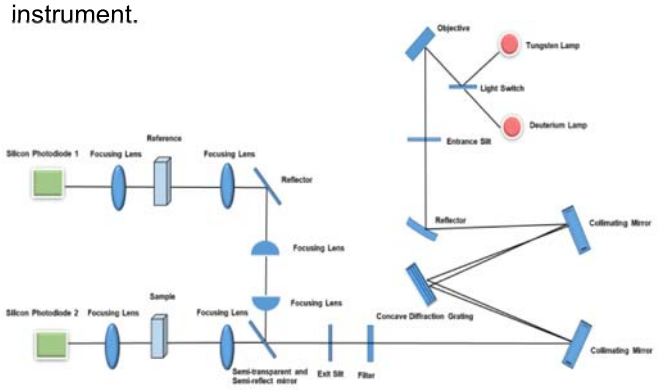
UV-VIS Spectrophotometer
Double Beam System



UV 600E Double beam spectrophotometer

The UV 600E is a UV-visible spectrophotometer with a double-beam optical system, providing high precision, excellent repeatability, and reliable baseline stability for quality-critical applications. The equipment features unique optical system 1200 lines/mm grating and a Czerny-Turner monochromator system for high-resolution data in routine quality control and research applications.

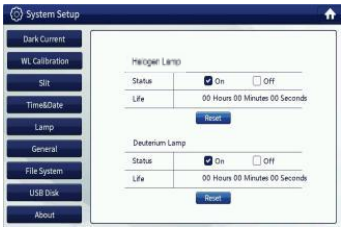
Designed to meet high requirement for precision measurement in the research and development of organic chemistry, biochemistry, medical testing, food testing, pharmaceutical industry, environmental protection, water testing and so on. The latest technology and optical system ensure high accuracy and the best stability of the instrument.



Schematic Diagram of Double Beam System

Performance Validation and Light Source Management

- Performance Validation Functions such as Wavelength accuracy and Wavelength Repeatability at 656.1 nm
- Lamp usage monitoring

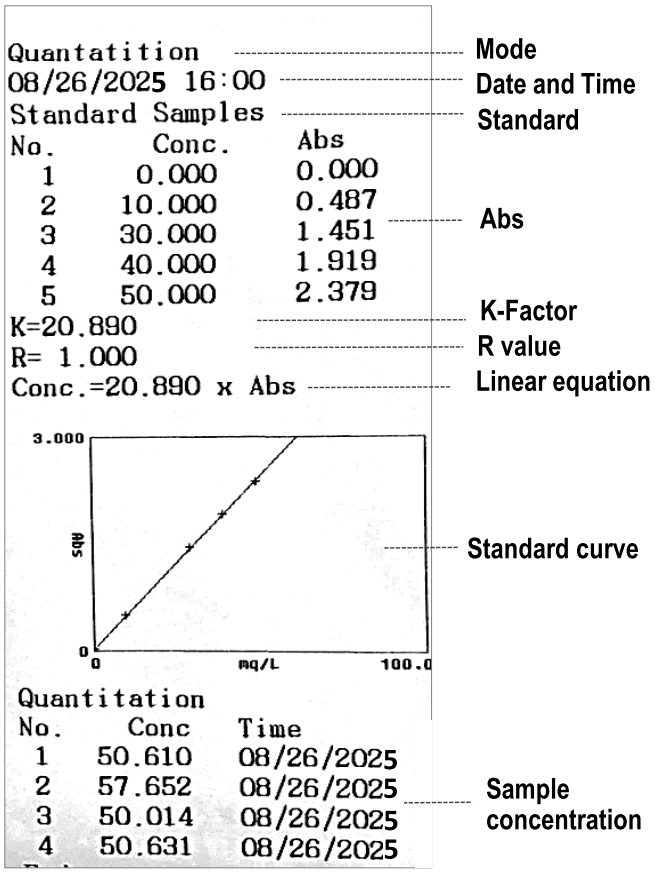


Instrument Features

- Unique optical system 1200 lines/mm grating, ultra low stray light
- Plug type deuterium lamp and tungsten halogen lamps without optics debugging
- Automatic light source switching from 295 - 400 nm and User can select on/off manually for deuterium or tungsten halogen lamp
- 10.1 inches high resolution TFT color touch screen display
- Controlled via standalone mode and PC software
- Facilitates easy data transfer via USB flash drive.
- Lamp usage time function in standalone control.
- The validation software for both standalone and PC control allows users to perform the instrument performance verification test such as wavelength accuracy and wavelength repeatability.
- Built-in Thermal printer.

Built-in Thermal Printer

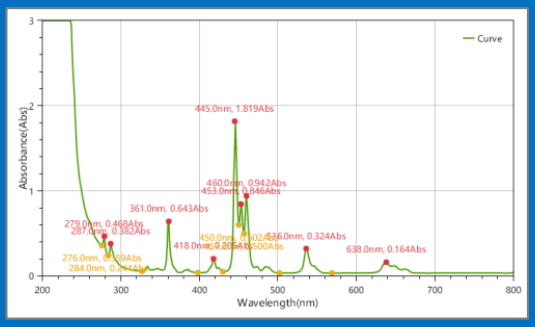
Come with a thermal printer that prints test results directly.

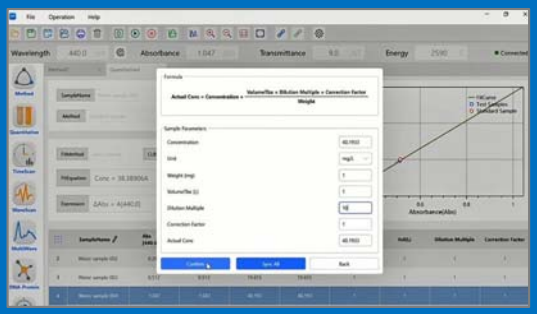


Working modes

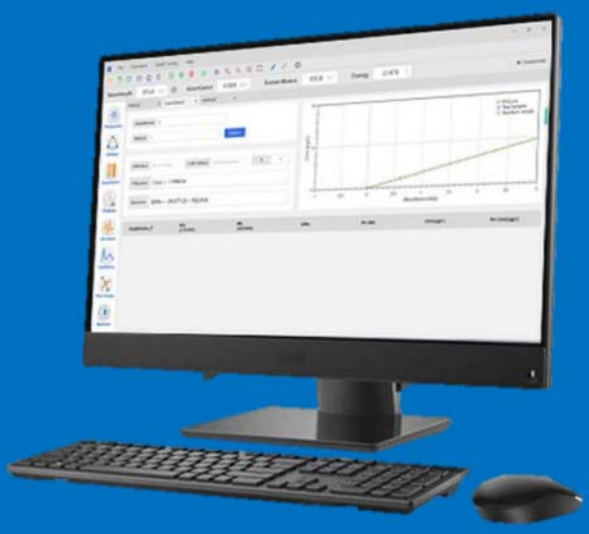
Standalone Control:

Users can use standalone mode with a large display color touch screen for all working modes: Photometry, Multi-Wavelength, Wavelength Scan, Quantitation, Protein/DNA test (Biomethod) and Kinetics/Time scan.





PC Software Control



The PC Control:

This software allows save the data, recall the data, analyze your data, calculate actual concentration by determination of dilution factor and sample weight including print out the data using the favorable program. All working modes Photometry, Multi-wavelength, Wavelength Scan, Quantitation, DNA-Protein (Biomethod), Kinetics/Time Scan and Spectrum evaluation are encompassed in the software.

Standalone Control

Photometric Mode

-Measurement mode: Absorbance (Abs), Transmittance (%T) and Energy (E) with single wavelength setting

Quantitation Mode

-The maximum point of the standard curve is 10 points
-Real-time display of standard curve
-The unit concentration: mg/L, ug/mL, ppm, ppb, g/L…etc

Multi-Wavelength Program Mode

-Measurement mode: Absorbance (Abs) and Transmittance (%T)
-Maximum number of wavelength setting is 8 wavelengths

Wavelength Scan / Spectrum Scan Mode

-Wavelength range : 190-1100 nm
-Data resolution: 0.1, 0.2, 0.5, 1.0, 2.0 and 5.0 nm
-Scan speed: Fast, Medium, Slow

DNA/Protein Mode (Bio-method)

-A mode in which is used for testing and calculation of DNA and Proteins concentration at wavelength 260, 280 and 320 nm

Kinetics / Time Scan Mode

-Measure: Absorbance (Abs), Transmittance (%T) and Energy (E) change as function time
-Interval: 0.5, 1, 5, 10, 30 sec and 1 min
-Maximum time: 9999 sec (166 min)
-Calculation of the slope to measure kinetic reaction rates

System Setup: Validation

-The software allows users to perform the instrument performance verification test such as wavelength accuracy and wavelength repeatability.

Control with UV Professional Software

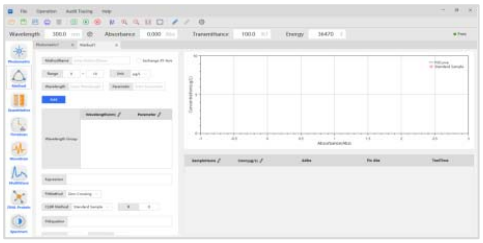
The UV 600E spectrophotometer can be controlled using UV Professional software. With the simple design software empower even first-time users to operate working simply. The validation function is also included in UV Professional software which is able to operate on Windows 7 Windows 10 and Windows 11 etc.

Photometric mode

- Display modes include Absorbance (Abs), Transmittance (%T), Energy (E) and Reflectance (%R) in case of Integrating Sphere attachment.

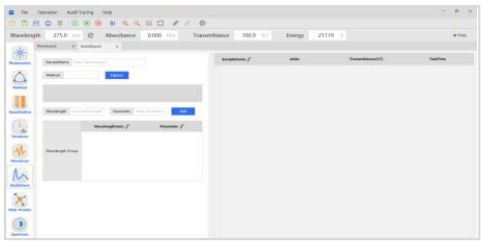
Quantitative mode

- Two methods can be selected to establish the standard curve or calibration curve : standard sample method and coefficient method (Specify a factor).
- Can be fitted in six equations (linearity with zero crossing, linearity fitting, second-order fitting and third-order fitting, exponential fitting and logarithmic fitting).
- Multi-wavelength quantitation can be applied to calculate the overall concentration of various components in a mixture sample.
- Set the wavelength and calculation coefficient in turn and save them in the formula library for direct calling next time.
- Can be set the parameters for Volume, Weight, Dilution multiple, and Correction factor to create a formula for calculating the actual concentration of the sample.



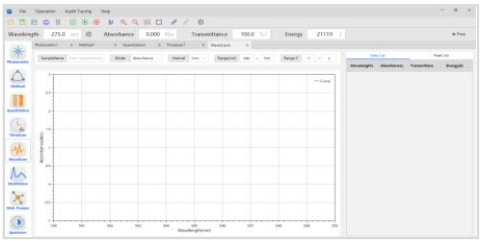
Multi-Wavelength mode

- Measurement mode: Absorbance (Abs) and Transmittance (%T)
- The photometric value can be measured more than 30 wavelengths.
- Calculated by user-defined method.



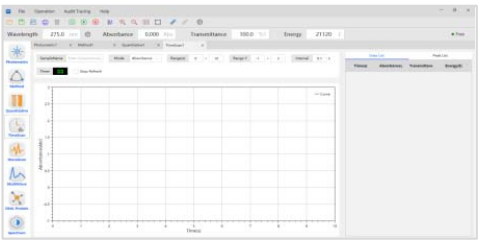
Wavelength scanning mode

- Wavelength scanning system baselines can be stored and recalled.
- Selectable scan intervals (0.1, 0.2, 0.5, 1.0, 2.0, and 5.0 nm).



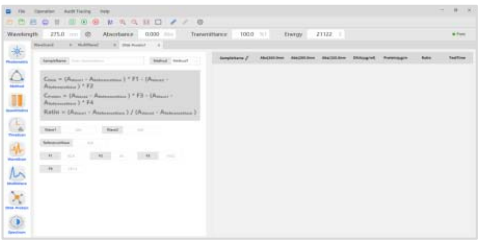
Kinetics mode (Time Course Mode)

- Sampling time interval can be set independently.
- Scan curve display mode can be switched (time-transmittance or time-absorbance).
- Time setting: seconds (displayed in minutes and seconds)



DNA/Protein analysis mode

- DNA and Protein analysis method.
- User can customize the test method.



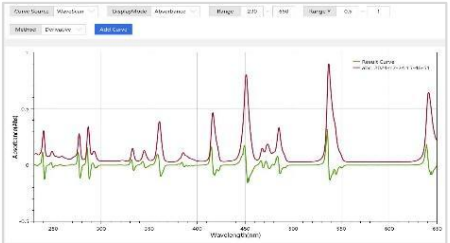
Method mode

- Setting the parameters for creating the calibration curve.
- 6 types of calibration curve fitting equations can be set: Zero Crossing method, First Order (Linear regression), Second Order (Quadratic regression), Third Order (Cubic regression), Exponential fit, and Logarithmic fit
- Multiwavelength settings are available for the quantitative mode, allowing calculations using addition, subtraction, multiplication, and division operations

Spectrum analysis mode

This mode includes functions used to evaluate spectrum These can be performed as follows:

- Spectral comparison
- Spectral addition
- Spectral subtraction
- Spectral multiplication
- Spectral division



Derivative spectrum analysis

Product Specification

Model	UV 600E
Wavelength Range	190-1100 nm
Light source	Deuterium & Halogen Lamp
Optics system	Double Beam
Monochromator type	Czerny-Turner monochromator
Spectral Bandwidth	1.8 nm
Wavelength Accuracy	±0.1 nm (at D2 peak 656.1 nm) ±0.3 nm (whole range)
Wavelength Repeatability	±0.1 nm
Photometric Accuracy	±0.20%T (0-100%T), ±0.002A (0-0.5A), ±0.004A (0.5-1A)
Photometric Repeatability	±0.15%T (0-100%T), ±0.0003A (0-0.5A), ±0.0003A (0.5-1A)
Photometric Range	0-200%T, -4.000 to 4.000 A, 0-9999C
Noise at 500 nm	≤0.0003A (Peak to Peak)
Baseline Stability (Drift)	±0.0003A/h at 500 nm & 700 nm after lamp turn on for 1 hour
Baseline Flatness	±0.0008A (190 to 1100 nm)
Stray Light	≤0.02%T at 220 nm NaI, 340 & 370 nm $NaNO_2$
Working Mode	%Transmittance, Absorbance, Concentration, Energy
Scanning speed	Fast, Medium, Slow
Display	10.1-inch Touch Screen Display
Data output	USB Port for flash drive / USB port for PC connection / RS232
Detector	2 Silicon Photodiodes
Power	AC 110-240 V / 50-60 Hz
Wavelength Setting	Auto
Sample Holder	2 Single cell holders (size 10 mm)
Dimension	510x420x240 mm
Net weight	15.5 kg

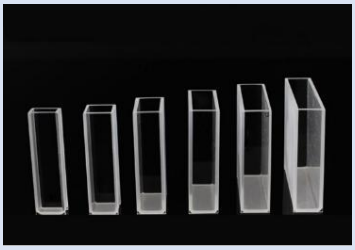
Scope of Supply

- Spectrophotometer 1 set
- 10 mm glass cuvette 1 set (4 pcs)
- 10 mm quartz cuvette 1 set (2 pcs)
- USB connection and power cable
- User manual
- PC Software for control and data analysis and dongle key
- Dust cover

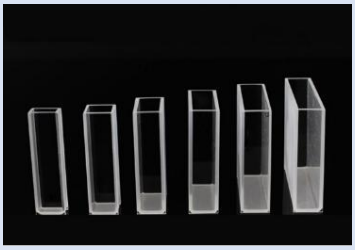
Accessories for Various Application

Automatic 4-Long-path cell holder
(P/N: AI-08025-HLD4)
- Optical path length : 10-50 mm

Multi-purpose cell holder
(P/N: AI-08018-HLDMP
- For round cell with diameter from 10 to 16 mm and Approx.100 mm height
- For rectangular cell: optical path length 10 mm



Quartz cuvettes
(P/N: AI-08018-QXXX)
- Optical path length: 5 mm, 10mm, 20 mm, 30 mm, 50 mm



Glass cuvettes
(P/N: AI-08018-GXXX)
- Optical path length: 5 mm, 10mm, 20 mm, 30 mm, 50 mm

Quartz Micro-volume Cuvette
(P/N: AI-08018-MXXX)
- Sample volume: 50/ 100/ 200 µL

Plastic cuvette
(P/N: AI-08018-PXXX)
- Optical path length: 10 mm

Acid-Base-Resistant Tube
(P/N: AI-08018-Tube)
- id: 3 mm
- Length 100 cm

Flow-Through Cell
(P/N: AI-08018-F200)
- Optical path length : 10 mm

Sipper flow system / Sipper flow system with Peltier
(P/N: AI-08018-SFS / AI-08018-PELSF)
- The integrate Peltier and sipper pump to be controlled temperature and delivered sample flow-through cuvette.
- Temperature range : 10-70 °C
- Time (max.) : 99 min. 59 sec
- Speed : 0-999

Product Information

P/N	Product description
AI-08025-250	UV 600E Spectrophotometer

FOR MORE INFORMATION

www.biometrics-technologies.com

Biometrics Technologies, Inc. (Headquarter)
1220 N. Market St. Suite 806,
Wilmington, DE 19801, USA.
Email: info@biometrics-technologies.com
Website: www.biometrics-technologies.com

Biometrics Technologies Co., Ltd (Taiwan)
15F-8, No. 99, Sec. 1, Xintai 5th Rd.,
Xizhi District, New Taipei City 221, Taiwan.
Email: sales@biometrics-technologies.com

Biometrics Technologies (Asia Pacific) Ltd.
(International & Asia Pacific Support Center)
18, 7th Fl. Sricharoenchai Bldg., Tiwanon Rd.,
Mueang, Nonthaburi 11000 Thailand.
Email: info@biometrics-technologies.com