

## Specification Sheet

# UV-1280

UV-VIS Spectrophotometer



Designed by the leaders in UV-Visible Spectroscopy for molecular absorption quantitative analysis, the UV-1280 Multipurpose UV-Visible Spectrophotometer offers wavelength scanning from 190-1100 nm.

This lower-cost, high-quality instrument is ideal for applications ranging from routine environmental and food quality testing to life science analyses.

### Hardware

Spectral bandwidth	5 nm
Wavelength range	190.0 to 1100.0 nm
Wavelength display	0.1 nm increments
Wavelength setting	0.1 nm increments (1 nm increments when setting scanning range)
Wavelength accuracy	±1.0 nm
Wavelength repeatability	±0.3 nm
Wavelength slew rate	Approx. 6,000 nm/min Wavelength scanning speed: Approx. 9 nm/min to 1,600 nm/min
Light source switching	Select from the following three: <ul style="list-style-type: none"> <li>• Automatic switching linked to the wavelength The switching wavelength can be selected between 295 nm and 364 nm, in 1 nm increments. The recommended wavelength is 340 nm.</li> <li>• Use the halogen (W1) lamp only, with no switching</li> <li>• Use the deuterium (D2) lamp only, with no switching</li> </ul>
Stray light	0.05 % or less (220.0 nm NaI, 340.0 nm NaNO <sub>2</sub> )
Photometric system	Monitor double beam optics
Photometric range	Absorbance: -0.3 to 3.0 Abs Transmittance: 0.0 % to 200 %
Recording range	Absorbance: -4.0 to 4.0 Abs Transmittance: -400 % to 400 %
Photometric accuracy	±0.005 Abs at 1.0 Abs ±0.003 Abs at 0.5 Abs Using NIST 930D filter

Photometric repeatability	±0.002 Abs at 1.0 Abs
Baseline stability	±0.001 Abs/h or less (700 nm, two hours after the power is turned ON)
Baseline flatness	±0.010 Abs or less (one hour after the power is turned ON, at 1,100 nm to 200 nm)
Noise level	P-P 0.002 Abs or less, RMS 0.0005 Abs or less
Baseline correction	Automatic correction via computer memory
Light source	20 W halogen lamp (2,000 hour operating life) Deuterium lamp (socket type) Built-in light source auto position adjustment
Monochromator	Uses an aberration correcting concave holographic grating
Detector	Silicon photodiode
Sample compartment	Internal dimensions: 110.0 (W) × 230.0 (D) × 105.0 (H) mm (Depth of one part is 155.0 mm.) Attachment method: two fastening screws
Display	6-inch LCD (320×240 pixels) With LED illumination With contrast adjustment function
Output device	USB memory (optional) Data files saved in CSV format or UV-1280 dedicated format.
Power requirements	100 to 240 V, 50/60 Hz, 140 VA
Dimensions	W416 × D379 × H274 mm
Weight	10 kg
Environmental requirements	Temperature: 15 °C to 35 °C Humidity: 30 % to 80 % Humidity of 70 % or less at temperatures of 30 °C or higher

Note: Be sure to provide a 3 prong outlet (including the ground) for the power source.

## Software

Measurement Mode	Specifications
Photometric	<ul style="list-style-type: none"> <li>•Single-wavelength measurement               <ol style="list-style-type: none"> <li>1. Photometric modes: T% or Abs</li> <li>2. Quantitation using K-factor method</li> <li>3. Data table storage and recall functions</li> </ol> </li> <li>•Multiple-wavelength measurement               <ol style="list-style-type: none"> <li>1. Photometric modes: T% or Abs</li> <li>2. Measurements at up to eight designated wavelengths (set in 0.1 mm increments)</li> <li>3. Data calculation at up to four wavelengths (difference or ratio between two wavelengths, calculation between three wavelengths, etc.) is possible.</li> </ol> </li> </ul>
Spectrum	<ol style="list-style-type: none"> <li>1. Measurement modes: ABS, T%, E</li> <li>2. Number of repeat scans: 1 to 99</li> <li>3. Recording system: Selection between single spectrum and data overlay</li> <li>4. Data storage and recall</li> <li>5. Data processing: peak/valley detection, arithmetic operations, differentiation, smoothing, area calculation, point picking, data reading at cursor-specified point</li> </ol>
Quantitation	<ol style="list-style-type: none"> <li>1. Measurement methods: 1-wavelength, 2-wavelength, 3-wavelength, and 1st to 4th derivative methods</li> <li>2. Quantitation methods: Automatic concentration calculation using K-factor Automatic concentration calculation using single-point calibration curve Multi-point calibration curve method (1st to 3rd order regression curves)</li> <li>3. Measurement parameters: Number of standards (2 to 10) Number of repeat measurements (1 to 10 times) to obtain a mean value for quantitation</li> </ol>
Kinetics	<ol style="list-style-type: none"> <li>1. Measures absorbance changes as a function of time and calculates the enzymatic activity values.</li> <li>2. Measurement time: 1 to 9,999 sec/min</li> <li>3. Measurement methods: 1-wavelength, 2-wavelength, multi-cell, and rate measurements</li> </ol>
Time scan	<ol style="list-style-type: none"> <li>1. Measures changes in measured values as a function of time.</li> <li>2. Measurement mode: ABS, T%, E</li> <li>3. Measurement time: 1 to 9,999 sec/min</li> <li>4. Data processing functions (same as spectrum mode)</li> </ol>
Multi-component quantitation	<ol style="list-style-type: none"> <li>1. Up to eight components quantified at once.</li> <li>2. A mixture, as well as pure components, can be used as a standard.</li> <li>3. Data on standard samples can be stored, in addition to measurement wavelengths.</li> <li>4. Quantitation of recalled spectrum data</li> </ol>

Measurement Mode	Specifications
Biomethod	<ul style="list-style-type: none"> <li>•DNA/protein quantitation               <ol style="list-style-type: none"> <li>1. Calculation of DNA/protein concentration and absorbance ratio DNA concentration = <math>K1 \times A1 - K2 \times A2</math> Protein concentration = <math>K3 \times A2 - K4 \times A1</math></li> <li>2. Factors and measurement wavelengths can be set freely.</li> <li>3. Background correction is possible.</li> </ol> </li> <li>•Quantitation of proteins               <ol style="list-style-type: none"> <li>1. Quantitation methods: Lowry method, BCA method, Biuret method, CBB method (Bradford method), UV method</li> </ol> </li> </ul>
Maintenance	<ol style="list-style-type: none"> <li>1. Lamp usage time display and reset</li> <li>2. Security settings Functions can be restricted according to the user.</li> <li>3. Instrument validation functions:               <ol style="list-style-type: none"> <li>1) Compatible with 8 JIS items Wavelength accuracy, wavelength repeatability, stray light, photometric accuracy, photometric repeatability, baseline flatness, baseline stability, and noise level</li> <li>2) Semi-automatic validation Validation inspections conducted interactively while inserting and removing inspection jigs.</li> <li>3) Fully automatic validation Automatic validation inspections from measurement to evaluation and printout</li> <li>4) Setting inspection parameters and pass/fail criteria Authority to make changes can be protected by password access.</li> <li>5) Detailed printout of results</li> <li>6) Bulk printout of results</li> </ol> </li> </ol>
Shared functions	<ol style="list-style-type: none"> <li>1. Automatic setting of measurement mode after instrument initialization It is possible to specify standby and parameter files in the parameter setting window for each measurement mode.</li> <li>2. Selection of displayed number of decimal places Absorbance: 3 or 4 decimal places Transmittance: 1 or 2 decimal places</li> <li>3. Number of files that can be saved (built-in memory) Measurement parameters: 24 files max. Data: 8 files max. Tabular data: 8 files max.</li> <li>4. Setting of integration time (for fixed-wavelength measurement)</li> <li>5. PC control Spectrophotometer can be controlled by an external PC. Note: USB driver program (P/N 207-21439-91) and a USB cable are required.</li> </ol>



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