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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: •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. • Use the halogen (WI) lamp only, with no switching • Use the deuterium (D_2) lamp only, with no switching
Stray light	0.05 % or less (220.0 nm NaI, 340.0 nm $NaNO_2$)
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	•Single-wavelength measurement 　1. Photometric modes: T% or Abs 　2. Quantitation using K-factor method 　3. Data table storage and recall functions •Multiple-wavelength measurement 　1. Photometric modes: T% or Abs 　2. Measurements at up to eight designated wavelengths (set in 0.1 mm increments) 　3. Data calculation at up to four wavelengths (difference or ratio between two wavelengths, calculation between three wavelengths, etc.) is possible.
Spectrum	1. Measurement modes: ABS, T%, E 2. Number of repeat scans: 1 to 99 3. Recording system: Selection between single spectrum and data overlay 4. Data storage and recall 5. Data processing: 　peak/valley detection, arithmetic operations, differentiation, smoothing, area calculation, point picking, data reading at cursor-specified point
Quantitation	1. Measurement methods: 1-wavelength, 2-wavelength, 3-wavelength, and 1st to 4th derivative methods 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) 3. Measurement parameters: 　Number of standards (2 to 10) 　Number of repeat measurements (1 to 10 times) to obtain a mean value for quantitation
Kinetics	1. Measures absorbance changes as a function of time and calculates the enzymatic activity values. 2. Measurement time: 1 to 9,999 sec/min 3. Measurement methods: 1-wavelength, 2-wavelength, multi-cell, and rate measurements
Time scan	1. Measures changes in measured values as a function of time. 2. Measurement mode: ABS, T%, E 3. Measurement time: 1 to 9,999 sec/min 4. Data processing functions (same as spectrum mode)
Multi-component quantitation	1. Up to eight components quantified at once. 2. A mixture, as well as pure components, can be used as a standard. 3. Data on standard samples can be stored, in addition to measurement wavelengths. 4. Quantitation of recalled spectrum data

Measurement Mode	Specifications
Biomethod	•DNA/protein quantitation 　1. Calculation of DNA/protein concentration and absorbance ratio 　　DNA concentration = K1 × A1 - K2 × A2 　　Protein concentration = K3 × A2 - K4 × A1 　2. Factors and measurement wavelengths can be set freely. 　3. Background correction is possible. •Quantitation of proteins 　1. Quantitation methods: Lowry method, BCA method, Biuret method, CBB method (Bradford method), UV method
Maintenance	1. Lamp usage time display and reset 2. Security settings 　Functions can be restricted according to the user. 3. Instrument validation functions: 　1) Compatible with 8 JIS items 　　Wavelength accuracy, wavelength repeatability, stray light, photometric accuracy, photometric repeatability, baseline flatness, baseline stability, and noise level 　2) Semi-automatic validation 　　Validation inspections conducted interactively while inserting and removing inspection jigs. 　3) Fully automatic validation 　　Automatic validation inspections from measurement to evaluation and printout 　4) Setting inspection parameters and pass/fail criteria 　　Authority to make changes can be protected by password access. 　5) Detailed printout of results 　6) Bulk printout of results
Shared functions	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. 2. Selection of displayed number of decimal places 　Absorbance: 3 or 4 decimal places 　Transmittance: 1 or 2 decimal places 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. 4. Setting of integration time (for fixed-wavelength measurement) 5. PC control 　Spectrophotometer can be controlled by an external PC. 　This function is also used when performing operation with the optional UVProbe software. 　Note: USB driver program (P/N 207-21439-91) and a USB cable are required.

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