

UV-Visible Spectrometer



Brand : Shimadzu
Model : UV-2600
Location : K652 Room, 6th Floor, Chaloeprakiet Building, Phyathai Campus
Custodian : PRADUP MESAWAT

Description and Specification:

Photometric system	Double-beam optics
Photometric system	Czerny-Turner mounting, Single monochromator Lo-Ray-Ligh grade blazed holographic grating
Detector	R-928 Photomultiplier
Light source	50 W halogen lamp, light square auto position adjustment built in
Setting wavelength range	185 ~ 1400 nm
Measurement wavelength range	185 ~ 900 nm 220 nm to 1400 nm when the ISR-2600Plus Integrating Sphere Attachment is used
Wavelength accuracy	±0.1 nm (626.1 nm 0.2), ±0.3 nm (all range)
Wavelength repeatability	±0.05 nm
Wavelength scanning speed	Wavelength slew rate about 14000 nm/min Wavelength scan rate: about 4000 to 0.5 nm/min
Wavelength setting	At 1 nm units for scan start and scan wavelength, and 0.1 nm units for other wavelength
Lamp interchange wavelength	Auto switching synchronized with wavelength; switching range selectable between 290 and 370 nm (0.1 nm units)
Spectral bandwidth	0.1/0.2/0.5/2/5 nm, L2/L5 (low stray-light mode)

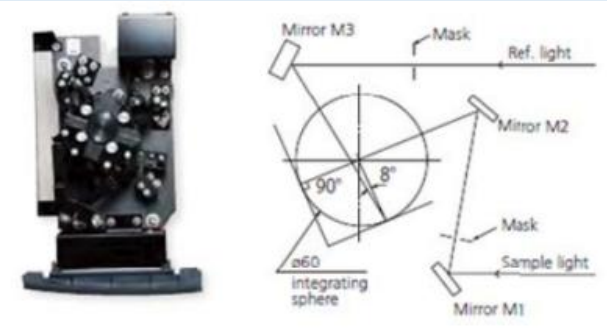
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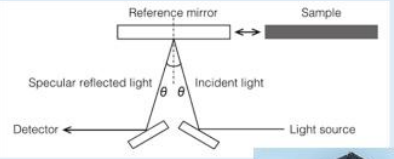

Photometric system	Double-beam optics
Resolution	0.1 nm
Stray light	Max. 0.005% (220 nm, Na) Max. 0.005% (340, 370 nm, NaNO ₂) Max. 1% (198 nm, KCl)
Photometric range	Absorbance: -5 to 5 Abs Transmittance, reference: 0 to 100000%
Photometric accuracy	±0.002Abs (0.5Abs) ±0.003Abs (1Abs) ±0.006Abs (2Abs) ±0.3%T Measured using NIST9300NIST1930 or equivalent filter
Photometric repeatability	±0.001Abs (0.5Abs) ±0.001Abs (1Abs) ±0.003Abs (2Abs) ±0.1%T
Noise level	0.00003Abs RMS (500 nm)
Baseline filters	±0.00003Abs (200-860 nm), 1 hour after light source is turned ON
Baseline stability	Within 0.0002 Abs/h (700 nm), 1 hour after light source is turned ON
Sample compartment	Internal dimensions: W150×D260×H140 (mm) Distance between light beams: 100 mm Maximum optical path length of cell: 100 mm
Dimensions	W450×D600×H250 (mm)
Weight	23 Kg

Applications:

Sample Type	Solution, Powder, Film, Filter
Mode	Spectrum Quantitation Photometric Time Course (Kinetic measurement)

Accessories:

Sample Holder	Capacity	Applications
<p>ISR-2600Plus Integrating Sphere Attachment (P/N 206-28410-41)</p> 	<p>Inner diameter of integrating sphere: 60 mm Measurement wavelength range: 220 to 1,400 nm</p> <p>Maximum size of reflectance sample: W95 × H135 × T20 mm (0" incidence side) W70 × H70 × T12 mm (8" incidence side)</p> <p>Noise level: 0.1 %T RMS 500 nm, 100% flatness: ±0.5 %T</p>	<p>By combining the 0°/8° incidence angle integrating sphere with the S/R exchange function of the spectrophotometer, diffuse and specular reflectance measurement are possible without using any special attachments.</p> <p>The size of the light beam for reflectance measurements can be changed, which enables reflectance measurement of micro sample (minimum light beam dimensions about 2 × 3 mm)</p> <p>Light beams for transmittance measurements can be concentrated to dimensions of 3 × 3 mm. The ISR-2600Plus is an integrating sphere equipped with detectors: a photomultiplier tube and IrGaAs detector.</p>

Sample Holder	Capacity	Applications
<p>Specular Reflectance Measurement Attachment (5° Incident Angle) (P/N 206-14046)</p>  <p>Relative Specular Reflectance optical diagram and accessory</p> 	<p>Sample as large as W100 × D120 × T15. The minimum size 7 mm in diameter.</p> <p>Sample placement is easy set it on a holder with the measuring surface down.</p>	<p>Applied to the valuation of semiconductor, optical material, multiple layers to reference surface</p> <p>The 5 incident angle minimize the influence of polarized light. Thus, no polarizer is required for measurement, making the operation quite simple.</p>

Accessories:

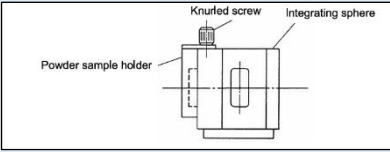
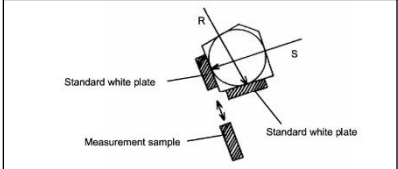
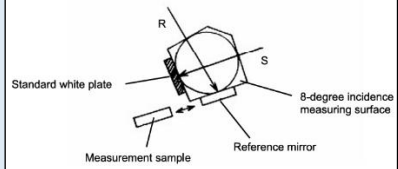
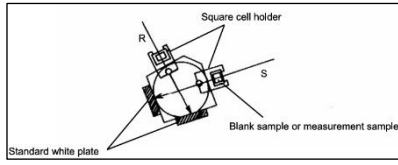
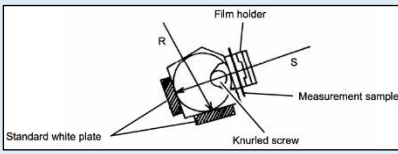
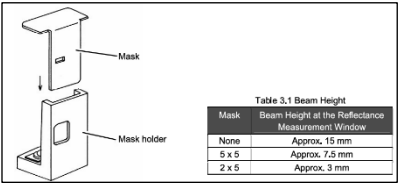
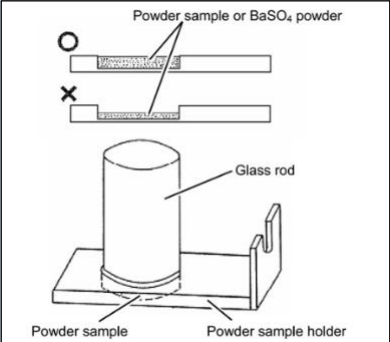
Sample Holder	Capacity	Applications
<p>Powdered Holder (P/N 206-89065-41)</p> 	<p>Capacity of 0.16 mL, 3 included</p>	<p>This powdered sample holder is for attachment to an integrating sphere. It can be attached to all integrating spheres.</p>
<p>Film Holder (P/N 204-58909)</p> 	<p>Sample size Minimum: W16×H32 mm Maximum: W80×H40×120 mm</p>	<p>This holds films, filters, and other thin samples firmly for measurement.</p>
<p>TCC-100 Thermoelectrically Temperature Controlled Cell Holder (P/N 206-29510-41)</p> 	<p>Number of cells: One each on the sample and reference sides (temperature-controlled)</p> <p>Temperature control range: 7-60 °C Temperature display accuracy (difference from the true value): ±0.5 °C Note: Standard cells (P/N 200-34442) is not included, please purchase separately</p> <p>- Temperature control precision (variation of temperature): ±0.1 °C</p>	<p>Use the Peltier effect for controlling the sample and reference that meets the following specifications: no thermostated bath or cooling water is required.</p>

References





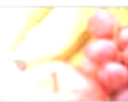
Specifications Integrating Sphere Attachment

Integrating Sphere Attachment	ISR-2600Plus
Measurement wavelength range	220 to 1,400 nm
Measurement on a liquid sample	Optical length: 10 nm (a square cell holder for transmission measurement is used)
Integrating sphere	Inner diameter: 60 mm ϕ . The inner wall is coated with BaSO ₄ . Sample transmission side, sample reflection side, and reference transmission side: 0-degree incidence; reference reflection side: 8-degree incidence.
Ratio of the opening in the integrating sphere	For measurement of transmittance: 7.4% For 0-degree incident reflectance measurement: 9.2% For 8-degree incident reflectance measurement: 9.3%
Detector	PMT/InGaAs
Baseline flatness	\pm UV-2600: 0.5%T (220 nm to 1,300 nm) 1 hour after the light source turns on Slit width: 5 nm , scan speed: low
Noise level	Slit width: 5 nm UV-2600: Max. 0.1%T RMS at a wavelength of 500 nm

Measuring Integrating Sphere Attachment

Measurement	Operating								
Mounting a Powder Sample Holder									
Diffuse Reflectance									
Relative Specular Reflectance									
Transmittance of a Liquid Sample									
Transmittance of a Film Sample									
Use (optic beam) mask	 <table border="1" data-bbox="1145 1312 1337 1397"> <caption>Table 3.1 Beam Height</caption> <thead> <tr> <th>Mask</th> <th>Beam Height at the Reflectance Measurement Window</th> </tr> </thead> <tbody> <tr> <td>None</td> <td>Approx. 15 mm</td> </tr> <tr> <td>5 x 5</td> <td>Approx. 7.5 mm</td> </tr> <tr> <td>2 x 5</td> <td>Approx. 3 mm</td> </tr> </tbody> </table>	Mask	Beam Height at the Reflectance Measurement Window	None	Approx. 15 mm	5 x 5	Approx. 7.5 mm	2 x 5	Approx. 3 mm
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Powder Sample Holder									

Analysis Correspondence Chart

	UV-2600		UV-2600
Electricity, Electronics, and Optics		Environment	
High-level absorbance measurements for polarization films	✓	Hexavalent chromium quantitation	✓
Absolute reflectance measurements for anti-reflective films	✓✓✓	Quantitation of total phosphorus and total nitrogen in river water, lakes, and marshes	✓
Transmittance measurements for functional films	✓✓✓	Turbidity measurements	✓✓✓
Transmittance measurements for solar cell cover glass	✓✓✓	Quantitation of iron, copper, arsenic, ammonia, and other substances in water	✓
Band gap measurements and diffuse reflectance measurements for semiconductor materials	✓✓✓	Construction	
Absolute reflectance measurements for highly reflective mirrors	✓✓✓	Transmittance measurements for window glass and window glass films	✓✓✓
Chemicals		Reflectance measurements for paints and building materials	✓✓✓
Transmittance and reflectance measurements for various types of films	✓✓✓	Textiles	
Thin film thickness measurements	✓✓✓	Textile transmittance and reflectance measurements, and ultraviolet screening measurements	✓✓✓
Plastic transmittance measurements, reflectance measurements, and color measurements	✓✓✓	Textile color measurements	✓✓✓
Medicines, Cosmetics, and the Life Sciences		Foods	
Raw material confirmation tests	✓✓✓	Quantitation of vitamins, food additives, and minerals	✓
Enzyme reaction measurements	✓✓✓	Quantitation of phenols leached from containers and packing agents	✓
Protein and nucleic acid quantitation	✓		
Cosmetic color measurements and ultraviolet screening measurements	✓✓✓		