

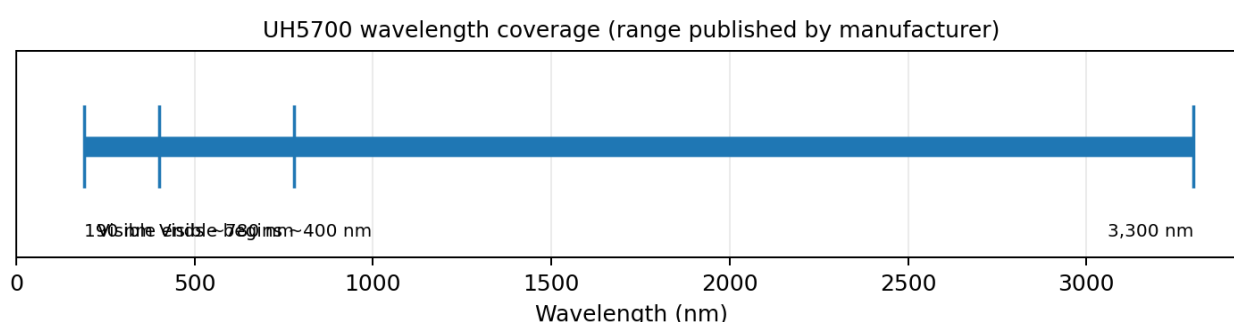
UH5700 UV-Visible/NIR Spectrophotometer

Specialized English Product Catalog | Hitachi High-Tech

PRODUCT OVERVIEW

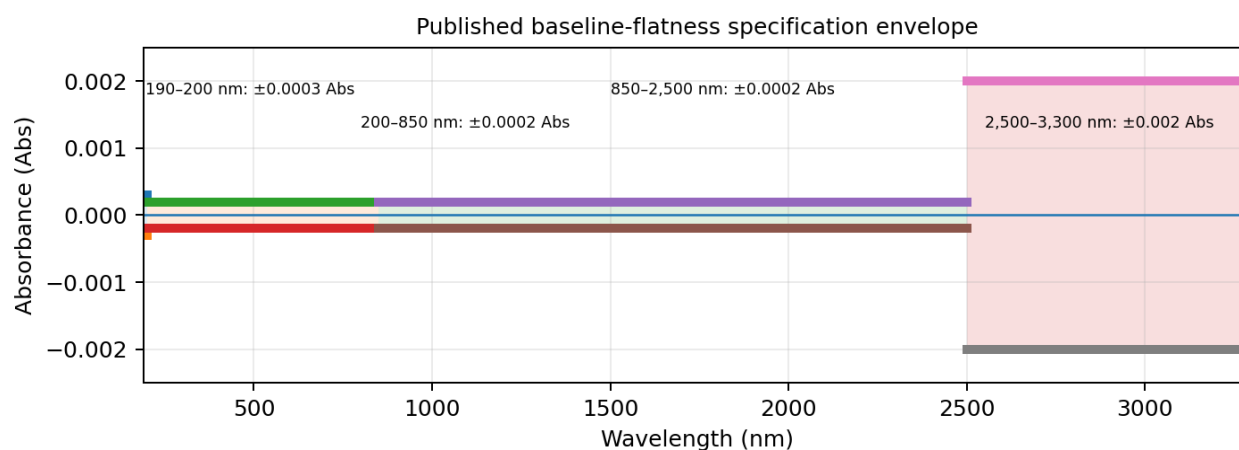
The Hitachi UH5700 is a double-beam, single-monochromator UV-Visible/NIR spectrophotometer for absorbance, transmittance and reflectance measurements across 190–3,300 nm. The product is designed to combine a broad wavelength range, low stray light, high photometric range and high scanning throughput in a benchtop instrument. This catalog summarizes the technical information and application examples published on the manufacturer's UH5700 product page and associated technical article.

Wavelength Coverage



OPTICAL DESIGN AND MEASUREMENT PERFORMANCE

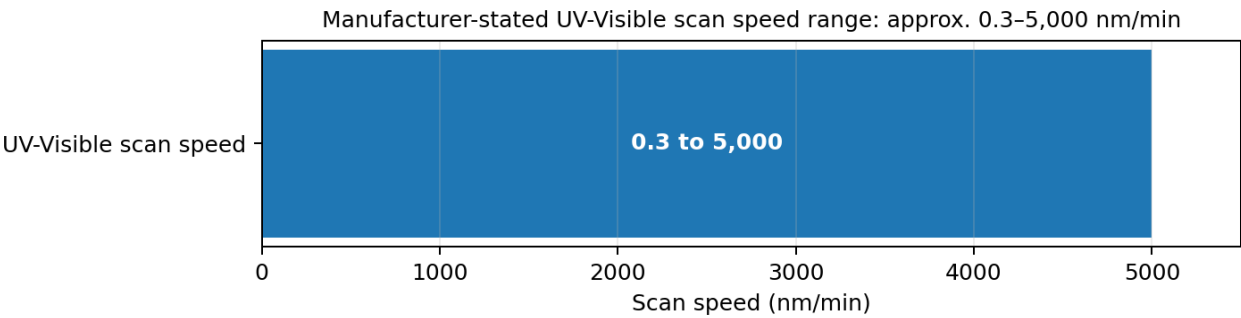
- Optical configuration: Czerny–Turner monochromator; single-monochromator, double-beam arrangement.
- Continuously variable slit: In the near-infrared region, slit width automatically increases at low light levels and decreases at high light levels, supporting low-noise measurements over a broad wavelength range.
- Low stray light: The manufacturer attributes low stray light and a broad photometric range to a bright Czerny–Turner single-monochromator design and a grating developed using photolithography technology.
- Photometric range: The associated technical article reports -5 to $+5$ Abs in the UV-Visible region and -4 to $+4$ Abs in the near-infrared region.
- Baseline flatness: Published baseline-flatness limits are wavelength dependent; the chart below visualizes the stated specification envelope, not an actual measured instrument trace.



Baseline-flatness specification (published)

Wavelength interval	Baseline flatness
190–200 nm	±0.0003 Abs
200–850 nm	±0.0002 Abs
850–2,500 nm	±0.0002 Abs
2,500–3,300 nm	±0.002 Abs

SCAN SPEED AND THROUGHPUT



The manufacturer reports an approximate UV-Visible scan-speed range of 0.3–5,000 nm/min. At a 1 nm data interval and a scan speed of 1,000 nm/min, the manufacturer states that a scan from 190 to 3,300 nm can be completed in approximately four minutes. Actual measurement duration depends on selected conditions and instrument setup.

DETECTOR TRANSITION

UV-Visible/NIR instruments commonly use different detectors in different spectral regions. A photometric discontinuity can appear near the detector-switching wavelength. Hitachi describes the UH5700 signal-processing approach as minimizing this level difference. The product page does not provide a universal numeric tolerance for the transition, so the actual sample spectrum and validation procedure should be used when evaluating data continuity.

SOFTWARE AND DATA MANAGEMENT

- UV Solutions Plus: Control and data-processing software with expanded measurement display and workflow features.
- Multi-sample data tables: Displays selected-wavelength values, area calculations and half-value-width calculations across multiple samples for easier comparison.
- Report layout: Printable analysis conditions, processed results and spectra can be arranged in a customizable report layout.
- Routine performance confirmation: Standard software includes checks for wavelength accuracy, RMS noise level and baseline flatness.

ACCESSORIES AND CONFIGURATION OPTIONS

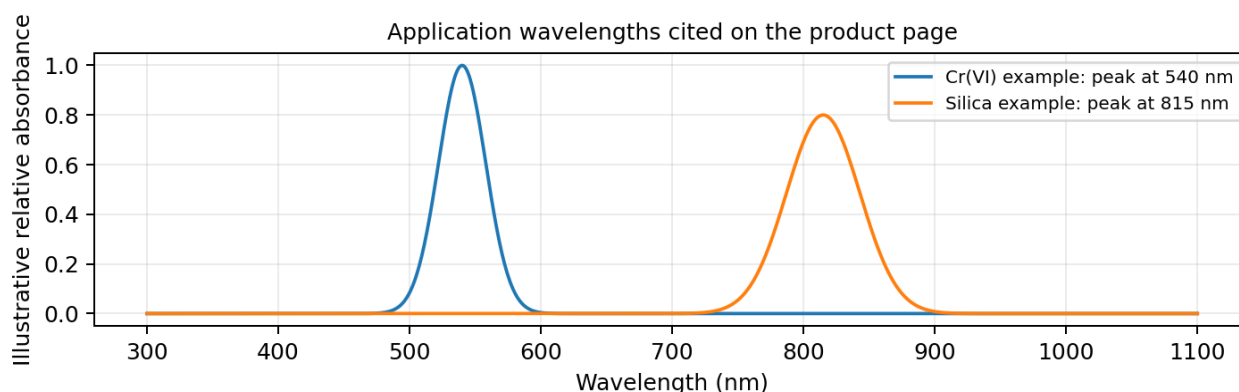
The sample compartment shares a common design with U-2900/U-3900 instruments, although the manufacturer notes that some accessories are exceptions. Confirm exact compatibility before ordering.

Accessory / option	Purpose / relevant details
Micro cell option (mask P/N 200-1537)	For small liquid sample volumes of approximately 340–600 µL.
Ultra-micro volume cells (mask P/N 3J1-0116)	For approximately 1.5–90 µL samples; two trace-sample cells are specified on the product page.
Rectangular long-path cell holder (210-2107)	Supports sensitive measurement of low-concentration samples using long-path rectangular cells.
Reference-side attenuation filter holder (2J3-0120)	Used to expand NIR photometric range with the specified NIR-absorbing ND filter.
Water-circulating cell holder (210-2111)	Circulates thermostated water to maintain the cell section at a controlled temperature.
Thermostatic cell holder with stirrer (2J3-0161)	Magnetic stirring helps limit effects caused by sample temperature variation.
Programmable thermostatic cell holder (131-0301 / 131-0302)	Programmable heating/cooling for temperature-dependent measurements such as protein or nucleic-acid melting.
Auto sipper (2J3-0131) / thermostatted auto sipper (2J3-0141)	Facilitates repeat liquid sampling; thermostatted option maintains flow-cell temperature.
AS-1010 Auto Sampler (2J1-0121 / 2J1-0122)	Automated multi-sample solution measurement when used with an auto sipper; XYZ needle movement.
Φ60 integrating sphere (2J3-0176)	For absorbance measurements of turbid samples and reflectance measurements of solid surfaces.
5° specular reflectance accessory (2J3-0151)	Relative specular reflectance measurements, including film thickness and spectral reflectance work.
Glass filter holder (210-2109) / film holder (210-2112)	Transmittance and absorbance measurements for plate-like glass samples and film samples.
Polarizer holder (210-2130)	Measures sample polarization properties; can be used with an analyzer.
Option Package Program (2J3-0191)	Optional UV Solutions Plus calculations for selected JIS-based optical tests, color, glass solar properties and paint solar reflectance.

APPLICATION EXAMPLES

- Hexavalent chromium (Cr(VI)): Diphenylcarbazide absorptiometry; the manufacturer reports an absorption peak at 540 nm and a calibration-curve coefficient of determination $R^2 = 1.0000$ for its stated example.
- Silica: Molybdenum-yellow absorptiometry; the manufacturer reports an absorption peak at 815 nm and $R^2 = 0.9999$ for its stated example.

- NIR-absorbing dyes: Dye powders dissolved in toluene showed example absorption maxima around 800–1,000 nm. The product page notes that low step size can be used around the 850 nm detector-switching wavelength.
- Optical filters: Demonstration measurements distinguish filters transmitting primarily blue, green or red light, and a filter transmitting across the visible region.
- Color measurement: The optional package supports example color calculations using a standard method at 360–830 nm with a 1 nm interval and a practical method at 380–780 nm with a 5 nm interval.
- Functional glass and coatings: The optional package supports calculations associated with visible transmittance, solar transmittance and solar reflectance under specified Japanese Industrial Standards.



Application wavelength chart

The two peaks shown are schematic markers of the wavelengths reported in the manufacturer's application examples. They are not digitized spectra and should not be used as quantitative reference data.

TECHNICAL SPECIFICATIONS SUMMARY

Parameter	Published information
Optical system	Czerny–Turner; single monochromator; double beam
Wavelength range	190–3,300 nm
Scan speed (UV-Visible)	Approximately 0.3–5,000 nm/min
Photometric range	UV-Visible: –5 to +5 Abs; NIR: –4 to +4 Abs (technical article)
Main unit dimensions	630 (W) × 695 (D) × 294 (H) mm
Main unit mass	46 kg
Power supply	AC 100, 115, 220, 230 or 240 V, 50/60 Hz; 400 VA (PC/printer excluded)
Power consumption	200 W or less
Operating temperature	15–35 °C
Operating humidity	25–80% RH, non-condensing; 70% RH or less at temperatures of 30 °C or higher

IMPORTANT NOTES

This document is an independently prepared technical catalog based on publicly available Hitachi High-Tech product information and its associated technical article. It is not the original manufacturer-issued brochure. Charts are explanatory recreations based on published specifications or stated application wavelengths; where indicated, they are schematic and are not original instrument traces. Confirm configuration-specific specifications, accessory part numbers and method suitability with the manufacturer or authorized supplier before procurement or validated analysis.

Manufacturer product page: [Hitachi High-Tech UH5700](#)

Associated technical article: [UH5700 technical article \(Hitachi High-Tech\)](#)