SHIMADZU
Excellence in Science

UV-Vis Spectrophotometers

UV-2600i Plus
UV-2700i Plus

Perfect for a Wide Variety of Applications

By accommodating a wealth of accessories, the system can address any user's applications and a variety of situations.

Measures Slight Differences in Absorbance

Scalability to near-infrared measurement.
Ultra-low stray light enables measurements down to absorbance values of 8 Abs.

Enables Compliance with ER/ES Regulations and Stronger Data Management

Configurable as a system for preventing data tampering.
Efficiently prevents data tampering from entire series of analytical process steps.

Spectral evaluation function enables unique pass/fail judgment for quality control.

During measurements, data can be automatically sent to Excel® in real time for using macros to automatically obtain desired values.

UV-i Selection

UV-1900i Plus

UV-2600i Plus
UV-2700i Plus

UV-3600i Plus

SolidSpec™-3700i

Don’t Miss Any Piece of the Puzzle

Single monochromator UV-2600i Plus

Double monochromator UV-2700i Plus

Extensive Selection of Application Programs for a Wide Variety of Applications

The functionality of the UV-2600i Plus/2700i Plus can be freely expanded to suit the measurement objective. By accommodating a wealth of accessories, the system can address any user's applications and a variety of situations. In addition, with intuitive operations, anyone can easily obtain the data required.

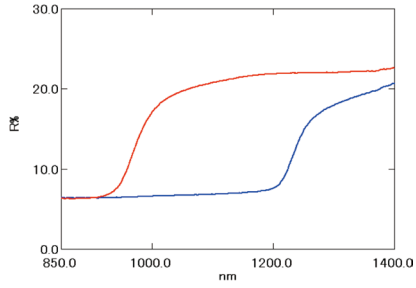
Electricity, Electronics, and Optics
High-level absorbance measurements for polarization films
Absolute reflectance measurements for anti-reflective films
Transmittance measurements for functional films
Transmittance measurements for solar cell cover glass
Band gap measurements and diffuse reflectance measurements for semiconductor materials
Absolute reflectance measurements for highly reflective mirrors
Chemicals
Transmittance and reflectance measurements for various types of films
Thin film thickness measurements
Plastic transmittance measurements, reflectance measurements, color measurements, and Hazen color
Medicines, Cosmetics, and the Life Sciences
Raw material confirmation tests
Enzyme reaction measurements
Protein and nucleic acid quantitation
Cosmetic color measurements and ultraviolet screening measurements
Evaluation of optical properties of nanoparticles

Environment
Hexavalent chromium quantitation
Quantitation of total phosphorus and total nitrogen in river water, lakes, and marshes
Turbidity measurements
Quantitation of iron, copper, arsenic, ammonia, and other substances in water
Construction
Transmittance measurements for window glass and window glass films
Reflectance measurements for paints and building materials
Textiles
Textile transmittance and reflectance measurements, and ultraviolet screening measurements
Textile color measurements
Evaluation of cellulose nanofibers (CNF)
Foods
Quantitation of vitamins, food additives, and minerals
Quantitation of phenols leached from containers and packing agents

Electricity, Electronics, and Optics — Band Gap Measurements for Semiconductors

The diffuse reflection spectra for two types of semiconductors (red line: $CuIn_{0.5}Ga_{0.5}Se_2$, blue line: $CuInSe_2$) used as solar cell materials were measured using the ISR-2600Plus integrating sphere. It is evident that the absorption edge (position where the reflectance drops) differs depending on the sample. This signifies a difference in the band gap* for these samples. (The samples were provided by Wada Laboratory, Faculty of Science and Technology, Ryukoku University.) The band gaps for the samples were calculated utilizing the Tauc method. The results obtained were 1.27 eV for $CuIn_{0.5}Ga_{0.5}Se_2$ (red line) and 0.99 eV for $CuInSe_2$ (blue line).

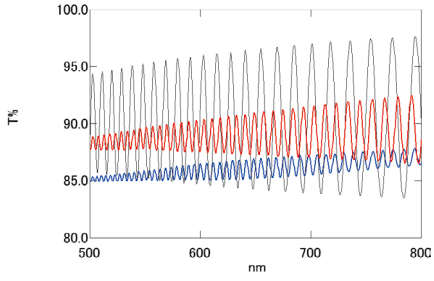
* The term band gap refers to the energy difference between the top of the valence band, which is full of electrons, and the bottom of the conduction band, which does not contain electrons.



Chemicals — Thickness Measurements of Cling Films

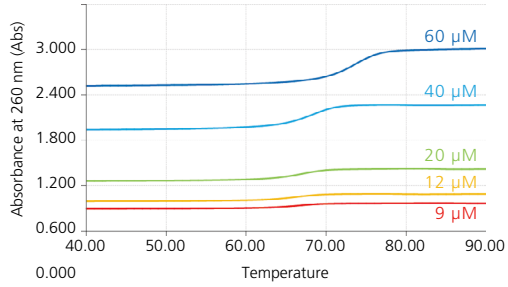
Undulating interference waveforms sometimes occur if light is passed through a film. The film thickness of a sample can be determined by using these interference waveforms. The black line shows transmittance data for polyvinylidene chloride film, the red line for nylon film, and the blue line for polypropylene film. By using the optional thickness calculation software, the interference waveforms were calculated to be 10.0 µm, 17.0 µm, and 21.4 µm, respectively.

(Caution) The sample's refractive index must be entered for the film thickness calculation.



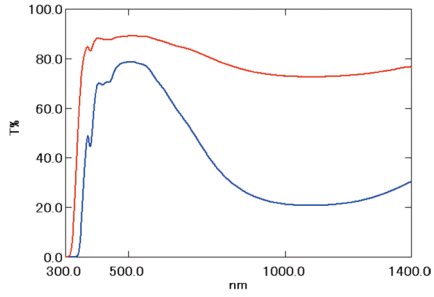
Medicines — Evaluating Thermal Stability (Tm) Analysis of Oligonucleotide Therapeutics

Oligonucleotide therapeutics samples (9 to 60 µM) were analyzed using TMSPC™-8ip and 1 mm optical path length cells. Since UV-2600i Plus/2700i Plus can measure over a wide dynamic range, it is possible to perform a thermal stability analysis of nucleic acid drugs by obtaining the Tm value from the melting curve.



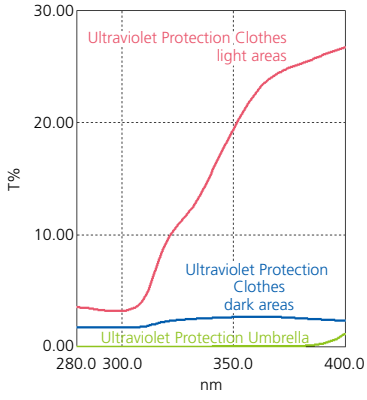
Construction — Window Glass Transmittance Measurements

Two types of window glass were measured utilizing the ISR-2600Plus integrating sphere. The sample shown by the red line is highly transparent to near-infrared light at 800 nm or more. The sample shown by the blue line, however, is apparently not very transparent to near-infrared light.



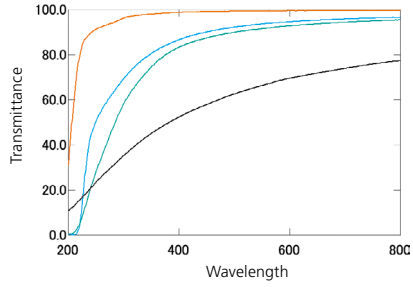
Cosmetics — Measurement of the Ultra Violet Protection Factor Assigned to Ultraviolet Protection Clothes

The UV protection provided by clothes and an umbrella were analyzed by an ISR-2600Plus integrating sphere accessory. The transmittance spectrum of the umbrella (green) shows that very little UV radiation transmits through the umbrella. In regards to the clothing, the black areas block more UV radiation than do the white areas.



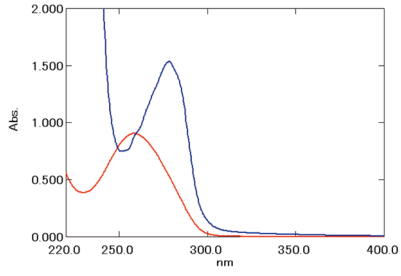
Textiles — Evaluation of CNF

An ISR-2600Plus integrating sphere was used to measure the total transmittance spectrum of cellulose nanofiber (CNF). Depending on the raw materials used, spectra, transparency, and spectral tendencies in the ultraviolet region can vary.



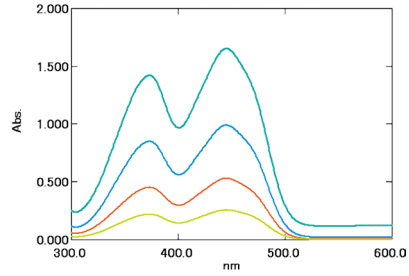
Life Sciences — DNA and Protein Measurements

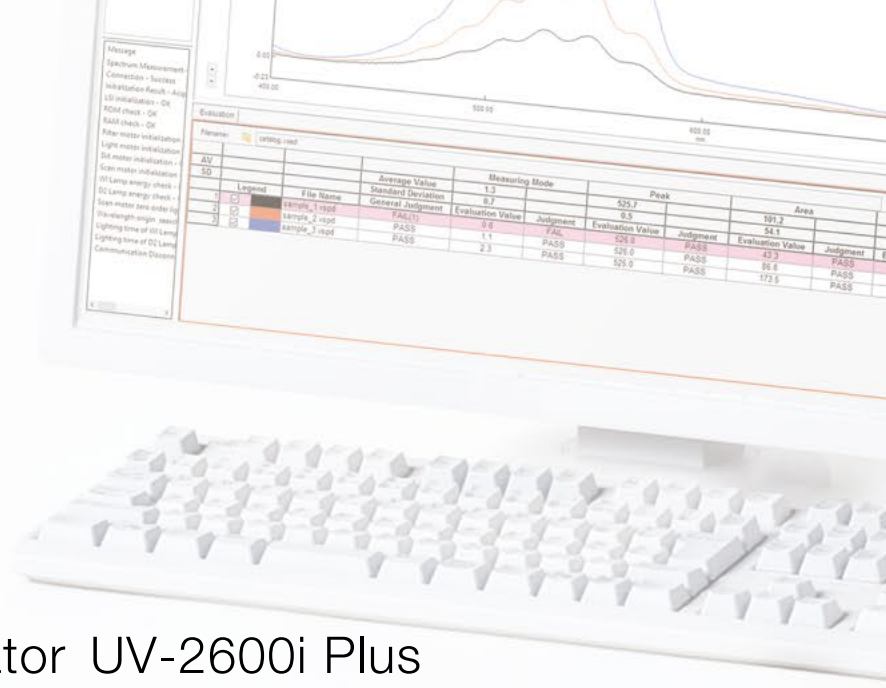
The red and blue lines are the absorption spectra for dsDNA and BSA (bovine serum albumin), respectively. The concentration values are 45 ng/µL for dsDNA and 2.2 mg/mL for BSA.



Foods — Vitamin Measurements

This shows the absorption spectra for riboflavin (vitamin B_2). The sample concentrations are, in order from the highest absorbance, 0.08, 0.04, 0.02, and 0.01 mg/mL.





Single monochromator UV-2600i Plus

Scalability to near-infrared measurement

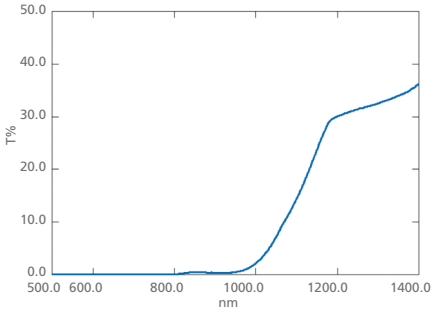
A key feature of the UV-2600i Plus equipped with a single monochromator is its measurement wavelength range. By using the optional ISR-2600Plus Integrating Sphere attachment, the measurement wavelength range can be extended from 220 nm to 1400 nm, significantly expanding its applications.

Integrating Sphere Enables Measurements to 1400 nm

The UV-2600i Plus is equipped with Shimadzu's proprietary LO-RAY-LIGH™ grade diffraction grating, which achieves high efficiency and low stray light levels. By installing the ISR-2600Plus two-detector integrating sphere, the 300 nm to 1100 nm wavelength range of conventional models can be extended to 1400 nm. In addition, the UV-2600i Plus achieves a significant noise reduction, and can accommodate measurements of solar cell anti-reflective films and polycrystalline silicon wafers.

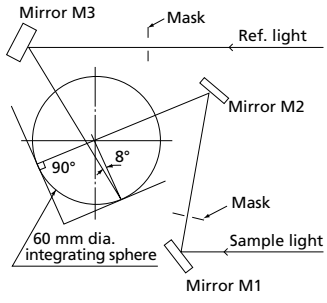
Wider Measurement Wavelength Range — UV-2600i Plus

Transmittance Measurements of Polycrystalline Silicon Using the ISR-2600Plus — UV-2600i Plus



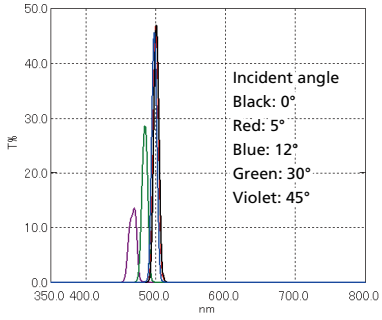
This is a transmittance measurement of polycrystalline silicon. Since the system is capable of measurements to 1400 nm, the transmission characteristics of the band gap region (near 1000 nm) are clearly evident.

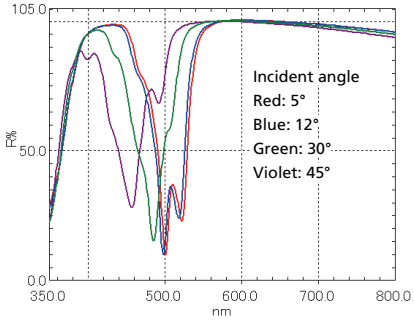
ISR-2600Plus
Integrating Sphere Attachment



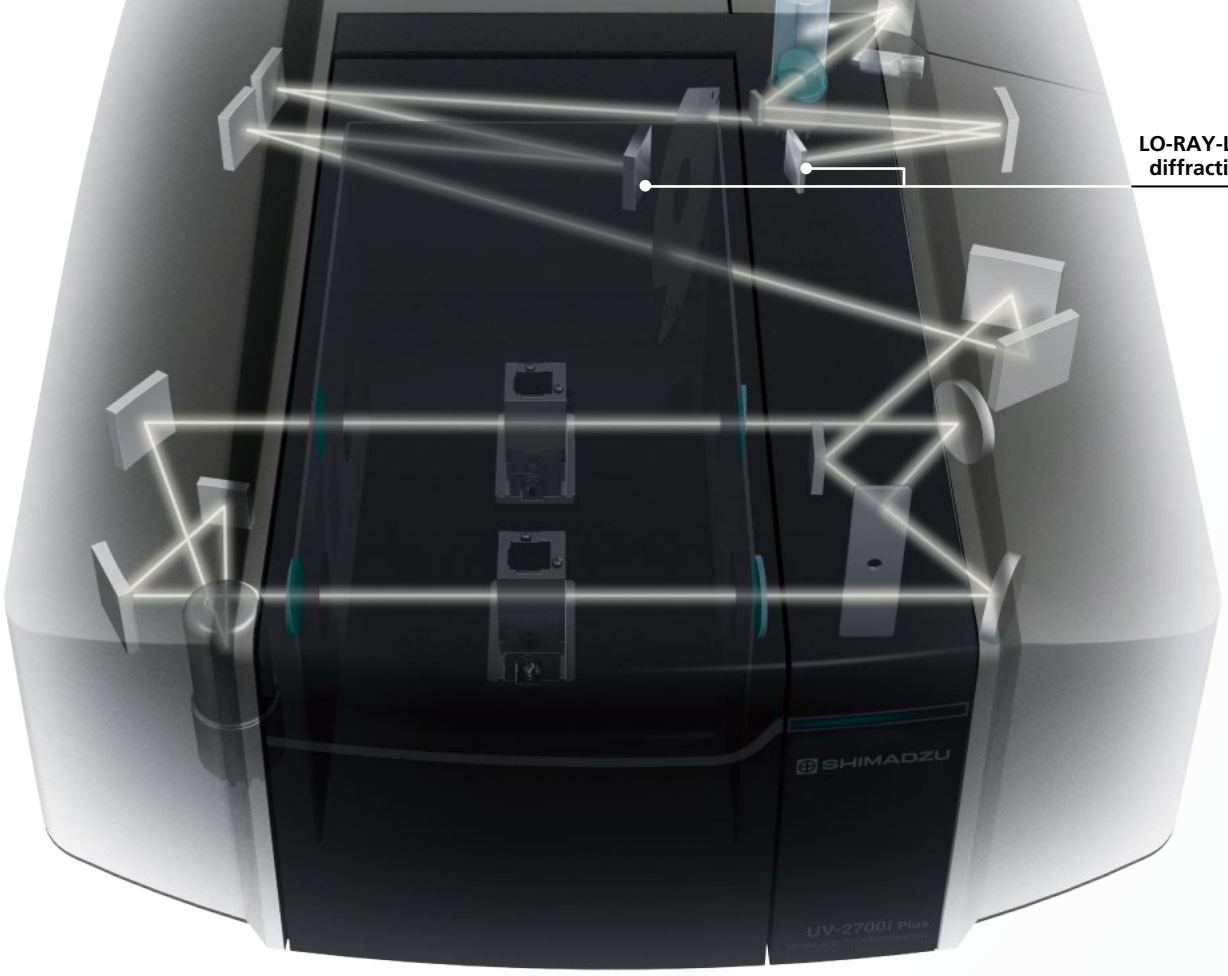
Transmittance/Reflectance Measurements of Multilayer Dielectric Film While Varying Angle of Incidence Using Variable Angle Measurement Unit for MPC-2600A UV-2600i Plus

Variable Angle Measurement Unit





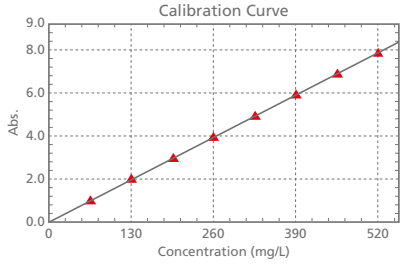
These measurement results from a multilayer dielectric film show the transmittance on the left and reflectance on the right.
The results confirm that varying the incident angle changes the center wavelength of transmitted and reflected light.



Achieves Ultra-Low Stray Light, Enabling 8 Abs Measurements

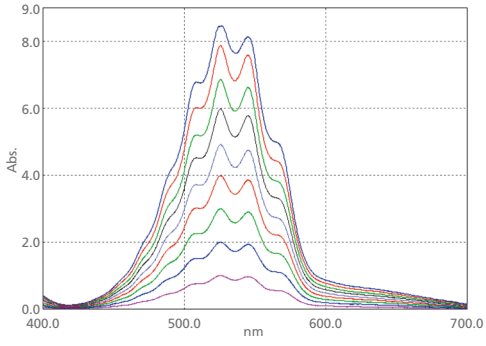
In the case of a device equipped with a general double monochromator, the absorbance that can be covered is about 5 to 6, but the UV-2700i Plus offers a range to 8 Abs, with a transmittance value of 0.000001 % (1 part in 100 million). This system achieves high-level absorbance measurements with incomparable precision. In addition to measuring even high-concentration samples as is, eliminating the need to dilute samples, the system can be applied to evaluating the transmission characteristics of polarization films. Wavelengths in the 400 nm to 650 nm range can be measured to 8 Abs.

Absorbance Linearity UV-2700i Plus

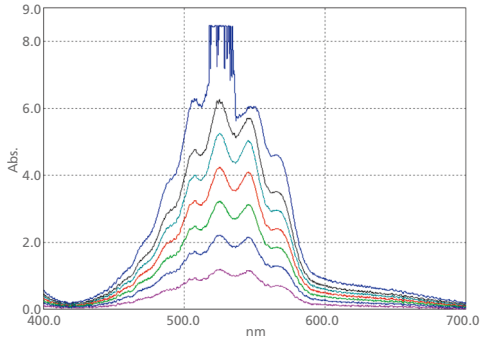


This shows the relationship between the absorbance and the concentration of an aqueous potassium permanganate solution. Good linearity is evident to 8 Abs.

Spectral Comparison of Aqueous Potassium Permanganate Solutions UV-2700i Plus



UV-2700i Plus



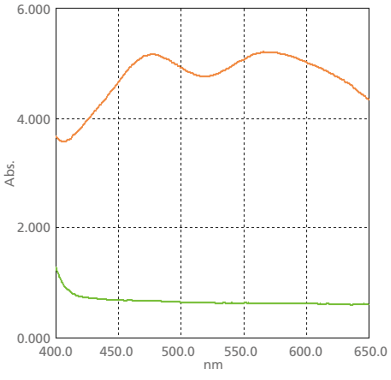
General double monochromator system

Double monochromator UV-2700i Plus

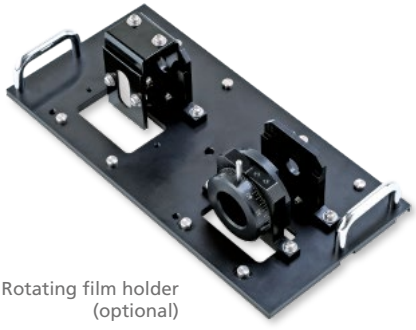
Measures Slight Differences in Absorbance

Equipped with a double monochromator that achieves ultra-low stray light levels, the UV-2700i Plus is optimal for measuring low transmittance samples, such as polarization films used for LCD panels. The UV-2700i Plus is capable of 8 Abs measurements, and can make accurate transmittance measurements to 1 part in 100 million, accommodating a variety of sample measurements.

Example of Polarization Film Measurement UV-2700i Plus



With the rotating film holder (image below), two film samples can be set on the same optical axis. In this example, the polarization film is rotated in the plane, and the transmittance is measured when the film transmits and blocks light.



Rotating film holder (optional)

Equipped with Shimadzu's Proprietary LO-RAY-LIGH Grade Diffraction Grating

Shimadzu's proprietary LO-RAY-LIGH grade diffraction grating enables the high precision of the UV-2600i Plus/2700i Plus. In the diffraction grating production process, new proprietary manufacturing methods have been developed for Shimadzu's holographic technology. By optimizing the etching process, we have successfully manufactured extremely low stray light diffraction gratings while maintaining high efficiency. With this newly designed optical system equipped with a double LO-RAY-LIGH monochromator, the UV-2700i Plus achieves unparalleled ultra-low stray light levels.

LO-RAY-LIGH
Low Stray Light Diffraction Gratings

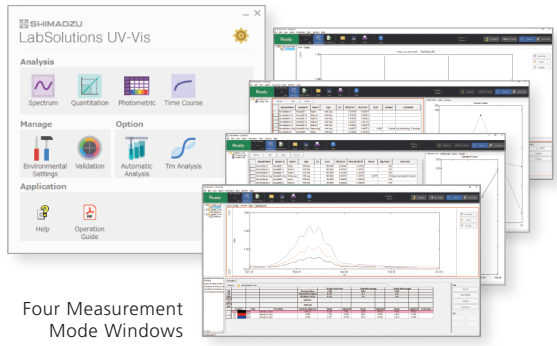
Enables Compliance with ER/ES Regulations and Stronger Data Management

LabSolutions™ UV-Vis Software

Enables higher productivity and provides for a more convenient analytical environment.

Startup

Different measurement applications can be started from the application launcher. Extensive UV validation software programs supporting instrument performance checks as well as optional software programs for special analyses are also available, so various measurements can be intuitively performed.

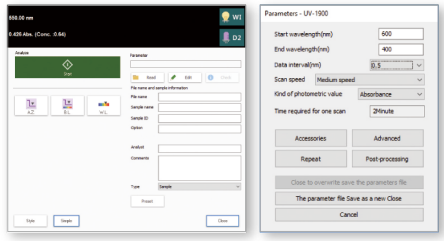


Four Measurement Mode Windows

Setting Parameters

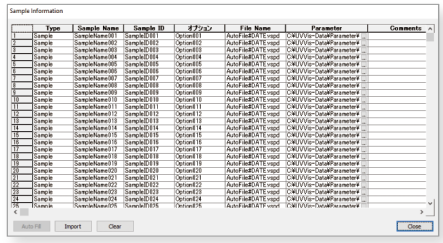
Instrument Control Panel

Instrument parameter settings can be specified via panels that are separate from the measurement window. The control panels include various functionality that is laid out for superior visibility. Each measurement window connects seamlessly to the corresponding parameter settings window.



Presets (Spectrum and Time Course)

When multiple samples are measured, the sample information can be configured in advance.



Instrument Check

Assist Function* ANALYTICAL INTELLIGENCE

The user can tell at a glance if the instrument has finished warming up. Also, the user is notified when attempting to implement measurements without making necessary corrections, thereby supporting appropriate analysis work.

* This function can be enabled/disabled.

From Measurement to Data Output

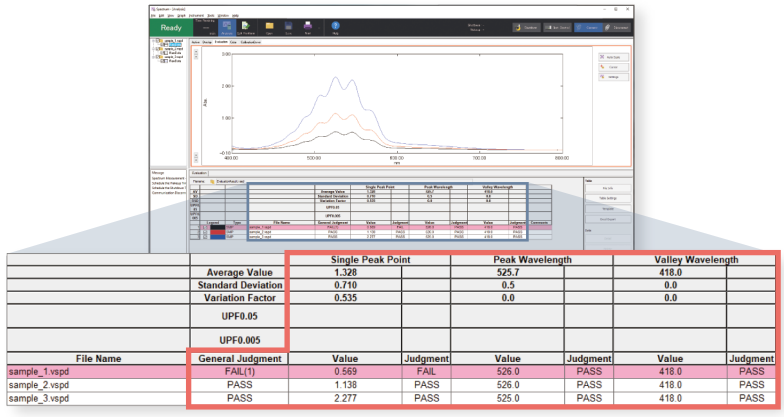
Improved Productivity of Data Analysis Operations

Data analysis and data output operations can be performed at the same time as data measurement. Time spent outputting or analyzing data can also be reduced by simultaneously sending data to an Excel® spreadsheet in real time or saving data as text. The software can also automatically perform postprocessing of measured data, such as processing/correcting spectra, and perform pass/fail judgments of measurement results (automatic spectral evaluation).

Automatic Spectral Evaluation (Spectral Evaluation Function)

ANALYTICAL INTELLIGENCE

By specifying various evaluation criteria for measurement results, spectra judgments can be made automatically. In the report creation window, reports can either be prepared based on a previously specified report format or freely laid out based on various parameters, data, or other elements.



		Single Peak Point		Peak Wavelength		Valley Wavelength	
	Average Value	1.328		525.7		418.0	
	Standard Deviation	0.710		0.5		0.0	
	Variation Factor	0.535		0.0		0.0	
	UPF0.05						
	UPF0.005						
File Name	General Judgment	Value	Judgment	Value	Judgment	Value	Judgment
sample_1.vspd	FAIL(1)	0.569	FAIL	526.0	PASS	418.0	PASS
sample_2.vspd	PASS	1.138	PASS	526.0	PASS	418.0	PASS
sample_3.vspd	PASS	2.277	PASS	525.0	PASS	418.0	PASS

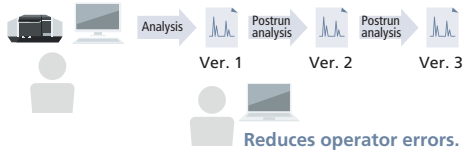
Data Management

Robust Data Management Functions

In addition to regular file management in folders on a PC, solutions for saving data in a database with sophisticated security functionality and compliance with ER/ES-related regulations are also available.

Supported Software: LabSolutions DB UV-Vis, LabSolutions CS UV-Vis

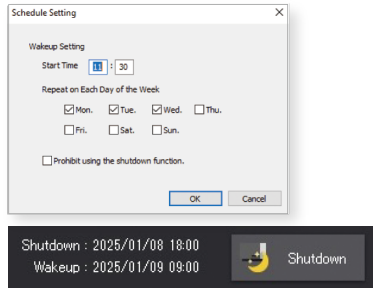
Managing data in a database can prevent the overwriting or deletion of analysis data. Furthermore, during postrun analysis, the data can be managed using version numbers, so there are no concerns about overwriting the data.



Shutdown

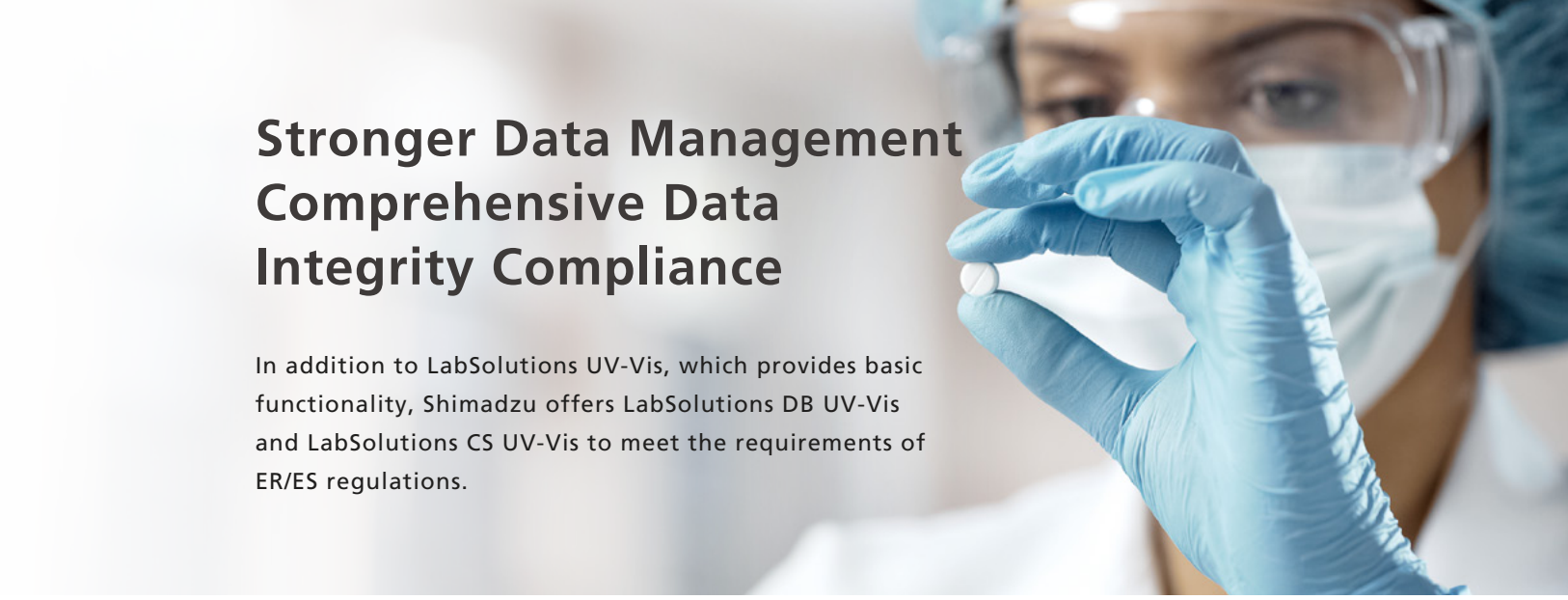
Shutdown/Wakeup Functions

The instrument can be shut down and put into sleep mode. Putting the instrument into sleep mode limits power consumption and helps preserve the lamp. After a long period of measurements, the instrument and software can automatically be shut down. After shutdown, the instrument can also be set to wake up automatically at a specified time. With this function, analysis can start the instant the user arrives at the laboratory.



ANALYTICAL INTELLIGENCE

- Automated support functions utilizing digital technology, such as M2M, IoT, and Artificial Intelligence (AI), that enable higher productivity and maximum reliability.
- Allows a system to monitor and diagnose itself, handle any issues during data acquisition without user input, and automatically behave as if it were operated by an expert.
- Supports the acquisition of high quality, reproducible data regardless of an operator's skill level for both routine and demanding applications.

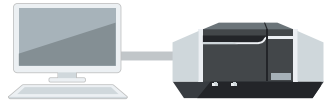


Stronger Data Management Comprehensive Data Integrity Compliance

In addition to LabSolutions UV-Vis, which provides basic functionality, Shimadzu offers LabSolutions DB UV-Vis and LabSolutions CS UV-Vis to meet the requirements of ER/ES regulations.

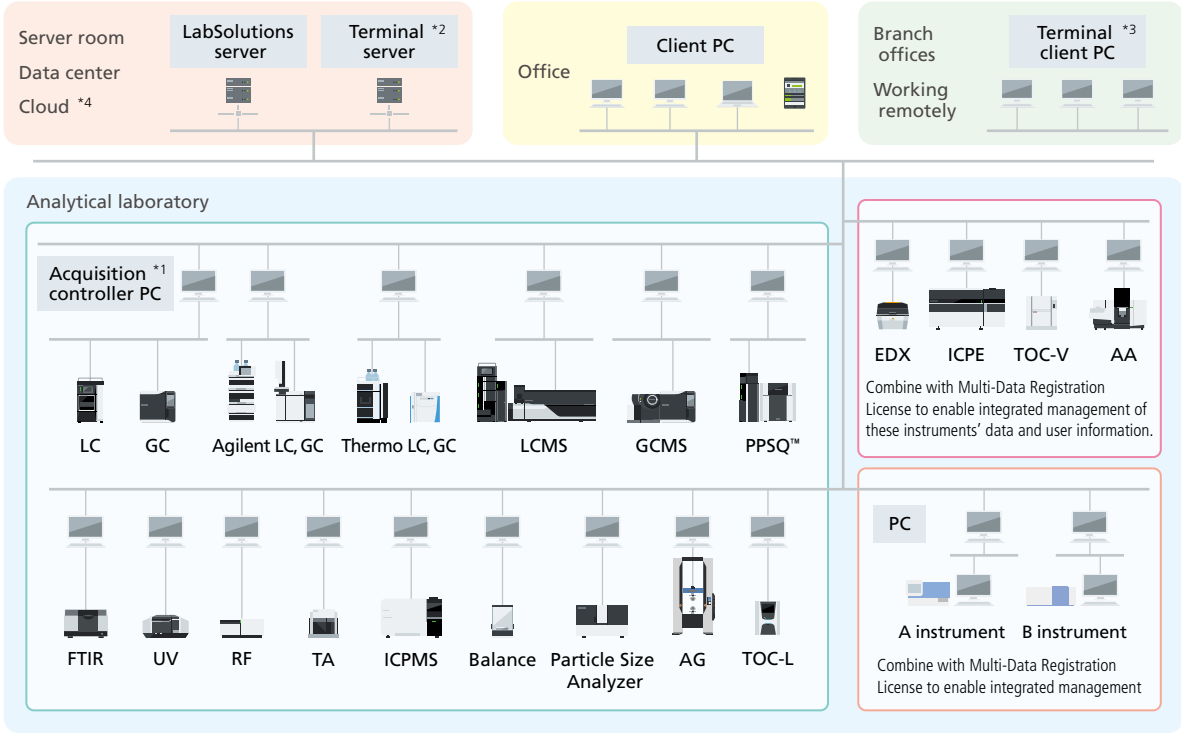
LabSolutions DB UV-Vis

LabSolutions DB UV-Vis allows for secure data management by integrating a data management function with LabSolutions UV-Vis. Compliant with ER/ES regulations, the software is optimally configured for customers using a PC. It is recommended for facilities that do not require network connections and want to be ER/ES compliant.



LabSolutions CS UV-Vis

LabSolutions CS, which is freely accessible to the analysis network, can be connected to LabSolutions UV-Vis, eliminating the need for connecting a PC to the instrument. Since all the data are managed on a server, LabSolutions CS UV-Vis can be read from any personal computer on a network. With terminal service, LabSolutions UV-Vis can be controlled from a client PC without installing LabSolutions UV-Vis on it. It is recommended for facilities that have a large number of users, manage data in a database, and want to be ER/ES compliant.



*1 The acquisition controller PC controls analytical instruments.

*2 A terminal server is a server for using terminal services. Users can view data reports and perform electronic signature operations through terminal services. It is ideal for remote connections because of the low network load. Only LC, GC, LCMS, and GCMS support analysis and postrun operations through terminal services.

*3 If a terminal service is used, LabSolutions software does not need to be installed on client PCs or tablets.

*4 Servers can be built on various clouds (IaaS). AWS (Amazon Web Services), Microsoft® Azure®, GCP™ (Google Cloud Platform™)

Solid Security

An audit trail to ensure the reliability of data and document e-mail transmission functions when any event occurs in the system can be set up. User accounts are managed using passwords, where password length, complexity and term of validity must satisfy specified requirements. It is also possible to set lockout functions to prevent illegal access, and set a registered user's deletion and change in status. In addition, a box can be selected to prevent overwriting a data file and outputting an item to a report can be performed.

Essential Information Is Managed for Every Project

LabSolutions DB UV-Vis and CS UV-Vis provide a project management function. This function enables equipment and user management, security policy, and data processing to be set on a project by project basis, thereby improving the efficiency of data searches and management tasks.

Visualization of the Sequence of Analysis Operations

Report set includes test methods and test results for a series of samples analyzed as well as a corresponding operation log (a record of all operating events from login to logout), which is automatically extracted from the data and summarized in a single report. It provides visibility of the individual analytical operations, and helps to check for operating errors and improve the efficiency and reliability of checking processes.

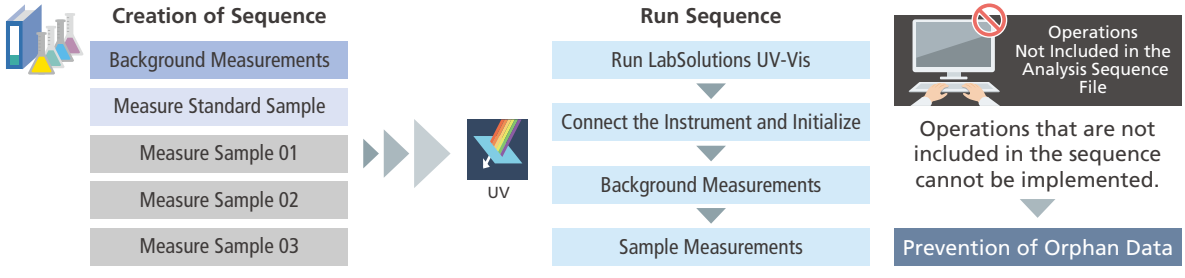
Analysis Sequence

Optional

Ensuring data integrity requires a system that shows no data manipulation has occurred. Shimadzu has achieved this through the introduction of its Analysis Sequence for spectrometers. Using the Analysis Sequence, it is possible to verify that the full chain of analysis has been carried out according to an experimental protocol (or SOP).
The LabSolutions Analysis Sequence (optional) provides a three-step workflow:

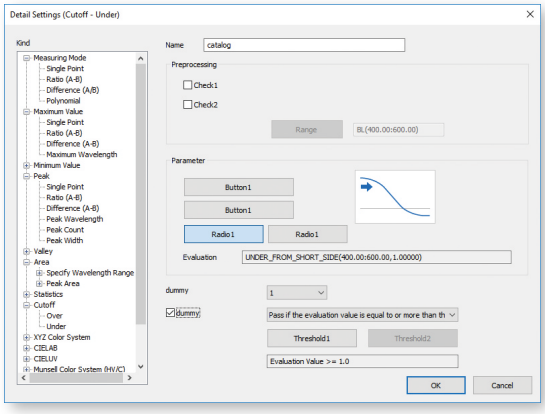
1. **A sequence is created according to a given experimental protocol (or SOP). See the flow below for reference.**
2. **The operator conducts analysis in the order shown by the sequence file.**
3. **After analysis, a report set is created from the sequence file used in the analysis. The experiment leader uses the report set to review the data chain generated by the sequence.**

Until now, a problematic issue with data integrity in spectrometers has been the existence of orphan data (data which is isolated and not reviewed, despite being used in the analysis). However, the LabSolutions Analysis Sequence option not only meets the requirements for data integrity by preventing the creation of orphan data, but also allows for highly efficient spectrometer operation.



Automated Data Processing

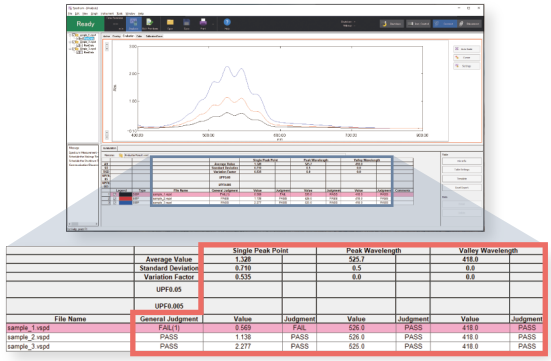
After spectra are measured, data processing can be performed and results displayed automatically according to a customized evaluation method. Multiple evaluation criteria can be configured.



The method used to calculate evaluation values can be selected from a variety of 33 standard evaluation methods (arithmetic calculations, peak/valley, area, or statistical calculations) or customized.
Pass/fail criteria can also be selected from eight types (such as pass if greater than or equal to, less than or equal to, greater than, or less than a specified value).

Previous
Checked/decided by looking at peak values or spectra.

LabSolutions UV-Vis
Decided by software based on data.

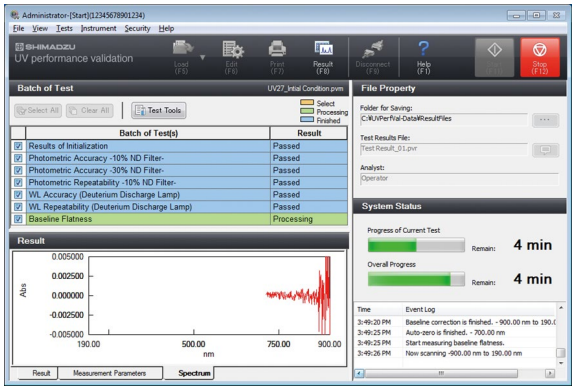


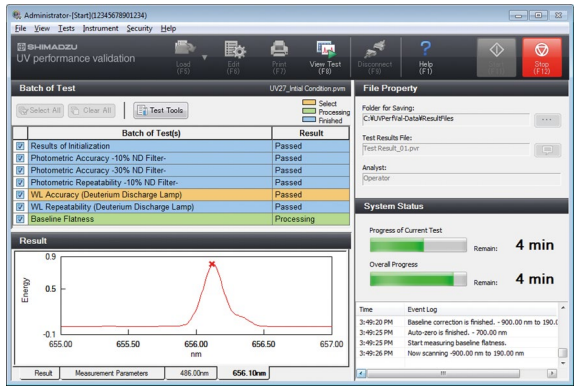
By specifying various evaluation criteria for measurement results, spectra judgments can be made automatically.

Measures and determines pass/fail result at the same time.

Compatible with Validation from PC Software

Validation can be implemented with PC software by using the UV validation software. In addition to simplifying daily inspections, this makes instrument performance checks and records management easier, enabling more secure regulatory compliance.





- Inspection results can not only be printed but also saved to a file, so the results can be called up later for confirmation.
- The inspection parameters can also be saved to separate files for periodic and routine inspections, and then called up for use.

- The user can select confirmation of instrument performance indicators as per JIS K 0115 General rules for molecular absorptiometric analysis, as well as the general test methods in the Japanese Pharmacopeia. (Order inspection jigs and reagents separately.)

Note: Optional validation software is required to support the US Pharmacopeia and European Pharmacopeia.

Tailored Solutions for Customers

Multiple solutions for analysis and data processing automation are provided. In addition, many accessories that enable the easy setting on samples in the sample chamber are available.

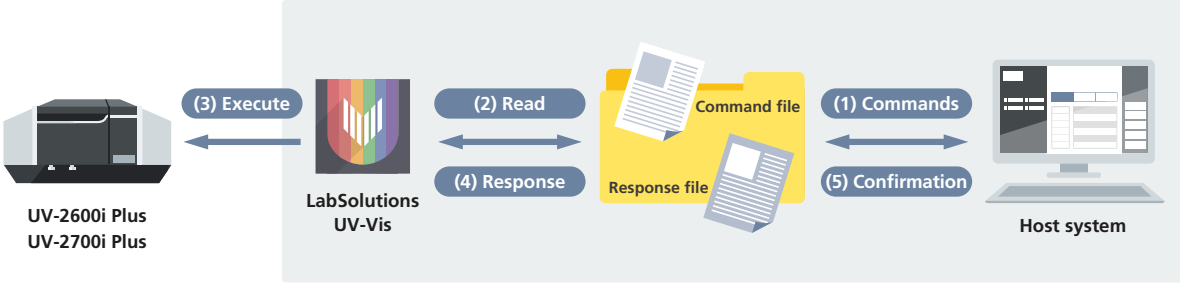
Standard Function

Measurements Automated with Automatic Control

Automatic control satisfies needs of customers that want to link the spectrophotometer to non-Shimadzu instruments or operate the spectrophotometer from LabSolutions UV-Vis software without operator intervention.

Automatic Control of Shimadzu UV Instruments

Automatic control functionality is used by LabSolutions UV-Vis to successively perform operations automatically in order of the assigned commands, without an operator having to click buttons or enter characters in software windows with a mouse or keyboard. Using this functionality enables automated system analysis, permits execution of specific operations, such as start/stop operations that do not require an operator to perform the operations in a window, and can achieve a system that prevents human errors.



Commands are text files that can be used to configure specialized systems. By placing simple text files that contain a list of commands in a folder, LabSolutions UV-Vis automatically reads the commands contained in the file, loads the parameter settings file, performs baseline corrections, measures the spectrum, and performs other processes automatically.

Optional

Autosampler Used for Continuous Analysis of Up to 360 Samples

If used in combination with an ASX Series autosampler for automatic analysis, up to 360 samples can be automatically analyzed continuously. Furthermore, the spectral evaluation function can be used to navigate the entire process from measurement to data analysis.

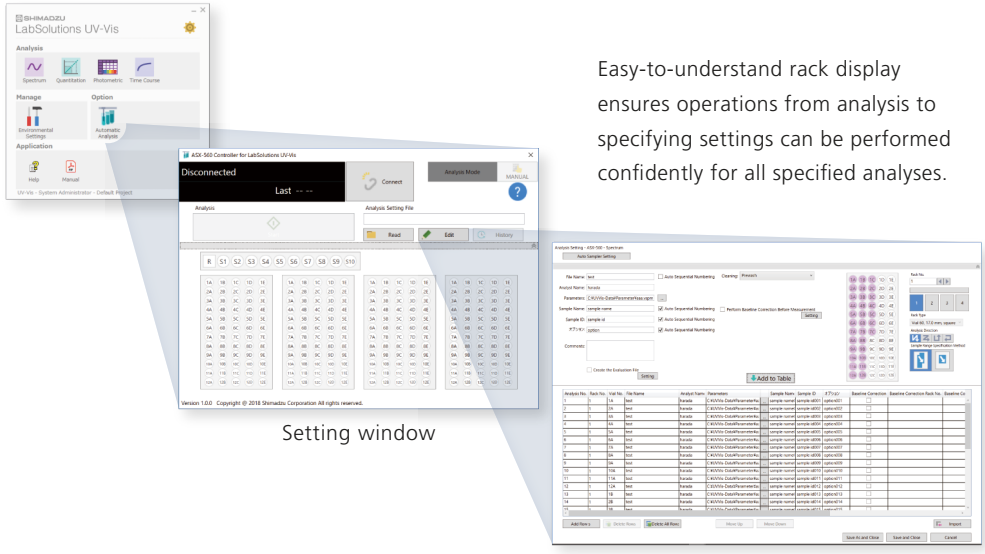
Previous
100 samples/day

UV-Vis [Automatic Analysis]
360 samples before noon

Select automatic analysis

Set parameters

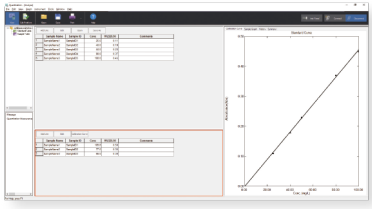
Measure, quantify, analyze data



Setting window

Easy-to-understand rack display ensures operations from analysis to specifying settings can be performed confidently for all specified analyses.

Automatic analysis application screen



Either the quantitation mode, spectrum mode, or photometric mode can be selected for continuous analysis. In combination with the spectral evaluation function, it is also possible to quickly determine pass/fail results visually after measuring multiple samples.

UV Automatic Analysis System
ASX-560 + UV-2600i Plus + Sipper Unit

For automatic multianalyte analysis
ASX-560 Autosampler
(P/N 211-94230-01)

Sample containers and number of samples:
10, 50-mL containers (standard samples) or 240, 14-mL containers
360, 7-mL containers (rack sold separately)
160, 20-mL containers (rack sold separately)
84, 50-mL containers (rack sold separately)
Size: W580 × D550 × H620 mm (main unit) (including sample probe)

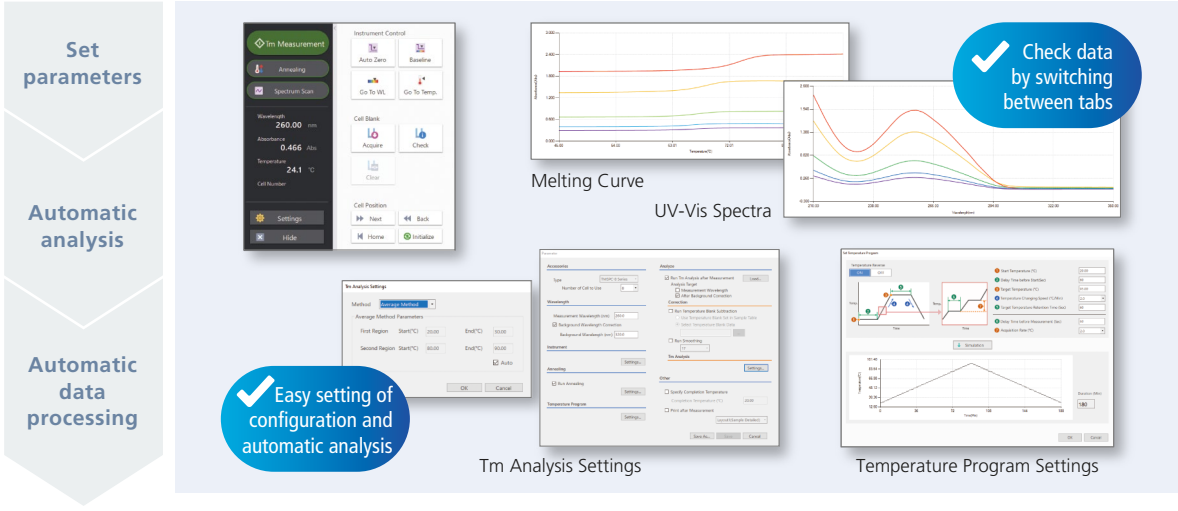
For automatic multianalyte analysis
ASX-280 Autosampler
(P/N 211-94412)

Sample containers and number of samples:
10, 50-mL containers (standard samples) or 120, 14-mL containers
180, 7-mL containers (rack sold separately)
80, 20-mL containers (rack sold separately)
42, 50-mL containers (rack sold separately)
Size: W355 × D550 × H620 mm (main unit) (including sample probe)

Optional

Reliable Tm Analysis System

With Tm analysis, which is used in confirmation tests for nucleic acid medicines, multiple procedures are typically performed manually. The Tm analysis system using LabSolutions UV-Vis Tm completely automates the process from annealing to measurement and analysis.



Optional

Analysis Functions in LabSolutions UV-Vis

Optional software adds various data analysis functions to the spectral evaluation function in LabSolutions UV-Vis. Pass/fail criteria can also be specified for data analysis results.

LabSolutions UV-Vis Color (Color Calculation)

(P/N 207-24528-91)

This software is used to calculate the color value of measured substances based on measured spectra. It can also display color diagrams, such as by plotting color coordinates in an XYZ color system or plotting CIELAB lightness index or color coordinate values.

- It includes the major calculation parameters, such as the XYZ color system, CIELAB, CIELUV, Munsell color system, mentalism, yellowness, whiteness, and color difference.
- Colors relevant to JIS and ASTM standards can be calculated.*
- Measurement illuminants, viewing angle, and other parameters can be specified for the various types of calculation.

LabSolutions UV-Vis UPF (UPF Calculation)

(P/N 207-25806-91)

This software is used to calculate ultraviolet protection factor (UPF) values based on measured spectra.

- It can calculate UPF, UVA, UVB, and ultraviolet protection values for either UVA and UVB.
- Values relevant to JIS, DIN, BS, AATCC, AS/NZAA, or GB/T standards can be calculated.*

LabSolutions UV-Vis Film (Film Thickness Calculation)

(P/N 207-25804-91)

This software is used to calculate film thickness from measured spectra based on the interference interval method. (Calculating the film thickness requires entering the refractive index of the sample.)

- The interference interval method calculates the film thickness based on the interval between interference peaks (or valleys). The incident angle and wavelength range for film thickness calculations and peak (or valley) detection parameters can be specified.

LabSolutions UV-Vis Daylight (Solar Radiation Calculation)

(P/N 207-25805-91)

This software is used to calculate solar transmittance/reflectance based on measured spectra.

- It includes major calculation parameters, such as visible light transmittance/reflectance, total light transmittance/reflectance, near-infrared reflectance, ultraviolet ray transmittance, CIE damage factor, and skin damage factor.
- Parameters relevant to JIS, ISO, and GB/T standards can be calculated.*

* For more details about applicable standards, contact Shimadzu.

Accessories

Basic Measurement

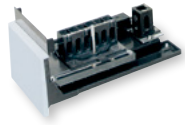
Film Holder
(P/N 204-58909)

This holder is used to hold films, filters, and other items. It is compatible with sample sizes between a minimum W16 × H32 mm and maximum W80 × H40 mm.

Rotating Film Holder
(P/N 206-28500-41)

This film holder enables in-plane rotation of samples centered on the optical axis. It is compatible with sample sizes up to 33 × 30 mm.

Multi-Cell Sample Compartment (Six Cells) (Type-p)
(P/N 206-69160-58)



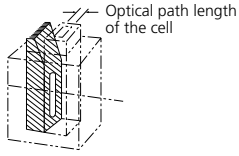
This holds up to six cells on the sample side. It is controlled automatically.

Short Optical Path, Long Optical Path, Micro-Volume Measurement

Long-Path Rectangular Cell Holder
(P/N 204-23118-01)

This holds rectangular cells with an optical path length of 10, 20, 30, 50, 70, or 100 mm.

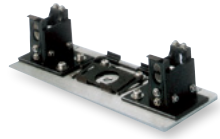
Spacers for Short-Path Cells
(P/N 204-21473-XX)



This standard cell holder is required for short optical path cells.

P/N	Available cells
-01	2 mm
-02	5 mm
-03	1 mm

Super-Micro Cell Holder
(P/N 206-14334)



This cell holder is for supermicro cells. Volumes between 50 and 200 µL can be measured, depending on the type of black cell used.

Constant-Temperature Measurement

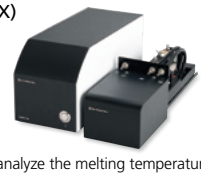
Constant-Temperature Cell Holder
(P/N 202-30858-44)

This cell holder controls the cell temperature by circulating constant-temperature water. The operating temperature range is 5 to 90 °C (requires a separate constant-temperature water circulator). A four-cell model is also available (P/N 204-27206-02).

TCC-100 Thermoelectrically Temperature-Controlled Cell Holder (P/N 206-29510)

This device can control the temperature of cells on both the sample and reference side. The temperature-control range is 7 to 60 °C. The temperature can be adjusted only on the sample side and 6 sets are available (P/N 206-29500). The temperature-control range of 6 sets is 16 to 60 °C.
A USB adapter CPS (P/N 206-25234-91) is required.

TMSPC-8ip Thermoelectric 8-Cell Micro Multi-Cell Holder (Tm Analysis System)
(P/N 207-28470-XX)

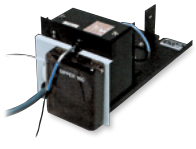


This system is used to analyze the melting temperature (Tm) of nucleic acids (such as DNA and RNA). The temperature-control range is 0 to 110 °C. Cooling water must be circulated to cool the Peltier element. LabSolutions UV-Vis Tm (P/N 207-27225-91) is required.

P/N	Type	Power supply cable
-58	200 V	
-41	100/120 V	✓

Automatic Analysis

Sipper Units
(P/N 206-23790-XX)



This device aspirates liquid samples using a peristaltic pump. The flow cell shapes have types.

Model	P/N	Flow cell shapes
160L	-51	L model
160T	-52	Triple-pass model
160C	-53	Constant-temperature model
160U	-54	Ultra-micro volume model

ASC-5 Auto Sample Changer
(P/N 206-23810-91)

If the ASC-5 is combined with a sipper unit or syringe sipper, it is possible to configure an automated multisample measurement system for liquid samples.
A USB adapter ASC (P/N 206-25235-91) is required.

ASX-560/280 Autosampler

If the ASX-560 is combined with a sipper unit or syringe sipper, it is possible to configure an automated multi-sample measurement system for liquid samples. A CETAC connection kit (P/N 206-26525-91) and LabSolutions UV-Vis Auto (P/N 207-25807-91) are required.

Model	Number of analytes
ASX-560	84 to 360
ASX-280	42 to 180

Note: The number of samples depends on the size of the sample container.

Integrating Sphere Units

ISR-2600/2600Plus Integrating Sphere Attachment

(P/N 206-28400-58/206-28410-58)

These units can be used for relative diffuse or specular reflectance measurements. The angle of incidence to the sample can be set by setting it to zero or eight degrees in combination with functionality for switching between sample and reference sides of the spectrophotometer. The measurement wavelength range is 220 to 850 nm for the ISR-2600 or 220 to 1400 nm for the ISR-2600Plus. They are compatible with reflectance samples that are W95 × H135 × T20 (for 0-deg. angle of incidence) or W70 × H70 × T12 (for 8-deg. angle of incidence).

MPC-2600A Multipurpose Large-Sample Compartment

(P/N 207-23520-41)

The MPC-2600A enables both reflectance and transmittance measurement of samples having a wide variety of shapes. The measurement wavelength range is 220 to 1400 nm with the UV-2600 series and 220 to 850 nm with the UV-2700 series. It is compatible with transmitted samples that are ø305 mm/50 mm thick or less or ø204 mm/300 mm thick or less, and reflectance samples that are ø305 mm/50 mm thick or less.

Note: When using with the UV-2600 series, the wavelength range may be limited by the combination of the polarizer and accessories.

Large Polarizer Set / Polarizer Type I, II, III / Polarizer Adapter Set

The polarization characteristics of light entering the sample can be controlled. Used in large multi-purpose sample chambers and rotating film holders. A Polarizer Adapter Set (P/N 206-15693) is required when using Polarizer Assy I, II and III types.

P/N	Type	Wavelength range
206-15694-40	Large type Note 1	250 to 2300 nm
206-13236-41	Type I	400 to 800 nm
206-13236-42	Type II Note 2	260 to 700 nm
206-13163-40	Type III	260 to 2300 nm

Note 1: This cannot be used with Glass/Film Holders (P/N 207-21573-41) or Rotating Film Holder (P/N 206-28500-41).

Note 2: Type II cannot be used with absolute reflectance measurement.

Powdered Sample Holder (for Integrating Sphere)

(P/N 206-89065-41)

This powdered sample holder is for installation in an integrating sphere.

Micro Sample Holder

(P/N 206-28055-41)

This holds solid samples about 5 to 10 mm square or in diameter and about 1 to 5 mm thick. Samples are held by clamping from above and below. This holder is for transmission measurement. Not available for use with UV-2700.

Note: MPC-2600A Multipurpose Large-Sample Compartment (P/N 207-23520-41), BIS-3100 Sample Base Plate Integrating Sphere Set (P/N 206-17059-58) and Micro Beam Lens Unit (P/N 206-22051-41) are required separately.

Reflectance Measurement

Absolute Reflectance Attachments

These attachments are installed in a multipurpose large-sample compartment to enable absolute specular reflectance measurements of solid samples. They require a Sample Base Plate Integrating Sphere Set BIS-3100. Compatible sample size range is 20 to 150 mm square and up to 30 mm thick. When the incident angle is large (12°, 30°, 45°), a separately sold polarizer unit is required.

Model	P/N	Incident angle	Wavelength range
ASR-3105	206-16817-58	5°	MPC-2600: 300 to 800 nm
ASR-3112	206-16100-58	12°	
ASR-3130	206-15001-58	30°	MPC-2600A: 300 to 1200 nm*
ASR-3145	206-15002-58	45°	

* when using with UV-2600 series.

Variable Angle Measurement Unit for MPC-2600A

(P/N 207-23490-41)

This device enables absolute reflectance measurements of solid samples, with the incident and reflection angles set to any angle. Measurement wavelength range is 250 to 1400* nm. It is compatible with sample sizes from 20 to 100 mm square and up to 15 mm thick. The incident angle can be set between 5 and 70 degrees.
When the incident angle is larger than 10°, a separately sold polarizer unit is required.
Measurement wavelength range is over 800 nm UV-2600 series.

* UV-2600 series should be used for measurement above 800 nm.

Specular Reflectance Measurement Attachment (5° Incident Angle)

(P/N 206-14046-58)

This device enables specular reflectance measurements. The angle of incidence to the sample is 5 degrees. It is compatible with sample sizes from 7 mm in diameter up to 160 × 100 mm and up to 15 mm thick.

Various other accessories

UV-Vis Series Accessories (No. C101-E070) >

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