JASCO Europe

V-730Bio

UV-Vis Double Beam Spectrophotometer

for Bio-Analytical applications

Company Presentation

JASCO Corporation - Japan was founded in 1958 to provide the scientific community with optical spectroscopy products.

In the mid-1950's a group of researchers in the Institute of Optics of what is now Tsukuba University needed an Infrared Spectrophotometer for their research.
Since a commercially available instrument was not yet existing at the time, they undertook the challenge to develop their own.

The result was quite a success - a reliable instrument with excellent optical performance. As a second result, other research groups asked them to replicate the instrument for use within their laboratories.

Over the years the JASCO product line has grown to cover instruments used, not only in research but also for routine analysis applications in areas such as quality control, environmental analysis, and process control. The current spectroscopy product line encompasses instrumentation for the following methods:

- ***UV/Visible and NIR***
- ***Microscope Spectrophotomers***
- ***FT-IR, microscope FT-IR and FT-Raman***
- ***Dispersive RAMAN***
- ***Polarimeters***
- ***Spectrofluorometers***
- ***Portable Raman***
- ***Portable FT-IR***
- ***Fully Automated Dissolution Tester***

JASCO is also the world leader in the field of ***Circular Dichroism Spectropolarimeters*** and ***Vibrational Circular Dichroism Spectrometers.***

"serving the Science and Technology World by providing most advanced analytical instrumentation"

With the introduction of HPLC in the mid-1970's JASCO's experience in highly sensitive and accurate optical systems led to the development of a series of chromatographic detection systems. Fixed and variable wavelength UV/Visible and Fluorescence detectors were introduced featuring excellent sensitivity and reliability in compact modules. In order to offer complete HPLC systems JASCO developed a variety of novel solvent delivery systems as well as other accessories such as column ovens, autosamplers, and PC based control and analysis software.

Today JASCO offers a wide variety of ***HPLC modules,*** accessories and analysis software. The new ***JASCO LC-4000 Liquid Chromatography*** series is designed to operate at pressures approaching 15,000 psi for either gradient or isocratic separations, providing researchers with a powerful tool when using the new generation of small particle columns. LC-4000 Series includes a versatile series of components offering unique flexibility to build systems for routine and specialized applications. LC-4000 features the widest choice of optical HPLC detector: UV, diode array, fluorescence, chemiluminescence, CD, chiral and refractive index detector.

Finally JASCO's modular ***Supercritical Fluid Chromatography*** and ***Supercritical Fluid Extraction*** platforms provide a low-cost, fast, green technology with reliable and worry-free performance for a wide variety of applications.

JASCO has a strong global presence, supplying customers in ***over 45 different countries.***

JASCO Europe *is responsible for marketing, sales, service and support for all Jasco products throughout* ***Europe, Middle East and Africa.***

JASCO Europe S.r.l.
Via Cadorna, 1 - 23894 Cremella (LC)
Tel. +39-0399215811
Fax +39-0399215835

jasco@jasco-europe.com

www.jasco-europe.com

Follow us on:

Make the most of your investment with

JASCO Service and Support

JASCO Service and Support agreement plans are designed for those laboratories pursuing superior productivity through the highest level of professional services.
The use of automated instrumentation is the right approach to meet today's laboratories productivity requirements, reducing analysis run times, enhancing sample throughput, and increasing analytical accuracy and precision. In this view, preventive maintenance is very important to maximize laboratory uptime and avoid unexpected expenses.

In addition to the analytical goal, proper installation and maintenance are required to achieve optimal performance. JASCO provides flexible service and support management solutions focused on your laboratory real objectives.

With its service network, JASCO is ready to maintain the perfect reliability of customer's instrumentation and minimize the laboratory down time.

· *Superior productivity*
· *Optimized analytical performance*
· *Lower cost of ownership*
· *Extended instrument life*

If your laboratory has specific Service and Support requirements, JASCO can help you with customized contract agreements. In addition, a full set of Installation Qualification (IQ), Operational Qualification (OQ), and Performance Qualification (PQ) tests are available to verify the system proper installation, operation and performance, respectively.

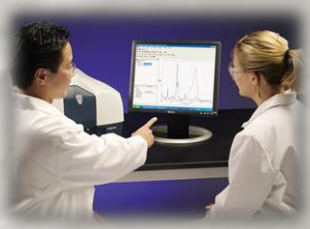
Get the most from your investment with

JASCO Training Courses

JASCO Training Courses ensure maximum skill development for the best value of your laboratory. Our team of highly-experienced specialists can help your staff to get the most from your instrument reducing your analysis run time and improve performance.

Build your knowledge with JASCO Training Courses:

· *Instrument and Software operation*
· *troubleshooting*
· *Maintenance*
· *Calibration*
· *Applications and Methods developments*
· *Operating Techniques*



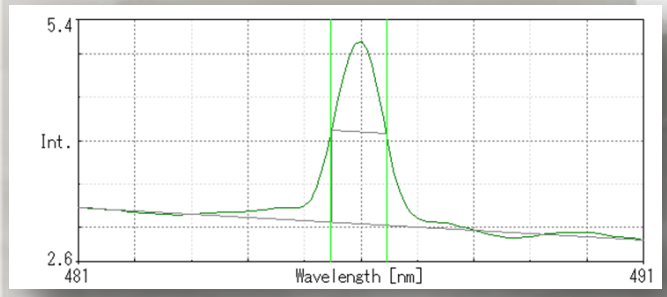
V-730Bio Spectrophotometer

UV-Vis Spectrophotometer JASCO V-730Bio

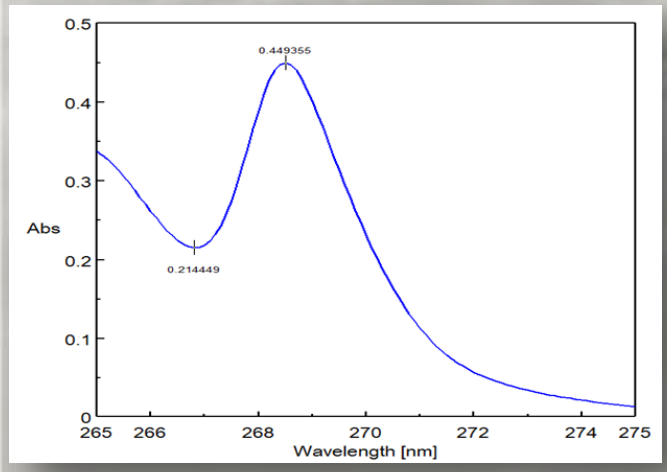
V-730Bio is a dedicated stand-alone instrument system for Life Science applications. It includes an intelligent Remote Module (iRM-1000) specifically designed for biochemical and clinical analysis and a micro cell holder.
Dedicated bio-analytical application programs such as protein/nucleic acid measurement, temperature ramping/DNA melting analysis, kinetics measurement and analysis, and a quantitative protein analysis program with six different calibration methods are included in the software as standard.
Features for simplicity and ease of use include the IQ Accessory function and IQ Start. Auto print and Auto save functions make daily analyses simple and fast.

JASCO V-730Bio KEY FEATURES

1nm Spectral Bandwidth - In the European Pharmacopoeia, the standard resolution test for a mixture of Toluene/Hexane requires that the spectral ratio at 269 nm and 266 nm must exceed 1.5; with a **1 nm SBW**, V-730Bio passes this test with ease.



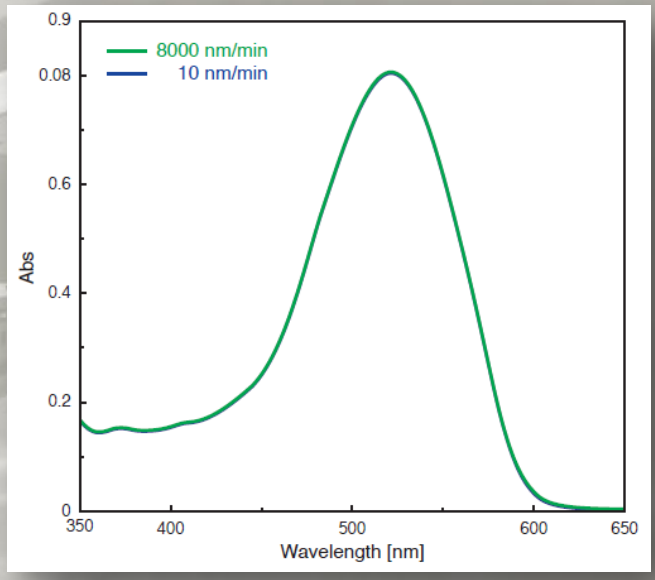
Spectral Bandwidth calculated : 0.974



Resolution test of EP -Toluene/Hexane:
Resolution=2.0954

Dynamic range - Optimal balance between light intensity, signal to noise and resolution supporting European Pharmacopoeia (EP). Faster instrument response and monochromator slew speed for enhanced Protein/DNA concentration measurements. The V-730Bio has a wide range of special accessories and optional programs for a broad range of analyses.

High scan speed - V-730Bio can performs spectral measurements at scanning speed up to **8,000 nm/min.** The figure below shows the comparison of spectra measured at scanning speeds of 8,000 nm/min and 10 nm /min. The two spectral shapes match very closely, and the shape does not vary even with high-speed scanning. For example measurement time for Protein/Nucleic acid quantitation program can be performed in just 8 seconds.



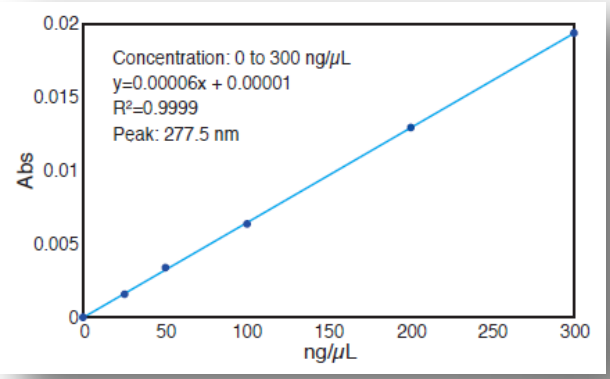
Comparison of high-speed scan and normal scan

IQ accessory and IQ Start - The IQ Accessory function automatically recognizes an accessory when it is inserted into the sample compartment. When the IQ Accessory system recognizes the registered accessory, the assigned program automatically starts by using the IQ Start function.

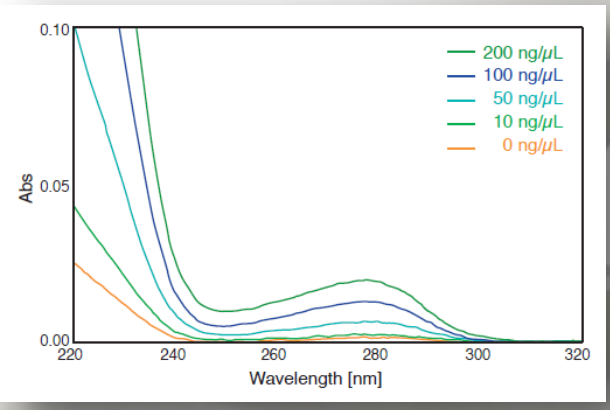
Start Button - All models have a Start Button for immediate initiation of sample measurement. After placing a sample in the sample compartment, simply press the Start Button on the instrument to begin measurement.

V-730Bio Spectrophotometer

Micro Cells - The standard cell holder of V-730Bio accepts micro cells (optical path length of 10 mm) with a minimum optical path width of 2 mm, which is useful for measurement of very small amounts of sample. Figures below illustrate highly accurate measurement of small amounts of albumen solution by using the EMC-759 Ultra-micro cell holder and a 5 µL micro cell.



Calibration curve of albumen solutions



Spectra of albumen solutions

Dark Correction - A Dark Correction function is standard for all models of the V-700 Series, which provides photometrically accurate measurements of highly absorbing samples.

Energy and space-saving system

- Green technology, best energy-saving in its class Switch off the light source from the measurement screen when not in use.
- Save energy and lamp life.
- All models have the most compact design requiring minimal bench space.

Color LCD touch panel for intuitive operation - High clarity color LCD display makes the display of complex data such as spectra or calibration curves easy to read. Touch sensitive screen with stylus for easy user interaction.

USB storage - Portable, high capacity storage and direct data saving with a standard USB storage for transfer to Spectra Manager software. Data can be saved using the iRM in text format for easy transfer to spreadsheets and other post processing software.

Spectra Analysis software for PC included as standard - Data acquired using the iRM can be transferred and analyzed using Spectra Analysis on a PC.

Functions in Spectra Analysis for PC include peak detection, vertical/horizontal axis conversion to print layout designer and data conversion to ASCII text format.

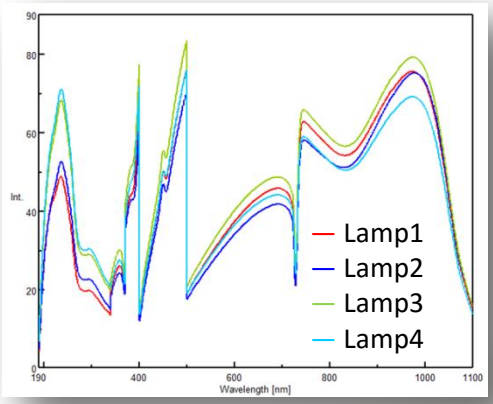
Daily check program - For users who requires a regular validation check; use a simple Holmium glass filter (or other standard) for daily measurement with automatic execution of procedures to easily record and track a comprehensive history of instrument performance.

Validation - V-730Bio provides a standard validation program. This program supports USP, EP and JP instrument qualification requirements. The program automatically performs an analysis of the instrument results based on defined acceptance criteria. Results of the validation tests can be printed or saved electronically for further review.

V-730Bio Spectrophotometer

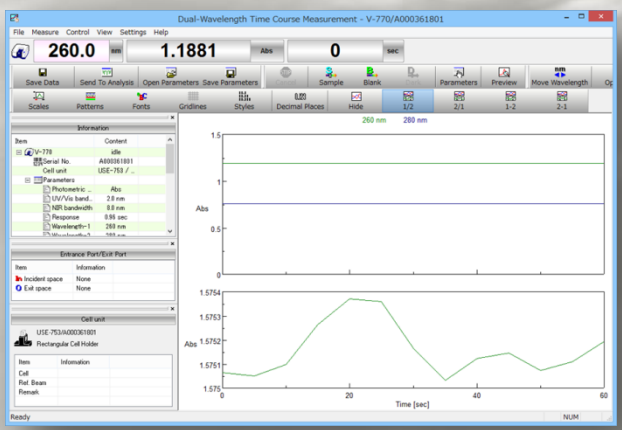
Alignment-free lamp replacement - The design of the socket deuterium lamp and socket tungsten halogen lamp facilitates light source over replacement, simplifies maintenance and reduces operation error.

In the example below, single beam spectra and validation results of 4 different lamps mounted without any alignment tools.

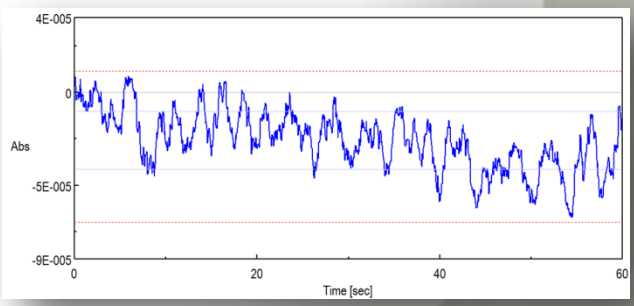


	Lamp 1	Lamp 2	Lamp 3	Lamp 4
Wavelength Accuracy	Pass	Pass	Pass	Pass
Photometric Accuracy	Pass	Pass	Pass	Pass
Noise Level	Pass	Pass	Pass	Pass
Baseline Flatness	Pass	Pass	Pass	Pass

Dual wavelength time course measurement - kinetics measurement can be performed by simultaneous dual wavelength, and the difference between dual photometric value and the ratio of dual photometric value can be plotted.

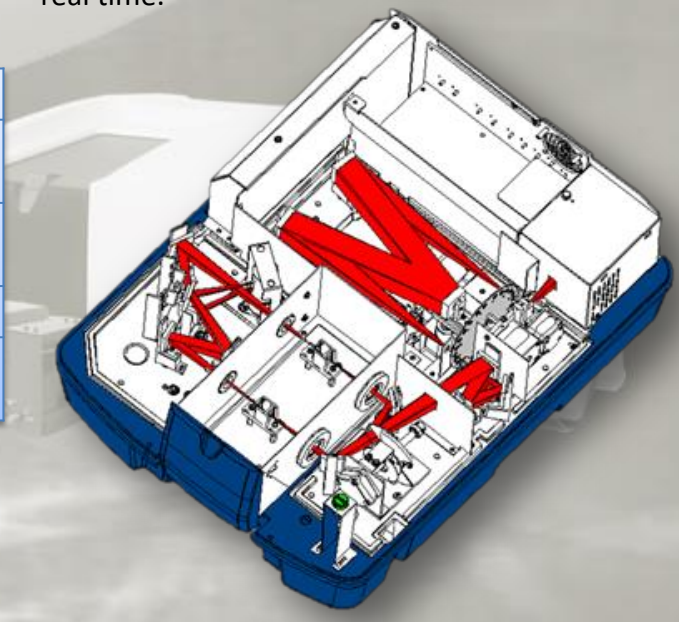


Lowest RMS noise – Using a new pre-amplifier, JASCO V-730Bio achieves the lowest RMS noise offering an outstanding sensitivity compared to similar UV-Vis spectrophotometers on the market.



RMS Noise 0.00004 Abs

True Double-Beam spectrophotometer - All JASCO V-700 spectrophotometers are true double-beam systems, provide the best possible stability and allow reference to be measured and corrected in real time.



Extensive Range of Accessories - The V-700 Series can be integrated with more than 70 accessories and over 30 optional programs to offer flexible configurations for a wide variety of analytical requirements. Experimental capabilities range from simple educational applications and routine daily use, to specific applications for advanced biochemical and semiconductor research.

The range of accessories include various types of cell holders for liquid samples and options for a wide variety of solid samples.

JASCO V-730Bio Unique Features

- *Standard working range (**190** to **1,100 nm**) and spectral bandwidth (**1nm**) enough to satisfy any Pharmacopoeia requirements.*
- *Outstanding **RMS noise** (0.00004 Abs) and **Stray Light** (0.02%) provide capabilities from education and routine analysis to high-end research applications.*
- ***High Scan Speed** (8,000 nm/min) assures a measurement time of Protein/Nucleic acid in 8 seconds keeping spectral shapes similar to what acquires at a slow scanning speed.*
- ***True Double-Beam** spectrophotometer provides the best possible stability and allows reference to be measured and correct on real time.*
- *High clarity color **Touch Screen LCD** makes the display of complex data such as spectra or calibration curves easy to read.*
- ***IQ Accessory function** for automatic recognition of any accessory inserted into the sample compartment.*
- ***Validation** and **Daily Check** programs help operator to keep the instrument always in perfect conditions assuring maximum accuracy of obtained results.*
- *The V-700 Series can be integrated with more than **70 accessories** and over **30 optional programs** to offer flexible configurations for a wide variety of analytical requirements.*
- *Cross-platform integrated software package, **SPECTRA MANAGER II** including dedicated softwares for Biochemical applications.*

JASCO SPECTRA MANAGER II

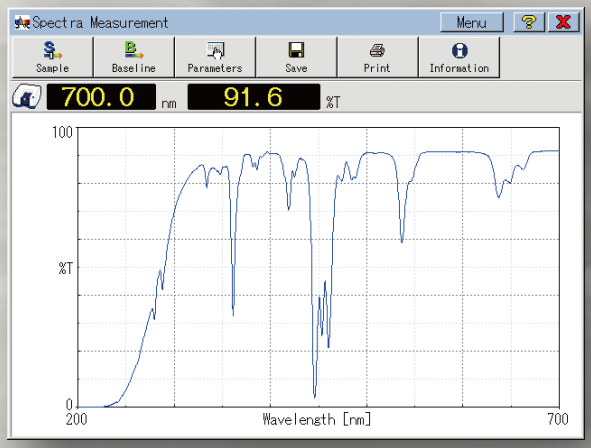
Software JASCO SPECTRA MANAGER II

The SPECTRA MANAGER II program is a comprehensive package for capturing and processing data, eliminating the need to learn multiple software packages and offering the user a shallower learning curve. Several types of measurement data files can be viewed in a single window, and processed using a full range of data manipulation functions.

The basic package includes:

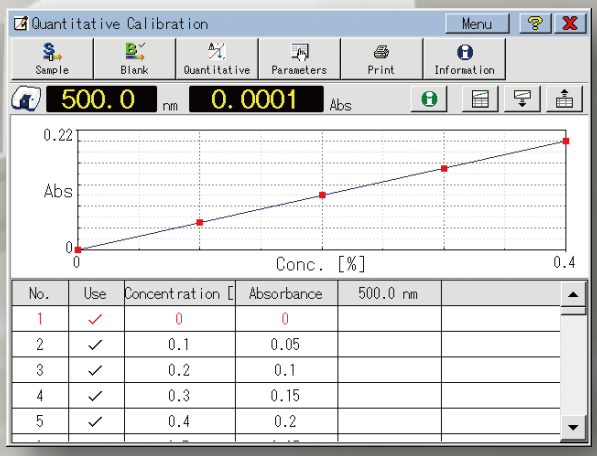
QUICK START MEASUREMENT PROGRAM - The Quick Start Measurement Program can automatically perform a series of operations as specified by a user, from measuring samples and processing data to saving and printing results, with a single click of the start button. The procedure is stored in memory for repeated use. The data processing functions include comparison of an obtained spectrum with spectra specified by a user.

SPECTRA MEASUREMENT PROGRAM - The Spectra Measurement program measures photometric values of a sample in the selected wavelength range. Abs, %T or %R are available for the vertical axis while nm, cm-1, µm, and eV are available for the horizontal axis.



VALIDATION PROGRAM – The Validation program offers assistance for verifying instrument performance to meet regulatory requirements set by GxP. The test methods are compliant with USP, EP and JP procedures. The program includes validation tests for wavelength accuracy, wavelength repeatability, photometric accuracy, photometric repeatability, resolution, resolution power, stray light, noise level, baseline stability and baseline flatness. Optional standards and tools are required for some validation tests.

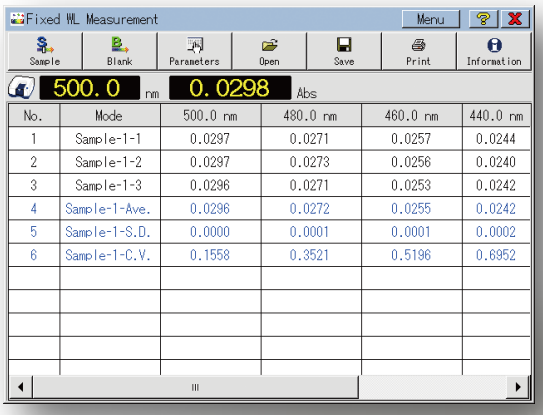
QUANTITATIVE ANALYSIS PROGRAM - The quantitative measurement package consists of two programs; a calibration curve creation program and a quantitative measurement program. The program provides three types of baseline correction methods and eight types of calibration curves. A function for providing a pass/fail judgement for the obtained values is included.



JASCO SPECTRA MANAGER II

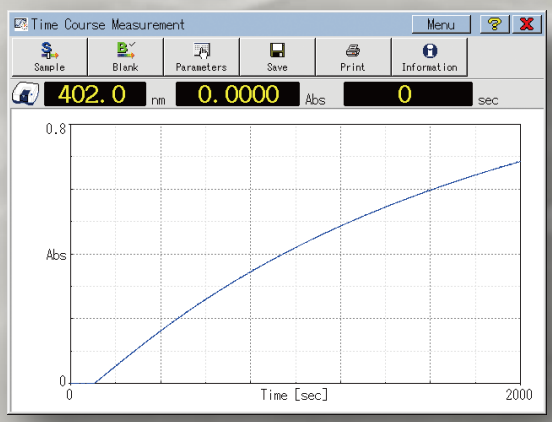
Software JASCO SPECTRA MANAGER II

FIXED WAVELENGTH PROGRAM - The Fixed Wavelength measurement program measures the photometric values of up to eight multiple wavelengths. A 'cycle number' and 'wait time' are selectable, and the mean, standard deviation and C.V. value for each wavelength are displayed after completion of each cycle of sample measurements.

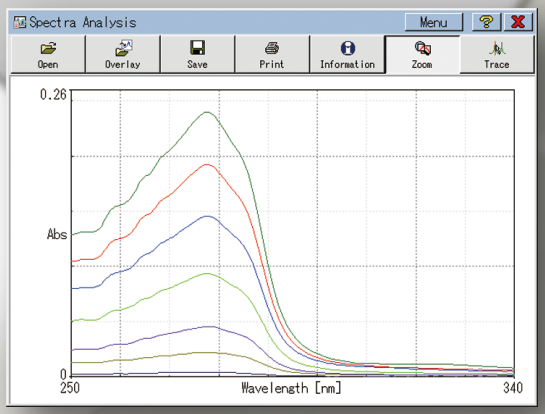


No.	Mode	500.0 nm	480.0 nm	460.0 nm	440.0 nm
1	Sample-1-1	0.0297	0.0271	0.0257	0.0244
2	Sample-1-2	0.0297	0.0273	0.0256	0.0240
3	Sample-1-3	0.0296	0.0271	0.0253	0.0242
4	Sample-1-Ave.	0.0296	0.0272	0.0255	0.0242
5	Sample-1-S.D.	0.0000	0.0001	0.0001	0.0002
6	Sample-1-C.V.	0.1558	0.3521	0.5196	0.6952

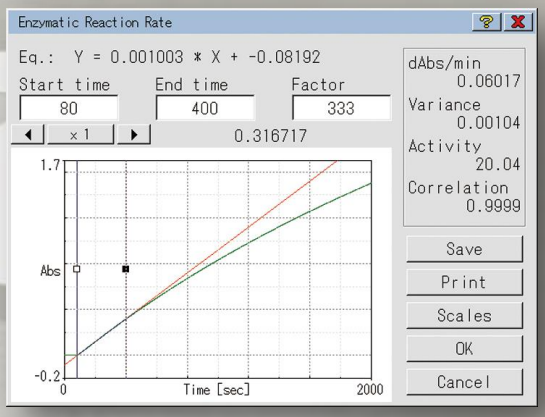
TIME COURSE PROGRAM - The Time Course measurement program measures the changes of a sample's photometric value over time at a fixed wavelength and with a defined interval. For the time course measurement, the V-730Bio can obtain data at a minimum interval of 0.01 sec. Parallel time course measurements while controlling the cell positions of a cell changer are also possible.



SPECTRA ANALYIS PROGRAM - Standard data analysis applications for the iRM include peak detection, vertical/horizontal axis conversion and emzymatic reaction calculation.



Spectra Analysis



Enzymatic Reaction Rate Calculation

JASCO SPECTRA MANAGER II

Software JASCO SPECTRA MANAGER II

Protein nucleic acid quantitation - This program measures the absorbance of a sample at the specified wavelengths and calculates concentrations of proteins and nucleic acids using a method selected from the following five choices.

- Ratio between Abs @ 260 and 280 nm
- Ratio between Abs @ 230 and 260 nm
- Warburg/Christian factor calculation method
- User-defined absorbance ratio calculation
- User-defined concentration calculation

It is also possible to specify the wavelength for background correction and to select whether background correction is to be performed.
Generally, a baseline correction at 320 nm is performed for turbid samples.

Quantitative analysis of proteins - Six kinds of calibration curves for the quantitative analysis of proteins are included:

- UV Absorption
- BCA method
- Bradford method
- Lowry method
- WST method
- Biuret method

Kinetics measurement/analysis - Time course measurements of enzymatic reactions using multiple substrate solutions can be performed, then analyzed to obtain the kinetic constant K_m and the maximum velocity V_{max}.
Four graphic plots are available.

- Michaelis-Menten plot (*)
- Lineweaver-Burk plot
- Hofstee plot
- Eadie plot

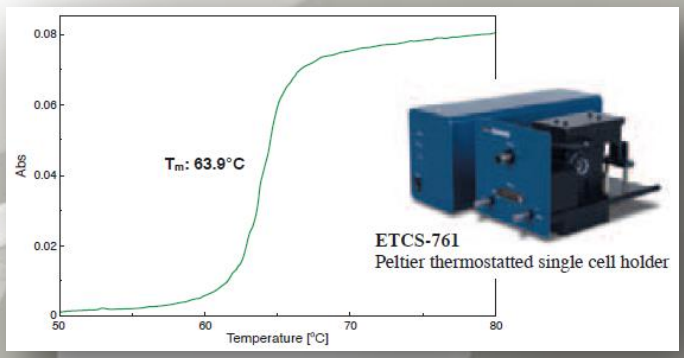
This program is compatible with automatic cell changers, thus data acquisition and analysis can be performed for multiple sample cells.

(*) Michaelis-Menten is graphic plot only.

Temperature measurement and melting analysis
This program performs DNA melting analysis.
A melting curve to calculate the melting point (Tm) is measured by using an optional Peltier accessory.

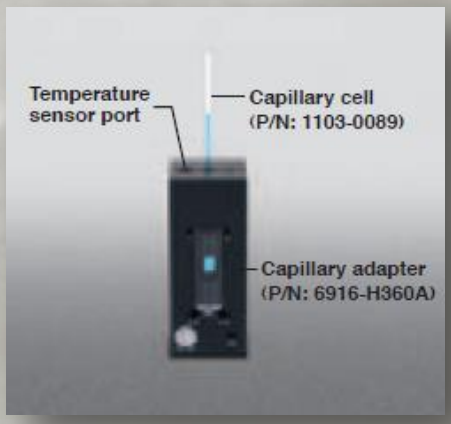
The program is compatible with automatic cell changers, thus data acquisition and analysis can be performed for multiple cells.

The figure below illustrates the DNA melting analysis of 3 µL of a DNA sample by using a capillary cell with the ETCS-761 Peltier thermostatted single cell holder. The melting temperature calculated from the data was 63.9ºC.



Capillary adaptor - The capillary adaptor enables a temperature measurement of trace amounts of sample using a quartz capillary cell (Pathlength: approx. 0.5 mm, minimum sample volume: 3 µL).
This adaptor can be used with a Peltier cell holder or cell changer for temperature measurements such as DNA melting analysis. The temperature sensor is optional.

* Capillary sealing compound (P/N: 1107-0015) is required.



V-730Bio - Technical Specifications

Optical System	• Rowland off-circle arrangement • Single Monochromator • True Double-Beam (Sample & Reference)
Light Source	Deuterium & Halogen lamps with automatic switching
Detector	Silicon photodiode
Wavelength Range	190 – 1,100 nm
Wavelength Accuracy	± 0.2 at 656.1 nm
Wavelength Repeatability	± 0.1 nm
Scanning Speed	10 to 8,000 nm/min
Slew Speed	24,000 nm/min
Spectral bandwidth	1 nm (Fixed)
Photometric Range **(guaranteed on the whole spectral range)**	-3 + 3 Abs
Maximum Photometric Range	-3.5 + 3.5 Abs ($KMnO_4$ aqueous solution)
Photometric Accuracy	±0.0015 Abs (0 to 0.5 Abs) ±0.0025 Abs (0.5 to 1 Abs) ±0.3 %T Tested with NIST SRM 930
Stray Light	1 % (198 nm KCl 12 g/L) 0.02 % (220 nm NaI 10 g/L) 0.02 % (340 nm NaNO2 50 g/L) 0.02 % (370 nm NaNO2 50 g/L)
Baseline stability	±0.0004 Abs/hour
Baseline flatness	±0.0005 Abs
RMS noise	0.00004 Abs (0 Abs, 500 nm, 60 sec)
Automatic Accessories Recognition	YES
Software	Spectra Manager II including the following programs: • Spectra Measurement • Quantitative analysis • Fixed Wavelenght • Dual Wavelenght Time Course Measurement • Quick Start Measurement • Validation & Daily Check • Enzyme Activity Calculation • Dedicated Biochemical programs
iRM (Intelligent Remote Control)	iRM-1000 intelligent remote module incorporates a color LCD touch screen (320 x 240 pixel)
Printing Functions	Compatible with all printers having ESC/P-R protocol
Dimensions and weight	486(W)x441(D)x216(H) mm - 15 kg
Power requirements	120VA

JASCO Europe

Sampling Accessories

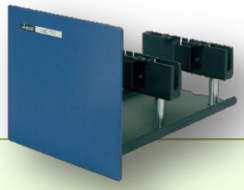
V-730Bio UV-Vis Spectrophotometer

V-730Bio – Liquid Sample Accessories

Sampling Accessories

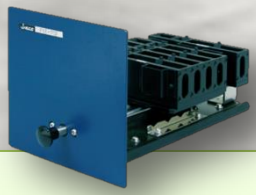
V-700 Series can be integrated with a complement of more than 70 accessories to offer flexible configurations for a wide variety of analytical requirements.
Experimental capabilities range from simple educational applications and routine daily use, to specific applications for advanced biochemical and semiconductor research.
The range of accessories include various types of cell holders for liquid samples and options for a wide variety of solid samples.

LSE-701 - Long path cell holder



Specifications	
Sample Cell	Rectangular cell pathlength 10, 20, 50 or 100 mm
Reference Cell	Rectangular cell pathlength 10, 20, 50 or 100 mm
Capacity	1 sample and 1 reference cell
Temperature	Ambient

FSE-702 - 4-position manual long path cell changer



Specifications	
Sample Cell	Rectangular cell pathlength 10, 20, 50 or 100 mm
Reference Cell	Rectangular cell pathlength 10, 20, 50 or 100 mm
Capacity	4 sample and 1 reference cell
Temperature	Ambient

SSE-704 - 6-position manual cell changer

Specifications	
Sample Cell	Rectangular cell pathlength 10 mm
Reference Cell	Rectangular cell pathlength 10 mm
Capacity	6 sample and 1 reference cell
Temperature	Ambient

NCP-705 - 6-position automatic cell changer

Specifications	
Sample Cell	Rectangular cell pathlength 10 mm
Reference Cell	Rectangular cell pathlength 10 mm
Capacity	6 sample and 1 reference cell
Temperature	Ambient
Cell Switching	Software Controlled

CYH-708 - Cylindrical cell holder

Specifications	
Sample Cell	Cylindrical cell pathlength 10, 20, 50 or 100 mm
Reference Cell	Cylindrical cell pathlength 10, 20, 50 or 100 mm
Capacity	1 sample and 1 reference cell
Temperature	Ambient

V-730Bio – Liquid Sample Accessories

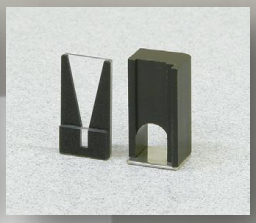
UCB-710 – Bio rectangular cell holder

Specifications	
Standard Cell holder for V-730Bio package. A cell height adjustment function provides the ability to use a 100 µL micro cell. A mask for a 100 µL micro cell is standard, 50 µL can be supplied as option.	
Sample Cell	Rectangular cell pathlength 10 mm
Reference Cell	Rectangular cell pathlength 10 mm
Capacity	1 sample and 1 reference cell
Temperature	Ambient
Minimum Cell Volume	50 µL

EMC-709 – Micro cell holder

Specifications	
The EMC-709 is a cell holder for a 50 µL micro cell. A 5 µL micro cell can be used with an optional spacer.	
Sample Cell	Rectangular cell pathlength 10 mm
Reference Cell	Rectangular cell pathlength 10 mm
Capacity	1 sample and 1 reference cell
Temperature	Ambient
Minimum Cell Volume	5 µL

50 µL micro cell



5 µL micro cell and spacer

EMC-759 – Ultra-micro cell holder

Specifications	
The EMC-759 is a cell holder for a 5 µL micro cell	
Sample Cell	Rectangular cell pathlength 10 mm
Reference Cell	Rectangular cell pathlength 10 mm
Capacity	1 sample and 1 reference cell
Temperature	Ambient
Minimum Cell Volume	5 µL

5 µL micro cell

TCH-703 – 8-position Micro turret cell holder

Specifications	
Cell holder for an optional 8-position turret micro cell, containing eight cells with a volume of approximately 4 µL arranged in a circle.	
Sample Cell	pathlength 1 mm
Capacity	8 sample cells
Temperature	Ambient
Cell Volume	4 µL

8-position micro turret cell
P/N: 6916-4822A

V-730Bio – Liquid Sample Accessories

The following cell holder accessories can be used with water circulators for maintaining samples at a uniform temperature. The circulators available separately.

STR-773
Water thermostatted cell holder with stirrer

Specifications	
Sample Cell	Rectangular cell 10 x 10, 4 x 10, 2 x 10 mm
Reference Cell	Rectangular cell 10 x 10, 4 x 10, 2 x 10 mm
Capacity	1 sample and 1 reference cell
Temperature Control	Thermostatted water circulation for sample and reference
Operating Temperature	10 to 90 degC
Stirrer	Integrated variable speed magnetic stirrer - *2 mm path width micro cell cannot be used with the stirrer*

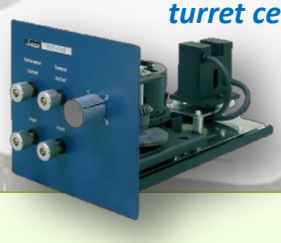
HMC-711
Water thermostatted micro cell holder

Specifications	
Minimum sample volume is 50 µL by using a rectangular cell, 5 mm path length and 2 mm path width.	
Sample Cell	Rectangular cell 10 x 10 or 5, 2 or 4 x 10, 2 x 5 mm
Reference Cell	Rectangular cell 10 x 10 or 5, 2 or 4 x 10, 2 x 5 mm
Capacity	1 sample and 1 reference cell
Temperature Control	Thermostatted water circulation for sample and reference
Operating Temperature	10 to 90 degC
Cell masks (standard)	• Mask for 100 µL cell (2 pcs.) for micro cell, 2 x 10 mm • Mask for 200 µL cell (2 pcs.) for micro cell, 4 x 10 mm

NCP-706
Water thermostatted 6-position automatic cell changer

Specifications	
Sample Cell	Rectangular cell 10 x 10 or 5, 2 or 4 x 10, 2 x 5 mm
Reference Cell	Rectangular cell 10 x 10 or 5, 2 or 4 x 10, 2 x 5 mm
Capacity	6 sample and 1 reference cell
Temperature Control	Thermostatted water circulation for sample and reference
Operating Temperature	10 to 90 degC
Cell Switching	Software Controlled

MHT-745
Manual 4-position water thermostatted turret cell holder



Specifications	
Sample Cell	Rectangular cell 10 x 10, 4 x 10 mm
Reference Cell	Rectangular cell 10 x 10, 4 x 10 mm
Capacity	4 sample and 1 reference cell
Temperature Control	Thermostatted water circulation for sample and reference
Operating Temperature	10 to 90 degC
Cell Switching	Manual

V-730Bio – Liquid Sample Accessories

EHCS-760
Peltier thermostatted single cell holder (Air cooled)

Specifications	
Sample Cell	Rectangular cell 10 x 10, 4 x 10, 2 x 10 mm
Reference Cell	Rectangular cell 10 x 10, 4 x 10, 2 x 10 mm
Capacity	1 sample and 1 reference cell
Temperature Control	**Sample only** - Heating/cooling system using **air cooled Peltier** effect
Operating Temperature	10 to 60 degC (at 25 degC)
Temperature control accuracy	±0.1 degC (cell holder sensor)
Temperature Accuracy	*With cell holder sensor* ±0.5 degC (20 to 40 degC) ±1 degC (other temp. range) *With optional temperature sensor* ±0.2 degC
Stirrer	Integrated variable speed magnetic stirrer - *2 mm path width micro cell cannot be used with the stirrer*

ETCS-761 & ETCR-762
Peltier thermostatted single cell holder (Water cooled)

Sample Cell	Rectangular cell 10 x 10, 4 x 10, 2 x 10 mm
Reference Cell	Rectangular cell 10 x 10, 4 x 10, 2 x 10 mm
Capacity	1 sample and 1 reference cell
Temperature Control ETCS-761	**Sample only** Heating/cooling system using **Water cooled Peltier** effect
Temperature Control ETCR-762	**Sample & Reference** Heating/cooling system using **Water cooled Peltier** effect
Operating Temperature	0 to 100 degC *for cooling water temperature at 25 degC*
Temperature control accuracy	±0.1 degC (cell holder sensor)
Temperature Accuracy	*With cell holder sensor* ±0.5 degC (20 to 40 degC) ±1 degC (other temp. range) *With optional temperature sensor* ±0.2 degC
Stirrer	Integrated variable speed magnetic stirrer - *2 mm path width micro cell cannot be used with the stirrer*

CSP-909
Lid for sample compartment with syringe port

Specifications	
When monitoring a substrate-enzyme reaction, this accessory allows addition of an enzyme solution without opening the sample chamber lid. Can only be used with a 10 x 10 mm rectangular cell. Required needle length for the syringe is 50 mm	
Compatible Cell Holder	STR-733 EHCS-760 - ETCS-761 - ETCR-762
Syringe	P/N 0507-0220 – Micro syringe 10µL P/N 0507-0223 – Micro syringe 100µL

Options

Cell Mask kit - includes sample masks and a cell-height adjustment stand to raise the cell height. Using the cell-height adjustment stand, a 2 mm path width micro cell can be used to measure sample with a minimum 100 µL volume.

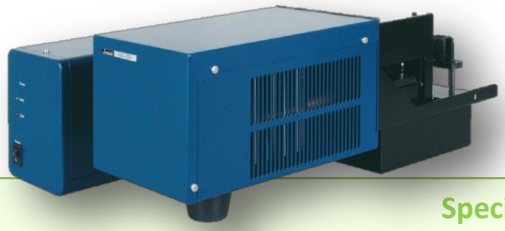
OPS-515 - In-cell sensor with holder (factory option) - This is an optional sensor which can be used to monitor the temperature inside of the sample cell.

Cell Spacers - Spacers for cells with an optical path length of 1, 2 and 5 mm are available.

Capillary adapter - The capillary adapter is used for a capillary cell (minimum sample volume of 3 µL). The optional sensor (OPS-515) in the cell adapter is required for temperature monitoring.

V-730Bio – Liquid Sample Accessories

PSC-763
Automatic 6-position Peltier cell changer (Air cooled)



Specifications	
Sample Cell	Rectangular cell 10 x 10, 4 x 10, 2 x 10 mm
Reference Cell	Rectangular cell 10 x 10, 4 x 10, 2 x 10 mm
Capacity	6 sample and 1 reference cell
Temperature Control	**Sample only** - Heating/cooling system utilizing **air cooled Peltier** effect
Operating Temperature	10 to 70 degC (at 20 degC)
Temperature control accuracy	±0.1 degC (cell holder sensor)
Temperature Accuracy	*With cell holder sensor* ±0.5 degC (20 to 40 degC) ±1 degC (other temp. range) *With optional temperature sensor* ±0.2 degC
Stirrer	Integrated variable speed magnetic stirrer - *2 mm path width micro cell cannot be used with the stirrer*

Options
OPS-513 **-** In-cell sensor with holder (factory option) - This is an optional sensor which can be used to monitor the temperature inside of the sample cell.

PAC-743 & PAC-743R
Automatic 6/8-position Peltier cell changer (Water cooled)

Specifications	
Sample Cell	Rectangular cell 10 x 10, 4 x 10, 2 x 10 mm
Reference Cell	Rectangular cell 10 x 10, 4 x 10, 2 x 10 mm
Capacity	6/8 sample and 1 reference cell
Temperature Control PAC-743	**Sample only** Heating/cooling system utilizing **Water cooled Peltier** effect
Temperature Control PAC-743R	**Sample & Reference** Heating/cooling system utilizing **Water cooled Peltier** effect
Operating Temperature	0 to 100 degC (at 20 degC)
Temperature control accuracy	±0.1 degC (cell holder sensor)
Temperature Accuracy	*With cell holder sensor* ±0.5 degC (20 to 40 degC) ±1 degC (other temp. range)
Stirrer	Integrated variable speed magnetic stirrer - *2 mm path width micro cell cannot be used with the stirrer*

MCB-100
Mini Water Circulation Bath

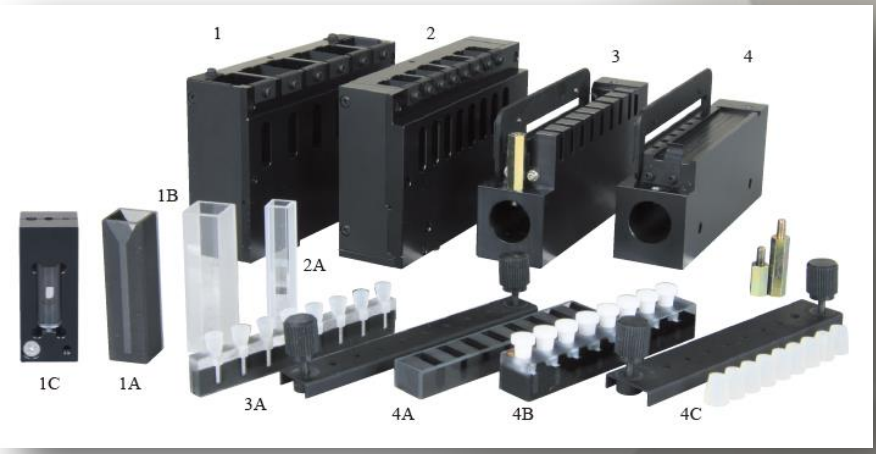
Specifications	
Temperature control range	10 degC below ambient temperature to 40 degC (IN and OUT connected)
Bath capacity	Approx. 200 mL
Temperature sensor accuracy	±0.2 degC (at 20 degC)
Cooling/heating capacity	52W
Dimensions	160 (W) \x 278 (H) x 225 (D) mm
Suggested accessories	ETCS-761 – ETCR-762 – PAC-743

V-730Bio – Liquid Sample Accessories

PAC-743 & PAC-743R

PAC-743 & PAC-743R allow measurements of the transmittance & absorbance of multiple samples by using dedicated cell blocks with temperature control.

The PAC-743R provides temperature control of the reference cell in addition to temperature control of the sample cells.



How to configure it

Cell block (Cell and temp. sensor are optional)	#	*Compatible Cell*	#	*In-cell sensor (factory option)*
6916-H243A - 6-position cell block (with variable speed magnetic stirrer) for rectangular cell, 10 x 10 mm	1	Rectangular quartz cell, 2 x 10 mm, max. 6pcs.	1A	**6916-H516A** Sensor in cell, 1 pc. **6916-H517A** Sensor in cell, 6 pcs/set
		Rectangular quartz cell, 4 x 10 mm, max. 6pcs.		
		Rectangular quartz cell, 10 x 10 mm, max. 6pcs.	1B	
		6916-H360A - Capillary cell adaptor and Capillary cell, max. 6 pcs. (A sealing compound is required for using capillary cells.)	1C	
6916-H343A - 8-position cell block (with variable speed magnetic stirrer) for rectangular cell, 5 x 5 mm	2	Rectangular quartz cell, 5 x 5 mm, max 8 pcs.	2A	**6916-H516A** Sensor in cell, 1 pc. **6916-H518A** Sensor in cell, 8 pcs/set
6916-H643A - 1 mm 8-position micro cell block (Including Silicon cap x 8, Silicon cap with sensor hole x1, and cap fixture) *Stirrer function is not available	3	**1103-1171A** - 8-position 1 mm micro cell 1 mm path length, 10 µL for each position	3A	**6916-H516A** Sensor in cell, 1 pc. *The 8th cell position is used only to monitor cell block temperature.
6916-H743A - 10 mm 8-position micro cell block *Stirrer function is not available	4	**1103-0202A** - 8-position 10 mm micro cell 10 mm path length, 100 µL for each position without capability for well caps	4A	N/A
		1103-1168 - 8-position 10 mm micro cell with Teflon caps 10 mm path length, 100 µL for each position	4B	**6916-H516A** Sensor in cell, 1 pc. *The 8th cell position is used only to monitor cell block temperature.
		6916-H543A - Silicon cap kit for 1103-1168, to prevent volatilization of samples at high temperatures consisting of silicon cap x8 , Silicon cap with sensor hole x1, and cap fixture	4C	

V-730Bio – Liquid Sample Accessories

SAH-769 One drop accessory

Specifications

The SAH-769 One Drop accessory is a dedicated accessory for the V-700 Series to measure micro volume samples of protein and nucleic acid. The 1mm and 0.2 mm cells are included as standard with accessory.

	Minimum Sample Volume
1mm pathlenght	5 µL
0.2mm pathlenght	0.6 µL

Precision of Quantitative Analysis

Solutions of Calf Thymus DNA (KH2PO4 / NaOH buffer at pH7) at several concentrations were measured by using cells with 1-mm. The spectrum has shown at Figure 1 and LDL has shown at Table 1.

Table 1 Sample Conc. and Abs [OP: 1mm]

Legend	Conc. [ng/µL]	Abs
—	0	0.0005
—	13	0.0228
—	26	0.0417
—	52	0.0838
—	260	0.4500
—	520	0.8970
—	780	1.3443
—	1040	1.8137

Table 1
Sample Concentration and Abs
[optical path: 1 mm]

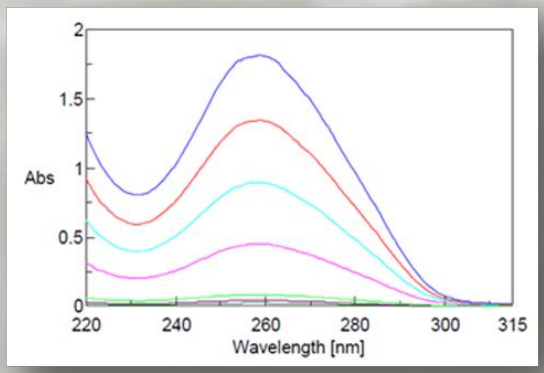
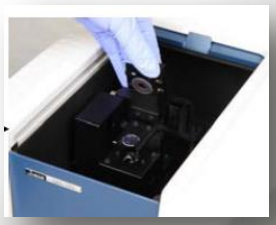


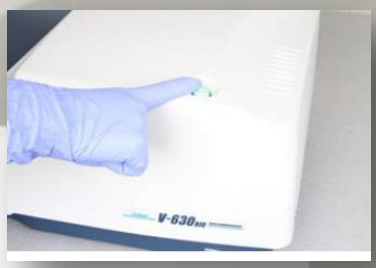
Figure 1
Absorbance spectra of DNA solution
[optical path: 1 mm]

Measurement Procedure

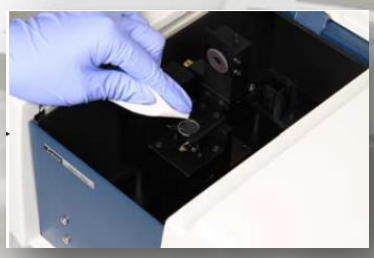
1) Drop sample on the cell



2) Close the cover glass and the lid of sample compartment



3) Start sample measurement



4) Cleaning the cell

less than
20 seconds

Measurement Parameters
Data interval: 0.5 nm
Measurement range: 220 to 315 nm
Band width: 1.5 nm
Response: Medium
Scan Speed: 200 nm/min

More information on *Application UV-0018-E*

JASCO Europe S.r.l.

Via Cadorna, 1 - 23894 Cremella (LC)

jasco@jasco-europe.com

www.jasco-europe.com

Follow us on: