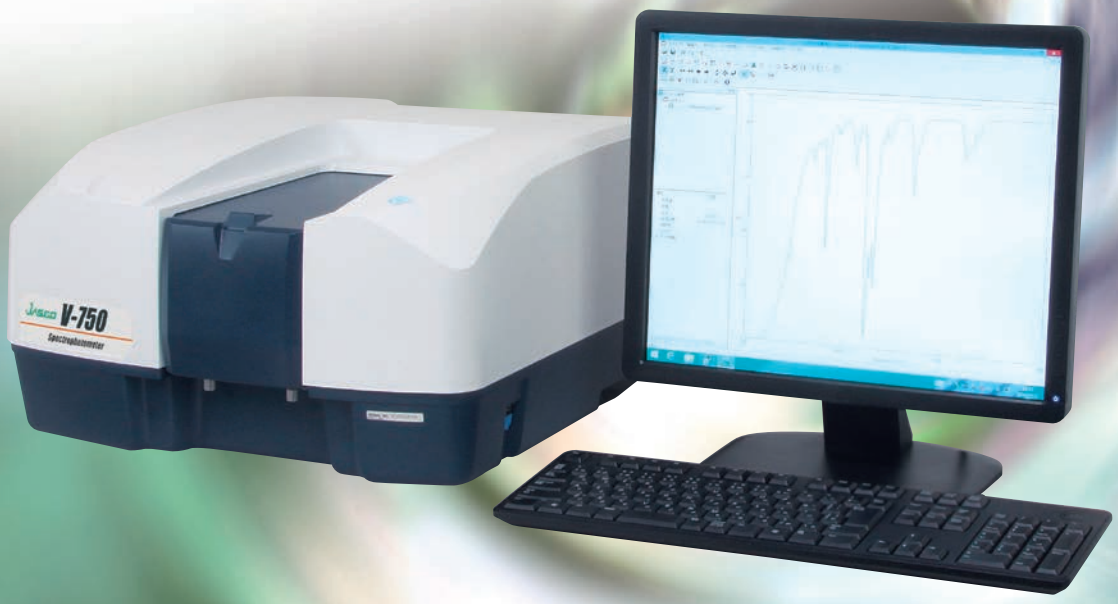
JASCO

V-700 series

UV-Visible/NIR Spectrophotometers



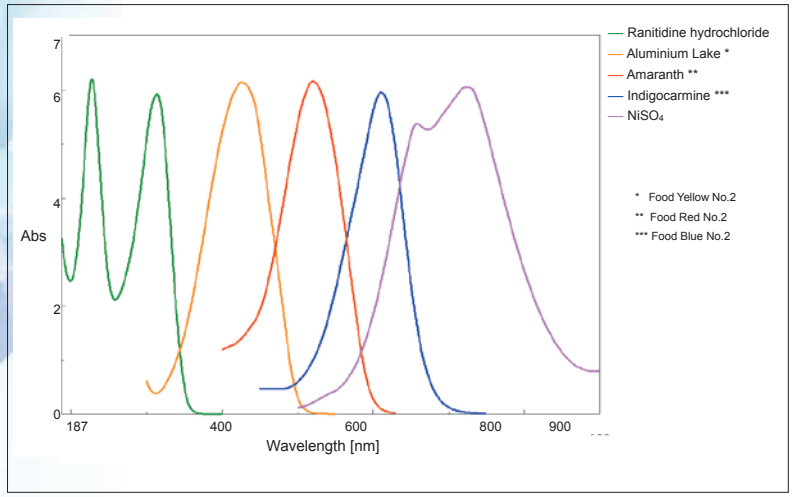


V-700 series

- **V-730 - Compact size, double beam, wide dynamic range**
- **V-750 - UV/VIS single monochromator, UV-Visible workhorse**
- **V-760 - UV/VIS double monochromator for higher absorbance applications**
- **V-770 - UV/VIS/NIR single monochromator, extended spectral range**
- **V-780 - High sensitivity NIR with InGaS detector**

Highest throughput optics and widest dynamic range in their class

Optimized performance with improved high-order cut-off filters, ultra-high resolution 24 bit ADC, aberration-free offset for Sample, Reference and Dark Current, enhancement of dynamic range in NIR wavelength for the V-700 Series.

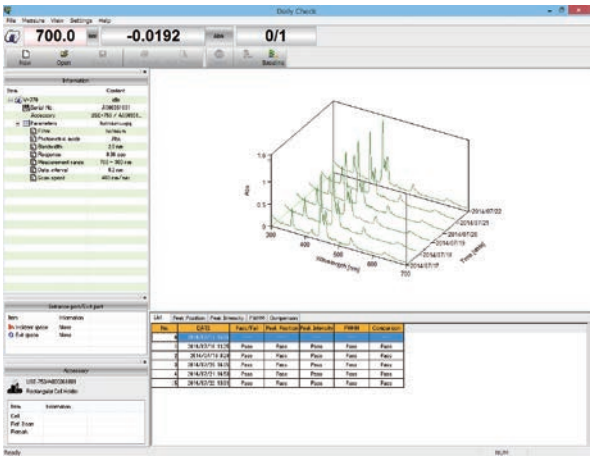




Wide performance range includes 5 different models to meet all laboratory analysis requirements

Daily validation check program

For users who require a regular validation check; use a simple Holmium glass filter (or other standard) for daily measurement with automatic execution of procedures for compliance with USP, EP or JP to easily record and track a comprehensive history of instrument performance



Maintenance display

Energy and space-saving

- 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

IQ accessories

- IQ-Accessory: automated accessory recognition
- IQ-Start: automated loading of measurement application when the accessory is inserted in sample chamber

Spectra band width setting

- The V-750/760/770 and V-780 include two additional slit modes - L and M
- L-Mode for measuring high absorbance samples, reducing stray light by as much as 60%
- M-Mode for measuring small volume samples with micro cells

Alignment-free lamp replacement

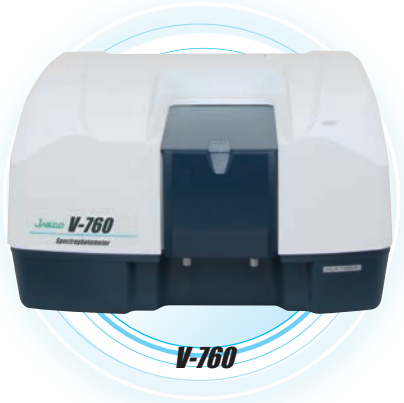
- The Halogen (WI) and Deuterium lamps can be re-installed in exactly the same position
- Realignment after lamp replacement is not required, designed for easy user maintainance

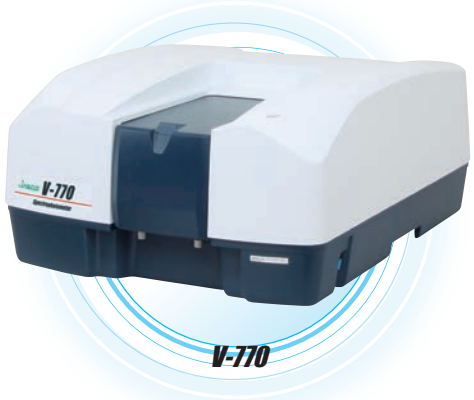
Dark Correction

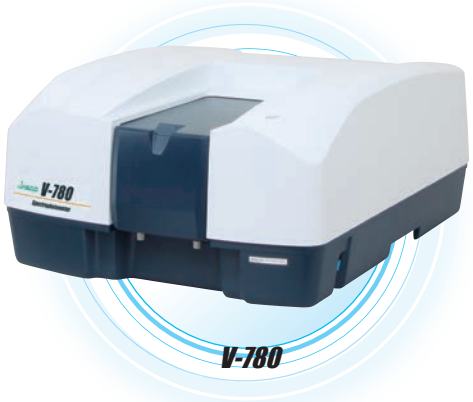
0% T dark correction for improved measurement accuracy of samples with low transmittance

Expand the system for a wide range of sample types and measurements

More than 70 sampling accessories and 30 optional programs



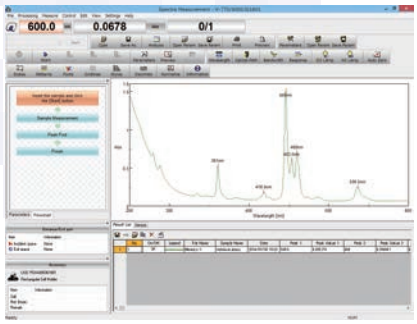




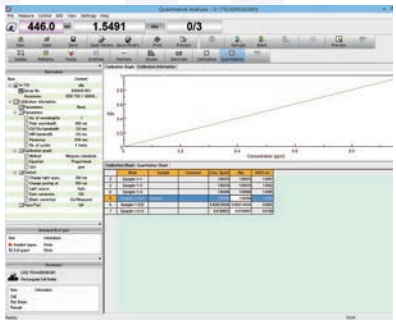
Spectra Manager II & Spectra Manager CFR

The cross-platform spectroscopy software for all JASCO spectrophotometers

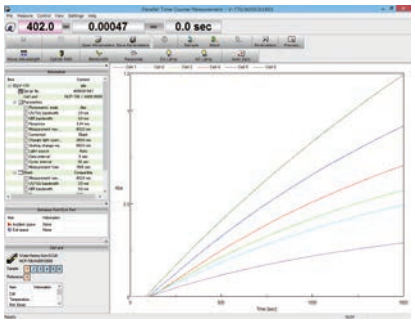
Four Basic Measurement Applications:
Spectra Measurement, Quantitative Measurement, Time Course and Fixed-Wavelength



Spectra Measurement



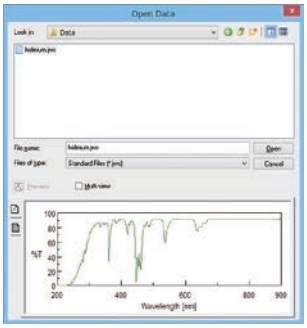
Quantitative Measurement



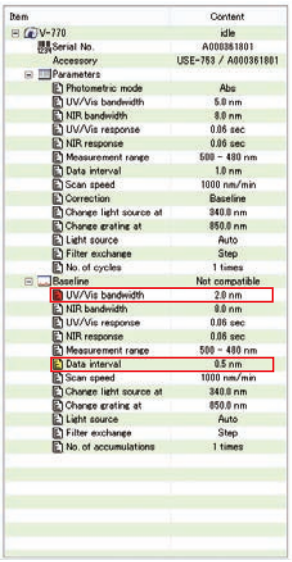
Time Course Measurement

Extensive measurement features

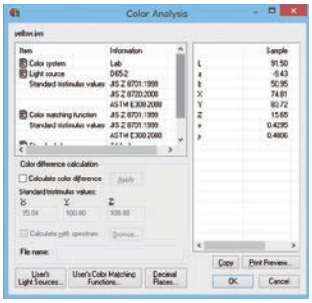
- Comprehensive display and analysis of performance indicators, accessory information, measurement parameters and measurement data
- Basic analysis such as peak picking, data smoothing, derivatives to complex application specific analysis such as enzyme activity calculation and film thickness are included as standard
- Convenient support functions including JASCO Canvas printing designer for custom reports, enhanced data searching with spectrum preview and many other flexible features
- Preset data processing, file saving and printing are automatically executed after measurement is complete
- Parameters for data processing can be selected from the following: Peak detection, Peak height/area (ratio), basic quantitation (user formula) and film-thickness calculation
- Quantitative Measurement and Fixed-Wavelength Measurement: arithmetic formulas can be input into the parameter settings
- Quantitative Measurement, Spectra Measurement, Quantitative Spectra and Fixed-Wavelength Measurement: the sample name and comments can be saved together in the measurement order as a sequence



Spectrum Preview



Parameter Mismatch Protection



Color Calculation

Analysis Functions

- Film thickness or color diagnosis for measured spectra
- Enzyme activity calculation can be applied to any time-course measurement
- JASCO Canvas print layout designer

Spectra Manager CFR for FDA 21 CFR Part 11 Compliance

Spectra Manager CFR offers full FDA 21 CFR Part 11 compliance and audit trails to guarantee the integrity of electric records, electric signatures and data.

**Some optional application programs are not compatible with Spectra Manager CFR version. Please contact us for more details.*

New iRM

Compact 'tablet style' control interface for measurement parameters, data analysis, and accessory information

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



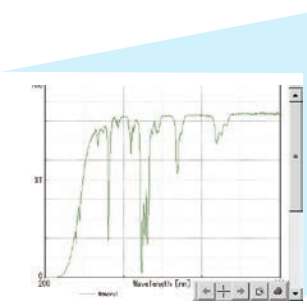


USB memory

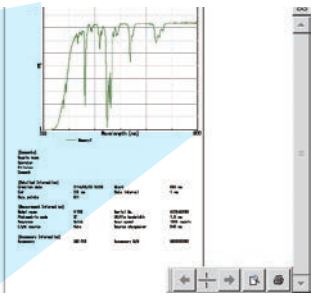
- Portable, high capacity storage and direct data saving with a standard USB memory stick for transfer to Spectra Manager software
- Data can be saved using the iRM in text format for easy transfer to spreadsheets and other post-processing software

Extensive printing functions

- An extensive range of print options can be used with the iRM from typical Letter and A4-size printers and thermal-paper printers for numerical output, spectra and calibration curves
- Use the print preview function to check the full or zoomed view prior to printing

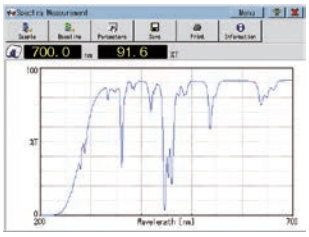


Print Preview of Spectrum

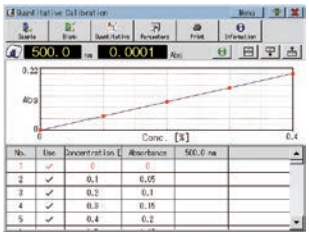


Print Preview

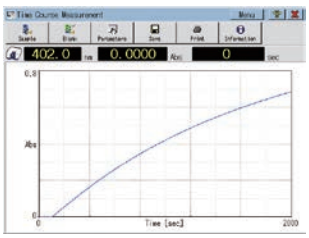
Measurement modes



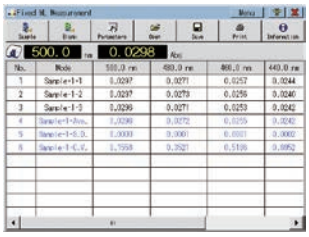
Spectra Measurement



Quantitative Measurement



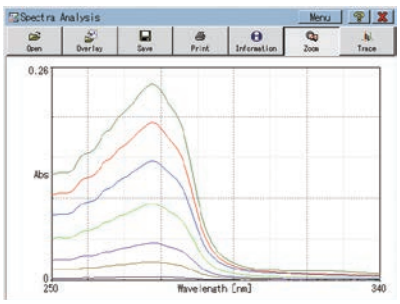
Time Course Measurement



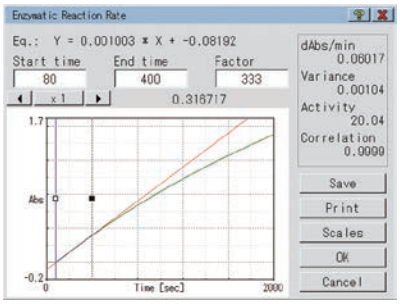
Fixed-Wavelength Measurement

Data Analysis

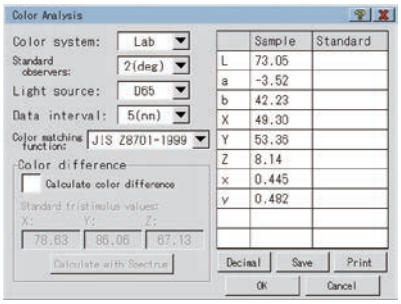
Standard data analysis applications for the iRM include peak detection, vertical/horizontal axis conversion, film thickness and color diagnosis.



Spectra Analysis



Enzymatic Reaction Rate Calculation



Color Analysis

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.

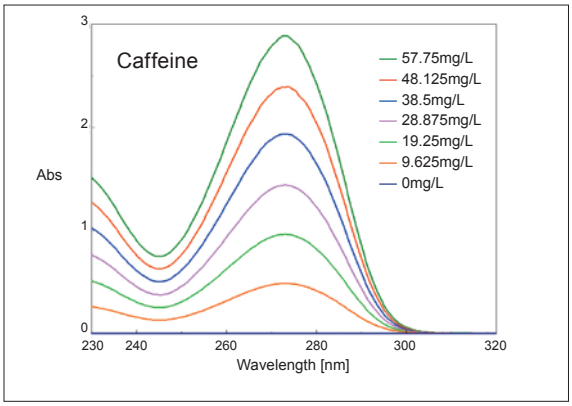
V-730

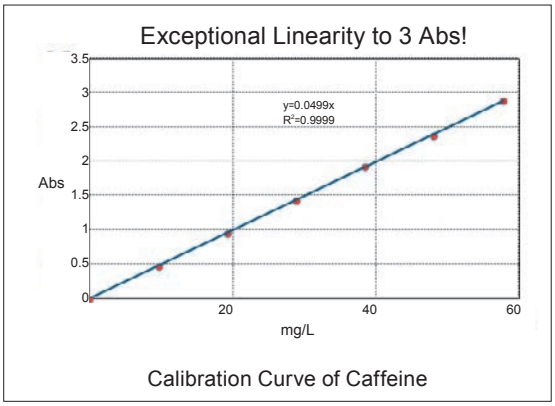
- Double beam
- Wavelength range 190 to 1100 nm
- Small footprint
- 1 nm SBW
- Wide dynamic range



Dynamic range

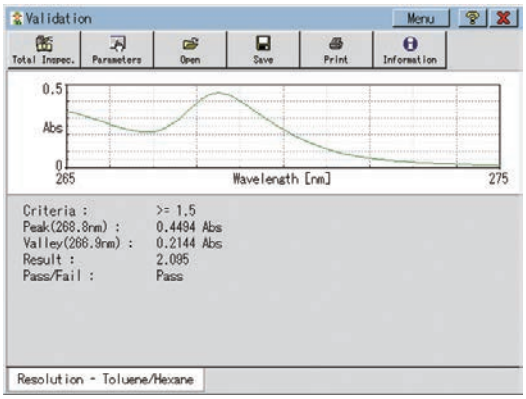
Optimal balance between light intensity, signal to noise and resolution supporting European Pharmacopoeia (EP). Faster instrument response and monochromator slew speed for enhanced Protein/DNA concentration measurements. The V-730 has a wide range of special accessories and optional programs for a broad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





Spectral band width of 1 nm

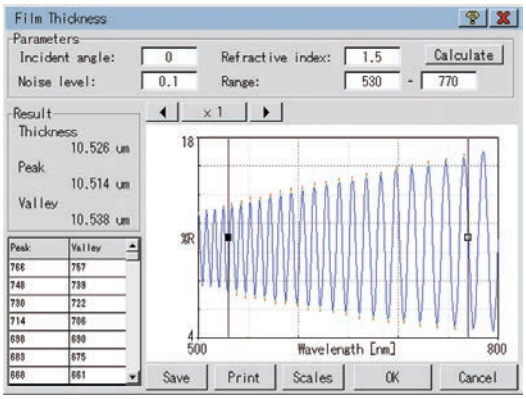
In the European Pharmacopeia, the standard resolution test for a mixture of Toluene/Hexane requires that the spectral ratio at 269 nm and 266 nm must exceed 1.5; with a 1 nm SBW, the V-730 passes this test with ease.



iRM Validation Result

Film thickness measurement

Film thickness measurements can be made using the SLM-907 specular reflectance accessory. The film thickness of a food packaging film using the SLM-907 single reflection accessory is shown below.



Film Thickness Calculation of Film Sample

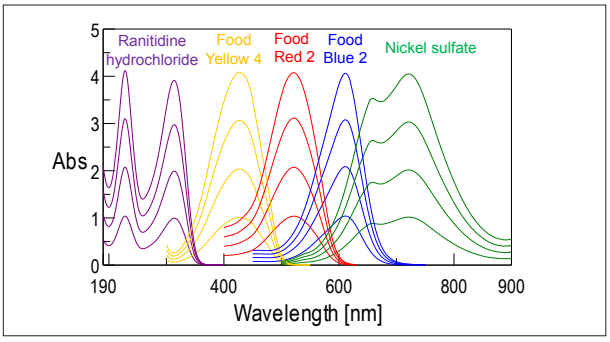
V-750

- Double-beam, variable bandwidth with PMT detector
- Wavelength range 190 to 900 nm
- Widest dynamic range in its class
- Extensive range of accessories and software applications



Absorbance linearity to 4 AU across a wide wavelength range

The photometric linearity range is up to 4 AU in the UV-Visible region (and up to 5 AU in the visible). The V-750 offers measurement with a wide dynamic range and high-absorbance by employing optimized high-order cut-off filters, a 24-bit ultra high-resolution A/D converter and simplified signal processing prior to the A/D conversion.

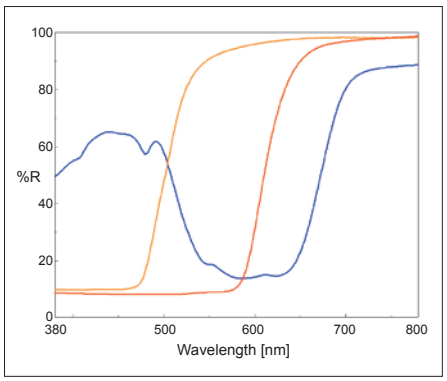


Spectra of Various Solutions

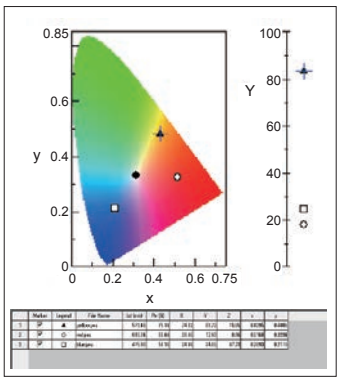
Diffuse Reflectance Measurement

Diffuse reflectance measurement using the ISV-922 Integrating sphere. The graphic is a plot of the XY chromaticity in the color diagnostic application program.

The integrating sphere includes a light trap which can be used to include or exclude the specular component. For measurement of dark colored materials, the dark correction function is available for highest accuracy.



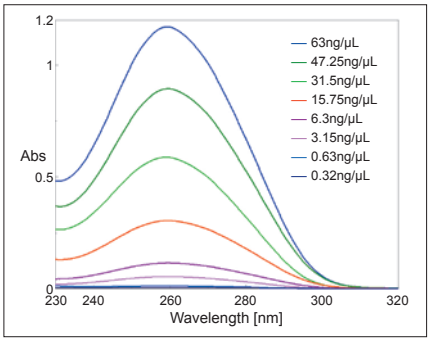
Reflectance Spectra of Powder Samples



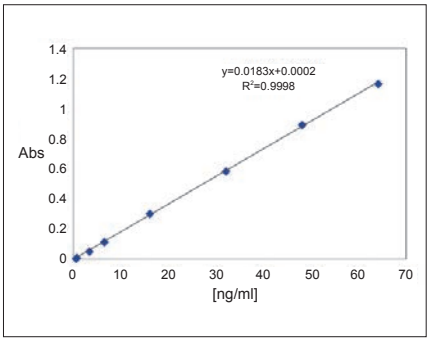
Plot View of Color Diagnosis

Micro Volume Measurement

Micro volume measurement can be made by using a cell with a 2 mm optical path and setting the spectral band width to an M-mode slit; useful for measurement of volume limited liquid samples. JASCO's One Drop accessory also allows easy volume measurement as low as 500 nL.



Spectra of DNA Solutions



Calibration Curve of DNA Solution

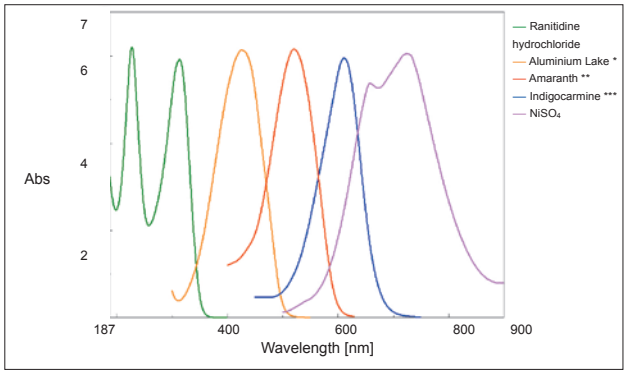
V-760

- Double-beam, double monochromator with PMT detector for high photometric linearity
- Wavelength range 187 to 900 nm

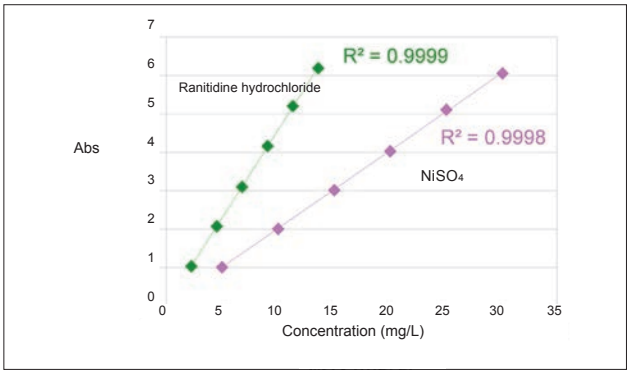


Double monochromator for photometric linearity across the wavelength range up to 6 AU

The new V-760 series double beam, double monochromator optical design with lowest stray light offers a high absorbance linearity across the entire photometric range. The V-760 can measure up to 6 AU across the entire UV-Visible region and up to 8 AU in the visible region. Variable slit widths provide spectral band width settings down to 0.1 nm with special height slits to further reduce stray light.



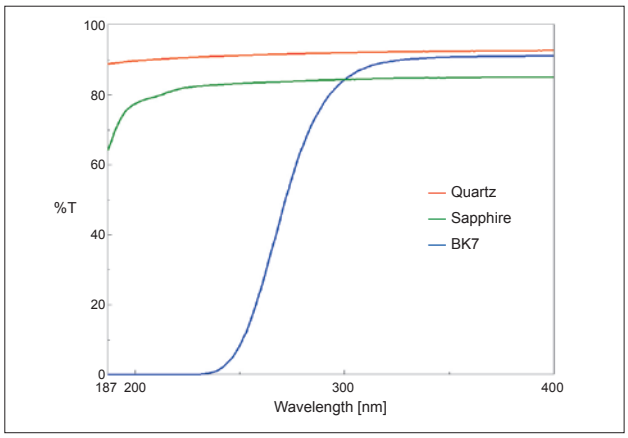
Spectra of Liquid Samples Measured in the UV-Visible Range



Calibration Curves of Ranitidine Hydrochloride and $NiSO_4$

Measurement down to 187 nm

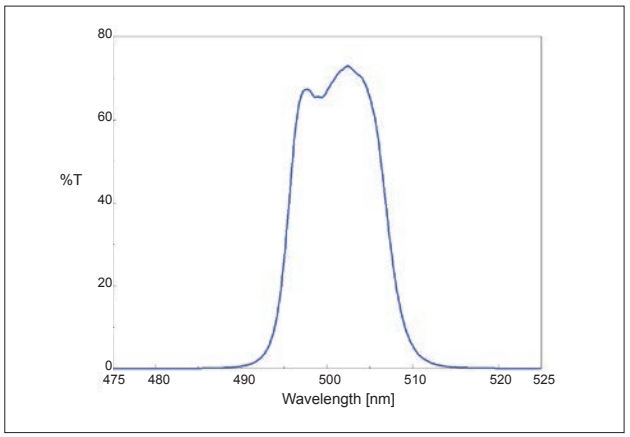
The lower stray light optical design enables measurement in the UV down to 187 nm without N_2 purging. The transmittance spectra of three optical materials - quartz, sapphire and BK-7 measured using the FLH-741 film holder are shown below.



Transmittance Spectra of Optical Materials

Step-scan measurement

Step-scan is a very useful tool for accurate measurement of samples such as bandpass filters for which the transmittance changes significantly over a narrow wavelength range.



Transmittance Spectrum of Bandpass Filter

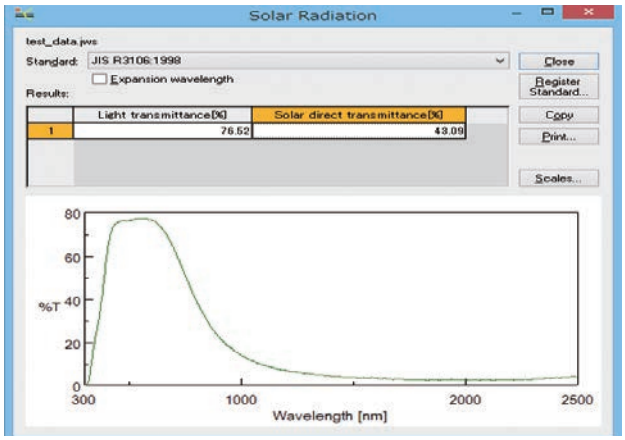
V-770

- Single monochromator UV-Visible/NIR spectrophotometer
- Wavelength range 190 to 3200 nm with PMT/PbS detectors
- Highly efficient optical design with separate UV-Visible and NIR optimized gratings for enhanced accuracy & linearity



Measurement of thermal insulating glass

The evaluation method for the properties of thermally insulating glass is defined by the measurement of its transmittance, refractive index and emissivity. These parameters can be measured using an integrating sphere or an automated absolute reflectance accessory - requires values of transmittance or refractive index calculated with the VWST-774 Solar/ Visible Light Measurement application.



Transmission Spectrum of Thermal Insulation Glass

Multivariate analysis

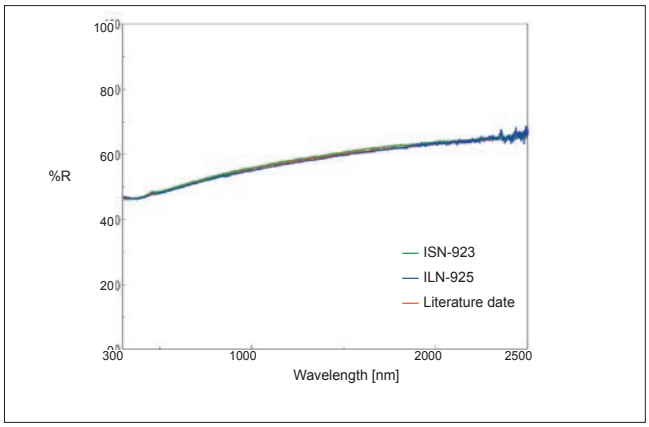
Multivariate analysis programs are included (PCR/ PLS/CLS quantitative measurement and PCA) for quantitation of multi-component samples which do not have unique bands for each analyte.

Wavelength expansion

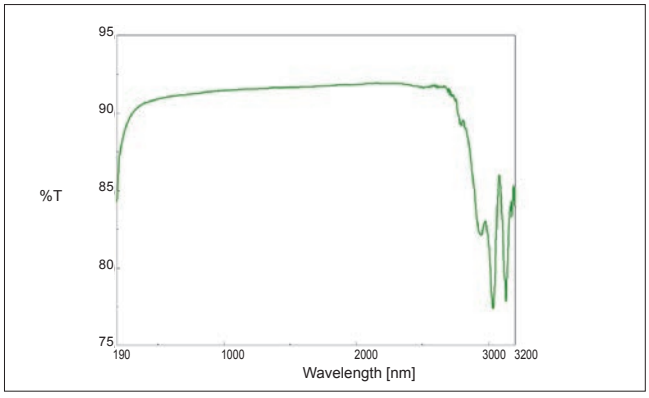
The optional wavelength expansion kit extends the measurement wavelength range to 3200 nm. This is useful for many compounds which bridge the NIR and Mid-IR and for some unusual applications like the transmittance spectrum of the water peak in quartz.

Accurate diffuse reflectance measurement using an integrating sphere

The figure below shows the measurement of a diffuse gray standard reference material: the SRS-50-010 was measured using both the ISN-923 60 mm and ILN-925 150 mm integrating spheres. The gray standard was evaluated against a Spectralon reference plate. The reflectance values and measurement spectra demonstrate excellent agreement.



Reflection Spectrum of a Reflectance Standard



Transmittance Spectrum of Crystalline Quartz Sample

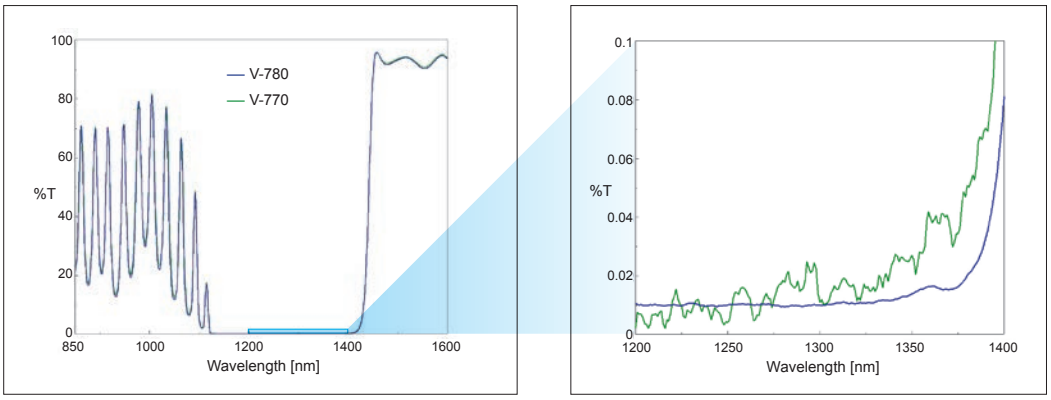
V-780

- **Exceptional sensitivity and resolution in NIR with high efficiency InGaS detector**
- **Light source luminance control using digital feedback enables NIR spectra measurement with high sensitivity and high accuracy even with wide variation in absorbance**



High sensitivity in the NIR: Better data faster!

The figures below compare a 1.3 µm band cut-off filter for optical communication measured using the V-770 with a Peltier-cooled PbS photo-conductive element detector and the V-780 with a Peltier-cooled InGaAs Photodiode detector. The InGaAs detector offers significant S/N enhancement over the PbS detector.

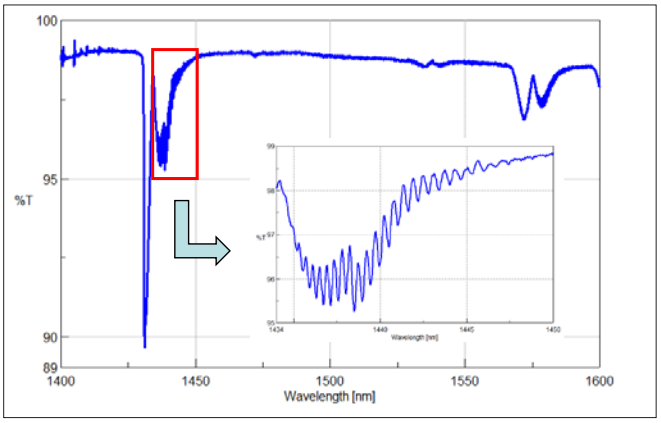


Spectra of 1.3 µm Cut-Off Filter

Zoomed View

High resolution in the NIR

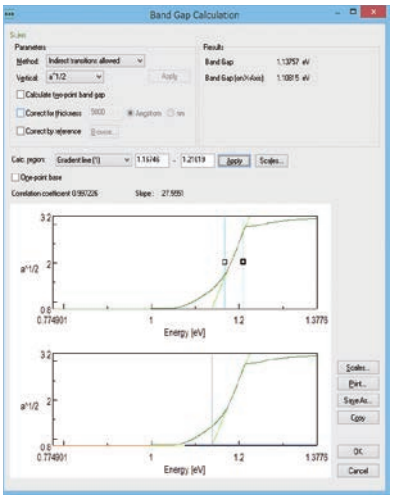
The figure below is the vibrational spectrum of CO_2 gas (pathlength: 100 mm) in the NIR, measured using the V-780. Overtones are seen near 1430 nm and also combination bands near 1770 nm. Zooming into the spectrum at around 1437 nm shows that the V-780 offers sufficient resolution to see the rotational peaks in the vibrational spectra.



Transmittance Spectrum of CO_2 Gas Sample

Band-gap measurement of Si

The V-780 is an excellent tool for the evaluation of solar panel materials. Crystalline Si was measured in transmittance mode and the band-gap was calculated to be 1.13 eV, which is in good agreement with the data found in the literature.



Band-Gap Calculation

Accessories

One-Drop Accessory - SAH-769

Micro volume sample measurement for Protein and DNA measurement

Specifications

MInimum volume:
0.6 µL (0.2 mm pathlength)
5 µL (1.0 mm pathlength)



Micro cell holder - EMC-709

Both 50µL and 5 µL micro cells can be used.

Specifications

MInimum volume: 5 µL
Selectable cells:
50 µL micro cell (10 mm pathlength)
5 µL micro cell (1 mm pathlength)



Peristaltic Sipper - NPF-782

Sample recycling sipper.
Can be combined with an autosampler as an automated analytical system.

Specifications

Path Length: 10 mm
Carry over: < 1%
Minimum volume:
0.7 mL (low viscosity sample)
Wavelength range:
220 - 900 nm (V-730, 750, 760)
220 - 2200 nm (V-770)
220 - 1600 nm (V-780)



Integrating Spheres ISV-922/ISN-923/ISN-901i

for V-750/760/770/780

Integrating spheres are designed to measure either the diffuse transmittance or reflectance of a sample. The integrating sphere is provided with a light trap so that the reflectance of samples can be measured with or without the specular reflectance component.

Specifications

Inside dia. of Integrating Sphere: 60mmφ
Incident Angle to reflection surface: 0°, approx. 5°
Min. sample size (reflection):
20(H)×20(W)×0.5(t)mm
Max. sample size (reflection):
65(H)×50(W)×25(t)mm
Wavelength range:
200 - 870 nm (V-730, 750, 760)
200 - 2500 nm (V-770)
200 - 1600 nm (V-780)



ISV-922

150 mm Integrating Spheres ILV-924/ILN-925/ILN-902i

for V-750/760/770/780

150 mm dia. integrating sphere for measuring larger samples.

Specifications

Inside dia. of Integrating Sphere:150mmφ
Incident Angle to reflection surface: approx. 5°
Min. sample size (reflection):
20(H)×20(W)×0.5(t)mm
Max. sample size (reflection):
100(H)×50(W)×30(t)mm
Wavelength range:
220 - 850 nm (V-750, 760)
220 - 2200 nm (V-770)
220 - 1600 nm (V-780)



ILV-924

Air-Cooled Peltier Cell Holder EHCS-760

The air-cooled Peltier does not need water circulation.

Specifications

Optical length: 10 mm
Temp. control accuracy: ±0.1 °C
Temp. control range: 10 - 60 °C (at 25°C)
Heat radiating system: air-cooled
Temp. setting range: 5 - 70 °C
Stirrer system:
Integrated variable speed magnetic stirrer
(not available for micro cell)
Temp. accuracy:
±0.5 °C (20 - 40 °C)
±1 °C (other temp. range)



Water-Cooled Peltier Cell Holder ETCS-761/ETCR-762

The ETCS-761 and ETCR-762 require a water-cooling system to control a wide temperature range (0 - 100 °C).

Specifications

Path length: 10 mm
Temp. control accuracy: ±0.1 °C
Temp. control range: 0 - 100 °C
(cooling water temperature at 20 °C)
Heat radiating system: water-cooled
(requires water circulator)
Temp. setting range: −10 - 110 °C
Stirrer system:
Integrated variable speed magnetic stirrer
(not available for micro cell)
Temp. accuracy:
±0.5 °C (20 - 40 °C)
±1 °C (other temp. range)



Water-Cooled Peltier Cell Changer PAC-743/PAC-743R

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

Specifications

Temp. control accuracy: ±0.1 °C
Temp. control range: 0 - 100 °C
(cooling water temperature at 20 °C)
Heat radiating system: Water-cooled
(requires water circulator)
Temp. setting range: −10 - 110 °C
Stirrer system:
Integrated variable speed magnetic stirrer
(not available for micro cell)
Temp. accuracy:
±0.5 °C (20 - 40 °C)
±1 °C (other temp. range)
Cell block (Options):
6-position cell block, 8-position cell block
1 mm 8-position micro cell block
10 mm 8-position micro cell block



Automated Absolute Reflectance Measurement ARMV-919/ARMN-920/ARMN-921i

for V-750/760/770/780

The angles of the sample stage and detector can be changed independently for the measurerment of absolute reflectance and transmittance for a sample with varied angles of incidence/collection

Specifications

Inside dia. of Integrating Sphere: 60mmφ
Incident angle:
5−60° (Absolute reflectance mode)
0−60° (Transmittance mode)
Angle setting: 0.1° step
Sample size (Absolute reflectance mode):
Min: 20(H)×20(W)×1(t)mm
Max: 70(H)×70(W)×10(t)mm
Polarizer: Standard



ARMV-919

Specifications

	V-730	V-750	V-760
Optical system	Rowland off-circle arrangement Single monochromator Double beam type	Czerny-Turner mount Single monochromator Fully symmetrical double beam type	Czerny-Turner mount Double monochromator Fully symmetrical double beam type
Light source	Halogen lamp, Deuterium lamp	Halogen lamp, Deuterium lamp	Halogen lamp, Deuterium lamp
Wavelength range	190 to 1100 nm	190 to 900 nm	187 to 900 nm
Wavelength accuracy	+/-0.2 nm (at 656.1 nm)	+/-0.2 nm (at 656.1 nm)	+/-0.1 nm (at 656.1 nm)
Wavelength repeatability	+/-0.1 nm	+/-0.05 nm	+/-0.05 nm
Spectral bandwidth (SBW)	1 nm	0.1, 0.2, 0.5, 1, 2, 5, 10 nm L2, L5, L10 nm (low stray light mode) M1, M2 nm (micro cell mode)	0.1, 0.2, 0.5, 1, 5, 2, 10 nm L2, L5, L10 nm (low stray light mode) M1, M2 nm (micro cell mode)
Stray light	1 % (198 nm KCL 12 g/L aqueous solution) 0.02 % (220 nm NaI 10 g/L aqueous solution) 0.02 % (340 nm NaNO2 50 g/L aqueous solution) 0.02 % (370 nm NaNO2 50 g/L aqueous solution) SBW: 1 nm	1 % (198 nm KCL 12 g/L aqueous solution) 0.005 % (220 nm NaI 10 g/L aqueous solution) 0.005 % (340 nm NaNO2 50 g/L aqueous solution) 0.005 % (370 nm NaNO2 50 g/L aqueous solution) SBW: L2 nm	1 % (198 nm KCL 12 g/L aqueous solution) 0.00008 % (220 nm NaI 10 g/L aqueous solution) 0.00008 % (340 nm NaNO2 50 g/L aqueous solution) 0.00008 % (370 nm NaNO2 50 g/L aqueous solution) SBW: L2 nm
Photometric range	-3~3 Abs	-4~4 Abs	-4~6 Abs
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 930D	+/-0.0015 Abs (0 to 0.5 Abs) +/-0.0025 Abs (0.5 to 1 Abs) +/-0.3 %T Tested with NIST SRM 930D	+/-0.0015 Abs (0 to 0.5 Abs) +/-0.0025 Abs (0.5 to 1 Abs) +/-0.3 %T Tested with NIST SRM 930D
Photometric repeatability	+/-0.0005 Abs (0 to 0.5 Abs) +/-0.0005 Abs (0.5 to 1 Abs) Tested with NIST SRM 930D	+/-0.0005 Abs (0 to 0.5 Abs) +/-0.0005 Abs (0.5 to 1 Abs) Tested with NIST SRM 930D	+/-0.0005 Abs (0 to 0.5 Abs) +/-0.0005 Abs (0.5 to 1 Abs) Tested with NIST SRM 930D
Scanning speed	10-8000 nm/min	10~4000 nm/min (8000 nm/min in preview mode)	10~4000 nm/min (8000 nm/min in preview mode)
Slew speed	24,000 nm/min	12,000 nm/min	12,000 nm/min
RMS noise	0.00004 Abs (0 Abs, wavelength: 500 nm, measurement time: 60 sec, SBW: 1 nm)	0.00003 Abs (0 Abs, wavelength: 500 nm, measurement time: 60 sec, SBW: 2 nm)	0.00003 Abs (0 Abs, wavelength: 500 nm, measurement time: 60 sec, SBW: 2 nm)
Baseline stability	0.0004 Abs/hour (Value obtained more than one hour after turning on the source, when the room temperature is stabilized, wavelength: 250 nm, response: slow)	0.0003 Abs/hour (Value obtained more than two hours after turning on the source, when the room temperature is stabilized, wavelength: 250 nm, response: slow and SBW: 2 nm)	0.0003 Abs/hour (Value obtained more than two hours after turning on the source, when the room temperature is stabilized, wavelength: 250 nm, response: slow and SBW: 2 nm)
Baseline flatness	+/-0.0005 Abs (200 - 1000 nm)	+/-0.0002 Abs (200 -850 nm)	+/-0.0003 Abs (200 - 800 nm)
Detector	Silicon photodiode	Photomultiplier tube	Photomultiplier tube
Standard facilities	IQ accessories, Start button, Analog output	IQ accessories, Start button, Analog output	IQ accessories, Start button, Analog output
Standard program	Abs/%T Meter, Quantitative Analysis, Spectrum Measurement, Time Course Measurement, Fixed-Wavelength Measurement, Validation, Daily Maintenance, Macro command (only for iRM), Dual Wavelength Time Course Measurement (only for PC)		
Dimensions and weight	486(W)x441(D)x216(H) mm, 15 kg	460(W)x602(D)x268(H) mm, 27 kg	460(W)x602(D)x268(H) mm, 29 kg
Power requirements	120 VA	150 VA	150 VA
Installation requirements	*Room temperature: 15-30 Celsius, humidity: below 85%*	*Room temperature: 15-30 Celsius, humidity: below 85%*	*Room temperature: 15-30 Celsius, humidity: below 85%*

	V-770	V-780
Optical system	Czerny-Turner mount Single monochromator Fully symmetrical double beam type	Czerny-Turner mount Single monochromator Fully symmetrical double beam type
Light source	Halogen lamp, Deuterium lamp	Halogen lamp, Deuterium lamp
Wavelength range	190 to 2700 nm (3200 nm, option)	190 to 1600 nm
Wavelength accuracy	+/-0.3 nm (at 656.1 nm) +/-1.5 nm (at 1312.2 nm)	+/-0.3 nm (at 656.1 nm) +/-1.0 nm (at 1312.2 nm)
Wavelength repeatability	+/-0.05 nm (UV-Vis), +/-0.2 nm (NIR)	+/-0.05 nm (UV-Vis), +/-0.1 nm (NIR)
Spectral bandwidth (SBW)	UV-Vis: 0.1, 0.2, 0.5, 1, 2, 5, 10 nm L2, L5, L10 nm (low stray light mode) M1, M2 nm (micro cell mode) NIR: 0.4, 0.8, 1, 2, 4, 8, 20, 40 L8, L20, L40 nm (low stray light mode) M4, M8 nm (micro cell mode)	UV-Vis: 0.1, 0.2, 0.5, 1, 2, 5, 10 nm L2, L5, L10 nm (low stray light mode) M1, M2 nm (micro cell mode) NIR: 0.2, 0.4, 0.5, 1, 2, 4, 10, 20, L4, L10, L20 nm (low stray light mode) M2, M4 nm (micro cell mode)
Stray light	1 % (198 nm KCL 12 g/L aqueous solution) 0.005 % (220 nm NaI 10 g/L aqueous solution) 0.005 % (340 nm NaNO2 50 g/L aqueous solution) 0.005 % (370 nm NaNO2 50 g/L aqueous solution) SBW: L2 nm 0.04 % (1420 nm: H2O) 0.1 % (1690 nm: CH2Br2 50 mm cell) SBW: L8 nm	1 % (198 nm KCL 12 g/L aqueous solution) 0.005 % (220 nm NaI 10 g/L aqueous solution) 0.005 % (340 nm NaNO2 50 g/L aqueous solution) 0.005 % (370 nm NaNO2 50 g/L aqueous solution) SBW: L2nm 0.04 % (1420 nm: H2O) SBW: L4 nm
Photometric range	UV-Vis: -4~4 Abs NIR: -3~3 Abs	UV-Vis: -4~4 Abs NIR: -3~3 Abs
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 930D	+/-0.0015 Abs (0 to 0.5 Abs) +/-0.0025 Abs (0.5 to 1 Abs) +/-0.3 %T Tested with NIST SRM 930D
Photometric repeatability	+/-0.0005 Abs (0 to 0.5 Abs) +/-0.0005 Abs (0.5 to 1 Abs) Tested with NIST SRM 930D	+/-0.0005 Abs (0 to 0.5 Abs) +/-0.0005 Abs (0.5 to 1 Abs) Tested with NIST SRM 930D
Scanning speed	10~4000 nm/min (8000 nm/min in preview mode)	10~4000nm/min (8000nm/min in preview mode)
Slew speed	UV-Vis: 12,000 nm/min NIR: 48,000 nm/min	UV-Vis: 12000 nm/min NIR: 24000 nm/min
RMS noise	0.00003 Abs (0 Abs, wavelength: 500 nm, measurement time: 60 sec, SBW: 2 nm)	0.00003 Abs (0 Abs, wavelength: 500 nm, measurement time: 60 sec, SBW:2 nm)
Baseline stability	0.0003 Abs/hour (Value obtained more than two hours after turning on the source, when the room temperature is stabilized, wavelength: 250 nm, response: slow and SBW: 2 nm)	0.0003 Abs/hour (Value obtained more than two hours after turning on the light source, when the room temperature is stabilized, wavelength: 250 nm, response: slow and SBW: 2nm.)
Baseline flatness	+/-0.0002 Abs (200 - 2500 nm)	+/-0.0002 Abs (200 - 1600 nm)
Detector	Photomultiplier tube, Peltier cooled PbS	Photomultiplier tube, Peltier cooled InGaAs photodiode
Standard facilities	IQ accessories, Start button, Analog output	IQ accessories, Start button, Analog output
Standard program	Abs/%T Meter, Quantitative Analysis, Spectrum Measurement, Time Course Measurement, Fixed-Wavelength Measurement, Validation, Daily Maintenance, Macro command (only for iRM), Dual Wavelength Time Course Measurement (only for PC)	
Dimensions and weight	460(W)x602(D)x268(H) mm, 29 kg	460(W)x602(D)x268(H) mm, 29 kg
Power requirements	150 VA	150 VA
Installation requirements	*Room temperature: 15-30 Celsius, humidity: below 85%*	*Room temperature: 15-30 Celsius, humidity: below 85%*

JASCO INTERNATIONAL CO., LTD.

11-10, Myojin-cho 1-chome, Hachioji, Tokyo 192-0046, Japan
Tel: +81-42-649-3247 Fax: +81-42-649-3518 http://www.jascoint.co.jp/english/
Australia, China, Hong Kong, India, Indonesia, Korea, Malaysia, New Zealand, Pakistan, Philippines, Russia, Singapore, Taiwan, Thailand

JASCO INCORPORATED

28600 Mary's Court, Easton, MD 21601, U.S.A
Tel: +1-800-333-5272 +1-410-822-1220 Fax: +1-410-822-7526 http://www.jascoinc.com
U.S.A., Canada, Costa Rica, Mexico, Puerto Rico, Argentina, Brazil, Chile, Colombia, Paraguay, Peru, Uruguay, Guatemala, Ecuador, Bolivia

JASCO EUROPE s.r.l.

Via Luigi Cadorna 1, 23894 Cremella (Lc), Italy
Tel: +39-039-9215811 Fax: +39-039-9215835 http://www.jasco-europe.com
JASCO Deutschland www.jasco.de, **JASCO UK** www.jasco.co.uk,
JASCO France www.jascofrance.fr, **JASCO Benelux** www.jasco.nl,
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For more information, please contact :

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