Спектрофотометры УФ-видимого диапазона (и БИК) V-700 Технические характеристики

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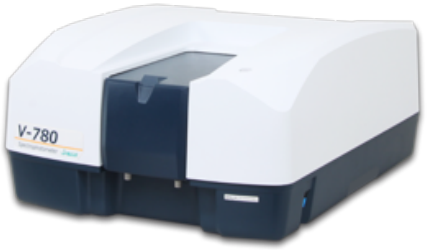
UV-Visible Spectrophotometers (and NIR)

The V-700 Series comprises of five individual models covering the entire spectrum from the far-UV (187nm) to the NIR (3200nm).

UV-Visible Spectrophotometers (and NIR) – Overview

Compact Design

The compact optical design of the V-700 Series of UV-visible spectrophotometers significantly reduces the requirement for bench space in the modern laboratory.



V-780 UV-Visible/NIR Spectrophotometer

Wide Wavelength Range

High energy throughput provides excellent signal-to-noise ratio for the entire UV-visible to NIR spectral range, with detectors selected for the highest sensitivity and dynamic range.

Excellent Optical Performance

Sophisticated electronic and optical design reduces stray light for highly accurate measurements over a wide photometric range.

High Speed Scanning

High throughput optics and fast detectors provide high-speed scanning without wavelength tracking errors.

Dark Correction

Stray light reduction features enable highly-accurate measurements of high-absorbance samples.

Monochromator Step Scanning

Step scan function provides reliable peak assignment of samples with sharp or narrow absorption peaks.

User-Friendly

Spectra Manager™ Suite for Windows (with optional 21 CFR part 11 compliance) and iRM hand-held controller for comprehensive control, acquisition, and data processing.

IQ Accessory

Automatic accessory recognition matches the measurement program to the attached sampling accessory.

IQ Start

For routine operation, a measurement method can be activated with a simple push of the ‘Start Button’, great for routine operation or speeding up measurement for multiple users.

Accessories

A comprehensive selection of over 50 sampling accessories for gas, liquid, and solid samples are available for many dedicated sampling applications.

Regulatory Compliance

For GxP compliant laboratories, instrument validation protocols to USP, EP, and JP are included as standard. IQ/OQ support is also available.

V-730 double beam UV-Visible Spectrophotometer

A general-purpose UV-Vis spectrophotometer with a compact space-saving design and excellent spectroscopic performance great for routine bio, QC, teaching and research applications.

V-730 UV-Visible Spectrophotometer

The V-730 UV-visible spectrophotometer is designed to be simple to use with precise results , with 1nm spectral bandwidth for high resolution and a linear dynamic range to over 3AU across the entire spectrum.

Double beam UV-Visible spectrophotometer

Innovative features include IQ Accessory automatic recognition and IQ Start for push-button operation of routine measurements. The wide wavelength range from 190 to 1100nm offers versatile measurement for many different applications. Spectra Manager™ Suite*, the latest innovative, cross-platform spectroscopy software, or the iRM, a handheld controller with color LCD touch screen, both provide full system control and advanced data processing.

*Spectra Manager™ CFR (for 21 CFR part 11 compliance) is available as an option.

System Features

Compact Design

The V-730 is compact with dimensions of only 441 (W) x 468 (D) x 216 (H) mm.

Simplicity and Ease-of-Use

Both Spectra Manager™ and the iRM provide an intuitive interface allowing first time users to operate the instrument with ease.

High-Speed Scanning

High-throughput optics and fast response detectors allow the V-730 to scan at speeds up to 8000 nm/min without wavelength tracking errors.

Sampling Accessories

A wide range of sampling accessories include: autosamplers & sippers, cell holders, flow cells, temperature controllers and software applications.

Instrument Validation and Regulatory Compliance

The V-730 includes user-selectable validation to USP, EP and JP (or manually editable). With optional IQ/OQ instrument qualification.

Highlighted Features

- Double-beam spectrophotometer with single monochromator
- Silicon photodiode detectors
- Wide wavelength range – 190 to 1100 nm
- Fixed bandpass 1.0 nm for high resolution measurement
- High-speed scanning up to 8,000 nm/min
- Dedicated V-730 bio for bio-physical analysis such as kinetics, thermal melting and protein/nucleic acid quant

Optical System	Rowland off-circle arrangement Single monochromator Double beam type
Light source	Halogen lamp, Deuterium lamp
Wavelength range	190 to 1100 nm
Wavelength accuracy	+/-0.2 nm (at 656.1 nm)
Wavelength repeatability	+/-0.1 nm
Spectral bandwidth (SBW)	1 nm
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
Photometric range	-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
Photometric repeatability	+/-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
Slew speed	24,000 nm/min
RMS noise	0.00004 Abs (0 Abs, wavelength: 500 nm, measurement time: 60 sec, SBW: 1 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)
Baseline flatness	+/-0.0005 Abs (200 - 1000 nm)

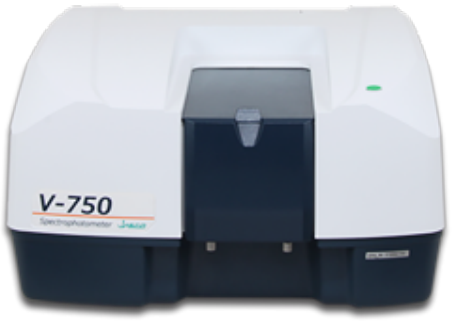
Detector	Silicon photodiode
Standard functions	IQ accessories, Start button, Analog output
Standard programs	Abs/%T meter, Quantitative analysis, Spectrum measurement, Time course measurement, Fixed wavelength measurement, Validation, Daily maintenance, Two wavelength time course measurement
Dimensions and weight	486(W) x 441(D) x 216(H) mm, 15 kg
Power requirements	120 VA
Installation requirements	Room temperature: 15-30 Celsius, humidity: below 85%

V-750 UV-Visible Spectrophotometer

A high resolution UV-Visible spectrophotometer with double-beam, single monochromator, variable spectral bandwidth and a photomultiplier tube (PMT) detector.

V-750 UV-Visible Spectrophotometer

The V-750 UV-Visible Spectrophotometer optical design uses precision double-beam optics with variable spectral bandwidth. A high sensitivity PMT detector provides accurate and reproducible measurements for low to high concentration samples. By controlling the high voltage applied to the PMT, the dynode feedback offers a wider dynamic range than is generally found on uv-visible spectrophotometers. For high resolution measurements, such as gas and vapor phase spectroscopy, the spectral bandwidth can be set as narrow as 0.1 nm. Special low stray light slit settings which optimize the light image on the monochromator provide increased linearity to up to 5 absorbance units.



With a comprehensive range of sampling accessories, the V-750 uv-visible spectrophotometer is well suited to measurement of solid and liquid samples in the UV and visible regions, with temperature control for biological samples and a number of transmittance and reflectance accessories for materials analysis.

Operating Systems

Two user interfaces are available. Spectra Manager™ Suite the innovative cross-platform spectroscopy software, compatible with Windows 7 Pro (32- and 64-bit) and Windows 8.1 operating systems.

For simple operation, the intelligent remote module (iRM) has a new look and feel, with a color LCD touch screen. Data can be downloaded for portability or further PC data processing using Spectra Analysis.

The V-700 Series of UV-visible spectrophotometers has a growing list of software applications for both Spectra Manager™ and for the iRM. If you require an application which you don't see listed, please let us know as we may already have it or we can prepare an application designed specifically for your requirements.

Both interfaces allow full system control and advanced data processing. Spectra Manager™ CFR is the 21 CFR part 11 compliant version of software and is available as an option.

System Features

IQ Accessory and IQ Start

IQ Accessory provides automated accessory recognition with automatic loading of a user defined method. Spectral data files include the instrument and accessory information while designated instrument parameters can be configured and loaded for optimum sample measurements. IQ Start together with the Start Button is used to start a sample method for immediate access when making routine measurements.

Optical Performance

The most recent advances in optical technology have been used to provide excellent instrument reliability and assure highly accurate results. High throughput optics combined with the latest in electronic design provide excellent sensitivity and stability for all sample measurements.

Sampling Accessories

An extensive range of accessories is available for the V-700 Series of UV-Visible/NIR spectrophotometers for virtually any biological, material science or routine QA/QC measurement. Some accessories are common across the V-700 Series and others are instrument specific. Refer to the instrument brochure for accessories specific to this instrument.

Options include a wide variety of liquid cell holders, micro and ultra-micro cell holders, flow cell holders and accessories for solid samples. Advanced accessories, including automated cell changers, sippers, integrating spheres, automated and manual absolute reflectance accessories and programmable temperature control systems are available for any of the V-700 instrument systems.

Instrument Validation and Regulatory Compliance

The V-750 includes user-selectable validation to USP, EP and JP (or manually editable). With optional IQ/OQ.

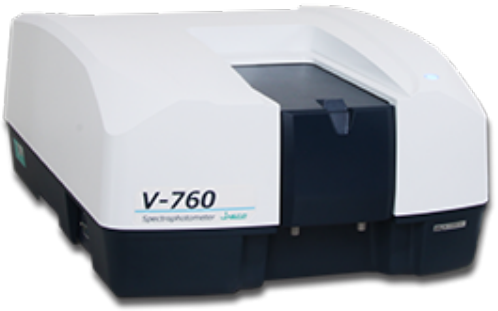
Optical System	Czerny-Turner mount Single monochromator Fully symmetrical double beam type
Light Source	Halogen lamp, Deuterium lamp
Wavelength range	190 to 900 nm
Wavelength accuracy	+/-0.2 nm (at 656.1 nm)
Wavelength repeatability	+/-0.05 nm
Spectral bandwidth (SBW)	0.1, 0.2, 0.5, 1, 2, 5, 10 nm L2, L5, L10 nm (low stray light mode) M1, M2 nm (micro cell mode)
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 $NaNO_2$ 50 g/L aqueous solution) 0.005 % (370 nm $NaNO_2$ 50 g/L aqueous solution) SBW: L2 nm
Photometric range	-4~4 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
Photometric repeatability	+/-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)
Slew speed	12,000 nm/min

RMS noise	0.00003 Abs (0 Abs, wavelength: 500 nm, measurement time: 60 sec, SBW: 2 nm)
Baseline stability	0.0003 Abs/hour (Wavelength: 250 nm, response: slow and SBW: 2 nm)
Baseline flatness	+/-0.0002 Abs (200 - 850 nm)
Detector	Photomultiplier tube
Standard functions	IQ Accessory, Start Button, Analog output
Standard programs	Abs/%T meter, Quantitative analysis, Spectrum measurement, Time course measurement, Fixed wavelength measurement, Validation, Daily Check Two wavelength time course measurement
Dimensions and weight	460(W) x 602(D) x 268(H) mm, 27 kg
Power requirements	150 VA
Installation requirements	Room temperature: 15-30 Celsius, humidity: below 85%

V-760 UV-Visible Spectrophotometer

The V-760 is a high resolution UV-Visible double-beam spectrophotometer with double monochromator for exceptional stray light and absorbance linearity, variable spectral bandwidth and a photomultiplier tube (PMT) detector.

The V-760 UV-Visible spectrophotometer includes a double monochromator for exceptional resolution with extremely low stray light (0.00008 %) for more accurate measurement over the widest photometric range (up to 8AU). The V-760 provides excellent sensitivity for diffuse reflectance or transmittance of solid and liquid samples using an integrating sphere. For high resolution measurements, such as gas and vapor phase spectroscopy, the spectral bandwidth can be set as narrow as 0.1 nm. Extended photometric linearity up to 8 Abs enables measurement of highly absorbing samples and is also useful for measurements of optical material with transmission characteristics that approach 0 % T.



Operating Systems

Spectra Manager™ Suite, the innovative cross-platform spectroscopy software is compatible with Windows 7 Pro (32- and 64-bit configurations) and Windows 8.1 operating systems. Spectra Manager™ CFR is the 21 CFR part 11 compliant version.

For simple and routine operation, the handheld iRM has a new look and feel with a color touch-sensitive screen. Data can also be downloaded for portability and further PC data processing.

The V-700 Series has a growing list of software applications for both Spectra Manager™ and iRM. If you have an application which you don't see listed, please let us know as we may already have it or we can prepare an application designed specifically for your requirements.

System Features

IQ Accessory and IQ Start

IQ Accessory provides automated accessory recognition of an installed accessory. Spectral data files contain the instrument measurement parameters and accessory information. IQ Start and the Start Button are used to start a routine measurement.

Excellent Optical Performance

High throughput optics combined with the latest electronic design provide excellent sensitivity and stability for a wide range of sample measurements.

Wide Range of Sampling Accessories

An extensive range of accessories is available for the V-700 series of UV-Visible/NIR spectrophotometers for virtually any biological, material science or routine QA/QC measurement. Some accessories are common across the V-700 Series and others are instrument specific. Refer to the instrument brochure for accessories specific to this instrument.

Options include a wide variety of liquid cell holders, micro and ultra-micro cell holders, flow cell units and accessories for solid samples. Advanced accessories, include automated cell changers, sippers, integrating spheres, automated and manual absolute reflectance accessories and programmable temperature control systems are available for any of the V-700 instrument systems.

Instrument Validation and Regulatory Compliance

The V-760 includes user-selectable validation to USP, EP and JP (or manually editable). With optional IQ/OQ.

Optical System	Czerny-Turner mount Double monochromator Fully symmetrical double beam type
Light Source	Halogen lamp, Deuterium lamp
Wavelength range	187 to 900 nm
Wavelength accuracy	+/-0.1 nm (at 656.1 nm)
Wavelength repeatability	+/-0.05 nm
Spectral bandwidth (SBW)	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) 0.00008 % (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	-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
Photometric repeatability	+/-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)
Slew speed	12,000 nm/min
RMS noise	0.00003 Abs (0 Abs, wavelength: 500 nm, measurement time: 60 sec, SBW: 2 nm)
Baseline stability	0.0003 Abs/hour (Wavelength: 250 nm, response: slow and SBW: 2 nm)
Baseline flatness	+/-0.0003 Abs (200 - 800 nm)
Detector	Photomultiplier tube

Standard functions	IQ Accessory, Start Button, Analog output
Standard programs	Abs/%T meter, Quantitative analysis, Spectrum measurement, Time course measurement, Fixed wavelength measurement, Validation, Daily Check Two wavelength time course measurement
Dimensions and Weight	460(W) x 602(D) x 268(H) mm, 29 kg
Power requirements	150 VA
Installation requirements	Room temperature: 15-30 Celsius, humidity: below 85%

V-770 UV-Visible/NIR Spectrophotometer

A unique optical design with a single monochromators and dual detectors for the wavelength range from 190 to 2700nm (3200nm option).

V-770 UV-Visible/NIR spectrophotometer

The V-770 UV-Visible/NIR spectrophotometer features a unique single monochromator design for maximum light throughput with excellent absorbance linearity. A PMT detector is used for the UV to visible region and a Peltier-cooled PbS detector for the NIR region.

V-770 UV-Visible/NIR spectrophotometer

Operating Systems

The V-770 UV-Visible/NIR spectrophotometer is operated using Spectra Manager™ Suite, the innovative cross-platform spectroscopy software, is compatible with Windows 10 Pro and Enterprise operating systems (Home is not supported).

For simple operation, the handheld iRM has a great look and feel with a color touch-sensitive screen. Data can also be downloaded to Spectra Analysis on a PC further PC data processing.

The V-700 Series has a growing list of software applications for both Spectra Manager™ and iRM. If you have an application which you don't see listed, please let us know as we may already have it or we can prepare an application designed specifically for your requirements.

Both interfaces offer full system control and advanced data processing. Spectra Manager™ CFR is the 21 CFR part 11 compliant version of software and is available as an option.

System Features

IQ Accessory and IQ Start

IQ Accessory provides automated accessory recognition with identification of the accessory within a method. The spectral data files include instrument and accessory information. IQ Start together with the Start Button on the front of the instrument can be used to start a method to make sample measurements routine.

Wavelength Range from UV to NIR

The V-770 measures the wavelength range of 190 to 2700nm (option 3200nm). The single monochromator design offers a significantly higher energy throughput than a double-monochromated design resulting in a better S/N ratio over the entire spectral range, even with narrow spectral bandwidth. The gratings and detectors switch-over can be set to change automatically between 800-900nm .

Accessories

An extensive range of accessories is available for the V-700 Series UV-Visible-NIR spectrophotometers for virtually any biological, material science or routine QA/QC measurement. Some accessories are common across the V-700 Series can only be used with specific models. Refer to the instrument brochure for details about the accessories.

Options include liquid cell holders, micro and ultra-micro cell holders, flow cells and accessories for solid samples. More advanced accessories include: automated cell changers, sippers, integrating spheres, absolute reflectance accessories and temperature control systems.

Instrument Validation and Regulatory Compliance

The V-700 Series includes user-selectable validation for USP, EP and JP (or manually editable). With optional IQ/OQ.

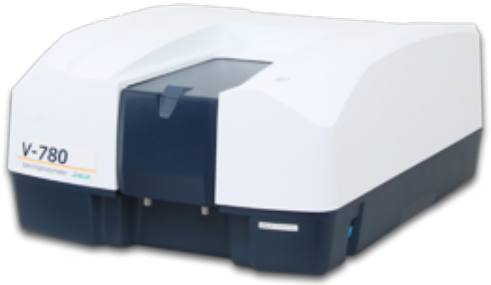
Optical System	Czerny-Turner grating mount Single monochromator Fully symmetrical double-beam
Light Source	Halogen lamp, Deuterium lamp
Wavelength range	190 to 2700 nm (3200 nm, option)
Wavelength accuracy	+/-0.3 nm (at 656.1 nm) +/-1.5 nm (at 1312.2 nm)
Wavelength repeatability	+/-0.05 nm (UV-Vis), +/-0.2 nm (NIR)
Spectral bandwidth (SBW)	UV-Visible: 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)
Stray light	1 % (198 nm KCL) 0.005 % (220 nm NaI) 0.005 % (340 nm NaNO2) 0.005 % (370 nm NaNO2) SBW: L2 nm 0.04 % (1420 nm: H_2O) 0.1 % (1690 nm: CH2Br2) SBW: L8 nm
Photometric range	UV-Visible: -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
Photometric repeatability	+/-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)
Slew speed	UV-Vis: 12,000 nm/min NIR: 48,000 nm/min
RMS noise	0.00003 Abs (0 Abs, wavelength: 500 nm, measurement time: 60 sec, SBW :2 nm)
Baseline stability	0.0003 Abs/hour (Wavelength: 250 nm, response: slow and SBW: 2 nm)
Baseline flatness	+/-0.0002 Abs (200 - 2500 nm)
Detector	PMT, Peltier cooled PbS
Standard functions	IQ Accessory, Start Button, Analog output
Standard programs	Abs/%T meter, Quantitative analysis, Spectrum measurement Time course measurement, Fixed wavelength measurement Validation, Daily check and Dual wavelength time course measurement
Dimensions and weight	460(W) x 602(D) x 268(H) mm, 29 kg
Power requirements	150 VA
Installation requirements	Room temperature: 15-30 Celsius, humidity: below 85%

V-780 UV-Visible/NIR Spectrophotometer

The V-780 UV-Visible/Near Infrared Spectrophotometer has a unique optical design incorporating a single monochromator with both dual gratings and detectors to cover the wavelength range from 190nm to 1600nm with enhanced sensitivity in the NIR region using an InGaS detector.

V-780 UV-Visible/NIR Spectrophotometer

The V-780 UV-visible/NIR spectrophotometer features a single monochromator with automatically exchanged gratings: 1200 lines/mm for the UV-Visible region and 600 lines/mm for the NIR region. A PMT detector is used for the UV-Visible region and a high sensitivity InGaAs detector in the NIR region. Both gratings and detectors are automatically exchanged within a user selectable range of 800 to 900nm.



Operating Systems

Spectra Manager™ Suite, the innovative cross-platform spectroscopy software, is compatible with Windows 7 Pro (32- and 64-bit configurations) and Windows 8.1 operating systems.

For simple operation, the handheld iRM includes a color touch-sensitive screen. Data can be downloaded for further PC data processing.

The V-780 Series has a growing list of software applications for both Spectra Manager™ and the iRM. If you require an application which you don't see listed, please let us know as we may already have it or we can prepare an application designed specifically for your requirements.

Both Spectra Manager Suite and the iRM provide full control and advanced data processing, and with optional 21 CFR part 11 compliant versions.

System Features

IQ Accessory and IQ Start

The IQ Accessory function provides automated accessory recognition. The spectral data files include instrument and accessory information and serial number. IQ Start together with the Start Button can be used to to start a method for routine measurements.

Enhanced Sensitivity in the NIR region

The V-780 UV-visible/NIR spectrophotometer is used for spectroscopy in the wavelength range 190nm to 1600nm with enhanced sensitivity (compared to a PbS detector) in the NIR region using an InGaAs detector. The single monochromator design offers a higher energy throughput compared to a double monchromated instrument, resulting in a higher S/N ratio throughout the entire spectral range, even using narrow spectral bandwidths.

Sampling Accessories

An extensive range of accessories is available for the V-780 UV-Visible-NIR spectrophotometer for virtually any biological, material science or routine QA/QC measurement. Refer to the instrument brochure for accessories specific to this instrument.

Options include a wide variety of liquid cell holders, micro and ultra-micro cell holders, flow cell units and accessories for solid samples. More advanced accessories include: automated cell changers, sippers, integrating spheres, automated

and manual absolute reflectance accessories and programmable temperature control systems.

Instrument Validation and Regulatory Compliance

The V-780 includes user-selectable validation to USP, EP and JP (or manually editable). With optional IQ/OQ.

Optical System	Czerny-Turner mount Single monochromator Fully symmetrical double beam type
Light Source	Halogen lamp, Deuterium lamp
Wavelength range	190 to 1600 nm
Wavelength accuracy	+/-0.3 nm (at 656.1 nm) +/-1.0 nm (at 1312.2 nm)
Wavelength repeatability	+/-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: 0.2, 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 $NaNO_2$ 50 g/L aqueous solution) 0.005 % (370 nm $NaNO_2$ 50 g/L aqueous solution) SBW: L2nm 0.04 % (1420 nm: H_2O) SBW: L4 nm
Photometric range	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

Photometric repeatability	+/-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)
Slew speed	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)
Baseline stability	0.0003 Abs/hour 0.04 % (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) (10 mm cell)
Baseline Stability	±0.0004 Abs/hour (Wavelength: 250 nm, response: slow and SBW: 2nm.)
Baseline flatness	+/-0.0002 Abs (200 - 1600 nm)
Detector	Photomultiplier tube, Peltier cooled InGaAs photodiode
Standard functions	IQ Accessory, Start Button, Analog output
Standard programs	Abs/%T meter, Quantitative analysis, Spectrum measurement, Time course measurement, Fixed wavelength measurement, Validation, Daily Check Two wavelength time course measurement
Dimensions and weight	460(W) x 602(D) x 268(H) mm, 29 kg
Power requirements	150 VA
Installation requirements	Room temperature: 15-30 Celsius, humidity: below 85%

MV-3000 Series Portable UV-Visible/NIR Spectrophotometer

The MV-3000 Modular UV-visible/NIR spectrophotometer has several different wavelength options for varied applications. It also has different source options to match to the spectrophotometer (or has no source for applications that study luminous emissions). Fiber optics are used extensively for many different sampling options from fermentation tanks to production line or in-situ color measurement, water quality testing etc. Spectra Manager Suite has many application programs that can be used in dedicated applications such as color analysis, film thickness, quantitation and chemometrics.

Features

- Compact and robust
- High-speed measurement at 5 msec
- Maximum 1,000 consecutive spectrum measurement
- Synchronized measurement function from an external signal
- Bright optical system (f-number 3.5)

Applications

- in-situ measurement (color diagnosis, quantitative analysis)
- Monitoring production lines (thin films, reflectance or transmittance , turbidity measurement)
- High-speed measurement (high-speed time-course measurement, stopped flow kinetics, mapping measurement)
- Emission measurement (light source evaluation, non-contact temperature measurement)

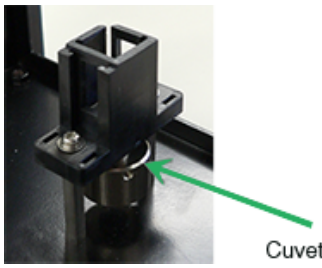
Model	**MV-3100**	**MV-3150**	**MV-3200**	**MV-3250**	**MV-3300**	**MV-3350**
W.L. Range	200-800 nm		350-950 nm		900-1600 nm	
Detector	Photodiode Array				InGaAs Image Sensor	
Number of Channels	512 ch				256 ch	
W.L. Accuracy	±0.5 nm				±2 nm	
W.L. Resolution	5 nm				10 nm	
Exposure Time	5 msec - 10 sec				5 msec - 1 sec	
Optical System	Czerny-Turner Mount f-number = 3.5					
Optical Fiber Connector	SMA-905	ϕ 10 mm Sleeve	SMA-905	ϕ 10 mm Sleeve	SMA-905	ϕ 10 mm Sleeve
Light Source	Optional - select from D_2 only, Halogen only or D_2 and halogen					
Optional Attachments	Reflectance measurement probe, Transmittance measurement probe, 100% Correction switching mechanism, Emission measurement probe, Handy Integrating sphere etc.					
Others	External trigger for synchronized measurement , Measurement start-button					

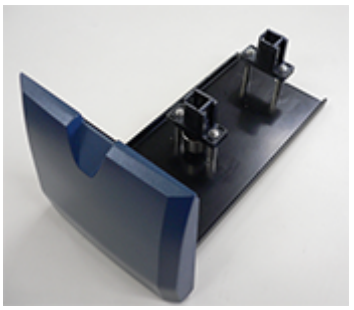
Ambient Accessories for V-700 Series UV-Visible and Near Infrared NIR Spectrophotometers

UCB-710 Rectangular Cell Holder with Cuvette Height Adjustment

Suitable for cuvettes sizes down to 2 mm (W) x variable path length up to 10 mm (minimum sample volume of 240 µL)

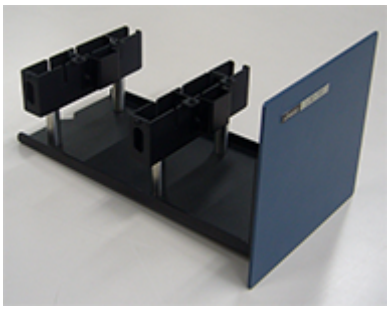
1.5 mm (W) x 3 mm (H) mask included as standard





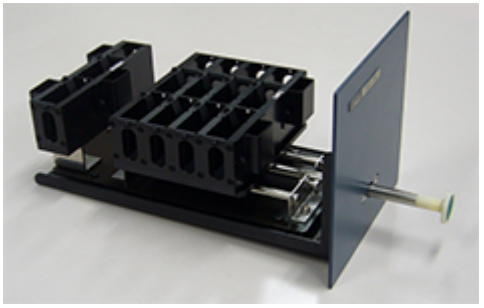
LSE-701 Single Position Long Path Length Cell Holder

Used for sample measurements using long light path rectangular cells (maximum: 100 mm). Typical pathlengths include 10 mm, 20 mm, 50 mm or 100 mm. A cell of the same pathlength can also be placed on the reference side.



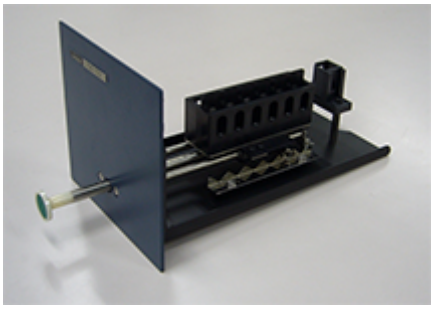
FSE-702 Manual 4-Position Long Path Length Cell Changer

Ideal for sample measurements using long path rectangular cells (maximum: 100 mm). Typical path lengths include 10 mm, 20 mm, 50 mm or 100 mm. A cell of the same pathlength can also be used for the reference side.



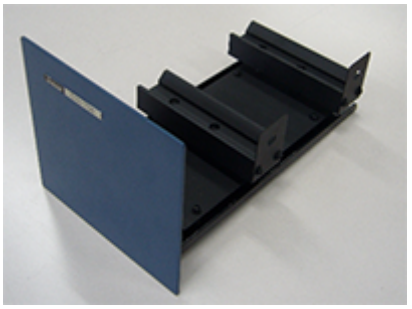
SSE-704 6-Position Manual Cell Holder

The cell changer is manually operated and can be used with cell sizes of 5 mm, 10 mm or 20 mm. A cell of the same pathlength can also be used for the reference side. SSE-704 6-position manual cell.



CYH-708 Cylindrical Cell Holder

Used for sample measurement using cylindrical cells (Diameter: 22 or 30 mm; maximum path length: 100 mm).



NCP-705 Specifications

Sample Movement	Linear
Cell Type	10-mm rectangular cell, Micro Cell (min. sample width 2 mm)
Reference Cell Holder	Single-cell holder
Dimensions	130 (W) x 255 (D) x 123 (H) mm
Weight	2.0 kg

Temperature Controlled Cell Holders - Peltier and Water

A range of temperature controlled cells holders recommended for kinetics and ramping to moderate temperatures

EHCS-760 Peltier Thermostatted Single Position Cell Holder (Air-Cooled)

This Peltier cell holder precisely maintains a specified sample temperature and can perform thermal ramping experiments up to 60 deg C. A stirrer is included for uniform cell temperature. Air-cooled for temperature control (does not require a water circulator).

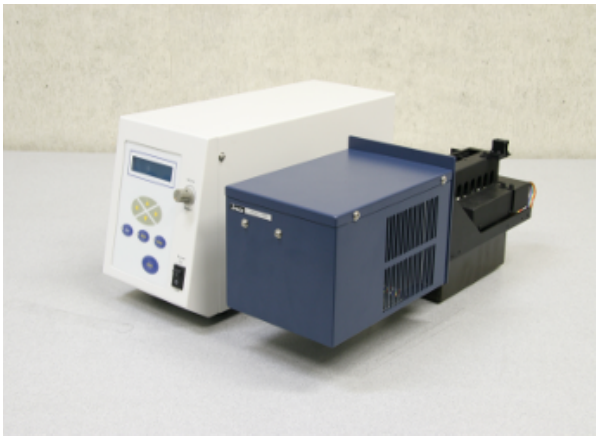
OPS-512 Optional Temperature Sensor
PS-512 OP sensor for direct temperature measurement in the sample cell.

Specifications

Thermostatted Cell	10-mm rectangular cell (sample side)
Temperature control system	Heating/cooling system using Peltier effect
Heat radiating system	Air cooled
Stirring system	Magnetic stirrer (variable speed)
Temperature setting range	5 to 70°C
Temperature control range	10 to 60°C (for room temperature = 20°C)
Temperature control accuracy	± 0.1°C
Temperature accuracy	(Difference between displayed temperature and actual cell temperature) 20°C to 40°C ± 0.5°C ± 1°C when set temperature is outside the above range
Temperature setting difference	(Difference between set temperature and displayed temperature) 20°C to 40°C ±0.3°C ± 0.5°C when set temperature is outside the above range

PSC-761/763 Automatic 6-position Peltier Cell Changer (Air-Cooled)

Multi-cell accessory for simultaneous temperature controlled measurement in up to 6 sample cells. Air-cooled Peltier effect to control sample temperature and ramping with high accuracy. Includes stirrer.



OPS-513 Optional Temperature sensor
OPS-513 OP sensor for direct temperature measurement in the sample cell.

Specifications

Thermostatted Cell	Up to six 10 mm rectangular sample cells (ambient reference cell)
Temperature control system	Heating/cooling system utilizing Peltier effect
Heat radiating system	Forced air cooling
Stirring system	Magnetic stirrer (variable speed)
Temperature setting range	10 to 70°C
Temperature control range	15 to 60°C (For room temperature = 20°C)
Temperature control accuracy	±0.1°C
Temperature accuracy	(Difference between the displayed temperature and temperature in the cell) 20°C to 40°C ±0.5°C ±1°C when the set temperature is outside the above range
Temperature setting difference	(Difference between the set temperature and displayed temperature) 20°C to 40°C ±0.3°C ±0.5°C when the set temperature is outside the above range

STR-773 Water Thermostatted Cell Holder with Stirrer

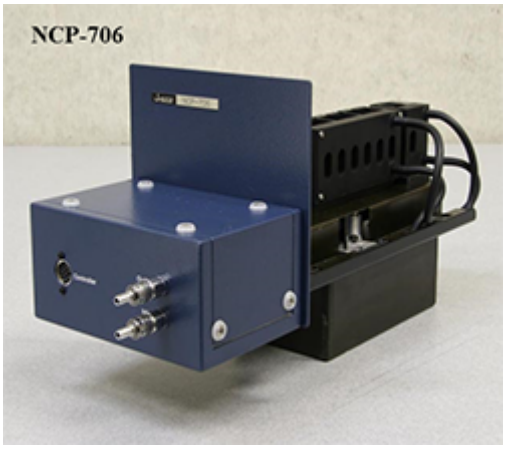
Used with a temperature controlled circulating water bath (not supplied) to maintain a constant sample and reference cell temperature. The STR-773 accepts standard 10 mm path length cells. A magnetic stirrer is included to maintain temperature equilibrium in both cell positions.

Specifications

Cell	10-mm cell
Operating temperature	Room temperature plus 10°C to 90°C
Circulating water inlet tube	Uni-tube (Φ6 x Φ3 mm)

NCP-706 Water Thermostatted 6-position Automatic Cell Changer

Automatic 6-position cell changer for up to 6 cell positions (path lengths up to 10 mm). Single reference position. Temperature is controlled using a water-thermostatted circulator (not included).



Specifications

Cell Movement	Linear
Cell Type	10mm cell, Micro Cell (min. width 2mm)
Temperature control type	Water circulation
Operating temperature	Room temperature plus 10° -90°C
Reference cell holder	Constant temperature single-cell holder

CSP-909 Sample Holder Lid with Syringe Port Models

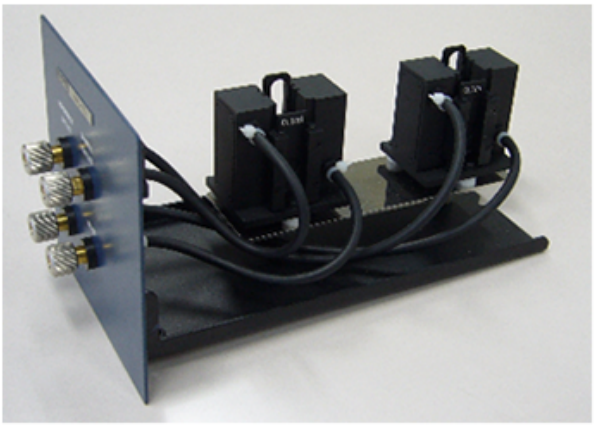
Optional lid used for adding a reagent with a syringe without opening the sample chamber for starting fast reactions without a delay in measurement. The syringe port lid can be used with any single cell holders.

Specifications

Recommended syringe	0507-0220 Micro syringe, 10 µL
	0507-0246 Micro syringe, 100 µL

HMC-711 Water Thermostatted Micro Cell Holder (sample volume 100 µL, 200 µL)

Constant temperature single cell holder for micro cells. Accepts standard 10 mm path length cells with a minimum width of 2 or 4 mm. Used with a temperature controlled circulating water bath (not included).



Specifications

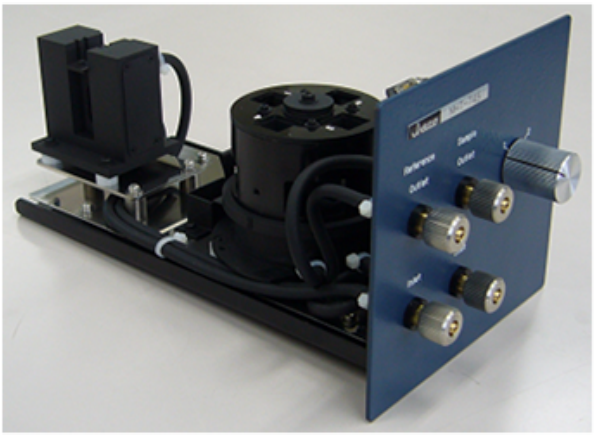
Compatible Cell	5 or 10 mm path length rectangular cell 5 or 10 mm path length rectangular micro cell
Operating temperature	Room temperature plus 10°C to 90°C
Circulating water tube	Uni-tube (Φ6 x Φ3 mm)

Optional cells

Item	P/N	Specification
Rectangular micro quartz cell	1103-0025	5 mm path, 2 mm width
Rectangular micro quartz cell	1103-0030	10 mm path, 4 mm width
Rectangular micro quartz cell	1103-0026	10 mm path, 2 mm width
Rectangular micro quartz black masked cell	1103-0031	10 mm path, 4 mm width
Rectangular micro quartz black masked cell	1103-0032	10 mm path, 2 mm width

MHT-745 Manual 4-Position Water Thermostatted Turret Cell Holder

4-position turret cell holder can be rotated manually for measurement of up to four cells. Requires four 10×10 mm rectangular cells (not included). Requires a temperature controlled circulating water bath (not included)



Specifications

Thermostatted cells	10-mm rectangular cell Sample-side cell holder: 4 Reference side cell holder: 1

Operating temperature	Room temperature plus 10 to 90°C
Circulating water inlet	Uni-tube (Φ7 x Φ5 mm)

Temperature Control – Melting

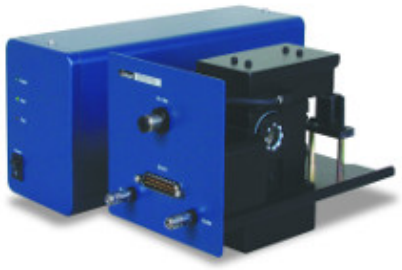
ETCS-761/762 Peltier Thermostatted Single Position Cell Holder (Water-Cooled)

These cell holders use the Peltier effect to precisely maintain the sample temperature. The cell holders include a stirrer for uniform cell temperature. The ETCS-761 and ETCS-762 cell holders are water cooled Peltier accessories for a greater temperature range.

OPS-512 Optional Temperature Sensor for EHCS-760
OPS-512 OP sensor for direct temperature measurement in the sample cell for both the ETCS-761 or ETCS-762.

Specifications

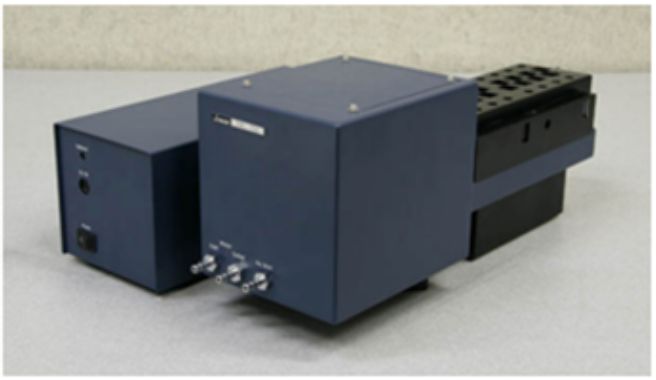
Thermostatted Cell	10-mm rectangular cell (sample side only – ETCS-761) 10-mm rectangular cell (sample/reference – ETCS-762)
Temperature control system	Heating/cooling system using Peltier effect
Heat radiating system	Water cooled
Stirring system	Magnetic stirrer (variable speed)
Temperature setting range	-10 to 110°C
Temperature control range	0 to 100°C (for room temperature = 20°C)
Temperature control accuracy	±0.1°C
Temperature accuracy	(Difference between displayed and actual cell temperature) 20°C to 40°C ± 0.5°C ± 1°C when the set temperature is outside the above range
Temperature setting difference	(Difference between set temperature and displayed temperature) 20°C to 40°C ± 0.3°C ± 0.5°C when the set temperature is outside the above range



ETCS-761

ETCS-762

PWC-758 Automatic 8 x 8-Position Peltier Cell Changer (Water-Cooled)



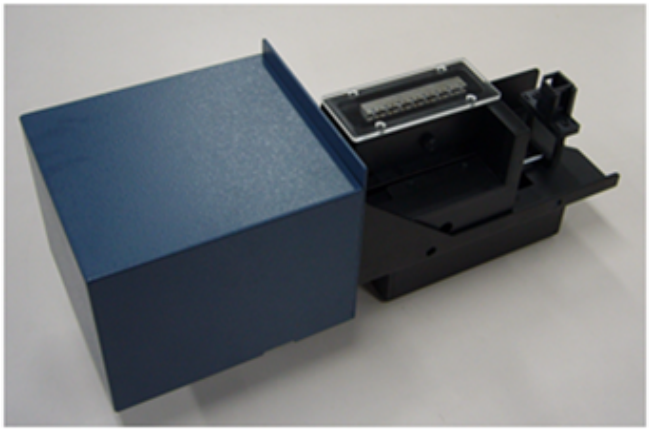
The PWC-758 is a multi-cell sample holder accessory for the simultaneous measurement of up to eight sample cells and 8 reference cells. The Peltier temperature control allows precise control of the sample temperature. A magnetic stirrer is used to maintain a uniform cell temperature for all 16 cell positions.

Cannot be used with the V-630 or V-730 (including bio versions)

Specifications

Thermostatted cell(s)	Eight 10-mm path length rectangular cells (sample and reference side)
Temperature control system	Heating/cooling system using Peltier effect
Heat radiating system	Water cooled
Stirring system	Magnetic stirrer (with variable speed control)
Temperature setting range	-10 to 110°C
Temperature control range	0 to 100°C (room temperature = 20°C)
Temperature setting precision	±0.3°C
Temperature accuracy	(Difference between displayed and actual cell temperature) 20°C to 40°C ±0.5°C ±1°C when the set temperature is outside the above range

PAC-743R Automatic 6/8-Position Peltier Cell Changer (Water-Cooled and Water-Cooled with Thermostatted Reference)



The PAC-743 and PAC-743R automatic 6/8-Position Peltier cell changers are used for temperature controlled transmittance and

absorbance measurements with multiple sample cells, with a variable temperature range from 0 to 100°C.

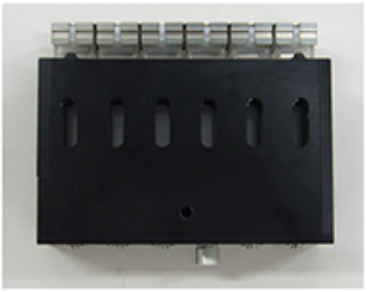
Three cell block types are available: a 6-position 10 mm cell block, an 8-position micro cell block and an 8-position 5 mm cell block.

Using the 8-position micro cell block up to 8 samples can be simultaneously transferred directly from a 96 micro-titer plate (8×12) using an 8-way micro-pipette.

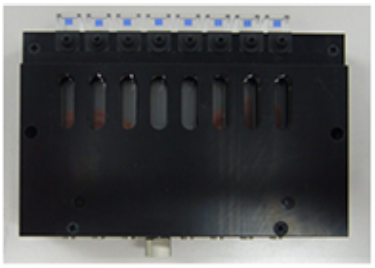
The PAC-743R also includes a temperature controlled reference position.

Cells for PAC-743/743R

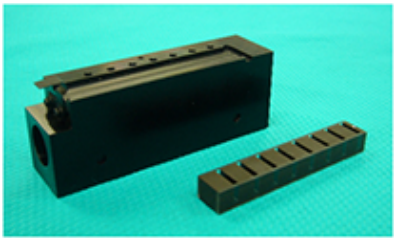
5 mm rectangular quartz cell



6-position cell block



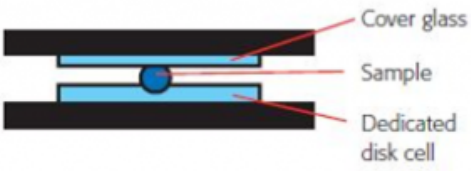
8 position cell block

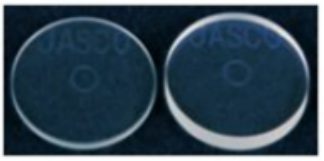


8 position micro-cell block
Micro 8-position micro-cell

Precise Analysis of Micro-Volume Samples for Biological Samples

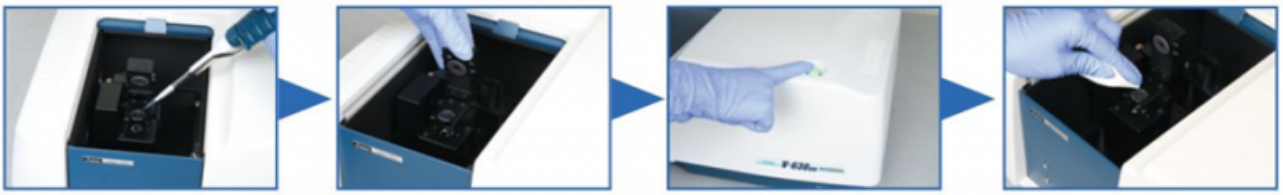
The SAH-769 One Drop is a dedicated accessory for the V-600 and V-700 Series UV-visible spectrophotometers for the measurement of micro-volume samples of protein and nucleic acid. A precise optical pathlength is maintained, assuring excellent measurement reproducibility. The sampling procedure is very quick (around 20 seconds per sample) and easy, by simply placing a droplet of a sample on the disk cell window. The minimum sample volume is 5 µl for the standard 1 mm pathlength disk cell, and 0.6 µL for the optional 0.2 mm pathlength cell. The shorter optical pathlength allows measurements of high concentration samples without dilution.





Dedicated disk cell for SAH-769
Optical pathlength : 1 mm (left), 0.2 mm (right)
Sample volume : 5 µL (left), 0.6 µL (right)

Rapid, but highly accurate measurement using a flexible V-700 spectrophotometer. Only 20 seconds per sample.



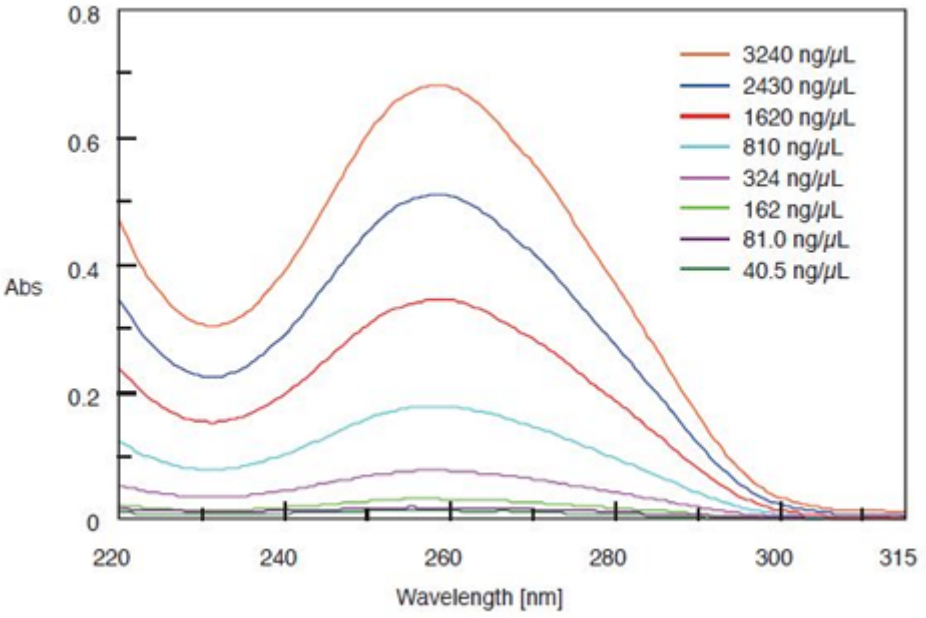
Step 1
Drop a sample on the cell.

Step 2
Set the cover glass.

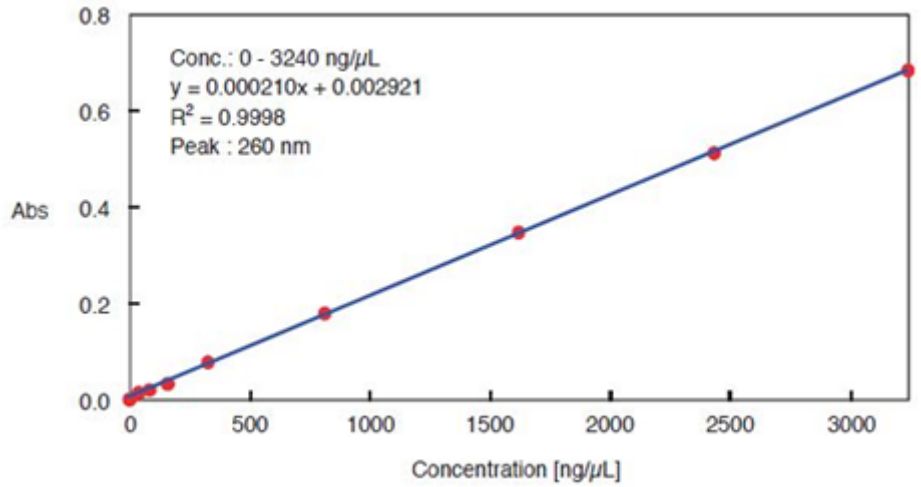
Step 3
Push the start button.

Step 4
Wipe the sample off.

Quantitative analysis of a 0.6 µl sample of calf thymus DNA using a 0.2 mm pathlength disk cell.

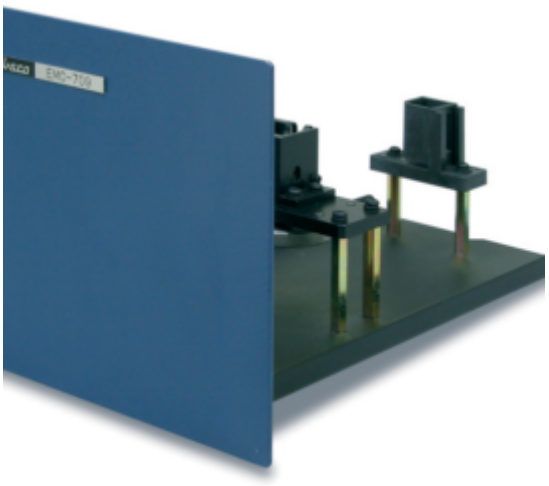


Spectra of calf thymus DNA solutions



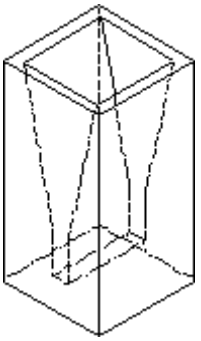
Calibration curve of calf thymus DNAThe figure illustrates excellent linearity up to approx.
3000 ng/µL. This is equivalent to a linearity of up to 35 Abs for a 10 mm pathlength cell.

EMC-709 Micro Cell Holder

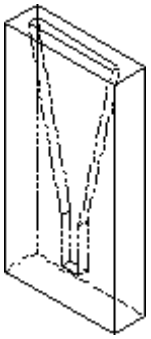


The EMC-709 is a micro cell holder for micro volume cells (approx. 50 µL or smaller). For use with rectangular micro cells with a path length up to 10 mm and a width of 2 mm, minimum.

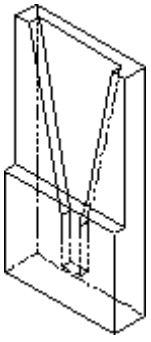
Compatible Cell	Light path length	10 mm
	Light path width	2 mm
	Bottom Thickness	2.5 mm or less
Recommended Cell (Optionally available)X	1103-0114A	50 µL Micro cell
	1103-0194A	5 µL Micro cell (Normal cell)
	1103-0201A	5 µL Micro cell (Single sided cell)
	6708-J046A	Spacer for 5 µL Micro cell



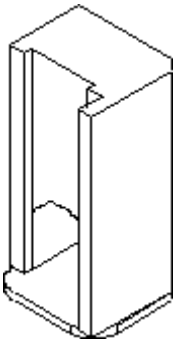
50 μL Micro cell
Light path length: 10 mm
Light path width: 2 mm
Sample Volume: 50 μLP/N: 1103 – 0114A
(Two sides are black quartz)



5 μL Micro cell（Normal type）
Light path length: 1 mm
Light path width: 2 mm
Sample Volume: 5 μLP/N: 1103 – 0194A

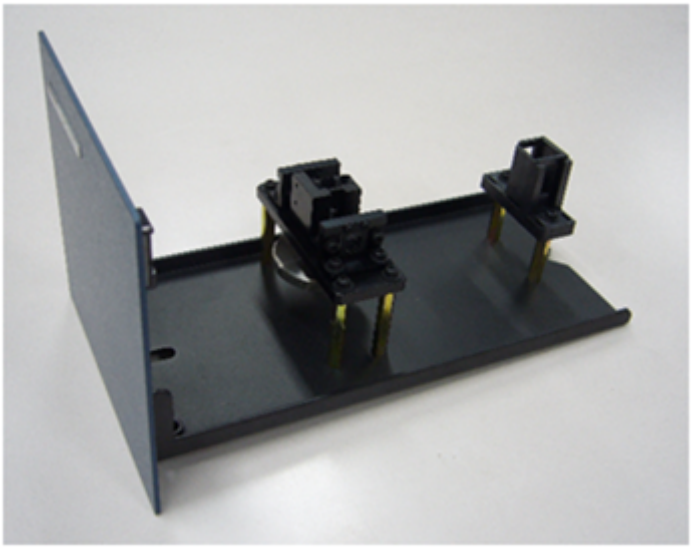


5 μL Micro cell（Single sided type）
Light path length: 1 mm
Light path width: 2 mm
Sample Volume: 5 μLP/N: 1103 – 0201A



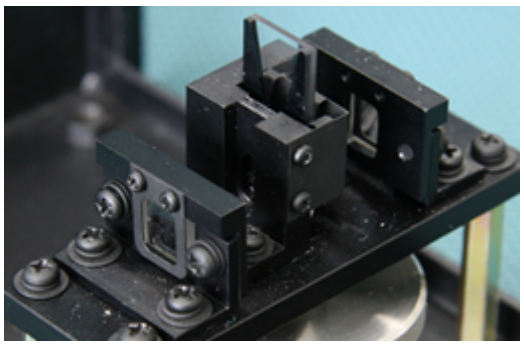
Spacer for 5 µL Micro cellAfter inserting a 5 µL Micro cell into the spacer, it is placed into the sample holder. P/N: 6708 – J046A

EMC-759 5 µL Ultra-Micro Cell Holder



The EMC-759 micro cell holder for micro volume cells (approx. 5 µL) can be used for minimal volume samples. Rectangular micro cells with a path length of 1 mm and a width of 2 mm are specified for use with this cell holder, using a lens to focus the light beam into the cell for precise low-volume measurements.

Compatible Cells	Light path length	1 mm
	Light path width	2 mm
	Bottom Thickness	3.5 mm or less
Recommended Cell (Optionally available)	1103-0194A	5 µL Micro cell (Normal cell)
	1103-0201A	5 µL Micro cell (Single sided cell)

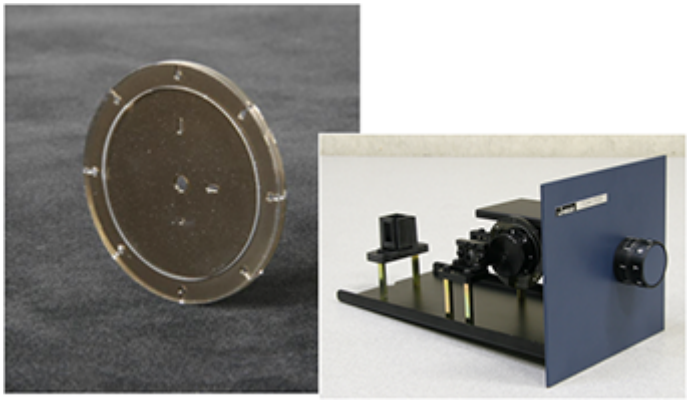


Due to the optical path the EMC-759 is designed only for use with the V-630 and V-730 UV-Vis instruments (incl. Bio models) For other V-series instruments, please select the EMC-709 cell holder.

5 µL Micro Cell (stepped type)

This micro-volume cell (5 µL volume) is designed so that a pipette tip can reach the cell bottom and sample recovery can be easily performed. The dedicated cell holder, model EMC-759, is required to use this cell and the light beam is condensed using a lens integrated into the cell holder. Optimum measurements are obtained by reducing the source beam energy losses due to diffraction.

TCH-703 8-Position Micro Turret Cell Holder Minimum Sample Volume: 4 µL



The TCH-703 turret cell holder is designed for use only with the V-630/V-730 (incl. Bio models). The turret cell holder contains a 'turret' with 8 micro cells of 1 mm pathlength with a minimum sample volume of 4 µL each. The cell position is manually selected with a guaranteed path length for reproducible results. An optimized optical system reduces source beam energy losses due to diffraction of the incident beam. This optical system provides reproducible measurement of dilute and micro samples. The turret can be removed for easy cleaning and loading of samples.

Film Holders

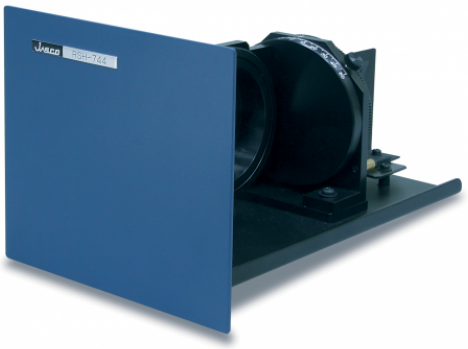
FLH-740 and FLH-741 | Film Holders

Measure the transmittance of solid, transparent samples such as films, plate glass, and filters. The FLH-740 includes leaf-springs for holding the sample and the FLH-741 includes a sliding clamp and mask for small area measurement.

	FLH-740	FLH-741
Minimum Sample Size	15(H) x 15(W) x 0.5(T) mm	5(H) x 5(W) x 0.5(T) mm
Maximum Sample Size	80(H) x 100(W) x 10(T) mm	80(H) x 100(W) x 25(T) mm

RSH-744 | Rotary Sample Holder

Used to measure a film (planar) sample, which can be rotated 360° with respect to the optical axis and the inclination/tilt of the sample versus the source beam can be varied within a range of ±50°.



	RSH-744
Minimum Sample Size	10(H) x 30(W) x 1(T) mm
Maximum Sample Size	18(H) x 38(W) x 2(T) mm

VTA-752 | Film Holder (Variable Incident Angle)

Used to measure transmittance of a film-like sample when the incident angle of the light beam is varied. This incident angle can be set in 1° increments with a rotation range of ±90°.

	VTA-752
Minimum Sample Size	15(H) x 35(W) x 1(t) mm
Maximum Sample Size	80(H) x 70(W) x 2(t) mm

Absolute Reflectance Measurement for V-700 Series UV-Visible and Near Infrared NIR Spectrophotometers

Absolute reflectance measurement is used to evaluate the spectral properties, film thickness, angular variation or other characteristics of samples such as semiconductors, thin films and optical elements.

The absolute reflectance measurement accessories are designed to measure the absolute reflectance of a specular reflecting sample (metals, semi conductors, display screens or other materials) while varying the incidence angle (all models). Several models are used to measure the transmittance of a sample (without diffuse transmittance). Absolute reflectance and transmittance are measured by rotating the sample stage to select an angle of incidence for the light to the sample and setting the detector to measure the reflected light or transmitted light.

Diffuse reflectance can also be measured by placing the sample at the rear of the integrating sphere with an incidence angle of 0º. Diffuse transmittance can be measured by placing the sample at the entrance of the integrating sphere with the incident angle set to 0º.

Effects of Polarization when Measuring Absolute Reflectance

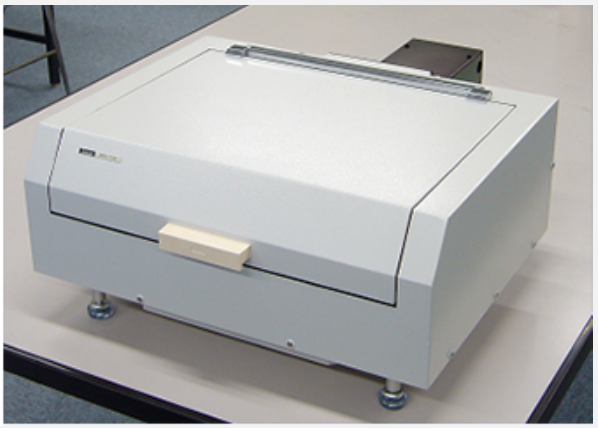
Light from a spectrophotometer that employs a grating is always polarized. The ratio of the intensities of the S and P polarized light varies according to the wavelength and also differs from one grating to another. Greater angles of incidence result in greater difference in the intensity of the S and P polarized light making measurement less accurate. If the absolute reflectance is measured at a high angle of incidence, a polarizer can be set to 45° to minimize the difference in polarization.

Overview of the Range of Absolute Reflectance Measurement Accessories

Manual Measurement

Reflectance Measurement Only

The incidence and collection angles are maintained at the same 'synchronous' angle by simultaneously rotating the sample stage and integrating sphere. The ARV-913, ARN-914 and ARN-915i are used to measure the absolute reflectance of a specular reflecting sample or the relative reflectance of a diffusely reflecting sample. Transmittance is measured using an optional solid sample holder. An integrating sphere is used with integrated detector(s). The angle of incidence of the sample is set by moving the integrating sphere (in the measurement of absolute reflectance). The angular range of the integrating sphere is 5°to 90°(angle of incidence). Relative reflectance is measured by placing a sample at the rear of the integrating sphere.



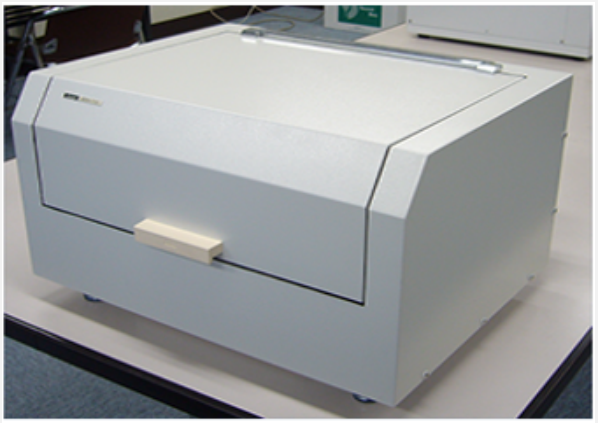
Reflectance and Transmittance Measurement

The incidence and collection angles can be set independently in asynchronous mode. The ARSV-916, ARSN-917 and ARSN-918i manual absolute reflectance measurement accessories measure the absolute reflectance of a reflective

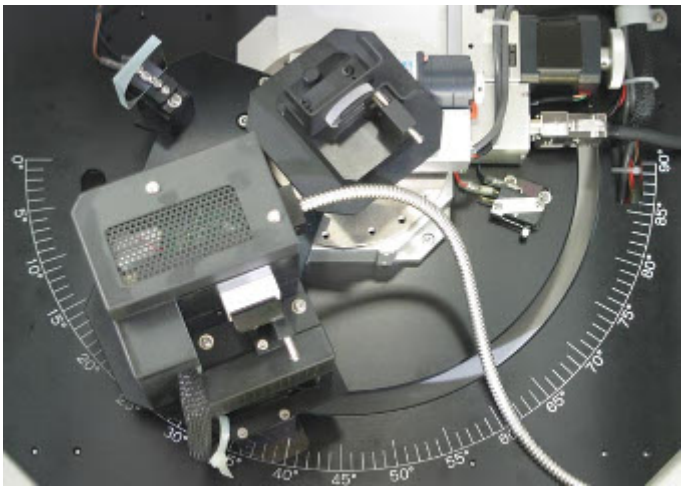
sample or transmittance of a clear sample that does not diffuse light. The detector(s) use an integrating sphere and can also measure the relative reflectance or transmittance of samples that diffuse light (the sample holder for relative reflectance is included, a sample holder for transmittance is optional). Absolute reflectance and transmittance are measured by rotating the sample stage to determine the angle of the light incident upon the sample and independently setting the detector angle for the reflected or transmitted light.

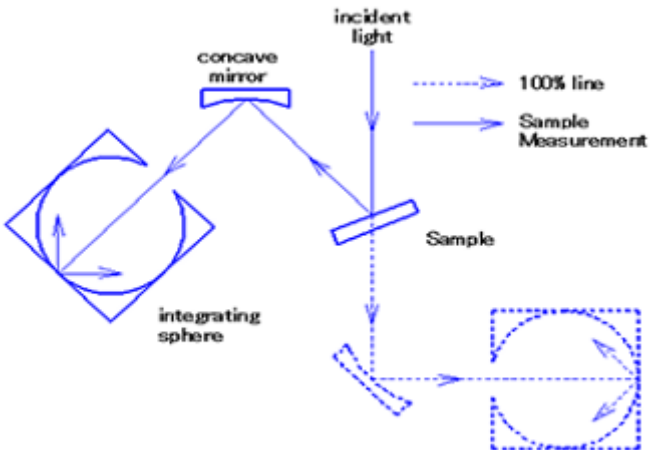
Automated Measurement
Reflectance and Transmittance Measurement

The incidence and collection angles are set independently in asynchronous mode.The ARMV-919, ARMN-920 and ARMN-921i absolute reflectance measurement systems automate the measurement. The incidence and collection angles can be set in a synchronous mode, by simultaneously rotating the sample stage and integrating sphere. Or the incidence and collection angles can be set independently in asynchronous mode. Using the integrated polarizer the polarization properties of a sample can also be measured using P or S polarization or by adjusting the angles of the polarizer.



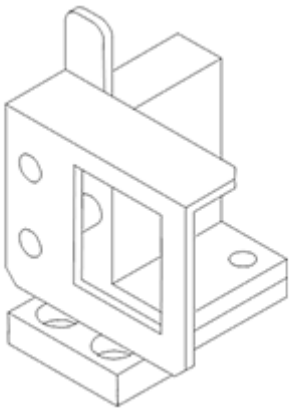
Absolute Reflectance Optical Layout





Absolute Reflectance Measurement Accessories

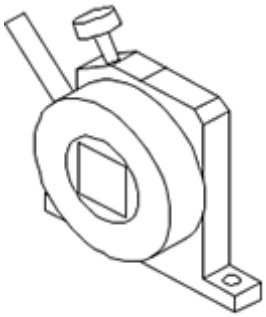
SSH-508 Solid Sample Holder



This attachment is used to measure the transmittance of a sample that diffuses light.

Sample Size
Min 30 mm (H) x 30 mm (W) x 0.5 mm (D)
Max 70 mm (H) x 80 mm (W) x 10 mm (D)

ARG-476/GPH-506 Polarizers



ARG-476

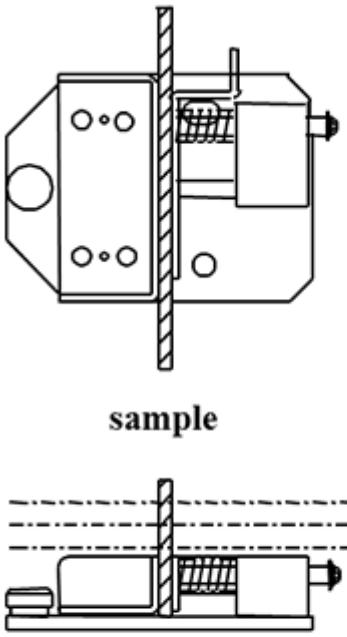
GPH-506

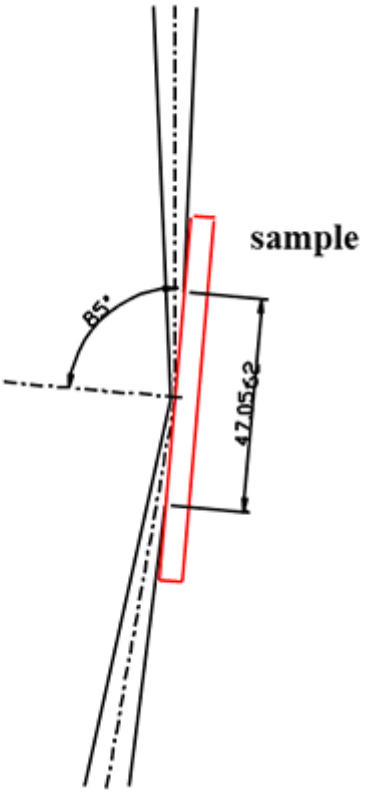
The ratio of the intensities of the S and P polarized light varies according to the wavelength. The greater the angle of incidence of the beam on the sample, the greater the difference in intensity of the S and P polarized light, making measurements less accurate. When the angle of incidence is 30° or greater, a polarizer (optional on the manual systems) is recommended for more accurate measurement .

Wavelength Range:	250-750 nm(Model ARV-913) 250-2000 nm(Model ARN-914) 250-1600 nm(Model ARN-915i)

Rotation of Plane of Polarization:	0°(linearly polarized light in vertical direction) to 90°(linearly polarized light in horizontal direction)

Wide Incident Angle Sample Holder (up to 85º)





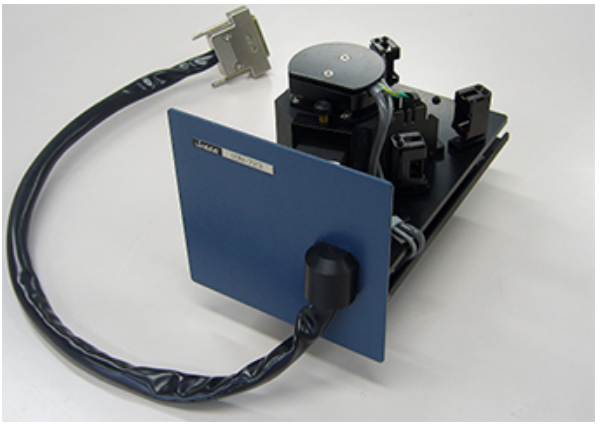
6708-H163A for manual type
6708-H460A for automated type
PDU-755 Phase difference measurement unit (Polarizer with measurement software)

Integrating Spheres for the V-700 Series of UV-Visible/NIR Spectrophotometers

Integrating spheres measure either the diffuse transmittance or reflectance of a liquid, solid or powder samples. Typically UV-Visible or UV-Visible/NIR spectrophotometers are used to measure the transmittance of a homogeneous, transparent liquid or solid sample. However, when the light is diffusely scattered by samples such as suspended liquid, opaque solid or powders only a small portion of the light reaches the detector. An integrating sphere captures most of the light from the sample offering a more representative measurement of the sample.

All JASCO Integrating spheres include built in detectors for optimal sensitivity – PMT for UV-visible, InGaAs up to 1600nm and PbS up to 2500nm.

60mm UV-Visible/NIR Integrating Spheres



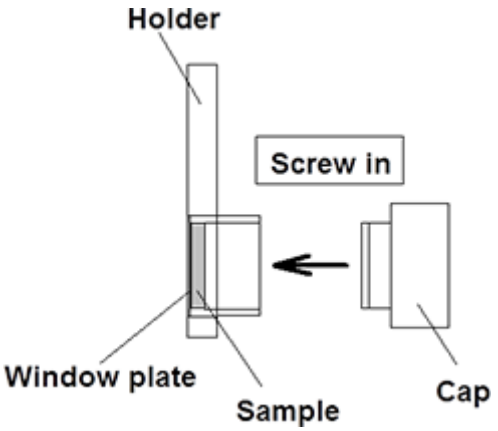
The 60 mm integrating spheres fit directly into the sample compartment. A 60 mm integrating sphere has a smaller surface area, resulting in an increased signal-to-noise ratio for sample measurements at smaller bandwidth settings. All 60 mm integrating spheres include a Spectralon reference tile and a specular reflectance exclusion sample holder. The 60 mm spheres have been designed with several different configurations to provide simple sampling methods for powders, solids and other scattering samples including gem stones.

FCH-002 Fluorescence Cut-Off Filter

A fluorescence cut-off filter provides accurate measurement of transmittance and reflectance of samples that fluoresce (commonly in the range 450 nm to 650 nm with excitation around 300 nm). This optional filter is permanently installed inside the sphere and must be ordered together with the integrating sphere.

PSH-001 Powder Sample Holder

This optional accessory is used to measure the reflectance of a powdered sample.



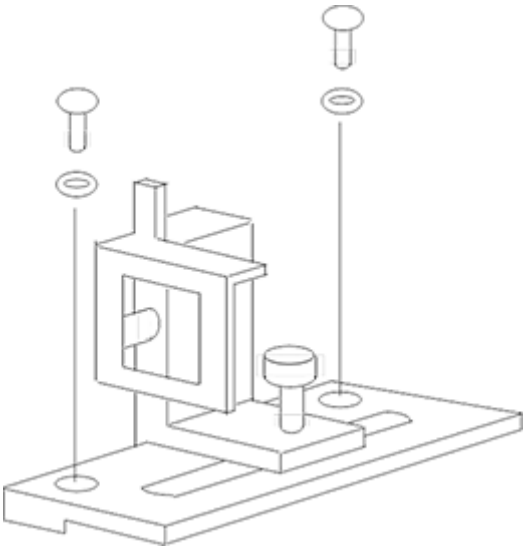
RLH-603 Reference-Side Rectangular Cell Holder

This optional cell holder is used with a rectangular cell on the reference side of the integrating sphere (as a reference for diffuse transmittance samples).

SSH-506 Solid Sample Holder (specific to 60 mm integrating spheres)

This sample holder is used to measure the transmittance of solid samples.

Sample size:
Minimum 20 mm (H) x 20 mm (W) x 0.5 mm (D)
Maximum 70 (H) x 40 (W) x 35 (D) mm

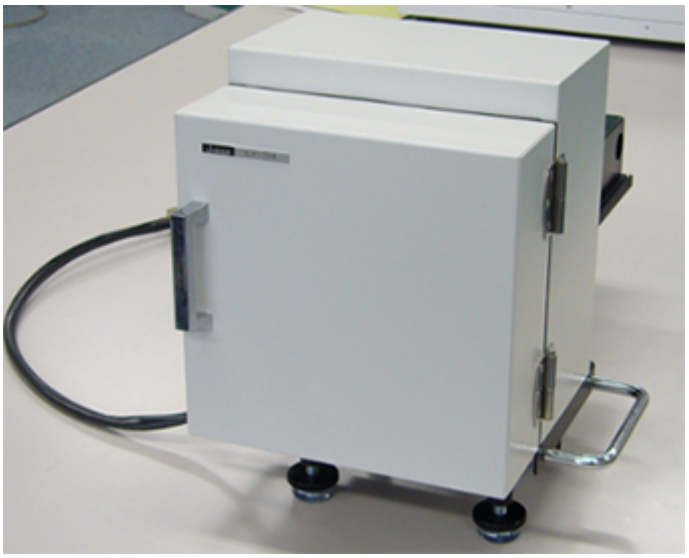


60 mm Integrating Sphere Specifications

Wavelength Range	200 to 870 nm (ISV-922) 200 to 2500 nm (ISN-923) 200 to 1600 nm (ISN-901i)
Typical Spectral Bandwidth	UV 5 nm NIR 20 nm
Sample Cell (Transmittance Measurement)	Light path length 5, 10, 20, 30, 50 mm rectangular cell (sample side)
Sample Size (Reflectance Measurement)	Minimum 20 mm (Height) x 20 mm (Width) x 0.5 mm (Thickness) Maximum 65 mm (Height) x 50 mm (Width) x 25 mm (Thickness)
Beam	Approx. 7 mm (Height) x 4 mm (Width) at the position of the transmittance sample (when spectral bandwidth is UV 5 nm and NIR 20 nm) Approx. 8 mm (Height) x 9 mm (Width) at the position of the reflectance sample (when spectral bandwidth is UV 5 nm and NIR 20 nm)
Inside Diameter of Integrating Sphere	60 mm
Interior of Integrating Sphere	Coated with barium sulfate
Detector	Photomultiplier tube (ISV-922/ISN-923/ISN-901i) PbS Detector (ISN-923) InGaAs Detector (ISN-901i)

150 mm UV-Visible and UV-Visible/NIR Integrating Spheres

The 150 mm integrating spheres include a larger sampling area with holders for larger samples and a light trap for including or excluding the specular component. Spectralon reference tiles are included. The 150 mm diameter is compliant to many international standards that require a larger surface area. Although the 150 mm sphere may have slightly lower signal-to-noise performance, the ratio of larger area vs. the openings for the incident light and sampling ports provides a greater measurement for reflectance experiments.



150mm Integrating Sphere Specifications

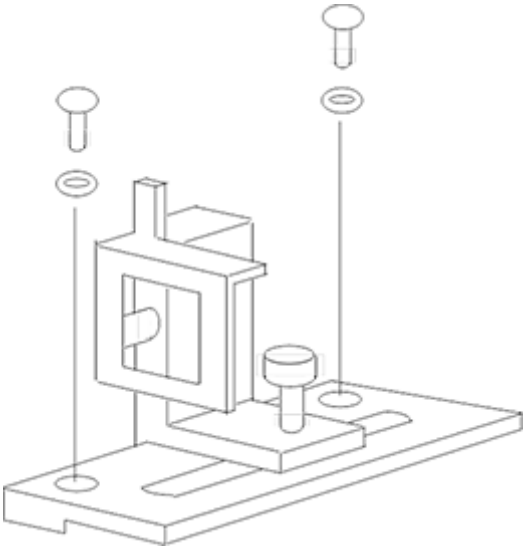
Wavelength Range	220 to 870 nm (Model ILV-924) 220 to 2200 nm (Model ILN-925) 220 to 1600 nm (Model ILN-902i)
Typical Spectral bandwidth	UV 5 nm NIR 20 nm
Sample Cell (Transmittance Measurement)	Light path length 5, 10, 20, 30, 50 mm rectangular cell (sample side)
Sample Size (Reflectance Measurement)	Minimum 20 mm (Height) x 20 mm (Width) x 0.5 mm (Thickness) Maximum 100 mm (Height) x 50 mm (Width) x 30 mm (Thickness)
Beam	Approx. 9 mm (Height) x 5.5 mm (Width) at the position of the transmittance sample (slitwidth: UV 5 nm and NIR 20 nm) Approx. 13 mm (Height) x 6 mm (Width) at the position of the reflectance sample (slitwidth: UV 5 nm and NIR 20 nm)
Inside Diameter of Integrating Sphere	150 mm
Interior of Integrating Sphere	Coated with barium sulfate

Detector	Photomultiplier tube (Model ILV-924/ILN-925/ILN-902i) PbS Detector (Model ILN-925) InGaAs Detector (Model ILN-902i)

SSH-507 Solid Sample Holder (specific to 150 mm integrating spheres)

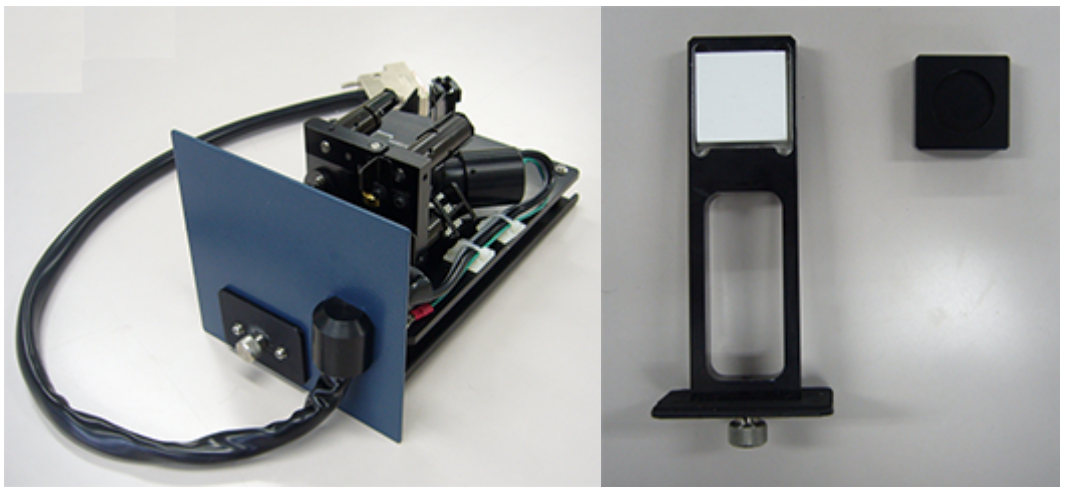
This sample holder is used to measure the transmittance of a solid sample.

Sample size:
Minimum 20 (H) x 20 (W) x 0.5 (D) mm
Maximum 70 (H) x 40 (W) x 35 (D) mm



Horizontal Integrating Spheres

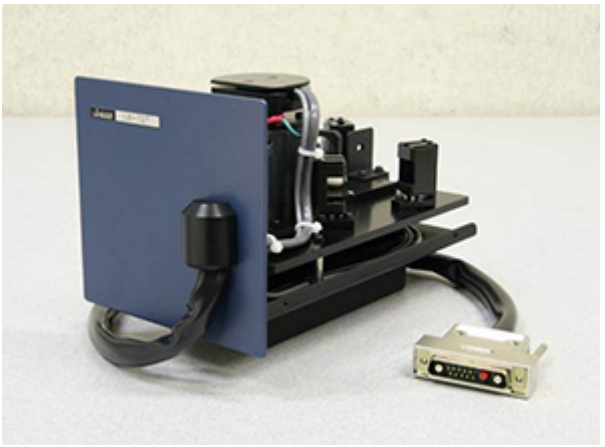
The PIV and PIN Integrating spheres are used for horizontal sampling and can mount the sample horizontally in a cup below the integrating sphere, ideal for powder samples. This integrating sphere can also be modified for measurement of smaller sample sizes using a lens above the sphere. Diffuse transmittance measurements are made by placing the sample on the upper surface of the integrating sphere.



Dedicated Gem 60mm Integrating Spheres

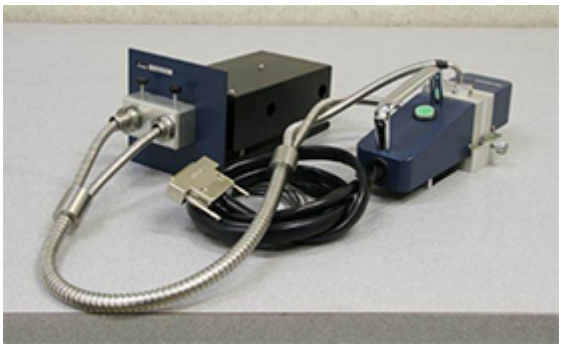
These integrating spheres are used to measure small samples such as gemstones. The accessory is based on the standard 60mm integrating sphere with a ‘mask’ to provide a smaller illuminated area for reflectance samples. Special

small sample holders are provided for mounting gemstones, pearls and other gems in rings and other jewelry.



Portable Integrating Spheres

This integrating sphere uses an optical fiber for the remote measurement of reflection of a variety of solid samples, such as pastes, cloths and food products.



Portable Integrating Sphere Specifications

Wavelength Range	250 to 800 nm (HISV-728) 200 to 2500 nm (HISN-729)
Typical Spectral bandwidth	UV 10 nm NIR 20 nm
Sample Size	Minimum 30 mm (Height) x 30 mm (Width)
Inside Diameter of Integrating Sphere	60 mm
Interior of Integrating Sphere	Coated with barium sulfate

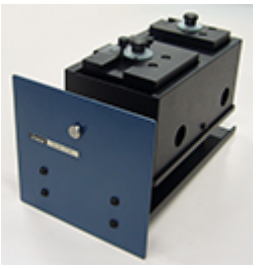
Detector	Photomultiplier tube (HISV-728/HISN-729) PbS detectorl (HISN-729)	

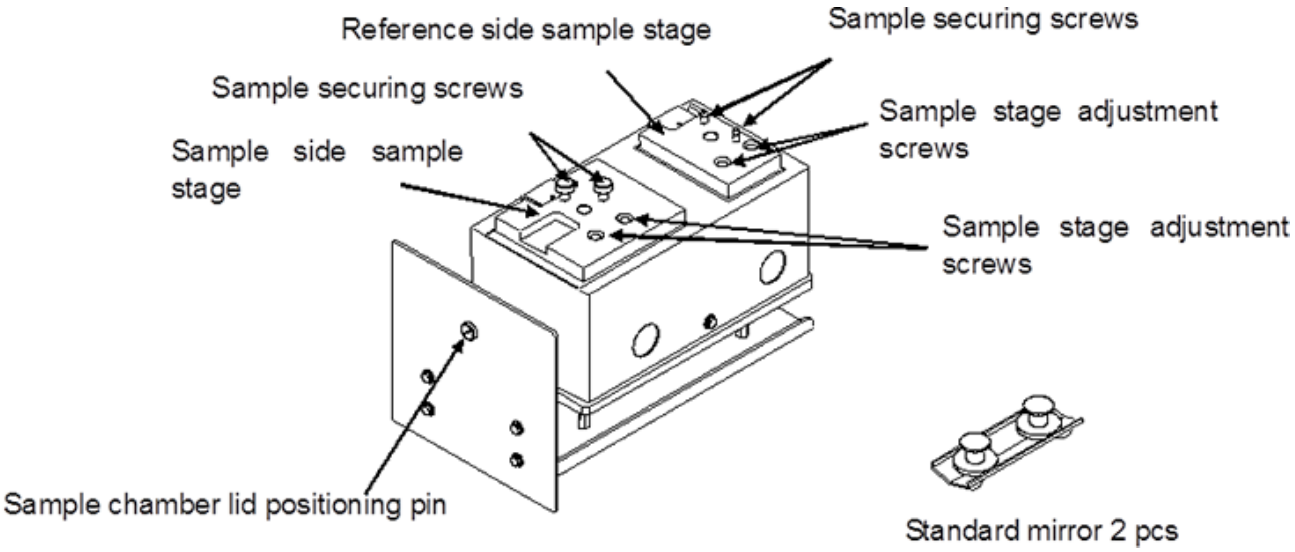
Specular Reflectance Accessories

For V-700 Series UV-visible/NIR Spectrophotometers

Specular Reflectance Accessory

The SLM-907 specular reflectance accessory measures the relative reflectance of a sample in comparison with the light reflected from an aluminum-deposited reference plane mirror. It is typically used for the reflectance measurement of sample types such as: metal-deposited films, metal plating, and other thin films. Film thickness can be calculated using the film thickness analysis program in Spectra Manager.





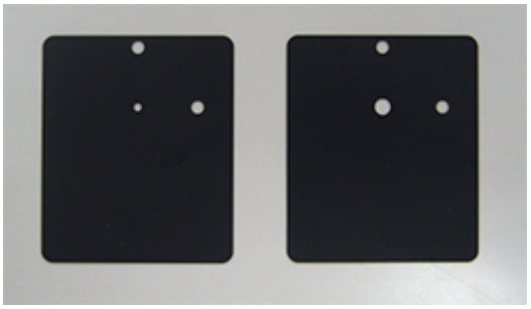
Specifications

Wavelength Range	250 to 1000 nm (V-730 UV-visible) 200 to 900 nm (V-750/760 UV-visible) 200 to 2700 nm (V-770 UV-visible/NIR) 200 to 1600 nm (V-780 UV-visible/NIR)
Sample Size	Sample Minimum 10 x 10 mm Maximum 100 x 120 mm Reference Minimum 10 x 10 mm Maximum 20 x 20 mm
Beam Port Diameter	7 mm (4 mm, 2 mm as option)
Angle of Incidence	Approx. 5° (standard) other angles available on request.
Reflection Reference	Aluminum-deposited plane mirror (Standard mirror)

Optional Accessories:

- Polarizer (GPH-506)
- Application program (film thickness calculation program, etc.)

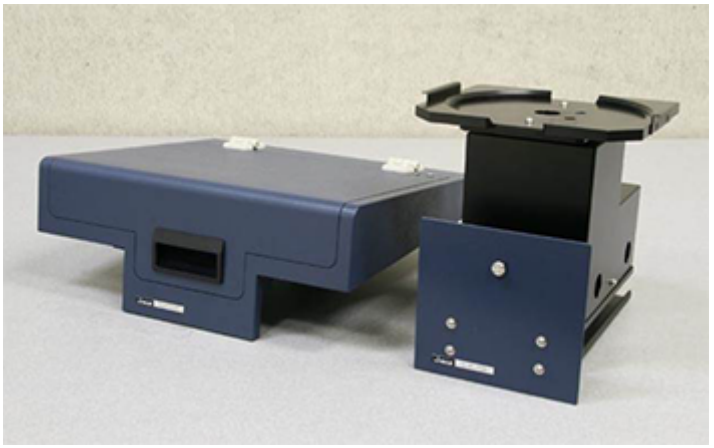
- Sample stage with 2-mm-dia. port
- Sample stage with 4-mm-dia. port



MSK-001 Sample Stage with 2-mm-dia. Port
MSK-002 Sample Stage with 4-mm-dia. Port

MSK-001 Sample Stage with 2-mm-dia.port		MSK-002 Sample stage with 4-mm-dia.port	
Diameter of Port:	2mm	Diameter of port:	4mm
Sample Size:	Minimum 3x3 mm	Sample size:	Minimum 5x5 mm
	Maximum 50x50 mm		Maximum 50x50 mm

SLM-908 Accessory for 6-inch Silicon Wafers (V-750/760/770/780)



Optical Fibers and External Source Interfaces

FAP-927 | Optical Fiber Interface

Used for remote or external sample measurements using the internal detector of the spectrophotometer.

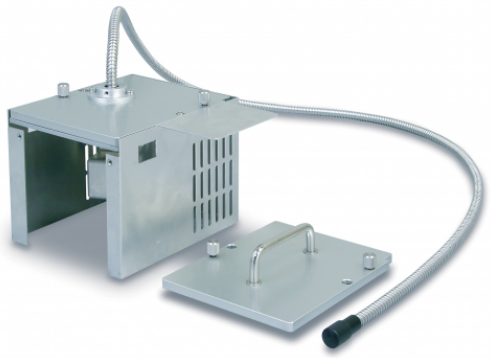
Note: Optical fibers and optical fiber port must be selected separately.

ELM-912 | External Light Source Interface

This interface introduces light from an external light source to the spectrophotometer. Used for the spectral/intensity evaluation of external light sources.

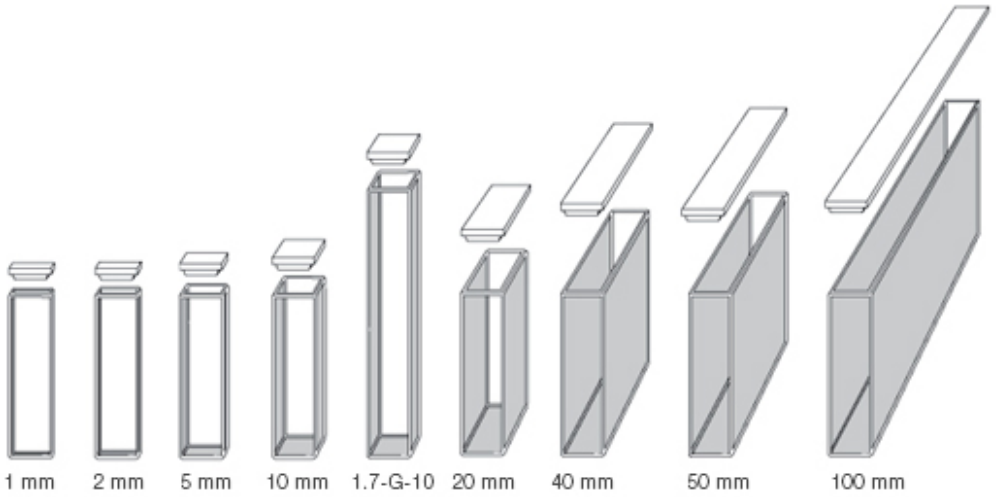
**For correction of a measured spectrum a calibrated reference light source is required.*

**The optical fiber is optional.*



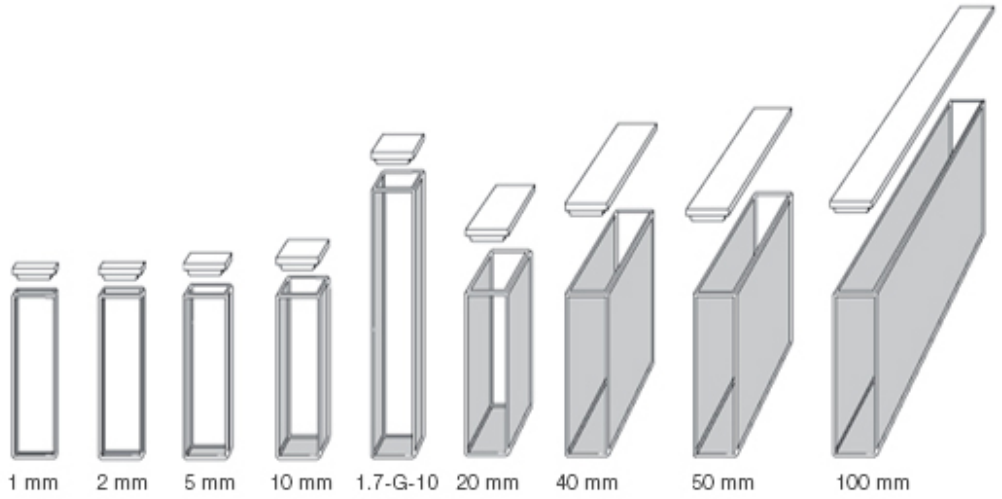
Cuvettes & Standards

Part Number	Description
1103-0181	Rectangular glass cell 10 x 1 Special optical glass with lid 320 -2500 nm
1103-0182	Rectangular glass cell 10 x 2 Special optical glass with lid 320 -2500 nm
1103-0105	Rectangular glass cell 10 x 5 Special optical glass with lid 320 -2500 nm
1103-0104	Rectangular glass cell 10 x 10 Special optical glass with lid 320 -2500 nm
1103-0103	Rectangular glass cell 10 x 20 Special optical glass with lid 320 -2500 nm
1103-0102	Rectangular glass cell 10 x 50 Special optical glass with lid 320 -2500 nm
1103-0101	Rectangular glass cell 10 x 100 Special optical glass with lid 320 -2500 nm

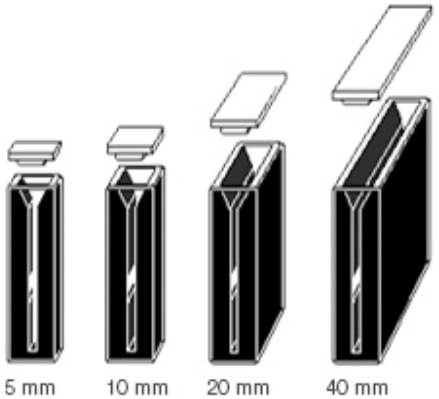


Part Number	Description
1103-0172	Rectangular quartz cell 10 x 1 Spectrosil Quartz with lid 190 -2700 nm
1103-0173	Rectangular quartz cell 10 x 2 Spectrosil Quartz with lid 190 -2700 nm
1103-0009	Rectangular quartz cell 10 x 5 Spectrosil Quartz with lid 190 -2700 nm
1103-0019	Rectangular quartz cell 10 x 10 Spectrosil Quartz with lid 190 -2700 nm
1103-0003	Rectangular quartz cell 10 x 20 Spectrosil Quartz with lid 190 -2700 nm
1103-0035	Rectangular quartz cell 10 x 50 Spectrosil Quartz with lid 190 -2700 nm

Part Number	Description
1103-0042	Rectangular quartz cell 10 x 100 Spectrosil Quartz with lid 190 -2700 nm



Part Number	Description
1103-0025	Micro rectangular quartz cell 2 x 5 Spectrosil Quartz with lid 190 -2700 nm
1103-0037	Micro rectangular quartz cell 2 x 10 Spectrosil Quartz with lid 190 -2700 nm
1103-0030	Semi-micro rectangular quartz cell 4 x 10 Spectrosil Quartz with lid 190 -2700 nm
1103-0032	Micro rectangular quartz black cell 2 x 10 Spectrosil Quartz with lid 190 -2700 nm
1103-0043	Semi-micro rectangular quartz black cell 4 x 10 Spectrosil Quartz with lid 190 -2700 nm
1103-W013	Micro rectangular glass cell 2 x 5 Special optical glass with lid 320 -2500 nm
1106-0015	Micro short rectangular quartz black cell 2 x 10 Spectrosil Quartz with lid 190 -2700 nm



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