Флуориметры FP
Технические характеристики

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Россия +7(495)268-04-70
Киргизия +996(312)-96-26-47
Казахстан +7(7172)727-132

jos@nt-rt.ru || https://jasco.nt-rt.ru/

FP-8050 Series Fluorometers

A range of fluorometers with aberration free optical system incorporating a high intensity continuous xenon source for unsurpassed sensitivity.

FP-8050 Series Fluorometers

The FP-8050 Series of spectrofluorometers includes four different instruments that provide solutions for the broadest range of applications including QC, biomolecular structural studies, environmental monitoring and advanced materials science. The FP-8050 Series has many flexible options for academic or industrial research, teaching, or use in quality control labs. Users can have the greatest confidence in their measurements, with an optical bench specifically designed for the highest sensitivity, widest dynamic range, and exceptional spectral purity with automatic cut-off filters to exclude higher order diffraction.

FP-8350 and FP-8550 Fluorescence Spectrophotometers

The FP-8050 Series combines a compact design with the largest range of accessories together with Spectra Manager™ Suite, a comprehensive data platform that gives you complete control over measurement, analysis and data archiving. In addition to the standard analysis programs, JASCO has developed many different applications software for dedicated sample measurement.

Advanced Features of the FP-8050 Series

- High-throughput optical system
- Highest S/N performance
- Wide dynamic range (up to 7 orders of magnitude*)
- Auto Gain and Auto Sensitivity Control System
- Automatic cut-off filters for higher-order diffraction
- Advanced digital signal processing
- High speed scanning
- Spectral bandwidth down to 1 nm

Extensive Breadth of Features and Accessories

- Compact benchtop footprint
- Precision temperature control accessories for liquids and solids
- Polarizers allow for automatic anisotropy measurements
- Integrating spheres for Quantum Yield Determination
- Microplate Reader for rapid sample throughput
- Microsampling accessories for small volume samples
- Stopped-flow systems for monitoring fast kinetics
- Spectra Manager™ software for control and data analysis
- Flexible design for expanding capabilities as needs evolve

Versatility for a Wide Range of Applications

- Protein dynamics
- Quantitative analysis
- Cellular membrane studies
- Enzyme kinetics
- Water quality monitoring
- Quantum dot and probe design
- Carbon nanostructures and 2D materials
- Fluorescent tracking materials

- Short lifetime phosphorescence and PHOLEDs

*Linearity for the FP-8550

Fluorescence Spectrophotometers

Simple and sensitive system which readily accommodates routine measurements and accessories, such as spectral scanning, quantitation, and temperature control.

FP-8250 Spectrofluorometer

A powerful combination of performance, sensitivity and flexibility for biological, environmental and materials analysis.

FP-8350 Spectrofluorometer

Sophisticated optical system offering the ultimate in sensitivity, spectral accuracy, and flexibility for the most challenging materials and biological samples.

FP-8550 Spectrofluorometer

Uniquely optimized for NIR applications with extended wavelength measurement to 1010 nm.

FP-8650 NIR Spectrofluorometer

FP-8250 Spectrofluorometer

The FP-8250 is a user-friendly, general-purpose instrument that allows for measurement with a quick press of a start button on top of the instrument. The simplified, yet sensitive design includes everything that is required for routine fluorescence measurements in a quality-control or teaching lab. The standard Auto-Sensitivity Control System (Auto-SCS) and Auto-Gain features enable measurement over a wide range of concentrations using a single calibration method. The Spectra Manager™ Suite of spectroscopy software offers full system control, with easy-to-use tools for data processing and analysis.

FP-8250 Spectrofluorometer

Features

- High sensitivity S/N > 4,500 (RMS)
- Dynamic range up to six digits
- High speed scanning up to 20,000 nm/min
- Wavelength range: 200 to 750 nm

FP-8350 Spectrofluorometer

Sophisticated optical system with additional features for the broadest range of applications

The FP-8350 is an extremely sensitive spectrofluorometer that can be used in the broadest range of applications: biological, environmental, teaching labs, and core facilities. Many features make this a simple-to-use instrument; automatic cut-off filters (included as standard) eliminate peaks due to second-order scatter, giving more confidence in artifact-free spectral measurement. Auto-Gain and Auto-SCS optimize the S/N for samples with large differences in concentration and fluorescence intensity, offering a wide dynamic range. This reduces the need for manual intervention of adjusting spectral band and sensitivity settings for on-scale measurement.

FP-8350 Spectrofluorometer

Single and multi-cell Peltier accessories provide exceptional temperature control for thermal studies such as molecular conformation and folding.

Automated broad wavelength polarizers can be used for a range of experiments including anisotropy for investigation of binding events. Rapid-kinetics and titration measurements can be automated with fully integrated stopped-flow and auto-titrator units. Solid samples can be measured with dedicated holders for powders, films, etc.

Features

- High sensitivity S/N 8000:1 typical
- High resolution with SBW to 1.0 nm
- Wavelength range: 200 to 750 nm (900 nm optional)

FP-8550 Spectrofluorometer Optimized for Research Measurements in the UV-visible Region

The FP-8550 has the highest sensitivity and optimal spectral accuracy with a wide range of accessories for maximum flexibility in experimental design.

A High Performance Spectrofluorometer

The FP-8550 has been designed for demanding research applications and has the same functionality and advantages of the FP-8350, but also includes an optimized optical design for very low stray-light and enhanced spectral purity. Combined with the most thorough spectral correction, material engineers and researchers are assured of accurate measurements for the evaluation of advanced materials. The FP-8550 performs with the highest sensitivity* for fast measurement of samples with low level fluorescence, whether they are challenging biochemical systems or low quantum efficiency materials. High-speed scanning of phosphorescent samples and 3D spectra enable fast acquisition of high-quality, high-density data.

FP-8550 Spectrofluorometer

The FP-8550 optical bench has been developed to take advantage of the wide range of sampling accessories and applications, such as temperature-dependent melting and kinetics, anisotropy, FRET, spectral correction, and quantum yields.

Features

- High intensity continuous output Xenon arc lamp
- Energy monitoring of the excitation energy for stability
- Shutter to protect samples until measurement
- Automatic Stray light rejection filters
- *High sensitivity S/N 8500:1 (RMS, water Raman)
- High-speed scanning up to 60,000 nm/min
- Wavelength range: 200 to 850 nm
- Validation accessory (standard)

Measurement Accessories

- Automatic polarizers
- Temperature control
- Stopped flow
- Integrating spheres
- Micro-plate Reader

FP-8650 NIR Spectrofluorometer

For extended wavelength operation into the near infrared.

FP-8650 NIR Spectrofluorometer

The FP-8650 spectrofluorometer uses a uniquely red-sensitive PMT that extends the measurement range from the UV-Visible to the near infrared. Providing excitation wavelengths from 200 to 850 nm and emission detection up to 980nm (1010 nm option). Samples such as carbon nanotubes, porphyrins and other NIR markers can easily be measured. It is especially well-suited for monitoring NIR-labeled biologicals far away from background auto-fluorescence The compact instrument design incorporates high-speed scanning and automatic cut-off filters to exclude higher-order diffraction for fast, accurate acquisition of single spectra and EEMs (Excitation-Emission-Matrices).

FP-8650 Spectrofluorometer

Features

- High sensitivity S/N is 3500:1 (RMS)
- Many options include, solid sampling, spectral correction and quantum yield with ambient and LN_2 cooled integrating spheres
- High-speed scanning up to 120,000 nm/min Emission
- Wavelength range: 200 to 1010 nm Emission (up to 850 nm, Excitation)
- Validation included

Fluorescence Spectrometers Specifications

Spectrometer Specification

Model	FP-8250	FP-8350	FP-8550	FP-8650
Light Source	Continuous output Xe arc lamp with shielded lamp housing (150 W) Lifetime 3000 hours			
Light Source (for validation)	Integrated, selectable low pressure mercury lamp			
Photometric System	Ratio-photometer system using monochromatic light to monitor the intensity output of the Xe lamp			
Monochromator	Holographic concave grating in modified Rowland mount			
Wavelength Range (with Standard Detector)				
Ex	Zero order, 200 - 750 nm	Zero order, 200 - 750 nm	Zero order, 200 - 850 nm	Zero order, 200 - 850 nm
Em				Zero order, 200 - 980nm
Wavelength Range (Optional)		200 - 900nm		200 - 1010nm
Automatic Cut Filters for High Order Diffraction	Option		Standard	
Sensitivity [*1] **(RMS)**				
Base [*2]	4,500 : 1	8,000 : 1	8,500 : 1	3,500 : 1
Band Width				
Ex	2.5, 5, 10, 20 nm	1, 2.5, 5, 10, 20 nm	1, 2.5, 5, 10, 20, L5, L10 nm	1, 2.5, 5, 10, 20, L5, L10 nm
Em				2.5, 10, 20, 40, L10, L20 nm
Wavelength Accuracy				
Ex	±2.0 nm	±1.5 nm	±1.0 nm	±1.0 nm
Em				±2.0 nm
Wavelength Scan Speed				
Ex	20, 50, 100, 200, 500, 1,000, 2,000, 5,000,		10, 20, 50, 100, 200, 500, 1,000, 2,000, 5,000, 10,000, 20,000,	10, 20, 50, 100, 200, 500, 1,000, 2,000, 5,000, 10,000, 20,000, 60,000 nm/min

Model	FP-8250	FP-8350	FP-8550	FP-8650
Em	10,000, 20,000 nm/min		60,000 nm/min	20, 50, 100, 200, 500, 1,000, 2,000, 5,000, 10,000, 20,000, 60,000, 120,000 nm/min
Detector	Ex: Silicon photodiode, Em: PMT			
Auto Gain	Standard			
Shutter Function	Standard (Automatic control)			
Sample Illuminating System	Horizontal illumination			
Sample Compartment	10 mm rectangular cell holder, nitrogen purgeable			
Accessory Recognition	Standard			
Start Button	Standard			
Analog Output	Standard			
Instrument Communication	USB 2.0			
Control and Data Processing	Spectra Manager™/CFR, iRM		Spectra Manager™/CFR	
Spectral Correction	Option		Standard (Spectral correction using a Rhodamine B ethylene glycol solution is standard; other jigs for spectral correction are available separately as options.)	
Dimensions	520(W) × 545(D) × 270(H) mm		570(W) × 545(D) × 270(H) mm	
Weight	36 kg (79 lbs)		39 kg (86 lbs)	
Power Requirement	270VA			
Installation Environment	Temperature: 15 to 35°C, Humidity: Less than 85%			

*1 : Minimum Signal-to-Noise ratio of Raman band of water, excitation 350 nm, band width Ex 5 nm Em 5 nm (FP-8650: Ex 5 nm Em 10 nm), response 2 seconds.
*2 : Noise is measured on the baseline.

Software Specification

A wide range of software applications and accessories can be used with Spectra Manager™ Suite.

Model	FP-8250	FP-8350	FP-8550	FP-8650

Model	FP-8250	FP-8350	FP-8550	FP-8650
Data Station Type	Spectra Manager™/Spectra Manager™ CFR (Microsoft Windows® 10 Professional or Enterprise)			
iRM Type	Handheld Intelligent Remote Module iRM-900		Not Used	
Measurement Programs				
Spectra Manager™	Spectra measurement, Quantitative measurement, Fixed wavelength measurement, Time course measurement, 3D Spectra measurement, Absorbance measurement		Spectra measurement, Quantitative measurement, Fixed wavelength measurement, Time course measurement, 3D Spectra measurement, Absorbance measurement, Phosphorescence measurement	
Spectra Manager™ CFR *4				
iRM-900 *5	Spectra measurement, Quantitative measurement, Fixed wavelength measurement, Time course measurement, 3D Spectra measurement, Absorbance measurement		Not Used	
Spectra Correction Program	Standard *6		Standard	
Daily Check	Standard			
Instrument Validation	Program and Hg lamp (Standard), Accessories (option)		Program and Hg lamp (Standard), Accessories (Standard)	
Self Diagnosis	Standard			
IQ Accessory Recognition and IQ Start	Standard			

*4 : Spectra Manager™ CFR is the 21 CFR Part 11 compliant software package.
*5 : The iRM-900 handheld control module can be used with any PictBridge compatible printer.
*6 : Optional components are necessary.
Specifications are subject to change without notice.

Fluorescence Temperature Control

Cell holders for the FP-8050 Series

Fluorescence Temperature Control

Single Position Cell Holders

EHC-113 | Peltier Thermostatted (Air-Cooled) Cell Holder with Stirrer
The EHC-813 cell holder is an air-cooled accessory for temperature control (without the need for a water circulator) to vary the sample temperature between 10 to 60ºC at 25ºC. The cell holder includes a stirrer for uniform cell temperature and can be used with microcells (3 x 3 mm or 5 x 5 mm) as well as standard 10 x 10 mm path length cells.

EHC-113 Air-cooled Peltier Thermostatted Cell Holder with Stirrer

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ETC-115 | Peltier Thermostatted (Water-Cooled) Cell Holder with Stirrer
Used with a temperature controlled circulating water bath (not supplied) to vary the sample temperature from -10 to 110ºC. The temperature of the sample can be monitored in the holder or by inserting a temperature probe into the sample cuvette and a magnetic stirrer is included to maintain temperature equilibrium in the cell. The cell holder can be used with microcells (3 x 3 mm or 5 x 5 mm) as well as standard 10 x 10 mm path length cells.

ETC-115 Peltier Thermostatted Single Cell Holder with Stirrer

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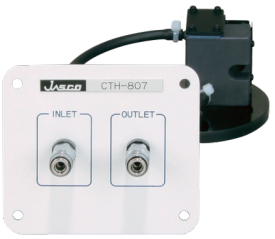
STR-112 | Water Thermostatted Cell Holders
Used with a temperature controlled circulating water bath (not supplied) to maintain a constant sample temperature from 5 to 90ºC. A magnetic stirrer is included to maintain temperature equilibrium in the cell. Can be used with microcells (3 x 3 mm or 5 x 5 mm) as well as standard 10 x 10 mm path length cells.

STR-112 Water Thermostatted Cell Holder

CTH-107 | Water Thermostatted Cell Holder
A simple water circulated cell holder for 10 x 10 mm cuvettes. A thermostatted circulator is required.



CTH-107 Water Thermostatted Cell Holder

Multi-Position Cell Changers

FCT-116/116S | Water Thermostatted Automatic 4-Position Turret Cell Changers
FCT-117/FCT-117(S) | Water Thermostatted Automatic 8-Position Turret Cell Changers
Automatic 4- and 8- position cell changers. Used with a temperature controlled circulating water bath (not supplied) to maintain a constant sample temperature from 5 to 90ºC. A magnetic stirrer is included in the 'S' type to maintain temperature equilibrium in the cell. The cell holder accepts microcells (3 x 3 mm or 5 x 5 mm) as well as standard 10 x 10 mm path length cells.

FCT-116S Water Thermostatted Automatic 4-Position Turret Cell Changer

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PTC-118 | Peltier Thermostatted (Water-Cooled) 4-Position Automatic Cell Changer with Stirrer
Used with a temperature controlled circulating water bath (not supplied) to vary the sample temperature from -10 to 110ºC. The temperature of the sample can be monitored by the holder or by inserting a temperature probe into the sample solution and a magnetic stirrer can be included to maintain temperature equilibrium in the cell. The cell holder accommodates microcells (3 x 3 mm or 5 x 5 mm) as well as standard 10 x 10 mm path length cells. For use with the FP-8350, 8550, or 8650.

PTC-118 Water-cooled Peltier Thermostatted 4-Position Automatic Cell Changer

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Other Temperature Control Accessories

CSP-129 | Sample Compartment Lid with Syringe Port
For fast reactions the addition of a reagent can be made into to the sample cell without opening and closing the sample compartment lid. It is recommended for use with cell holders that include an integrated stirrer, such as the STR-112, EHC-113, or ETC-115 cell holders and is compatible with a 2 inch (50 mm) syringe needle.

CSP-129 Sample Compartment Lid

MCB-100 | Mini Water Circulation Bath
Small (160W x 263H x 225D mm) circulation bath (reservoir volume 200 mL). Maintains a constant temperature from ambient temperature – 10ºC to 40ºC (with a temperature sensor accuracy of 0.2ºC at 20ºC).

MCB-100 Mini

Water Circulation Bath

HPC-136 | High Temperature Powder Cell Unit
Used to measure the effects of temperature variation on the powder sample fluorescence intensity. Temperature control ranges from room temperature to 300°C.

HPC-136 High Temperature Powder Cell Unit

CSH-131 | Cyrostat Holder
Used with Oxford Instrument's Optistat-DN/DN2/DN-V/DN-V2 cyrostats for low temperature sample measurement.

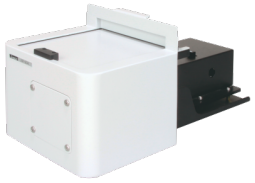
CSH-131 Cyrostat Holder

FP-8000 Series - Integrating Spheres & Fluorescence Quantum Yield

Fluorescence Quantum Yield

Fluorescence Quantum Yield measurements provide information about the efficiency of a molecule's fluorescence and is defined as the ratio of the number of photons absorbed to the number of photons emitted by a sample. Different molecular and environmental conditions not only effect whether a molecule will fluoresce or not, but can also determine the intensity of the emitted fluorescence radiation. Fluorescence quantum yield is measured using an integrating sphere to ensure that all sample fluorescence is collected.

ISF-134 | 60 mm Integrating Sphere
For quantum efficiency and color evaluation measurements of opaque solid or powder samples.



ISF-134 60 mm dia. Integrating Sphere

ILF-135 | 120 mm Integrating Sphere
For quantum efficiency measurements of liquids or thin membrane samples on a transparent substrate as well as opaque solid or powder samples.

ILF-135 120 mm dia. Integrating Sphere

ILFC-147 | Liquid N_2 Cooled 120 mm Integrating Sphere
Cools samples with liquid nitrogen for fluorescence quantum yield and phosphorescence lifetime measurements. It can also be used at ambient temperatures without liquid nitrogen.

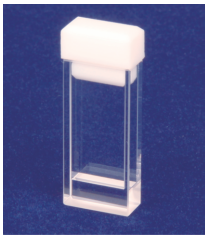
ILFC-147 Liquid N2 Cooled 120 mm dia. Integrating Sphere

Specifications

Model	IFS-134	ILF-135	ILFC-147
Inner Diameter	60 mm	120 mm	120 mm

Model	IFS-134	ILF-135	ILFC-147
Min. Sample Size	20 (H) x 20 (W) x 0.5 (T) mm	20 (H) x 10 (W) x 0.5 (T) mm	20 (H) x 10 (W) x 0.5 (T) mm
Max. Sample Size	60 (H) x 50 (W) x 25 (T) mm	30 (H) x 20 (W) x 6 (T) mm	30 (H) x 20 (W) x 6 (T) mm
Cells	PSH-004 (Std), PSH-002, PSH-003 PSH-005 (optional)	1, 2 mm Liquid cell, 3 mm powder cell, 10 mm rectangular cell, KBr plate sample holder	1, 2 mm Liquid cell, 3 mm powder cell, 10 mm rectangular cell, KBr plate sample holder, LPH-140, PPH-150, CPH-160
Optional Spectral Correction Accessories		ESC-842, ESC 843	

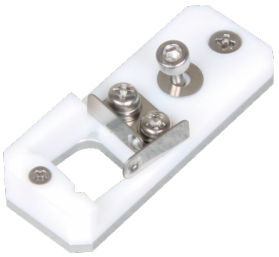
Cells and Cell Holders for Integrating Spheres



1 mm Liquid Cell
1 x 10 mm path length, 200 µL sample volume

2 mm Liquid Cell
2 x 10 mm path length, 400 µL sample volume

3 mm Powder Cell
19 (H) x 10 (W) x 3 (T) mm



10 mm Rectangular Cell Holder
Used to mount a 10 x 10 mm rectangular cell inside the ILF-835/ILFC-847 integrating spheres.

KBr Plate Sample Holder
Used to sandwich a powder sample between two KBr plates (5 × 5 × 1 mm). The KBr sample holder can also be used for micro FTIR measurements.

Fluorescence Anisotropy and Polarization Measurement

Fluorescence Anisotropy and Polarization Measurement

Fluorescence anisotropy occurs when a fluorophore emits different intensities of light dependent on the polarization angle of the incident light. Anisotropy can be used to probe the structural flexibility of a fluorophore, which cannot be obtained by fluorescence spectroscopy alone.

FDP-837 | Automatic Polarizers

The FDP-837 is used to automatically measure fluorescence anisotropy and the degree of polarization using two wide spectral range polarizers mounted in the excitation and emission paths in the sample compartment. Wavelength range: 220-700 nm

FDP-837 *Automatic Polarizers (for FP-8350/8550/8650)*

FDP-223/FDP-243 | Manual Polarizers

The two manually adjustable polarizers can be used to measure anisotropy in the UV-Visible (FDP-223) and Visible only (FDP-423) ranges.

FDP-223

FSP-838 | Depolarizer

For solid-state and viscous samples with polarization characteristics, the depolarization plate is a filter that can be used to depolarize the excitation light.

FSP-838

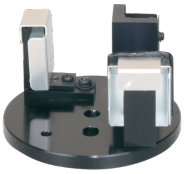
Sample Holders for Ambient Fluorescence Measurement

FUV-103 | Absorbance Measurement Cell Holder
Measure the absorbance or transmittance of a solution sample in a 10-mm rectangular cell.

FUV-103 Absorbance Measurement Cell Holder

FHM-104 | High Sensitivity Measurement Cell Holder

Increases measurement sensitivity ~3x by using spherical mirrors directed toward the cell to increase the efficiency of the excitation and emission light. Used with microcells (3mmx3mm or 5mmx5mm) as well as standard 10mmx10 mm pathlength cells.



FHM-104 High Sensitivity Measurement Cell Holder

FSA-105 | 30 Degree Incident Angle Holder for Triangular Cell
Used for measuring samples in a triangular cell that have high absorbance and/or re-absorb fluorescence.

FSA-106 | 30 Degree Incident Angle Holder for Rectangular Cell
Used for measuring samples in a standard rectangular cell that have high absorbance and/or re-absorb fluorescence.

FSA-106 30 Degree Incident Angle Cell Holder for Rectangular cells

OBF-132 | Optical Fiber Interface

Uses an optical fiber to measure the fluorescence spectrum of samples outside of the sample compartment. Permits measurements of large samples, tracing *in vivo* reactions, and samples that cannot be accessed by conventional measurement.

OBF-132 Optical Fiber Interface

EFA-133 | Epifluorescence Unit

Used to measure the epifluorescence of a solid, powder, or liquid sample which may be difficult to fix to a sample stage.

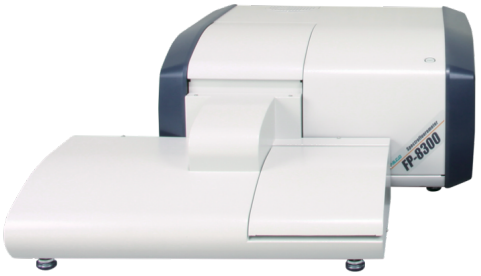
EFA-133 Epifluorescence Unit

Fluorescence Microplate Reader, Autosampler and Sippers

for FP-8050 Series

Fluorescence Microplate Reader

The FMP-125 fluorescence microplate reader can be used with the FP-8350 or FP-8550. Four standard measurements include Spectra Measurement, Quantitative Analysis, Time Course, and Fixed Wavelength. Quantitation. Time Course Measurement can also be used to measure parallel kinetics. Options include temperature control (including low temperature)



FMP-125 Fluorescence Microplate Reader with FP-8350/8550

Specifications

Compatible plates	96 and 384 well microplate (SBS standard)
Measurement time	1 min/ per plate (96 wells fixed wavelength under specified conditions)
Minimum sample requirement	80uL per well (96 well plate)
Photometric Reproducibility	+/- 3%
Optional Accessories	Constant temperature plate holder
Temperature Control	Heating system
Temperature Control Range	RT + 10 to 50 deg C

Autosampler

For high throughput unattended operation, the autosampler is combined with a syringe pump or sipper, and flow cell. Up to 192 liquid samples can be measured on all FP-8050 models, with various rack options that can be used with microplates, test-tubes and/or vials.

ASU-110 Autosampler Unit

Optional Racks

Rack Type	Compatible Test-tube and Vials	Max. Number of Samples
SRA-111 15 mm OD test tube	15 mm OD x 105 mm L 10 mL 100 pcs/set	100

Rack Type	Compatible Test-tube and Vials	Max. Number of Samples
SRA-112 13 mm OD test tube	13 mm OD x 100 mm L 7 mL 100 pcs/set	100
SRA-113 12 mm OD test tube	12 mm OD x 105 mm L 5 mL 100 pcs/set	150
SRA-114 10 mm OD test tube	10 mm OD x 90 mm L 3 mL 100 pcs/set	150
SRA-118 Vial	Screw cap vial 2mL 500 pcs/set	120
SRA-116 Microplate	96 well microplate, 250uL	192
SRA-117 Constant temperature microplate	96 well amplification, plate 250uL	192

Sample Loading and Washing Options

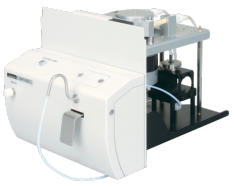
ASP-149 | Syringe Pump
Use to take small samples from the autosampler. The ASP-149 can be used with syringe volumes of 1.0. 2.5, 5.0, and 10.0 mL and has a reproducible volume delivery better than ±1%.

ASP-149 Syringe Pump

QFS-122 | Vacuum Sipper
High speed sipper. Suited to more viscous samples,; up to 450 samples can be measured per hour.

QFS-121 Vacuum Sipper

SHP-120 | Peristaltic Sipper
Sample can be recollected and up to 360 samples can be measured per hour.



SHP-120 Peristaltic Sipper

AWU-120 | Washing Unit
Optional washing unit for use with QFS-122 and SHP-120.

AWU-120 Washing Unit

Fluorescence Automated Titration

Automatic Titration

The dual syringe auto-titrator is used to monitor changes in the fluorescence intensity as a function of pH, chemical denaturant, or exogenous ligands. The syringes can be operated independently to control the titration volumes and are fitted with a valve for automated refilling and flushing during extended runs. The titration application program in Spectra Manager controls the auto-titrator and automatically corrects for concentration during measurement.

ATS-127 Auto-titrator

Model	ATS-127
Compatible Cells	Micro cell 5 x 5 mm, rectangular cell 10 x 10 mm
Compatible Accessories	STR-112, EHC-113, ETC-115
Number of Syringes	2
Syringe Volume Options	1.0 mL (standard), 2.5 mL
Injection Accuracy	Better than 99%
Injection Reproducibility	Less than 1%
Injection Resolution	0.1% of syringe volume

Fluorescence Sampling of Small Volume Liquids

SAF-151 – One Drop Fluorescence Microsampling

Easy to use and accurate, the One-Drop accessory is ideal for low volume measurement of proteins and nucleic acids, and can be used for quantitation or simple spectral measurements

Only a single 5 µL droplet is required for the 1 mm path length cell.

SAF-151 One Drop

One-Drop operation

Cuvettes and Adaptors for Small Volume Liquid Measurement

FMM-100 | 3 mm Quartz Fluorescence Microcell
3 x 3 mm cell for sample volumes as small at 50 mL.

FMH-801 | 3 mm Microcell Jacket
Cell adapter for the FMM-100.

FMM-200 | 5 mm Quartz Fluorescence Microcell
5 x 5 mm cell – 400 µL volume with a stirrer bar and 500 µL without.

FMH-802 | 5 mm Microcell Jacket
Cell adapter for the FMM-200.

FMH801 inserted into FMM-100 (Left) and FMH-802 inserted into FMM-200 (Right)

Fluorescence Measurement of Solid Samples

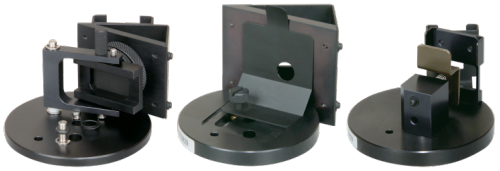
A Range of Accessories for Fluorescence Measurement of Solid Samples

PSH-002/102/103 | Powder Cells for FPA-810
Thickness ranges from 0.5 to 4 mm. Cell sizes are the following: PSH-002 16 mm, PSH-102 8 mm, PSH-103 5 mm.

PSH-002/102/103 Powder Cells for FPA-810

250BP30 | Optional Bandpass Filter
This bandpass filter can be mounted onto the holder located on the excitation side of the solid sample block. The center wavelength is 250 nm, half bandwidth is 30 nm, with a 5 mm thickness and 25 mm cell size.

FDA-808 | Solid Sample Holder
Used for solid and powder sample measurements.



FDA-808/FLH-809/FPA-810 Solid Sample Holders

FLH-809 | Film Holder
Used for films and solid sample measurements.

FPA-810 | Powder Sample Cell Holder
Used for powder sample and micro powder sample measurements.

Specifications

Model		FDA-808	FLH-809	FPA-810
Incident Angle			30 degs	
Solid Sample	Min. Sample Size	25 (H) x 25 (W) mm	12 (H) x 12 (W) mm	-
	Max. Sample Size	50 (H) x 50 (W) mm	50 (H) x 50 (W) mm	-
	Sample Thickness	10 mm or less	18mm or less	-
Powder Cell	Standard Cell	FP-1061 Powder sample cell	-	PSH-101 Powder sample cell
	Cell Holder Size	20.5 mm D x 1mm Thickness (with spacer	-	12 mm D x 0.5 - 4 mm Thickness

Fluorescence Validation

ESC-142 | Calibrated WI Light Source
A secondary standard light source used for spectral correction of the emission optics from 300 to 1010 nm.

ESC-142 Calibration source for Visible Region

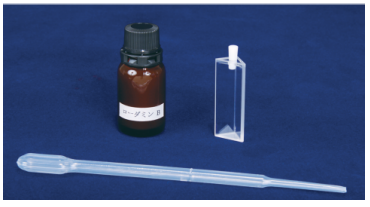
ESC-143 | Calibrated D2 Light Source
A secondary standard light source used for spectral correction of the emission optics from 200 to 400 nm.

ESC-143 Calibration source for UV Region

SID-144 | Calibrated Detector
Used for spectral correction of the excitation optics from 200 to 900 nm.

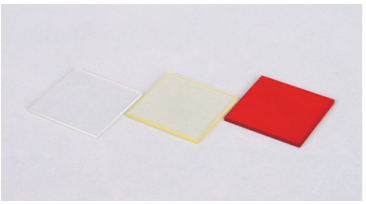
SID-144 Calibrated Detector

VDK-140 | Validation Kit 1
Used for spectral correction of the excitation optics and for the stray light instrument validation test from 200 to 600 nm.



VDK-140 Fluorescence Calibration Kit

VDK-141 | Validation Kit 2
Set of colored glass filters used for the stray light validation test.



VDK-841 Fluorescence Calibration Kit

WRE-362 | Red Sensitive PM Tube
Photomultiplier tube detector for monitoring longer wavelengths.

WRE-362 Red Sensitive PMT

Phosphorescence Measurement

Phosphorescence materials are frequently used to increase the quantum efficiency of materials since the radiative decay from both the triplet and singlet states contributes to the light emission. Since typically the lifetime of phosphorescence is long, thermal deactivation occurs by oxygen quenching, solvent movement, and intermolecular collision and the phosphorescence cannot be observed at room temperature. The sample is therefore cooled to liquid nitrogen temperature to slow down the relaxation process.

PMU-130 | Liquid Nitrogen Cooling Unit
Used to measure phosphorescence spectra and phosphorescence lifetimes by cooling a sample to -77 Kelvin.

PMU-130 Liquid Nitrogen Cooling Phosphorescence Unit

LPH-140 | Phosphorescence Measurement Cell Kit for Liquid Samples
Liquid sample holding stick used with the PMU-130 for liquid phosphorescence measurements.

PPH-150 | Phosphorescence Measurement Cell Kit for Powder Samples
Powder sample holding stick used with the PMU-130 for powder phosphorescence measurements.

CPH-160 | Phosphorescence Measurement Cell Kit for Solid Samples
Solid sample holding stick used with the PMU-130 for solid phosphorescence measurements.

LPH-140 / PPH-150 / CPH-160

По вопросам продаж и поддержки обращайтесь:

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Череповец (8202)49-02-64
Чита (3022)38-34-83
Якутск (4112)23-90-97
Ярославль (4852)69-52-93

Россия +7(495)268-04-70
Киргизия +996(312)-96-26-47
Казахстан +7(7172)727-132

jos@nt-rt.ru || https://jasco.nt-rt.ru/