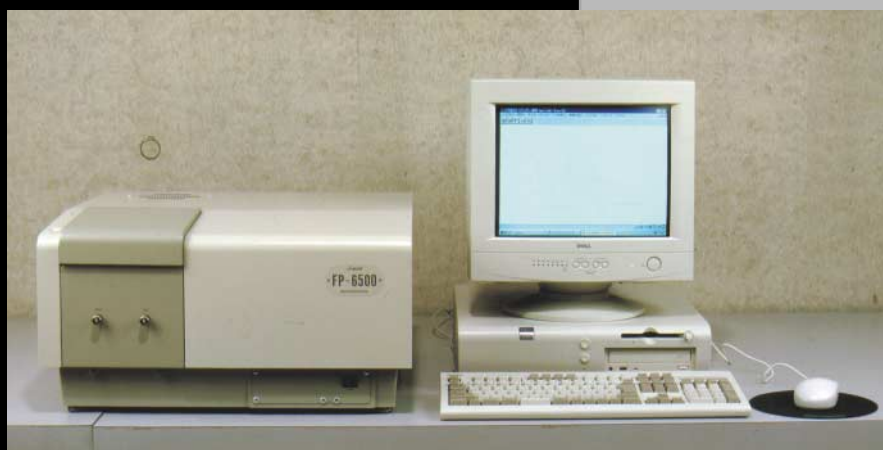


# JASCO

Fluorescence Spectrophotometer

**FP-6000 Series**

**Spectrofluorometer**



The FP-6000 Series meets the demands of both research and routine analysis by combining a highly sensitive and flexible optical system. The FP-6000 Series is fitted with a pre-aligned sample compartment that can be easily outfitted with optional or even custom-made accessories to quickly adapt the instrument to meet any application.

**JASCO®**

April 27, 2001

# 1. Introduction of the FP-6000 Series

## 1-1. Introduction

The FP-6000 Series meets the demands of both research and routine analysis by combining a highly sensitive and flexible optical system. The FP-6000 Series is fitted with a pre-aligned sample compartment that can be easily outfitted with optional or even custom-made accessories to quickly adapt the instrument to meet any application.

The following four kinds of models are available.

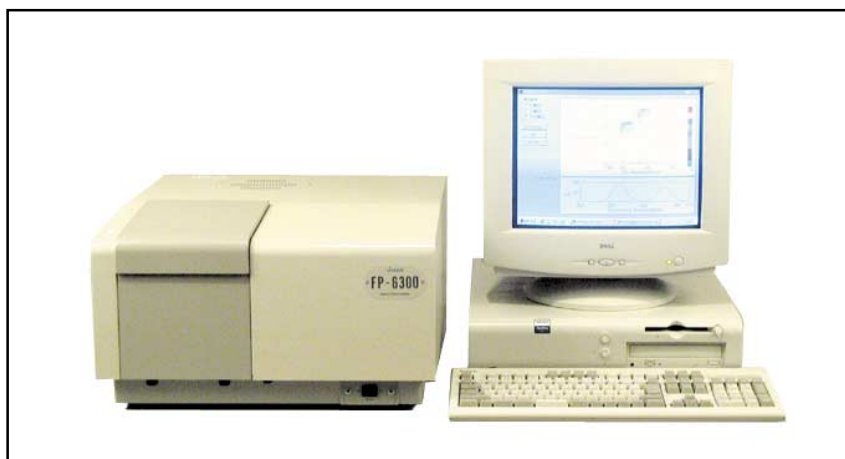


### **FP-6500**

The FP-6500 is the research-grade spectrofluorometer with a minimum 1 nm resolution and a highest sensitivity S/N ratio 200 or greater for the Raman band of water. The FP-6500 is especially designed to keep in mind in order to meet requirements in biochemistry as kinetics, stopped-flow, titration, or anisotropic measurements. The FP-6500 is designed to keep GLP/GMP compliance in mind. Built-in low pressure Mercury lamp and UV cut filter enable to the GLP/GMP compliance with validation software which is available as standard.

### **FP-6600**

The FP-6600 is a factory optional model of the FP-6500 which can be covered emission measurement of NIR region up to 1010 nm by using the holographic grating with 900 grooves/mm and R2658P photomultiplier tube for the emission monochromator.



### **FP-6300**

The FP-6300 is a middle-range spectrofluorometer with a minimum 2.5 nm resolution and a sample chamber of same size as the FP-6500 although the compact design of 469 (W) x 500 (D) x 260 (H) mm. The FP-6300 can be used with almost accessories for the FP-6500. The FP-6300 is designed to keep GLP/GMP compliance in mind and a validation tools and a validation program are available as options.



### **FP-6200**

The FP-6200 is the most cost effective general-purpose spectrofluorometer of the FP-6000 series. The FP-6200 is housed in a compact and rugged case measuring only 420 (W) x 480 (D) x 260 (H) mm. The FP-6200 is designed to keep GLP/GMP compliance in mind and a validation tools and a validation program are available as options.

For routine users, the FP-6200iRM is available. The iRM (intelligent Remote Module) is equipped with a LCD monitor (320 x 240 pixels) that allows simple and easy control of the instrument.

## 1-2. Specifications of FP-6000 Series

### 1-2-1. Specifications of FP-6600 and FP-6500

Model	FP-6600	FP-6500
Light source	Xe lamp with shielded lamp house, 150W	
Photometric system	Photometric ratio system using monochromatic light to monitor the intensity output of Xe source (using photomultiplier tube as the monitoring detector of the light incident)	
Monochromator	Holographoc grating modified Rowland mount (Ex: 1800 grooves/mm, Em: 900 grooves/mm)	Holographoc grating with 1800 grooves/mm modified Rowland mount
Sensitivity <sup>1)</sup>	1600:1	3200:1
Specification on the catalog	Signal-to-noise ratio of Raman band of water at 350 nm excitation wavelength, 2 sec. Response time and 5 nm bandwidth for excitation monochromator and 10 nm bandwidth emission monochromator is greater than 100:1. (peak-to-peak)	Signal-to-noise ratio of Raman band of water at 350 nm excitation wavelength, 2 sec. Response time and 5 nm bandwidth for both excitation and emission monochromators is greater than 200:1. (peak-to-peak)
Measuring wavelength range	Zero order 220 - 1010 nm with standard PM tube for emission monochromator 220 - 750 nm with standard PM tube for excitation monochromator	Zero order 220 - 750 nm with standard PM tube 200 - 850 nm with optional PM tube for excitation and emission monochromator
Spectral bandwidth	1, 3, 5, 10, 20, L5 and L10 nm on excitation monochromator 2, 6, 10, 20, 40, L10 and L20 nm on emission monochromator	1, 3, 5, 10, 20, L5 and L10 nm on both excitation and emission monochromators
Resolution	Ex: 1 nm Em: 2 nm	1 nm on both Ex and Em
Wavelength accuracy	Ex: +/- 1.5 nm Em: +/- 3 nm	+/- 1.5 nm on both Ex and Em
Wavelength reproducibility	Ex: +/- 0.3 nm Em: +/- 0.6 nm	+/- 0.3 nm on both Ex and Em
Slew speed	30000 nm/min	
Wavelength scan speed	20, 50, 100, 200, 500, 1000, 2000, 5000, 10000 and 20000 nm/min	10, 20, 50, 100, 200, 500, 1000, 2000, 5000, 10000 and 20000 nm/min
Response	0.01, 0.02, 0.05, 0.1, 0.2, 0.5, 1, 2, 4 and 8 sec 0.1 msec (option)	0.01, 0.02, 0.05, 0.1, 0.2, 0.5, 1, 2, 4 and 8 sec 0.1 msec (option)
Output port	RS-232C Analog (option)	
Photometric display	-999.9 to 999.9	
Gain	High, Medium, Low and Manual	
Detector	Ex: Photomultiplier tube Em: Photomultiplier tube	
Sample compartment	Water thermostatable single cell holder	
Control and Data processing	Spectra Manager	
Validation	Standard (Software and validation tools are supplied as standard.)	
Spectrum correction	Standard (220 - 600 nm) (Software, triangle cell and Rhodamine B are supplied as standard.)	

<Remarks>

- 1) This value is converted by using Appendix-I to compare S/N ratio easily.  
Condition is 10 nm bandwidth, 2 sec. response and RMS.

## 1-2-2. Specifications of FP-6300 and FP-6200

Model	FP-6300	FP-6200 (Spectra Manager Model)	FP-6200 (iRM Model)
Light source	Xe lamp with shielded lamp house, 150W		
Photometric system	Photometric ratio system using monochromatic light to monitor the intensity output of Xe source (using silicon photodiode as the monitoring detector of the light incident)		
Monochromator	Holographoc grating with 1500 grooves/mm modified Rowland mount	Holographoc grating with 1200 grooves/mm modified Rowland mount	
Sensitivity <sup>1)</sup>	2200:1	1800:1	
<div>Specification on the catalog</div>	Signal-to-noise ratio of Raman band of water at 350 nm excitation wavelength, 2 sec. Response time and 10 nm bandwidth for both excitation and emission monochromators is greater than 550:1. (peak-to-peak)	Signal-to-noise ratio of Raman band of water at 350 nm excitation wavelength, 2 sec. Response time and 10 nm bandwidth for both excitation and emission monochromators is greater than 450:1. (peak-to-peak)	
Measuring wavelength range	Zero order 220 - 750 nm with standard PM tube 200 - 900 nm with optional PM tube	Zero order 220 - 750 nm with standard PM tube 200 - 900 nm with optional PM tube for emission monochromator 200 - 800 nm with optional PM tube for excitation monochromator	
Spectral bandwidth	2.5, 5, 10 and 20 nm on both excitation and emission monochromators	5, 10 and 20 nm on both excitation and emission monochromators	
Resolution	2.5 nm on both Ex and Em	5 nm on both Ex and Em	
Wavelength accuracy	+/- 2 nm on both Ex and Em	+/- 3 nm on both Ex and Em	
Wavelength reproducibility	+/- 1.5 nm on both Ex and Em	+/- 2 nm on both Ex and Em	
Slew speed	30000 nm/min		
Wavelength scan speed	20, 50, 100, 200, 500, 1000, 2000, 5000 and 10000 nm/min	60, 125, 250, 500, 1000, 4000 and 8000 nm/min	60, 250, 1000 and 4000 nm/min
Response	0.02, 0.05, 0.1, 0.25, 0.5, 1, 2, 4 and 8 sec		
Output port	RS-232C Analog (factory option)		
Photometric display	-999.9 to 999.9		
Gain	High, Medium, Low and Manual	High, Medium and Low	
Detector	Ex: Siliconphotodiode Em: Photomultiplier tube		
Sample compartment	Non-thermostattable single cell holder		
Control and Data processing	Spectra Manager		iRM
Validation	Option		
Spectrum correction	Option		

<Remarks>

- 1) This value is converted by using Appendix-I to compare S/N ratio easily.  
Condition is 10 nm bandwidth, 2 sec. response and RMS.

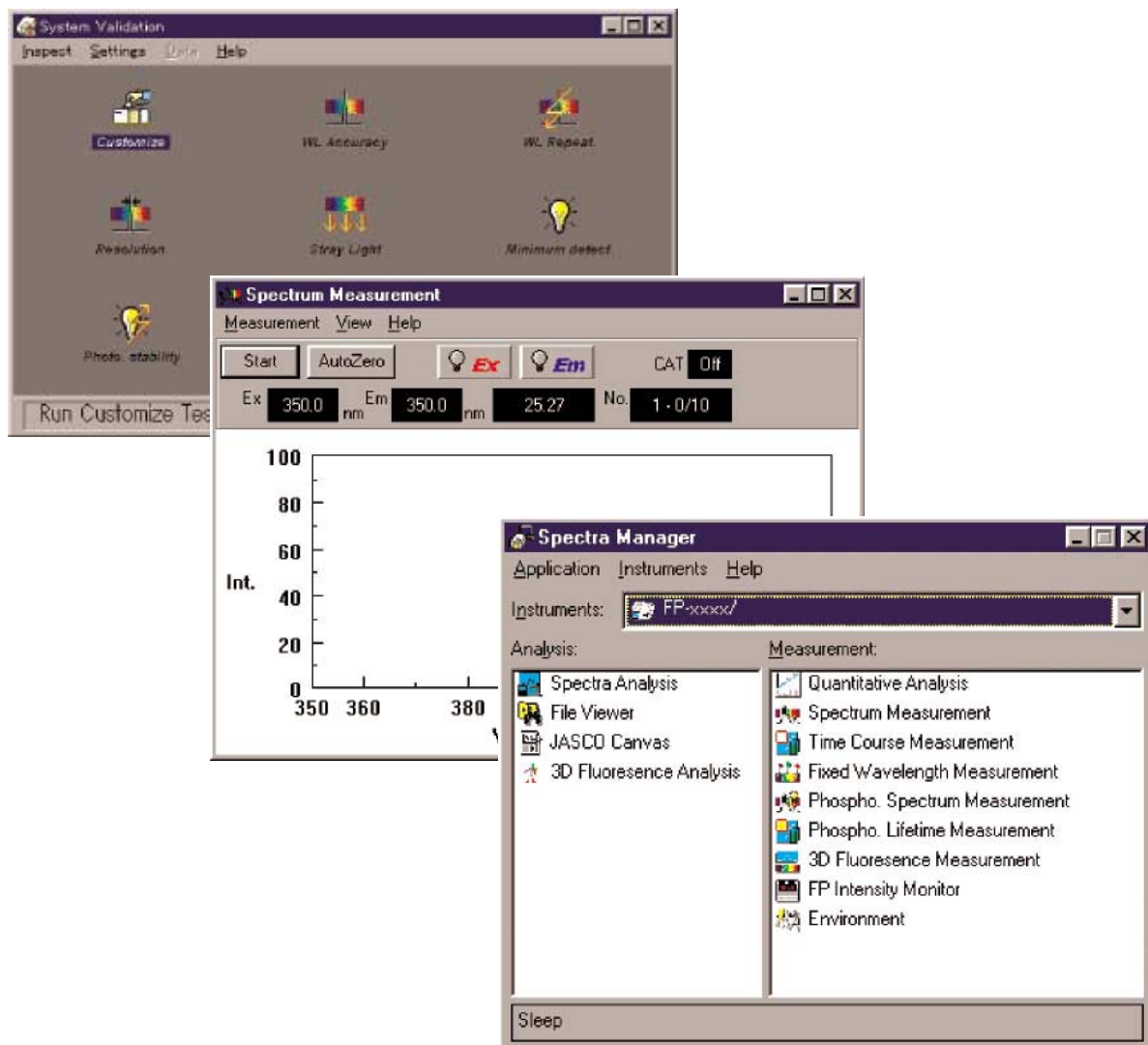
## 2. Software

### 2-1. Standard Software

The following software are supplied as standard with the each FP-6000 units.

		FP-6600	FP-6500	FP-6300	FP-6200
Measurement	Quantitative Measurement	•	•	•	•
	Spectrum Measurement	•	•	•	•
	Time Course Measurement	•	•	•	•
	Fixed Wavelength Measurement	•	•	•	•
	3D Fluorescence Measurement	•	•	•	•
	Phosphorescence Spectrum Measurement	•	•		
	Phosphorescence Lifetime Measurement	•	•		
	FP Intensity Monitor	•	•	•	•
	Spectrum Correction	•	•	OP	OP
	Validation	•	•	OP	OP
	Environment	•	•	•	•
Analysis	Spectra Analysis	•	•	•	•
	File Viewer	•	•	•	•
	JASCO Canvas	•	•	•	•
	3D Fluorescence Analysis	•	•	•	•

- = It shows this software is supplied as standard.
- OP = It shows this software is option.



## 2-2. Optional Software

The following software are supplied as option for the FP-6000 series.

Optional software package	FP-6600	FP-6500	FP-6300	FP-6200
Interval scan	FWIS-6602 4880-0544A	FWIS-6502 4880-0542A	FWIS-6302 4880-0574A	FWIS-6202 4880-0564A
Temperature interval scan	FWTI-6603 <sup>1)</sup> xxxx-xxxx	FWTI-6503 <sup>1)</sup> xxxx-xxxx	FWTI-6303 <sup>1)</sup> 4880-0546A	FWTI-6203 4880-0566A
Dual wavelength time scan	FWCA-6604 4880-0556A	FWCA-6504 4880-0530A	FWCA-6304 4880-0576A	FWCA-6204 4880-0568A
Melting	FWDM-6605 4880-0557A	FWDM-6505 4880-0536A	FWDM-6305 4880-0578A	FWDM-6205 4880-0570A
Long time scan	FWLS-6606 4880-0555A	FWLS-6506 4880-0544A	-	-
Rapid time scan	FWRS-6607 4880-0558A	FWRS-6507 4880-0538A	-	-
Validation	Standard <sup>2)</sup>	Standard <sup>2)</sup>	FWVD-6301 4880-0572A	FWVD-6201 4880-0562A
Spectrum correction	Standard <sup>2)</sup>	Standard <sup>2)</sup>	FWCC-6308 xxxx-xxxx	FWCC-6208 xxxx-xxxx

1) ETC-273 or EHC-573 are equipped with these software package as standard.

2) These software package are supplied with main unit as standard.

In addition, the following software is also available.

### For FP-6600/6500/6300/6200

Macro command

### For FP-6600/6500

Fluorescence polarization measurement<sup>1)</sup>

Automatic titration measurement<sup>2)</sup>

### For FP-6500

Stopped-flow analysis<sup>3)</sup>

1) This software package is supplied with ADP-303 or AHP-103.

2) This software package is supplied with ATS-443.

3) This software package is supplied with SFA series.

For the FP-6200iRM, the following ROM/RAM card are supplied as option.

Validation card

Parameter memory card

Data memory card

Kinetics analysis card

User calculation card

Macro command card

## 3. Optional Accessories for the FP-6000 Series

### 3-1. Optional Accessories for Bio-Applications

#### 3-1-1. Micro Cell Holder

This accessory consists of FMH-110 micro cell adapter and FMM-100 micro cell (quartz cell of 3mm ID x 3mm length). The FMH-110 micro cell adaptor is designed to fit into the JASCO FP's standard cell holder and all optional cell holders<sup>1)</sup> which can be placed on 10 mm path standard fluorescence cell. Only 50µl of sample are required to be measured.

1) Micro cell cannot use with the stirrer.

Ordering Information:

**For FP-6600/6500/6300/6200**

6808-J021A FMH-110 Micro cell holder

6808-J022A FMM-100 Micro quartz cell



#### 3-1-2. Water Thermostatable Single Cell Holder with Stirrer

This is a single position constant temperature cell holder with a variable speed stirrer. The cell holder accommodates a standard 10 mm rectangular cell or the FMH-110 micro cell holder<sup>1)</sup>. The temperature control is performed through the water circulation.

1) Micro cell cannot use with the stirrer.

Ordering Information:

**For FP-6600/6500/6300**

6808-J013A STR-313 Water thermostatable single cell holder with stirrer

**For FP-6200**

6746-J003A STR-312 Water thermostatable single cell holder with stirrer



#### 3-1-3. Peltier Thermostatted Single Cell Holder with Stirrer

This is a single position constant temperature cell holder which features the Peltier element. The cell holder accommodates a standard 10 mm rectangular cell or the FMH-110 micro cell holder<sup>1)</sup>. The sensor which is used to measure directly the solution temperature in the cell through direct contact is build-in. The temperature control range of the air-cooled model is 10 °C to 60 °C and The temperature control range of the water-cooled model is 0 °C to 100 °C. The air-cooled model and the water-cooled model are available for the FP-6600/6500/6300. The water-cooled model is available for the FP-6200. The temperature



interval scan program is provided as standard (Only ETC-273 and EHC-573).

1) Micro cell cannot use with the stirrer.

Ordering Information:

**For FP-6600/6500/6300**

6808-J001A<sup>1)</sup> ETC-273 Peltier thermostatted single cell holder with stirrer (Water-cooled)

6808-J002A<sup>1)</sup> EHC-573 Peltier thermostatted single cell holder with stirrer (Air-cooled)

**For FP-6200**

6746-J004A ETC-272 Peltier thermostatted single cell holder with stirrer (Water-cooled)

1) Temperature interval scan program is supplied as standard.



### **3-1-4. Water Thermostatable Automatic Turret Cell Changer**

This is a 8-position (FCT-133) or 4-position (FCT-152) rectangular cell holder which the temperature control is performed through the water circulation. The cell holder accommodates a standard 10 mm rectangular cell or the FMH-110 micro cell holder. It enables to do automatic sample measurement from cell position 1 to desired cell position.

Ordering Information:

**For FP-6600/6500/6300**

6808-J008A FCT-133 Water thermostatable automatic 8-position turret cell changer

**For FP-6200**

6746-J001A FCT-152 Water thermostatable automatic 4-position turret cell changer



### **3-1-5. Sample Holder Lid with Syringe Port**

This is an accessory for allowing to inject reagent into the sample cuvette without having opening the sample compartment lid. This is usually useful to trace kinetics used with water thermostatable single cell holder or Peltier thermostatted single cell holder.

Ordering Information:

**For FP-6600/6500/6300**

6808-J006A CSP-143 Sample holder lid with syringe port

**For FP-6200**

6746-J017A CSP-622 Sample holder lid with syringe port



### 3-1-6. Peltier Thermostatted Depolarization Accessory

This is an accessory designed to measure automatically the emission anisotropy and degree of polarization in static light excitation by using the polarizer and analyzer in the thermostatic sample chamber. This accessory consists of the Peltier thermostatted single cell holder, the polarizer, the analyzer, the temperature sensor, the stirrer and the depolarization software. Two models (water-cooled model and air-cooled model) are available.

Ordering Information:

#### **For FP-6600/6500**

6808-J003A ADP-303 Peltier thermostatted depolarization accessory (Water-cooled)

6808-J004A APH-103 Peltier thermostatted depolarization accessory (Air-cooled)



### 3-1-7. Automatic Titration Accessory

This is an automatic two-syringe titration accessory which can be controlled independently each syringe by the control program. This technique is important for monitoring the denaturation of proteins and ligand binding experiments. Automatic titration program is supplied as standard.

Ordering Information:

#### **For FP-6600/6500**

6808-J026A ATS-443 Automatic titration accessory



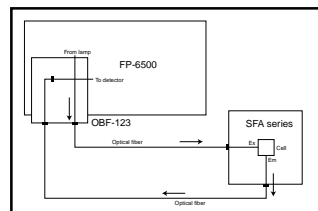
### 3-1-8. Stopped-Flow Accessory

This is a newly designed stopped-flow accessory and can be also used with J-810. This accessory is connected with the FP-6500 by using the OBF-123 Optical fiber accessory and 2 pieces of optional fiber cables for Ex and Em.

Ordering Information:

#### **For FP-6500**

xxxx-xxxx	SFA-452	Stopped-flow accessory (2 syringes)
xxxx-xxxx	SFA-453	Stopped-flow accessory (3 syringes)
xxxx-xxxx	SFA-454	Stopped-flow accessory (4 syringes)
xxxx-xxxx	SFA-452T	Peltier thermostatted stopped-flow accessory (2 syringes)
xxxx-xxxx	SFA-453T	Peltier thermostatted stopped-flow accessory (3 syringes)
xxxx-xxxx	SFA-454T	Peltier thermostatted stopped-flow accessory (4 syringes)



### **3-1-9. Intracellular Calcium Ion Measurement**

Measurement of the changes in the calcium ion contents of cells can provide important information of a wide range of physiological events including muscle contractions, nerve impulses, drug responses, vision, fertilization and tumor development. The intracellular calcium ion measurement can be done by a combination of constant temperature single cell holder with stirrer, sample compartment lid with syringe port and dual wavelength time scan program. 10 mm pathlength standard fluorescence cell is used on the JASCO's instruments.

<Remarks>

FMM-100 micro cell cannot use for this measurement because it can not be used with the stirrer.

Ordering Information:

The following accessories are required to measure the intracellular calcium ion measurement.

#### **For FP-6600/6500/6300**

##### **1) Constant temperature single cell holder with stirrer**

6808-J001A ETC-273 Peltier thermostatted single cell holder with stirrer (Water-cooled)

6808-J002A EHC-573 Peltier thermostatted single cell holder with stirrer (Air-cooled)

6808-J013A STR-313 Water thermostatable single cell holder with stirrer

##### **2) Sample compartment lid with syringe port**

6808-J006A CSP-143 Sample holder lid with syringe port

##### **3) Dual wavelength time scan program**

#### **For FP-6600**

4880-0556A FWCA-6604 Dual wavelength time scan program

#### **For FP-6500**

4880-0530A FWCA-6504 Dual wavelength time scan program

#### **For FP-6300**

4880-0576A FWCA-6304 Dual wavelength time scan program

#### **For FP-6200**

##### **1) Constant temperature single cell holder with stirrer**

6746-J004A ETC-272 Peltier thermostatted single cell holder with stirrer (Water-cooled)

6746-J003A STR-312 Water thermostatable single cell holder with stirrer

##### **2) Sample compartment lid with syringe port**

6746-J017A CSP-622 Sample holder lid with syringe port

##### **3) Dual wavelength time scan program**

4880-0566A FWCA-6204 Dual wavelength time scan program

## 3-2. Optional Accessories for Environmental and Routine Applications

### 3-2-1. Sipper

This is a sample sipper designed for use in the field, such as industrial quality control and environmental tests, where the capability to examine a large number of sample within a minimal time is required. Two types of sippers (vacuum pump type and peristaltic pump type) are available. The peristaltic sipper simplifies the measurement procedure for quick measurements of multiple samples by enabling nozzle insertion into the vial and return by pressing the nozzle lever. The sample can be recovered by revering the draining direction. The vacuum sipper employs a vacuum pump instead of a peristaltic pump for faster suction. These can be used with the ASU-605 automsapler.

Ordering Information:

**For FP-6600/6500/6300**

6808-J010A QFS-253 Vacuum sipper

6808-J009A SHP-393 Peristaltic sipper

**For FP-6200**

6846-J002A SHP-292 Peristaltic sipper



### 3-2-2. Cell Holder for High Sensitive Measurement

This is a single cell holder with beam refocusing optics. This accessory increases the fluorescence signal by refocusing the excitation beam and emission radiation back through a 10 mm rectangular cell. The actual improvement in signal is concentration dependent. The cell holder accommodates a standard 10 mm rectangular cell or the FMH-110 Micro cell holder. Spare 10 mm rectangular cells are model FP-1004.

Ordering Information:

**For FP-6600/6500/6300/6200**

6808-J024A FHM-440 Cell holder for high sensitive measurement

1103-0081 FP-1004 Standard fluorescence cell, pathlength: 10 mm



### 3-2-3. Micro Flow Cell Unit

This is an accessory designed for use with low-pressure flow through systems. Three models are available depending upon cell volume. These can be used with the ASU-605 automsapler<sup>1)</sup>.

1) If micro flow cell unit is used with ASU-605 with microplate rack, only FSC-423 is selectable. FSC-523 and FSC-623 cannot use with ASU-605 with microplate rack.

Ordering Information:

**For FP-6600/6500/6300**

6808-J016A FSC-423 Micro flow cell unit, with 15 µl cell

6808-J017A FSC-523 Micro flow cell unit, with 30 µl cell

6808-J018A FSC-623 Micro flow cell unit, with 100 µl cell

### **3-2-4. HPLC Flow Cell Accessory**

This is a flow cell unit designed for use to continuously monitor a micro volume sample such as the flow from a liquid chromatograph. If you would like to output the chromatogram to the recorder, optional analog output interface is additionally required.

Ordering Information:

**For FP-6600/6500/6300**

6808-J011A MFC-233 HPLC flow cell accessory, 15µl cell

**For FP-6200**

6746-J005A MFC-132 HPLC flow cell accessory, 15µl cell



### **3-2-5. Autosampler**

This is an autosampler that sets test tubes in a special tube rack and moves a nozzle in the X (left-right), Y (backward-forward), and Z (up-down) directions to automatically control a pump, sipper, micro flow cell unit or some other mechanism used for suctioning off samples in the test tubes. Microplate rack for measuring samples on 96-wells microplate is optionally available (NCP-609 syringe pump and Micro flow cell unit, with 15 µl cell are additionally needed).

Ordering Information:

**For FP-6600/6500/6300/6200**

6774-J001A ASU-605 Autosampler without rack and tube

(Please refer Price List about optional rack.)



### **3-2-6. Syringe Pump**

This is a syringe pump that is needed to measure automatically samples of small volume on microplate or Megataita plate by the ASU-605 autosampler. The syringes are controlled on the ASU-605.



Ordering Information:

**For FP-6600/6500/6300/6200**

6708-J051A NCS-609 Syringe pump

### **3-2-7. Microplate Reader**

Measurement using microplate is a recent trends in combinatorial chemistry and automated analysis. FP-6000 series can measure samples using 96-wells microplate by a combination of ASU-605 autosampler with microplate rack, NCP-609 syringe pump, FSC-423 micro flow cell unit (15 µl cell) and a trigger cable connecting the FP-6000 with the ASU-605.

Ordering Information:

The following accessories are required to measure samples using 96-wells microplate.

**For FP-6600/6500/6300**

#### **1) Autosampler**

6774-J001A ASU-605 Autosampler without rack and tube

#### **2) Microplate rack for ASU-605**

6774-J140A SRA-618 Microplate rack

6774-J136A RHR-613 Constant temperature microplate rack

Two pieces of 96-wells microplates can be placed on these rack.

#### **3) Syringe Pump**

6708-J051A NCS-609 Syringe pump

#### **4) Micro Flow Cell Unit**

6808-J016A FSC-423 Micro flow cell unit, with 15 µl cell

#### **5) Trigger Cable**

xxxx-xxxx TTL signal cable connecting FP-6000 series with ASU-605

**For FP-6200**

The FP-6200 can also measure samples using 96-wells microplate as same as the FP-6600/6500/6300. But, micro flow cell unit is manufactured upon receipt of order. If you are interested, please contact us.

### 3-3. Other Optional Accessories

#### 3-3-1. 30° Incident Angle Cell Holder (Front surface viewing for liquid sample)

This accessory consists of a cell holder and a triangle quartz cell.

Highly concentrated liquid samples often result in quenching if used in a standard 10mm cell. Allowing front surface viewing of samples, the FSA-410 triangle quartz cell can minimize the consequences of quenching, and enables to measure fluorescence of sample surface. The incident angle of the excitation beam on the front surface of the cell is 30 degree. Spare cells are model FSA-410.

Ordering Information:

**For FP-6600/6500/6300/6200**

6808-J025A FSA-400 30° incident angle cell holder

6105-J082A FSA-410 Triangle quartz cell



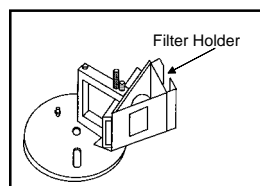
#### 3-3-2. Solid Sample Holder (Front surface viewing for solid sample)

This accessory consists of a sample holder and a powder sample cell. This accessory is used for front surface viewing of powders, films or other solid samples. The excitation beam irradiates the front surface of the sample with an incident angle of 30 degree. For powder samples, the special cell is used. The cell has an 18 mm dia. quartz window and 3 mm thickness. The cell is held in the holder by means of a spring activated mechanism. A film or other larger solid sample is held in place directly by the spring mechanism instead of using the special cell. The minimum sample size is 5 x 5 mm and the thickness of the sample should be less than 10 mm. Optional cut filter for removing the scattering light should be set on the window of Ex side. And filter holder is available on the solid sample holder.

Ordering Information:

**For FP-6600/6500/6300/6200**

6808-J023A FDA-430 Solid sample holder



#### 3-3-3. Epifluorescence Accessory

This is an accessory designed for measuring the surface fluorescence of solid samples. Sample can be mounted on the horizontal stage for easy measurement.



Ordering Information:

**For FP-6600/6500/6300**

6808-J012A EFA-383 Epifluorescence accessory

**For FP-6200**

6746-J005A EFA-382 Epifluorescence accessory

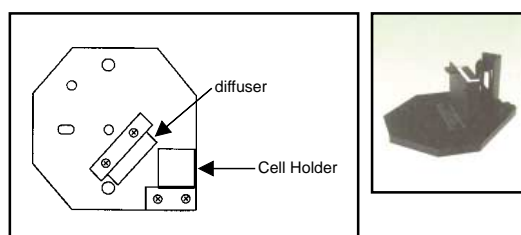
### 3-3-4. UV/VIS Measurement Accessory

This accessory consists of a cell holder, an attenuator and two kinds of filters. This accessory is used to make transmission measurements on a liquid sample. When this accessory is in place, the excitation beam passes through the sample and is deflected 90 degree into the Em monochromator by means of the diffuser. Scanning the both monochromators synchronously, a transmittance spectrum (single beam) of a sample can be obtained. The cell holder accommodates a standard 10 mm rectangular cell. The accessory includes two kinds of filters which are generally placed on the window of Em side to eliminate scattering light. Both solvent and sample solution must be measured and division calculation after measurements and also required to get the transmittance spectrum. Among the filters included are UV-34 (for the range 340 to 600 nm) and O-58 (for the range 580 to 700 nm).

Ordering Information:

**For FP-6600/6500/6300/6200**

6808-J020A FUV-420 Accessory for UV/VIS.  
measurement



### 3-3-5. Polarizer and Analyzer Accessory

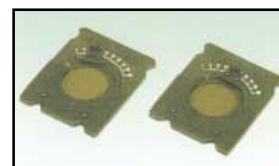
This accessory consists of a polarizer and an analyzer which fit into the two filter holder in the JASCO FP's sample compartment. The polarizer is placed on the window of Ex side, and the analyzer is placed on the window of Em side. Fluorescence intensity measurements are made first with the analyzer's electric vector parallel to and then perpendicular to the electric vector of the exciting radiation from the polarizer. The observed degree of polarization can then be calculated and corrective factors, experimentally determined, applied to obtain the true degree of polarization.

Ordering Information:

**For FP-6600/6500/6300/6200**

6808-J019A FDP-203 Polarizer accessory for UV/VIS range

6808-J029A FDP-213 Polarizer accessory for VIS range





### 3-3-6. Low Temperature Measurement Accessory

This is a liquid nitrogen dewar for measuring a liquid or a solid sample under low temperature. Phosphorescence lifetime and acquisition of phosphorescence spectrum can be measured by this attachment.

Ordering Information:

**For FP-6600/6500**

6808-J014A PMA-283 Low temperature measurement accessory



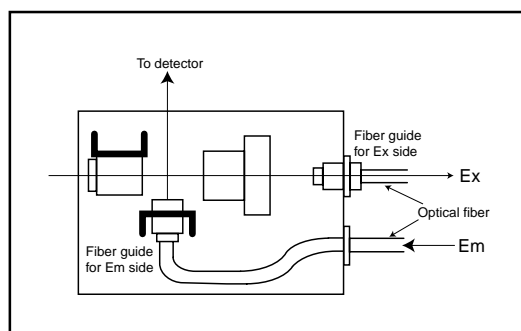
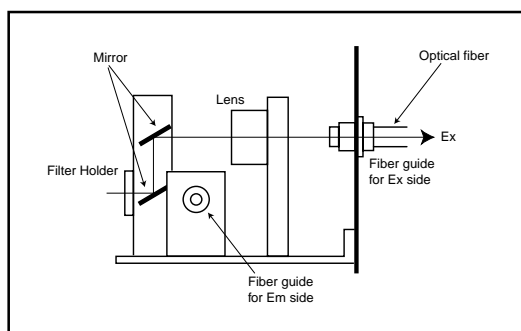
### Optical Fiber Accessory

This is an accessory for introducing externally the light through optical fiber for Em and introducing the fluorescence light again to the detector through optical fiber for Em. This accessory is needed to use the stopped-flow accessory with the FP-6500. Optical fiber is option.

Ordering Information:

**For FP-6600/6500/6300**

6808-J015A OBF-123 Optical fiber accessory.



### 3-3-7. PM Tube for Longer Wavelength Range

This is an accessory for measuring Ex and/or Em spectrum for a longer wavelength range.

Ordering Information:

**For FP-6600/6500**

6808-J027A<sup>1)</sup> WRE-343 PM tube for longer wavelength range (200 - 850 nm)

**For FP-6300/6200**

6746-J009A<sup>2)</sup> WRE-362 PM tube for longer wavelength range (200 - 900 nm)

1) This accessory consists of 2 pieces of PM detectors for Ex and Em.

2) This accessory consists of 1 piece of PM detector for only Em.



### 3-3-8. Calibrated Light Source

Spectrum correction for Ex side can be automatically performed by placing the Rhodamine B solution in front of the detector of reference side. Spectrum correction for Em side is performed by utilizing the correction factor which is based on corrected Ex spectrum. But, this procedure enables to correct the wavelength range from 220 nm to 600 nm because of using Rhodamine B solution. In order to correct the longer wavelength range from 600 nm, using another calibrated standard light source is required. Combining the procedure Rhodamine B solution with that of standard light source is capable of correcting the full wavelength range. This is a calibrated tungsten lamp for spectrum correction over 600 nm.

Ordering Information:

**For FP-6600/6500/6300**

6808-J007A ESC-333 Calibrated secondary light source



### 3-3-9. Analog Output Interface

This is an accessory for converting digital signals into analog data for output to recorders or other data acquisition products. It is required to output the chromatogram measured by HPLC flow accessory to the recorder. This is a factory option.

Ordering Information:

**For FP-6600/6500/6300**

6808-J028A ROU-213 Analog output interface

**For FP-6200**

6746-J008A ROU-332 Analog output interface



### 3-4. Compatibility Table between the FP-6000 Series and Optional Accessories

	Code No.	Model name	FP-6600	FP-6500	FP-6300	FP-6200	FP-750	Remarks
For Bio-Applications								
Micro Cell Holder	6708-J021A	FMH-110	•	•	•	•	•	
Thermosttable cell holder with stirrer	6808-J103A	STR-313	•	•	•			
	6746-J003A	STR-312				•	•	
Peltier thermostatted single cell holder with stirrer	6808-J001A	ETC-273	•	•	•			Water-cooling model
	6808-J002A	EHC-573	•	•	•			Air-cooling model
	6746-J004A	ETC-272				•	•	Water-cooling model
	6808-J008A	FCT-133	•	•	•			8-position
Thermostattable automatic turret cell changer	6746-J001A	FCT-152				•	•	4-position
	6808-J006A	CSP-143	•	•	•			
Sample compartment lid with syringe port	6746-J017A	CSP-622				•		
	6746-J006A	CSP-372					•	
Peltier thermostatted depolarization accessory	6808-J003A	ADP-303	•	•				Water-cooling model
	6808-J004A	APH-103	•	•				Air-cooling model
Automatic titration accessory	6808-J026A	ATS-443	•	•				
Stopped-flow accessory		SFA-452		•				2 syringes
		SFA-453		•				3 syringes
		SFA-454		•				4 syringes
		SFA-452T		•				2 syringes, with temp. control
		SFA-453T		•				3 syringes, with temp. control
		SFA-454T		•				4 syringes, with temp. control
For Environmental and Routine Applications								
Peristaltic sipper	6808-J009A	SHP-393	•	•	•			
Vaccum sipper	6846-J002A	SHP-292				•	•	
	6808-J103A	QFS-253	•	•	•			
Cell holder for high sensitive measurement	6808-J024A	FHM-440	•	•	•	•	•	
	6808-J016A	FSC-423	•	•	•			15µl
Micro flow cell unit	6808-J017A	FSC-523	•	•	•			30µl
	6808-J018A	FSC-623	•	•	•			100µl
HPLC flow cell unit	6808-J011A	MFC-233	•	•	•			
Autosampler	6746-J005A	MFC-132				•	•	It can not be controlled on PC.
Syringe pump	6774-J001A	ASU-605	•	•	•	•	•	Syringe is controlled on ASU-605.
	6708-J051A	NCS-609	•	•	•	•	•	

	Code No.	Model name	FP-6600	FP-6500	FP-6300	FP-6200	FP-750	Reamarks
Other Optional Accessories								
30° incident angle cell holder	6808-J025A	FSA-400	•	•	•	•	•	
Solid sample holder	6808-J023A	FDA-430	•	•	•	•	•	
Epifluorescence attachment	6808-J012A	EFA-383	•	•	•			
	6746-J005A	EFA-382				•	•	
Accessory for UV/VIS measurement	6808-J020A	FUV-420	•	•	•	•	•	
Polarizer and analyzer accessory	6808-J019A	FDP-203	•	•	•	•		for UV/VIS range
	6808-J029A	FDP-213	•	•	•	•		for VIS range
	6105-J033A	FDP-2010					•	for UV/VIS range
Optical fiber accessory	6808-J015A	OBF-123	•	•	•			
Low temperature measurement accessory	6808-J014A	PMA-283	•	•				
PM tube for longer wavelength range	6808-J027A	WRE-343		•				
	6746-J009A	WRE-362			•	•	•	
Calibrated standard lamp	6808-J007A	ESC-333	•	•	•			
Analog output interface	6808-J007A	ROU-213	•	•	•			
	6476-J008A	ROU-332				•	•	

• = It shows this accessory can be used.