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Intelligent Fluorescence Detector

FP-2020



The JASCO Model FP-2020 Intelligent Fluorescence Detector is recognized as the industry's most sensitive detector with a signal-to-noise ratio of better than 350:1 for the Raman water peak. The FP-2020 covers a wide wavelength range both for excitation and emission from 220 to 700 nm (~ 900 nm with an optional PMT) with proven stability. Versatile time-programming capabilities are provided for wavelength, response, gain, spectral scan, etc., permitting highly selective detection of various compounds. A rapid scan feature allows on-the-flow spectral acquisition for both emission and excitation spectra without interrupting the chromatographic elution. A specially designed chemiluminescence attachment and capillary electrophoresis cell are optionally available.

The FP-2020 can easily be interfaced with the JASCO HPLC system using the JASCO chromatography data systems. These packages offer full automation of all JASCO HPLC components including the FP-2020.

- **Maximum Sensitivity**

Improvement in the optical design and coating allows greater efficiency in the collection of fluorescence energy resulting in detection of anthracene (S/N = 1) at levels as low as 40 femtograms. With a S/N of greater than 350:1, the FP-2020 is the most sensitive HPLC fluorescence detector on the market ensuring accurate detection and quantification for applications with very low compound concentrations.

- **Advanced Optics**

Holographic concave diffraction gratings and non-spherical mirrors are cleverly incorporated in a compact package resulting in extremely efficient and reliable monochromators. Replacement of the lamp can be easily performed in minutes by the user without even opening the instrument cover.

- **Highly-reliable Data**

A built-in thermistor monitors optical bench temperature and automatically compensates for temperature variation via feedback through the CPU. Digital filtering further enhances signal intensity producing highly-reliable quantitative data especially for applications requiring the ultimate in detection limits.

- **Rapid Spectral Scanning**

A rapid spectral scan function allows on-flow spectral scanning of both emission and excitation spectra without interrupting the chromatographic elution. The FP-2020 can store up to 10 EX and EM spectra within the on-board microprocessor. Spectral subtraction allows for a true sample spectra by eliminating any interference from the mobile phase solvent.

- **A variety of flow cells**

In addition to the standard 16 μ L flow cell, various type of flow cells, Micro flow cell (5 μ L), Capillary flow cell for capillary electrophoresis, Chemiluminescence flow cell, Inert flow cell are available to meet various applications. A rectangular cell holder is also available to place a rectangular cell (10 mm x 10 mm) for use of the FP-2020 as spectrofluorometer for methods development and finding optimal EX and EM wavelengths.



SPECIFICATIONS

Optical System

Monochromators:	Holographic concave diffraction grating monochromators for both excitation and emission
Light source:	150W Xe lamp
Settable wavelength:	Zero order, 200 ~ 900 nm for both Ex and Em
Measuring wavelength Range:	Zero order, 220 ~ 700 nm for both Ex and Em Optional PM tube extends the range up to 900 nm.
Spectral bandwidths:	Ex: 18 nm fixed Em: 18, 40 nm selectable
Wavelength accuracy:	±2.0 nm
Wavelength repeatability:	±0.3 nm
Detectors:	Ex: photodiode Em: photomultiplier
Cell volume:	16 µL (standard)

Control System

Sensitivity:	S/N ≥350 for Raman peak of water (Ex=350 nm, time constant=1.5 sec, with standard cell)
Sensitivity range:	1, 2, 4, 8, 16, 32, 64, 128, 256 and S.
Gain:	x1, x10, x100, x1000
Response:	FAST, STD, SLOW (0.5, 1.5, 5 sec.)
Digital filter:	3, 5, 10, 20, 40 sec
Signal processing:	Digital processing by A/D and D/A converters
Output:	10 mV/FS for recorder (Polarity change is possible.) 1 V/FS for integrator marker, leak out marker, autozero, program reset/run
Input:	memories, DC power supply, Ex. energy, leak in cell, lamp operation time
Self-diagnostics:	

Programings

Time programming:	64 steps, 10 files, 0.1 to 999.9 minutes in 0.1 min increments for Ex and Em wavelength, range, gain, autozero, spectral bandwidth, and spectral measurement
Spectral scanning:	Ex and Em spectra
Spectral subtraction:	Ex and Em spectra
Lamp timer:	shows accumulated lamp operation time
Lamp off timer:	settable from 0 ~ 99.9 hours (0.1 hour increments)
Temperature compensation:	compensates PM tube response for temperature variation

Miscellaneous

External communication:	RS-232C, LC-Net
Dimension:	300 (W) x 150 (H) x 470 (D) mm
Weight:	Approx. 19 kg
Power Input voltage:	AC100 ~ 240 V ±10% 50/60 Hz
Power consumption:	425 VA

OPTIONAL ACCESSORIES

6829-H101A	Low-dispersion flow cell (16 µL), standard
6829-H102A	Micro flow cell unit (5 µL)
6829-H104A	Inert flow cell unit
6829-H103A	Optional rectangular cell holder
1103-0081	Standard fluorescence rectangular quartz cell, 10 mm pathlength
1103-0180	Rectangular suprasil quartz cell, 10 mm pathlength
6829-H105A	Chemiluminescence flow cell kit
4340-0033	Photomultiplier detector (R3788-01), standard
4340-0034	Photomultiplier detector (R928-23), expansion for wavelength range (~ 900 nm)
6715-H338A	Secondary light cut filter set (set of 7 kinds of filters for EM/EX)

ORDERING INFORMATION

6829-J003B	Model FP-2020	Fluorescence Detector
6824-J002B	Model UV-2070	UV/VIS Detector (~ 900 nm)
6825-J002B	Model UV-2075	UV/VIS Detector (~ 600 nm)
6826-J002B	Model UV-2077	Multi-wavelength UV/VIS Detector
6832-J002B	Model MD-2015	Diode Array Detector (~ 900 nm)
6831-J002B	Model MD-2010	Diode Array Detector (~ 600 nm)
6833-J002B	Model RI-2031	Refractive Index detector
6838-J002B	Model CD-2095	Circular Dichroism Detector
6837-J002B	Model OR-2090	Chiral Detector
6836-J002B	Model CL-2027	Chemiluminescence Detector
6818-J002B	Model PU-2080	HPLC Pump
6823-J003B	Model PU-2089	Quaternary HPLC Pump
6820-J002B	Model PU-2085	Semi-micro HPLC Pump
6821-J002B	Model PU-2086	Semi-preparative HPLC Pump
6822-J002B	Model PU-2087	Preparative HPLC Pump
6819-J002B	Model PU-2080i	Bio-inert HPLC Pump
6823-J004B	Model PU-2089i	Bio-inert Quaternary HPLC Pump
6828-J008B	Model AS-2059	Autosampler
6827-J005B	Model AS-2055	Autosampler
6827-J006B	Model AS-2057	Autosampler
6834-J002B	Model CO-2060	Column Oven
6835-J002B	Model CO-2065	Column Oven

STANDARD ACCESSORIES

Spare fuses	2 pcs
AC Power cable	1 pc
Protection plate	1 pc
Screw Thumb	1 pc

● Specifications are subject to change without notice.



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