

RF 2000 Fluorescence Detector



The RF 2000 Fluorescence Detector is designed for use with Dionex Summit™ HPLC systems and DX-500 and DX-600 IC systems. Two independent monochrometers provide the highest reproducibility of excitation and emission wavelengths, thereby facilitating the adaptation of methods to the optimum detection condition for individual components. The RF 2000 is integrated with the Summit HPLC system using the CHROMELEON™ chromatography data system, which further enhances productivity and provides compliance with GLP requirements.

Highest Resolution

The RF 2000 has optimized optical and electronic systems to provide exceptionally high sensitivity. For the Raman spectrum of water, a signal-to-noise ratio better than 300:1 is easily obtained. With the appropriate wavelength settings (both excitation and emission), trace components can be easily detected.

Greater Wavelength Accuracy and Reproducibility

The RF 2000 offers unsurpassed wavelength accuracy and achieves an excellent reproducibility of ± 0.2 nm, ensuring that comparable samples produce comparable results.

Wavelength Selection

The optimum excitation and emission wavelengths for different fluorescent compounds vary significantly. By time-programming both the excitation and emission wavelengths, the RF 2000 permits the response of each component to be optimized for selective trace analysis. In addition to chromatograms, spectra can be recorded within seconds using the wavelength-scanning feature. Comparing these spectra with a library created from known standards allows identification of the analyzed substances and facilitates method development.



Increasing Productivity by External Control and Automation

Controlling the RF 2000 with CHROMELEON chromatography data system software notably increases productivity in the laboratory. All detector parameters (sensitivity and wavelength) are not only time-programmed but also documented in the automatically generated Audit Trail to provide full GLP compliance.

Applications

A typical application for fluorescence detection is the determination of polycyclic aromatic hydrocarbons (PAHs) in drinking water, wastewater, and ground and surface waters as

specified by regulatory agencies. Analyzing these complex mixtures requires quick and precise wavelength switching to determine all components near the detection limit within the shortest possible time. Figure 1 shows chromatograms of PAH analysis A) without wavelength switching and B) with wavelength switching.

Other typical applications include the analysis of aflatoxins, carbamates, vitamins, and amino acids in the toxicological, environmental, and food sectors.

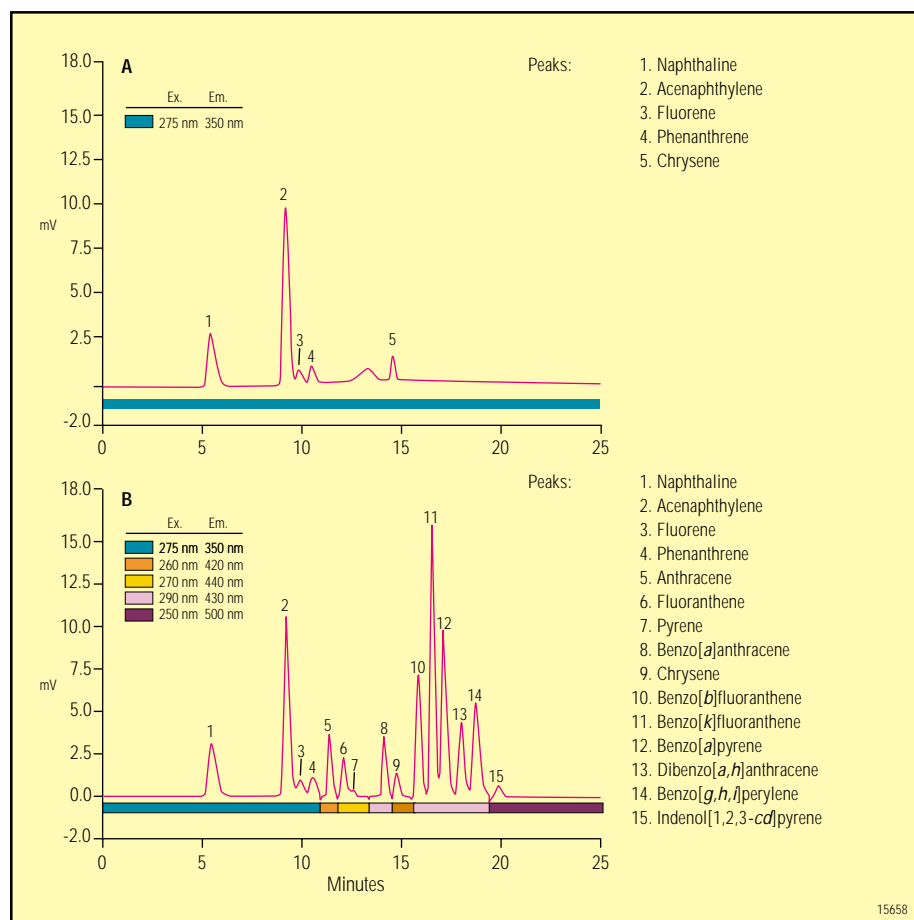


Figure 1. PAH analysis A) without wavelength switching and B) with wavelength switching.

RF 2000 SPECIFICATIONS

Light Source:

High precision xenon lamp, 150 W

Optical System:

Concave, blazed holographic grating monochrometers for both excitation and emission beams

Excitation/Emission Wavelength Range:

200–650 nm (optional: 200–900 nm)

Spectral Bandwidth:

15 nm for both excitation and emission

Wavelength Accuracy:

± 2.0 nm

Wavelength Reproducibility:

± 0.2 nm

Sensitivity:

S/N ratio > 300 for the Raman line of water (350 nm excitation wavelength, 1.5 sec time constant)

Cell Volume:

12 µL

Maximum Cell Pressure:

20 bar (290 psi)

Wavelength Scanning:

Possible for excitation and emission wavelengths

Time-Programmed Functions:

Excitation and emission wavelengths (up to 32 steps), response switching, wavelength scan, and autozero

Dimensions (h x w x d):

20.5 x 26 x 52 cm
(8.1 x 10.2 x 20.5 in.)

Weight:

17 kg (37.4 lb)

Operational Temperature Range:

4–35 °C

Power Requirements:

100–240 V, 50/60 Hz, 350 VA



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* Designed, developed, and manufactured under an NSAI registered ISO 9001 Quality System.

