

# Ultrafluor Scanning Fluorescence Detector

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*Precise ♦ Reliable ♦ Affordable*



## An Advanced Technology Fluorescence Detector

The Ultrafluor Fluorescence Detector is a highly sensitive, scanning fluorescence detector for liquid chromatography. Its dual monochromator design provides exceptional optical performance and operational flexibility for routine and trace analyses.

### High performance

An improved optical design provides exceptional performance. High-efficiency holographic diffraction gratings are optimized for high sensitivity at both lower and higher excitation wavelengths.

Customize your selectivity by choosing either of three spectral bandwidths. The pulsed xenon lamp provides a high energy level across the entire UV/Vis spectrum and produces no harmful ozone. Fluctuations in lamp intensity are automatically maintained and corrected to reduce noise and drift.

Quantitative accuracy and precision are greatly enhanced by the use of 20-bit digital electronics,

producing a wider dynamic range. The electronics design allows emission monitoring of fluorescence, phosphorescence, and chemiluminescence.

### Improved laboratory productivity

The Ultrafluor makes your job easier. Time programming of the Ex  $\lambda$  and Em  $\lambda$  lets you optimize sensitivity and selectivity. Automatic, real-time scanning of eluting peaks helps you identify optimum wavelengths. No more time-consuming manual stop-flow techniques.

### Saves setup time

Create up to four user files with ten timelines each for fast, easy wavelength changes. All files can be linked with the built-in queue.

A unique feature allows the emission data of any one of up to sixty stored spectra to be displayed on the LCD or played back to an external data collection device.

The signal response can be normalized to any compound of

interest, or a preset factory response factor can be used. This provides consistent unit-to-unit response.

### Easy access and maintenance

The lamp and flow cell are prealigned and easily accessible from the front of the instrument. Exchange or service is quick and easy. A separate lamp and flow cell housing assure quick maintenance.

### Flow cell

The Ultrafluor includes a biocompatible flow cell with 8  $\mu$ L illuminated volume.

# Ultrafluor Scanning Fluorescence Detector

## Specifications

### Optical design

Dual monochromators using concave holographic diffraction gratings; stepper-motor driven

### Sensitivity

S/N >1500 for 2 µg/L anthracene in MeOH;  
248 nm Ex/398 nm Em

### Wavelength range

200 to 650 nm excitation and emission;  
200 to 800 nm emission with optional  
extended-range (red-sensitive) PMT

### Wavelength accuracy

±2 nm @248 nm Ex/398 nm Em

### Wavelength precision

<0.5 nm

### Spectral bandwidth

8, 20, or 30 nm; selectable

### Lamp

Pulsed xenon; selectable 20 or 100 Hz

### Flow cell

High-purity quartz, Teflon®, Kalrez®, and PEEK; 8 µL illuminated volume; maximum

### Spectral scanning

Automatic or manual; 100 steps per second;  
step size selectable; 2, 4, 8, 16, or 32 nm; up to  
60 spectra stored in memory\*

### Range Selections

500, 200, 100, 50, 20, 10, 5, 2, 1, 0.5, 0.2, 0.1,  
0.05, 0.02, 0.01 FUFs

### Operating modes

Fluorescence; phosphorescence;  
chemiluminescence

### Analog outputs

2, Range-selectable over entire fluorescence  
range using 20-bit D/A

### Fluorescence range

0.01-500 fluorescence units full scale

### Method files

4 user files protected in nonvolatile memory;  
files can be linked via queue; 10 time lines per  
file for wavelength changes; automatic zero

### Ambient environment

10-40° C, 5-95% relative humidity,  
noncondensing

### Communication

Remote inputs: Run, Stop, Zero

### Display

2 lines x 24 characters, high-contrast LCD

### Dimensions

17 cm x 30 cm x 40 cm (H x W x D)

7" x 12" x 16"

### Weight

11 kg (24 lbs.)

### Power

100/120, 220/240 Vac nominal;

50/60 Hz; 2 Amps max

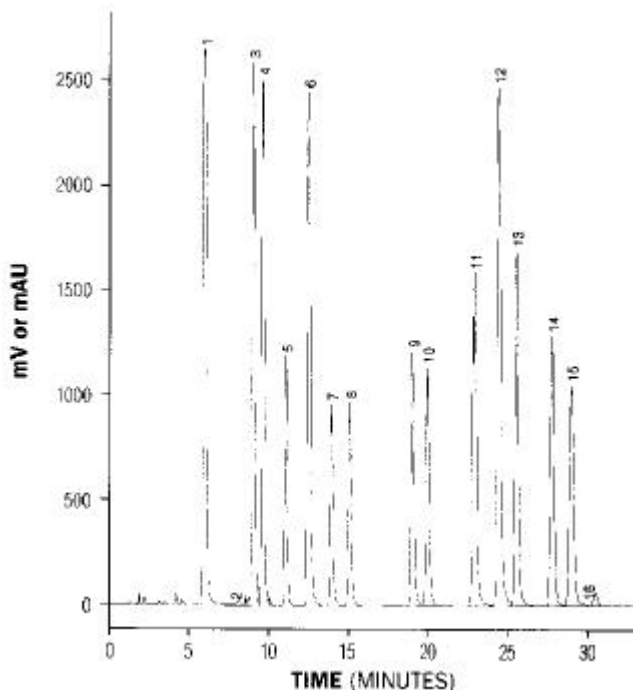
\* For scans of 100 nm with a 2-nm interval  
(50 discrete data points)

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I. duPont de Nemours, Inc.

### Ordering information

TS-0305 Ultrafluor Fluorescence Detector  
TS-5708-0091 Standard PMT, 200-650 nm

TS-4802-0031 Extended range PMT, 200-800 nm  
TS-A5256-010S Flow cell, square  
TS-9551-0144 Xenon lamp  
TS-9051-0143 Regulated back pressure accessory  
TS-A3469-030 FL test mix  
TSA3750-0070 340 cut-off filter



pressure: 200 psi (14 bar)

Output: Ready

# Ultrafluor Scanning Fluorescence Detector

Wavelength Time (min.)	Program UV I	Peak	Retention Time (min.)
0.0	270	1	6.2
		2	7.6
10.8	254	3	9.4
		4	10.0
13.6	240	5	11.5
		6	12.9
17.5	260	7	14.4
		8	15.5
21.5	254	9	19.3
		10	20.2
27.2	300	11	23.2
		12	24.6
		13	25.7
33.0	300	14	28.1
		15	29.5
		16	30.1

- 1 Naphthalene (500 nm)
- 2 Acenaphthylene (1000 ng)
- 3 Acenaphthene (500 mg)
- 4 Fluorene (100 ng)
- 5 Phenanthrene (50 ng)
- 6 Anthracene (50 ng)
- 7 Fluoranthene (100 ng)
- 8 Pyrene (50 ng)
- 9 Benzo(a)anthracene (50 ng)
- 10 Chrysene (50 ng)
- 11 Benzo(b) fluoranthene (100 ng)
- 12 Benzo(k) fluoranthene (50 ng)
- 13 Benzo(a) pyrene (50 ng)
- 14 Dibenzo(a,h) anthracene (100 g)
- 15 Benzo(g,h,i) perylene (100 ng)
- 16 Indeno (1,2,3-cd) pyrene (50 g)