Molecular Devices

FilterMax F3/F5 Multi-Mode Microplate Readers

Unmatched Value and Flexibility Across All Detection Modes

FilterMax Multi-Mode Microplate Readers

Functionality	FilterMax F3	FilterMax F5
Absorbance (ABS) Visible	✔	✔
Absorbance (ABS) UV		✔
Fluorescence intensity (FI) top read	✔	✔
Fluorescence intensity (FI) bottom read		✔
Luminescence (LUM) glow	✔	✔
Fluorescence polarization (FP)		✔
Time-Resolved fluorescence (TRF)		✔
Shaking	✔	✔
Temperature control		✔
6- to 1536-well plates		✔
96- to 384-well plates	✔	✔

With up to five modes of detection, FilterMax™ Multi-Mode Microplate Readers support a wide variety of applications in life science research. Users can also perform measurements such as endpoint, multiple wavelength, kinetic, linear and area scans.

System Packages

Description

FilterMax F3 Multi-Mode Microplate Reader
Includes Excitation Filter Slide #3 (Absorbance: 405 nm, 450 nm, 492 nm, 620 nm; Fluorescence: 360 nm, 485 nm), Emission Filter Slide #3 (Fluorescence: 465 nm, 535 nm), Multimode Analysis Software, Power Cable, RS-232 Serial Cable, User's Manuals

FilterMax F5 Multi-Mode Microplate Reader
Includes Excitation Filter Slide #1 (Fluorescence: 485 nm, 535 nm; TRF: 370 nm; FP: 485 nm), Emission Filter Slide #1 (Fluorescence: 535 nm, 595 nm, 625 nm; FP: 535 nm x 2), Excitation Filter Slide #2 (Absorbance: 260 nm, 340 nm, 405 nm, 450 nm, 595 nm, 620 nm), Multimode Analysis Software, Power Cable, RS-232 Serial Cable, User's Manuals

FilterMax F-Series Reader Innovations

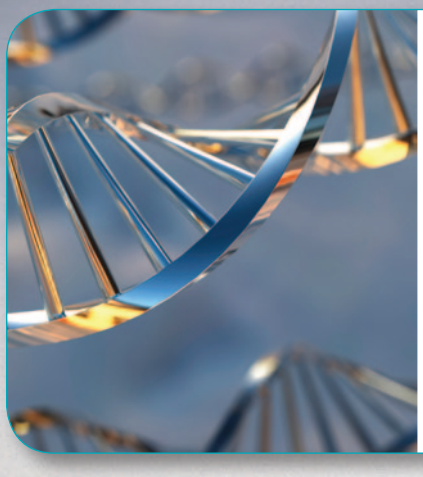
Light Source – High Power LED

- The FilterMax F-Series of readers are the first microplate readers to employ patented high-power Light Emitting Diodes (LED)
- Low cost of ownership with minimum maintenance
- High power at critical wavelength
- Optimized light source for a specific dye or application
- Deuterium lamp for UV excitation of dyes below 340 nm

Fluorescent – Single Photon Counting

- Detector Photomultiplier (PMT) operates in photon counting mode (affording increased sensitivity for red dyes)
- Linear dynamic range over 6 orders of magnitude
- Improved detection limit for Time-Resolved Fluorescence (TRF)

Common Applications

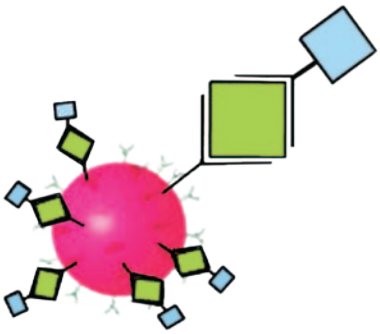


Nucleic Acid Analysis

Both the FilterMax F3 and F5 Readers are capable of detecting nucleic acid concentration by fluorogenic means.

In addition, the FilterMax F5 Reader is capable of measuring nucleic acids directly at 260 nm in absorbance detection mode. Protein contamination can be measured at 280 nm.

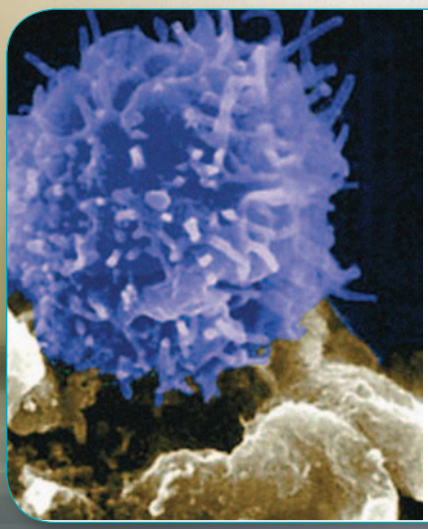
- DNA/RNA quantitation
- Reporter gene assay
- DNAN/RNA quantitation



Protein Analysis

Immunoassays can be performed with three different detection modes on both the FilterMax F3 and F5 Readers: Visible Absorbance, Fluorescence and Luminescence. In addition, the FilterMax F3 Reader is equipped with filters to detect all important substrates for ELISA.

- ELISA
- Kinase assays
- Protein-protein interaction
- Receptor-ligand binding
- Enzyme activity and kinetic assays
- Protein concentration determination

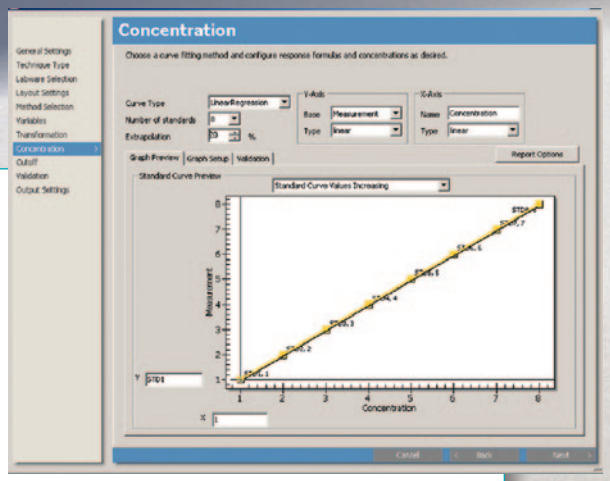


Cellular Analysis

Cell-based assays are primarily performed in luminescent and fluorescent modes to reduce the number of cells required per assay, while maintaining accurate measurements. The FilterMax F3 and F5 Readers offer luminescent detection for today's easy to process homogenous assays. The FilterMax F5 Reader adds functionality for bottom-read fluorescent applications.

- Cell proliferation
- Cytotoxicity and viability
- Intracellular calcium concentration
- Signal transduction
- Ion channels
- GPCRs
- ADMEtox assays
- CaCo2 and P450 assays

Software Options



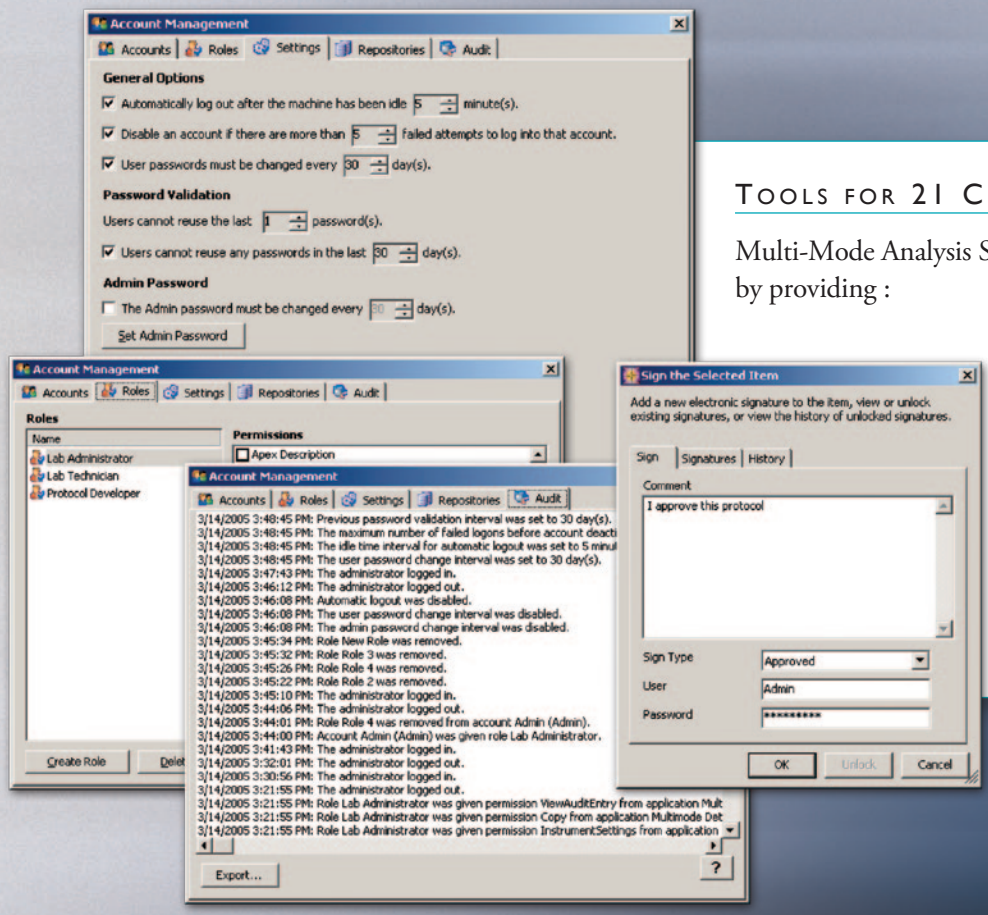
Data Analysis

The intuitive and flexible Multimode Analysis Software platform enables simple assay set-up and powerful data analysis capabilities.

- Generate standard curves with several curve fitting formulas
- Choose from more than 10 data reduction formulas
- Create variables and data transformation formulas
- Program cut-off groups for qualitative analysis
- Configure assay validation formulas
- Quickly recalculate results using different parameters without re-running the plate

Configure assays and analysis for:

~ DNA and protein concentration
~ ELISAs
~ Cell-based assays
~ Cytotoxicity and apoptosis assays
~ Kinetic assays



Tools for 21 CFR Part 11 Compliance

Multi-Mode Analysis Software GxP enables compliance by providing :

- Administrator system management options such as password aging, password validation, logon failure, and automatic idle log out
- Definition of user accounts, roles and permissions
- Electronic signature support
- Unalterable audit trail for system and software actions

Performance Testing – All On One Plate

The innovative Multimode Validation Plate, featuring a reference test plate and simple software, enables users to easily verify the performance of their Molecular Devices FilterMax Multi-Mode Microplate Readers.

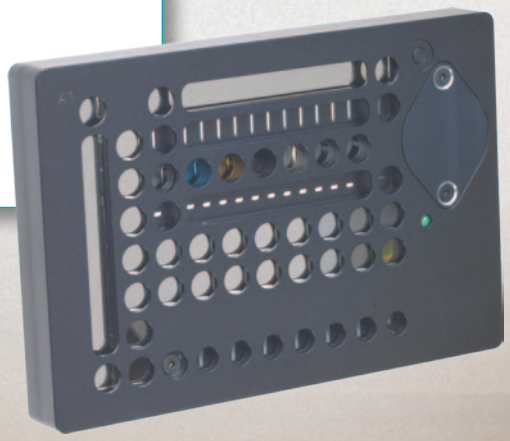
There is no programming of protocols or wet chemistry involved –just select the mode(s) you want to test, insert the plate and go. A standard summary test report delivers basic"Pass/Fail" results or data can be viewed directly.

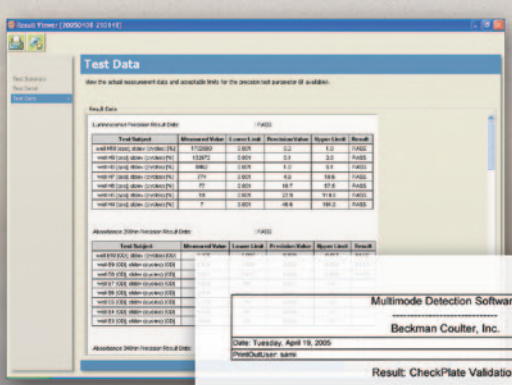
Test detection modes:

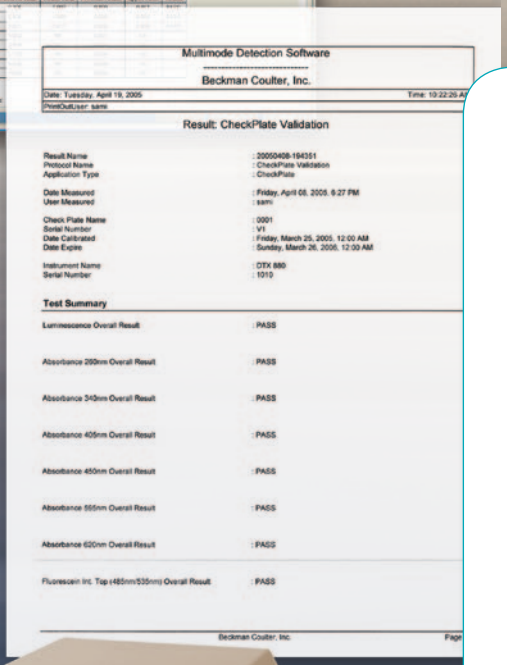
- *Fluorescence Intensity*
- *Fluorescence Polarization*
- *Time-Resolved Flourescence*
- *Luminescence*
- *Absorbance*

Test perfornace parameters:

- *Linearity*
- *Precision*
- *Accuracy*
- *Dynamic Range*
- *Alignment*
- *Signal to Noise*
- *Signal to Background*







Results You Can Trust

- Plate uses National Institute of Standards and Technology (NIST) traceable standards for absorbance testing
- Each plate comes with its own unique certification and quality documentation

Easy Operation

- User chooses which mode(s) to test and how often to run the plate
- Simple software interface – no programming required
- No time-consuming pipetting or wet chemistry involved

Straightforward Results Reporting

- Standard 'pass/fail' results report printout
- View additional results data detail if desired
- Save test results in software database

Specifications

	FilterMax F3	FilterMax F5
General		
Light Source	High-Power LEDs	High-Power LEDs + Deuterium Lamp
Detectors	Silicon Photodiode + PMT	Silicon Photodiode + PMT
Filters	1 EX + 1 EM Filter Slides (6 filter capacity)	2 EX + 1 EM Filter Slides (6 filter capacity)
Plate Formats	96- to 384-well	6- to 1536-well
Shaking	Linear + Orbital (3 speeds)	Linear + Orbital (3 speeds)
Temperature Control	—	Ambient +4°C to 45°C
Power/Voltage	100-240 VAC; 50/60 Hz	100-240 VAC; 50/60 Hz
Dimensions (W x H x L)	39 cm x 24 cm x 58 cm	39 cm x 24 cm x 58 cm
Weight	25 kg	25 kg
Absorbance (ABS)		
Wavelength Range	340-650 nm	230-650 nm
Indication Range	0-3.5 OD	0-3.5 OD
Accuracy	< ± 1 % and ± 10 m OD at 2 OD at 405 nm	< ± 1 % and ± 10 m OD at 2 OD at 405 nm
Reproducibility	< ± 0.5 % and ± 0.005 OD at 2 OD at VIS**	< ± 0.5 % and ± 0.005 OD at 2 OD at VIS** ± 0.5 % and ± 0.005 OD at 1 OD at UV**
Fluorescence Intensity (FI) Top Read		
Wavelength Range	340-650 nm	230-750 nm
Detection Limit – 96-well plate	3 fmol fluorescein	0.5 fmol fluorescein
Detection Limit – 384-well plate	3 fmol fluorescein	0.4 fmol fluorescein
Linear Dynamic Range	6 decades	6 decades
Fluorescence Intensity (FI) Bottom Read		
Wavelength Range	—	300-650 nm
Detection Limit – 96-well plate	—	25 fmol fluorescein
Detection Limit – 384-well plate	—	15 fmol fluorescein
Luminescence (LUM) Glow		
Wavelength Range	400-650 nm	400-750 nm
Detection Limit – 96-well plate	2 fmol ATP	2 fmol ATP
Linear Dynamic Range	6 decades	6 decades
Fluorescence Polarization (FP)		
Wavelength Range	—	300-750 nm
Detection Limit – 96-well plate	—	3 mP at 10 nM fluorescein
Detection Limit – 384-well plate	—	4 mP at 10 nM fluorescein
Time-Resolved Fluorescence (TRF)		
Wavelength Range	—	340-750 nm
Detection Limit – 96-well plate	—	30 amol Europium
Detection Limit – 384-well plate	—	15 amol Europium

Ordering Information

Part No.	Description
F3	**FilterMax F3 Multi-Mode Microplate Reader**
F5	**FilterMax F5 Multi-Mode Microplate Reader**
0200-7100	**Multi-Mode Analysis Software for SpectraMax® Paradigm® and FilterMax Readers (Standard)**
0200-7101	**Multi-Mode Analysis Software for SpectraMax Paradigm and FilterMax Readers (GxP)** Includes features and controls for 21 CFR Part 11 compliance
0200-7200	**Multi-Mode Validation Plate**

Note: Minimum operating system requirements for Multimode Analysis Software are: Windows version XP; Pentium II 300Mhz CPU; min. 128 MB RAM; 150 MB available on hard drive; and 1 free serial port. Customer supplied controller must meet these requirements.

*** at the supplied wavelengths: VIS > 399 nm, UV < 400 nm*

Molecular Devices

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