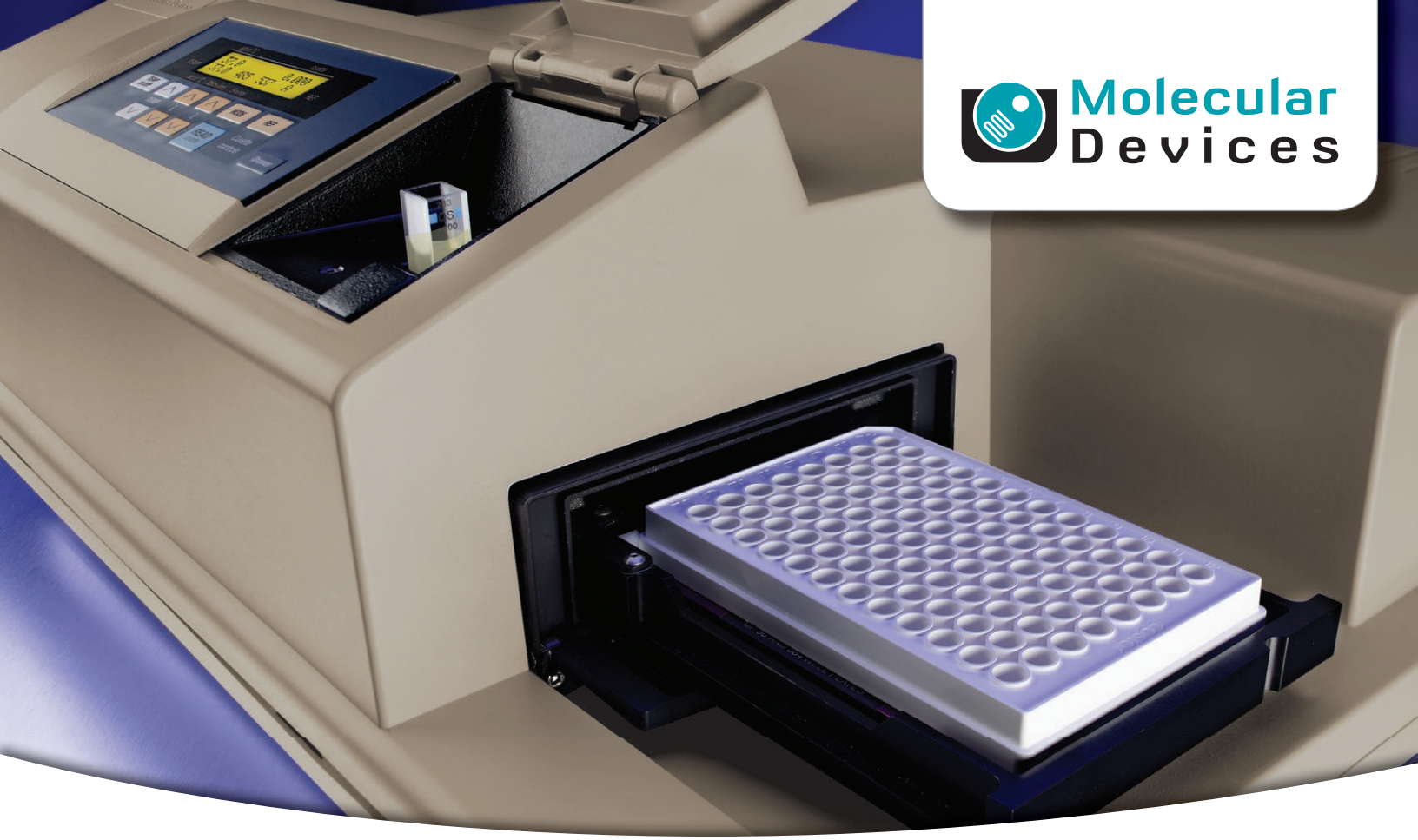


Molecular Devices

SpectraMax M-Series Multi-Mode Microplate Readers

Your applications. your modes. your choice

Key Features

- Upgradeable platform for changing lab needs
- Three-mode cuvette port for assay development
- Dual monochromator tunability
- Automated absorbance pathlength correction
- Endpoint, kinetic, spectral and well-scanning
- Comprehensive data analysis
- Validation and compliance
- Robotics compatibility

The SpectraMax® M3, M4, M5 and M5^{e} Multi-Mode Microplate Readers are a modular, upgradeable dual-monochromator microplate reader platform offering a wide range of high performance multi-mode capabilities ideal for life science research and drug discovery screening. Choose from a three- (M3), four- (M4), or five- (M5/M5^{e}) mode reader customized to your specific applications or budgetary needs, while optional capabilities allow you to upgrade with other detection modes at a later time. All configurations offer a triple-mode cuvette port, accurate temperature control, microplate shaking and comprehensive data management using our SoftMax® Pro Microplate Data Acquisition and Analysis Software. Detection modes include:

- UV-Visible Absorbance (Abs)
- Fluorescence Intensity (FI)
- Luminescence (Lum)
- Time-Resolved Fluorescence (TRF)
- Fluorescence Polarization (FP)

The SpectraMax M5^{e} Reader offers the additional benefit of being certified for Cisbio Bioassays' HTRF® technology.

Dual monochromators for assay flexibility

With SpectraMax Multi-Mode Readers, there is no need to utilize expensive filters to optimize detection levels and background. The optical systems use two scanning monochromators so the user can determine optimal excitation and emission settings, resulting in assay performance similar to that of dedicated single-mode readers.

Patented pathlength correction for better absorbance accuracy

Only Molecular Devices microplate plate readers offer the capability to measure the depth (optical pathlength) of samples with no temperature dependency using the patented PathCheck® Sensor technology. With SoftMax Pro Software, the PathCheck Sensor automatically normalizes the well absorbance. This eliminates the need for standard curves, and, for compounds with known absorptive properties, enables users to calculate concentrations directly from absorbance.

Five-mode microplate reading with superior optics

Unique optical characteristics

1. Reference diodes enable elimination of measurement noise due to slight fluctuations in excitation light intensity.
2. Angled emission beam improves signal-to-noise, especially in narrow Stokes shift fluorophores, by reducing stray light.
3. Elliptical mirrors are used instead of lenses for maximum transmission with minimal wavelength distortion.
4. Top-quality UV-grade fibers give the highest light transmission down to even the lowest wavelengths.

Assay collaboration for ease-of-setup

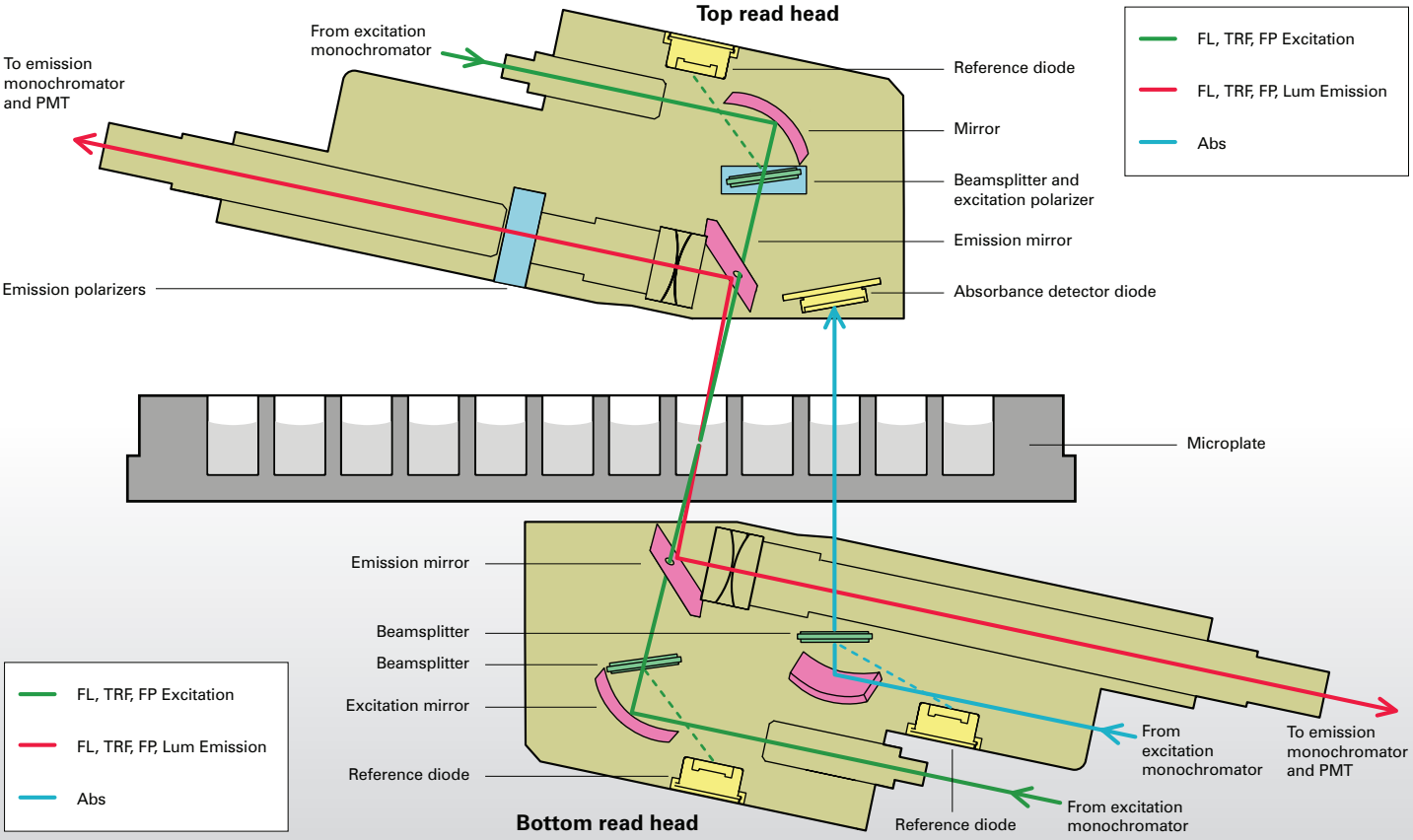
Molecular Devices has collaborated with various assay partners to optimize and validate homogeneous and heterogeneous biochemical- or cell-based assay performance on the SpectraMax platform. To support these assays, we provide application notes as well as ready-to-run protocols in our SoftMax Pro Software. Some of our featured partner assays include HTRF assays from Cisbio Bioassays and LanthaScreen® TR-FRET assays from Invitrogen (now part of Life Technologies).

IMAP® PLATFORM VALIDATED

LanthaScreen® Certified invitrogen

htrf This reader is HTRF® compatible.

Superior optics for optimal assay performance



Which SpectraMax Multi-Mode Microplate Reader do you need?

Detection Modes	SpectraMax M3 Reader	SpectraMax M4 Reader	SpectraMax M5 Reader	SpectraMax M5e Reader
Absorbance	✓	✓	✓	✓
Fluorescence Intensity	✓	✓	✓	✓
Luminescence	✓	✓	✓	✓
Time-Resolved Fluorescence		✓	✓	✓
Fluorescence Polarization			✓	✓
HTRF				✓
Upgrade Options	TRF, HTRF, FP	HTRF, FP	HTRF	N/A
Plate Formats				
6-, 12-, 24-, 48-, 96-, 384-Well Microplates	✓	✓	✓	✓
Certification and Validation				
IMAP Validation		✓ (TR-FRET only)	✓ (TR-FRET only)	✓ (TR-FRET only)
HTRF Certification				✓
LanthaScreen Certification		✓	✓	✓
Key Applications				
ADME-Tox	✓	✓	✓	✓
Cell Migration Assays	✓	✓	✓	✓
Cell Viability and Cytotoxicity Assays	✓	✓	✓	✓
DNA/RNA Quantitation	✓	✓	✓	✓
ELISAs	✓	✓	✓	✓
Enzyme Kinetics	✓	✓	✓	✓
Fluorescent Proteins and FRET	✓	✓	✓	✓
Low Volume Applications	✓	✓	✓	✓
Membrane Permeability	✓	✓	✓	✓
Neurotransmitter Transporter Uptake Assay	✓	✓	✓	✓
Protease Assays	✓	✓	✓	✓
Protein Assays	✓	✓	✓	✓
QBT Fatty Acid Uptake Assay	✓	✓	✓	✓
Reporter Gene Assays	✓	✓	✓	✓

Comprehensive software and validation

Comprehensive data analysis and GxP solutions

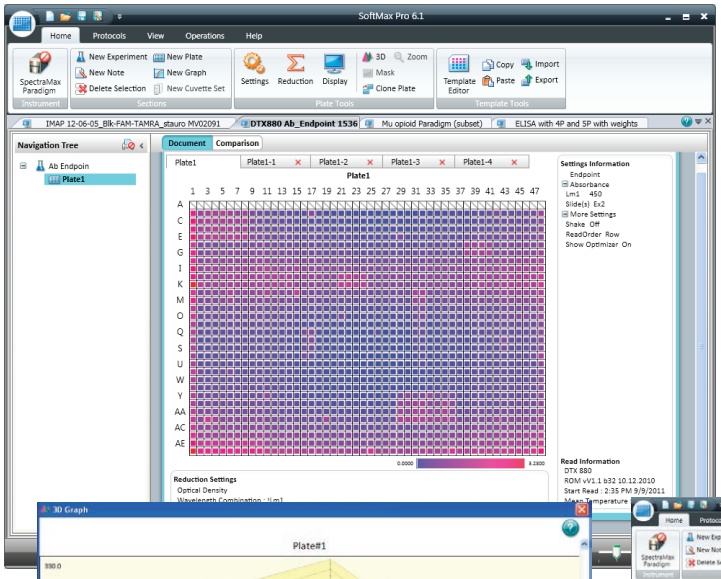
SoftMax Pro Software provides data acquisition, analysis and management capabilities, allowing cross-plate analysis, custom calculations, and personalized reporting. For users operating in a FDA 21 CFR Part 11 compliant environment, SoftMax Pro GxP Software is available, allowing user permissions, audit trails, e-signature and reporting tools.

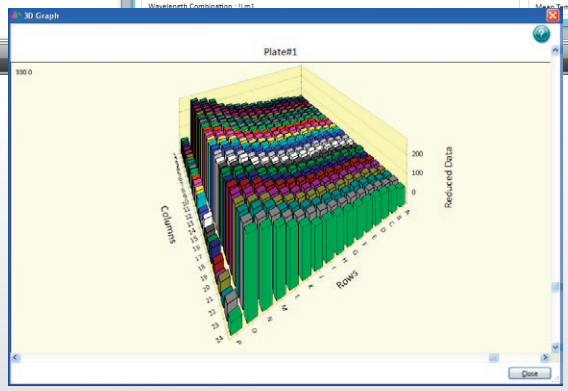
Validation and compliance of optical characteristics

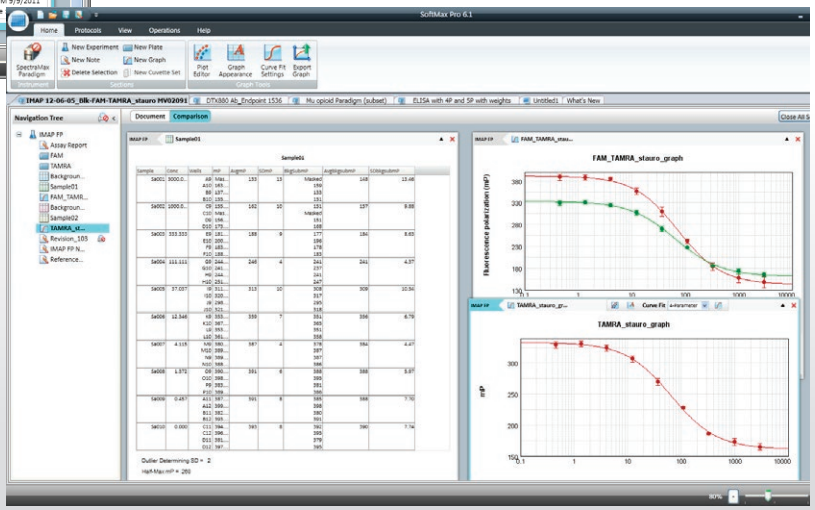
SpectraMax Readers have the most complete level of product validation and compliance. Molecular Devices provides the complete solution covering the instrument and software:

- SpectraTest® ABS1, FL1, and LM1 Validation Plates for hardware validation of absorbance, fluorescence, and luminescence modes
- IQ/OQ for all microplate readers
- SoftMax Pro Software Validation Package
- Software tools for FDA 21 CFR Part 11 compliance

Powerful, user-friendly software







SoftMax Pro Software features over 140 ready-to-use protocols for data acquisition; customizable spreadsheet functionality for analysis; powerful graphing tools for data presentation; and a flexible notes section for concise delivery of critical results.

Validation test plates for Abs, Fl, Lum optical performance

SpectraTest ABS1 Absorbance Plates, FL1 Fluorescence Plates, and LM1 Luminescence Plates are used to validate optical performance of SpectraMax M3, M4, and M5/M5e Microplate Readers.

Flexibility for your assay needs

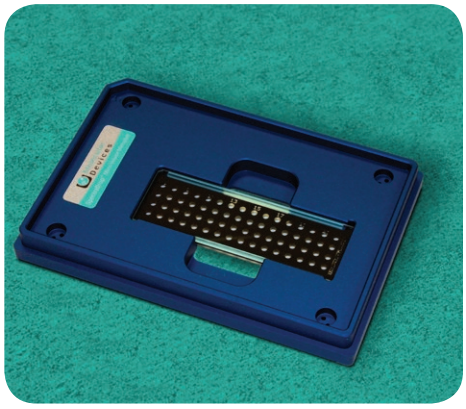
Robotics compatibility for increased throughput

SpectraMax Multi-Mode Microplate Readers can be easily integrated with our optional StakMax® Microplate Stacker for walk-away processing. Operated from within SoftMax Pro Software, the StakMax Microplate Handler can hold up to 50 plates and facilitates barcode reading.

For more advanced automation needs Molecular Devices interacts with all of the major lab automation providers, and is one of their leading choices.

Highly customizable low volume applications

Molecular Devices' unique SpectraDrop™ Micro-Volume Microplate offers the highest throughput solution for low volume measurement available on the market today. The innovative and flexible design features enable accelerated sample preparation time and increased laboratory productivity in DNA, RNA and protein research. The SpectraDrop Microplate assures uniform and reproducible analysis and integrates seamlessly with the StakMax Stacker for greater research capacity.

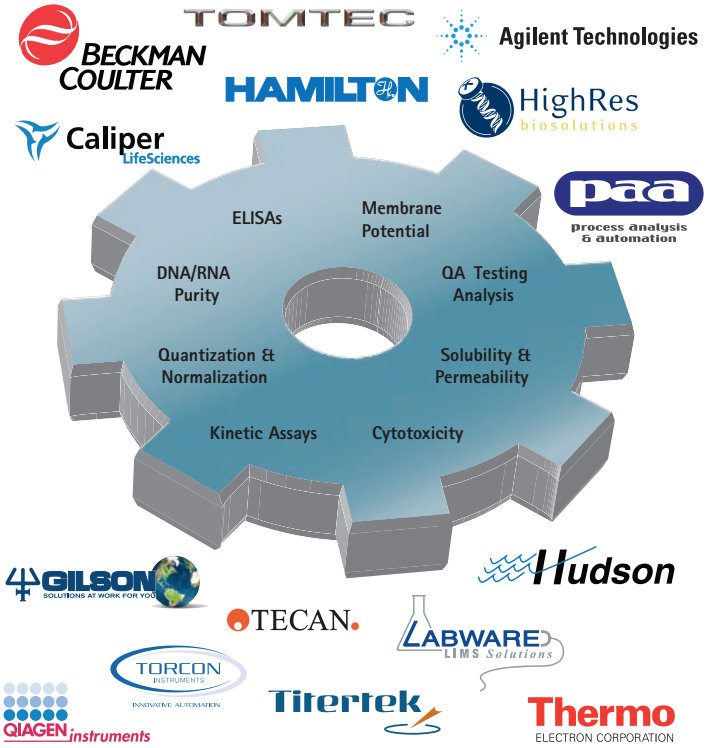


The SpectraDrop Micro-Volume Microplate offers the ability to use as little as 2 µL samples with 24- or 64-well plates.

StakMax Microplate Handling System

Integrate any SpectraMax Multi-Mode Reader with the StakMax Microplate Handling System from Molecular Devices. The system provides automation for up to 50 microplates for easy walkaway automation. System setup and calibration are controlled from within SoftMax Pro Software.

Compatible automation solutions for SpectraMax Readers



SoftMax Pro Software has been integrated by many leading robotics and LIMS partners, enabling both data analysis and instrument control in automated environments.

Technical specifications

General Specifications	
Dimensions (in.)	8.6 (H) x 22.8 (W) x 15.3 (D)
Dimensions (cm)	22 (H) x 58 (W) x 39 (D)
Weight	36 lbs. (16.4 kg)
Power consumption	< 420 watts
Power source	100–240 VAC, 3.5 A, 50/60 Hz
Robotic-compatible	Yes
General Photometric Performance	
Plate formats	6, 12, 24, 48, 96, 384 wells
Light source	Xenon Flash Lamp (1 joule/flash)
Detectors	2 photomultiplier tubes (PMT)
Shaker time	0 to 999 seconds
Temp. control	2°C above ambient to 60°C
Temp. uniformity	< 1°C at 37°C set point
Temp. accuracy	±1°C at 37°C set point
Endpoint reading	All modes
Kinetic reading	All modes
Spectral scanning	All modes
Well scanning	Abs, FI, TRF, Lum
Standard Read Times (minutes:seconds)*	
	96 wells / **384 wells**
Absorbance	0:18 / 0:49
Fluorescence Intensity	0:17 / 0:48
Fluorescence Polarization	0:42 / 2:03
Time-Resolved Fluorescence	0:17 / 0:48
Luminescence	2:00 / 7:00
Absorbance Photometric Performance	
Reading capabilities	Cuvette or microplate
Wavelength range	200–1000 nm
Wavelength selection	Monochromator, tunable in 1.0 nm increments
Wavelength bandwidth	≤ 4.0 nm
Wavelength accuracy	±2.0 nm
Wavelength repeatability	±0.2 nm
Photometric range	0–4.0 OD
Photometric resolution	0.001 OD
Photometric accuracy (microplate)	< ±0.006 OD ±1.0%, 0–2 OD
Photometric accuracy (cuvette)	< ±0.005 OD ±1.0%, 0–2 OD
Photometric precision	< ±0.003 OD ±1.0%, 0–2 OD
Stray light	< 0.05% @ 230 nm

Fluorescence Intensity Performance	
Reading capabilities	Cuvette or top or bottom of a microplate
Wavelength range	250–850 nm
Wavelength selection	Monochromators, tunable in 1.0 nm increments
Bandwidth (EX, EM)	9 nm, 15 nm
Optimized sensitivity	≤ 1 pM fluorescein in 96 wells, ≤ 1.5 pM in 384 wells
Guaranteed sensitivity**	< 5 pM fluorescein in 96 wells or cuvette, < 20 pM in 384 wells
Luminescence Performance	
Reading capabilities	Cuvette or top or bottom of a microplate
Wavelength selection	Choice of simultaneous detection of all wavelengths or selection via monochromator, tunable in 1.0 nm increments
Wavelength range	250–850 nm
Optimized sensitivity	≤ 43 pM ATP in 96 wells
Guaranteed sensitivity**	≤ 75 pM ATP in 96 wells
Dynamic range	> 6 decades
Cross-talk	< 0.3% in white 96- and 384-well microplates
Time-Resolved Fluorescence Performance (M4, M5, M5e only)	
Reading capabilities	Top or bottom of a microplate
Wavelength selection	Monochromators, tunable in 1.0 nm increments
Bandwidth (EX, EM)	9 nm, 15 nm
Precision data collection	1–100 flashes, delay of 0–600 µsec. before read, integration time selectable between 50–1500 µsec.
Optimized sensitivity	≤ 10 fM europium in 96
Guaranteed sensitivity**	≤ 100 fM europium in 96 or 384 wells
SpectraMax M5e Reader only	Certified to Cisbio Bioassays' HTRF technology performance specifications
Fluorescence Polarization Performance (M5/M5e only)	
Wavelength range	300–750 nm
Wavelength selection	Monochromators, tunable in 1.0 nm increments
Bandwidth (EX, EM)	9 nm, 15 nm
Optimized Precision	≤ 3.5 mP standard deviation at 1 nM fluorescein in 96 wells
Guaranteed Precision**	< 5 mP standard deviation at 1 nM fluorescein in 96 wells

* With 3 flashes/well in absorbance and fluorescence modes, and 1 sec./well integration in luminescence.

** For properly functioning, operated, and maintained equipment.

The PathCheck Sensor is covered under U.S. Patents 5,959,738, 6,188,476, 6,320,662, 6,339,472, 6,404,501, 6,496,260 and 6,995,844. SpectraMax M3, M4, M5, and M5e Readers are also covered under U.S. Patents 6,097,025 6,232,608, 6,236,456, 6,313,471, 6,316,774, 6,693,709, 6,825,921, and 7,663,755.

Contact Us

Phone: +1-800-635-5577
Web: www.moleculardevices.com
Email: info@moldev.com

Check our website for a current listing of worldwide distributors.

Regional Offices

USA and Canada +1-800-635-5577
Brazil +55-11-3616-6607
China (Beijing) +86-10-6410-8669
China (Shanghai) +86-21-3372-1088
Germany 00800-665-32860
Japan (Osaka) +81-6-7174-8831
Japan (Tokyo) +81-3-6362-5260
South Korea +82-2-3471-9531
United Kingdom +44-118-944-8000

Molecular Devices