

SpectraMax[®] M2/M2^e Microplate Readers

MULTI-DETECTION MICROPLATE READERS WITH DUAL-MODE CUVETTE PORTS



- MULTI-DETECTION CAPABILITY
- TOP- AND BOTTOM-READ (M2^e ONLY)
- DUAL-MODE CUVETTE PORT
- DUAL MONOCHROMATORS
- PATHCHECK AND WELL VOLUME SENSOR
- INSTRUMENT AND SOFTWARE VALIDATION
- ROBOT COMPATIBLE

The SpectraMax[®] M2 and SpectraMax[®] M2^e systems from Molecular Devices are multi-detection microplate readers with dual-monochromators, dual-mode cuvette ports, and top- and bottom-reading capability (top-reading only on SpectraMax M2). Detection modalities include absorbance (UV-Vis Abs) and fluorescence intensity (FI). The systems have optical performance comparable to a top-of-the-line dedicated spectrophotometer or spectrofluorometer and can read 6- to 384-well microplates. Endpoint, kinetic, spectrum and area-well scanning read types and Molecular Devices' PathCheck[®] Sensor allow homogeneous and heterogeneous microplate assays to be performed in one flexible system. SpectraMax M2 readers provide for easy conversion and optimization of very-low-throughput to medium-high-throughput assays, faster, more precise results and reagent savings. In addition, combined absorbance and fluorescence intensity assays can be run by issuing a single read command.

DUAL MONOCHROMATORS

With SpectraMax M2/M2^e, there is no need for expensive filters. The system uses two scanning monochromators to determine optimal excitation and emission settings. Changing methods or fluorophores requires only a few mouse selections to optimize the system.

PATENTED PATHCHECK SENSOR

The PathCheck Sensor is the only patented[†] technology available that measures the depth (optical pathlength) of samples in a microplate. With SoftMax[®] Pro software, it can automatically normalize the well absorbance to a cuvette equivalent pathlength of 1 cm—similar to using 96 or 384 cuvettes simultaneously. PathCheck allows standard curves to be eliminated and, for compounds with a known extinction coefficient, concentration can be calculated directly from absorbance.

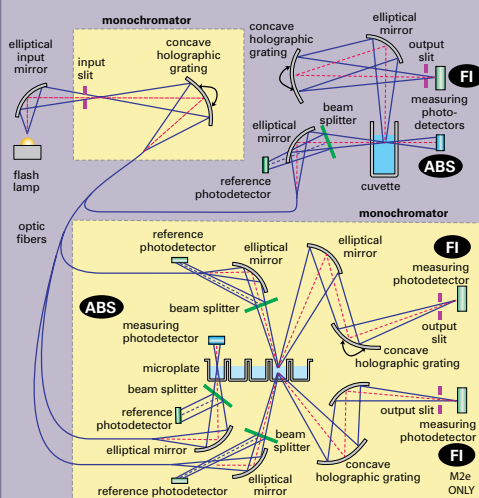
APPLICATIONS

- DNA/RNA/protein quantitation and purity
- PicoGreen[®]/NanoOrange[™]/Bradford
- ELISAs/enzyme kinetics (*i.e.*, K_m , K_i , etc.)
- Drug dissolution profiles
- Live/Dead[®] Viability/cytotoxicity assays
- Caspase-3 and protease assays
- CatchPoint[®] cAMP assays

COMPREHENSIVE DATA ANALYSIS

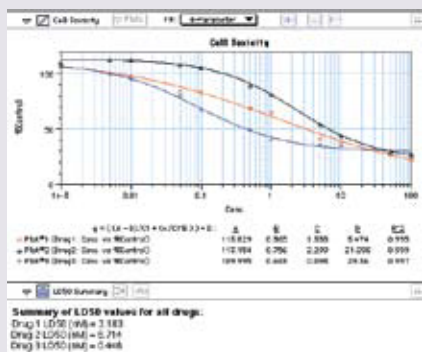
SoftMax Pro software provides data acquisition, analysis and management capabilities, allowing cross-plate analysis and custom calculations. There is no need to export data to a spreadsheet program.

best performance by design



The SpectraMax M2 optical system design provides performance similar to a dedicated spectrofluorometer or spectrophotometer and is the only optical system that has integrated a dual-mode cuvette port and microplate reading.

customize data collection and analysis



With SoftMax Pro software, choose endpoint, kinetic, spectral scan or well scan; view kinetic and spectrum runs in real time; collect and store data from multiple microplates, cuvettes, graphs, analysis tables and notes sections in the same data file.

validation test plates for Abs and FI optical performance



The SpectraTest validation test plates for absorbance and fluorescence intensity provide a complete traceable solution for validating optical performance of the SpectraMax M2 system, automatically.

INSTRUMENT AND SOFTWARE VALIDATION

The SpectraTest™ ABS1 absorbance and SpectraTest FL1 fluorescence validation packages provide validation of the system's optical characteristics. The SoftMax Pro Software Validation Package and IQ/OQ/PQ validation protocols include tools for FDA 21 CFR Part 11 compliance.

ROBOT COMPATIBILITY

SpectraMax microplate readers are the number one choice of Molecular Devices' robotic partners. The plate carriage design has no springs or clamps, and its robotic communication interface makes integrating custom applications straightforward.

TECHNICAL SPECIFICATIONS

Absorbance Photometric Performance

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): $< \pm 0.006$ OD $\pm 1.0\%$, 0–2 OD
Photometric accuracy (cuvette): $< \pm 0.005$ OD $\pm 1.0\%$, 0–2 OD
Photometric precision: $< \pm 0.003$ OD $\pm 1.0\%$, 0–2 OD
Baseline flatness: < 0.001 OD
Stray light: $< 0.05\%$ @ 230 nm

Fluorescence Photometric Performance (M2)

Dual monochromators: 1 nm increments
EX 250–850 nm
EM 360–850 nm
Bandwidth (EX, EM): 9, 9 nm
Detection limit: 3.0 fmol/well FITC 200 μ L in 96 wells (signal 3X SD of baseline)

Fluorescence Photometric Performance (M2[®])

Dual monochromators: 1 nm increments
EX 250–850 nm
EM 250–850 nm
Bandwidth (EX, EM): 9, 9 nm
Top-read detection limit: 3.0 fmol/well FITC 200 μ L in 96 wells (signal 3X SD of baseline)
Bottom-read detection limit: 5.0 fmol/well FITC 200 μ L in 96 wells (signal 3X SD of baseline)

Time-Resolved Fluorescence (Secondary Mode)

Wavelength range (M2): 360–850 nm
Wavelength range (M2[®]): 250–850 nm
Data collection: 50–1450 μ sec., 200 μ sec. increments
Sensitivity: 0.5 fmol/well Eu-chelate (obtained with DELFIA[®] reagent from Perkin Elmer by using a 384-well plate)

Luminescence (Secondary Mode)

Wavelength range (M2): 360–850 nm
Wavelength range (M2[®]): 250–850 nm
Detection limit: 10 amol/well alkaline phosphatase 200 μ L/well (obtained with Emerald II™ reagent from Applied Biosystems)

General Photometric Performance

Plate formats: 6, 12, 24, 48, 96, 384 wells
Light source: Xenon flash lamp (1 joule/flash)
Detector: Photomultiplier (R-3896)
Read time* 96-well: Abs 18 sec., FI 15 sec.
384-well: Abs 49 sec., FI 45 sec.
Shaker time: 0 to 999 seconds
Temp. control: 4°C above ambient to 45°C
Temp. uniformity: $< 1^\circ$ C at 37°C set point
Temp. accuracy: $\pm 1^\circ$ C at 37°C set point

* Measurement type may extend read time.

General Specifications

Dimensions (in.): 8.6 (H) x 22.8 (W) x 15 (D)
Dimensions (cm): 22 (H) x 58 (W) x 38 (D)
Weight: 35 lbs. (15.9 kg)
Power consumption: < 125 watts
Power source: 100–240 VAC, 3 A, 50/60 Hz
Robot compatible: Yes

ORDERING INFORMATION

Contact your Molecular Devices sales representative for configuration options.

SALES OFFICES

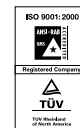
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- China (Shanghai) +86-21-6887-8820
- Germany +49-89/96-05-88-0
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Check our web site for a current listing of our worldwide distributors.

www.moleculardevices.com

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† 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 pending.



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