Molecular Devices

SpectraMax M2/M2e Microplate Readers

MULTI-DETECTION MICROPLATE READERS WITH DUAL-MODE CUVETTE PORTS

- → MULTI-DETECTION CAPABILITY
- → TOP- AND BOTTOM-READ (M2e ONLY)
- → DUAL-MODE CUVETTE PORT
- → DUAL MONOCHROMATORS
- → PATHCHECK AND WELL VOLUME SENSOR
- → INSTRUMENT AND SOFTWARE VALIDATION
- → ROBOT COMPATIBLE

The SpectraMax® M2 and SpectraMax® M2e 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 the 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 the 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/M2e Readers, 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 from Molecular Devices 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. The PathCheck Sensor 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
- → cAMP assays using CatchPoint® Assay Kits

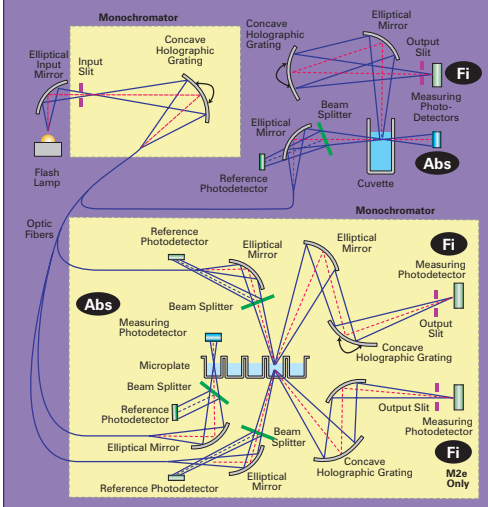
COMPREHENSIVE DATA ANALYSIS

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.

INSTRUMENT AND SOFTWARE VALIDATION

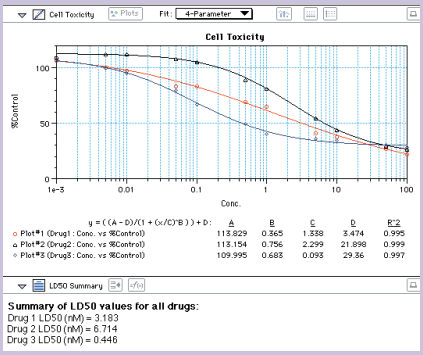
The SpectraTest® ABS1 Absorbance and SpectraTest FL1 Fluorescence Validation Packages provide validation of the system's optical characteristics. The SoftMax Pro Software validation package and IQ/OQ/PQ validation protocols include tools for FDA 21 CFR Part 11 compliance.

Best Performance by Design



The design of the SpectraMax M2 Reader's optical system 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

SpectraTest Validation Test Plates for absorbance and fluorescence intensity provide a complete traceable solution for validating optical performance of the SpectraMax M2 Reader, automatically.

PLATE STACKER AND ROBOT INTEGRATION

The SpectraMax M2 and M2e Readers can be integrated with the StakMax® Microplate Stacker from Molecular Devices in a matter of minutes and begin reading microplates with seven mouse clicks. For a higher degree of automation, the Automation Vendor Partners Program has streamlined the integration of our microplate reader systems with all leading partner robots. The "out-of-the-box" automation solution saves up-front integration time and resources.

ASSAYS POWERED BY SPECTRAMAX READERS

Molecular Devices has collaborated with various assay partners to optimize and validate assay performance on the SpectraMax platform.

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):	< ±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
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 µL in 96 wells (signal 3X SD of baseline)

Fluorescence Photometric Performance (M2e)

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 µL in 96 wells (signal 3X SD of baseline)
Bottom-read detection limit:	5.0 fmol/well FITC 200 µL in 96 wells (signal 3X SD of baseline)

Time-Resolved Fluorescence (Secondary Mode)

Wavelength range (M2):	360–850 nm
Wavelength range (M2e):	250–850 nm
Data collection:	50–1450 µsec., 200 µsec. increments
Sensitivity:	0.5 fmol/well Eu-chelate (obtained with DELFIA® reagent from PerkinElmer by using a 384-well plate)

Luminescence (Secondary Mode)

Wavelength range (M2):	360–850 nm
Wavelength range (M2e):	250–850 nm
Detection limit:	10 amol/well alkaline phosphatase 200 µL/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°C at 37°C set point
Temp. accuracy:	±1°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

- USA & Canada +1-800-635-5577
- Brazil +55-11-3616-6607
- China (Beijing) +86-10-6410-8669
- China (Shanghai) +86-21-6887-8820
- Germany +49-89/96-05-88-0
- Japan (Osaka) +81-6-6399-8211
- Japan (Tokyo) +81-3-5282-5261
- South Korea +82-2-3471-9531
- United Kingdom +44-118-944-8000

Check our web site for a current listing of our worldwide distributors.
www.moleculardevices.com

† 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. The SpectraMax M2 and M2e are also covered under U.S. Patents 6,097,025 (M2e only), 6,232,608, 6,236,456, 6,313,471, 6,316,774, 6,693,709, and 6,825,921.

Molecular Devices

Molecular Devices | 1311 Orleans Drive | Sunnyvale, CA 94089 USA | Email: info@moldev.com