Molecular Devices

SpectraMax Plus^{384} Microplate Reader

A MICROPLATE SPECTROPHOTOMETER WITH A BUILT-IN CUVETTE PORT

- FULL SPECTRAL RANGE
- WELL VOLUME SENSOR
- COMPREHENSIVE DATA ANALYSIS SOFTWARE
- OPTICAL VALIDATION
- SOFTWARE VALIDATION

The SpectraMax® Plus^{384} Microplate Reader from Molecular Devices can run both standard spectrophotometer and microplate reader applications on the same instrument. Read one sample or up to 384 in a single plate read using any standard cuvette, 12 x 75 mm test tube, or 96- or 384-well microplate. For more sample throughput, the system can be easily integrated into a full robotic system and easily adapts to fit sample processing requirements.

PATENTED PATHCHECK SENSOR

The SpectraMax Plus^{384} Reader utilizes Molecular Devices' PathCheck® Sensor—the only patented† technology available that measures the depth (optical pathlength) of samples in a microplate. When used with SoftMax® Pro Software, it can automatically normalize the well absorbance to a cuvette equivalent pathlength of 1 cm. This is equivalent to having 96 or 384 cuvettes.

The PathCheck Sensor also allows for the elimination of standard curves. For compounds with a known extinction coefficient, concentration can be calculated directly from absorbance.

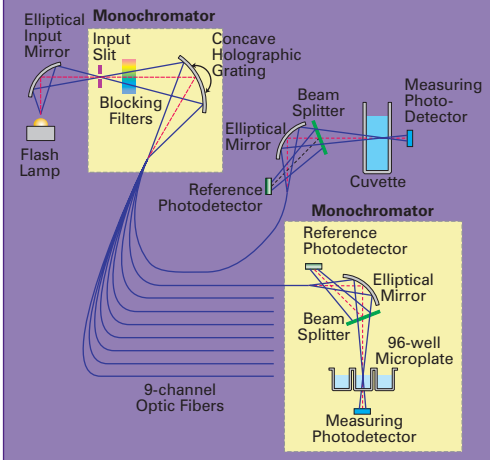
With the PathCheck Sensor, it is acceptable to have different volumes in the wells, so pipetting does not have to be accurate. Add 50–300 µL of sample or standard into each well of a 96-well plate (20 µL to 100 µL in a 384-well plate) and read. The PathCheck sensor will correct for the volume differences in all 96 or 384 wells and report 1 cm absorbance values.

Extend the dynamic range to 6+ OD. If a well reads out of range (> 4 OD), decrease the volume in that well and re-read the plate using the PathCheck Sensor. A 100 µL sample (optical pathlength ~0.3 cm) that reads 2.8 OD will be corrected to ~9.2 OD.

Pipetting errors in 96- or 384-well microplates can be detected. The PathCheck sensor measures differences in volume between the wells, so sources of error can be identified and eliminated from data, or absorbance values can be corrected.

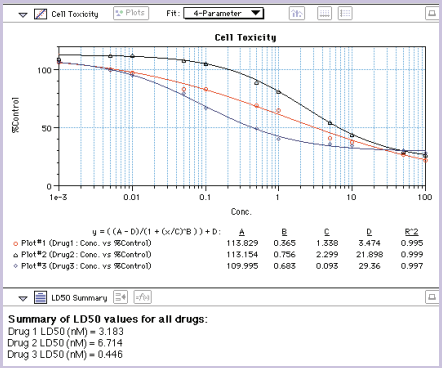
Quickly and easily test multi-channel dispensers and pipettors. Measuring the depth of the liquid in the well, the PathCheck Sensor can determine the volume of liquid dispensed. Even 96- or 384-channel dispensers can be tested in a matter of minutes.

Best Performance By Design



The SpectraMax Reader's optical system mimics a dual-beam spectrophotometer. Each sample has a discrete sample beam and reference beam.

Customize Data Collection and Analysis



SoftMax Pro Software, the industry-leading microplate reader software for the SpectraMax Plus^{384} System, allows complete customization of data collection and analysis.

Streamline GLP/GMP Compliance

The SpectraTest® Validation Package provides a NIST-traceable solution for validating optical performance of the SpectraMax Plus^{384} Reader and does it automatically.

APPLICATIONS

Essentially, all UV/VIS spectrophotometric assays that are read in a conventional spectrophotometer or microplate reader can be read in the SpectraMax Plus^{384} Reader:

- DNA quantitation
- Colorimetric assays
- ELISAs/EIAs
- Immunoassays
- Drug dissolution profiles
- Enzyme kinetics (*e.g.*, K_i, K_m, etc.)

COMPREHENSIVE DATA ANALYSIS

With SoftMax Pro Software, choose endpoint, kinetic, or spectral scans; view kinetic and spectral runs in real time and collect and store data from multiple plates, cuvettes, graphs, analysis tables and notes sections in the same data file. Lab processes can be automated with the software's interprocess messaging features and data and template information can be exported and imported to and from a LIMS system.

SOFTWARE VALIDATION

The SoftMax Pro software validation package provides comprehensive documentation and extensive data sets in CD-ROM format to enable SoftMax Pro software validation. FDA 21 CFR Part 11 compliance tools are also available.

PLATE STACKER AND ROBOT INTEGRATION

The SpectraMax Plus^{384} reader can be integrated with Molecular Devices' StakMax® Microplate Stacker 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.

TECHNICAL SPECIFICATIONS

Photometric Performance

Wavelength range:	190–1000 nm
Wavelength selection:	Monochromator, tunable in 1.0 nm increments
Wavelength bandwidth:	2 nm
Wavelength accuracy:	±1.0 nm
Wavelength repeatability:	±0.2 nm
Photometric range:	0–4.000 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
Light source:	Xenon flash lamp
Microplate read time: (normal mode)	96 wells in 9 seconds 384 wells in 29 seconds
Microplate read time: (speed read mode)	96 wells in 5 seconds 384 wells in 16 seconds

Temperature Regulation

Temp. range:	Ambient +4°C to 45°C
Temp. uniformity: (microplate)	±0.5°C at 37°C

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:	30 lbs. (13.6 kg)
Power consumption:	< 250 watts
Power source:	100–240 VAC, 4 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
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- China (Shanghai) +86-21-6887-8820
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- 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 and 6,188,476.

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