SpectraMax 340PC384 Microplate Reader

A versatile 96- and 384-well format absorbance reader

BENEFITS

- **Easily optimize for best assay conditions, including tunable wavelength**
- **Correct volume variations with PathCheck Sensor**
- **Interface with the latest state-of-the-art SoftMax Pro Software**
- **Ensure performance with validation tools**

Introduction

The SpectraMax® 340PC384 Reader from Molecular Devices provides everything needed to measure absorbance in the visible range, including temperature control, a robotics-compatible interface and SoftMax® Pro Data Acquisition and Analysis Software.

Accurate quantitation

The optical design of the SpectraMax 340PC384 reader truly mimics a dual-beam spectrophotometer. Each well has its own sample beam and reference detector. The eight-channel system, consisting of eight sample beams and eight reference beams, delivers both superior precision and speed-of-reading across the microplate.

No interference filters required

The SpectraMax 340PC384 system has a monochromator instead of interference filters. Simply select the absorbance maximum of a sample and let the monochromator tune to that exact wavelength. Or scan up to 384 wells at any time to determine the best assay conditions. The wavelength and scanning ranges are from 340–850 nm in 1 nm increments. This is equivalent to having 511 built-in filters, so the correct wavelength required is always available.

Measure fluid volumes in individual wells

The patented* PathCheck® Sensor measures the depth of the liquid in each microplate well. This information can be used to normalize absorbance values to a 1 cm pathlength so they will agree with measurements made in a standard 1 cm cuvette. This feature can also be used to calculate concentrations without a standard curve and expand the dynamic range to 6+ OD. The PathCheck sensor can accurately measure liquid volumes down to 5 µL to test the accuracy and precision of liquid handling devices.
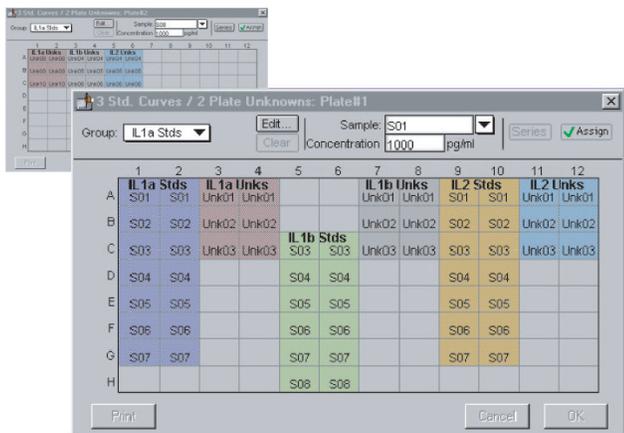
MOLECULAR DEVICES

Figure 1. Flexible template assignment. Standards for multiple calibration curves and unknowns can be run on separate plates.
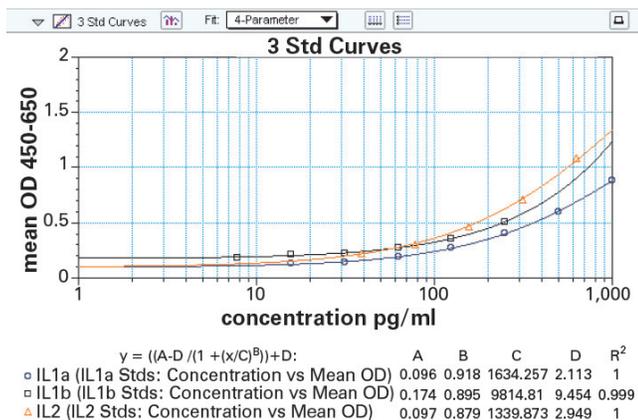

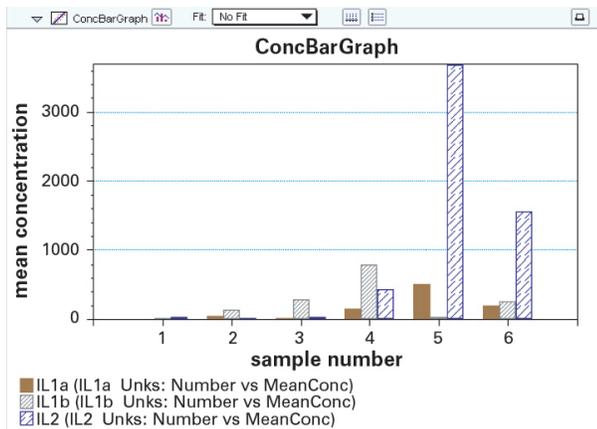**Figure 2. Multiple calibration curves.** Multiple calibration curves can be plotted on one graph.

Figure 3. Combined data graphing. Results from unknowns run on different plates and different calibration curves can be plotted on one graph.

Applications

The SpectraMax 340PC384 system can handle a wide variety of applications including:

- ELISA/EIA
- Cytoproliferation/cytotoxicity
- Kinetic ELISAs/enzyme assays
- ß-galactosidase reporter gene
- Colorimetric protein
- NAD(P)H-based assays

Leading microplate data analysis software

SoftMax Pro Software provides flexibility in experimental design, setup, analysis and reporting, providing the opportunity to customize assays exactly to user specifications. Users can password-protect data, choose from nine different curve-fitting routines and use default data reduction, or set up custom formulas for analysis. Data can be analyzed and combined from different plates. (See Figures 1, 2 and 3.) FDA 21 CFR Part 11 compliance tools are also available.

Optical performance validation

The optional SpectraTest® ABS1 Validation Package provides a NIST-traceable solution for validating the SpectraMax 340PC384 system. The following measurements are automatically made by SoftMax Pro Software: baseline noise, dark noise, optical alignment, wavelength accuracy, photometric linearity and wavelength precision.

Plate stacker and robot integration

The SpectraMax 340PC384 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	340–850 nm
Wavelength selection	Monochromator, tunable in 1 nm increments
Wavelength bandwidth	2 nm
Wavelength accuracy	±1 nm
Wavelength repeatability	± 0.2 nm
Photometric range	0 to 4.000 OD
Photometric accuracy	≤ ±0.006 OD ±1.0%, 0–2 OD
Photometric precision	≤ ±0.003 OD ±1.0%, 0–2 OD
PathCheck sensor measurement error	< 5% when compared to a 1 cm cuvette

Microplate read time (single wavelength)

Endpoint	96 wells in 9 seconds 384 wells in 29 seconds
Minimum kinetic interval	96 wells in 9 seconds 384 wells in 29 seconds

Temperature regulation

Temperature range	Ambient + 4°C to 45°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.

*The PathCheck sensor is covered under U.S. Patents 5,959,738 and 6,188,476.

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