Molecular Devices

# Gemini EM Microplate Reader

A DUAL-MONOCHROMATOR SPECTROFLUOROMETER SYSTEM



- NO FILTERS NEEDED
- TOP AND BOTTOM READING
- HIGHER SENSITIVITY
- VALIDATION TOOLS
- ROBOTICS COMPATIBLE

The Gemini™ EM Microplate Spectrofluorometer from Molecular Devices provides a flexible environment to determine the optimal excitation and emission settings for most fluorescent intensity assays. The Gemini EM reader with dual monochromators allows researchers to try new and novel dyes without having to purchase expensive filter sets. SoftMax® Pro Software, which provides convenient data analysis without exporting to another spreadsheet software, is included with every Gemini EM Reader. Software validation, IQ/OQ/PQ and FDA 21 CFR Part 11 compliance tools are also available.

## DUAL MONOCHROMATORS

With the Gemini EM Reader, users never have to worry about not having the right set of filters. The reader uses two scanning monochromators to determine the optimal excitation and emission settings for the spectral characteristics of fluorophores when used in an assay. Alternatively, the literature values can easily be input for the monochromator settings. When methods or fluorophores change, it takes only a few software commands to adjust the reader. New fluorophores can be tried without additional filter sets. If the best wavelengths for a fluorophore of interest are unknown, the Gemini EM reader can scan both excitation and emission spectra and determine the optimal settings.

## TOP- AND BOTTOM-READ OPTICS

The top- and bottom-reading optical design of the Gemini EM Reader allows for measurements of both solution- and cell-based assays. With the click of a button, the Gemini EM Reader can be switched between top- and bottom-reading modes.

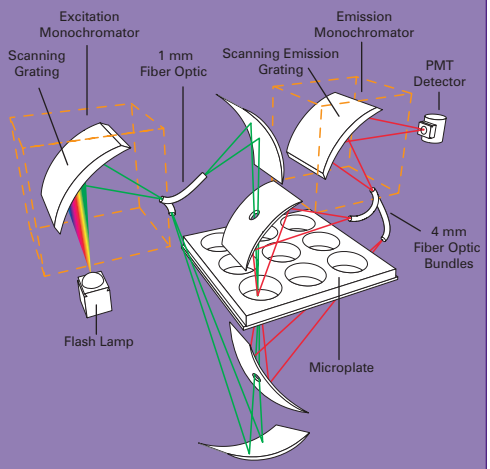
## WELL SCANNING

With well scanning, multiple points within each well can be read, providing a high level of sensitivity for cell-based assays. Endpoint, kinetic and spectrum scanning assays can also be run. The Gemini EM Reader is also optimized for cell migration assays in microplate format.

## PLATE STACKER AND ROBOT INTEGRATION

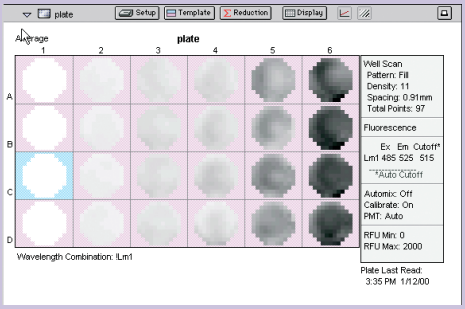
The Gemini EM Reader can be integrated with Molecular Devices' StakMax® Microplate Stacker in a matter of minutes and begin reading microplates with seven mouse clicks. For a higher degree of automation, the Automation Vendor Partners Program has streamlined the integration of our

## Gemini EM Reader Top and Bottom Optics



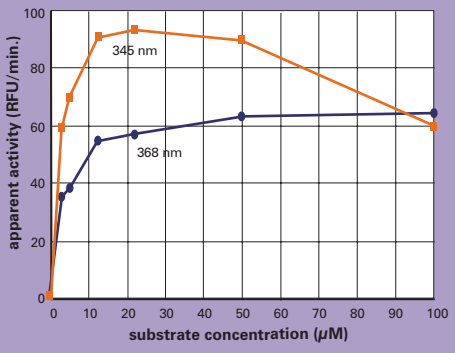

The optics of the Gemini EM Reader are engineered for superior performance and reliability.

## Gemini EM Reader Well Scans




Well scans from the Gemini EM Reader illustrating serial dilution of CHO cells using the Live Cell assay from Molecular Probes Live/Dead (Calcein AM /Ethidium Homodimer-1) assay kit. A Costar® 24-well tissue culture plate with col1 = blanks and doubling cell concentration left to right starting at Col. 2 with 1000 cells.

## Caspase-3 Activity at Different Excitation Wavelengths




Caspase-3 assay using the fluorogenic substrate. Z-DEVD-AMC. When the excitation wavelength is 345 nm (lambda max), there is apparent substrate inhibition because the substrate absorbs at that wavelength and quenches the excitation light (upper curve). By selecting a higher wavelength, the interference is avoided and the activity-vs.-substrate plot conforms to the classic Michelis-Menten model (lower curve).

microplate reader s with all leading partner robots. The "out-of-the-box" automation solution saves up-front integration time and resources.

### LEADING DATA ANALYSIS SOFTWARE

SoftMax Pro Data Analysis Software provides flexibility in experimental design, set-up, analysis and reporting, providing the opportunity to customize assays. 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.

### APPLICATIONS

- Cell migration assays
- Live/Dead viability/cytotoxicity assays
- Green fluorescent protein
- NanoOrange protein quantitation
- PicoGreen DNA detection
- Molecular beacons
- Caspase-3
- Fluorometric protease assays
- cAMP detection

### TECHNICAL SPECIFICATIONS

**Fluorescence Photometric Performance**

Dual monochromators: 1 nm increment selection
EX wavelength: 250–850 nm
EM wavelength: 250–850 nm
Bandwidth (EX, EM): 9 nm
Top-read detection limit (signal 3X SD of baseline): 3.0 fmol/well FITC 200 µL in 96 wells
Bottom-read detection limit (signal 3X SD of baseline): 8.0 fmol/well FITC 200 µL in 96 wells

**Time-Resolved Fluorescence (Secondary Mode)**

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

**Luminescence (Secondary Mode)**

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|---|---|
| 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 wells in < 15 seconds<br>384 wells in < 45 seconds |
| Shaker time: | 0 to 999 seconds |
| Temperature control: | 4°C above ambient to 45°C |

* 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**



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