



FLUOstar Omega

The multidetection microplate reader
with a UV/Vis absorbance spectrometer



FLUOstar Omega - The optimal combination of performance and flexibility for all of your R&D applications

Whether sensitivity, flexibility or extensive kinetic applications are needed, the FLUOstar Omega from BMG LABTECH is the optimal solution for academic and pharmaceutical research laboratories.

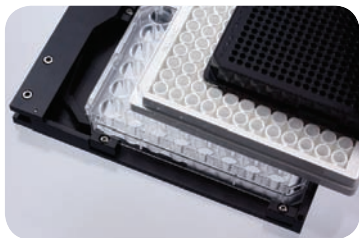
Flexibility

The FLUOstar Omega is a versatile, automated microplate reader offering four detection modes.

- UV/Vis absorbance spectra
- Fluorescence intensity
- Time-resolved fluorescence
- Luminescence (flash and glow)

With the ability to collect fast, full spectrum absorbance scans, to monitor rapid kinetic reactions and to perform FRET and BRET detection, you can be confident that the FLUOstar Omega will fulfill all your assay needs.

Top and bottom plate reading, multi-color detection, well scanning, precise temperature control, multi-mode shaking capabilities and a gas vent enhance the flexibility of the FLUOstar Omega. It can read from 6- to 1536-well plates in all detection modes and its onboard 'smart' injectors can be used to dispense reagents and initiate kinetic events.



...any plate format

Endpoint, Slow and Fast Kinetics

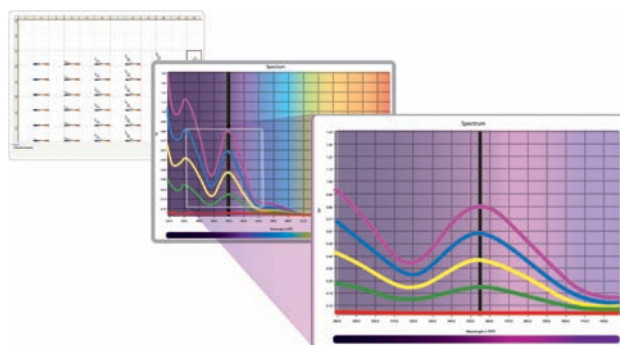
Kinetic data can be collected as quickly as 50 reading points per second or as slowly as one measurement every 2½ hours. Users can capture a fast calcium signal that happens in a few seconds, or measure bacterial growth over a period of days.

Data can also be collected at different rates within the same experiment, allowing users to collect more data when it is needed and less when it is not. Kinetic events can be conveniently initiated using the built-in reagent injectors.



Spectrometer-Based Absorbance

The FLUOstar Omega is the first multimode plate reader to use a spectrometer for absorbance measurements. This new technology can capture a full UV/Vis absorbance spectrum (220 to 850 nm) at resolutions as low as 1 nm. A full absorbance spectrum can be measured in less than one second per well, which is dozens of times faster than any competing method. Furthermore, users can measure up to eight wavelengths simultaneously in a single pass with no wavelength switching.



...from a single spectrum per well to spectra overlay plots

Advanced Reagent Injection

Two onboard precision injectors allow simultaneous reagent injection and detection. Users can adjust all parameters, such as injection speed, timing, shaking and the number of injections per well. Delivery volumes are adjustable for each well, allowing users to automatically produce dilution schemes and concentration gradients across the microplate.



High-Performance Luminescence

The FLUOstar Omega has been designed with a dedicated luminescence detection system. It offers exceptional luminescence performance that exceeds Promega's stringent DLReady™ (Dual Luciferase® validation) criteria in 96- and 384-well plate formats.

Multi-Color Detection

In fluorescence and luminescence modes, the fast filter switching capability of the FLUOstar Omega allows the use of dual excitation and dual emission applications, such as FRET, BRET, FURA-2 and other ratiometric methods. Fast simultaneous dual emission is available as an upgrade.

Well Scanning and Orbital Averaging

In well scanning mode, the FLUOstar Omega can take multiple measurements in each well with up to 30 x 30 data points. The software displays each scan point graphically and creates a map for each well.

Another possible way to measure nonhomogeneous well contents is BMG LABTECH's unique orbital averaging feature. Using this mode, the FLUOstar Omega takes several measurements on a defined orbit, collects the data and calculates an average for each well.

Stacker and Robot Compatibility

BMG LABTECH's standardized reader footprint and robotic software interface make it easy to integrate the FLUOstar Omega into all robotic automation systems. In addition, a 50-plate stacker with an integrated barcode reader can be added to any FLUOstar Omega.



...automated microplate handling with Stacker II

Control and Analysis Software

BMG LABTECH's user friendly software provides limitless possibilities for test set up and data analysis. It is fully compliant with FDA regulation 21 CFR Part 11.

The instrument control software ensures easy operation for new users and flexible parameters for even the most sophisticated research. The proprietary analysis software is powerful and easy to use. Standard curves, kinetic results, concentration and statistical determinations are produced automatically. Sharing and publishing results is simple with a "one click" export to Excel.

Applications

The FLUOstar Omega offers features to support all major assay types, in application areas including:

□ Biomolecular Interaction Assays

Monitoring biomolecular interactions is an important area of investigation. Using sophisticated assays based on FRET, BRET, and time-resolved fluorescence technologies, the FLUOstar Omega can improve the quality and speed of your research. Onboard reagent injection and dual emission detection improve performance when studying receptor-ligand, protein-protein, DNA-protein and DNA-DNA interactions.

□ Cell-Based Assays

Cellular detection in a microplate includes measuring cell proliferation, viability, cytotoxicity, intracellular pH and apoptosis. The analysis of fluorescent proteins, secondary messengers such as cAMP and Ca²⁺ and the use of reporter gene expression systems also work well. The FLUOstar Omega has important features for improving cell-based assay performance, including bottom reading for detection of adherent cells, an optional gas vent for 5% CO₂ addition, onboard reagent injectors, and the ability to scan within wells for fluorescence intensity variations. Furthermore, well scanning mode can ensure that unevenly distributed cells will be properly detected.

□ Enzyme Activity Assays

Enzymes play an important role in the regulation of numerous biological processes. The FLUOstar Omega can monitor wavelength shifts of substrates, products or cofactors like NAD or NADH to easily determine an EC₅₀. Precise temperature control, onboard reagent injection, shaking and high sensitivity allow for the highest level of flexibility in developing enzymatic assays and analyzing kinetic results. Rapid collection of full absorbance spectra from every well in a plate can open up new avenues of investigation into enzyme activity.

□ Quantification Assays

ELISA assays and the concentration of DNA, RNA and protein samples can be quantified quickly and conveniently with the FLUOstar Omega. Users can either rapidly measure the whole spectrum of a sample or select discrete wavelengths. Either way, the microplate is read only once and the results are instantaneous.

FLUOstar Omega

Technical Specifications

| | | |
|--------------------------------|--|--|
| Detection Modes | UV/Vis absorbance spectra | |
| | Fluorescence intensity | |
| | Time-resolved fluorescence | |
| | Luminescence (flash and glow) | |
| Measurement Modes | Endpoint and kinetic measurements | |
| | Sequential dual excitation measurements | |
| | Sequential dual emission measurements | |
| | Ratiometric measurements | |
| | Well scanning | |
| Light Source | High energy xenon flashlamp | |
| Detector | Side window photomultiplier tube | |
| Filters | Excitation and emission filter wheels for 8 filters each | |
| Spectral Range | 240 to 740 nm (240 to 900 nm optional) | |
| Reagent Injection | Up to two built-in reagent injectors | |
| | Injection at measurement position (6 to 384-well) | |
| | Individual injection volumes for each well (3 to 350 µL) | |
| | Variable injection speed (100 to 420 µL/s) | |
| | Up to four injection events per well | |
| | Reagent back flushing | |
| Incubation | + 5°C above ambient to 45°C (60°C optional) | |
| | Temperature stability: 0.2°C | |
| | Temperature gradient: < 0.5°C | |
| Shaking | Linear, orbital and double orbital | |
| Microplate Formats | 6 to 1536-well plates | |
| Absorbance Spectrometer | Spectral range: 220 to 850 nm | |
| | Spectral resolution: 1 nm | |
| | OD range: 0 to 3 OD | |
| | Accuracy: < 1% at 2 OD | |
| | Precision: < 0.5% at 1 OD and < 0.8% at 2 OD | |
| Sensitivity | FI | < 0.2 fmol/well sodium fluorescein |
| | TRF | < 30 amol/well europium |
| | LUM | < 30 amol/well ATP |
| Read Times | Flying mode | 9 s (96-well format) 16 s (384-well format) |
| | | |
| Dimensions | Width: 44 cm, depth: 48 cm, height: 31 cm Weight: 29 kg | |
| Stacker II | Magazines for up to 50 plates | |
| | Continuous loading feature | |
| | Barcode reader | |

Headquarters
Germany
BMG LABTECH GmbH
Hanns-Martin-Schleyer-Str. 10
77656 Offenburg
Tel. +49 781 96968-0
Fax +49 781 96968-67
germany@bmglabtech.com

Australia
BMG LABTECH Pty. Ltd.
2/24 Carbine Way
Morningside 3931
Victoria
Tel. +61 3 59734744
Fax +61 3 59734711
australia@bmglabtech.com

France
BMG LABTECH SARL
7, Rue Roland Martin
94500 Champigny s/Marne
Tel. +33 1 48862020
Fax +33 1 48864707
france@bmglabtech.com

Japan
BMG LABTECH JAPAN Ltd.
2F TS-1 Building
1-6-2, Shimo-cho, Omiya-ku
Saitama-city 330-0844
Tel. +81 48 6477217
Fax +81 48 6477218
japan@bmglabtech.com

UK
BMG LABTECH Ltd.
P.O. BOX 73
Aylesbury Bucks HP20 2QJ
Tel. +44 1296 336650
Fax +44 1296 336651
uksales@bmglabtech.com

USA
BMG LABTECH Inc.
2415 Presidential Drive
Building 204, Suite 118
Durham, NC 27703
Tel. +1 919 806 1735
Fax +1 919 806 8526
usa@bmglabtech.com

Specifications are subject to change without notice.

DLReady and Dual Luciferase are registered trademarks of Promega Corporation.

www.bmglabtech.com