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	

Specifications are subject to change without notice.

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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
Mornington 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

www.bmglabtech.com

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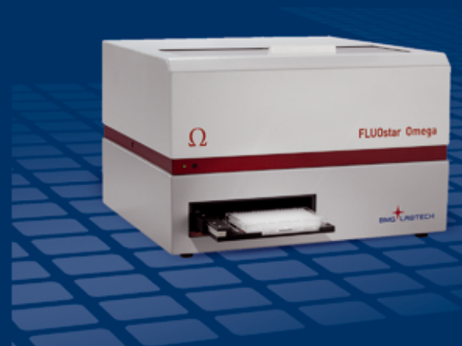
FLUOstar Omega

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

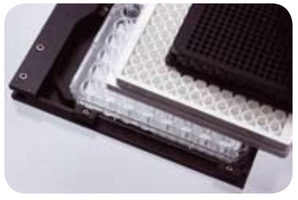
Whether sensitivity, flexibility or extensive kinetic applications are needed, the FLUOstar Omega from BMG LABTECH is the optimal solution for academic and pharmaceutical research laboratories.

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.

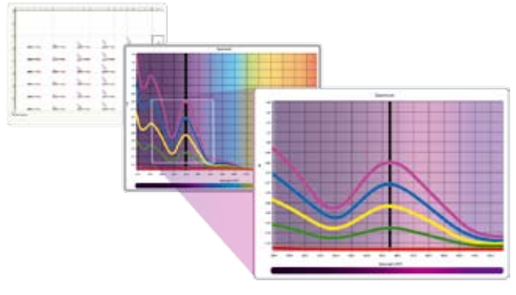
Top and bottom plate reading, multi-color detection, well scanning, precise temperature control, multi-mode shaking capabilities and a gas vent enhance the flexibility of the FLUOstar Omega. It can read from 6- to 1536-well plates in all detection modes and its onboard 'smart' injectors can be used to 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 Ca^{2+} 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% CO_2 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 EC_{50}. 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.