

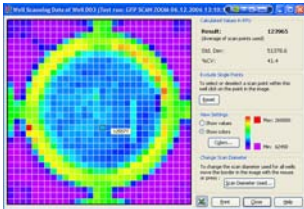
# Software

## Powerful microplate Reader Control and MARS Data Analysis Software

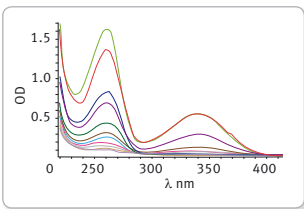
BMG LABTECH's software package includes Reader Control and MARS Data Analysis interfaces. This multi-user software package is included with every reader.

The intuitive Control Software is fully compliant with FDA regulation 21 CFR Part 11 and allows users to define instrument parameters and test protocols.

The MARS Data Analysis Software allows the user to display data, signal plots, spectra, and standard curves in 2D or 3D graphs. Data is processed using powerful predefined templates or a broad range of data calculation features. The software is also capable of creating standard curves and respective values (i.e. EC<sub>50</sub>, IC<sub>50</sub> and r<sup>2</sup>) based on the following curve fitting algorithms:

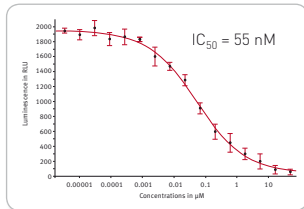


Well scanning

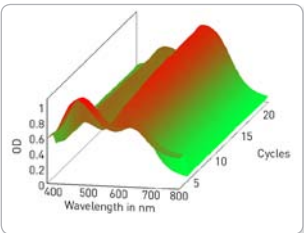


NADH spectrum

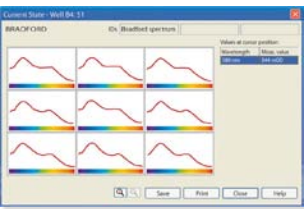
- Linear regression
- 4- and 5-parameter
- Exponential
- Point-to-point
- Segmental regression
- Michaelis-Menten K<sub>m</sub>
- Cubic spline
- 2<sup>nd</sup> and 3<sup>rd</sup> polynomial.



Dose-response curve



3D enzyme kinetic chart



Current state window

HTRF is a registered trademark of Cisbio Bioassays.  
DLR is a trademark of Promega Corporation.  
LanthaScreen is a registered trademark of Invitrogen Corp.  
Transcreeper is a registered trademark of BellBrook Labs.  
AlphaScreen, AlphaLISA, LANCE, and DELFIA are registered trademarks of PerkinElmer, Inc.  
© 2014 All rights reserved. All logos and trademarks are the property of BMG LABTECH.

# Applications

BMG LABTECH continuously works with all the leading reagent companies to optimize instrument settings for their existing assays and their newest chemistries.

BMG LABTECH's comprehensive searchable applications center reflects more than 20 years of expertise and innovations in microplate reading technology. Over 3,800 references exemplify the flexibility and versatility of our readers, as well as their use in the chemical and biological sciences.

FRET assays

Transcreeper®

Binding studies

DNA / RNA quantifications

HTRF®

Kinase activity

Reporter gene assays

DLR™

AlphaTechnology

Protease activity

Apoptosis

SNP Genotyping

LanthaScreen®

ORAC

HTS

Enzyme activity

Immunoprecipitation

Dual luciferase assays

Protein quantifications

BRET assays

ROS detection

Enzyme kinetics

PCR product quantifications

NADH / NADPH assays

Cell Viability

LANCE®

DELFIA®

ATP and ADP detection

Gene expression

ELISA

Solubility tests



**Headquarters Germany**  
BMG LABTECH GmbH  
Allmendgrün 8  
77799 Ortenberg  
Tel. +49 781 96968 -0  
germany@bmglabtech.com

**Australia**  
BMG LABTECH Pty. Ltd.  
2/24 Carbine Way  
Morningside, Victoria 3931  
Tel. +61 3 5973 4744  
australia@bmglabtech.com

**France**  
BMG LABTECH SARL  
7, Rue Roland Martin  
94500 Champigny s/Marne  
Tel. +33 1 48 86 20 20  
france@bmglabtech.com

**Japan**  
BMG LABTECH JAPAN Ltd.  
2F TS-1 Building  
1-6-2, Shimo-cho  
Omiya-ku  
330-0844 Saitama City  
Tel. +81 48 647 7217  
japan@bmglabtech.com

**UK**  
BMG LABTECH Ltd.  
5 Alton House Office Park  
Gatehouse Way  
Aylesbury  
HP19 8XU  
Tel. +44 1296 336650  
uksales@bmglabtech.com

**USA**  
BMG LABTECH Inc.  
13000 Weston Parkway  
Suite 109  
Cary, NC 27513  
Tel. +1 877 264 5227  
usa@bmglabtech.com

Made in Germany

www.bmglabtech.com



# Instrumentation Guide



# PHERAstar® FS

The Gold Standard for HTS

Fluorescence Intensity  
Fluorescence Polarization  
Time-Resolved Fluorescence  
TR-FRET/HTRF®  
UV/Vis absorbance spectra  
Luminescence  
AlphaTechnology



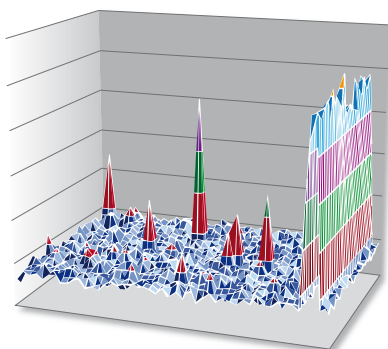
3456 wells

## Sensitivity. Precision. Speed.

The PHERAstar® FS is the Gold Standard microplate reader for High-Throughput Screening, specifically designed for highest sensitivity and speed. Its new and unique features make it superior to any other microplate reader currently on the market.

- FRET, TRF, TR-FRET (e.g. HTRF®, LANCE®, LanthaScreen®), BRET
- Full absorbance spectra from 220-1000 nm in less than 1 s/well
- Top and bottom reading with focus adjustment (0.1 mm z-height)
- Fastest read times with Simultaneous Dual Emission detection
- All microplate formats up to 3456-well
- UV-laser for TR-FRET measurements
- Solid-state laser for AlphaTechnology
- Up to two onboard reagent injectors
- Advanced high-resolution cell layer scanning
- Three integrated barcode readers

Drug "Hits" in the IP-One HTRF® assay with a 1536-well microplate.



## Never worry about which filter or dichroic mirror is installed!

Assay-specific Optic Modules are configured with all the necessary optical components including excitation and emission filters, dichroic mirrors, beam splitters, and polarization filters. The PHERAstar FS can accommodate up to six Optic Modules. All Optic Modules are easily exchangeable, barcoded, and are automatically selected by the PHERAstar FS for the appropriate assay.



# CLARIOstar®

The LVF Monochromator™ Reader

Fluorescence Intensity  
Fluorescence Polarization  
Time-Resolved Fluorescence  
TR-FRET/HTRF®  
UV/Vis absorbance spectra  
Luminescence  
AlphaTechnology



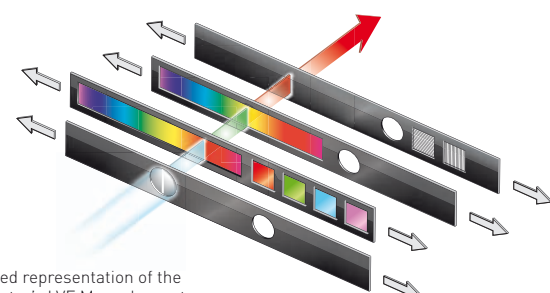
1536 wells

## Any Wavelength. Any Bandwidth. Any Assay.

- Linear Variable Filters LVF Monochromators™
- Continuously adjustable bandwidths (8-100 nm)
- Increased sensitivity over conventional monochromators
- Fluorescence and luminescence spectral scanning
- Use monochromators, filters, or a combination of both
- Integrated fluorophore library for easy wavelength selection

## CLARIOstar® additional features

- Full absorbance spectra from 220-1000 nm in less than 1 s/well
- All microplate formats up to 1536-well
- Top and bottom reading with focus adjustment (0.1 mm z-height)
- Shaking and incubation up to 45°C or 65°C
- Up to two onboard reagent injectors
- AlphaScreen®/AlphaLISA® Laser



Simplified representation of the CLARIOstar's LVF Monochromator.

## LVF Monochromator™ and filter selector technology

Highest light transmission and no stray light give the CLARIOstar's LVF Monochromator system filter-like performance and sensitivity.

The LVF Monochromator slides can also hold individual filters, polarizers, and dichroic mirrors for specific applications. This unique in-line optical path allows fixed filters to be combined with the LVF Monochromators in one measurement, providing users with the highest level of versatility, flexibility, and sensitivity.



# FLUOstar® Omega

Filter based multi-mode reader

Fluorescence Intensity  
Time-Resolved Fluorescence  
TR-FRET/HTRF®  
UV/Vis absorbance spectra  
Luminescence  
AlphaTechnology



384 wells

## Upgradeable multi-mode microplate reader

- Spectrometer-based absorbance with 220-1000 nm spectral scans in <1 sec/well, or filter-based absorbance with range 240-740 nm
- Top and bottom reading
- All microplate formats up to 384-well
- Plate shaking, incubation up to 45°C or 65°C
- Up to two onboard reagent injectors



# POLARstar® Omega

- Includes all FLUOstar Omega features
- Speed and performance increase with Simultaneous Dual Emission detection in FRET, BRET, and FP

# LUMIstar® Omega

- Dedicated luminometer for flash and glow assays
- Fully upgradeable to FLUOstar or POLARstar Omega
- Simultaneous Dual Emission for BRET



# NEPHELOstar® Plus

Unique laser-based nephelometer

## Light-scattering and turbidity measurements

- Uses light-scattering for detection of insoluble particles
- All microplate formats up to 384-well
- Up to two onboard reagent injectors
- Shaking and incubation up to 45°C
- Stacker and robot compatible



384 wells

# SPECTROstar® Nano

Ultra-fast UV/Vis spectrometer

UV/Vis absorbance spectra  
Microplate-based absorbance  
Cuvette-based absorbance



1536 wells

## Ultra-fast DNA/RNA, protein, and ELISA measurements

- Full absorbance spectrum 220-1000 nm in <1 s/well
- All microplate formats up to 1536-well
- Well scanning, kinetic and endpoint measurements
- Integrated cuvette port, plate shaking and incubation up to 45°C
- Gas vent for atmospheric sensitive samples

## Accessories

### Atmospheric Control Unit (ACU)



#### Optimal environment for any live cell-based assay:

- Active regulation of O<sub>2</sub> and CO<sub>2</sub>
- Available for CLARIOstar, Omega series and NEPHELOstar Plus

### LVis Plate



#### Microplate for low-volume measurements

- Sixteen microdrop well sites for 2 µL samples
- Horizontal standard cuvette position
- NIST-traceable optical filters for precision and accuracy tests
- Compatible with CLARIOstar, Omega series, PHERAstar FS, and SPECTROstar Nano

### Stacker



#### Mid-throughput microplate handling

- Rapid loading, unloading, restacking, for up to 50 microplates
- Continuous load feature and barcode reader
- Accommodates all microplate formats
- Compatible with CLARIOstar, PHERAstar FS, Omega series, and NEPHELOstar Plus