D E T E C T I O N

Synergy™ H1 Multi-Mode Reader

Synergy™ H1 is a flexible monochromator-based multi-mode microplate reader that can be turned into a high-performance Hybrid System with the addition of a filter-based optical module. The monochromator optics use a third generation quadruple grating design that works at any excitation or emission wavelength with a 1 nm step. This system supports top and bottom fluorescence intensity, UV-visible absorbance and high performance luminescence detection. It is the ideal system for all the standard microplate applications found in life science research laboratories. The filter module is a completely independent add-on that includes its own light source, and a high performance dichroic-based wavelength selection system.

With its very high optical efficiency, this module supports advanced detection modes such as fluorescence polarization, time-resolved fluorescence and filtered luminescence (e.g. BRET). A dual reagent injection system is available to automate inject/read assays such as ion channels assays or flash luminescence assays (e.g. luciferase or ATP assays).

To create the ideal environment for live-cell assays, the Gas Controller for Synergy H1 allows control and monitoring of CO_2 and O_2, along with user-adjustable orbital shaking and advanced 4-Zone™ temperature control.

Features:

- Patented Hybrid Technology™ combines flexible monochromator detection with high performance dichroic-based filter detection
- Gas Controller for CO_2/O_2 or CO_2 only control and monitoring
- Compatible with Take3™ Micro-Volume Plates: Samples down to 2 µL volume can be measured. Especially useful when working with precious samples, for fast and accurate DNA/RNA quantification at 260 nm
- Quadruple grating monochromator for maximum flexibility and ease of use
- Dichroic-based filter optics, for best performance and advanced detection technologies such as fluorescence polarization and time-resolved fluorescence
- Comes with Gen5™ software: reader control, advanced data analysis and flexible Excel export in one software package
- BioSpa™ 8 Automated Incubator compatible for assay automation

Scan with your smart phone to watch the video.

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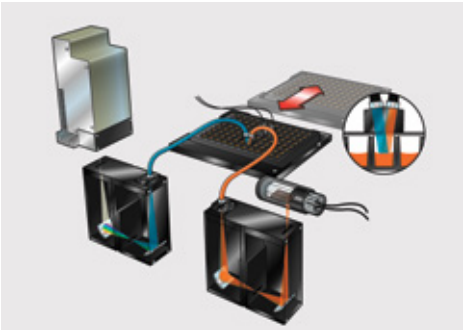

Quadruple grating monochromator system: Ease of use and flexibility.

Easy-to-use filter system with magnetic filter cubes that can be swapped in a matter of seconds.

Configurations:

- H1M: Monochromator-based
- H1F: Filter-based
- H1MF: Hybrid

Gas Controller compatible configurations:

- H1MG: Monochromator-based
- H1FG: Filter-based
- H1MFG: Hybrid

Dual reagent dispenser option available with all configurations.

Optional Accessories:

- Take3™ Micro-Volume Plate
- BioStack™: 30 or 50 plate stacker
- BioSpa™ 8 Automated Incubator
- Gen5™ Secure for 21 CFR part 11 compliance
- Product Qualification Package
- Luminescence, Fluorescence and Absorbance Test Plates

Typical Applications:

- Nucleic acid quantification
- Protein quantification
- Enzyme kinetics
- Biomarker quantification
- ELISAs
- Genetic analysis
- Drug discovery
- Cell proliferation
- Cytotoxicity
- Drug absorption and metabolism
- Biologics drug discovery and development
- Food safety
- Biofuels research
- Environmental monitoring

Hybrid Technolgy™ is protected under US Patent 8,218,141.

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Specifications:

General

Wavelength selection:	Patented Hybrid Technology™ Quadruple Monochromators and Filters/Dichroics
Detection method:	Monochromator system: FL, Lum., UV-Vis Abs. Filter system: FL, TRF, FP, Lum.
Read method:	End point, kinetic, spectral scanning, well area scanning
Microplate types:	1- to 384-well plates Compatible with Take3™ Micro-Volume Plate
Temperature control:	To 45 °C; ±0.2 °C at 37 °C
Shaking:	Yes
Software:	Gen5™ Microplate Reader and Imager Software
Automation:	BioStack™ and 3rd party automation compatible BioSpa™ 8 Automated Incubator compatible
CO_2 and O_2 control:	0 – 20% CO_2 control and 1 – 19% O_2 control, with optional Gas Controller

Absorbance

Light source:	Xenon flash lamp
Wavelength selection:	Monochromator
Wavelength range:	230 – 999 nm, 1 nm increment
Bandpass:	4 nm (230 – 285 nm), 8 nm (>285 nm)
Dynamic range:	0 – 4.0 OD
Resolution:	0.0001 OD
Pathlength correction:	Yes
OD accuracy:	<1 % at 2.0 OD <3% at 3.0 OD
OD repeatability:	<0.5 % at 2.0 OD
Reading speed:	96 wells: 11 seconds 384 wells: 22 seconds

Fluorescence Intensity

Sensitivity:	Monochromators: Top: Fluorescein 2.5 pM (0.25 fmol/well 384-well plate) Bottom: Fluorescein 4 pM (0.4 fmol/well 384-well plate) Filters/mirrors: Fluorescein 0.25 pM (0.025 fmol/well 384-well plate)
Light source:	Xenon flash lamp
Wavelength selection:	Double grating monochromators (Top and Bottom) and Deep blocking bandpass filters/dichroic mirrors (Top)
Wavelength range:	Monochromators: 250 – 700 nm Filters: 200 – 700 nm (850 nm option)
Dynamic range:	7 decades
Detection system:	Two PMT detectors: one for monochromator system, one for filter system

Luminescence

Sensitivity:	Monochromator system: 20 amol ATP (flash) Filter system: 10 amol ATP (flash)
Wavelength range:	300 – 700 nm
Dynamic range:	>6 decades

Fluorescence Polarization

Sensitivity:	1.2 mP standard deviation at 1 nM fluorescein
Wavelength range:	320 – 700 nm (850 nm option)

Time-Resolved Fluorescence

Light source:	Xenon flash lamp
Sensitivity:	Europium 40 fM with filters (4 amol/well in 384-well plate) Europium 1200 fM with monos (120 amol/well in 384-well plate)
Wavelength range:	Monochromators: 250 – 850 nm Filters: 200 – 700 nm (850 nm option)

Reagent Dispensers

Dispense precision:	<2% at 50 – 200 µL
Dispense accuracy:	±1 µL or 2%
Number:	2 syringe pumps
Plate geometry:	1- to 384-well microplates
Dispense volume:	5 – 1000 µL in 1 µL increment
Minimum prime volume:	1 mL, 100 µL with back flush

Physical Characteristics

Power:	100 – 240 Volts AC. 50/60 Hz
Dimensions:	15.4"W 18.6"D 12.9"H (39.1 x 47.2 x 32.8 cm)
Weight:	50 lbs (22.5 kg)

Regulatory

For In Vitro Diagnostic use. CE and TUV marked, RoHS compliant.

Performance values represent the average observed factory test values.
**Specifications subject to change.*

Rev. 07/01/16