D E T E C T I O N

Synergy™ H4 Hybrid Microplate Reader

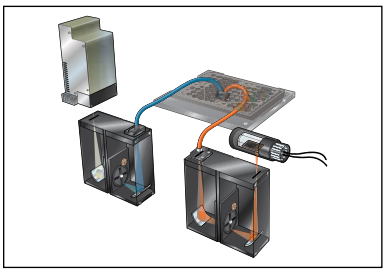
BioTek's Synergy™ H4 Multi-Mode Microplate Reader with patented Hybrid Technology™ combines two powerful fluorescence detection systems, monochromator-based and filter-based, in one compact unit. Enjoy complete flexibility and instant control in assay choice for current as well as future demands. The result – an advanced multi-detection system capable of performing an unlimited number of microplate-based assays.

Features:

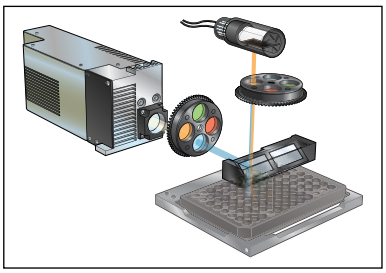
- Patented Hybrid Technology™: Synergy™ H4 combines the sensitivity of a filter-based system with the convenience of monochromator-based optics to provide the broadest range of applications available on the market today.
- Detection modes: Fluorescence Intensity, Time-Resolved Fluorescence, Fluorescence Polarization, AlphaScreen®/ AlphaLISA®, Luminescence, UV-Visible absorbance, FRET, TR-FRET, BRET, well area scanning and spectral scanning.
- Modular and upgradeable architecture: Read modes are available as individual modules for cost-effectiveness and peace of mind.
- Quadruple mono system and variable bandpass selection: Synergy H4 optics incorporates two double-grating monochromators. This quadruple design provides the best in spectral scanning performance and flexibility.
- Deep blocking filters and dichroic mirrors: Synergy H4's filter/ dichroic combination provides the best possible performance in fluorescence, time resolved fluorescence and fluorescence polarization applications.
- Compatible with Take3 Plate with 2 µL microspots: Enables low volume 260 nm nucleic acid quantification

The choice is yours.	Filter-based	Monochromator-based	Hybrid Technology™
Spectral Scanning		√	√
Flexible Wavelength Selection		√	√
Take3™ 2µL Microspots		√	√
Highest Sensitivity	√		√
Fastest Read Speed	√		√
Filtered Luminescence	√		√
AlphaScreen®/AlphaLisa®	√		√

BioTek®
Get a Better Reaction.



The Synergy™ H4 monochromator system uses two double-grating monochromators with variable bandpass selection. Highest stray light rejection, continuous wavelength selection, spectral scanning: this system combines high performance with convenience and flexibility.



The Synergy H4 filter/mirror system delivers more energy to the sample and provides high signal-to-noise ratios. Faster read speed, more sensitivity, more precise control over optical parameters: this system delivers ultimate performance.

Models:

Synergy H4: Detection systems and injectors available as individual modules

See Web site or price list for complete model listings and descriptions.

Optional Accessories:

- Take3™ Micro-Volume Plate with 2 µL microspots
- Gen5™ Secure (for 21 CFR Part 11 Compliance)
- Product Qualification Package

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.

BioTek®

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Specifications:

General

Wavelength selection:	Patented Hybrid Technology™ Quadruple Monochromators and Filters/Dichroics
Detection method:	FL, TRF, FP, Lum., UV-Vis Abs., AlphaScreen®/AlphaLISA®
Read method:	End point, kinetic, spectral scanning, well area scanning
Microplate types:	Monochromator system 1 to 384 wells Filter system 1 to 1536 wells PCR plates Compatible with Take3™ Micro-Volume Plate
Temperature control:	4° C above ambient to 65° C; ±0.5° C at 37° C
Shaking:	Yes
Software:	Gen5™ Data Analysis Software
Automation:	Compatible with BioStack™ and 3rd party automation

AlphaScreen®/AlphaLISA®

Light source:	Tungsten halogen lamp
Sensitivity:	100 amol of biotinylated-LCK-P peptide, 25 µL/well in 384-well plate
Dynamic range:	>6 decades
Detection system:	Ultra low noise PMT

Absorbance

Light source:	Xenon flash lamp
Wavelength selection:	Monochromator
Wavelength range:	230 – 999 nm, 1 nm increments
Bandpass:	2 nm (230 – 285 nm), 4 nm (>285 nm)
Dynamic range:	0 – 4.0 OD
Resolution:	0.0001 OD
Pathlength correction:	Yes
OD accuracy:	<1 % at 2.0 OD typical <3% at 3.0 OD typical
OD repeatability:	<0.5 % at 2.0 OD typical

Fluorescence Intensity

Sensitivity (SF):	Monochromators: Top: Fluorescein 2 pM typical (0.2 fmol/well 384-well plate) Bottom: Fluorescein 2.5 pM typical (0.25 fmol/well 384-well plate) Filters/mirrors: Fluorescein 1 pM typical (0.1 fmol/well 384-well plate)
Light Source:	Tungsten halogen lamp High energy xenon flash lamp
Wavelength selection:	Double grating monochromators (Top/Bottom) and Deep blocking filters/dichroic mirrors (Top)
Wavelength range:	Monochromators: 250 – 850 nm Filters: 200 – 700 nm (850 nm option)
Dynamic range:	Monochromators: 5 decades Filters/mirrors: >6 decades

Luminescence

Sensitivity:	10 amol ATP typical (flash)
Wavelength range:	300 – 700 nm
Dynamic range:	>6 decades

Fluorescence Polarization

Light source:	Tungsten halogen
Sensitivity:	3 mP at 1 nM fluorescein typical
Wavelength selection:	Deep blocking filters/dichroic mirrors (Top)
Wavelength range:	400 – 700 nm (320 – 850 nm option)

Time-Resolved Fluorescence

Light source:	High energy xenon flash lamp
Sensitivity:	Europium 60 fM typical with filters (6 amol/well in 384-well plate)
Wavelength range:	200 – 700 nm (850 nm option) Monochromators: 250 – 850 nm

Reagent Dispensers

Number:	2 syringe pumps
Dispense volume:	5 – 1000 µL in 1 µL increments
Minimum prime volume:	1.1 mL, 100 µL with back flush

Physical Characteristics

Power:	100 – 240 Volts AC 50/60 Hz
Dimensions:	17”W x 20.9”D x 15”H (43.5 x 53.1 x 38.1 cm)
Weight:	78 lbs (35 kg)

Regulatory

For In Vitro Diagnostic use. All BioTek microplate instrumentation is CE and TUV marked.

*Specifications subject to change

Rev. 09/25/12