



Synergy[™] H4

Hybrid Multi-Mode Microplate Reader

General	
Wavelength Selection	Hybrid Technology [™] (patent-pending) Quadruple Monochromators and Filters / Dichroics
Detection Method	Fluorescence, Time-Resolved Fluorescence, Fluorescence Polarization, AlphaScreen/AlphaLISA [®] , Luminescence, UV-Visible Absorbance
Read Mode	End-point, kinetic, spectral scanning, well-area scanning
Microplate Types	Monochromator system 1- to 384-well plates Filter system 1- to 1536-well plates PCR plates Compatible with Take3 [™] Multi-Volume Plate with 2 μ L microspots
Maximum Plate Height	Absorbance: 0.8" (20.30 mm) Fluorescence & Luminescence: 1.20" (30.5 mm)
Temperature Control	4° C above ambient to 65° C \pm 0.5° C at 37° C
Shaking	Yes
Automation	Yes
Software	Gen5 [™] Included Control through USB or serial port
Absorbance	
Light Source	Xenon Flash Lamp
Wavelength Selection	Monochromator
Wavelength Range	230 - 999 nm, 1 nm increment
Bandpass	2 nm (230-285 nm), 4 nm (>285 nm)
Dynamic Range	0 - 4.0 OD
Resolution	0.0001 OD

Absorbance (Continued)	
Pathlength Correction	Yes
Monochromator Wavelength Accuracy	+/- 2 nm
Monochromator Wavelength Repeatability	+/- 0.2 nm
OD Accuracy	< 1% at 2.0 OD typical < 3% at 3.0 OD typical
OD Linearity	< 1% from 0 to 3.0 OD typical
OD Repeatability	< 0.5% at 2.0 OD typical
Reading Speed	96: 11 seconds 384: 22 seconds
Fluorescence Intensity	
Sensitivity	<u>Monochromators:</u> Fluorescein 2.5 pM typical (0.25 fmol/well 384-well plate) – Top Fluorescein 5 pM typical (0.5 fmol/well 384-well plate) – Bottom <u>Filters/mirrors:</u> Fluorescein 1 pM typical (0.1 fmol/well 384-well plate)
Light Sources	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 - 900 nm Filters: 200 - 700 nm (900 nm option)
Bandpass	Monochromators: variable 9, 13.5, 17, 20 nm Filters: filter-dependant, from 5 nm to >100 nm
Detection System	Red shifted PMT for monochromator system Low Noise PMT for filter-based system
Dynamic Range	<u>Monochromators:</u> 5 decades <u>Filters/mirrors:</u> > 6 decades
Reading Speed	96: 11 seconds 384: 22 seconds 1536: 42 seconds
Luminescence	
Sensitivity	10 amol ATP typical (flash)
Wavelength Range	300 - 700 nm
Dynamic Range	> 6 decades

Fluorescence Polarization	
Sensitivity	3 mP at 1 nM fluorescein typical
Light Source	Tungsten Halogen
Wavelength Selection	Deep blocking filters / dichroic mirrors (Top)
Wavelength Range	400 - 700 nm (300-900 nm option)
Time-Resolved Fluorescence	
Sensitivity	Europium 60 fM typical with filters (6 amol/well in 384-well plate)
Light Source	High Energy Xenon Flash Lamp
Wavelength Selection	Deep blocking filters / dichroic mirrors (Top) Double grating monochromator (Top / Bottom)
Wavelength Range	Filters: 200 - 700 nm (900 nm option) Monochromators: 250 - 900 nm
Reagent Dispensers	
Number	2 syringe pumps
Dispense Volume	5 - 1000 μ L in 1 μ L increment
Dead Volume	1.1 ml, 100 μ L with back flush
Plate Geometry	6- to 384-well microplates
Dispense Precision	\leq 2% at 50-200 μ L
Dispense Accuracy	\pm 1 μ L or 2%
Physical Characteristics	
Power	250 Watts max.
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	
Regulatory	All BioTek microplate instrumentation is CE and NRTL Safety Agency marked. For details on approvals and standards compliance, please contact BioTek.

Patent pending.
Specifications subject to change.

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