

## Synergy™ 4 Multi-Detection Microplate Reader



### Features

- **Hybrid Technology™:** The Synergy™ 4 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, 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 grating system:** The Synergy 4 optics incorporates two double-grating monochromators. This design provides the best in spectral scanning performance and flexibility.
- **Deep blocking filter and dichroic mirrors:** Synergy 4's filter/dichroic combination provides the best possible performance in fluorescence, time resolved fluorescence and fluorescence polarization applications.

BioTek's new Synergy™ 4 Multi-Detection Microplate Reader with Hybrid Technology™ combines two powerful detection systems, monochromator-based and filter-based, in one compact unit. You can finally enjoy complete flexibility and instant control in assay choice for current as well as future demands. The result – the world's first true multi-detection system capable of performing an unlimited number of microplate-based assays. Synergy 4's unique technologies are patent pending.

The choice is yours.	Filter-based	Monochromator-based	Hybrid Technology
Spectral Scanning		✓	✓
Flexible wavelength selection		✓	✓
Convenience		✓	✓
Fluorescence Polarization performance	++	+	++
TRF / TR-FRET performance	++	+	++
Best performance across spectrum	✓		✓
Ratiometric ion channel assays	✓		✓
Filtered luminescence (e.g. BRET)	✓		✓
Fast wavelength switching	✓		✓

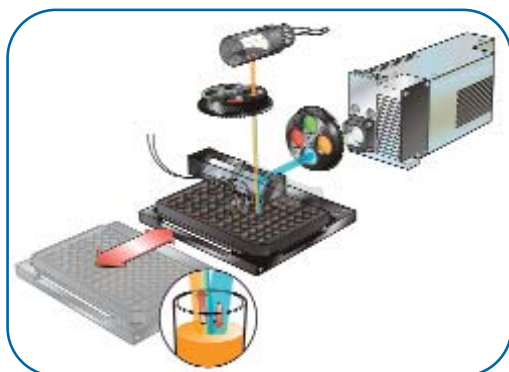
++ indicates best performance  
+ indicates good performance; less sensitivity than filter performance

- **Certified by reagent manufacturers.** Ultra-sensitive luminescence certified by Promega for the dual luciferase reporter gene assay (DLR™); high performance TRF detection certified by Cisbio for their HTRF® TR-FRET assay platform.



The Synergy 4 monochromator system uses two double-grating monochromators. Highest stray light rejection, continuous wavelength selection, spectral scanning: this system combines high performance with convenience and flexibility.

# Detection



The Synergy 4 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.

## Applications

- Screening assays (e.g. fluorescence polarization, TR-FRET, luminescence AlphaScreen™)
- Spectral scanning
- Binding assays
- Ion channel assays
- Quantitative assays (DNA, protein)
- Kinetic assays
- Gene expression assays (GFP, Luciferase)
- ELISA assays
- Cell proliferation, Cytotoxicity

## Optional Accessories

- Gen5™ Secure (for 21 CFR Part 11 Compliance)
- Product Qualification Package

## Models

Synergy 4: Detection systems and injectors available as individual modules

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



patent pending

## Specifications\*

Dimensions	17"W x 20.9"D x 15"H (43.5 x 53.1 x 38.1 cm)
Weight	78 lbs (35 kg)
Microplate Types	Monochromator system: 1- to 384-well plates Filter system: 1- to 1536-well plates (luminescence 1 - 384)
Temperature Control	4°C above ambient to 50°C ± 0.5°C at 37°C
Shaking	Yes
Top Optics Adjustment	Automated
Bio-Stack™ Compatible (Automation-Ready)	Yes
Software	Gen5™
<b>Fluorescence Intensity:</b>	
Light Source	Tungsten Halogen High Energy DPR Xenon Flash
Wavelength Range	Monochromators: 250 - 800 nm Filters: 200 - 700 nm (900 nm option)
Wavelength Selection	Double grating monochromators (Top) and, deep blocking bandpass filters / dichroic mirrors (Top/Bottom)
Sensitivity Top	Monochromators: fluorescein 5 pM typical (0.5 fmol/well 384-well plate) Filters/mirrors: fluorescein 1 pM typical (0.1 fmol/well 384-well plate)
<b>Luminescence:</b>	
Wavelength Range	300 - 700 nm
Dynamic Range	> 6 decades
Sensitivity (ATP)	10 amol ATP typical (flash)
<b>Absorbance:</b>	
Light Source	SQ Xenon Flash
Wavelength Selection	Monochromator
Wavelength Range	200 - 999 nm, 1 nm increment
Bandwidth	2.4 nm
Measurement Range	0 - 4.0 OD
OD Accuracy	< 1% at 2.0 OD typical
OD Precision	< 0.5% at 2.0 OD typical
<b>Fluorescence Polarization:</b>	
Light Source	Tungsten Halogen High Energy DPR Xenon Flash
Wavelength Range	200 - 700 nm (900 nm option)
Wavelength Selection	Deep blocking bandpass filters / dichroic mirrors (Top)
Sensitivity Top	3 mP at 1 nM fluorescein typical
<b>Time Resolved Fluorescence:</b>	
Light Source	High Energy DPR Xenon Flash
Wavelength Range	Filters: 200 - 700 nm (900 nm option) Monochromators: 250 - 850 nm
Wavelength Selection	Double grating monochromator (Top) and, deep blocking bandpass filters / dichroic mirrors (Top / Bottom)
Sensitivity Top	Europium 60 fM typical with filters (6 amol/well in 384-well plate)
<b>Dispensers:</b>	
Number of Injectors	2 syringe pumps
Dispense Volume	5 - 1000 µl in 1 µl increment
Dead Volume	1.1 ml, 100 µl with backflush
<b>Speed (Minimum Kinetic Interval):</b>	
96-well	11 seconds
384-well	22 seconds
1536-well	43 seconds

\*Specifications subject to change



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