SYNERGY|neo2
multi-mode reader

Synergy™ Neo2 Multi-Mode Reader

There can only be one Highest-Performance reader.

Think Possible

BioTek®

SYNERGY neo2
multi-mode reader

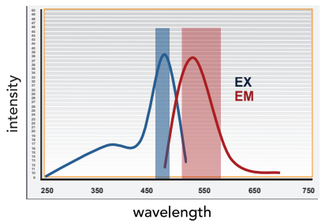
BioTek's Synergy™ Neo2 Multi-Mode Microplate Reader is the most advanced, high-performance, high-speed plate reader on the market today. Designed to meet the evolving needs of life science laboratories, the fully featured and versatile Synergy Neo2 offers uncompromising performance for biochemical and cell-based assays.

Patented Hybrid Technology™ with independent filter and monochromator-based optics

PATENTED HYBRID OPTICS

Synergy Neo2's Hybrid optical design combines two independent optical paths, each optimized for sensitivity. Easy to exchange barcode labeled cubes are used in the filter system for convenience and best sensitivity, while advanced continually variable bandwidth monochromators provide flexibility. The modular design is configurable and upgradable to meet current and future application requirements.

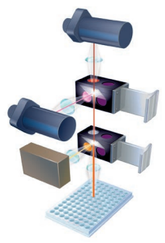
Scientific quad monochromators with continuously variable bandwidth for optimal sensitivity



Variable bandwidth selection from 3 nm to 50 nm in 1 nm increments offers great versatility and is ideal for fluorophores with small Stokes shifts, broad excitation/emission bands, or for FRET and multiplexed assays where wavelength specificity is critical. Four holographic gratings are used to eliminate stray light and increase signal-to-background ratios, ensuring consistent performance for every read.

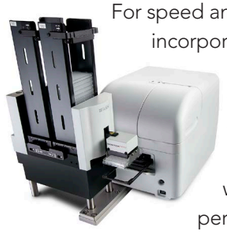
Hybrid Technology™ is protected under US Patent 8,128,141.

High performance filter system



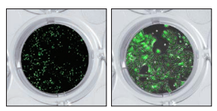
The filter-based optical system uses dichroic mirrors and deep blocking bandpass filters for excitation and emission. This fiber-less design provides direct illumination for very strong sample excitation which guarantees the highest levels of sensitivity. Laser-based excitation for AlphaScreen® and AlphaPlex® assays is also enhanced.

Ultra-fast plate processing speeds with multiple PMT detectors



For speed and assay versatility, Synergy Neo2 can incorporate up to four PMTs including dual top-read PMTs for ratiometric assays. For walk-away automation of short or long term assays, Neo2's integrated plate stacker is the fastest on the market with a transfer time of just 6 seconds per plate.

Live cell options: environment control and direct bottom detection



Synergy Neo2 was designed specifically to complement automated live cell analysis with incubation to 65 °C, CO_2 / 0_2 control, shaking and dual reagent injectors. Direct bottom illumination ensures excellent sensitivity for fluorescence and luminescence measurements.

Gen5™ software for data collection and analysis

Gen5 offers a unique combination of power and ease-of-use that drives productivity and saves time, no matter what application or workflow is incorporated.

Gen5 Secure can help your laboratory comply with 21 CFR Part 11 and GxP requirements. Flexible multi-user permission levels, data and system audit trails and electronic signature are available for use in a regulated environment.

Take3 Micro-Volume compatible

Measure multiple 2 µL samples quickly and easily using the Take3 Micro-Volume plates with Synergy Neo2. Pre-defined nucleic acid and protein quantification protocols are available in Gen5. Rapid quantification and reagent savings are just two of the benefits of using the Take3 Micro-Volume plates with Synergy Neo2.

"Alpha" refers to products/technologies from PerkinElmer, Inc., that carry trademarks or registered trademarks.

Specifications

SYNERGY|neo2
multi-mode reader

General	
Detection mode	Monochromators: FL, Lum, UV-Vis Abs, TRF (secondary) Filters: FL, TRF, FP, Lum, Alpha
Read mode	End point, kinetic, spectral scanning, well area scanning
Microplate types	1- to 1536-well plates
Other labware	Compatible with Take3™ Micro-Volume Plates with 2 µL microspots
Temperature control	3 °C above ambient to 65 °C with Condensation Control™ Variation ±0.2 °C at 37 °C
Shaking	Linear, orbital, double orbital
Software	Gen5™ Data Analysis Software included Gen5 Secure Software option for 21 CFR Part 11 compliance features
Automation	BioStack™ and 3rd party compatible
CO_2 and O_2 control	0 – 20% CO_2 control and 1 – 19% O_2 control, with optional Gas Controller
Barcode reader	Multi-directional, 1D and 2D camera-based scanner
Read height	Auto Z, 0.1 mm steps, top/bottom (Filters), top (Mono)
Kinetic speed	96-well: 6 seconds 384-well: 11 seconds 1536-well: 25 seconds
With Stacker, minimum processing time per plate	96-well: 20 seconds 384-well: 25 seconds 1536-well: 39 seconds
Absorbance	
Light source	Xenon flash lamp
Wavelength selection	Monochromator
Wavelength range	230 – 999 nm, in 1 nm increments
Bandwidth	2 nm (230 – 285 nm), 4 nm (>285 nm)
Dynamic range	0 – 4.0 OD
Resolution	0.0001 OD
Fluorescence Intensity	
Sensitivity	Filter cubes: Fluorescein 0.2 pM (384-well low volume plate) – Top Fluorescein 1 pM (1536-well plate) - Top Fluorescein 1 pM (384-well plate) – Bottom Quad Monochromator: Fluorescein 2 pM (384-well low volume plate) – Top Fluorescein 2.5 pM (384-well plate) – Bottom
Light source	High energy xenon flash lamp
Read height	Auto Z, 0.1 mm steps, top/bottom (filters), top (mono)
Wavelength selection	Double grating monochromators (top/bottom) Filter cubes (top/bottom)
Wavelength range	Monochromators: 250 – 850 Filter cubes – dual PMT: 200 – 850
Monochromator bandwidth	Variable, from 3 nm to 50 nm, in 1 nm increment excitation/emission
Detection system	Single PMT or dual PMTs (top filter system) Low Noise PMT bottom filter system Red shifted PMT top/bottom monochromator system

Performance specification values represent the average observed factory test values.

Luminescence	
Sensitivity	5 amol ATP (flash) (384-well low volume plate)
Wavelength range	300 – 700 nm
Dynamic range	>6 decades
Fluorescence Polarization	
Sensitivity	1 mP standard deviation at 1 nM fluorescein (384-well low volume plate) 1.5 mP standard deviation at 1 nM fluorescein (1536-well plate)
Light source	Xenon flash lamp
Wavelength selection	Filter cubes (top/bottom)
Wavelength range	280 – 850 nm
Detection system	Single PMT or dual PMTs
Time-Resolved Fluorescence	
Light source	Xenon flash lamp
Sensitivity	Europium 40 fM (384-well low volume plate) Europium 70 fM (1536-well plate)
Wavelength selection	Filter Cubes (top/bottom) Double grating monochromator (top/bottom)
Wavelength range	Monochromators: 250 – 850 nm Filters: 200 – 850 nm
Detection system	Single PMT or dual PMTs
Alpha	
Sensitivity	100 amol LCK peptide (384-well low volume plate)
Light source	100 mW 680 nm laser
Wavelength selection	Filter cubes
Read speed	96-well: 30 seconds 384-well: 1 minute 50 seconds 1536-well: 7 minutes 20 seconds
Reagent Dispensers	
Number	2 syringe pumps
Dispense volume	5 – 1000 µL, in 1 µL increment
Dead volume	1.1 ml, 100 µL with back flush
Plate geometry	6- to 384-well microplates, Petri dishes
Dispense precision	≤2% at 50 – 200 µL
Dispense accuracy	±1 µL or 2%
Physical Characteristics	
Power	250 Watts max.
Dimensions	16.1 x 15.4 x 20.7 in. (41 x 39 x 52.5 cm) - H x W x D
Weight	78 lbs (35 kg)
Regulatory	
Regulatory	In Vitro Diagnostic models are available. CE and TUV marked, RoHS compliant.

Typical Applications

- ✓ HTS screening
- ✓ Drug absorption and metabolism
- ✓ Biologics drug discovery and development
- ✓ Drug discovery
- ✓ Cell proliferation
- ✓ Cytotoxicity
- ✓ Biomarker quantification
- ✓ Genetic analysis
- ✓ Environmental testing
- ✓ Food safety
- ✓ Nucleic acid quantification
- ✓ Protein quantification

BioTek®