

# SYNERGY|neo2

multi-mode reader

Speed & ultra-high performance



**BioTek**  
A part of Agilent

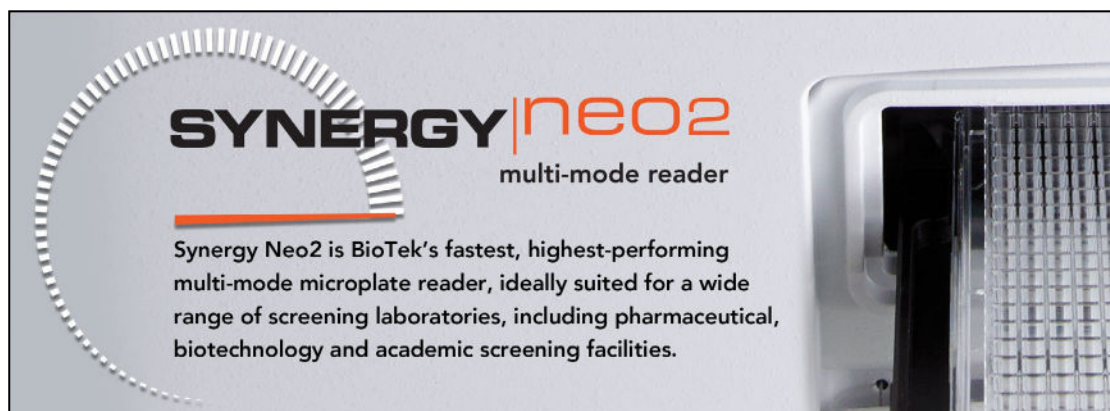
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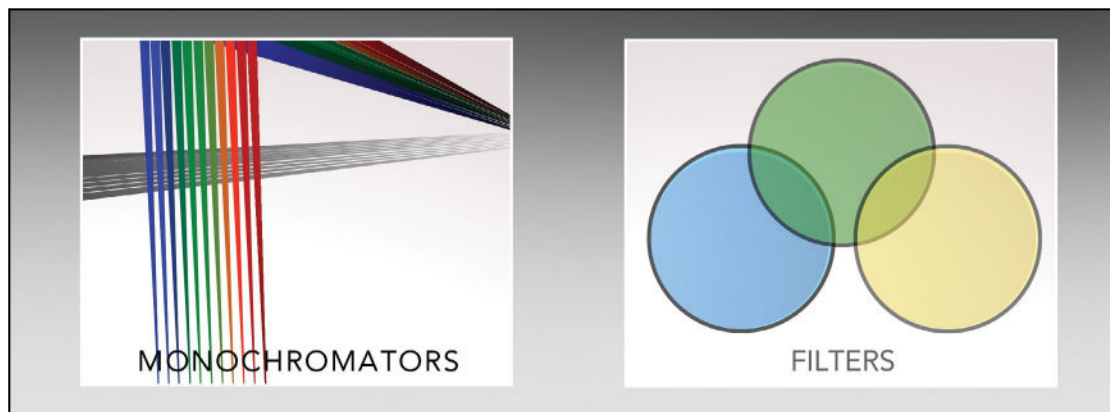
Synergy™ Neo2 Multi-Mode Microplate Reader is designed for the screening laboratory, with speed and ultra-high performance. It features BioTek's patented Hybrid Technology™, with its independent optical paths that ensure uncompromised performance in all detection modes. Gen5 Software offers complete reader control, powerful data analysis, automation and LIMS integration.



## BioTek's fastest, highest-performing multi-mode reader



## Hybrid plate reader: Flexibility and performance

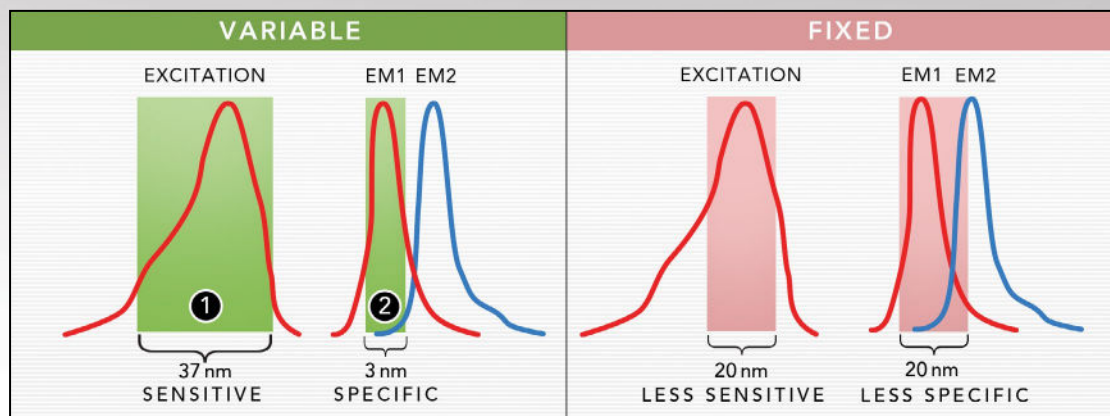


With its patented combination of monochromator and filter optics, Synergy Neo2 is an advanced plate reader that delivers both the flexibility and performance you need for any microplate assay in your lab.

**Monochromator:** variable bandwidth, absorbance, fluorescence, luminescence

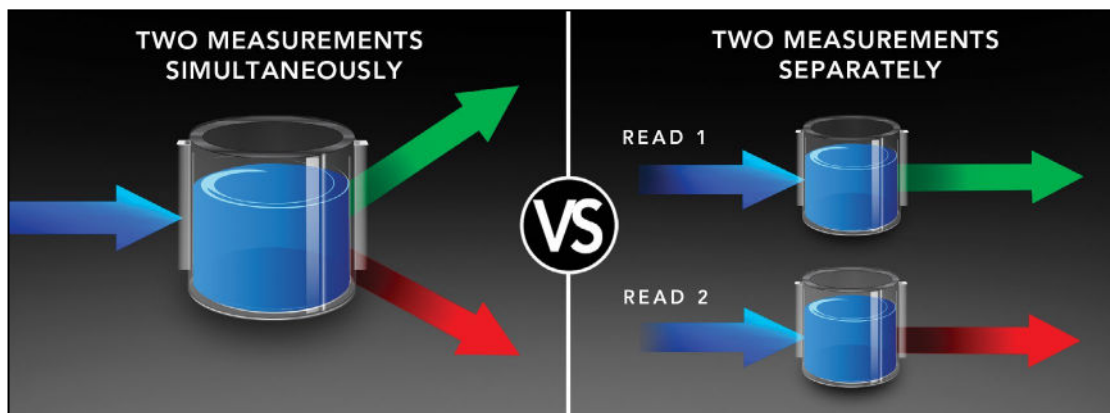
**Filters:** fluorescence polarization, time-resolved fluorescence, Alpha, filtered luminescence

## Variable bandwidth for sensitivity and specificity



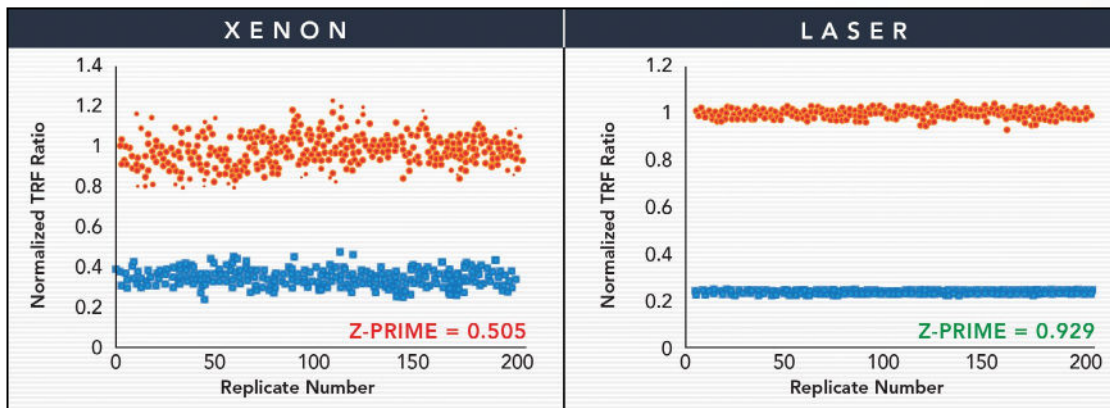
The Synergy Neo2 optics use a quad monochromator design, with variable bandwidth settings between 3 nm and 50 nm, in 1 nm increments. Large bandwidth settings **(1)** provide increased sensitivity and lower limits of detection. Small bandwidth settings **(2)** provide increased specificity when multiple signals are present, reducing signal crosstalk and enhancing assay performance.

## Dual PMT = Fast Reading Speed



Two PMTs: Synergy Neo2 takes two measurements simultaneously. Other systems have to perform FP, FRET and TR-FRET measurements one at a time, which considerably lengthens the time to results.

## Two lasers: For TRF, TR-FRET and Alpha



Alpha and TRF assays benefit from the increased sensitivity and fast reading speeds enabled by a laser-based system.

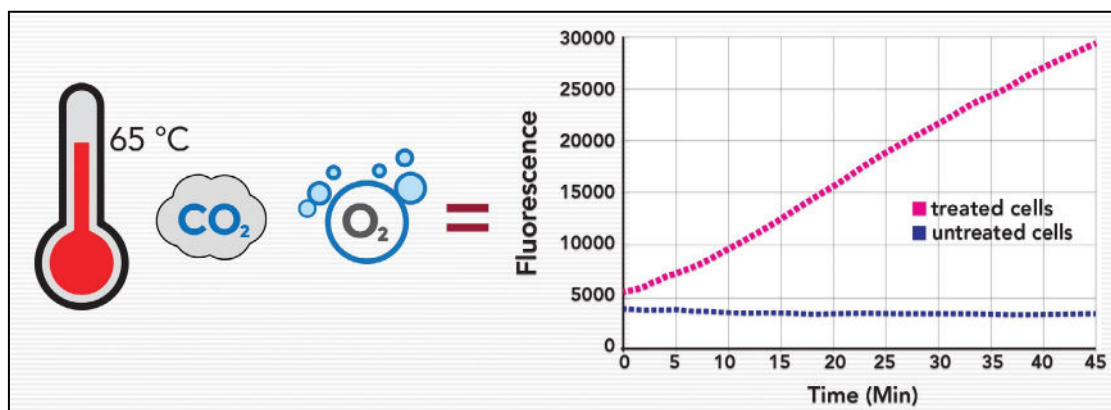


## Compounded time savings with BioStack Neo



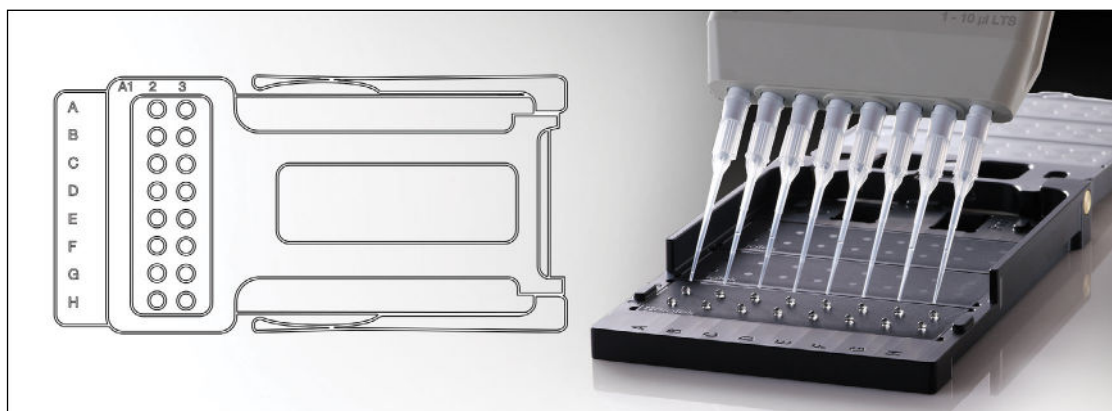
Synergy Neo2's dedicated stacker is the fastest "plate server" on the market. Its dual plate carrier enables it to process plates about 30% faster than other stackers, which leads to significant compounding time savings. For example, over the course of a year at 50 plates a day, the total time savings is nearly 40 hours.

## Environmental controls for cell-based assays



Temperature control to 65 °C, CO<sub>2</sub>/O<sub>2</sub> control, and shaking create the ideal environment for live cell assay workflows. A consistent environment leads to consistent data for long-term kinetic assays.

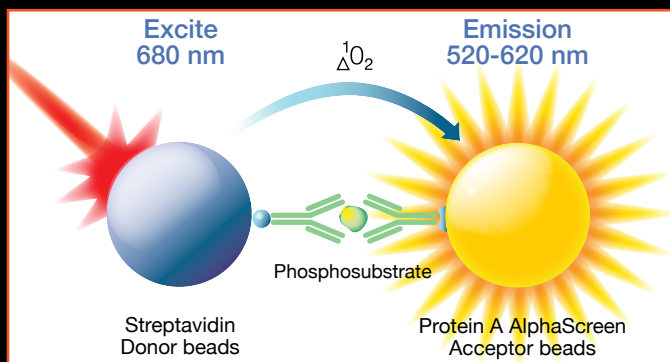
## Micro-volume analysis with Take3 plate



Synergy Neo2 acts as a micro-volume analysis system when the Take3 or Take3 Trio plates are used. With only 2 µL each, run 16 or 48 samples at a time, saving considerable time compared to single-sample devices. Pre-defined ssDNA, dsDNA, RNA and protein protocols provide rapid quantification results.

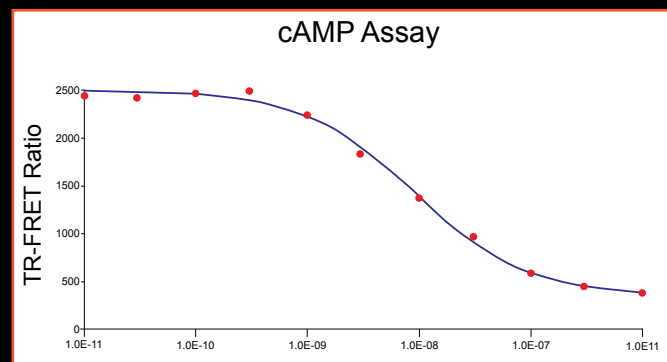
# APPLICATIONS

## Alpha Assays



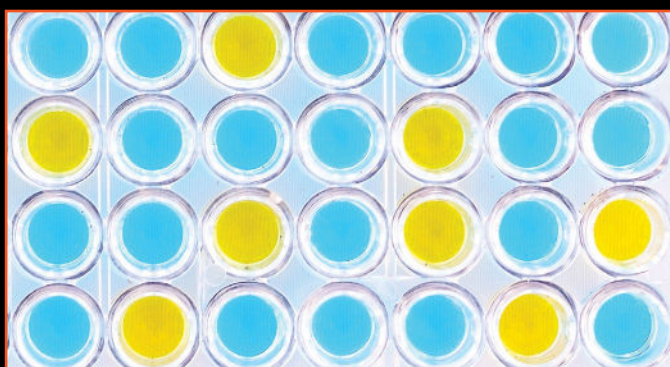
The laser light source in Synergy Neo2 provides high energy for excellent sensitivity for Alpha proximity assays.

## TR-FRET



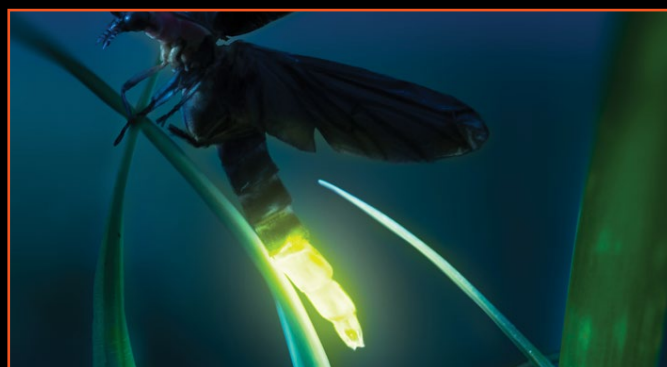
TR-FRET and HTRF® are sensitive robust methods. Laser-based TRF enables fast measurements with exceptional sensitivity.

## ELISA



ELISA methods with colorimetric, fluorescent and luminescent substrates are easily detected with Synergy Neo2.

## Luciferase reporter assays



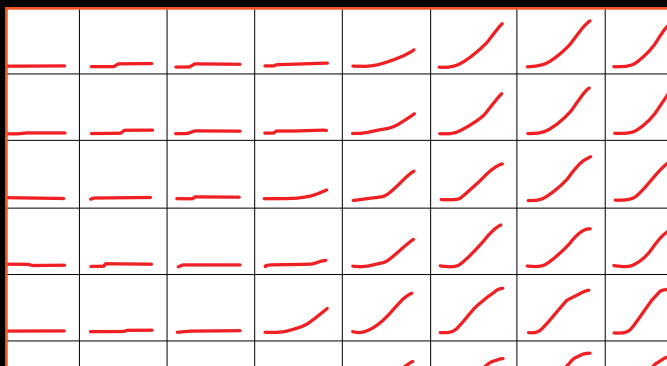
Luciferase-based reporter assays measure luminescent signal, allowing the quantification of the activity of factors affecting the signaling pathways under investigation.

## Nucleic acid & protein quantification



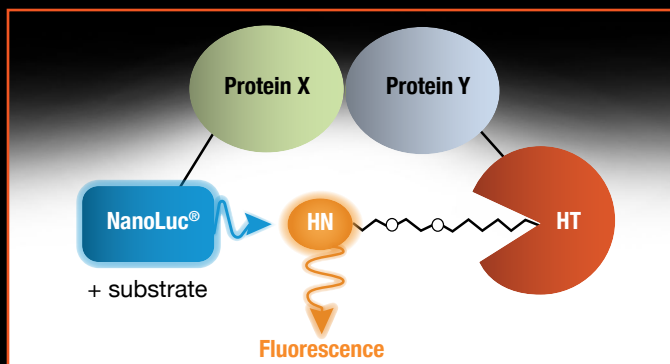
Nucleic acid and protein quantification assays can be executed by spectrophotometric or fluorescent determination with Synergy Neo2.

## Cell Growth



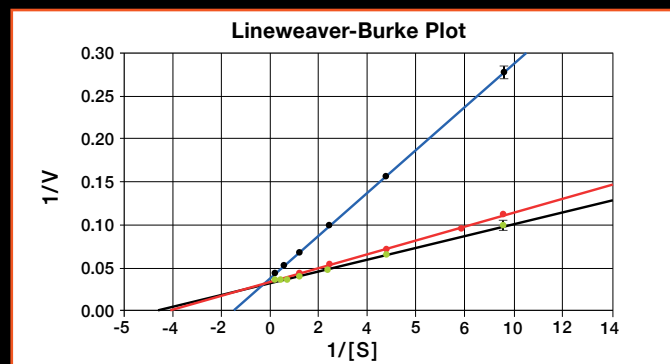
Microbial growth assay including yeast and bacteria can be measured by several methods, including turbidimetric measurements with Synergy Neo2.

## BRET



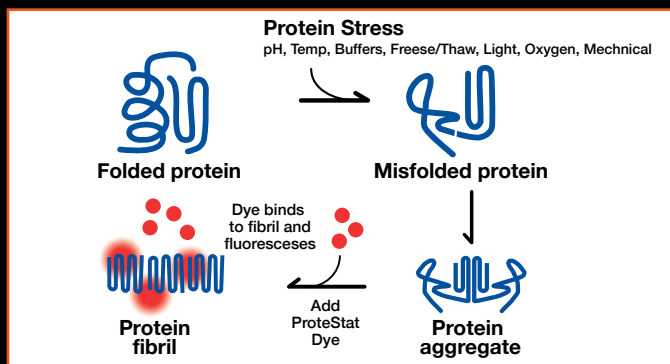
Bioluminescence resonance energy transfer (BRET) proximity assays enable detailed investigations of protein: protein interactions. BRET is easily detected with Synergy Neo2.

## Enzyme Kinetics



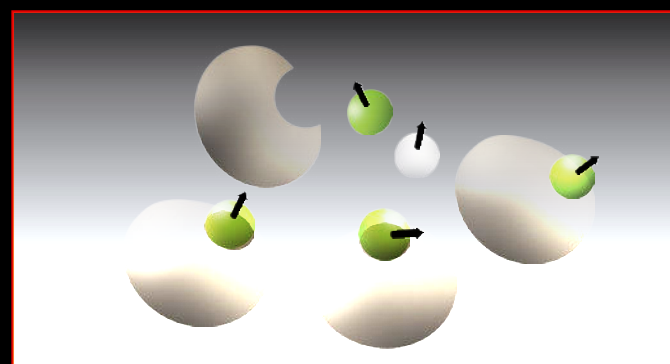
Measurement of enzyme reaction rates can easily be measured with Synergy Neo2. Gen5 software has built-in protocols for measuring Michaelis-Menten kinetics.

## Protein aggregation



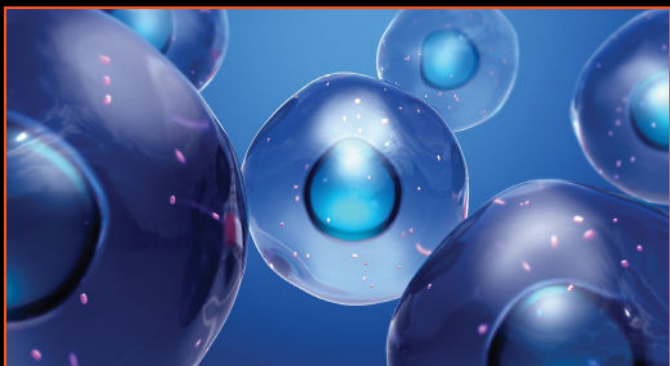
Synergy Neo2 has a robust shaking mechanism needed to quantify protein aggregation and amyloid formation via kinetic fluorescent measurements of Thioflavin T.

## Fluorescence polarization



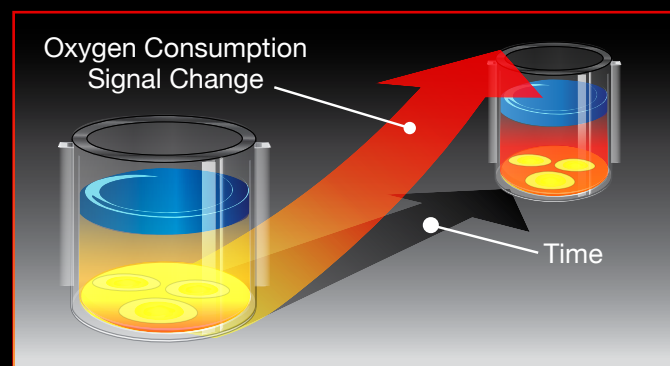
FP is widely used in research labs to study molecular binding or dissociation events and in screening labs to screen for drug candidates.

## Cell-based assays



Cell based assays assess critical characteristics such as viability, toxicity, proliferation and cell death.

## Metabolic activity



Use Agilent's MitoXpress and pH-Xtra kits to measure real-time metabolic markers such as Oxygen Consumption Rates (OCR) and Extracellular Acidification Rates (ECAR).

# P E R I P H E R A L S

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## BioStack Microplate Stacker

BioStack Neo manages ultra-fast plate transfer to and from Synergy Neo2, enabling walk-away, efficient automated processing of up to 50 plates at a time.



## CO<sub>2</sub>/O<sub>2</sub> Controller

The compact gas controller maintains control of CO<sub>2</sub> and O<sub>2</sub> levels in the Synergy Neo2 to support live cell assays.

## Dual Reagent Injector

The dual reagent injector module enables fast inject/read processes. Angled injector tips protect cell monolayers from shear stress during injection.



## Agilent BenchCel Microplate Handler

Synergy Neo2 can be integrated with BenchCel and a liquid handler to fully automate batch processes including ELISA. The compact footprint works well on the benchtop and several stack sizes provide the required throughput.



## BioSpa 8 Automated Incubator

BioSpa's environmental controls and labware handling capabilities, integrated with Synergy Neo2, facilitate assays from ELISA to long term live cell kinetic processes for up to 8 microplates.



## Take3 Micro-Volume Plate

Measure multiple 2 µL samples at a time with the Take3 Micro-Volume Plate, used with Synergy Neo2. Micro-volume nucleic acid and protein quantification made fast and easy.



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## TECHNICAL DETAILS

General	
Detection modes	UV-Vis absorbance Fluorescence intensity Luminescence Fluorescence polarization Time-resolved fluorescence Alpha
Light sources	3 xenon flash lamps: for UV-Vis absorbance, fluorescence intensity, fluorescence polarization, time-resolved fluorescence 337 nm laser for time resolved fluorescence 680 nm laser for Alpha detection
Detectors	4 PMTs Silicon photodiode (absorbance)
Read methods	Endpoint, kinetic, spectral scanning, well area scanning
Microplate types	6- to 1536-well plates
Read path	Top reading and bottom measurements with monochromator and filter-based optics: fluorescence intensity, fluorescence polarization, time resolved fluorescence and luminescence Top only: absorbance and Alpha measurements
Other labware supported	Take3 Micro-Volume Plates Petri and cell culture dishes
Environmental controls	4-Zone™ incubation to 65 °C with Condensation Control™ CO <sub>2</sub> / O <sub>2</sub> controller
Reagent injector	2 syringe pump injector module
Shaking	Linear, orbital, double orbital
Barcode reader	1D and 2D camera-based scanner
Automation	BioStack and 3rd party automation compatible BioSpa 8 Automated Incubator compatible Agilent BenchCel Microplate Handler
Modularity and configurability	Synergy Neo2 has many available configurations. Detection modules and peripherals can be added as laboratory needs change



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