CATALOG | 2015

BioTek Microplate Instrumentation

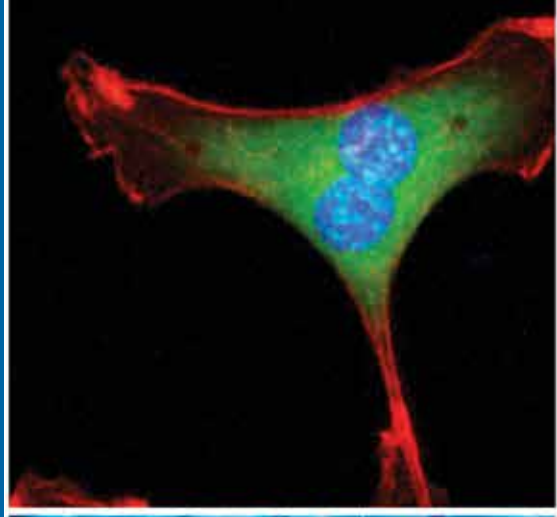
Think Possible

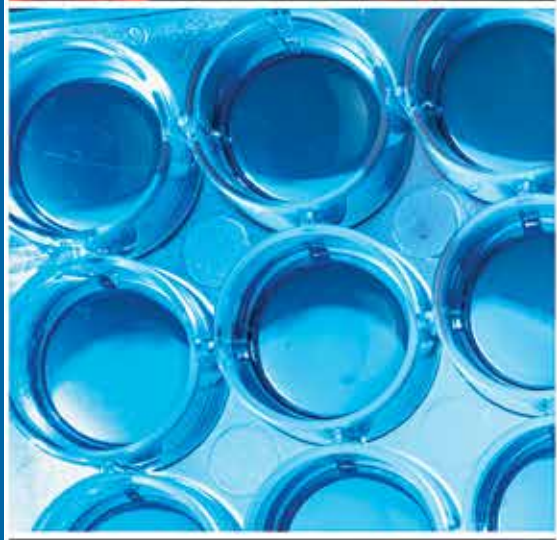
BioTek®

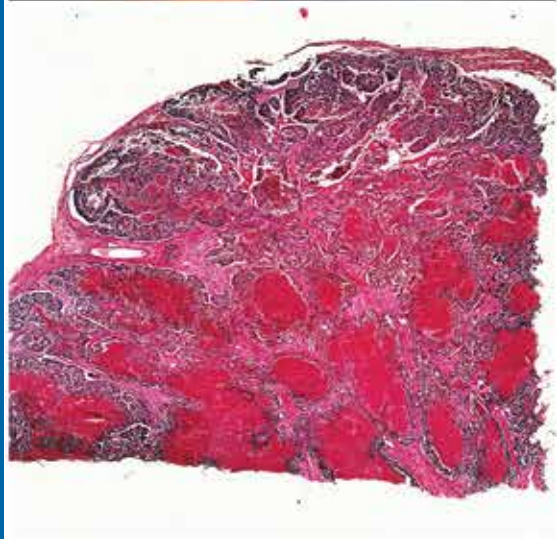
BioTek Instruments, Inc., headquartered in Winooski, VT, USA, is a worldwide leader in the design, manufacture, and sale of microplate instrumentation and software. BioTek instrumentation is used to aid in the advancement of life science research, facilitate the drug discovery process, provide rapid and cost-effective industrial analysis and to enable sensitive and accurate quantification of a wide range of molecules across diverse applications.

Our company-wide commitment to quality and value is backed by superior customer care, technical service centers, scientific application experts, and a knowledgeable sales force. Our commitment and focus helps to ensure your processes will be rapid, efficient and successful.

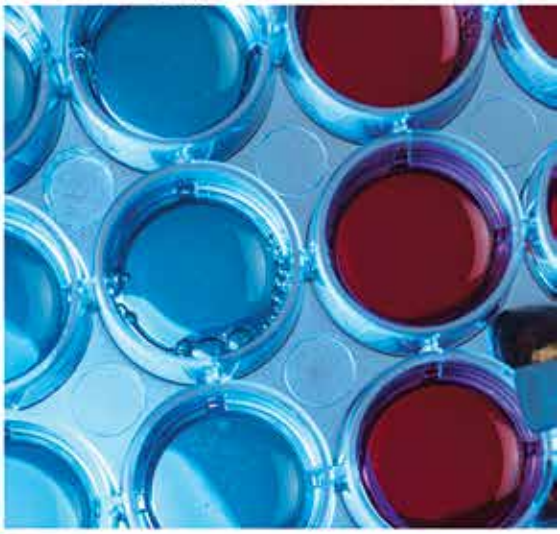
This catalog provides an overview of our complete line of microplate instrumentation, and features Cytation, the first instrument to combine automated digital microscopy and conventional microplate detection. For more detailed information and specifications, visit our web site at www.biotek.com.







BioTek is headquartered in Vermont, USA with global sales, service and distribution support. BioTek is ISO9001/ISO13485 Certified, an FDA Registered Medical Device Manufacturer, and has appropriate products in compliance with the EU In Vitro Diagnostic Directive (IVD). Regulatory compliance is ensured with both validation (IQ/OQ/PQ) and FDA 21 CFR Part 11 tools.



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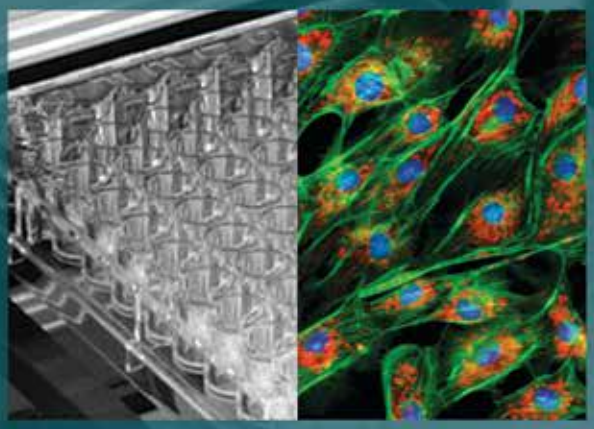
CYTATION5
BioTek
ATION|5
imaging reader

Imaging & Microscopy



The fusion of automated digital widefield fluorescent microscopy and multi-mode microplate detection in the new Cytation Cell Imaging Multi-Mode Readers offers life science researchers a unique and powerful tool. Whether studying fixed or live cells, tissues or whole organisms, Cytation's automated fluorescence microscopy and detection of a wide array of fluorescent probes provides quantitative phenotypic data from images. These cellular images provide rich visualization and multi-parametric information concerning many biological processes.

This unique, patent pending design results in workflow efficiency and a reduction in data analysis and storage requirements, making Cytation the ideal instrument as a standalone automated imager or in combination with microplate reading as a total system.

Cytation™ Cell Imaging Multi-Mode Reader

Cytation™ is a uniquely integrated, configurable system that combines automated digital widefield microscopy with conventional multi-mode microplate detection to provide phenotypic cellular information and well-based quantitative data. With up to 60x magnification, the microscopy module provides high-quality cellular and sub-cellular visualization. The multi-mode detection module provides high quality quantitative and qualitative data in all detection modes. All controlled with Gen5™ software, specifically designed for uncomplicated processing of even the most complex assays

Powerful Automated Digital Microscopy

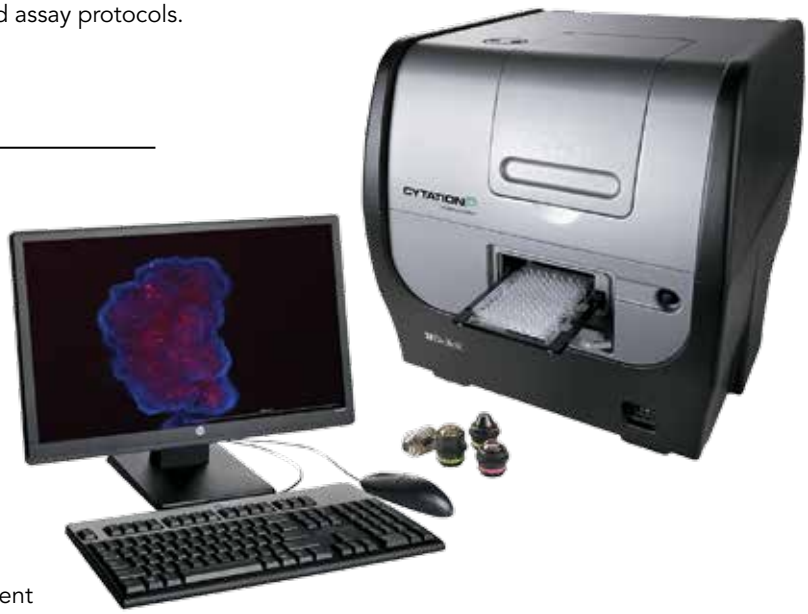
The Cytation family includes Cytation 5 and Cytation 3. Each is available in multiple upgradable configurations; from basic microscopy to complex image collection and analysis in fluorescence, brightfield, H&E and phase contrast, Cytation offers critical methods like single- and multi-color, time lapse, montage and z-stacking. Gen5 software offers unique features like user-trained autofocus and available joystick control for truly automated imaging with the highest quality results. Powerful image processing like image stitching, z-projection and digital phase contrast, are all available in this cost effective system.

Live Cell Assays

To create the ideal environment for live cell assays, Cytation systems include 4-Zone™ incubation up to 65 °C and a gas controller to monitor and control CO_2 and O_2 levels in the system. Linear, orbital and double orbital shaking help keep cells gently agitated or well suspended to optimize many cell based assay protocols.

Hybrid Technology

BioTek's patented Hybrid Technology, available with the multi-mode detection modules for Cytation, combines high performance filters with variable bandwidth monochromators, providing convenience, versatility and excellent performance. Luminescence, UV-Vis absorbance, time-resolved fluorescence, fluorescence polarization and AlphaScreen®/AlphaLISA® measurements read modes greatly increase the application range of the system.



Typical Applications:

- 2D and 3D cell imaging and analysis
- Cell proliferation studies
- Cytotoxicity
- Biomarker quantification
- Drug discovery
- Genetic analysis
- Drug absorption and metabolism
- Biologics drug discovery and development
- Environmental testing
- Food safety
- Nucleic acid quantification
- Protein quantification

Take3 Compatible

Specifications

General

	Cytation 5	Cytation 3
Detection modes	AlphaScreen/AlphaLISA Fluorescence intensity Fluorescence polarization Time-resolved fluorescence Absorbance Luminescence	Fluorescence intensity Fluorescence polarization Time-resolved fluorescence Absorbance Luminescence
Microplate types	6- to 384-well plates	
Other labware	Microscope slides, Petri dishes, cell culture flasks (T25), compatible with Take3™ Micro-Volume Plates	
Temperature control	4-Zone incubation to 65°C with Condensation Control; ±0.2 °C at 37 °C	4-Zone incubation to 45 °C with Condensation Control; ±0.2 °C at 37 °C
Shaking	Linear, orbital, double orbital	
Software	Gen5™ Data Analysis Software	
Automation	BioStack and 3rd party automation compatible	
CO_2 and O_2 control	Range: 0 - 20% (CO_2); 1 - 19% (O_2) Control Resolution: ±0.1% (CO_2 and O_2) Stability: ±0.2% at 5% CO_2; ±0.2% at 1% O_2 Models for both CO_2 and O_2 or CO_2 only are available	
Light source	Xenon flash - fluorescence and absorbance 100 mW laser - AlphaScreen/AlphaLISA	

Imaging System

Camera	16-bit gray scale, Sony CCD, 1.1 megapixel	
Imaging mode	Fluorescence Brightfield Phase Contrast H&E Imaging	Fluorescence Brightfield
Imaging method	Single color, Multi-color, Montage, Time Lapse, Z-stacking	
Image processing	Z-Projection, Digital Phase Contrast, Stitching	
Positional controls	Joystick control Software control	Software control
Automated functions	User-trained autofocus, autofocus, autoexposure, auto-LED intensity	
Imaging filter cube capacity	4 onboard, user-replaceable filter cubes	
Imaging filter cubes available	DAPI, CFP, GFP, YFP, RFP, Texas Red, CY5, CY7, Acridine Orange (ACR OR), CFP-YFP FRET, propidium Iodide, chlorophyll, phycoerythrin	
Imaging LED cubes available	365 nm, 405 nm, 465 nm, 590 nm, 523 nm, 505 nm, 623 nm, 740 nm	
Objective capacity	6 user-replaceable objectives	2 user-replaceable objectives
Available objectives	2.5x, 4x, 10x, 20x, 40x, 60x	
Phase objectives	4x, 10x, 20x, 40x	n/a
Image collection rate	96 wells, 1 color (DAPI), 4x, 6 minutes 96 wells, 3 colors, 4x, 12 minutes	

Fluorescence Intensity

Sensitivity	Monochromators: Top: fluorescein 2.5 pM (0.25 fmol/well 384-well plate) Bottom: fluorescein 4 pM (0.4 fmol/well 384-well plate) Filters/mirrors: Fluorescein 0.25 pM (0.025 fmol/well 384-well plate)
Wavelength selection	Quadruple monochromators (top/bottom) and deep blocking bandpass filters/dichroic mirrors (top)
Wavelength range	Monochromators: 250 - 700 nm (850 nm option) Filters: 200 - 700 nm (850 nm option)

	Cytation 5	Cytation 3
Monochromator bandwidth	Variable from 9 nm to 50 nm in 1 nm increments	Fixed, 16 nm
Detection system	Two PMT detectors: one for monochromator system, one for filter system	
Dynamic range	7 decades	5 decades

Luminescence

Sensitivity	Monochromator system: 20 amol ATP (flash) Filter system: 10 amol ATP (flash) 100 amol ATP (glow)
Wavelength range	300 - 700 nm
Dynamic range	>6 decades

Fluorescence Polarization

Sensitivity	1.2 mP standard deviation at 1 nM fluorescein
Wavelength range	280 - 700 nm (850 nm option)

Time-Resolved Fluorescence

Sensitivity	Europium 40 fM with filters (4 amol/well in 384-well plate) Europium 1200 fM with monos (120 amol/well in 384-well plate).
Wavelength range	Monos: 250 - 700 nm (850 nm option) Filters: 200 - 700 nm (850 nm option)

Alpha Detection

Light source	680 nm laser, 100 mW	n/a
Wavelength selection	Filter (top only)	n/a
Sensitivity	100 amol LCK peptide (384-well low volume plate)	n/a

Absorbance

Wavelength selection	Monochromator
Wavelength range	230 - 999 nm, 1 nm increment
Bandwidth	4 nm (230-285 nm), 8 nm (>285 nm)
Dynamic range	0 - 4.0 OD
Resolution	0.0001 OD

Reagent Injectors

Number	2 syringe pumps
Supported detection modes	All modes
Dispense volume	5 - 1000 µL in 1 µL increment
Dead volume	1 mL, 100 µL with back flush
Plate geometry	6- to 384-well plates, Petri dishes
Dispense precision	≤2% at 50-200 µL
Dispense accuracy	±1 µL or 2%

Physical Characteristics

Power	250 Watts max.	130 Watts max.
Dimensions	20" D x 16.5" W x 17.5" H (50.8 cm x 41.91 cm x 44.5 cm)	
Weight	80 lbs (36.3 Kg)	

Regulatory

Regulatory	CE and TUV marked. RoHS Compliant. Models for In Vitro Diagnostic use are available.

Specifications are subject to change. Performance values represent the average observed factory test values

Gen5™ Data Analysis Software for Cytation™

Gen5™ can automate the entire imaging process: all the steps of image acquisition are fully automated including X, Y and Z movements, focus, LED intensity and camera exposure. Image analyses like cell counting and subpopulation analysis happen on the fly as images are acquired; Gen5's data analysis tools: kinetic analysis, curve fitting, EC50, potency calculation and others can then be applied to image analysis results. With Gen5 you can go from samples to final results in one click.

Imaging Made Easy

Gen5 was designed for users without prior automated microscopy experience. Image capture and acquisition is done through a simple interface that includes auto focus and auto exposure algorithms. Image analysis can be as simple as a one click process with visual feedback to fine-tune analysis parameters.

Automatic Cell Counting

Gen5 can automatically count cell nuclei in samples. In a 96- or 384-well microplate, this means performing a count on tens of thousands of cells in a matter of minutes. This makes Cytation a very powerful tool for cellular assays where multiple conditions need to be tested and changes in cell population need to be monitored.

Sub-Population Analysis

Gen5 can sort cells by features such as intensity, or morphology (size, perimeter, circularity). This enables applications such as transfection efficiency, nuclear translocation or cell cycle assays where multiple cell sub-populations are present in the samples.

Hit Picking

Gen5 can be programmed to quickly scan the plate with the standard plate reader optics and hit-pick the wells that meet a defined threshold for imaging. This saves valuable time, reduces data collection, analysis and storage requirements – ultimately reducing costs.

Universal Image Format

Gen5 works with a universal TIF image format. TIF images acquired on microscopes can be imported into Gen5 for analysis. On the other hand, exported Gen5 images are compatible with a broad range of image analysis software including Image J or Cell Profiler if custom analysis is required.

Key Features:

Powerful instrument control

- Reliable autofocus methods including unique user-trained autofocus
- Automatic camera gain, exposure and LED intensity settings
- End-point, montage, Z-stack and time-lapse read modes

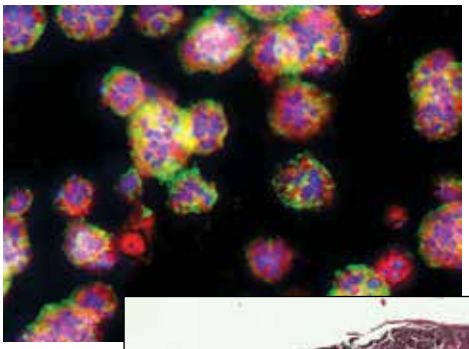
Image pre-processing tools

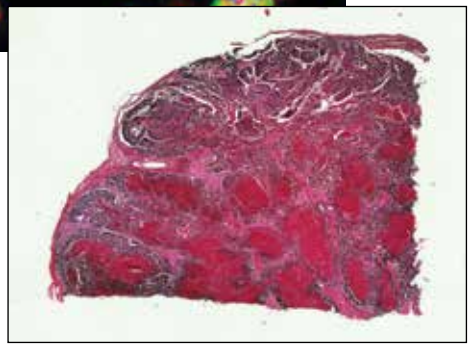
- Built-in hot-pixel correction
- Automated image pre-processing (flattening, smoothing, background correction)
- Image stitching, Z-projection
- Digital phase contrast algorithm

Image and data analysis tools

- Automatic cell-counting and confluence
- Powerful sub-population analysis
- Image statistics
- Full data analysis software (EC50, standard curves, kinetic analysis and more)

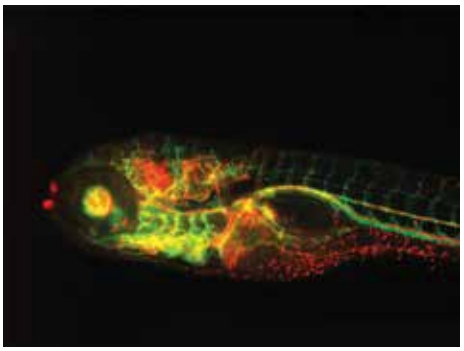
HCT 116 tumoroids at 20x. Z-stacked image



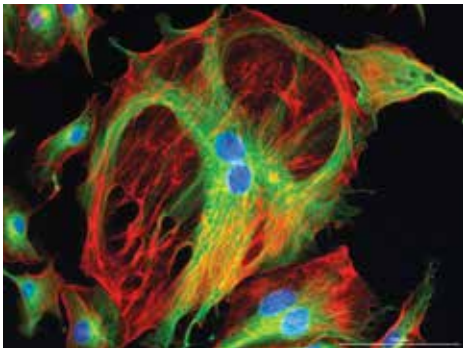


Liver cirrhosis, 4x, stitched. Color brightfield

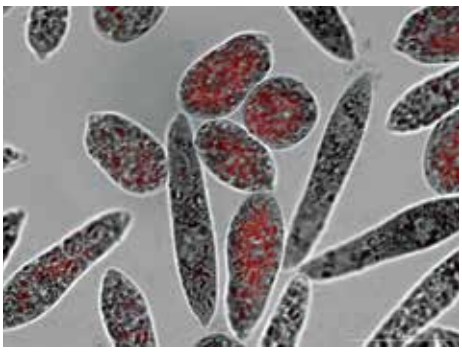
Gen5™



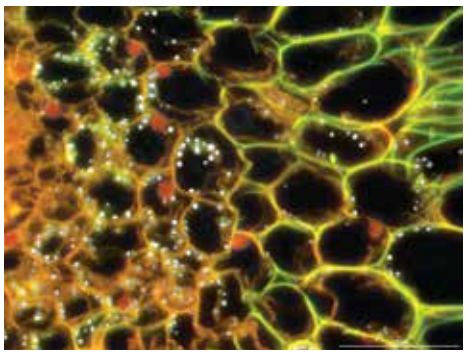
Zebrafish at 4x. Texas Red (blood cells) & GFP (vasculature)



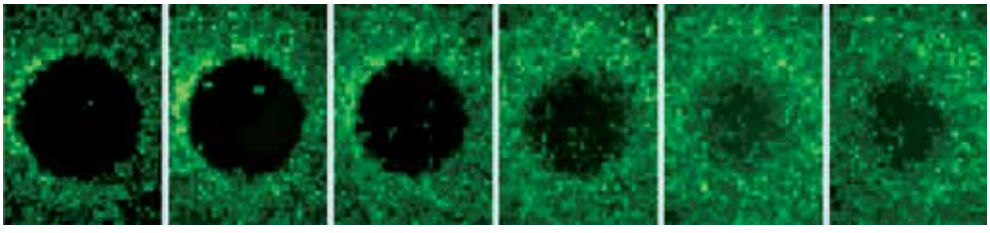
BPAE cells at 20x. Texas Red, Phalloidin & GFP



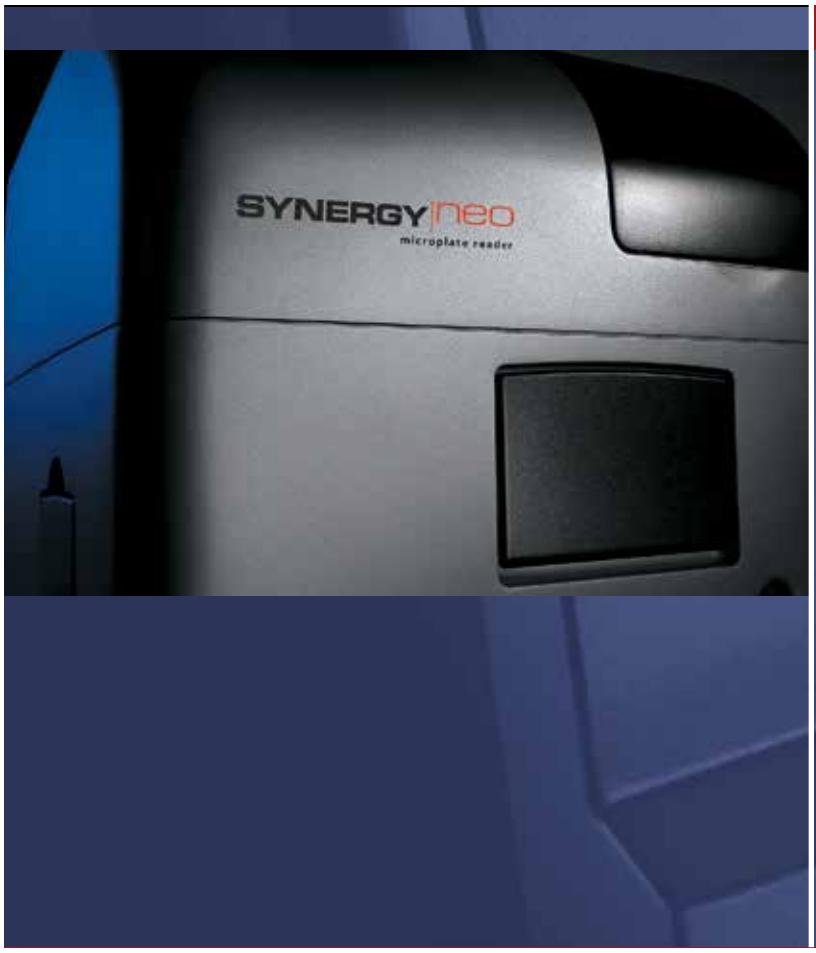
Euglena gracilis at 60x. Brightfield & chlorophyll (Red)



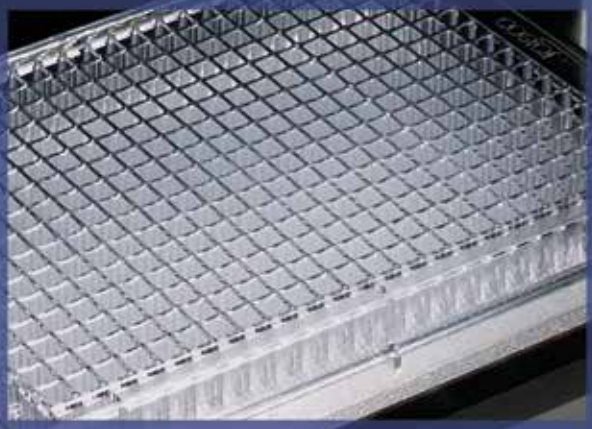
Lillium anther at 20x. Phase contrast, GFP & Texas Red



HT-1080 cells, migration assay at 2.5x, 1 hr to 12 hr run


SYNERGY neo
microplate reader

Detection



BioTek offers an extensive range of microplate readers, from the Synergy™ Neo Multi-Mode Microplate Reader to the ELx800™, a basic ELISA reader used in tens of thousands of laboratories around the globe. Included in the BioTek reader product range are Hybrid readers, multi-mode readers, fluorometers, luminometers and a variety of both monochromator-based spectrophotometers and filter-based absorbance readers.

For assays like nucleic acid and protein quantification, where very small sample size is critical, BioTek's Take3™ Micro-Volume Plate offers the ability to measure multiple samples as small as 2 µL in monochromator-based multi-mode and absorbance readers. Most BioTek microplate readers come with the powerful Gen5™ Data Analysis Software and are compatible with BioStack™ and many third-party automation products, to provide increased throughput and unattended operation.

Synergy™ Neo Hybrid Multi-Mode Microplate Reader

Synergy™ Neo is a multi-mode microplate reader designed specifically for today's screening and core laboratories. Neo has all the features expected in an HTS screening instrument, including multiple parallel detectors for ultra-fast measurements, a dedicated filter-based system for live cell assays, and exquisite performance.

High Throughput

Synergy Neo can read a 96-well plate in 6 seconds and a 384-well plate in 11 seconds. With an exchange time of about 6 seconds per plate, its optional integrated plate stacker makes this the fastest combination on the market, allowing walk-away automation of short- or long-term assays.

Hybrid Technology™ Optical System

At Synergy Neo's core is BioTek's patented Hybrid design that incorporates monochromator-based and filter-based systems for the utmost flexibility and performance in HTS, research and drug discovery laboratories.

Assay Versatility

Synergy Neo meets today's diverse assay requirements by incorporating features like a powerful 100 mW laser-based excitation source for Alpha-based assays (AlphaScreen®, AlphaLISA®, SureFire®). The Alpha capability of Neo provides speed and sensitivity even for low-signal cell-based assays.

Other features, such as advanced temperature control to 65°C, linear, orbital and double orbital shaking round out the powerhouse of functionality and performance that defines the Neo. Proven performance in HTRF®, fluorescence polarization, time-resolved fluorescence and TR-FRET applications makes Neo and Gen5™ software an award-winning system.

Designed for Automation

Ease of use and user confidence are key to the design of Synergy Neo's unique filter cubes that are barcode labeled for positive filter ID – limiting the possibility of errors and streamlining the workflow. An available camera-based barcode reader can scan both 1D and 2D barcode-labeled plates.

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

Synergy Neo shown with optional high-speed microplate stacker

Take3 Compatible

Specifications

General	
Wavelength selection	Hybrid Technology™ (patented) Quadruple Monochromators and Filter Cubes
Detection mode	Fluorescence, Time-Resolved Fluorescence, Fluorescence Polarization, AlphaScreen®/AlphaLISA®, Luminescence, UV-Visible Absorbance
Read mode	End point, kinetic, spectral scanning, well-area scanning
Microplate types	1- to 1536-well plates
Other labware	Take3™ Micro-Volume Plates
Temperature control	4-Zone™ incubation to 65 °C; variation ±0.2 °C at 37 °C with Condensation Control™
Shaking	Linear, orbital, double orbital
Automation	BioStack™ and 3rd party automation compatible
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
Barcode reader	Multi-directional, 1D and 2D camera-based
Software	Gen5™ Data Analysis Software
Absorbance	
Light source	Xenon flash
Wavelength selection	Monochromator
Wavelength range	230 - 999 nm, 1 nm increment
Bandwidth	2 nm (230 - 285 nm), 4 nm (>285 nm)
Dynamic range	0 - 4.0 OD
Resolution	0.0001 OD
Fluorescence Intensity	
Light source	Xenon flash
Sensitivity	Monochromator: Fluorescein 2 pM - top Fluorescein 2.5 pM - bottom Filter cubes: Fluorescein 0.2 pM - top Fluorescein 1 pM - bottom
Wavelength selection	Double grating monochromators (top/bottom) Filter cubes (top/bottom)
Wavelength range	Monochromators: 250 - 850 nm Filters cubes: 200 - 850 nm
Bandwidth	Monochromators: 16 nm excitation/emission Filters: filter-dependent, from 5 nm to >100 nm
Detection system	Two matched PMTs top filter system Low noise PMT bottom filter system Red shifted PMT top/bottom monochromator system

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

Specifications are subject to change. Performance values represent the average observed factory test values.

Synergy™ H1 Hybrid Multi-Mode Microplate Reader

Synergy™ H1 Hybrid reader is equipped with both monochromator and filter optical systems. Synergy H1 provides flexibility and performance, at a very attractive price.

Flexibility at a Great Price

Synergy H1 is available in a monochromator-only configuration. Supporting top and bottom fluorescence, UV-visible absorbance and luminescence, it is the most cost-effective solution of its type on the market. Combined with the Take3™ Micro-Volume Plate for low volume 2 µL assays, it is the perfect instrument for life-science research laboratories.

Patented Hybrid Optical System

Adding the optional filter module turns the Synergy H1 into an advanced Hybrid reader. This patented optical design is only available from BioTek. Monochromators provide ease-of-use and flexibility, while filters provide increased optical efficiency and sensitivity.

Gas Controller for Live Cell Assays

An available Gas Controller for Synergy H1 allows control and monitoring of CO_2 and O_2 levels in the system. The Gas Controller, along with advanced temperature control to 45 °C and orbital shaking, create the ideal physiological environment needed for assays using live cells.

Upgradable to Advanced Read Modes

When equipped with the optional filter module, Synergy H1 may be used for fluorescence polarization assays as well as Time-Resolved Fluorescence (TRF) and TR-FRET assays.

Dual Reagent Injector Module

For rapid, precise reagent injection in all plate types, Synergy H1 has an available dual reagent injector module, ideal for inject/read applications.

Synergy H1 shown with optional Gas Controller module

Typical Applications:

- Nucleic acid quantification
- Protein quantification
- Enzyme kinetics
- Biomarker quantification
- ELISAs
- Yeast kinetic analysis
- Genetic analysis
- Drug discovery
- Cell proliferation
- Cytotoxicity
- Drug absorption and metabolism
- Biologics drug discovery and development
- Food safety
- Environmental monitoring

Take3 Compatible

Specifications

General	
Wavelength selection	Hybrid Technology™ (patented) Quadruple Monochromators and Filters/Dichroics
Detection mode	Monochromator system: Fluorescence, Luminescence, UV-Visible Absorbance Filter system: Fluorescence, Time-Resolved Fluorescence, Fluorescence Polarization, Luminescence
Read method	End point, kinetic, spectral scanning, well-area scanning
Microplate types	1- to 384-well plates
Other labware	Take3™ Micro-Volume Plate
Temperature control	4-Zone incubation to 45 °C; variation ±0.2 °C at 37 °C with Condensation Control™
Shaking	Linear, orbital, double orbital
Software	Gen5™ Data Analysis Software
Automation	BioStack™ and 3rd party automation compatible
CO_2 and O_2 control	Range: 0 - 20% (CO_2); 1 - 19% (O_2) Control Resolution: ±0.1% (CO_2 and O_2) Stability: ±0.2% at 5% CO_2; ±0.2% at 1% O_2 Models for both CO_2 and O_2 or CO_2 only are available

Absorbance	
Light source	Xenon flash
Wavelength selection	Monochromator
Wavelength range	230 - 999 nm, 1 nm increment
Bandwidth	4 nm (230 - 285 nm), 8 nm (>285nm)
Dynamic range	0 - 4.0 OD
Resolution	0.0001 OD
Pathlength correction	Yes
Monochromator wavelength accuracy	±2 nm
Monochromator wavelength repeatability	±0.2 nm
OD accuracy	<1% at 2.0 OD <3% at 3.0 OD
OD linearity	<1% from 0 to 3.0 OD
OD repeatability	<0.5% at 2.0 OD
Stray light	0.03% at 230 nm
Reading speed	96 wells: 11 seconds 384 wells: 22 seconds

Specifications are subject to change. Performance values represent the average observed factory test values.

Fluorescence Intensity	
Light source	Xenon flash
Sensitivity	Monochromators: Top: Fluorescein 2.5 pM (0.25 fmol/well 384-well plate) Bottom: Fluorescein 4 pM (0.4 fmol/well 384-well plate) Filters/mirrors: Fluorescein 0.25 pM (0.025 fmol/well 384-well plate)
Wavelength selection	Double grating monochromators (top/bottom) and, Deep blocking bandpass filters/dichroic mirrors (top)
Wavelength range	Monochromators: 250 - 700 nm (850 nm option) Filters: 200 - 700 nm (850 nm option)
Dynamic range	5 decades
Detection system	Two PMT detectors: one for monochromator system, one for filter system
Reading speed	96 wells: 11 seconds 384 wells: 22 seconds

Luminescence	
Sensitivity	Monochromator system: 20 amol ATP (flash) Filter system: 10 amol ATP (flash) 100 amol ATP (glow)
Wavelength range	300 - 700 nm
Dynamic range	>6 decades

Fluorescence Polarization	
Sensitivity	1.2 mP standard deviation at 1 nM fluorescein
Wavelength range	280 - 700 nm (850 nm option)

Time-Resolved Fluorescence	
Light source	Xenon flash
Sensitivity	Europium 40 fM with filters (4 amol/well in 384-well plate) Europium 1200 fM with monos (120 amol/well in 384-well plate)
Wavelength range	200 - 700 nm (850 nm option)

Reagent Injectors	
Number	2 syringe pumps
Dispense volume	5 - 1000 µL in 1 µL increments
Dead volume	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	100 - 240 Volts AC. 50/60 Hz. 130 Watts max.
Dimensions	15.4"W 18.6"D 12.9"H (39.1 x 47.2 x 32.8 cm)
Weight	50 lbs (22.5 kg)

Regulatory	
Regulatory	CE and TUV marked. ROHS compliant. In Vitro Diagnostic use models are available.

Synergy™ 2 Multi-Mode Microplate Reader

The Synergy™ 2 has been designed for life science research and drug discovery applications. It incorporates enhanced fluorescence, luminescence and absorbance optics for superior performance. Advanced read modes such as fluorescence polarization and time-resolved fluorescence are available as individual, upgradable modules and an available reagent injection system expands the applications range.

Best Price/Performance Ratio

The Synergy 2 incorporates dedicated, optimized optical paths for each detection mode using filters for fluorescence and a monochromator for absorbance. The result is excellent performance in all modes, at an attractive price.

Sensitive Dichroic-based Fluorescence Optics

The Synergy 2 fluorescence optics are a step up from the Synergy HTX, incorporating dichroic mirrors, which decrease background noise, as well as a liquid-filled emission fiber that increases the system's light collection efficiency. The result is higher sensitivity for demanding assays.

Dedicated Luminescence Light Path

A dedicated liquid-filled light guide coupled with a low noise detector provides high-performance luminescence detection, on par with dedicated microplate luminometers. Synergy 2 is DLReady™ certified by Promega to run their Dual-Luciferase® assay system.

Advanced, Modular Read Modes

In addition to the basic read modes available on the Synergy HTX, Synergy 2 offers fluorescence polarization, time-resolved fluorescence and Alpha detection modes, available as individual, upgradable modules.

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

Take3 Compatible

Specifications

General	
Detection mode	Fluorescence, Time-Resolved Fluorescence, Fluorescence Polarization, AlphaScreen®/AlphaLISA®, Luminescence, UV-Visible Absorbance
Read method	End point, kinetic, spectral scanning, well-area scanning
Microplate types	6- to 1536-well plates (luminescence 1- to 384-well plates) PCR plates
Other labware	Take3™ Micro-Volume Plate
Temperature control	4-Zone™ incubation to 65 °C; variation ±0.2 °C at 37 °C
Shaking	Linear
Software	Gen5™ Data Analysis Software
Automation	BioStack™ and 3rd party automation compatible
AlphaScreen/AlphaLISA	
Light source	Tungsten halogen
Sensitivity	100 amol of biotinylated-LCK-P peptide, 25 µL/well in 384-well plate
Dynamic range	>6 decades
Reading speed	2 minutes (96-well plate)
Detection system	PMT
Absorbance	
Light source	Xenon flash
Wavelength selection	Monochromator
Wavelength range	200 - 999 nm, 1 nm increment
Bandwidth	2.4 nm
Dynamic range	0 - 4.0 OD
Resolution	0.0001 OD
Pathlength correction	Yes
Monochromator wavelength accuracy	±2 nm
Monochromator wavelength repeatability	±0.2 nm
OD accuracy	<1% at 2.0 OD <3% at 3.0 OD
OD linearity	<1% from 0 to 3.0 OD
OD repeatability	<0.5% at 2.0 OD
Stray light	0.03% at 230 nm
Reading speed	96 wells: 11 seconds 384 wells: 22 seconds 1536 wells: 42 seconds

Specifications are subject to change. Performance values represent the average observed factory test values.

Fluorescence Intensity	
Light source	Tungsten halogen High energy DPR Xenon flash (optional)
Sensitivity	Top: Fluorescein 1 pM (0.2 fmol/well 96-well plate; 0.1 fmol/well 384-well plate) Bottom: Fluorescein 5 pM (1 fmol/well 96-well plate; 0.5 fmol/well 384-well plate)
Wavelength selection	Deep blocking bandpass filters/dichroic mirrors
Wavelength range	300 - 700 nm with tungsten lamp (850 nm option) 200 - 700 nm with xenon lamp (850 nm option)
Dynamic range	>6 decades
Bandwidth	Filter dependent
Detection system	PMT
Reading speed	96 wells: 11 seconds 384 wells: 22 seconds 1536 wells: 42 seconds
Luminescence	
Sensitivity	10 amol ATP (flash) 100 amol ATP (glow)
Wavelength range	300 - 700 nm
Dynamic range	>6 decades
Detection system	PMT
Fluorescence Polarization	
Light source	Tungsten halogen High energy DPR Xenon flash (optional)
Sensitivity	3 mP at 1 nM fluorescein
Wavelength selection	Deep blocking filters/dichroic mirrors
Wavelength range	400 - 700 nm (320 - 850 nm option)
Time-Resolved Fluorescence	
Light source	High energy DPR Xenon flash
Sensitivity	Europium 60 fM (12 amol/well 96-well plate; 6 amol/well 384-well plate)
Wavelength selection	Deep blocking filters/mirrors
Wavelength range	200 - 700 nm (850 nm option)
Reagent Injectors	
Number	2 syringe pumps
Dispense volume	5 - 1000 µL in 1 µL increment
Dead volume	1 mL, 100 µL with back flush
Plate geometry	6- to 96-well microplates
Dispense precision	<2% at 50 - 200 µL
Dispense accuracy	±1 µL or 2%
Physical Characteristics	
Power	250 Watts max.
Dimensions	17"W x 17.5"D x 14.5"H (43.5 x 44.5 x 37.3 cm)
Weight	60 lbs (27 kg)
Regulatory	CE and TUV marked. ROHS compliant. In Vitro Diagnostic use models are available.

Synergy™ HTX Multi-Mode Microplate Reader

The Synergy™ HTX is an entry-level, affordable and upgradeable, multi-mode microplate reader. Available read modes include top and bottom fluorescence, UV-visible absorbance and luminescence detection. Temperature control to 50 °C, shaking and advanced Gen5™ data analysis software are also included. A dual reagent injector module is available for all read modes and plate types.

Ideal for Basic Research Applications

The Synergy HTX is the ideal instrument for nucleic acid and protein quantification, enzyme assays, biomarker quantification and ELISA assays, as well as cell-based assays (gene expression, cellular growth, cytotoxicity).

AlphaScreen®/ AlphaLISA®

AlphaScreen and AlphaLISA assays can be performed on Synergy HTX with excellent results. Alpha-capable configurations add assay versatility to basic research requirements.

Sensitive Filter-based Fluorescence

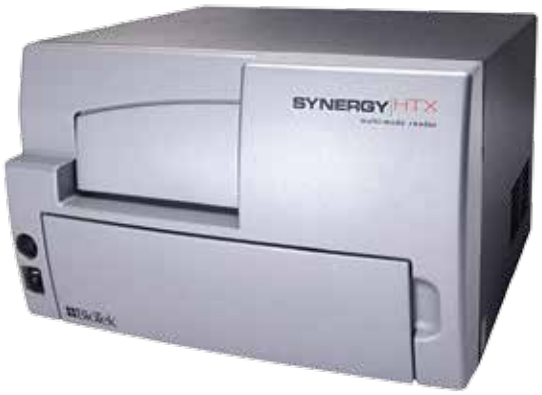
Two excitation and two emission filters are included with the reader, and can be used for top and bottom reading. Bottom reading is usually recommended when working with adherent cells, as it often provides better signal-to-background ratios. Top reading is typically best for assays where the fluorescence signal comes from the solution.

Flexible Monochromator-based Absorbance

All Synergy readers use monochromators for absorbance detection. This provides unlimited wavelength selection from the low UV to the near infrared, in 1 nm steps, and enables spectral scanning.

Low-noise Luminescence Detection

The Synergy HTX can automate glow and flash luminescence assays, thanks to its optional dual reagent injector module. Typical assays include ATP quantification as well as luciferase gene expression assays.



Typical Applications:

- AlphaScreen®/AlphaLISA®
- Nucleic acid quantification
- Protein quantification
- Enzyme kinetics
- Biomarker quantification
- ELISAs
- Genetic analysis
- Cell proliferation
- Cytotoxicity
- Drug absorption and metabolism
- Food safety
- Environmental monitoring

Take3 Compatible

Specifications

General	
Detection mode	Fluorescence, Time-Resolved Fluorescence (secondary mode), Luminescence, UV-Visible Absorbance, AlphaScreen/AlphaLISA
Read method	End point, kinetic, spectral scanning, well-area scanning
Microplate types	6- to 384-well plates PCR plates
Other labware	Take3 Micro-Volume Plate
Temperature control	4-Zone™ incubation with Condensation Control™. Ambient + 4 °C to 50 °C; variation ±0.2 °C at 37 °C
Shaking	Linear, orbital
Software	Gen5™ Data Analysis Software
Automation	BioStack™ and 3rd party automation compatible
AlphaScreen/AlphaLISA	
Light source	Tungsten halogen
Sensitivity	300 amol of biotinylated-LCK-P peptide, 25 µL/well in 384-well plate
Dynamic range	>6 decades
Reading speed	2 minutes (96-well plate)
Detection system	PMT
Absorbance	
Light source	Xenon flash
Wavelength selection	Monochromator
Wavelength range	200 - 999 nm, 1 nm increments
Bandwidth	2.4 nm
Dynamic range	0 - 4.0 OD
Resolution	0.0001 OD
Pathlength correction	Yes
Monochromator wavelength accuracy	±2 nm
Monochromator wavelength repeatability	±0.2 nm
OD accuracy	<1% at 2.0 OD <3% at 3.0 OD
OD linearity	<1% from 0 to 3.0 OD
OD repeatability	<0.5% at 2.0 OD
Stray light	0.03% at 230 nm
Reading speed	96 wells: 14 seconds 384 wells: 26 seconds

Fluorescence Intensity	
Light source	Tungsten halogen
Sensitivity	Top and Bottom: Fluorescein 5 pM (1 fmol/well 96-well plate)
Wavelength selection	Deep blocking filters
Wavelength range	300 - 700 nm (200 - 850 nm option)
Dynamic range	> 6 decades
Bandwidth	Filter dependent
Detection system	PMT
Reading speed	96 wells: 31 seconds 384 wells: 80 seconds
Luminescence	
Sensitivity	Multi-mode models: 30 amol ATP (flash) Luminescence only: 10 amol ATP (flash)
Wavelength range	300 - 700 nm
Dynamic range	>6 decades
Detection system	PMT
Time-Resolved Fluorescence (secondary mode)	
Light source	Xenon flash
Wavelength selection	Monochromator
Reagent Injectors	
Number	2 syringe pumps
Supported detection modes	All modes
Dispense volume	5 - 1000 µL in 1 µL increments
Dead volume	1 mL, 100 µL with back flush
Plate geometry	6- to 384-well plates
Dispense precision	<2% at 50 - 200 µL
Physical Characteristics	
Connectivity	1 USB, 1 RS232 for external PC control
Power	100 - 240 Volts AC. 50/60 Hz.
Dimensions	16"W x 15"D x 10"H (40.6 x 38 x 25.4 cm)
Weight	40 lbs (18 kg)
Regulatory	
Regulatory	CE and TUV marked. ROHS Compliant. In Vitro Diagnostic use models are available.

Specifications are subject to change. Performance values represent the average observed factory test values.

Multi-Mode Reader Comparison Chart

Which Multi-mode Reader is right for you?

	Synergy™ Neo	*Cytation™ 5*	
Key Features			
Monochromator-based UV-visible absorbance	•	•	
Fluorescence top/bottom	•	•	
Luminescence	•	•	
Filtered luminescence	•	•	
Injectors	•	•	
TRF & TR-FRET	•	•	
Fluorescence polarization	•	•	
Standard AlphaLISA®/AlphaScreen®			
Laser AlphaLISA/AlphaScreen	•	•	
Hybrid Technology™	•	•	
Automation ready/BioStack™ compatible	•	•	
Dual PMT read head	•		
Performance Specifications			
Fluorescein typical – top	2 pM (monos) / 0.2 pM (filters)	2.5 pM (monos) / 0.25 pM (filters)	
Fluorescein typical – bottom	1 pM (filters)	4 pM (monos)	
ATP typical – flash luminescence	5 amol	10 amol	
Polarization typical – 1 nM Fluorescein	1 mP	1.2 mP standard deviation	
Europium typical	40 fM	40 fM (filters)	
AlphaScreen typical - LCK peptide	100 amol	100 amol	
Fastest read speed 96-/384-well plates (seconds)	6/11	11/22	
General Specifications			
Microplate types	1 to 1536	1 to 384	
Gas Controller compatible		•	
Barcode reader option	•		
Take3™ Micro-Volume Plate compatible	•	•	
Temperature control system	to 65 °C	to 65 °C	
Condensation Control™	•	•	
Filter capacity	6 filter sets	2 filter sets	
Fluorescence bandwidth	Filter dependent Mono 16 nm	Filter dependent Mono from 9 nm to 50 nm	

Synergy H1	*Synergy 2*	*Synergy HTX*
•	•	•
•	•	•
•	•	•
•	•	•
•	•	•
•	•	(secondary mode)
•	•	
	•	•
•		
•	•	•
2.5 pM (monos) / 0.25 pM (filters)	1 pM	5 pM
4 pM (monos)	5 pM	5 pM
10 amol	10 amol	30 amol/10 amol (luminescence only configuration)
1.2 mP standard deviation	3 mP	n/a
40 fM (filters)	60 fM	n/a
n/a	100 amol	300 amol
11/22	11/22	14/26
1 to 384	1 to 1536	6 to 384
•		
•	•	•
to 45 °C	to 65 °C	to 50 °C
•		•
2 filter sets	4 filter sets	4 filter sets
Filter dependent Mono 16 nm	Filter dependent	Filter dependent

FLx800™ Fluorescence Microplate Reader

The compact FLx800™ fluorescence reader provides high performance in 6- to 384-well microplates at an attractive price. Options include top and bottom detection, temperature control and reagent injector.

Great Price/Performance Ratio

The FLx800 uses top and bottom bifurcated quartz fibers to ensure strong sample excitation and efficient collection of the emitted signal. This reader combines sensitivity, convenience and ease of use all at a great price.

Bottom Reading and FRET Detection

The bottom detection system uses a large 5 mm diameter quartz fiber optimized for cell-based assays in 96-well plates and smaller densities. The reader may be equipped with up to 4 filter sets and may be used to run cell-based FRET assays.

Sensitive Luminescence Detection

The FLx800's detector provides very high sensitivity when running luminescent assays. ATP or luciferase can be quantified down to very low concentrations using the reader's photon integration mode.

Fluorescent Ion Channel Assays

A syringe pump injector is available as an option to automate fluorescent ion-channel assays. This system is used to inject a trigger reagent that induces a fast change in fluorescent signal. The FLx800 kinetically monitors the signal just after injection.

Typical Applications:

- Nucleic acid quantification
- Protein quantification
- Enzyme kinetics
- Genetic analysis by fluorescence
- Cellular analysis by fluorescence

Specifications

General	
Detection mode	Fluorescence, Luminescence
Read method	End point, kinetic and area scanning under computer control
Microplate types	6- to 384-well plates
Temperature control	4 °C above ambient to 50 °C (I models)
Shaking	Linear (I models)
Software	Gen5™ Data Analysis Software
Onboard software	55 user-programmable protocols
Fluorescence Intensity	
Light source	Tungsten halogen
Sensitivity	Fluorescein 5 pM (1 fmol/well 96-well plate)
Wavelength selection	Deep blocking filters
Wavelength range	300 - 700 nm (850 nm option)
Dynamic range	5 decades
Luminescence	
Sensitivity	100 amol ATP (flash)
Wavelength range	300 - 700 nm
Dynamic range	5 decades
Reagent Dispensers	
Number	1 syringe pump
Dispense volume	5 - 1000 µL in 1 µL increments
Minimum prime volume	1.1 mL, 100 µL with backflush
Physical Characteristics	
Power	100 - 240 Volts AC. 50/60 Hz.
Dimensions	15"W x 16"D x 9"H (38.1 x 40.64 x 22.89 cm)
Weight	30 lbs (13.6 kg)
Regulatory	
Regulatory	CE and TUV marked. ROHS compliant. In Vitro Diagnostic use models are available.

Specifications are subject to change. Performance values represent the average observed factory test values.

PowerWave™ HT Microplate Spectrophotometer

The PowerWave™ HT is a high throughput, robot friendly microplate spectrophotometer with a very small footprint, ideal for integration into automated systems. Wavelength selection in 1 nm increments, temperature control and superior performance up to 4.0 OD add to its appeal for a variety of assay needs.

High Speed, Higher Throughput

In automation and high throughput, timing is everything… With 8 reading channels, the PowerWave HT can read a 96-well plate in 5 seconds.

Low Stray Light Monochromator Optics

PowerWave HT's monochromator optics pre-select the measurement wavelength before light goes through the sample. This results in very low stray light reaching the detector…with the added benefit of excellent performance even at high optical densities.

BioStack™ Compatible for Benchtop Automation

When walkaway benchtop automation is required, the PowerWave HT, coupled with BioStack, provides a compact system for rapid processing of up to 50 plates at a time.

Gen5™ Control = Assay Flexibility

Gen5 Data Analysis Software not only allows easy control of all the functionality of the PowerWave HT, it also supports a vast number of applications in absorbance. Quick export to Microsoft® Excel® or use Gen5's powerful data analysis tools to make quick work of the most complex assays.

Typical Applications:

- Enzyme kinetics
- ELISAs
- Genetic analysis by colorimetry
- Cellular analysis by colorimetry
- Cell proliferation

Specifications

General	
Detection mode	Absorbance
Read method	End point, kinetic, spectral scanning, linear scanning
Microplate types	96- and 384-well plates
Temperature control	4 Zone™ incubation: Ambient + 4 °C to 50 °C; variation ±0.2 °C at 37 °C
Shaking	Linear
Software	Gen5 Data Analysis Software
Automation	BioStack and 3rd party automation compatable
Absorbance	
Light source	Xenon flash lamp
Wavelength selection	Monochromator, selectable 1 nm or greater increments
Wavelength range	200 - 999 nm
Bandwidth	5 nm
Dynamic range	0 - 4.0 OD
Resolution	0.001 OD
Monochromator wavelength accuracy	±2 nm
Monochromator wavelength repeatability	±0.2 nm
OD accuracy	1% ±0.01 OD
OD linearity	±1% typical
OD repeatability	0.5% ±0.005 OD
Stray light	0.03% at 230 nm
Reading speed	96 wells: 5 seconds 384 wells: 11 seconds
Physical Characteristics	
Power	100 - 240 Volts AC. 50/60 Hz.
Dimensions	8.5"W x 16"D x 8.5"H (21.6 x 40.6 x 21.6 cm)
Weight	24 lbs (11 kg)
Regulatory	
Regulatory	CE and TUV marked. ROHS compliant. In Vitro Diagnostic use models are available.

Specifications are subject to change. Performance values represent the average observed factory test values.

Epoch™ 2 Microplate Spectrophotometer

Epoch™ 2 is a compact monochromator-based microplate spectrophotometer for 6- to 384-well microplates, cuvettes and 2 µL measurements. Epoch 2 features a 10" color touchscreen interface with easy to navigate controls, and full onboard Gen 5™ software for data collection, powerful analysis and flexible export and report options. Incubation, shaking and robot compatibility are standard features.

UV-Vis Measurements

Epoch 2's monochromator-based optics offers wavelength selection from 200 nm to 999 nm – for applications from nucleic acid quantification to ELISA, without using filters. Epoch 2 can measure up to 48 2 µL samples in the unique Take3 Micro-Volume plates for rapid direct quantification. An optional cuvette port provides quick 1 cm measurements, making Epoch 2 a versatile spectrophotometer for multiple applications.

Touch. Run. Done.

Designed for easy-to-use, yet powerful functionality, Epoch 2 features a 10" color touchscreen interface, WiFi, Bluetooth and USB connectivity and flash drive storage. It's a self-contained computer, in a space and cost saving design, configurable for the laboratory's needs today and in the future.

Full Gen5 Data Analysis Software

With Epoch 2, "onboard software" doesn't mean "limited software". Complete reader control, protocol design, data analysis and export/report functions are at your fingertips. For applications in microplates, cuvettes or Take3 plates, Gen5 offers the same intuitive navigation and full capability as an external computer. With Gen5 on the Epoch 2 – there's no need for a dedicated computer – it's all built-in!

Advanced 4-Zone™ Incubation

Epoch 2 features BioTek's 4-Zone natural convection incubator up to 65 °C with minimal variation across the plate – ideal for a wide range of temperature-sensitive assays. Epoch 2's unique Condensation Control™, solves the common problem of condensation build up on plate lids during incubated kinetic runs. The Condensation Control feature allows a temperature gradient between top and bottom heating surfaces, minimizing the formation of condensation on plate lids and ensuring consistent results.

Typical Applications:

- ELISA
- Enzyme kinetics
- Nucleic acid and protein quantification
- Cell proliferation
- Cytotoxicity
- Spectral scanning
- Reactive oxygen species
- Food safety and quality
- Bacterial identification
- Total protein determination
- Nucleic acid purity assessment

Take3 Compatible

Specifications

General	
Wavelength selection	Monochromator
Read method	Endpoint, kinetic, spectral scanning, well area scanning
Microplate types	6-, 12-, 24-, 48-, 96-, and 384-well plates
Other labware	Take3™ Micro-Volume Plates (optional) BioCell™ (optional) Standard cuvette (with "C" configurations)
Temperature control	4-Zone incubation: Ambient +4°C to 65 °C with Condensation Control Variation ±0.2 0C at 37 0C
Shaking	Linear, orbital, double orbital
Software	Onboard touchscreen: Gen5™ TS Data Analysis Software Non-touchscreen: Gen5™ Data Analysis Software
Automation	BioStack™ and 3rd party automation compatible
Wavelength range	200 –999 nm, selectable in 1 nm increments
Light source	Xenon flash
Dynamic range	0.0 - 4.0 OD
Resolution	0.0001 OD
Bandwidth	2.9 nm
Performance *(Performance noted below is for 96-well microplates and cuvette measurements)*	
Monochromator wavelength accuracy	± 2 nm
Monochromator wavelength repeatability	± 0.2 nm
OD accuracy	0 to 2.0 OD ± 1% ± 0.010 2.0 to 2.5 OD ± 3% ± 0.010
OD linearity	0 to 2.0 OD ± 1% ± 0.010 2.0 to 2.5 OD ± 3% ± 0.010
OD repeatability	0 to 2.0 OD ± 1% ± 0.005 2.0 to 2.5 OD ± 3% ± 0.005
Stray light	0.03% at 230 nm
Read speed	96 wells sweep read: 8 seconds 384 wells sweep read: 14 seconds
Physical Characteristics	
Connectivity	1 USB for external PC control 1 USB for peripheral devices
Power	100 - 240 Volts AC. 50/60 Hz.
Dimensions	With touchscreen: 15.5" D x 12.5" W x 13" H (39.3 x 32 x 33 cm) Without touchscreen: 15.5" D x 12.5" W x 8" H (39.3 x 32 x 20.3 cm)
Weight	With touchscreen 25 lbs (11.3 kg) Without touchscreen 20 lbs (9.1 kg)
Regulatory	
Regulatory	CE and TUV marked, RoHS compliant. Models for In Vitro Diagnostic use are available.

Specifications subject to change. Performance values represent the average observed factory test values.

Epoch™ Microplate Spectrophotometer

Epoch™ is a monochromator-based microplate spectrophotometer that offers superior functionality for the life science laboratory at an accessible price. Controlled by the powerful, yet easy-to-use Gen5™ Data Analysis Software, Epoch is designed to be the new lab workhorse for a wide variety of applications. For walk-away automation, an optional BioStack™ compatible Epoch is available.

200 nm to 999 nm Wavelength Range

The monochromator-based optical system in Epoch allows any wavelength selection between 200 and 999 nm in 1 nm increments. No filters required! From low UV nucleic acid measurements to standard ELISA assays, Epoch is ideally suited to the life science laboratory where application flexibility is required.

6- to 384-well Microplate Reading

Epoch's optical and mechanical systems are designed to provide optimal measurements in a variety of microplates. The area scanning capability provides multiple measurements across larger diameter wells, resulting in more meaningful data analysis.

Take3™ Micro-Volume Plate Compatible

When sample size matters, as in critical nucleic acid and protein quantification, the Take3 plate provides up to sixteen 2 µL measurements – without needing to dilute important samples.

End Point, Kinetic, Spectral Scanning

There's no need to buy expensive instrumentation to perform a variety of absorbance measurements. Epoch, driven by Gen5 Data Analysis Software, is the ultimate high-value system with maximum assay flexibility.

Typical Applications:

- Nucleic acid quantification
- Protein quantification
- 260/280 and 260/230 purity measurements
- ELISA
- Enzyme kinetics
- Cytotoxicity
- Cell proliferation
- Micro-volume assays with Take3 plate

Take3 Compatible

Specifications

General	
Wavelength selection	Monochromator
Read method	End point, kinetic, spectral scan, well area scan
Microplate types	6- to 384-well plates
Other labware	Take3™ Micro-Volume Plate, BioCell
Software	Gen5™ Data Analysis Software
Automation	BioStack™ and 3rd party automation compatible ('R' configuration)
Absorbance	
Wavelength range	200 nm - 999 nm, selectable in 1 nm increments
Light source	Xenon flash
Bandwidth	5 nm
Dynamic range	0 - 4.0 OD
Resolution	0.0001
Monochromator wavelength accuracy	±2 nm
OD accuracy	0 to 2 OD: ±1% ±0.010 OD 2 to 2.5 OD: ±3% ±0.010 OD
OD linearity	0 to 2 OD: ±1% ±0.010 OD 2 to 2.5 OD: ±3% ±0.010 OD
OD repeatability	0 to 2 OD: ±1% ±0.005 OD 2 to 2.5 OD: ±3% ±0.005 OD
Reading speed	96 wells: 15 seconds 384 wells: 31 seconds
Physical Characteristics	
Power	100 - 240 Volts AC. 50/60 Hz.
Dimensions	12" W x 12.5" D x 7.7" H (30.5 cm x 31.8 cm x 19.6 cm)
Weight	<15 lbs (6.8 kg)
Regulatory	CE and TUV marked. ROHS compliant. In Vitro Diagnostic use models are available.

Specifications subject to change. Performance values represent the average observed factory test values.

ELx808™ Absorbance Microplate Reader

Excellent optical performance and superior incubation are among the top features of this multi-channel reader. The ELx808™ is suitable for a wide array of applications, from endpoint ELISAs to kinetic cell growth studies.

4-Zone™ Temperature Control

For temperature sensitive assays, there is no better incubation system in this microplate reader class than the ELx808. The natural convection heating is software controlled for consistency and performance over time.

Fast Measurement

The ELx808 can collect kinetic data in intervals as short as 6 seconds, for the most demanding assays. Gen5™ Data Analysis Software provides multiple kinetic and end point data analysis options for a variety of applications.

Superior Optical Performance

The ELx808 can accommodate up to six absorbance filters, and its optical channels are staggered to prevent crosstalk between wells. The reference channel eliminates channel-to-channel variation. This unique design gives the ELx808 its proven optical performance.

Typical Applications:

- ELISA
- Enzyme kinetics
- Endotoxin assays
- Cell growth studies
- Cytotoxicity
- Protein assays

Specifications

General	
Detection mode	Absorbance
Read method	End point, kinetic, linear scanning
Microplate types	96-well plates
Temperature control	4-Zone incubation to 50 °C (ELx808IU)
Shaking	Linear
Software	Gen5 Reader Control Software (Gen5 Data Analysis Software optional)
Onboard software	55 user-programmable protocols
Absorbance	
Light source	Tungsten halogen
Wavelength selection	Filters
Wavelength range	380 - 900 nm 340 - 900 nm (ELx808IU)
Bandwidth	10 nm
Dynamic range	0 - 4.0 OD
Resolution	0.001 OD
Filter wheel capacity	6 positions
Filters supplied	4 filters (5 with UV option)
OD accuracy	<1% at 2.5 OD <2% at 3.5 OD
OD linearity	<1% at 2.5 OD
OD repeatability	<0.5% at 2.5 OD <1.5% at 3.5 OD
Reading speed	96 wells: 8 seconds
Physical Characteristics	
Power	100 - 240 Volts AC. 50/60 Hz.
Dimensions	15.5"W x 16"D x 8.75"H (39.4 x 40.6 x 22.2 cm)
Weight	30 lbs (13.6 kg)
Regulatory	
Regulatory	For In Vitro Diagnostic use. CE and TUV marked. ROHS compliant.

Specifications subject to change. Performance values represent the average observed factory test values.

IVD

ELx800™ Absorbance Microplate Reader

The ELx800™ is a compact, robust microplate reader ideally suited for applications within the clinical and life science research laboratories.

Reliable And Robust Design

These characteristics are the reason there have been more than 25,000 ELx800s placed in laboratories around the globe. There simply isn't a more reliable reader with proven performance than the ELx800.

Gen5™ Software Expands Versatility

Under computer control by Gen5 Data Analysis Software, ELx800 applications are expanded to include kinetic and well area scanning measurements. Data analysis and reporting/exporting features in Gen5 are completely customizable to suit your laboratory's requirements.

High Performance, High Value

The ELx800 comes with four filters (user-selectable wavelengths), with a five filter capacity. In addition to standard 96-well microplate reading, the ELx800 offers 6-, 12-, 24-, 48- and optional 384-well microplate reading, to fit a variety of assay needs.

Typical Applications:

- ELISA
- Protein assays
- Cytotoxicity

Specifications

General	
Detection mode	Absorbance
Read method	End point, kinetic and area scanning under computer control
Microplate types	6- to 384-well plates 60/72/96-well Terasaki plates (NB option)
Software	Gen5 Reader Control Software (Gen5 Data Analysis Software optional)
Onboard software	55 user-programmable protocols
Absorbance	
Light source	Tungsten halogen
Wavelength selection	Filters
Wavelength range	400 - 750 nm 340 - 750 nm (UV option)
Bandwidth	10 nm
Dynamic range	0 - 3.0 OD
Resolution	0.001 OD
Filter wheel capacity	5 positions
Filters supplied	4 filters (5 with UV option)
OD accuracy	<1% at 2.0 OD
OD linearity	<1% at 2.0 OD <3% at 3.0 OD
OD repeatability	<0.5% at 2.0 OD
Reading speed	96 wells: 30 seconds
Physical Characteristics	
Power	100 - 240 Volts AC. 50/60 Hz.
Dimensions	15"W x 16.5"D x 7"H (38.1 x 41.9 x 17.8 cm)
Weight	18.5 lbs (8 kg)
Regulatory	
Regulatory	For In Vitro Diagnostic use. CE and TUV marked. ROHS compliant.

Specifications subject to change. Performance values represent the average observed factory test values.

IVD

Absorbance Reader Comparison Chart

Which Absorbance Reader is right for you?

	PowerWave™ HT	*Epoch™ 2*	*Epoch™*	
Key Features				
Wavelength selection	Monochromator based	Monochromator based	Monochromator based	
Wavelength range (nm)	200 - 999	200 - 999	200 - 999	
Microplate types	96 and 384	6 to 384	6 to 384	
Absorbance range	0 - 4.0	0 - 4.0	0 - 4.0	
Temperature control	to 50 °C	to 65 °C		
Shaking	Linear	Linear, orbital, double-orbital		
Cuvette measurement	Cuvette adapter	Cuvette port (optional), Take3 or cuvette adapter	Take3 or cuvette adapter	
Filter capacity	n/a	n/a	n/a	
Automation ready/BioStack™ compatible	•	•	("R" configuration)	
Gen5™ Software version included	Gen5	Gen5	Gen5	
Take3™ Micro-Volume Plate compatible		•	•	
Fastest read speed: 96 wells (seconds)	5	8	15	
Typical Performance				
OD accuracy	1% +0.01 OD	0 to 2.0 OD: ±1% ±0.010 OD 2.0 to 2.5 OD: ±3% ±0.010 OD	0 to 2.0 OD: +1% +0.010 OD 2.0 to 2.5 OD: +3% +0.010 OD	
OD linearity	±1%	0 to 2.0 OD: ±1% ±0.010 OD 2.0 to 2.5 OD: ±3% ±0.010 OD	0 to 2.0 OD: +1% +0.010 OD 2.0 to 2.5 OD: +3% +0.010 OD	
OD repeatability	0.5% ±0.005 OD	0 to 2.0 OD: ±1% ±0.005 OD 2.0 to 2.5 OD: ±3% ±0.005 OD	0 to 2.0 OD: +1% +0.005 OD 2.0 to 2.5 OD: +3% +0.005 OD	
Resolution	0.001 OD	0.0001 OD	0.0001 OD	

ELx808 IU	*ELx808™*	*ELx800™*	*ELx800 UV*	*ELx800 NB*
Filter-based	Filter-based	Filter-based	Filter-based	Filter-based
340 - 900	380 - 900	400 - 750	340 - 750	400 - 750
96	96	6 to 96	6 to 96	6 to 384
0 - 4.0	0 - 4.0	0 - 3.0	0 - 3.0	0 - 3.0
to 50 °C				
Linear	Linear			
6	6	5	5	5
Gen5RC	Gen5RC	Gen5RC	Gen5RC	Gen5RC
8	8	30	30	30
<1% at 2.5 OD <2% at 3.5 OD	<1% at 2.5 OD <2% at 3.5 OD	<1% at 2.0 OD	<1% at 2.0 OD	<1% at 2.0 OD
<1% at 2.5 OD	<1% at 2.5 OD	<1% at 2.0 OD <3% at 3.0 OD	<1% at 2.0 OD <3% at 3.0 OD	<1% at 2.0 OD <3% at 3.0 OD
<0.5% at 2.5 OD <1.5% at 3.5 OD	<0.5% at 2.5 OD <1.5% at 3.5 OD	<0.5% at 2.0 OD	<0.5% at 2.0 OD	<0.5% at 2.0 OD
0.001 OD	0.001 OD	0.001 OD	0.001 OD	0.001 OD

Gen5™ Data Analysis Software

Gen5™ Data Analysis Software incorporates over 30 years of experience and user feedback into outstanding microplate reader software. Gen5 is a unique combination of power and ease-of-use that drives productivity and saves time. Use Gen5 to control BioTek's readers and export data, or as a fully integrated processing tool.

Beginner-friendly Software

Gen5 is built around logical laboratory workflows to read microplates and produce/analyze data. In Gen5, you simply click "Read Now" and follow the prompts. At the end of the read, answer the question: "Do you want to export to Excel?" With Gen5 you don't have to spend hours figuring out how to get things done.

Powerful Functionality

Gen5 comes with powerful built-in tools such as 4-P and 5-P curve fits with or without weighting, parallel-line analysis, advanced kinetic analysis, and much more. The software has been specifically designed to analyze matrices of data that are difficult to process in Microsoft® Excel® spreadsheets. Special attention has been placed on result presentation so complex data can be displayed in a clean, colorful way to facilitate data interpretation.

Up-to-date Web-based Sample Files

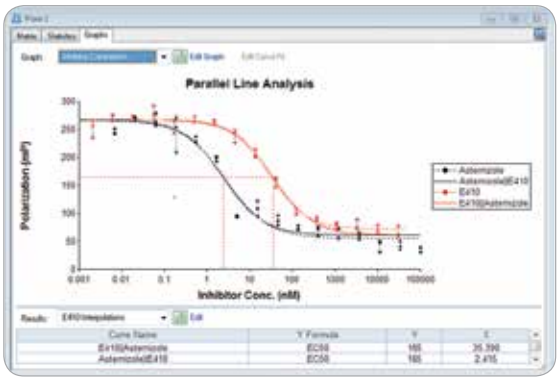
A searchable library of sample files with data is available on the BioTek web site. Existing files are kept up to date and new files are added on a regular basis. Gen5 users can upload files to share their experiments and sample data with other Gen5 users.

Gen5 Secure: You Are In Control

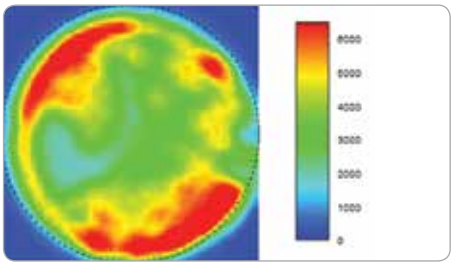
Gen5 Secure is for you if secured data storage, user group management or 21 CFR Part 11 compliance are a core part of your requirements. It includes extra features such as 25 licenses per copy, quality control trending module with Levey-Jennings charts and automatic email notification on trigger events.

All-in-One Solution

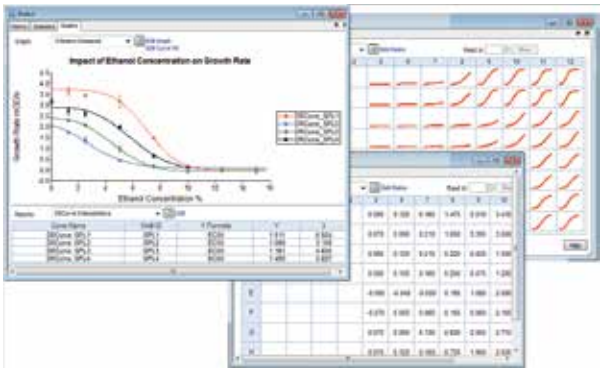
Control any BioTek reader, automate the entire process and produce publication-ready reports with one integrated, powerful software. It doesn't get more efficient than this.



Parallel line analysis and EC_{50} determinations



High-resolution 99 x 99 area scan



Multiple window views of plate data and results

Gen5™ Comparison Chart

	Gen5 RC	*Gen5*	*Gen5 Image+*	*Gen5 Secure*	*Gen5 Secure Image+*
Readers supported					
All Cytation and Synergy readers; Epoch 2 (external), Epoch, PowerWave HT, FLx800, ELx808, ELx800	•	•	•	•	•
Read Modes and Methods					
Absorbance, fluorescence, luminescence, time-resolved fluorescence, fluorescence polarization, Alpha	•	•	•	•	•
End point, kinetic, spectral scanning, linear scanning, Take3 interface	•	•	•	•	•
Single and Multi-Mode Data Analysis					
Qualitative, quantitative, kinetic, spectral analysis, custom transformations, EC50, parallel line analysis, Z' calculation, validation and cutoff formulae		•	•	•	•
Imaging Modes and Methods					
Fluorescence, brightfield, phase contrast, H&E	•	•	•	•	•
Single color, multi-color, montage, Z-stacking	•	•	•	•	•
Image Processing and Analysis					
Cell counting		•	•	•	•
Subpopulation analysis			•		•
Hit-picking			•		•
Z-projection			•		•
Digital phase contrast			•		•
Image stitching			•		•
Security / 21CFR					
User groups, single sign-on (SSO) option				•	•
Secure database data storage, audit trails				•	•
Electronic signature, email notification				•	•
Validation Tools					
Gen5 Validation Package	available	available	available	available	available

Take3™ Micro-Volume Plate

Quickly quantify ultra-low volume samples of DNA, RNA and protein. Measure up to 48 samples with volumes as low as 2 µL without dilution. Take3™ can be used to measure a standard cuvette or patented BioCells™ for quick 1 cm measurements. Low volume, higher throughput is available with the Take3 Trio.

Compatible with Most BioTek Detection Systems

Epoch™, Synergy™ and Cytation™ reader functionality can easily reach into the micro-volume range using the Take3 plate. Measure multiple 2 µL samples, cuvettes or BioCells. Adding the Take3 plate to a BioTek detection system creates an incredibly versatile workstation for a variety of applications.

Unique Robust Construction and Easy Maintenance

The anodized aluminum base construction, precision crafted slides and hydrophobic sample surfaces make

pipetting simple and cleanup effortless. For routine cleaning of the sample surfaces, a laboratory wipe is all that's needed. If a slide becomes damaged, replacement is easy – no need to return the Take3 to the factory for repair or calibration.

Gen5 Take3 Module: Automated DNA, RNA and Protein Quantification

It couldn't be easier to get multiple (up to 48) nucleic acid or protein sample results. Gen5's Take3 module includes pre-programmed protocols with immediate results output including spectral scans and purity ratios. There's no need for complicated configuration or calculation.

Typical Applications:

- Micro-volume DNA, RNA and protein quantification
- Micro-volume fluorescence measurements in Synergy and Cytation readers
- Fluorescent dye incorporation measurements
- Spectral scanning in micro-volume, cuvette or BioCell

Specifications

	Take3	Take3 Trio
2 µL sample capacity	16	48
Detection limit	2 ng/µL dsDNA	2 ng/µL dsDNA
BioCell capacity	2	2
Cuvette capacity	1	n/a

Specifications are subject to change.

Reader Accessories

BioTek offers a wide range of accessories to help increase productivity, expand your plate reader's capabilities, and maintain the performance of your BioTek microplate reader system. See our web site for a complete listing of available accessories.

Dual Reagent Injector Module

Automate inject/read assays such as flash luminescence assays (ATP, luciferase) and fluorescent ion channel assays on all Synergy and Cytation readers.

Instrument Qualification

See the Compliance Section on pages 62-63 for details about BioTek's product qualification tools and services.

Gas Controller

The Gas Controller module for the Synergy H1 and Cytation allows full control over CO_2 and O_2 concentrations to modulate the environment for microplate-based live cell assays.

Filters and Mirrors

A full range of standard and custom filters and dichroic mirrors are available for applications from the low UV to the near infrared.

Gen5 Secure Software

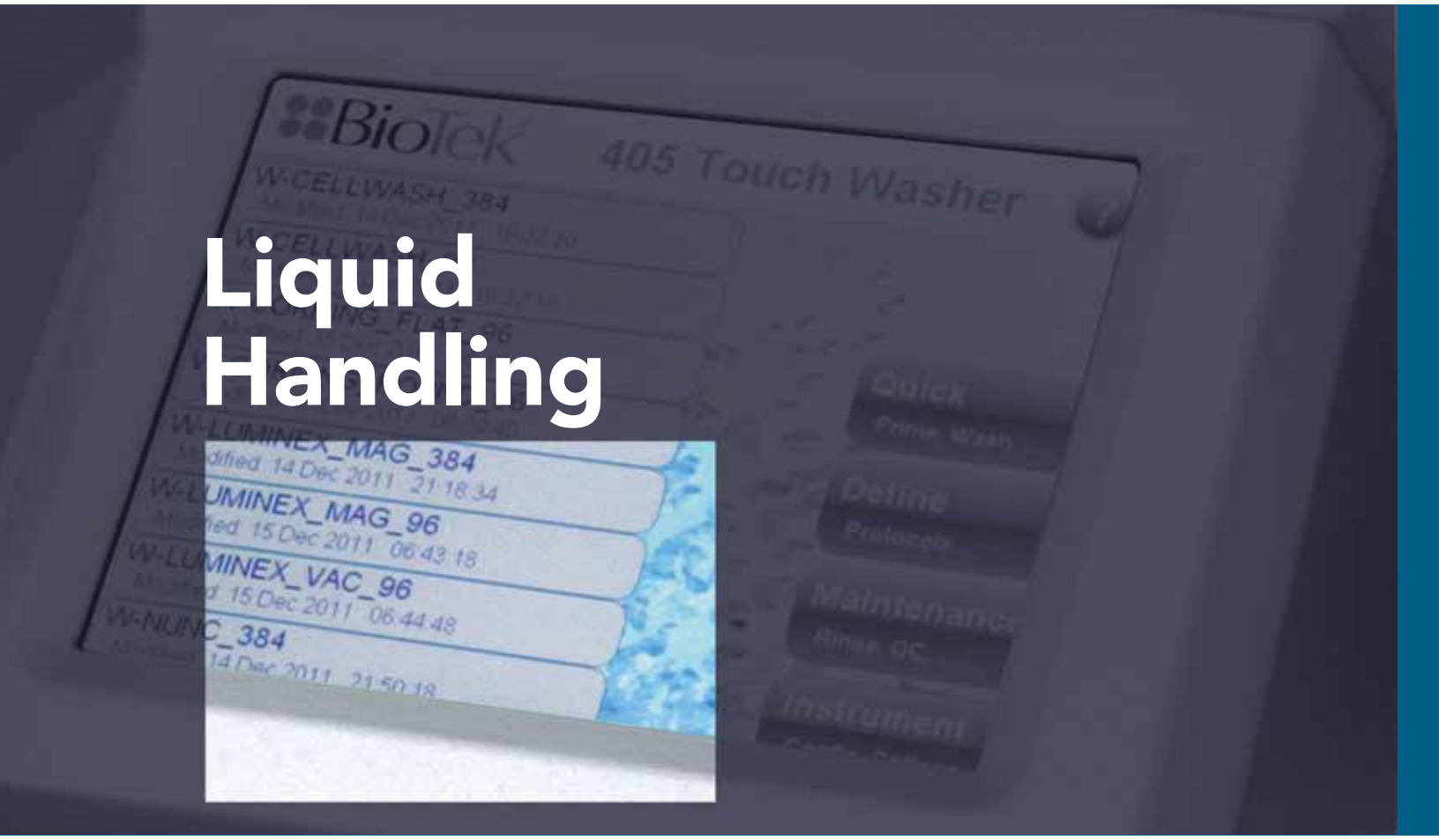
Upgrade to Gen5 Secure for 21 CFR Part 11 compliance, user management features, data encryption and much more.

BioStack™ Microplate Stacker

Automate routine processes with this compact stacker. BioStack is also compatible with BioTek's liquid handling instruments.


405 Touch
Microplate Washer
BioTek

Liquid Handling



BioTek offers a range of compact and affordable solutions for your laboratory's specific liquid handling needs. BioTek is world renowned for manufacturing the most reliable and versatile microplate washers on the market. From basic ELISA to sensitive cell washing to bead washing (including Luminex® xMAP® technology), the EL406™, 405™ Touch, ELx50™ and the new MultiFlo™ FX are configured with many options to meet a myriad of assay requirements. BioTek's microplate reagent dispensers incorporate two optimized fluid delivery technologies to address different liquid handling requirements. From milliliters down to one microliter, our reagent dispensers offer simple, repeatable and precise liquid delivery throughout their defined volume range. Single, 8- and 12-channel transfer tools are available, along with bulk reagent dispensers, to meet varied liquid handling requirements.

EL406™ Microplate Washer Dispenser

The EL406™ Combination Washer Dispenser is the only instrument on the market offering fast microplate washing together with BioTek's unique Parallel Dispense™ technologies for optimized liquid handling processes.

Unattended Automation of ELISAs and Cell-based Assays

The EL406 integrates 96-, 384- and 1536-well microplate washing with three dispensers in one compact instrument. Now you can simply press a button and walk away, or automate an entire batch by adding a BioStack™ Microplate Stacker. A range of EL406 models provides configurability for a lab's specific requirements.

Patented Dual-Action™ Manifold and Ultrasonic Advantage™

The EL406 incorporates BioTek's Dual-Action manifold for thorough yet gentle washing of loosely adherent cell layers, and Ultrasonic Advantage for automated wash manifold maintenance.

Parallel Dispense Technologies

The EL406 eliminates the need to choose a dispensing technology by offering both peristaltic and syringe pumps on a single platform.

Fast and Efficient Biomagnetic Separation and Vacuum Filtration

The EL406 automates full microplate washing of magnetic microspheres used in an increasing number of multiplex assays. Developed in conjunction with Luminex® xMAP® technology leaders, BioTek's separation modules incorporate high energy neodymium iron boron magnets for speed and efficiency. An available vacuum filtration module makes the EL406 also well suited for polystyrene beads and filtration-to-waste processes.

Typical Applications:

- ELISA automation
- MSD assay automation
- High content screening immunocytochemistry
- Cell-based assays
- FLIPR® Ca^{2+} flux
- Magnetic bead assay automation
- Polystyrene bead assay automation
- Drug transport assays
- Automated cell washing, fixing and staining for cellular imaging
- SiLA compliant integration (with LHC software)

Specifications

General	
Assays	ELISA Cell-based assays (model dependent) Magnetic bead, polystyrene bead (optional) • Multiplex assays • Bead-based ELISA Filtration-to-waste processes (optional)
Separation	Biomagnetic separation, vacuum filtration (optional)
Microplate types	96-, 384- and 1536-well plates (model dependent) Low profile and standard height Solid and filter bottom (optional)
Shaking	Programmable in minutes and seconds, up to 60 minutes Intensities - slow, medium, fast or variable
Soak time	Programmable in minutes and seconds, up to 60 minutes
Magnet	High strength 96- and 384-well designs Flat • Flat-bottom well - beads pulled to band across well bottom • Round-bottom well - beads pulled to button at well bottom Ring - beads pulled to 4-zone ring at well bottom
Safety/ convenience/ maintenance	Waste and vacuum sensing, fluid and flow detection Aerosol cover Adjustment utility for plate positioning Overflow protection Pre-programmed maintenance routines
Automation	Compatible with BioStack (excluding filter bottom plates) and 3rd party automation
Onboard software	Create, edit or run multiple protocols
Software	Liquid Handling Control™, for PC protocol programming and execution (optional). SiLA compliant driver available.
Washing	
Manifold types	96-well washing: 96-tube (8x12) manifold - 316 stainless steel tubes 96-/384-well washing: Dual-Action 96-tube (8 x 12) manifold - 316 stainless steel tubes 384-well washing: Dual-Action 192-tube (16 x 12) manifold - 316 stainless steel tubes 1536-well washing: Two 32-tube (1 x 32) dispense manifolds - sapphire jeweled 316 stainless steel or 316 stainless steel tubes 128-tube (4 x 32) aspiration manifold
Washing speed	Solid bottom plates, 1 asp./disp. cycle: 300 µL/well, 96 wells, 96-tube manifold: 13 seconds 100 µL/well, 384 wells, 192-tube manifold: 17 seconds 10 µL/well, 1536 wells, two 32-tube manifolds: 36 seconds
Fluid delivery	96-/384-well washing: One positive displacement pump 1536-well washing: Two positive displacement syringe drives
Vacuum filtration	Selectable vacuum levels: 0 to -380 mmHg (final at 30 seconds) Vacuum filtration time range: 5 - 999 seconds
Volume range	3 - 3,000 µL/well (model dependent) Selectable in 1 µL increments
Buffer selection	Automatic switching for up to 4 wash buffers (model dependent)
Flow rates	1 - 11, including low flow cell wash rates (model dependent)
Wash cycles	1 - 250
Dispense accuracy	±3%
Dispense precision	≤3% CV (model dependent)
Residual volume	≤2 µL/well
Sterilization	Chemical

Ultrasonic cleaning	Built-in ultrasonic bath to remove protein and salt crystal buildup
Supply bottle	4 L or 10 L (optional)
Dispensing - Peristaltic Pump	
Manifold types	8-tip cassette (1 x 8) - sapphire jeweled 316 stainless steel, 316 stainless steel or polypropylene plastic tips
Dispensing speed	10 µL/well, 96 wells, 8-tip cassette: 8 seconds 5 µL/well, 384 wells, 8-tip cassette: 12 seconds 1 µL/well, 1536 wells, 8-tip cassette: 27 seconds
Volume range	500 mL - 3,000 µL/well Selectable in 1 µL increments
Fluid delivery	One positive displacement peristaltic pump
Flow rates	Low, medium or high
Cassette size **1 µL**	Recommended Volume Range: 1 - 50 µL Dispense Accuracy: ±5.0% at 1 µL Dispense Precision: ≤5.0% CV at 1 µL ≤10.0% CV at 500 nL Minimum Prime Volume (30" tubing length): 1.20 mL
5 µL	Recommended Volume Range: 5 - 2,500 µL Dispense Accuracy: ±2.0% at 5 µL Dispense Precision: ≤2.5% CV at 5 µL Minimum Prime Volume (30" tubing length): 4.23 mL
10 µL	Recommended Volume Range: 10 - 3000 µL Dispense Accuracy: ±2.0% at 10 µL Dispense Precision: ≤2.0% CV at 10 µL Minimum Prime Volume (30" tubing length): 7.36 mL
Sterilization	Autoclave, Chemical
Dispensing - Syringe Pump	
Manifold types	96-well dispensing: One 16-tube (2 x 8) manifold - 316 stainless steel tubes 96-/384-well dispensing: Two 16-tube (1 x 16) manifolds - 316 stainless steel tubes 1536-well dispensing: Two 32-tube (1 x 32) manifolds - sapphire jeweled 316 stainless steel or 316 stainless steel tubes
Dispensing speed	20 µL/well, 96 wells, 1 x 16 tubes: 5.25 seconds 20 µL/well, 384 wells, 1 x 16 tubes: 14 seconds 3 µL/well 1536 wells, 2 x 32 tubes: 7 seconds
Volume range	3 - 3,000 µL/well Selectable in 1 µL increments Minimum Prime Volume: 12 mL
Fluid delivery	Two positive displacement syringe drives
Flow rates	1 - 5
Dispense accuracy	±1 µL at 5 µL ±1 µL at 20 µL ±1% at 100 µL
Dispense precision	≤5% CV at 5 µL ≤2.5% CV at 20 µL ≤1% CV at 100 µL
Reagent selection	Automatic switching for up to 4 reagents (optional)
Supply bottle	1 L or 2 L (model dependent)
Sterilization	Autoclave (model dependent), Chemical
Physical Characteristics	
Power	100 - 240 Volts AC. 50/60 Hz.
Dimensions	16.5" W x 18" D x 12.5" H (42 x 46 x 32 cm)
Weight	32 lbs (14.5 kg)
Regulatory	
Regulatory	CE and TUV marked. ROHS compliant. In Vitro Diagnostic use models are available.

Specifications subject to change. Performance values represent the average observed-factory test values.

405™ Touch Microplate Washer

BioTek's 405™ Touch Microplate Washer takes plate washing to the next level with an enhanced user interface, increased convenience, assay applications and automated maintenance features.

Industry Leading, User Pleasing

The 405 Touch Microplate Washer incorporates all the features and functionality of the prior ELx405 models, and improves accessibility through its touchscreen and extensive onboard software. 96- and 384-well microplate based wash procedures are only 'two touches' away with the easy-to-use interface. Additionally, two USB flash drives provide convenient file transfer, storage and operation. A context sensitive Help System and several instructional videos are also included.

The Standard for Automation

The 405 Microplate Washer makes quick work of any washing assay, and is especially well suited for integration into automated systems, where the wash process is controlled remotely.

Cell and Bead Assays

The 405 is available in various models for optimized performance with the most sensitive and rigorous assay requirements. When the protocol calls for washing loosely adherent cells, the Select model is fine-tuned with angled dispense tubes, extra low flow rates and unique X, Y and Z positioning. Magnetic and polystyrene bead washing are effectively accomplished with the 405.

Verify™ Technology and Automated Ultrasonic Cleaning

BioTek's new patented Verify technology runs an automated QC check for manifold tube blockage, and visually reports any failures. Patented Ultrasonic Advantage™ can then be used to automatically clean the manifolds. Together, these features make the 405 a self-checking, self-maintaining microplate washer!

Applications in Deep Well Washing

The ELx405 Select Deep Well washes 96- and 384-well plates up to 50 mm tall, and is also compatible with standard height plates without any hardware or software changes. This versatile system is optimal for labs working in deep well blocks and standard plates.

Typical Applications:

- ELISAs
- MSD assays
- HCS immune cytochemistry
- FLIPR® Ca^{2+} flux
- Cell-based assays
- Magnetic and polystyrene bead assays
- Gene expression assays
- Cytokine assays
- ELISPOT assays
- Plasmid DNA purification
- Serum/plasma sample preparation
- Cell signaling – phospho flow setup for flow cytometry
- SiLA compliant integration (with LHC software)

Specifications

General	
Assays	ELISA Cell-based assays (model dependent) Magnetic bead, polystyrene bead (model dependent) • Multiplex assays • Bead-based ELISA Filtration-to-waste processes (optional)
Separation	Biomagnetic separation, vacuum filtration
Microplate types	96- and 384-well plates (configuration dependent) Low profile and standard height Deep well up to 50 mm (configuration dependent) Solid and filter bottom (optional) • Filter pore sizes 0.45 µm to 1.2 µm
Shaking	Programmable in minutes and seconds, up to 60 minutes Intensities – slow, medium, fast or variable
Soak time	Programmable in minutes and seconds, up to 60 minutes
Magnet	High strength 96- and 384-well designs Choice of two designs, custom for BioTek microplate washers: Flat • Flat-bottom well - beads pulled to band across well bottom • Round-bottom well - beads pulled to button at well bottom Ring - beads pulled to 4-zone ring at well bottom
Safety/ convenience/ maintenance	Waste and vacuum sensing, fluid and flow detection Aerosol cover Adjustment utility for plate positioning Overflow protection Pre-programmed maintenance routines
Automation	BioStack™ Microplate Stacker – up to 50 ANSI/SLAS standard height plates (optional) (Except filter bottom plates)
Onboard software/GUI	LED color touch screen Predefined sample wash protocols Create or edit multiple custom protocols Predefined maintenance protocols
Software	Liquid Handling Control™ (LHC), for PC wash protocol programming and execution (optional). SiLA compliant driver available.
Interface	For PC control and BioStack™ integration – 1 USB port, 1 9-pin RS232 port For file transfer – 2 USB Flash Memory ports
Operating temperature	15 °C to 30 °C
Humidity	10% to 85%, non-condensing
Washing	
Manifold types	96-well washing: 96-tube (8 x 12) manifold 96-/384-well washing: 96-tube (8 x 12) Dual-Action™ manifold 384-well washing: 192-tube (16 x 12) Dual-Action manifold
Washing speed	Solid bottom plates: 96-well: 3 aspirate/dispense cycles, 300 µL/well, 96-tube manifold, final aspirate: ≤30 seconds 384-well: 3 aspirate/dispense cycles, 100 µL/well, 96-tube manifold, final aspirate: ≤80 seconds 1 aspirate/dispense cycle, 400 µL/well, 192-tube manifold, final aspirate: ≤20 seconds Filter bottom plates: Variable, based on wash parameters
Fluid delivery	One internal positive displacement pump
Vacuum filtration	Selectable vacuum levels (final at 30 seconds): Lowest -38 mmHg Low -113 mmHg Medium -200 mmHg High -390 mmHg Highest -506 mmHg Vacuum filtration time range: 5 to 999 seconds
Volume range	25 to 3,000 µL/well Selectable in 1 µL increments
Buffer selection	Internal automatic switching for up to 4 wash buffers (optional)
Flow rates	High flow to low rates, including cell wash rates (configuration dependent)
Wash cycles	1 to 250
Dispense precision	96-well washing – 96-tube (8 x 12) manifold: ≤3% CV: 300 µL/well (deionized water with 0.1% Tween 20 and FD&C #1 blue dye), rate 6, absorbance read at 630 nm and 450 nm reference 384-well washing – 192-tube (16 x 12) manifold: ≤4% CV: 80 µL/well (deionized water with 0.1% Tween 20 and FD&C #1 blue dye), rate 7, absorbance read at 630 nm and 450 nm reference
Residual volume	Solid bottom plates: 96-well washing – 96-tube (8 x 12) manifold: ≤2 µL/well: 3-cycle wash, 300 µL/well (deionized water with 0.1% Tween 20), Corning 96-well flat-bottom plate, aspiration height optimized prior to testing 384-well washing – 192-tube (16 x 12) manifold: ≤2 µL/well: 3-cycle wash, 100 µL/well (deionized water with 0.1% Tween 20), Corning 96-well flat-bottom plate, aspiration height optimized prior to testing Filter bottom plates: 96-well: Average increase weight of plate ≤1.2 g after dispensing 300 µL to 0.45 µm plate, filtration 30 seconds, low vacuum, blotted 384-well: Average increase weight of plate ≤4.0 g after dispensing 80 µL to 1.2 µm plate, filtration 10 seconds, low vacuum, blotted
Sterilization	Chemical: 0.5% sodium hypochlorite, 70% isopropyl alcohol or 70% ethanol solution
Ultrasonic cleaning	Built-in Ultrasonic Advantage for protein and salt crystal buildup. Programmable in hours and minutes, up to 60 minutes (configuration dependent)
Clog detection	Built-in Verify technology detects dispense and aspirate tubes for blockage (model dependent)
Supply bottle	4 L or 10 L (optional)
Physical Characteristics	
Power	100 – 240 Volts AC. 50/60 Hz., ≤8.0 A
Dimensions	14" W x 17" D x 10" H (35.6 x 43.2 x 25.4 cm)
Weight	With internal buffer switching – 36 lbs (16.5 kg) Without – 30 lbs (13.5 kg)
Regulatory	
Regulatory	CE and TUV marked. ROHS compliant. In Vitro Diagnostic use models are available.

Specifications subject to change. Performance values represent the average observed-factory test values.

ELx50™ Microplate Strip Washer

The ELx50™ Microplate Strip Washer's compact footprint conceals a powerhouse of washing capabilities unsurpassed in its class. Exceptional dispense precision and evacuation efficiency can be utilized for both 96- and 384-well strip and plate washing.

Multiple Washers in One

The ELx50 is a 3-in-1 solution for 96-well plate formats automating the wash steps of ELISAs, magnetic bead assays and polystyrene bead assays. The ELx50 can also be equipped with BioTek's Dual-Action™ manifold allowing independent control of dispense and aspiration manifolds in both 96- and 384-well formats. As a welcome upgrade from manual processing, the ELx50 provides an all-inclusive wash solution offering consistent performance and unattended operation.

Syringe Drive Fluid Delivery

As a self-contained and programmable washer, the ELx50 allows for complete control of precise fluidic delivery from the gentle dripping of a simple squeeze bottle to the full force of pressure delivery systems. Comprehensive onboard software makes creating protocols quick and intuitive.

Automated Liquid Level Sensing

Liquid Level Alert™ allows the convenience of continuous monitoring for both supply and waste bottles. At the beginning and end of a wash protocol, the liquid level is verified to ensure an adequate buffer remains to complete a wash. Sufficient storage capacity in the waste bottle is also verified.

Typical Applications:

- ELISAs
- Cell-based assays
- Magnetic bead assays
- Polystyrene bead assays
- ELISPOT assays
- Multiplex assays

Specifications

General	
Assays	ELISA Cell-based assays Magnetic bead, polystyrene bead (model dependent) • Multiplex assays • Bead-based ELISA Filtration-to-waste processes (model dependent) Protein arrays
Separation	Biomagnetic separation, vacuum filtration (model dependent)
Microplate types	96- and 384-well plates (model dependent) Low profile and standard height Solid and filter bottom (model dependent) • Filter pore sizes 0.45 µm to 1.2 µm
Shaking	Programmable in minutes and seconds up to 60 minutes Intensities - 1-5 (15-19 cycles/second)
Soak time	Programmable in minutes and seconds up to 60 minutes
Magnet	High strength 96-well format Flat • Flat-bottom well - beads pulled to band across well bottom • Round-bottom well - beads pulled to button at well bottom Ring - beads pulled to 4-zone ring at well bottom
Safety/ convenience/ maintenance	Waste sensing, fluid detection (optional) Aerosol cover Overflow protection Pre-programmed maintenance routines
Onboard software	Create, edit or run multiple protocols
Washing	
Manifold types	96-well washing: 8-tube (1x8) manifold 12-tube (1x12) manifold 96-/384-well washing: Dual-Action 16-tube (1x16) manifold
Washing speed	Solid bottom plates: 3 asp./disp. cycles: >300 µL/well, 96 wells, 8-tube manifold, final aspirate: ≤130 seconds Filter bottom plates: Variable, based on wash parameters

Fluid delivery	One positive displacement syringe drive
Vacuum filtration	Selectable vacuum levels (final at 30 seconds): 0.45 µm 96-well plates: Low -91 mmHg Medium -150 mmHg High -313 mmHg 1.2 µm 96-well plates: Low -95 mmHg Medium -155 mmHg High -299 mmHg Vacuum filtration time range: 1 - 180 seconds
Volume range	25 - 3,000 µL/well (configuration dependent) Selectable in 1 µL increments
Buffer selection	Automatic switching for up to 3 wash buffers (configuration dependent)
Flow rates	1 - 9
Wash cycles	1 - 10
Dispense precision	≤3% CV
Residual volume	Solid bottom plates: ≤2 µL/well Filter bottom plates: Average increase weight of plate ≤1.2 g after dispensing 300 µL to 0.45 µm plate, filtration 30 seconds, low vacuum, blotted
Sterilization	Chemical: 70% ethyl or isopropyl alcohol and 0.5% sodium hypochlorite solution
Supply bottle	2 L
Physical Characteristics	
Power	100 - 240 Volts AC. 50/60 Hz.
Dimensions	14”W x 16”D x 6.5”H (35.6 x 40.6 x 16.5 cm)
Weight	22 lbs (9.8 kg)
Regulatory	
Regulatory	CE and TUV marked. ROHS compliant. In Vitro Diagnostic use models are available.

Specifications subject to change. Performance values represent the average observed-factory test values.

Washer Comparison Chart

Which Washer is right for you?	*EL406™*	*MultiFlo™ FX*
Key Features		
ELISA	•	•
Cell-based assays	•	•
Magnetic bead assays	•	•
Polystyrene bead assays	•	
Filtration-to-waste processes	•	
Touchscreen user interface		•
USB ports for protocol transfer		•
Performance Specifications		
Washing speed: 3 aspirate/dispense cycles, 96-well solid bottom plate, 300 µL/well	≤30 sec	≤130 sec
Dispense precision	≤3% CV	≤3% CV
Residual volume: solid bottom plate	≤2 µL/well	≤2 µL/well
Vacuum filtration: 1.2 µm 96-well plate	0 mmHg to -380 mmHg	
General Specifications		
Microplate types	96, 384 and 1536	6, 12, 24, 48, 96 and 384
Low profile and standard height	•	•
Solid and filter bottom	•	
Deep well		
Manifold		
6-, 12-, 24-, 48-well washing		Custom manifolds available
96-well washing	96-tube (8x12)	
96-/384-well washing	Dual-Action 96-tube (8x12)	Dual-Action 8-tube (1x8)
384-well washing	Dual-Action 192-tube (16x12)	
1536-well washing	Dispense: Two 32-tube (1x32) Aspiration: 128-tube (4x32)	
Ultrasonic Advantage™	•	
Verify™ technology		
Automation ready/BioStack™ compatible	•	•
Automatic buffer switching	Up to 4	
Flow rates	High flow rates to low cell wash rates	High flow rates to low rates
Volume range	3 - 3000 µL/well	25 - 30,000 µL/well
Microplate shaking	•	•
Fluid and waste detection	•	(optional)
Flow and vacuum detection	•	
Overflow protection	•	•
Pre-programmed maintenance routines	•	•
Onboard software included	•	•
Liquid Handling Control™ Software compatible	•	•

405™ Touch	*405 LS*	*ELx405™ Select*	*ELx50™*
•	•	•	•
•	•	•	•
•	•	•	•
•	•		•
•	•		•
•			
•			
≤30 sec	≤30 sec	≤30 sec	≤130 sec
≤3% CV	≤3% CV	≤3% CV	≤3% CV
≤2 µL/well	≤2 µL/well	≤2 µL/well	≤2 µL/well
-38 mmHg to -506 mmHg	-38 mmHg to -506 mmHg		-95 mmHg to -299 mmHg
96 and 384	96 and 384	96 and 384	96 and 384
•	•	•	•
•	•		•
		•	
96-tube (8x12)	96-tube (8x12)		8-tube (1x8) or 12-tube (1x12)
Dual-Action 96-tube (8x12)	Dual-Action 96-tube (8x12)	Dual-Action 96-tube (8x12)	Dual-Action 16-tube (1x16)
Dual-Action 192-tube (16x12)	Dual-Action 192-tube (16x12)		
•	•	•	
•	•	•	•
•	•	•	
Up to 4	Up to 4	Up to 4	Up to 3
High flow rates to low cell wash rates	High flow rates to low cell wash rates	High flow rates to low cell wash rates	High flow rates to low cell wash rates
25 - 3000 µL/well	25 - 3000 µL/well	50 - 3000 µL/well	25 - 3000 µL/well
•	•	•	•
•	•	•	•
•	•	•	
•	•	•	•
•	•	•	•
•	•	•	•
•	•	•	

MultiFlo™ FX Multi-Mode Dispenser

The new MultiFlo™ FX Multi-Mode Dispenser offers modular configurations of up to four independent dispensers and a microplate washer in one compact platform. A color touchscreen interface makes programming quick and easy.

Multi-Mode Dispensing

MultiFlo FX becomes a versatile multi-mode dispenser with the addition of either the RAD™ technology for random access dispensing to 6- to 384-well plates or a wash module for 6- to 384-well plate washing. Fast, intuitive programming and operation are via the color touchscreen user interface. A MultiFlo FX configured with either RAD™ technology or the wash module replaces up to five liquid handlers.

Parallel Dispense™ Technologies

Offering BioTek's unique combination of peristaltic and microprocessor controlled syringe pump dispensing, the MultiFlo FX enables users to choose which is best for a specific reagent. While peristaltic pumps offer low prime volumes and backflush capabilities, BioTek's syringe drives are program-and-forget solutions that never require recalibration. Automated dispensing with walk-away confidence.

Modular and Upgradable

The MultiFlo FX is configurable and upgradable from dispense or wash only, to a combined dispense and wash combination, with 1-to-4 reagent dispensing with peristaltic and/or syringe driven precision dispensers, or the addition of a RAD module for single channel and high volume dispensing. Purchase the modules required now, and upgrade in the future as assay needs change. With its compact footprint and base height of less than 8 inches, the MultiFlo FX comfortably fits on any lab bench or robotic system. The MultiFlo FX is easily integrated with a BioStack™ Microplate Stacker for walk-away automation.

Versatile Applications - Liquid Handling

A wide array of plate type settings accommodates 6- to 1536-well plate formats up to 50 mm high for dispensing. Volumes from 500 nL µL to 3 mL are dispensed with accuracy and precision. The wash module works with 6- to 384-well plates in standard, half and deep well, and with cluster or mini-tubes. Automate cell-based assays by integrating MultiFlo FX with the new BioStack™ 4 to handle lidded plates with speed and ease.

Typical Applications:

- Cell-based assays
- Primary and secondary screening assays
- Dispense/wash protocol automation
- Compound storage
- Genomics and proteomics research
- Magnetic bead assays
- ELISAs
- Multiplex assays
- Automated cell washing, fixing and staining for cellular imaging

Specifications

General	
User interface	5.7" LCD touch screen display
USB ports (2)	For protocol storage/transfer and for optional external mouse or keyboard
Shaking	Slow, medium, fast or variable up to 60 minutes
Soak time	Programmable in minutes and seconds, up to 60 minutes
Safety/ convenience/ maintenance	Adjustment utility for plate positioning Pre-programmed maintenance routines
Automation	Compatible with BioStack and 3rd party automation
Onboard software	Create, edit or run multiple protocols, extensive Help system
Software	Liquid Handling Control™, for PC protocol programming and execution (optional)
Labware types	Multi-channel peristaltic and syringe dispensing: 6-, to 1536-well microplates; low profile, standard height and deep well formats, PCR trays, microtubes. Max. height: 47 or 50 mm (carrier dependent) RAD dispensing: Single tip; 6-, to 384-well plates; low profile, standard height and deep well formats; PCR trays and microtubes. 8-to-1 tip; 6-, 12-, and 24-well plates Washing: 6- to 384-well standard plates (with appropriate manifold)
Sterilization	Peristaltic and syringe pump dispensers: Autoclave, up to 50 cycles at 121° C and 1 bar (750 mmHg) or chemical, 70% ethyl or isopropyl alcohol and 0.5% sodium hypochlorite solution Washer: Chemical, 70% ethyl or isopropyl alcohol and 0.5% sodium hypochlorite solution
Dispensing – Peristaltic Pump (Multi-Channel)	
Manifold types	1 x 8 - sapphire jeweled 316 SS, 316 SS or polypropylene tips, with 1, 5 or 10 µL tubing
Dispense speed (cassette, volume)	1 µL cass, 1 µL/ well: 6s (384 wells), 21s (1536 wells) 5 µL cass, 5 µL/ well: 6.5s (384 wells) 5 µL cass, 10 µL/ well: 3s (96 wells) 5 µL cass, 20 µL/ well: 3.5s (96 wells) 10 µL cass, 10 µL/ well: 8s (384 wells)
Volume range	500 nL - 3,000 µL/well, selectable in 1 µL increments
Fluid delivery	One or two positive displacement peristaltic pumps
Flow rates	Adjustable high flow to very low flow rates
Minimum prime volume (cassette, tube length)	1 µL cass, 18": 0.78 mL; 1 µL cass, 30": 1.20 mL 5 µL cass, 18": 2.75 mL; 1 µL cass, 30": 4.23 mL 10 µL cass, 18": 4.79 mL; 10 µL cass, 30": 7.36 mL
Dispense performance (cassette, volume range)	1 µL cass, 1-50 µL: Accuracy ≤5% at 1 µL, Precision ≤5% CV at 1 µL 1 µL cass, 1-50 µL: Precision < 10% CV at 500 nL 5 µL cass, 5-2,500 µL: Accuracy ±2% at 5 µL, Precision ≤2.5% CV at 5 µL 10 µL cass, 10-3,000 µL: Accuracy ±2% at 10 µL, Precision ≤2% CV at 10 µL
Recommended replacement interval	1 µL Cassette: 1,000 384-well microplates at 5 µL/well 5 µL Cassette: 1,000 96-well microplates at 50 µL/well 10 µL Cassette: 1,000 96-well microplates at 100 µL/well
Dispensing – Peristaltic Pump (RAD Technology)	
Manifold types	RAD single, with plastic or steel tip with 1, 5 or 10 tubing, 7° angle RAD 8-to-1 plastic tip, with 5 µL tubing, angled bulk dispense chute
Volume range	500 nL – 30,000 µL
Minimum prime volume (cassette, tube length)	1 µL cass, 18": 90 µL ; 1 µL cass, 30": 150 µL 5 µL cass, 18": 320 µL; 1 µL cass, 30": 530 µL 10 µL cass, 18": 555 µL; 10 µL cass, 30": 920 µL
Dispense speed (high flow) (cassette, volume)	1 µL cass, 1 µL/well: 19s (96 wells) 55s (384 wells) 1 µL cass, 10 µL/well: 33s (96 wells), 112s (384 wells) 5 µL cass, 5 µL/well: 19s (96 wells), 58s (384 wells) 5 µL cass, 100 µL/well: 76s (96 wells), 286s (384 wells) 10 µL cass, 10 µL/well: 21s (96 wells), 66s (384 wells) 10 µL cass, 100 µL/well: 70s (96 wells), 259s (384 wells)
Dispense performance (cassette, flow rate, volume)	1 µL cass (med), 0.5 µL/well: Precision 10% CV 1 µL cass (med), 1 µL/well: Accuracy ± 10%, Precision 10% CV 1 µL cass (med), ≥2 µL/well: Accuracy ± 5%, Precision 5% CV 5 µL cass (high), 5 µL/well: Accuracy ± 4%, Precision 5% CV 5 µL cass (high), ≥10 µL/well: Accuracy ± 2%, Precision 2.5% CV 10 µL cass (high), 10 µL/well: Accuracy ± 4%,Precision 4% CV 10 µL cass (high), ≥20 µL/well: Accuracy ± 2%, Precision 2 %CV 8-to 1 cass(high), 40 µL/well: Accuracy ± 4% 8-to 1 cass (high), ≥10 µL/well: Precision 2.5%CV 8- to 1cass(high), ≥80 µL/well: Accuracy ± 2%
Dispensing – Syringe Pump	
Manifold types	96-/384-well dispensing: (1) 2 x 8 manifold, 316 SS tubes, autoclavable and non-autoclavable available. (2) 1 x 16 manifolds, 316 SS tubes, autoclavable 1536-well dispensing: (2) 1 x 32 manifolds – sapphire jeweled 316 SS SB or 316 SS LB tubes, autoclavable 6-, to 48-well dispensing: Custom autoclavable manifolds available for each plate type
Dispensing speed	20 µL /well, 96 wells, 1x16: 5 seconds 20 µL /well, 384 wells, 1x16: 14 seconds 3 µL /well, 1536 wells, 2x32: 7 seconds
Volume range	3-3,000 µL/well (manifold dependent) Selectable in 1 µL increments
Fluid delivery	Two positive displacement syringe drives
Dispense performance (96- and 384-well)	5 µL/well: Accuracy ± 1 µL, Precision ≤ 5% CV 20 µL/well: Accuracy ± 1µL, Precision ≤ 2.5% CV 100 µL/well: Accuracy ± 1 %, Precision ≤ 1% CV
Minimum prime volume	12 mL
Supply bottle volume	1 L or 2 L (model dependent)
Washing	
Manifold types	96-/384-well plate washing: 1x8 manifold; 6-, 12-, 24-, 48-well plate washing: Custom manifolds available
Washing speed	3 asp. /disp. cycles: >300 µL/well, 96 wells, 8-tube manifold, final aspirate ≤130 seconds
Fluid delivery	One positive displacement syringe pump
Volume range	20-30,000 µL/well
Flow rates	140-422 µL/well/second
Wash cycles	1-10
Dispense precision	≤3% CV (96-/384-well plates; 300 µL/well) and (12-/48-well plates; volume dependent) ≤5% CV (6-well plates; 5560 µL/well)
Dispense accuracy	±3%
Residual volume	≤2 µL/well, 300 µL dispense, 0.1% Tween
Supply bottle volume	2 L
Physical Characteristics	
Power	100 - 240 Volts AC. 50/60 Hz.
Dimensions	Base instrument: 17.19""W x 11.75" D x 8" H (43.51 x 29.21 x 20.32 cm)
Weight	Base instrument: 19.5 lbs (8.8 kg)
Regulatory	
Regulatory	CE and TUV marked, RoHS Compliant. Models for In Vitro Diagnostic use are available.

Specifications subject to change. Performance values represent the average observed-factory test values.

MicroFill™ Microplate Dispenser

With its microprocessor-controlled syringe drive technology, the MicroFill™ Microplate Dispenser provides outstanding accuracy and precision while dispensing into 24-, 96- and 384-well plates.

Low Maintenance Design

The MicroFill is an economical, compact and reliable alternative to conventional microplate dispensers. Its microprocessor-controlled syringe pump provides optimal dispense performance without time-consuming recalibration, cassette replacement and maintenance. Syringes are ideal for higher volume filling, with noteworthy speed improvements compared to other dispense technologies.

Guaranteed Sterility

The entire fluid path is autoclavable for applications requiring sterility. The MicroFill's pump, tubing, dispense manifold and supply bottle are quickly changed for no reagent carryover. User-controlled dispense flow rates allow low- to high-velocity dispensing for both biochemical and cell-based assays. Low-profile, standard and deep well microplates are all accommodated with a broad volume range from 5 µL to 6 mL.

Unattended Operation

For increased throughput, the MicroFill can be integrated with BioTek's BioStack™ Microplate Stacker or interfaced to third party automated systems with its available interface software. MicroFill drivers are available from most of today's leading system providers.

Typical Applications:

- Primary and secondary screening assays
- Compound storage
- Genomics and proteomics research
- Cell-based assays
- ELISAs

Specifications

General	
Number of reagents	1
Microplate types	24-, 96- and 384-well plates in low profile, standard and deep well formats PCR plates Microtubes
Soak time	Programmable in minutes and seconds, up to 60 minutes
Safety/convenience/maintenance	Pre-programmed maintenance routines
Automation	Compatible with BioStack™ and 3rd party automation
Onboard software	Create, edit or run multiple protocols
Software	Interface software (optional) for robotic system integration
Dispensing - Syringe Pump	
Dispensing speed	10 µL/well, 96 wells, 1x16: 4 sec 5 µL/well, 384 wells, 1x16: 7 sec
Manifold type	24-well dispensing: One 8-tube (1 x 8) manifold – 316 stainless steel tubes 96-well dispensing: One 8-tube (1 x 8) manifold – 316 stainless steel tubes 96-/384-well dispensing: One 16-tube (1 x 16) manifold – 316 stainless steel tubes
Volume range	5 - 6,000 µL/well (manifold dependent)
Fluid delivery	One positive displacement syringe drive
Flow rates	1 - 5
Dispense accuracy	±1 µL at 5 µL ±1 µL at 20 µL ±1% at 100 µL
Dispense precision	≤5% CV at 5 µL ≤2.5% CV at 20 µL ≤1% CV at 100 µL
Minimum prime volume	10 mL
Supply bottle	1 L
Sterilization	Autoclave: Up to 50 cycles at temperatures and pressures of 121 °C and 1 bar (750 mmHg) Chemical: 70% ethyl or isopropyl alcohol and 0.5% sodium hypochlorite solution
Physical Characteristics	
Power	100 - 240 Volts AC. 50/60 Hz.
Dimensions	15" W x 18" D x 7"H (38 x 46 x 18 cm)
Weight	20 lbs (8.9 kg)
Regulatory	
Regulatory	CE and TUV marked. ROHS compliant. In Vitro Diagnostic use models are available.

Specifications subject to change. Performance values represent the average observed factory test values.

Dispenser Comparison Chart

Which Dispenser is right for you?	*EL406™*
Key Features	
ELISA	•
Cell-based assays	•
Number of reagents	1 to 3
Dispense technology	Peristaltic and/or Syringe
Fully modular and upgradable	•
Performance Specifications	
Dispensing speed	
Peristaltic pump (8-tip, 1x8)	
96-well, 10 µL/well; 384-well, 5 µL/well	3 sec; 6 sec
Syringe pump (16-tube, 1x16)	
96-well, 20 µL/well; 384-well, 20 µL/well	5.25 sec; 14 sec
Dispense accuracy - typical at 5 µL	
Peristaltic pump	±2%
Syringe pump	±1 µL
Dispense precision - typical at 5 µL	
Peristaltic pump	≤2.5% CV
Syringe pump	≤5% CV
General Specifications	
Microplate types	96, 384 and 1536
Low profile and standard height	•
Deep well	
Strips and full plates	•
Cassette/manifold	
RAD cassettes	
Peristaltic pump	8-tip (1x8)
Syringe pump, 6-well to 384-well dispensing	
Syringe pump, 96-well to 1536-well dispensing	8-tube (1x8)
Automation ready/BioStack™ compatible	•
Variable flow rates	•
Volume range	1 - 3,000 µL/well
Microplate shaking	•
Autoclavable fluid path	•
Onboard software included	•
Liquid Handling Control™ Software compatible	•

MultiFlo™ FX	*MicroFill™*
•	•
•	•
1 to 4	1
Peristaltic and/or Syringe	Syringe
•	
3 sec; 6 sec	
5.25 sec; 14 sec	4 sec; 7 sec
±2%	
±1 µL	±1 µL
≤2.5% CV	
≤5% CV	≤5% CV
6 to 1536	24, 96 and 384
•	•
•	•
•	•
•	
8-tip (1x8)	
•	8-tube (1x8)
	8-tube (1x8)
•	•
•	
1 - 30,000 µL/well	5 - 6,000 µL/well
•	
•	•
•	•
•	

Liquid Handling Control™ Software

Liquid Handling Control™ (LHC™) Software allows MultiFlo™ FX Dispenser, EL406™ Washer Dispenser and 405™ Touch and 405 LS Washer users the convenience of programming important assay-specific protocol requirements in a Windows® environment.

Expanded Versatility

LHC Software is a powerful yet flexible interface for use with BioTek's microplate dispensers and washers. Any programming sequence possible onboard the liquid handler may be duplicated from the computer with LHC Software. LHC also allows a virtually unlimited number of methods to be linked together for the most complex liquid handling routines. From a washer's first prime routine, multiple microplate processes over time, ultrasonic cleaning to dissolve protein or salt crystal build-up to a final system rinse, LHC Software enables unattended operation.

21 CFR Part 11 Compliance

To meet the demands of the GxP laboratory, LHC Secure offers features to ensure compliance to 21 CFR Part 11. Flexible multi-user permission levels and electronic protocol and system audit trail signing are all available whenever additional security is required.

Custom Maintenance Reminders

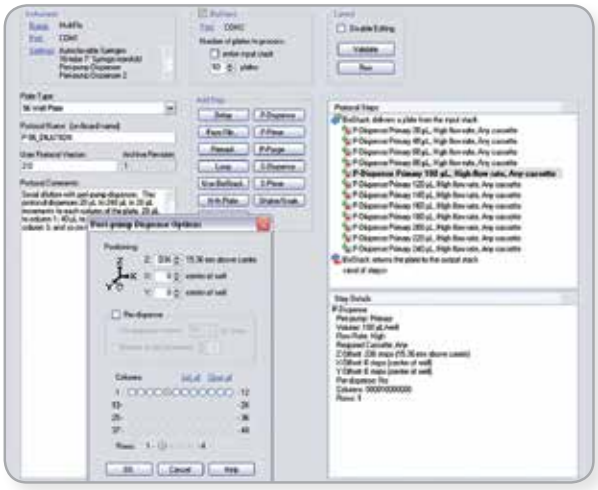
To facilitate maintenance and keep a washer or dispenser in peak condition, factory recommended maintenance procedure reminders can be preset and customized appropriately for a busy laboratory's usage and throughput requirements. LHC also supports BioStack™ Microplate Stacker integrations.

Safe Record Keeping

Protocol parameters may be quickly printed for safe record keeping. Alternatively, onboard instrument protocols may be uploaded and backed up on a laboratory's network. Satellite research labs working on joint projects can be certain their wash parameters are identical for experimental integrity.

SiLA Compliant Drivers

For automated systems that require SiLA compliant integration, LHC SiLA is available.



Intuitive StepWise™ protocol creation for ultimate flexibility

Washer & Dispenser Accessories

BioTek offers a wide range of accessories to help increase productivity, expand your plate washer's and dispenser's capabilities, and maintain the performance of your BioTek microplate liquid handling system. See our web site for a complete listing of available accessories.

Peristaltic Pump Dispenser Cassettes

A wide selection of peristaltic pump cassettes are available with choices in volume ranges, tip materials and bore sizes for use with EL406™ and MultiFlo™ FX.

BioStack™ Microplate Stacker

Automate routine processes with this compact stacker.

Instrument Qualification

See the Compliance Section on pages 62-63 for details about BioTek's product qualification tools and services.

Dispense/Waste Systems

A dispense/waste system is required on all 405™ Touch, 405 LS and EL406 models. Many selections are available based on throughput, bottle size and vacuum pump requirements.

Syringe Pump Dispenser Manifolds

A range of MultiFlo FX and MicroFill™ dispense manifolds are available for various microplate types and reagent characteristics.

3-Instrument Rack

For third party robotic system integration, a rack is available for supporting up to three dispensers or other BioTek instrumentation.

Precision™ Microplate Pipetting Systems

The Precision™ is an innovative solution for automated liquid handling. With its ability to perform virtually any routine liquid transfer, Precision replaces tedious manual pipetting.

Automate Manual Pipetting

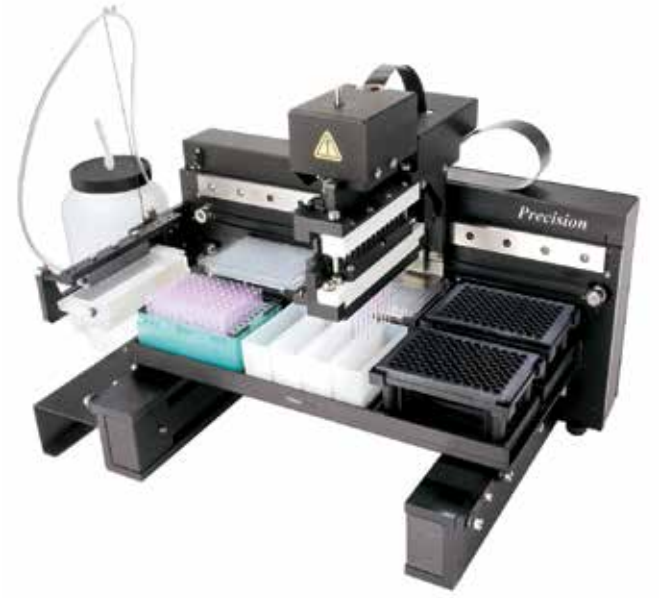
The Precision can be customized with a range of options perfect for medium throughput labs looking to automate their everyday pipetting with walk-away confidence. BioTek's proprietary pipette technology and unique tip sealing allow most standard tips to be used for transfers in common sample tubes and 6- to 384-well microplate formats.

Open Deck Layout and Flexible Software

A user-configurable, multi-station deck allows for flexible experimental design; microplates, tips and other labware may be placed in nearly any location for optimal efficiency. Available Precision Power™ Software offers complete Precision control with intuitive protocol creation, expanding the instrument's dynamic capabilities with a graphical program simulator and sample ID tracking.

Space Saving, Compact Footprint

Its small footprint and well-organized design make the Precision ideally suited for installation inside standard size biological safety cabinets and chemical fume hoods. The Precision XS model delivers outstanding liquid handling performance with four liquid transfer tools on a single platform. All four may be intermixed throughout a fully automated protocol – single and multi-channel pipetting along with single- and multi-channel bulk reagent dispensing.



Typical Applications:

- Sample transfers from tube to microplate
- Serial dilutions
- Mixing
- Plate replication - mother/daughter transfers
- Reagent addition
- Hit picking
- ELISA automation
- Secondary screening assays
- Compound profiling
- Cell-based assays

Specifications

Precision XS

General	
Microplate types	6- to 384-well plates, any test tube ≤100 mm
Automation	Compatible with BioStack™ and 3rd party automation
Platform	6 stations
Software	Precision Power™, for PC control programming and execution (included)
Pipetting	
Manifold types	1x8, single-channel
Pipetting speed	1x8: 100 µL/well, 96 wells, tip change: 3 min Single-channel: 100 µL/well, 96 wells, tip change: 22 min
Volume range	1x8: 5 - 120 µL Single-channel: 5 - 200 µL
Fluid delivery	Air displacement syringe drives
Dispense accuracy	±1% at 100 µL
Dispense precision	≤1.5% CV at 100 µL
Pipette tips	BioTek and other commercially available tips
Dispensing - Syringe pump	
Manifold types	96-/384-well dispensing: One 8-tube (1x8) manifold - 316 stainless steel tubes 6- to 384-well dispensing: One single-channel probe
Dispensing speed	100 µL well, 96 wells, 1x8: 14 seconds 100 µL well, 96 wells, single-channel: 4 minutes
Volume range	1x8: 10 µL - 10 mL Single-channel: 5 µL - 10 mL
Fluid delivery	One positive displacement syringe drive
Dispense accuracy	±1% at 100 µL
Dispense precision	<1.5% CV at 100 µL
Supply bottle volume	1x8: 2 L Single-channel: 125 mL
Physical Characteristics	
Power	100 - 240 Volts AC. 50/60 Hz.
Dimensions	Instrument only: 25" W x 16" D x 20" H (640 x 410 x 510 mm) Instrument with optional cabinet: 30" W x 20" D x 22" H (760 x 510 x 560 mm)
Weight	Instrument only: 40 lbs (18 kg) Instrument with optional cabinet: 64 lbs (29 kg)
Regulatory	CE and TUV marked. In Vitro Diagnostic use models are available.

Precision

General	
Microplate types	96- and 384-well plates
Automation	Compatible with BioStack (excluding 1x12 pipetting) and 3rd party automation
Platform	1x8: 6 stations 1x12: 4 stations
Onboard software	Create, edit or run multiple protocols
Software	Precision Power, for PC control programming and execution (optional)
Pipetting	
Manifold types	1x8, 1x12 (configuration dependent)
Pipetting speed	1x8: 100 µL/well, 96 wells, tip change: 3 min
Volume range	5 - 120 µL
Fluid delivery	Air displacement syringe drives
Dispense accuracy	±1% at 100 µL
Dispense precision	≤1.5% CV at 100 µL
Pipette tips	BioTek and other commercially available tips
Dispensing - Syringe pump	
Manifold types	One 8-tube (1x8) and/or 12-tube (1x12) manifold - 316 stainless steel tubes
Dispensing speed	100 µL/well, 96 wells, 1x8: 14 seconds
Volume range	10 µL - 10 mL
Fluid delivery	One positive displacement syringe drive
Dispense accuracy	±1% at100 µL
Dispense precision	≤1.5% CV at 100 µL
Supply bottle volume	2 L
Physical Characteristics	
Power	100 - 240 Volts AC. 50/60 Hz.
Dimensions	Instrument only: 21" W x 15" D x 16" H (525 x 374 x 400 mm) Instrument with optional cabinet: 23" W x 17.5" D x 17.5" H (575 x 435 x 435 mm)
Weight	Instrument only: 28 lbs (12.7 kg) Instrument with optional cabinet: 38 lbs (17.2 kg)
Regulatory	
Regulatory	CE and TUV marked. In Vitro Diagnostic use models are available.

Specifications subject to change. Performance values represent the average observed factory test values.


BioTek
BIOSTACK 4

Robotics

Automation products provide speed, flexibility and unattended operation when configured with BioTek's line of microplate imagers, readers, washers and dispensers. The result is a scalable, cost-effective system that can adapt to your changing requirements. The latest innovation in BioTek's BioStack™ automation products is plate de-lidding capability, ideal for cell-based assays and larger volume microplate compatibility to extend BioStack's applications utility.

BioStack™ Microplate Stacker

BioStack™ is a compact and versatile microplate stacker compatible with BioTek's microplate washers, dispensers, pipetting, detection and imaging systems. BioStack is easy to use and provides walk-away automation for routine processes, including processes requiring plate de-lidding and re-lidding.

Ultra Fast Transfer Speeds

BioStack offers the fastest plate transfer time, taking less than 10 seconds to remove and replace plates on the instrument carrier. BioStack is well-suited for high throughput plate stacking requirements with BioTek readers, washers and dispensers.

Plate De-lidding

Many cell-based microplate processes require lidded plates during incubation and to protect sterility. Typically, automation of these processes meant purchasing an expensive microplate handler to de-lid the plates for measurement or liquid handling operations. BioStack now offers an affordable option for plate de-lidding in the BioStack 4 model to interface with BioTek's detection and liquid handling instruments.

Multiple Microplate Geometry Compatible

BioStack is compatible with standard 96- and 384-well plates, low volume 384-well plates and 1536-well plates. The BioStack 4 adds 24- and 48-well plates to its menu of compatible microplate labware, providing higher throughput in a walk-away system for a variety of microplate geometries. An available barcode scanner provides additional automation for high-throughput plate processing.

Plate IDs are read and sent to the plate data file in Gen5™ or LHC™ Secure software for storage or export.

10-, 30- or 50-Microplate Stacks

Choose between 10-, 30- or 50-plate stacks to best suit your throughput requirements. Low volume, half-height plates are also compatible, with up to 75-plates capacity in the 50-plate stack.

Compact, Rugged Design

BioStack allows worry-free operation, even under the heaviest usage. The motors, mechanical assemblies and software are all designed for long term, continuous use and maintenance-free use. The rotational gripper and very small footprint allows for integration position versatility and for optimal fit within a biosafety enclosure or for space-savings on the benchtop.

Typical Applications:

- Cell-based assays
- ELISAs
- Primary screening assays
- Colorimetric, fluorometric and luminescent assays

Specifications

	BioStack 4	BioStack 3	BioStack
General			
Microplate types	ANSI/SLAS Standard and low profile 96-, 384- and 1536-well plates 24- and 48-well plates (model dependent) Maximum plate height 23.2 mm	ANSI/SLAS Standard and low profile 96-, 384- and 1536-well plates Maximum plate height 14.6 mm	ANSI/SLAS Standard and low profile 96-, 384- and 1536-well plates Maximum plate height 14.6 mm
Lidded plate handling	De-lidding capability: (lids always removed during processing) 96-,384-, and 1536-well plates. Maximum height, including lids:16.9 mm Nunc plates: (lids can remain on plate during process, or can be removed) 6-, 12-, 24-, 48-well plates. Maximum height, including lids: 23.2 mm	n/a	n/a
Microplate capacity	10 and 30 plate stacks are removable and interchangeable (50-plate stacks may be used with non-lidded plates only) 96-/384-well plates: Up to 30 plates 1536-well plates: Up to 75 plates	10-, 30- and 50-plate stacks are removable and interchangeable 96-/384-well plates: Up to 50 plates 1536-well plates: Up to 75 plates	10-, 30- and 50-plate stacks are removable and interchangeable 96-/384-well plates: Up to 50 plates 1536-well plates: Up to 75 plates
Barcode scanner (option)	Landscape or portrait orientation, Code 39, Codabar, UPC/EAN, Code 128 compatible	Landscape or portrait orientation, Code 39, Codabar, UPC/EAN, Code 128 compatible	Landscape or portrait orientation, Code 39, Codabar, UPC/EAN, Code 128 compatible
Processing speed (plate exchange time)	<20 seconds (with de-lidding) <12 seconds (without lids)	<10 seconds	<33 seconds
Direct control	Washers and dispensers with keypad interface can directly control BioStack	Washers and dispensers with keypad interface can directly control BioStack	Washers and dispensers with keypad interface can directly control BioStack
PC software	LHC2 for liquid handling instruments (optional) Gen5 2.0 for readers	LHC2 for liquid handling instruments (optional) Gen5 2.0 for readers	LHC2 for liquid handling instruments (optional) Gen5 2.0 for readers
Physical Characteristics			
Power	100 - 240 Volts AC. 50/60 Hz.	100 - 240 Volts AC. 50/60 Hz.	100 - 240 Volts AC. 50/60 Hz.
Weight	<25 lbs (11.3 kg)	<25 lbs (11.3 kg)	<25 lbs (11.3 kg)
Dimensions	8.3" W x 22" D (21 x 56 cm) Overall height will vary depending on connected instruments and stacks used	7.4" W x 20.7" D (18.8 x 52.6 cm) Overall height will vary depending on connected instruments and stacks used	7" W x 18.5" D (18 x 47 cm) Overall height will vary depending on connected instruments and stacks used
Regulatory			
Regulatory	CE and TUV marked. ROHS Compliant.	CE and TUV marked. ROHS Compliant.	CE and TUV marked. ROHS Compliant.

Specifications subject to change. Performance values represent the average observed factory test values.

Service & Support

Our teams are committed to providing the service and support you need to sustain the optimal performance of your BioTek products. BioTek Service Engineers provide personal support for instrumentation, software, parts and applications at our Global Technical Support Center. BioTek Scientists, Engineers, Technicians and Sales Representatives provide valuable assistance to laboratories worldwide.

Compliance

As an ISO certified manufacturer, BioTek understands the importance of standardized product qualification procedures and traceability and provides a number of tools and services designed to streamline the process and minimize the resources required to perform such testing.

21 CFR Part 11 Compliance Products

Gen5™ Secure Data Analysis Software for microplate readers and **LHC™ Secure** protocol definition and control software for BioTek's microplate washers and dispensers are uniquely designed to help ensure compliance to 21 CFR Part 11. Both software programs offer important security features, including:

- Electronic signature of data and protocol files
- Secure data storage
- Multiple and definable user permission levels
- Data and protocol audit trails
- Protected functions

IVD Compliance

Many BioTek microplate instruments are labeled for In Vitro Diagnostic use, identified by the IVD logo. Other products may have IVD Compliant models available. Contact CustomerCare at CustomerCare@biotek.com for more information.

Product Qualification

Software Validation

A Validation Package is available for Gen5 Software to allow testing and validation of key functions within Gen5 and Gen5 Secure. Included in the easy-to-use package are:

- Test Plans
- Results Checklists
- Data sets

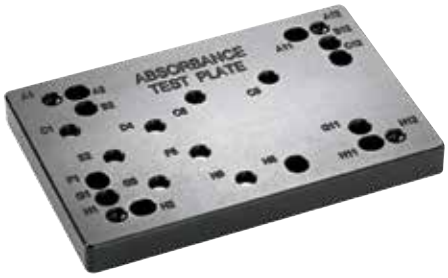
Instrument IQ/OQ/PQ Packages

BioTek offers a complete menu of Product Qualification Packages for all of our microplate instruments. All product Qualification Packages are fully validated to assure that the procedures and associated data/spreadsheets supplied in the package meet regulatory requirements. Within each package, you'll find detailed:

- Product Specifications
- Qualification interval guidelines
- IQ/OQ/PQ test plans and procedures
- Data sets (where applicable)
- Qualification checklists and log sheets for complete documentation

RoHS2 Directive 2011/65/EU

BioTek is committed to helping protect the environment in all of our customers' countries. BioTek products that meet the RoHS directive are indicated in the Regulatory section of the product specifications in this catalog.



Test Plates

The use of standardized plates to supplement the verification of an instrument's performance is a time- and resource-saver in most laboratory environments. BioTek offers several test plates to facilitate the test procedures found in our microplate reader IQ/OQ/PQ packages, and can be automated through the Gen5 software.

Absorbance Test Plates

For use with the ELx800, ELx808, Epoch 2, Epoch, PowerWave HT, Synergy and Cytation multi-mode reader absorbance modes. Ensure GxP compliance by checking instrument performance against specifications for:

- Accuracy
- Repeatability
- Linearity
- Wavelength accuracy (for monochromator-based systems)

Fluorescence Test Plates

Ideal for quick checks of the fluorescence intensity detection system between more thorough instrument qualification. The Fluorescence Test Plate aids in maintaining GxP compliance by automatically checking a series of critical performance parameters, including:

- Alignment
- Cross talk
- Signal-to-noise ratio
- Linearity
- Precision

Luminescence Test Plates

This NIST-traceable Luminescence Test Plate is used with the applicable Product Qualification Package or updated User's Manual. Features include:

- NIST-traceability certificate guarantees a controlled light output from the test plate
- Simple design, easy to use: just turn the plate on, and read the ultra-stable, low light level LEDs

Test Plate Recertification Programs are available. Contact BioTek Service for details. *www.biotek.com/contact*

Applications Support

At BioTek, our customers' applications come first. Whether it's our existing or new products in development, we design in capabilities to enable your most important applications. To facilitate this process, BioTek has an on-site Applications Lab with a team of seasoned scientists continuously working on cutting-edge scientific applications and partnering with the best-known reagent and consumable vendors. Below are some examples of hot application areas where we have demonstrated the utility of our products.

3D Cell Culture

- Signal transduction in a collagen-based scaffold
- Long term toxicity in liver microtissues
- Methods development for spheroid formation in hanging drop plates
- Automation of 3D cell culture work flows
- Cell invasion assays using spheroids formed in ULA microplates

Phenotypic Assays and Screening

- Hypoxia assays in keratinocytes and spheroids
- Oxidative stress assays for ROS production
- Cell cycle using nuclear stains and sensors
- Mitochondrial oxidative stress and apoptosis
- Autophagy and lysosomal disorder assays

Live Cell Assays

- RNA quantification using fluorescent nanoprobes
- Multiplexed second messenger assays (Ca^{2+}, cAMP, diacylglycerol, PIP_2) using genetically engineered probes
- Cell invasion and migration in FluoroBlok microplates
- Automation and analysis of drug absorption in Caco-2 and MDCK cells
- Characterization of multi-drug resistance transporters

Biologics/Biosimilars

- ADCC assays using non-radiometric detection and freshly isolated NK cells, cryopreserved NK cells, an NK cell line and a bioluminescent cell reporter
- Immunogenicity assays with AlphaLISA beads
- Bridging assay comparisons between solution ELISA and AlphaLISA
- Cell-based assays for blocking antibodies
- Aggregation assay using a molecular rotator-type fluorescent probe

Food Safety and Quality

- Food freshness assay based on ATP depletion
- Determination of E coli and other pathogens in lettuce wash
- Antioxidant potential using an ORAC Assay
- Semi-automated ELISA assay for melamine in milk
- Analysis of histamine in wine

Biofuel Research

- Determination of algal cell lipids using Nile Red
- Monitoring algal growth using their intrinsic properties
- Enzymatic digestion of polysaccharides
- Identification of biofuel producing bacteria through temperature resistance
- Monitoring enzymatic glucose production from cellulosic feedstock

BioTek application notes, white papers, poster presentations, citations and sample files are available at: www.biotek.com/resources

Global Service & Support

Extend the life of your BioTek instrument, and protect your research results, with BioTek's service professionals. Our service experts in the field and at our regional service centers receive extensive, ongoing training at our headquarters to stay abreast of the latest products, and service techniques. Our products and services are compliant with FDA, GLP and ISO requirements. With all of this information at hand, our service experts help you to maintain precise results over the life of your BioTek instrument while providing an experience that is superior to our competition.
For any service or support need, contact us at TAC@biotek.com or (888) 451-5171.

Field Service

Our team is ready to visit your laboratory and provide:

- Installation, Training and Installation Qualification
- Operational Qualification
- Preventive Maintenance
- Instrument Upgrades and Software Upgrades
- Repairs

Regional Service Centers

BioTek Service Centers are located across the globe ready to service your BioTek products:

- Test Plate Certification
- Preventive Maintenance
- Instrument Upgrades
- Dispense Cassette Refurbishment

Technical Assistance Center (TAC)

BioTek's TAC is staffed with skilled scientists and engineers available to provide technical assistance for instrumentation, software and applications.

Customer Resource Center (CRC)

BioTek's Customer Resource Center gives customers access to information about their specific BioTek microplate instrumentation and software. This web site makes it easy for customers to acquire relevant and necessary information about their products.
Customers can:

- Track orders
- Maintain equipment inventory
- Access warranty information
- Download technical information, user manuals and software updates
- Request service and technical support

Access to BioTek's Customer Resource Center and more details on BioTek's service and support are available at www.biotek.com

What customers say:

"The training was excellent and I learned a lot of very useful and important information. I'm really impressed with the amount of time they took to explain everything to me and the details they went over. It was a very practical and user-friendly training."

"Always excellent experience and service. It can't be "better" because it's always the best. Thanks."

BioTek is a family-run organization launched in 1968. In 1981 BioTek entered the microplate instrument arena and introduced its first microplate reader. Since then, BioTek has emerged as a global leader in microplate-based solutions that increase the productivity for customers engaged in healthcare, pharmaceutical, agricultural and research applications. Today, BioTek is completely focused on microplate instrumentation, automation and software.

1968 - 79 ◀
BioTek develops, manufactures and sells biomedical testing equipment

▶ **1969**
BioTek moves to its first facility located on East Spring Street, Winooski, VT

1980 ◀
BioTek's first laboratory instrument, the EL307 EIA is launched

BioTek moves to Burlington, VT

1983 ◀
BioTek awarded U.S. patent for EL307's microwell position indicator

▶ **1982**
EL307B microplate reader introduced by BioTek

1987 ◀
BioTek introduces the EL320 Stacking Automated Reader for automatic reading of up to 25 plates

▶ **1988**
BioTek introduces the EL311 and EL312 Microplate Readers, EL403 Automated Microplate Washer, the EL301 Manual Strip Reader for field use, and Kineticalc PC Software

1968 - 1979 | 1980 - 1985 | 1986 - 1990

1984 ◀
BioTek's first Automated Microplate Reader, the EL310, the EL308 Microplate Reader and the first Microplate Washer, the EL402, are introduced

▶ **1985**
BioTek introduces the EL309 Microplate Reader, and the EL401 Microplate Strip Washer

BioTek moves to current location in Winooski, VT

1989 ◀
EL340 Biokinetics reader, EL944 Turbo Software for EL311 and EL312 clinical data reduction and the ELP-35 Automated Strip Washer are introduced by BioTek

DECADES OF INNOVATION

1991
Kineticalc II software is introduced by BioTek

BioTek begins development of Omni System for automated high throughput infectious disease diagnostics and screening

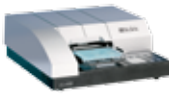
1992
Ceres 900 launched by BioTek

BioTek enters into an agreement with Immucor, Inc, to develop the first automated blood typing and crossmatching analyzer, the ABS2000

1993
BioTek launches ELs1000 automated ELISA system

1994
BioTek introduces the FL500 Fluorescence Microplate Reader and ELP-40 Microplate Strip Washer

1995
ELx800 Microplate Reader, EL404 Microplate Washer, and KC3 for Windows data analysis software are introduced by BioTek



1996
BioTek receives ISO9001 certification

BioTek introduces ELx808

1997
BioTek introduces the PowerWave, our first Microplate Spectrophotometer, the FL600 Multi-Detection Reader, the ELx50 Microplate Strip Washer and KC4 Data Reduction Software

1998
µQuant and PowerWaveX Microplate Spectrophotometers and KCJunior software are introduced by BioTek

1999
BioTek launches FLx800, ELx405, ELx405M

BioTek awarded U.S. patent for the ELx405 "Dual-Action" manifold

BioTek awarded U.S. patent for the quartz BioCell cuvette for fixed 1 cm vertical photometry

2000
Precision 2000 Microplate Sample Processor and Precision Power Software introduced by BioTek

2001
Powerwave HT, MicroFill are launched by BioTek

2002
BioTek sells Biomedical division to focus solely on Laboratory Microplate business

BioTek opens European Coordination Center in Germany

BioTek launches Synergy HT, PowerWave XS, BioStack

2003
BioTek enters into an agreement with UVM and Immucor, Inc to develop a practical fluorescence based platelet assay for determining platelet activation

2004
Precision XS, Clarity introduced by BioTek

2005
BioTek launches its customer newsletter, TekTalk

BioTek finalizes an agreement with Immucor to develop the next generation blood typing and cross matching instrument, the Galileo Echo

1991 - 1995 | 1996 - 2000 | 2001 - 2005

2006
Synergy 2, NanoQuot, Gen5 software are launched by BioTek

2007
BioTek opens China, India, Singapore offices

Synergy 4, Liquid Handling Control software are introduced by BioTek

BioTek launches online Customer Resource Center

2008
BioTek launches MicroFlo Select, EL406

2009
Epoch, Take3, Synergy Mx are introduced by BioTek

BioTek is awarded Best Place to Work in Vermont from VT Business Magazine and Business of the Year from the Lake Champlain Regional Chamber of Commerce

BioTek launches multi-lingual web site

BioTek receives EP Patent for Verify technology and Ultrasonic Advantage washer technologies

2010
BioTek launches Synergy H1, Synergy H4, Synergy 2 Alpha, MultiFlo

BioTek wins Vermont Deane C. Davis Outstanding Business of the Year award

BioTek opens Switzerland office

2011
BioTek opens South Korea office

BioTek introduces ELx405 Select Deep Well, Eon, Gen5 version 2.0

2012
405 Touch, Synergy Neo, BioStack3, Gas Controller for Synergy H1, 405 LS are launched by BioTek

BioTek opens Shanghai office

Web site offers content in 10 languages

2013
BioTek introduces MultiFlo FX, BioStack 4 and 405 Verify

BioTek opens Taiwan and Japan offices

BioTek enters the imaging market with the Cytation5 Cell Imaging Multi-Mode Reader

2014
BioTek launches MultiFlo FX RAD, Epoch 2, Synergy HTX and Cytation 5

BioTek receives US Patent for Verify technology and Ultrasonic Advantage washer technologies

2006 - 2010 2011 - 2014

CATALOG | 2015

Think Possible

BioTek®

At BioTek, our philosophy transcends conventional thinking and challenges the old ways. We develop fresh, original solutions by unifying concepts that often appear to be opposed. It means to shape and reshape. To engineer, build, deliver and support products that *best* serve the marketplace by providing *what* you need, *when* you need it.

Think Possible. It's the difference between leading and following.

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www.biotek.com

Think Possible

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