

Agilent BioTek Cytation 9 Cell Imaging Multimode Reader

Technical details

General	
Detection Modes	UV-Vis absorbance Fluorescence intensity Luminescence Fluorescence polarization Time-resolved fluorescence Alpha
Read Methods	End point, kinetic, spectral scanning, well-area scanning
Microplate Types	Monochromators: 6- to 384-well plates Filters: 6- to 1536-well plates Imaging: 6- to 1536-well plates
Other Labware Supported	Microscope slides, Petri and cell culture dishes, cell culture flasks (T25), counting chambers (hemocytometer) Agilent BioTek Take 3 microvolume plates
Temperature Control	4-Zone Incubation to 45 °C ("U" models) and 65 °C (non-"U" models) with Condensation Control
Cooling	Optional Peltier cooling module provides internal cooling after incubated processes.
Shaking	Linear, orbital, double orbital
Software	Agilent BioTek Gen5 microplate reader and imager software included
Optional Software	<ul style="list-style-type: none"> - Gen5 Image+: Image analysis - Gen5 Image Prime: Advanced image analysis - Gen5 Secure, Gen5 Secure Image+, Gen5 Secure Image Prime: Enable 21 CFR Part 11 compliance Optional software modules: Neurite outgrowth, autoROI, spot counting, and object tracking
Automation	Agilent BioTek BioStack microplate stacker and third-party automation compatible Agilent BioTek BioSpa 8 automated incubator compatible
CO ₂ and O ₂ Control (Option)	Range: 0 to 20% (CO ₂); 1 to 19% (O ₂), with optional gas controller
Imaging-Inverted Widefield Microscope	
Imaging Mode	Fluorescence, color brightfield, brightfield, high-contrast brightfield, phase contrast
Imaging Method	Single color, multicolor, time lapse, montage, z-stacking, z-stack montage
Image Processing	Z-projection, digital phase contrast, stitching
Camera	Sony CMOS, 16-bit grayscale WFOV
Objective Capacity	Six-position automated turret for user-replaceable objectives
Objectives Available	1.25x, 2x, 4x, 10x, 20x, 20x (XAPO), 40x, 40x (XAPO), 60x
Phase Objectives Available	4x, 10x, 20x, 40x

Imaging Filter Cube Capacity	Four user-replaceable fluorescence cubes, plus brightfield channel, and dedicated laser autofocus position
Imaging Filter Cubes Available	DAPI, CFP, GFP, YFP, RFP, Texas Red, CY5, CY7, acridine orange, CFP-FRET, CFP-YFP FRET, chlorophyll, phycoerythrin (PE), propidium iodide, CY5.5, TagBFP, Tag BFP-FRET, GFP (Ex)-CY5 (Em), RFP (Ex)-CY5 (Em), Alexa 568, Ex 377/Em 647, oxidized roGFP2, TRITC
Imaging LED Cubes Available	365, 390, 405, 465, 505, 523, 555, 590, 623, 655, and 740 nm
Automated Functions	Autofocus, auto-exposure, autoLED intensity
Autofocus Method	Image-based autofocus User-trained autofocus Laser autofocus (option)
Positional Controls	Software control Joystick controller (option)
Image Collection Rate	10 fps, single well, single color at ≤ 50 ms integration time
Image Analysis Software Option	Agilent BioTek Gen5 Image+ software: Image analysis Agilent BioTek Gen5 Image Prime software: Advanced image analysis Agilent BioTek Gen5 Secure software: Enables 21 CFR Part 11 compliance
Imaging-Upright Microscope	
Imaging Modes	Reflected color brightfield; transmitted color brightfield
Imaging Methods	Single image, montage, time lapse, z-stacking
Image Processing	Z-projection, digital phase contrast, stitching
Camera	16-bit Sony CMOS color camera
Lenses	Finder scope, 2x, 4x, 8x
Positional Controls	Software control Joystick controller (option)
Image Collection Rate	Entire 100 mm dish (montage) at 2x: ≤ 3 min Entire microscope slide (montage) at 2x: ≤ 1 min 15 s 96-well ELISpot plate at 2x: ≤ 5 min
Fluorescence Intensity	
Light Source	Xenon flash lamp
Detector	PMT for monochromator system PMT for filter system
Wavelength Selection	Quad monochromators (top/bottom) Filters (top)
Wavelength Range	Monochromators: 250 to 700 nm Filters: 200 to 700 nm
Monochromator Bandwidth	Variable, from 9 nm to 50 nm, in 1 nm increments
Dynamic Range	7 decades
Sensitivity	Filters: Fluorescein 0.25 pM (0.025 fmol/well, 384-well plate) Quad monochromator: Fluorescein 2.5 pM (0.25 fmol/well, 384-well plate)-top Fluorescein 4 pM (0.4 fmol/well, 384-well plate)-bottom
Reading Speed (Kinetic)	96 wells: 11 s 384 wells: 22 s
Luminescence	
Wavelength Range	300 to 700 nm
Dynamic Range	> 6 decades
Sensitivity	Monochromators: 20 amol ATP (flash) Filters: 10 amol ATP (flash), 100 amol (glow)
Fluorescence Polarization	
Light Source	Xenon flash
Detector	PMT
Wavelength Selection	Filters
Wavelength Range	280 to 700 nm
Sensitivity	1.2 mP standard deviation at 1 nM fluorescein

Time-Resolved Fluorescence	
Light Source	Xenon flash
Detector	PMT
Wavelength Selection	Quad monochromators (secondary mode) Filters (top)
Wavelength Range	200 to 700 nm
Sensitivity	Filters: Europium 40 fM (4 amol/well, 384-well plate) Monochromators: Europium 1200 fM (120 amol/well, 384-well plate)
Absorbance	
Light Source	Xenon flash
Detector	Photodiode
Wavelength Selection	Monochromator
Wavelength Range	230 to 999 nm, 1 nm increment
Monochromator Bandwidth	4 nm (230 to 285 nm), 8 nm (> 285 nm)
Dynamic Range	0 to 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 (Kinetic)	96 wells: 11 s 384 wells: 22 s
Alpha Detection	
Light Source	100 mW 680 nm laser
Detector	PMT
Wavelength Selection	Filters (top)
Sensitivity	100 amol LCK peptide (384-well low-volume plate)
Reagent Injectors (Option)	
Supported Detection Modes	Absorbance, fluorescence (FI, FP, TRF), luminescence, imaging (well mode only)
Number	Two syringe pumps
Supported Labware	6- to 384-well plates, Petri and cell culture dishes
Dead Volume	1.1 mL, with backflush
Dispense Volume	5 to 1,000 µL in 1 µL increments
Plate Geometry	6- to 384-well microplates
Dispense Accuracy	± 1 µL or 2%
Dispense Precision	≤ 2% at 50 to 200 µL
Physical Characteristics	
Power	250 watts maximum consumption
Dimensions	50.3 cm D x 41.7 cm W x 44.5 cm H (19.8" D x 16.4" W x 17.5" H)
Weight	36.3 kg (80 lb)

Cytation 9 Imaging and Multimode Configurations

Part Number	CYT9M	CYT9MF	CYT9MFA	CYT9MFAW	CYT9W	CYT9MW	CYT9MFW	CYT9PW	CYT9MPW	CYT9U	CYT9UW	CYT9UMW
Microscopy												
Inverted WFOV Microscope (Fluorescence, Brightfield, High-Contrast Brightfield, and Color Brightfield)				•	•	•	•	•	•		•	•
Phase Contrast Imaging								•	•			
Upright Microscope										•	•	•
Multimode Microplate Reading												
Filter-Based Detection (Fluorescence Intensity, Fluorescence Polarization, Time-Resolved Fluorescence, and Luminescence)		•	•	•			•					
Filter-Based Alpha Detection			•	•								
Monochromator-Based Detection (UV-Vis Absorbance, Fluorescence Intensity, Time-Resolved Fluorescence, and Luminescence)	•	•	•	•		•	•		•			•
Other												
Take3 Microvolume Plate Compatible	•	•	•	•		•	•		•			•
Incubation (Maximum 45 °C)										•	•	•
Incubation (Maximum 65 °C)	•	•	•	•	•	•	•	•	•			

- All Cytation 9 configurations support shaking and robotic integration (compatible with BioStack and BioSpa 8).
- Optional for all: Gas control, dual-reagent injector, Peltier cooling module.

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This information is subject to change without notice.