

Agilent BioTek Cytation 7

Cell Imaging Multimode Reader

Technical details

General	
Detection Modes	UV-Vis absorbance Fluorescence intensity Luminescence
Read Methods	End point, kinetic, spectral scanning, well-area scanning
Microplate Types	Monochromators: 6- to 384-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 with Condensation Control
Cooling	Optional Peltier cooling module maintains internal temperature with < 1 °C rise over ambient. Provides internal cooling after incubated processes.
Shaking	Linear, orbital, double orbital
Software	Agilent BioTek Gen5 microplate reader and imager software included Agilent BioTek Gen5 Secure software enables 21 CFR Part 11 compliance (option)
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: 0–20% (CO ₂); 1–19% (O ₂), with optional gas controller Models for both CO ₂ /O ₂ or CO ₂ only, are available
Imaging-Widefield Microscope	
Imaging Mode	Fluorescence, color brightfield, user-selectable brightfield/high-contrast brightfield
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
Objective Capacity	Six-position automated turret for user-replaceable objectives
Objectives Available	1.25x, 2.5x (2.25x eff), 2.5x (2.75x eff), 4x, 10x, 20x, 40x, 60x
Imaging Filter Cube Capacity	4 user-replaceable fluorescence cubes, plus brightfield channel
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, 465, 505, 523, 554, 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	Image-based autofocus: 96 wells, 1 color (DAPI), 4x, 6 min Laser autofocus: 96 wells, 1 color (DAPI), 4x, < 3 min
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 1x: ≤ 3 min Entire microscope slide (montage) at 1x: ≤ 1 min 15 s 96-well ELISpot plate at 1x: ≤ 5 min
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
Fluorescence Intensity	
Light Source	Xenon flash lamp
Detector	PMT
Wavelength Selection	Quad monochromators (top/bottom)
Wavelength Range	250–700 (900 nm option)
Monochromator Bandwidth	Variable, from 9 nm to 50 nm, in 1 nm increments
Dynamic Range	7 decades
Sensitivity	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	300–700 nm
Dynamic Range	> 6 decades
Sensitivity	20 amol ATP (flash)
Absorbance	
Light Source	Xenon flash
Detector	Photodiode
Wavelength Selection	Monochromator
Wavelength Range	230–999 nm, 1 nm increment
Monochromator Bandwidth	4 nm (230–285 nm), 8 nm (> 285 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 3.0 OD
OD Linearity	< 1% from 0–3.0 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

Reagent Injectors (Option)	
Number	2 syringe pumps
Supported Labware	6- to 384-well plates, Petri and cell culture dishes
Dead Volume	1.1 mL, with backflush
Dispense Volume	5–1,000 µL in 1 µL increments
Plate Geometry	6- to 384-well microplates
Dispense Accuracy	± 1 µL or 2%
Dispense Precision	≤ 2% at 50–200 µL
Physical Characteristics	
Power	150 watts maximum consumption
Dimensions	16.4" W x 17.5" H x 20.2" D (41.6 x 44.5 x 51.4 cm)
Weight	80 lb (36.3 kg)

Configurations

Part Number	CYT7U	CYT7UW	CYT7UMW	CYT7UM
Microscopy				
Upright Digital Microscope	•	•	•	•
Inverted Wide Field of View (WFOV) Microscope		•	•	
Upgradable to Add Inverted Microscope	•			•
Multimode Microplate Reading				
UV-Vis Absorbance			•	•
Fluorescence Intensity			•	•
Luminescence			•	•
Other				
Take3 Microvolume Plate Compatible			•	•
Incubation to 45 °C	•	•	•	•

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