Data Sheet

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Agilent BioTek Cytation 1 Cell Imaging Multimode Reader

Technical details

General	
Detection Modes	UV-Vis absorbance Fluorescence intensity Luminescence Fluorescence polarization Time-resolved fluorescence
Read Methods	End point, kinetic, spectral scanning, well-area scanning
Microplate Types	Monochromator: 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 with Condensation Control; Variation ± 0.2 °C at 37 °C
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 Image+ and Image Prime software available for full image analysis Agilent BioTek Gen5 Secure software enables 21 CFR Part 11 compliance
Automation	Agilent BioTek BioStack and third-party automation compatible Agilent BioTek BioSpa 8 automated Incubator compatible
CO_2 and O_2 Control (Option)	0–20% CO_2 control and 1–19% O_2 control, with optional gas controller Models for both CO_2 and O_2, or CO_2 only, are available
Imaging–Widefield Microscope	
Imaging Mode	Fluorescence and high-contrast brightfield (2.5x Zeiss, 4x, 10x, 20x, 40x, and 60x)
Imaging Method	Single color, multicolor, montage, time lapse, z-stacking
Image Processing	Z-projection, image stitching
Camera	Sony CMOS, 16-bit grayscale
Objective Capacity	Two-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 (ACR OR), CFP-YFP FRET, propidium iodide, chlorophyll, phycoerythrin, CY5.5, TagBFP, Alexa 568, Ex377/Em647
Imaging LED Cubes Available	365, 390, 465, 505, 523, 590, 623, 655, and 740 nm
Automated Functions	Autofocus, autoLED intensity, auto-exposure
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 96 wells, 3 colors, 4x, 12 min Laser autofocus: 96 wells, 1 color (DAPI), 4x, < 3 min 96 wells, 3 colors, 4x, < 7 min 30 s Burst mode: 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
Fluorescence Intensity	
Light Source	Xenon flash
Detector	PMT
Wavelength Selection	Deep blocking band pass filters/dichroic mirrors
Wavelength Range	Filters: 200–700 nm (850 nm option)
Dynamic Range	7 decades
Sensitivity	Fluorescein: 0.25 pM (0.025 fmol/well, 384-well plate)
Reading Speed (Kinetic)	96 wells: 11 s 384 wells: 22 s
Luminescence	
Wavelength Range	300–700 nm
Dynamic Range	> 6 decades
Sensitivity	10 amol ATP (flash) 100 amol (glow)
Fluorescence Polarization	
Light Source	Xenon flash
Detector	PMT
Wavelength Selection	Filters
Wavelength Range	280–700 nm (850 nm option)
Sensitivity	1.2 mP standard deviation at 1 nM fluorescein
Time-Resolved Fluorescence	
Light Source	Xenon flash
Detector	PMT
Wavelength Selection	Filters
Sensitivity	Europium 40 fM (4 amol/well, 384-well plate)
Absorbance	
Light Source	Xenon flash
Detector	Photodiode
Wavelength Selection	Monochromator
Wavelength Range	200–999 nm, 1 nm increments
Monochromator 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 (Kinetic)	96 wells: 11 s 384 wells: 22 s

Reagent Injectors (Option)	
Supported Detection Modes	All modes
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	100–240 VAC, 50–60 Hz (24 VDC external power supply, 150 W min)
Dimensions	16.4" W x 17.5" H x 20.2" D (41.6 x 44.5 x 51.4 cm)
Weight	65 lb (29 kg)

Configurations

Part Number	CYT1FAV	CYT1FA	CYT1V
Fluorescence and High-Contrast Brightfield Imaging	•		•
Monochromator Absorbance	•	•	
Filter/Dichroic Fluorescence	•	•	
Luminescence/Filtered Luminescence	•	•	

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