



BD FACSDiscover™ A8 Cell Analyzer with BD CellView™ Image Technology and BD SpectralFX™ Technology

Coming soon



Technologies

BD CellView™ Image Technology

This technology implements orthogonal frequency domain multiplexing to image cells with the electronic and optical components used in flow cytometers. This unique technology makes it possible to produce images without a camera, enabling real time imaging for analysis.

BD SpectralFX™ Technology

This technology combines full spectrum optics, next-gen QC, and system-aware spectral unmixing that manages spread by adapting to instrument performance and sample conditions in real-time.

Pre-launch product information

Technical specifications

Optics

Excitation optics

Lasers

Excitation optics

349 nm – nominal 30 mW; output power: 27mw

405 nm – nominal 50 mW; output power: 45mw

488 nm – nominal 100 mW; output power: 95mw

561 nm – nominal 50 mW; output power: 45mw

637 nm – nominal 100 mW; output power: 90mw

Note: 488nm laser is optically divided to support signal detection with BD CellView™ Image Technology

Optical platform

Fixed optical assembly with the capacity to be configured with up to five spatially separated laser beams and six beam spots. Laser delays are automatically adjusted during instrument QC.

Flow cell

The quartz cuvette flow cell is coupled to the fluorescence objective lens by a refractive index-matching gel for optimal light collection.

Beam geometry

Flat top laser beam profile

Emission optics

Optical coupling

Emitted light from the gel-coupled cuvette is delivered by fiber optics to the detector arrays. The optical pathways use signal reflection to maximize signal detection.

Scatter detectors

Blue laser: Forward scatter (FSC) / Side scatter (SSC) / Axial light loss (ALL)

Violet laser: ALL, SSC

Fluorescence detectors for spectral flow cytometry

Spectral arrays – 78 APD detectors paired with algorithmically optimized filter bandwidths covering full spectrum:

UV 349nm laser – 22 UV detectors, covering 365nm – 860nm

Violet 405nm laser – 20 Violet detectors, covering 410nm – 860nm

Blue 488nm laser – 16 Blue detectors, covering 495nm – 860nm

Y/G 561nm laser – 12 Yellow-green detectors, covering 570nm – 860nm

Red 637nm laser – 8 Red detectors, covering 645nm – 860nm

Imaging optics

Image-enabled detectors

Blue laser scatter detectors

Forward scatter (FSC) / Side scatter (SSC) / Axial light loss (ALL)

Fluorescence detectors for imaging

FL1: LP505: 534/46

FL2: LP570: 600/60

FL3: LP675: 788/225

Imaging features

Center of mass X, Center of mass Y, Correlation, Delta center of mass, Diffusivity, Eccentricity, Max intensity, Moment (long), Moment (short), Radial moment, Size, Total intensity

Fluidics

Flow cell

Quartz cuvette

Sample acquisition rate*

Imaging mode: 10K events/sec

High speed mode: 35K events/sec

Sample injection tube (SIT) flush

Each SIT flush, when performed, cleans the inside and outside of the sample line tubing and sends flushed fluids to waste. It is performed after removal of the manual port tube or after each sample acquisition on the loader, by default.

Customization:

Manual port: additional SIT flushes through the FACSDChorus UI.

Loader: option to choose between 1–3 SIT flushes to be performed automatically

Sample input

Manual port

Sample carrier: 5.0-mL polystyrene tubes

Carryover*

<0.1%

Dead volume*

<20uL

Aerosol containment

No aerosols or hazardous material exits the system

Fluidic reservoirs

One sheath tank (10L) that contains sheath fluid (distilled water)

One waste tank (10L) that collects waste from the cytometer

Auto-loader

Sample carrier: Standard 96 well plates, deep well 96 well plates, 40-tube rack (12x75mm Falcon Tubes)

Sample agitation: Orbital mixing (400 – 1400rpm)

Sample temperature control: 4°C, 20°C, 37°C, room temperature

Flow sensor

In sample line path; detects sample flow rate up to 120 uL/min.

Flow rate

Imaging mode

Low sample flow rate: 12 +/- 4 uL/min

High sample flow rate: 30 +/- 5 uL/min

Sheath velocity: < 1.1 m/sec

High speed mode

Low sample flow rate: 12 +/- 4 uL/min

Medium sample flow rate: >40 and <90 uL/min

High sample flow rate: 100 +/- 10 uL/min

Sheath velocity: 4.5 – 5.5 m/sec

Common QC for imaging and high-speed modes

Automated daily single tube QC with BD FACSDDiscover™ Setup Beads

Biweekly image calibration QC with BD CellView™ Calibration Beads

Installation requirements

Dimensions (W x D x H)

Cell analyzer: 91.4 x 62.7 x 53.6 cm (36 x 24.7 x 21.1 in)

Electronics box: 50.8 x 55.9 x 48.3 cm (20 x 22 x 19 in.)

Weight

Cell analyzer: 81.65 kg (180 lb)

Electronics box: 45.35 kg (100 lb)

Power

Total power: 1000 W

VAC-Hz: 100 – 240 VAC (50/60 Hz)

Circuit breaker: 10 A

Operating temperature range

Between 17.5°C (63.5°F) and 27.5°C (81.5°F) +/-2.5°C variation in the same day

Operating humidity

40–60% relative humidity (noncondensing)

Audible noise

<65dB

System/Software/Support

Operating system

Microsoft® Windows® 10 IoT Enterprise LTSC (Long-term Servicing Channel) Version 21H2

Monitor

32-in with 3840 x 2160 resolution (4K UHD)

Memory

32 GB RAM

Storage

OS Drive: 500 GB NVMe SSD

2nd Drive: 4.0 TB NVMe SSD

Software

BD FACSCorus™ software

Software guides researchers throughout the entire cell analysis process.

Exported file types

FCS 3.2; CSV, CVW

Offline data analysis

Supported by FlowJo™ Software with the CellView Lens plugin, which enables offline analysis of image and flow parameters.



*Based on characterization testing data, pending formal verification testing.

BD flow cytometers are Class 1 Laser Products.

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