

Introduction

The BD FACSArry™ bioanalyzer sets a new standard for fast and sensitive high-content analysis of applications in cell biology, immunology, and drug discovery. The system is compact, easy to use, and particularly suited for screening applications.

Speed is built in by combining a new micro-plate technology* for sample input and digital electronics supporting acquisition rates of up to 15,000 events per second. The optical platform of the bioanalyzer is equipped with a green (532 nm) and a red (635 nm) laser, detecting two particle-scattered lights, and four fluorescent parameters.

For more information about the BD FACSArry bioanalyzer or other quality products from BD Biosciences, please contact your local sales representative or call one of the locations listed on the back.

System Performance

Fluorescence Sensitivity

Mean or median differences of 200 PE molecules can be detected between sample populations.

Fluorescence Resolution

CV's of the brightest Spherotech Rainbow particles (BD Biosciences Cat No 556291) are less than or equal to 7% at a sample flow rate of 1 μ L/sec.

Forward and Side Light Scatter Sensitivity

Sensitivity and dynamic range enable the identification of 2.5- μ m to 50- μ m beads.

Forward and Side Light Scatter Resolution

Scatter performance resolves lymphocytes, monocytes, and granulocytes.

Sample Acquisition Rate

Maximum acquisition rate: up to 15,000 events per second with 6 parameters.

Excitation Optics

Optical Platform

Fixed optical assembly

Lasers

532 nm green solid state; 10 mW

635 nm red diode; 10 mW

Laser Beam Geometry (Both Lasers)

Focused beam height is 20 μ m and beam width is 65 μ m (nominal)

BD Biosciences Immunocytometry Systems

www.bdbiosciences.com

United States	Canada	Europe	Japan	Asia Pacific	Latin America/Caribbean
877.232.8995	888.259.0187	32.53.720.211	0120.8555.90	65.6861.0633	55.11.5185.9995

For country-specific contact information, visit www.bdbiosciences.com/how_to_order/

BD Biosciences

Clontech

Discovery Labware

Immunocytometry Systems

Pharming



Emission Optics

Optical Coupling

Quartz cuvette is coupled to the emission lens by refractive index-matching optical gel for optimum collection efficiency.

Quartz Optical Cuvette

180- μm x 430- μm

Forward Light Scatter Detector and Filters

High-performance solid state silicon diode detector, preceded by a 532-nm bandpass filter for clear signal detection and rejection of red diode laser signal.

Side Light Scatter Detector

Sensitive detection using photomultiplier and optical filters in the emission optical bench train.

Fluorescence Detectors and Filters

Wide dynamic range photomultipliers (Yellow and Red parameters) and avalanche photodiodes (Far Red and Near Infrared parameters) with filters. Filters and mirrors are not user changeable.

Two Collection Parameters from the 532-nm Laser

Yellow parameter; 585/42 nm for PE
Far Red parameter >685 nm for PE-Cy7 or PerCP-Cy5.5

Two Collection Parameters from the 635-nm Laser

Red parameter; 661/16 nm for APC or Alexa Fluor® 647
Near Infrared (NIR) parameter; 780/60 nm for APC-Cy7

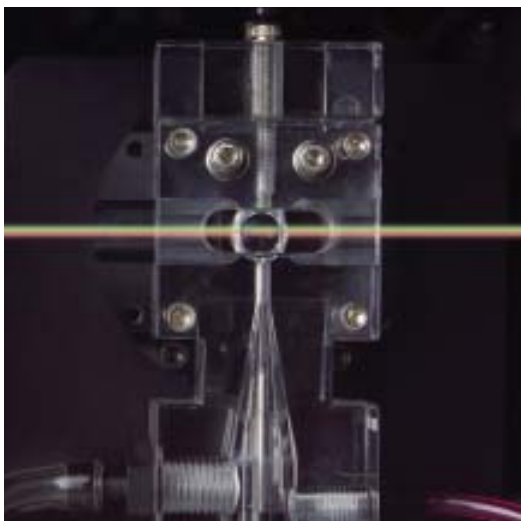


Plate Sampler

Sample Introduction

96-well plate format

Sample Volume Injected

5 to 100 μL

The sample is injected into the optical cuvette via a syringe pump. Pump operation requires 20 μL overhead beyond the specified sample volume.

Sample Mixing

The sample of each well is mixed prior to acquisition via uptake and resuspension of a specified mixing volume. The mixing volume, mixing speed, and number of mixes are customizable.

Throughput for BD™ CBA Applications

- ≤35 min per 96-well plate using BD CBA beads
- 1200 beads saved per file
- Bead concentration 300 beads/ μL
- Sample rate of 2 $\mu\text{L}/\text{sec}$
- Prepared in MultiScreen® 96-well filtration and assay plates

Throughput for Cell-Based Applications

- ≤35 min per 96-well plate using lysed whole human blood
- 1000 events saved per file
- Cell concentration 600 cells/ μL
- Sample rate of 2 $\mu\text{L}/\text{sec}$
- BD Falcon™ 96-well polypropylene V-bottom plate (Cat No 353263)

Carryover

<0.5% for BD CBA bead and cell-based applications

Fluidics

General Operation

Internal fluidic tanks provide sheath fluid to the instrument and receive waste. Sheath fluid is pumped from the unpressurized user-accessed sheath tank to an internal pressurized reservoir that supplies sheath fluid to the optical cuvette and plate sampler.

Fluidic Reservoirs

4-L sheath and waste containers provided with integrated level sensing system.

Sample Injection Rates

Adjustable rate from 0.5 to 3.0 $\mu\text{L}/\text{sec}$

Preset Maintenance Options

Start Up Fluidics
Shut Down Fluidics
Purge Sheath Filter
Drain and Fill Optical Cuvette
Clean (Daily Clean and System Clean (monthly))

Sheath Fluid

BD FACSTM sheath solution with surfactant is required to guarantee optimal and reproducible performance of the bioanalyzer system (Cat No 346524).

Signal Processing

Workstation Display

Linear or four decades logarithmic display of data in histograms or dot plots.

Data Acquisition Parameters

Six digital parameters: four fluorescent and two light scatter parameters.

Fluorescent Compensation (Optical Spillover)

No limit to inter- and intra-beam compensation. Data are acquired uncompensated to eliminate data collection variables. Compensation is performed post acquisition during data analysis.

Pulse Processing

Area and width measurements are available for the FSC and SSC parameter.
Area measurements are available for all four fluorescent parameters.
All measurement parameters acquired as high resolution, 18 bit, linear data for accurate post-acquisition analysis.

Time

Time available correlated to any parameter.

Parameter Threshold

Up to two parameters

Data Management System

Workstation

PC workstation with Intel® Pentium® 4 @ 2.4 GHz or faster

Memory

1 GB RAM

Data Storage

60 GB hard drive CD ROM RW drive
Floppy drive 1.44 M

Networking

Ethernet

Monitor

17-inch LCD, 1280 x 1024 resolution

Printer

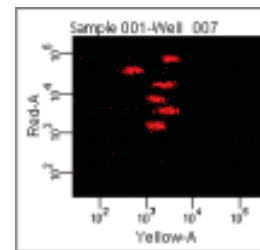
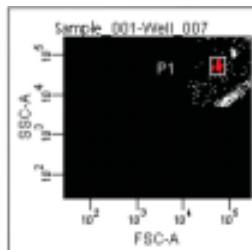
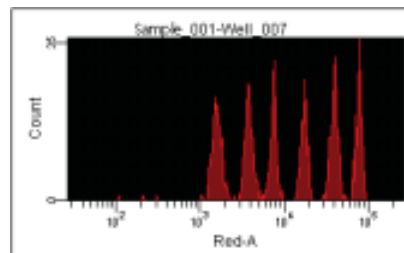
Ethernet supported network-ready color-inkjet printers; HP 2280 color Business Inkjet TN available as an option (Cat No 332878).

Data File Structure

Flow Cytometry Standard (FCS) 3.0 or 2.0
Data export formats supported CSV; tab delimited, FCS list mode

Software

BD FACSAarray system software
BD CBA software, version 1.4 or later
Microsoft® Excel XP





Installation Requirements

Power

Operation at 100-250 VAC, 15 Amp,
and 50/60 Hz

Size and Weight

BD FACSArray bioanalyzer (excluding
peripherals): 25.3-inches (64.3 cm) in depth,
22.1-inches (56.1 cm) in width, and 19.6-inches
(49.8 cm) in height; approximately 85 lb (39 kg)

Operating Temperature

18° to 30° C (64° to 86° F)

Regulatory Requirements

CE marked for electrical safety Europe
UL Standard for Safety of Electrical Laboratory
Equipment
CSA for electrical safety Canada
Laser safety for Class 1 (I) per applicable
regulation

Technical Assistance

BD Biosciences Customer Support Center
2350 Qume Drive
San Jose, CA 95131-1807 USA
(877) 232-8995

Customers outside the US, contact your local
BD Biosciences representative or distributor.

The BD FACSArray™ bioanalyzer is For Research Use Only. Not for use in diagnostic or therapeutic
procedures.
Class 1 (I) Laser Product

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*Patent pending

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