

# BD FACSCalibur System

## Flow Cytometer



The BD FACSCalibur™ System is a four-color, automated benchtop flow cytometry system that can perform both analysis and cell sorting. Designed specifically to support a wide range of applications, the BD FACSCalibur system offers software instrument control, auto-sample loading, and push-button fluidic control with maximum ease and productivity. The BD FACSCalibur system is fully modular so it can be upgraded to meet future needs. For more information about the BD FACSCalibur system and other flow cytometry products from BD Biosciences, visit [bdbiosciences.com](http://bdbiosciences.com).



Helping all people  
live healthy lives

### Performance

Fluorescence sensitivity	Estimated detection limit: 750 molecules of equivalent soluble fluorescein
Fluorescence resolution	Coefficient of variation in FL2-Area of <3%, full peak for propidium iodide-stained chicken erythrocyte nuclei
Forward and side scatter sensitivity	Separation of fixed platelets from noise
Forward and side scatter resolution	Optimized scatter performance for resolving lymphocytes, monocytes, and granulocytes

### Excitation Optics

Optical platform	Fixed optical assembly
Lasers	15-milliwatt 488-nm, air-cooled argon-ion laser; life expectancy >5,000 hours. Optional second laser: nominally 635 nm.
Beam geometry	Prismatic expander and achromatic spherical lens providing 22 x 66- $\mu$ m elliptical beam for argon-ion laser. Nominally 15 x 61- $\mu$ m elliptical beam for red-diode laser

### Emission Optics

Optical coupling	Quartz cuvette coupled to emission lens by refractive index matching optical gel for optimum collection efficiency
Background rejection	Obscuration blade and slit for minimizing unwanted laser radiation at the detector
Forward scatter detector and filter	High-performance solid state silicon detector with 488-nm bandpass filter for clear signal detection and red-diode laser signal rejection
Side scatter detector	High-performance photomultiplier using Brewster-angle beam splitter in the emission optical train
Fluorescence detectors and filters	Four high-performance, high dynamic range photomultipliers with bandpass filters: 530 nm (FITC), 585 nm (PE/PI), 661 nm (APC), and >650 nm (PerCP) with base unit, >670 nm (PerCP) with FL4 option

## Fluidics

General operation	Front key panel control in three modes: RUN, STNDBY, and PRIME; automatic standby mode for conserving sheath fluid by stopping sheath flow when no sample tube is installed
Fluid reservoirs	Easily accessible 4-L capacity sheath and waste containers housed in a convenient pull-out drawer; level detectors for automatic indicating of low levels of sheath or high levels of waste
Sample flow rates	Three selectable flow rates of 60 $\mu\text{L}/\text{min}$ , 35 $\mu\text{L}/\text{min}$ , and 12 $\mu\text{L}/\text{min}$ ; regulated and monitored pressure difference between sheath and sample; particle velocity in flow cell: approximately 6 meters/second
Quartz cuvette	Internal cross-section: rectangular 430 x 180 $\mu\text{m}$ ; antireflection coated external surfaces for maximum transmission of laser light
Sample concentration	Single-cell suspension of $10^5$ to $2 \times 10^7$ particles/mL recommended range

## Signal Processing

Workstation resolution	1,024 channels on all parameters
Dynamic range	Logarithmic amplifiers for SSC, FL1, FL2, FL3, and FL4 (with FL4 option), providing four log decade range
Fluorescence compensation networks	Compensation for fluorescence spectral overlap between FL1 and FL2, between FL2 and FL3, and between FL3 and FL4 channels (with FL4 option)
Pulse processing	Width and area measurements for discriminating doublets; available for all fluorescence parameters
Time	Time available correlated to any parameter for kinetic experiments or other applications.

## Sample Loading Specifications

Sample delivery	Tube-lifter design with multiple sensors that verify rack identification and tube position
Rack capacity	40 (12 x 75-mm) tubes per rack
Rack support	Up to 16 racks per BD FACSTM Loader
Data entry	Sample information, reagent panels, and rack information can be defined for up to 640 tubes (40 tubes x 16 racks) at a time
Loader control	Automated control through Worklist ManagerTM software
Barcode scanner (optional)	Automates data entry for Codabar, Code 39, Interleaved 2 of 5, Code 2 of 5, and Code 128
Mixing mode	Adjustable high energy and low energy mix

## Sorting Specifications

Sorting purity	>95%
Capture rate	300 cells/second
Sort modes	Three modes (all aerosol free): single cell, exclusion, and recovery
Recovery	Depending upon sample and sorting conditions, >50%
Sterile sorting	System design allows for aerosol-free sterile sorting

## Data Management System

Workstation	BD FACStation™ computer
Processor	Dual 2.3-GHz PowerPC® G5
Memory	512 MB DDR400 SDRAM
Level 2 cache	512 K per processor
Data storage	250-GB Serial ATA - 7200-rpm hard drive
Networking	On-board Ethernet, built-in AppleTalk™ Networking, and Apple® File Sharing
Optical drive	16x SuperDrive (DVD+R DL/DVD +- RW/CD-RW)
Monitor	17-inch LCD monitor (optional)
Data file structure	Flow Cytometry Standard (FCS) 2.0/3.0 ASCII results file for data export

## Operating Environment

Temperature	16° to 29°C (60° to 85°F)
Humidity	10% to 90% relative non-condensing
Air filtering	No excessive dust and smoke
Lighting	Optics and detectors shielded from room lighting
Size	Sensor module (W x D x H): 91.4 x 61.5 x 67.3 cm (36 x 24.2 x 26.5 in); 124.5 cm; Height with cover option - 124.5 cm (49 in) computer (L x D x H): 48 x 41 x 54 cm (19 x 16 x 23 in) printer (L x D x H): 48 x 41 x 54 cm (19 x 16 x 23 in)
Weight	Sensor module: 109.1 kg (~240 lb); computer: varies with configuration

## Installation Requirements

Power*	US: 120 VAC ±10%; 50/60 Hz ±2 Hz; current: 20 amp maximum outside US: external transformer needed for 100 VAC ±10% 50/60 Hz and 220/240 VAC ±10% 50/60 Hz ±2 Hz
Water supply	None required
Air supply	None required
Heat Dissipation	BD FACSCallibur system with all options 6500BTU/h

Specifications subject to change without notice.

\*BD recommends two dedicated circuits for instruments configured with any of the options.

Unless otherwise specified, all products are for Research Use Only. Not for use in diagnostic or therapeutic procedures. Not for resale. All applications are either tested in-house or reported in the literature. See Technical Data Sheets for details. Prices are subject to change without notice.

US Orders: 877.232.8995  
bdbiosciences.com

# BD FACSCalibur

## Flow Cytometer

---

**For ordering information and technical services,  
please contact your local BD Biosciences office.**

### **United States**

Tel 877.232.8995

Fax 800.325.9637

### **Canada**

Tel 888.259.0187

Fax 888.229.9918

### **Europe**

Tel 32.400.98.95

Fax 32.401.70.94

### **Japan**

Tel 0120.8555.90

Fax 81.24.593.5761

### **Asia Pacific**

Tel 65.6861.0633

Fax 65.6860.1593

### **Latin America/Caribbean**

Tel 55.11.5185.9645

Fax 55.11.5185.9895

For country-specific contact information,  
visit [bdbiosciences.com/how\\_to\\_order/international\\_offices.shtml](http://bdbiosciences.com/how_to_order/international_offices.shtml).

PowerPC is a registered trademark of IBM Corporation. AppleTalk is a trademark, and Apple is a registered trademark, of Apple Computer, Inc.

BD flow cytometers are Class I (1) laser products. BD FACSCalibur system is intended For In Vitro Diagnostic Use. Sorting applications are For Research Use Only. Not for use in diagnostic or therapeutic procedures. Not for resale. All applications are either tested in-house or reported in the literature. See Technical Data Sheets for details. © 2007 Becton, Dickinson and Company. All rights reserved. No part of this publication may be reproduced, transmitted, transcribed, stored in retrieval systems, or translated into any language or computer language, in any form or by any means: electronic, mechanical, magnetic, optical, chemical, manual, or otherwise, without prior written permission from BD Biosciences. Purchase does not include or carry any right to resell or transfer this product either as a stand-alone product or as a component of another product. Any use of this product other than the permitted use without the express written authorization of Becton Dickinson and Company is strictly prohibited. Prices are subject to change without notice.

---



**BD Biosciences**

2350 Qume Drive  
San Jose, CA 95131  
[bdbiosciences.com](http://bdbiosciences.com)