



# BD FACSCanto II Flow Cytometer

## Technical Specifications

---

Built on more than 25 years of BD experience and leadership in flow cytometry and multicolor analysis, the BD FACSCanto™ II system is an easy-to-use benchtop analyzer that delivers proven performance, accuracy, and high-quality results. The BD FACSCanto II can be configured with two or three lasers to detect up to eight colors. It features many innovations, including a true fixed alignment flow cell to minimize startup time and improve reproducibility. The optical system maximizes signal detection and increases sensitivity and resolution for each color in a multicolor assay. These and other capabilities make the BD FACSCanto II ideal for today's busy clinical lab, providing a high degree of automation and quality control. With optimal reproducibility, the BD FACSCanto II system reduces hands-on technician time and costs associated with repeat testing.

## Optics

### Lasers

Air-cooled:  
488-nm solid state, 20-mW laser output  
633-nm HeNe, 17-mW laser output

### Laser Configuration

Spatially separated beams with 9 x 65- $\mu$ m elliptical spots

### Optical Alignment Procedure

Fixed, no operator alignment required

### Flow Cell

180 x 430- $\mu$ m rectangular quartz flow cell

### Collection Optics

Optical-gel coupled 1.2 NA lens

### FSC Resolution

1.0  $\mu$ m

### SSC Resolution

0.5  $\mu$ m

### Fluorescence Detector Design

Reflective optics with single transmission filter in front of each PMT

### FSC Detector

Photodiode with 488/10 BP

### SSC Detector

PMT with 488/10 BP

### Fluorescence Detectors

6 PMTs in 4-2 standard configuration

### Blue Laser Dyes

FITC, PE, PerCP or PerCP-Cy<sup>TM</sup>5.5, PE-Cy<sup>TM</sup>7 (525, 575, 678 or 695, 785 nm)

### Red Laser Dyes

APC, APC-Cy7 (660, 785 nm)

### Detector Bands

Blue Laser:  
530/30; 585/42; >670; 780/60 nm

Red Laser:  
660/20; 780/60 nm

### Fluorescence Threshold Sensitivities

FITC <100 MESF; PE <50 MESF

### Sensitivity Measurement Using BD FACS 7-Color Setup Beads

Sensitivity determined with the setup beads measures the ability to resolve a dimly stained population from unstained cells. This sensitivity measure takes into account both the separation of the populations and the broadness of the negative population. Different fluorochromes give different separation of the stained and unstained populations; this is also taken into account in the sensitivity measurement. The higher the reported number, the higher the resolution.

#### Minimum values:

FITC >15; PE >80; PerCP >9;  
PerCP-Cy5.5 >25; PE-Cy7 >120;  
APC >40; APC-Cy7 >16

### Filter Change Procedure

Keyed filters, no tools required

## Fluidics

### General Operation

Integrated fluidics cart and compressor with onboard housekeeping solutions for automated startup, shutdown, and cleaning cycles

### Sheath Consumption

1.10 L/h normal operation; <1 mL/h standby

### Housekeeping Solution Capacities

BD FACSFlow<sup>TM</sup> sheath solution 20 L

BD<sup>TM</sup> FACSClean solution 5 L

BD FACS<sup>TM</sup> shutdown solution 5 L

Waste tank 10 L

### Carryover

$\leq$ 0.1%

### Sample Injection

Direct into flow cell

### Max Particle Size

50  $\mu$ m

### Sample Flow Rate, Min

10  $\mu$ L/min

### Sample Flow Rate, Max

120  $\mu$ L/min

### Sample Acquisition Rate

10,000 events/second, 6 compensated fluorescence parameters and 2 scatter parameters

### Sample Dead Volume

30  $\mu$ L (BD Falcon<sup>TM</sup> tubes 12 x 75-mm)

### System Cleaning

Daily: Automated startup and shutdown procedures

Monthly: Run long clean

## Data Management System

### Parameters

Area (A), Width (W), Height (H) for all channels with up to 2 ratios, and Time (T)

### Signal Processing

18-bit dynamic range with IEEE 32-bit floating-point resolution

### Threshold

Single parameter (any channel) or logical combinations of multiple parameters (any or all channels)

### Compensation

Full inter-beam matrix, during or post acquisition

### Maximum Logical Gate Regions

Limited only by system memory (2 GB RAM)

### CPU/Monitors

HP Xw4600, with either 19" or 24" flat screen monitors

### Software

BD FACSDiva™  
BD FACSCanto™ clinical

### Operating System

Microsoft® Windows® XP Pro

## Cytometer Options

### 8-Color Option with 3 Lasers\*

#### Lasers

Air-cooled:  
405-nm solid state diode, 30-mW fiber power output  
488-nm solid state, 20-mW laser output  
633-nm HeNe, 17-mW laser output

#### Fluorescence Detectors

8 PMTs in 4-2-2 configuration

#### Laser Dyes

Violet:  
Pacific Blue™, AmCyan (455, 488 nm)  
Blue:  
FITC, PE, PerCP or PerCP-Cy5.5, PE-Cy7 (525, 575, 678 or 695, 785 nm)  
Red:  
APC, APC-Cy7 (660, 785 nm)

#### Detector Bands

Violet:  
450/50; 502 to 525 nm  
Blue:  
530/30; 585/42; >670; 780/60 nm  
Red:  
660/20; 780/60 nm

### 8-Color Option with 2 Lasers\*

#### Lasers

Air-cooled:  
488-nm solid state, 20-mW output  
633-nm HeNe, 17-mW output

#### Fluorescence Detectors

8 PMTs in 5-3 configuration

#### Laser Dyes

Blue:  
FITC, PE, PE-Texas Red®, PerCP or PerCP-Cy5.5, PE-Cy7 (525, 575, 615, 678 or 695, 785 nm)  
Red:  
APC, Alexa Fluor® 700, APC-Cy7 (660, 720, 785 nm)

#### Detector Bands

Blue:  
530/30; 585/42; 616/23; >670; 780/60 nm  
Red:  
660/20; 712/21; 780/60 nm

### Sample Input with BD FACSTM Loader Option

#### Loading

40-tube carousel

#### Sample/test ID

Indexed carousel, with carousel ID barcode reader

Worklist importable from BD FACSTM Sample Prep Assistant (SPA) III

#### Throughput

56 min/carousel with BD™ Multi-check high controls,  
66 min/carousel with BD Multi-check low controls using BD Multitest™ 6-color TBNK application

#### Miscellaneous

Multiple clinical applications can be run on the same Loader carousel.

Sample Input with BD High Throughput Sampler Option\*\*

#### Loading

96- and 384-well microtiter plates

#### Throughput

<15 min/96-well plate in high-throughput mode with 2-second acquisition

#### Carryover

≤1%

#### Barcode Reader with Stand

#### Use with

BD FACSCanto clinical software

#### 2D Reader

Streamlined input of BD FACSTM 7-color setup bead target values, input of patient information

\* 7 and 8 color applications using violet laser are for Research Use Only

\*\* For Research Use Only

## Specifications

---

### Installation Requirements

#### Size (D x W x H)

Cytometer:

24 x 36 x 25 in. (61 x 91 x 64 cm)

Fluidics cart:

24 x 31 x 25 in. (61 x 79 x 64 cm)

The cytometer depth increases to 30 in. (76 cm) with the BD FACS Loader and HTS option installed

#### Weight

Cytometer:

320 lb (145 kg)

Fluidics cart:

112 lb (51 kg)

#### Power

100/115/230 VAC, 50–60Hz

#### Operating Environment

16–30°C, 20–80% noncondensing relative humidity

#### Heat Dissipation with BD FACS Loader Installed

1,843 BTU/h

Class I (1) laser product.

For In Vitro Diagnostic Use.

CE marked according to the In Vitro Diagnostic Medical Device Directive 98/79/EC. Seven and eight-color assays on this device require validation by the user for in vitro diagnostic use.

Windows is a registered trademark of Microsoft Corporation.

Alexa Fluor®, Pacific Blue™, and Texas Red® are registered trademarks or trademarks of Molecular Probes, Inc.

BD, BD Logo and all other trademarks are property of Becton, Dickinson and Company. © 2009 BD