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.
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Technical Specifications

**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-μm elliptical spots

**Optical Alignment Procedure**
Fixed, no operator alignment required

**Flow Cell**
180 x 430-μm rectangular quartz flow cell

**Collection Optics**
Optical-gel coupled 1.2 NA lens

**FSC Resolution**
1.0 μm

**SSC Resolution**
0.5 μm

**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™5.5, PE-Cy™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™ sheath solution 20 L
- BD™ FACSClean solution 5 L
- BD FACS™ shutdown solution 5 L
- Waste tank 10 L

**Carryover**
≤0.1%

**Sample Injection**
Direct into flow cell

**Max Particle Size**
50 μm

**Sample Flow Rate, Min**
10 μL/min

**Sample Flow Rate, Max**
120 μL/min

**Sample Acquisition Rate**
10,000 events/second, 6 compensated fluorescence parameters and 2 scatter parameters

**Sample Dead Volume**
30 μL (BD Falcon™ tubes 12 x 75-mm)

**System Cleaning**
Daily: Automated startup and shutdown procedures
Monthly: Run long clean

For In Vitro Diagnostic Use.
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

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

For In Vitro Diagnostic Use.
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