



# BD FACSLyric™ System

**The BD FACSLyric™ Flow Cytometer** is a flexible, high-performance instrument in a compact footprint. The system is available in 4, 6, 8, 10 or 12 colors and equipped with a blue, red and violet laser depending on the configuration. The built-in capability to automatically check and correct laser alignment allows for optimal optical alignment at all times.

The combination of vacuum-driven fluidics, a unique sample injection tube (SIT) and a new cuvette design enhances system reliability and signal resolution.

**BD FACSuite™ Clinical Software** contains clinical assay templates providing clinical menus that include:

- BD Multitest™ CD3/CD8/CD45/CD4 Kit
- BD Multitest™ CD3/CD16+CD56/CD45/CD19 Kit
- BD Multitest™ IMK Kit
- BD Multitest™ 6-Color TBNK Kit

All of the above are also available with absolute counting when using BD Trucount™ Tubes.

**BD FACSuite™ Software** supports the creation of user-defined assays for clinical research, and tools that facilitate instrument-to-instrument and site-to-site standardization.



The fluidics design enables a large selection of sample input devices. For manual acquisition, choose from 12 x 75-mm tubes, microcentrifuge tubes (~500-µL) or large (up to 50-mL) conical tubes for continuous sample acquisition. For automated acquisition, the optional BD FACSuite™ Universal Loader provides walkaway operation with samples loaded in either microtiter plates or 12 x 75-mm tube racks.



## Technical Specifications

### Optics

#### Available system configurations

- 4-color: 2-laser (blue, red) (3-1)
- 6-color: 2-laser (blue, red) (4-2)
- 8-color: 3-laser (blue, red, violet) (4-2-2)
- 10-color: 3-laser (blue, red, violet) (4-3-3)
- 12-color: 3-laser (blue, red, violet) (4-3-5)

#### Solid-state laser specifications

- Blue laser: 488 nm, 20 mW
- Red laser: 640 nm, 40 mW
- Violet laser: 405 nm, 40 mW

#### Beam spot size (all lasers)

9 µm x 63 µm

#### Optical alignment

Auto alignment on demand

#### Flow-cell lens

1.2 NA

#### FSC detector

Photodiode

#### SSC and FL detectors

PMT

See filter guide for optical configurations.

### Fluidics

#### Flow cell

Stainless steel with low coefficient of thermal expansion for predictable, stable performance

#### Cuvette internal cross-section

430 µm x 180 µm

#### Sample flow rates

- Low: 12 µL/min
- Medium: 60 µL/min
- High: 120 µL/min
- High sensitivity: 50 µL/min

#### Fluid capacity

- Standard 5-L tanks
- Optional 10-L tanks
- Adapter available for 20-L BD FACSToW™ Cubitainer

#### Sheath core stream fluid velocity

- Normal: 5.4 m/s
- High sensitivity: 2.7 m/s

#### Sheath fluid consumption

- Normal: 13.6 mL/min
- High sensitivity: 6.6 mL/min

#### Supported tubes, plates and tube racks

##### BD FACSToW™ Universal Loader

##### Tubes

- 30-tube rack (12 x 75-mm tubes)
- 40-tube rack (12 x 75-mm tubes)

##### Plates

- 96 standard height, round, polystyrene
- 96 standard height, flat, polystyrene
- 96 standard height, round, polypropylene
- 96 standard height, conical, polypropylene
- 384 standard height, flat, polystyrene
- 96, half deep, conical, polypropylene
- 96, deep, conical, polypropylene
- 96, filter bottom, polypropylene

##### Manual tube port

- Falcon® 5 mL (12 x 75-mm) polystyrene and polypropylene
- BD Trucount™ 5 mL (12 x 75 mm)
- Falcon 15 mL
- Falcon 50 mL
- Microcentrifuge 2 mL

#### Sample dead volume

30 µL (12 x 75-mm tubes)

#### Cytometer schedule settings

Pre-programmed startup and idle shutdown

### Software

#### BD FACSToW™ Clinical Software

- Preconfigured workflows for IVD-cleared assays
- Integrated bi-directional LIS interface using BD FACSToW™ Software
- Support for 21 CFR Part 11 workflow with audit trail and e-signature
- Universal setup for fast and convenient instrument setup and standardization
- Single-tube QC with BD® CS&T Beads
- QC module with Levey-Jennings plots
- Laboratory, physician and supplemental report (.pdf) in 24 languages

#### Pre-set templates for the following

##### IVD assays

- BD Multitest™ 4-Color
- BD Multitest™ 6-Color TBNK

#### BD FACSToW™ Software

Support for:

- User-defined assays
- User-defined plots
- User-defined worksheets and reports
- User-defined tube/reference settings
- Expression editing

#### QC

Automated single-tube QC with BD® CS&T Beads

## Performance

### Acquisition rate

Up to 35,000 events per second. No limit on number of events acquired in a single FCS file

### Carryover

<0.10% with default SIT flush  
<0.05% with 3 or more SIT flushes

### Sensitivity

FITC: <85 MESF  
PE: <20 MESF

### Channel Qr (x1,000)

FITC	20
PE	133
PerCP-Cy™5.5	13
PE-Cy™7	17
APC	10
BD Horizon™ APC-R700	8
APC-Cy™7	7
BD Horizon™ V450	47
BD Horizon™ V500	17
BD Horizon™ BV605	133
BD Horizon™ BV711	43
BD Horizon™ BV786	16

### Fluorescence precision

<3% CV for chicken erythrocyte nuclei (CEN)

### Fluorescence linearity

2 ±0.05% for CEN

### Data resolution

Uncompensated data has a range of 0–262,143

### SSC and FSC resolution

Enables separation of 0.2-µm beads from noise

### System throughput

≤50 minutes for a 40-tube rack with a standard BD Tritest™ Assay stopping rule on samples with normal CD4 counts (approximately 1,190 cells/µl).  
≤40 minutes for a 96-well plate, using default mix settings, a two-second acquisition, and a SIT flush in between each well and no preview before acquiring or report review delay.

### Parameters

Area (A), Width (W), Height (H) for all channels and Time (T). Total of 37 parameters available.

### Compensation

Full inter-beam matrix, during or post acquisition

### Threshold

Any single parameter or logical combination of multiple parameters

## Data management

### Workstation specifications (minimum required)

Clock speed of at least 3.4 GHz  
8 GB RAM

### Hard drive and data storage

2 x 500 GB - RAID 1 Mirrored Array Configuration  
16X DVD-ROM

### Operating system

Microsoft® Windows® 10  
64-bit OS  
DVD + Driver DVD

### Peripheral devices

At least 3 USB ports  
HP USB Keyboard US  
HP USB Optical Mouse

### Networking

Ethernet LAN 10/100/1000

### Signal Processing

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

### Monitor

LCD flat panel, 23 in.  
LCD flat panel, 29 in. (recommended)

### Data management options

BD FACSLink™ Software for LIS connectivity, BD Assurity Linc™ Software for remote diagnostic capability

## Installation requirements

### Operating temperature

15°C (59°F) to 30°C (86°F)

Maximum of ±2.5°C/day fluctuation recommended

### Humidity

15% to 85% relative humidity (noncondensing)

### Dimensions (W x D x H)

Cytometer  
63.2 x 57.9 x 57.9 cm  
24.9 x 22.8 x 22.8 in.

### With standard tanks

85.2 x 57.9 x 57.9 cm  
33.5 x 22.8 x 22.8 in.

### With standard tanks and loader

107.2 x 57.9 x 57.9 cm  
42.2 x 22.8 x 22.8 in.

### Weight

Cytometer: 56.0 kg (123.5 lb)  
Loader: 13.2 kg (29 lb)

### Power specifications

Voltage: 100–240 ±10% VAC  
Frequency: 50–60 ±10% Hz  
Current: 2 A  
Power: 200 W

### Operational heat dissipation

≤488 BTU/hour at ambient temperature

### Noise under normal operating conditions

≤55 dBA over 8 hours under normal operating conditions

### Altitude

≥0.8 atm (approximately 2,000 meters)

## System options

### **BD FACS™ Universal Loader**

Compatible with 30 (barcoded) or 40 (non-barcoded) tubes (12 x 75 mm). Equipped with an orbital shaker for in-place mixing and resuspension of cells. Optimized for all supported plate and tube formats. Includes internal barcode reader for positive sample identification.

Supported barcode formats

Codabar

Code 128

Code 3 of 9

Interleaved 2 of 5

### **Handheld barcode scanner**

Handheld barcode scanner with stand supporting common 1-D and 2-D formats

### **Extended-use fluidics**

Optional tanks and connectors to allow for use with 10-L waste tanks and BD FACSTow™ Cubitainers

Class 1 Laser Product.

The BD FACSLytic™ flow cytometer is for In Vitro Diagnostic Use with BD FACSuite™ Clinical software for up to 6 colors.

The BD FACSLytic™ flow cytometer is for Research Use Only with BD FACSuite™ software for up to 12 colors.

BD FACSuite Clinical software is for In Vitro Diagnostic Use. BD FACSuite software is for Research Use Only.

User-defined assays are not for In Vitro Diagnostic Use.

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