



BD FACSLyric™ System

The BD FACSLyric™ System includes the BD FACSLyric™ cytometer, the optional BD FACS™ Universal Loader, and workstation that runs the software. All these components combine to create an integrated system with 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 BD FACSLyric™ flow cytometer is upgradeable up to 12 colors.

Sample acquisition can be manual or automated via the BD FACS™ Universal Loader. The Loader provides walkaway operation with samples loaded in either microtiter plates or 12 x 75-mm tube racks.

The software that controls the BD FACSLyric™ system is comprised of two applications:

- The BD FACSuite Clinical application supporting BD IVD Assays with assay templates:

BD Tritest™ CD3/CD4/CD45 kit

BD Tritest™ CD4/CD8/CD3 kit

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 is also available with absolute counting when using BD Trucount™ Tubes.



- The BD FACSuite application supporting BD IVD Single Color Reagents and user-defined panels. Functions within the application facilitate instrument-to-instrument and site-to-site standardization.



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 FACSToGo™ 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

- With BD FACS Universal Loader

Tubes

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

Plates

- 96 Falcon® standard height, round, polystyrene
- 96 Falcon® standard height, flat, polystyrene
- 96 Falcon® standard height, round, polypropylene
- 96 Falcon® standard height, conical, polypropylene
- 384 Greiner standard height, flat, polystyrene
- 96 Falcon®, half deep, conical, polypropylene
- 96 Falcon®, deep, conical, polypropylene
- 96 Milipore, filter bottom, polypropylene

- With 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

- Integrated bi-directional LIS interface using BD FACSLink™ 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
- Two applications

BD FACSuite Application

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

BD FACSuite Clinical Application

Pre-configured workflow and pre-set templates for the following BD IVD assays:

- BD Tritest™
- BD Multitest™ 4-Color
- BD Multitest 6-Color TBNK
- BD Trucount™ control
- Report in 26 languages

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 1190 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 43 parameters available.

3 scales:

- Linear (A, W, H),
- Logarithmic (A, H)
- Biexponential (A, W, H)

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 3.2 GHz
- 16 GB RAM

Hard drive and data storage

- 1 TB Solid State HD

Operating system

- Microsoft® Windows® 10 IoT
- 64-bit OS

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 FACSTFlow™ cubitainers

The BD FACSLytic™ flow cytometer with the BD FACSuite™ Clinical and BD FACSuite™ applications are CE marked in compliance with the European In Vitro Diagnostic Medical Device Directive 98/79/EC.

The BD FACSLytic™ flow cytometer is a Class 1 Laser Product.

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