

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.

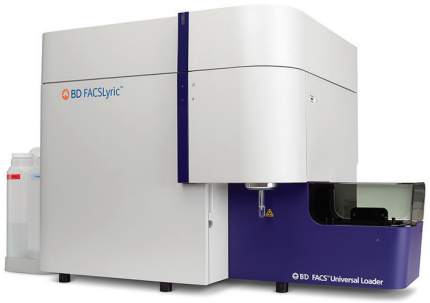
The combination of vacuum-driven fluidics, a unique sample injection tube (SIT) and a new cuvette design enhances system reliability and signal resolution.

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 FACS™ Universal Loader provides walkaway operation with samples loaded in either microtiter plates or 12 x 75-mm tube racks.

BD

BD FACSLyric™ System

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 FACSFlow™ 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 FACS™ 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 FACSuite™ Clinical software
- Preconfigured workflows for IVD-cleared assays
- 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
- 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 FACSuite™ 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 1190 cells/µl).
≤40 minutes for a 96-well plate, using default mix settings, a two-second asquisition, and a SIT flush in between each well and no preview before acquring 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: 150 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 FACSFlow™ cubitainers

Class 1 Laser Product.

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

The BD FACSLyric™ 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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23-18504-02 US

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