



Special Order BD LSRFortessa Cell Analyzer

Technical Specifications

The special order BD LSRFortessa™ cell analyzer puts the power of the BD LSR platform into a compact footprint, and is about half the size of the BD™ LSR II analyzer. It can easily fit on the benchtop for more cost-effective space utilization. Delivering maximum sensitivity and resolution required for multicolor applications, the special order BD LSRFortessa cell analyzer supports up to 7 lasers and can be used to detect 18 colors simultaneously. In addition to the reduced size, design innovations make filters and detectors more accessible, for easier setup of new experiments.

Through the BD special order program, customers can choose from a wider range of laser wavelengths (18) and powers, further configuring the special order BD LSRFortessa cell analyzer to meet their exact requirements for advanced assay development.

A product brochure and filter guide are also available. For more information, please contact your BD sales representative.

Optics

Excitation Optics

Excitation Optical Platform

The special order BD LSRFortessa optical layout allows for up to five lasers.

Laser Wavelengths and Laser Powers¹

355 nm: 60 mW with 2 PMT detectors

405 nm: 100 mW with 2 PMT detectors

488 nm: 100 mW with 5 PMT detectors plus side scatter

561 nm: 50 mW with 5 PMT detectors

640 nm: 40 mW with 3 PMT detectors

Flow Cell Design

Rectangular Quartz Cuvette: Internal cross-section, 430 x 180 μm

Fixed optical assembly of the lasers, with up to 5 spatially-separated laser beams.

Emission Optics

Optical Coupling

The quartz cuvette flow cell is gel-coupled by refractive index-matching optical gel to the fluorescence objective lens (1.2 NA) for optimal collection efficiency.

Forward Scatter Detection

Photodiode detector with a 488/10 bandpass filter

Side Scatter Detector

Photomultiplier tube (PMT) with a 488/10 bandpass filter

Emission Optical Design

The special order BD LSRFortessa cell analyzer uses BD's patented octagon and trigon detection system. Using reflective optics and fiber-coupled PMTs ensures more efficient light collection than that obtained from transmission optics. Please see the separate filter guide for information on dye and filter options.

Performance

Fluorescence Sensitivity¹

FITC-A: 80 molecules of equivalent soluble fluorochrome (MESF-FITC)

PE-A: 30 molecules of equivalent soluble fluorochrome (MESF-PE)

Measurements performed using SPHERO™ Rainbow Calibration Particles RCP-30-5A

Fluorescence Resolution

Coefficient of variation PI: area of <3%, full G_0/G_1 peak for chicken erythrocyte nuclei (CEN) stained with propidium iodide (PI)

Fluorescence Linearity

Doublet/singlet ratio of 1.95–2.05 for CEN stained with PI and excited with the 488-nm blue laser

Side Scatter Sensitivity¹

Achieves separation of 0.5- μm beads from noise in side scatter.

Forward and Side Scatter Resolution¹

Scatter performance is optimized for resolution of lymphocytes, monocytes, and granulocytes.

Forward Scatter PMT Option

A forward scatter PMT upgrade is available for small particle detection through the special order program.

Data Acquisition Rate

Theoretical maximum electronic data collection of 70,000 events/second. Typical operation at 20,000 events/second which requires a sample concentration of 2×10^7 cells/mL at an instrument flow rate of 60 $\mu\text{L}/\text{min}$.

Fluidics

Sample Flow Rates

Front key panel provides three modes: RUN, STNDBY, and PRIME

Continuously adjustable flow rate, plus three preset flow rates:

LO = 12 $\mu\text{L}/\text{min}$

MED = 35 $\mu\text{L}/\text{min}$

HI = 60 $\mu\text{L}/\text{min}$

Standard Fluidic Reservoirs

One 8-L sheath and 10-L waste container provided.

Recommended Fluidics Upgrade Option

BD FACSTFlow™ supply system: automated fluidics system, which includes a rolling cart and two 20-L Cubitainer® packages.

¹Through the special order program offered by BD, customers can choose from a wider range of laser wavelengths (from infrared to ultraviolet) and power options, further configuring the special order BD LSRFortessa cell analyzer to meet their exact requirements for advanced assay development. In addition, high-performance, high dynamic range photomultipliers and red-sensitive photomultipliers are also available upon request. Unique configurations may not be covered in this specification sheet. Individual test data is supplied with each instrument. New options are continually being added. Please check with your local sales representative.

Data Management

Software: BD FACSDiva™ v 6.1 or later

Workstation²

OS

Windows® XP Professional SP3

Processor

Intel® Core™ 2 Duo processor, 3.0 GHz

RAM

HP 2 GB (2 x 1 GB DDR2-800 ECC)

Hard Drives

HP 80 GB SATA/3Gb/s 7200 rpm HD
(1st slot)

HP 250 GB SATA/3Gb/s NCQ 7200 rpm
HD (2nd slot)

DVD Drive

HP 16x DVD+/-RW, SuperMulti SATA

Networking

Integrated Broadcom Gigabit
10/100/1000 Ethernet

Broadcom 5751 NetXtreme® Gigabit
PCIe NIC Ethernet

Options

Peripheral Options

Monitor Options

Two 19-in. LCDs, 2560 x 1024 resolution
(standard)

One 22-in. LCD, 1680 x 1050 resolution
(optional)

One 24-in. LCD, 1920 x 1200 resolution
(optional)

Printer Options

Options vary by location. Please check
with your local sales representative.

High Throughput Option

The BD™ High Throughput Sampler
(HTS) option is available to increase your
lab productivity by acquiring samples
from a 96- or 384-well microtiter plate.

² Minimum configuration listed. Workstation may include upgraded specifications.

Installation Requirements

Dimensions (H x W x D)

38 x 36 x 30 in.
(96.5 x 91.4 x 76.2 cm)

Weight

~440 lb (199.6 kg)

Recommended Laboratory Conditions

66–78.9°F (19–26°C)

Humidity

10% to 90% relative, non-condensing

Heat Dissipation

2353 BTU per hour

Power

Operation at 100/115/230 VAC
and 50 or 60 Hz
Maximum power: 1,500 watts

Air Supply

None required

Table Options (H x W x D)

Instrument table (table with Pelican
drawer on wheeled casters):
33.3 x 54.0 x 32.0 in.
(84.6 x 137.2 x 81.3 cm)

Workstation table (computer table with
keyboard tray on wheeled casters):
33.3 x 36.6 x 32.0 in.
(84.6 x 93.0 x 81.3 cm)

Regulatory Requirements

BD Biosciences certifies that the special order BD LSRFortessa cell analyzer conforms to relevant directives to bear the CE mark. It also conforms to the UL and CAN/CSA general requirements (61010.1). The special order BD LSRFortessa flow cytometer is a Class I (1) laser product per CDRH regulations and EN/IEC 60825.

Class I (1) laser product.

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