



Preconfigured BD™ LSR II Cell Analyzer

Technical Specifications

The BD LSR II system is firmly established as a premier research analyzer. Offering the greatest choice of colors, and the flexibility to grow with developing experimental needs, the BD LSR II provides the flow cytometry platform that laboratories need for sensitive analysis, allowing sorters to be used for other applications. The BD LSR II combines the latest laser technologies, cutting-edge engineering, and robust manufacturing standards. With detection of up to 18 colors and forward and side scatter, and a user-friendly interface, the BD LSR II delivers the greatest potential and flexibility of any analyzer on the market.

Performance

Fluorescence Sensitivity

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

PE-A: fewer than 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 propidium iodide (PI)-stained chicken erythrocyte nuclei (CEN).

Fluorescence Linearity

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

Forward and Side Scatter Sensitivity

Enables separation of fixed platelets from noise.

Forward and Side Scatter Resolution

Scatter performance is optimized for resolving lymphocytes, monocytes, and granulocytes.

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 μ L/min.

Excitation Optics

Excitation Optical Platform

The BD LSR II optical layout allows for up to 4 laser wavelengths for laser excitation.

Laser Wavelengths and Laser Power

355 nm: 20 mW

405 nm: 25 mW

488 nm: 20 mW

640 nm: 40 mW

Optional Solid-State Lasers (available as a custom option)

New options are developed on a regular basis. Please check with your local sales representative for the latest custom options.

Flow Cell Design

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

External quartz cuvette surfaces are anti-reflection coated for maximum transmission of laser light.

Fixed optical assembly of the lasers, with up to 4 spatially-separated laser beams.

Emission Optics

Optical Coupling

The quartz cuvette is coupled to the emission lens by a refractive-index-matching optical gel for optimum 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 BD LSR II 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.

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 μ L/min

MED = 35 μ L/min

HI = 60 μ L/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.

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.

HTS Throughput

Acquisition: less than 15 minutes in high throughput mode using a 2-second acquisition, less than 44 minutes in standard mode using a 10-second acquisition

Carryover: less than 1%

Workstation

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/3Gbs 7200 rpm HD (1st slot)

HP 250 GB SATA/3Gbs 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

Data Management

Software: BD FACSDiva™ v6.1 or later

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 the local sales representative.

Installation Requirements

Recommended Laboratory Conditions

Operating Temperature
66–80°F (19–27°C)

Humidity
10% to 90% relative, non-condensing

Physical Characteristics

Size
22 H x 62 D x 34 W in.
(56 x 157 x 86 cm)

Weight
~525 lb (240 kg)

Table Options

United States

- Standard BD LSR II instrument table (stationary lab bench with one drawer):
29 H x 65 D x 32 W in.
(74 x 165 x 81 cm)

Custom Tables

- Instrument table (table on wheeled casters):
33 H x 67 D x 36 W in.
(85 x 170 x 91 cm)
- Workstation table (computer table with keyboard tray on wheeled casters):
33 H x 37 D x 36 W in.
(85 x 94 x 91 cm)

Outside US

- Corner workstation (table and corner-fit workstation on wheeled casters):
30 H x 105.4 D x 31.5 W in.
(76.2 x 267.8 x 80 cm)
- Storage drawers (three-drawer storage unit on wheeled casters):
26 H x 15.74 D x 24 W in.
(66 x 40 x 61 cm)

Electrical Requirements

BD requires one dedicated circuit for the cytometer and the computer system (including printer) with a dedicated AC source not shared with any other equipment. All support equipment (computer, monitor, and printer) will be powered from the line conditioner supplied or specified by BD Biosciences.

US:

120-VAC ($\pm 10\%$), 50/60-Hz, 15-A

Europe:

110-VAC ($\pm 10\%$), 50/60-Hz, 15-A or
230-VAC ($\pm 10\%$), 50/60-Hz, 10-A

Japan:

100-VAC ($\pm 10\%$), 50/60-Hz, 15-A

Taiwan, Korea, and China:

110-VAC ($\pm 10\%$), 50/60-Hz, 15-A or
230-VAC ($\pm 10\%$), 50/60-Hz, 10-A

Australia, New Zealand, India,

South East Asia, Hong Kong:

230-VAC ($\pm 10\%$), 50/60-Hz, 10-A

Compliance

BD Biosciences certifies that the BD LSR II cell analyzer conforms to relevant directives to bear the CE mark. It also conforms to the UL and CAN/CSA general requirements (61010.1). BD LSR II 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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