BECKMAN COULTER
Life Sciences

CytoFLEX S Flow Cytometer

Violet-Blue-Yellow Green-Red (V-B-Y-R) Series

OPTICS

EXCITATION OPTICS

The instrument has the capacity for 15 parameters, including 13 for fluorescence detection. The fully activated instrument includes four channels from the 405 nm (Violet) laser, two from the 488 nm (Blue) laser, four from the 561 nm (Yellow Green) laser and three from the 638 nm (Red) laser. Instruments with as few as six fluorescent channels activated are available with the ability to activate additional parameters as needed by purchasing an activation key.

LASER SPECIFICATIONS

Spatially Separated Laser Options (Beam Spot Size: 5 µm x 80 µm)

Laser	Wavelength	Power
Violet	405 nm	80 mW
Blue	488 nm	50 mW
Yellow Green	561 nm	30 mW
Red	638 nm	50 mW

FLOW CELL

Fixed integrated optics and quartz flow cell design with >1.3 numerical aperture.

Flow Cell dimensions: 430 µm x 180 µm internal diameter

FORWARD SCATTER DETECTION

Proprietary Homodyne FSC sensor system using silicon photodiodes with built in 488/8 nm bandpass filter.

BANDPASS FILTERS

Includes 13 repositionable filters

450/45	660/10 (2)
525/40 (2)	690/50
585/42	712/25
610/20 (2)	780/60 (3)

FLUORESCENCE AND SIDE SCATTER DETECTION

Fluorescence and side scatter light delivered by fiber optics to Avalanche Photo Diode detector arrays. Proprietary design ensures high performance, high efficiency, low-noise signal detection. Emission profiles are collected using reflective optics and single transmission bandpass filters.

VIOLET SIDE SCATTER CONFIGURATION

Option to configure Avalanche Photo Diode detector array to collect side scatter signal from Violet (405 nm) laser. The configured channel (VSSC) can be used to better resolve nanoparticles.

QUALITY CONTROL

For detection channels off of the 405, 488, 561 and 638 nm laser, CytExpert QC automation pass/fail criteria is rCV ≤5.0%.

PERFORMANCE

SCATTER RESOLUTION

Blue (488 nm) Side Scatter Resolution: <300 nm

Violet (405 nm) Side Scatter Resolution (VSSC): 80 nm polystyrene particles

Scatter performance is optimized for resolving human lymphocytes, monocytes, and granulocytes as well as nanoparticles.

CARRYOVER

Single Tube Format: < 1.0%

Plate Loader Format: < 0.5%

SENSITIVITY

FITC: <30 molecules of equivalent soluble fluorochrome (MESF-FITC) from the 488 nm laser.

PE: <10 molecules of equivalent soluble fluorochrome (MESF-PE) from the 488 nm laser.

FLUORESCENCE RESOLUTION

The CytoFLEX Flow Cytometer is capable of achieving 3% rCV with alignment verification particles capable of rCVs <3%.

ELECTRONICS

NOMINAL ACQUISITION RATE

30,000 events per second with all configured parameters

Software capability to modify window extension parameter and to control abort rate during high event rate signal processing

SIGNAL PROCESSING

Fully digital system with 7 decade data display

SIGNAL

Pulse area, height for every channel, width for one selectable channel

FLUIDICS

ULTRA-LOW PRESSURE PERISTALTIC SHEATH AND SAMPLE DELIVERY SYSTEM

Low maintenance system

Sheath Fluid Filter and Sample Pump Tubing can be replaced by the user (no service visit required)

SAMPLE FLOW RATES

Fixed Flow Rates: 10, 30 and 60 µL/min

Custom Flow Rate Control mode from 10 to 240 µL/min in 1 µL increments.

Gravimetric calibration for absolute counts within CytExpert Software.

FLUID CAPACITY

Standard 4 L tanks

Optional 10L cubitainers

AUTOMATED MAINTENANCE FUNCTIONS

System Startup, Sample Mixing, Backflush, Prime, Shutdown, Deep Clean

SAMPLE INPUT FORMATS

5 mL (12 x 75 mm) polystyrene and polypropylene tubes

1.5 mL and 2 mL microcentrifuge tubes

PLATE LOADER FORMATS

96-well Standard Flat, U and V bottom plates, and 96-deep well plates. Refer to CytoFLEX Plate Loaders Technical Specification Sheet _FLOW-3308SPEC12.17 for details on all plate loader options.

DATA MANAGEMENT

SOFTWARE

The CytExpert software is a full-feature software package that controls instrument operation, data collection and analysis.

Three different installation modes are available depending on the level of security required.

The Default installation requires no user login.

For multiuser instruments, the User Management mode requires user login and contains features for user and role management.

Electronic Records Management installation provides tools that facilitate compliance with 21 CFR Part 11, Electronic Records and Electronic Signatures.

An API (Application Programming Interface) is available and allows external software to perform operations such as running methods and for basic control of the plate loader.

If desired, export FCS files for offline analysis in Kaluza, FCSExpress, FlowJo, and other platforms.

STANDARDIZATION

Daily QC beads or any other reference material that is relevant for your application may be used as the standardization sample to set target values and calibrate the gain settings automatically.

LANGUAGE

English and Chinese

OPERATING SYSTEM

Windows® 7 Professional 64-bit

Windows® 8 Professional 64-bit

Windows® 10 Professional 64-bit

FCS FORMAT

FCS 3.0

MINIMUM COMPUTER SPECIFICATIONS

CPU: Intel® I3 @ 2.9 GHz 1 Gigabit Ethernet port

RAM: 4 GB 2 USB 3.0 ports

Storage: 256 GB 4 USB 2.0 ports

COMPENSATION

Automatic full matrix compensation

Manual full matrix compensation

Novel Compensation Library: store fluorescent spillover values of dyes to easily determine the correct compensation matrix with new gain settings

Import/export compensation values between experiments

Absolute linear gain amplification enables the use of compensation settings between experiments and sample types

INSTALLATION

DIMENSIONS (W X D X H)

Cytometer (with or without Plate Loader)

42.5 cm x 42.5 cm x 34 cm

16.7 in x 16.7 in x 13.4 in

Tanks and Holder

14 cm x 35.6 cm x 35.6 cm

5.5 in x 14.0 in x 14.0 in

WEIGHT

Cytometer: 23.4 kg / 51.6 lbs

Cytometer with Plate Loader: 28 kgs / 61.7 lbs

POWER SPECIFICATIONS

Voltage: 100–240 V Power: 150 -250 W

OPERATING TEMPERATURE NON-CONDENSING

15-27 °C, 59-80.6 °F

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