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# Cytek Biosciences DxP Athena™ Flow Cytometry System

Built by Cytek from the ground up, the DxP Athena™ flow cytometry system incorporates Cytek's proven DxP technology enabling the capability to resolve dim populations in a multicolor format. Choose from configurations with up to 3 lasers and 13 fluorescent detectors. Each configuration offers consistent powerful performance to meet your application requirements at an affordable price.

DxP Athena benefits include:

- Intuitive software
- A small footprint
- High sensitivity and resolution for resolving dim populations
- Built-in maintenance capability
- Upgradeability
- Optional Cytek 96-Well Automated Micro-Sampler (AMS) and FlowKart™ Fluid Management System
- World-class Cytek Service

For more information, visit Cytek at [www.cytekbio.com](http://www.cytekbio.com).

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## Optics

### Excitation Optics

#### Optical platform

Allows up to 3 lasers. Fixed optical assembly with three spatially separated laser beams.

#### Lasers

407nm: 50mW  
488nm: 45mW  
637nm: 80mW

#### Beam geometry

Prismatic expander and achromatic spherical lens.

#### Optical Efficiency

Power loss at flow cell: <20% of specified laser power

### Emission Optics

#### Optical coupling

Fused silica cuvette coupled to emission lens by refractive index matching optical gel for optimum collection efficiency.

#### Background rejection

Obscuration blade and slit for minimizing unwanted laser radiation at the detector.

#### Forward scatter detector and filter

High-performance solid-state silicon detector with 488nm bandpass filter.

#### Side scatter detector

Photomultiplier and 488nm bandpass filter.

#### Photomultiplier Tubes

High efficiency Tri-alkali Photomultipliers

#### Fluorescence detectors and filters

DXP Athena 13-color Configuration shown. Other configurations available.

BluFL1: 530/30 (FITC, Alexa Fluor® 488)

BluFL2: 575/30 (PE)

BluFL3: 615/25 (PE-Texas Red®)

BluFL4: 695/40 (PerCP-Cy5.5)

BluFL5: 780/60 (PE-Cy7)

RedFL1: 661/16 (APC)

RedFL2: 710/50 (Alexa Fluor® 700)

RedFL3: 780/60 (APC-Cy7)

VioFL1: 450/50 (Brilliant Violet™ 421)

VioFL2: 525/50 (Brilliant Violet™ 510)

VioFL3: 615/25 (Brilliant Violet™ 605)

VioFL4: 710/50 (Brilliant Violet™ 711)

VioFL5: 780/60 (Brilliant Violet™ 785)

## Fluidics

### Sample Flow Rates

Front panel keypad provides four modes: Run, Standby, Prime, and Clean.

Three preset flow rates:

LO: 12 µL/min

MED: 35 µL/min

HI: 60 µL/min

#### Maintenance

Onboard CLEAN mode for monthly maintenance.

#### Standard Fluidic Reservoirs

One 4-L sheath container and one 4-L waste container provided.

## DXP Technology Performance

### Fluorescence Sensitivity

Molecules of Equivalent Fluorescence (MEFL), using Q&b Method\*

Fluor	Min. Q	Max. b	**Typical R Value
FITC	0.007	1200	382
PE	0.05	1000	300
PerCP -Cy5.5	0.003	600	336
PE-CY7	0.001	2000	758
APC	0.015	500	161
APC-CY7	0.005	7500	1161
BV421	0.01	3750	818
BV510	0.01	1500	1261

\*Q measures optical efficiency, b measures background, and R (resolution limit) measures the number of dye molecules required to resolve a dim population from noise

\*\*Average R value across 4 systems. MEFL required to be 2 standard deviations above noise. Assumes no compensation applied.

### Fluorescence Sensitivity Threshold

FITC: 50 molecules of equivalent soluble fluochrome (MEFL-FITC)

PE: 30 molecules of equivalent soluble fluochrome (MEFL-PE)

\*FITC and PE measurements performed using SPHERO Rainbow Calibration Particle (RCP-30-5A)

### Fluorescence Linearity

Delivers doublet/singlet ratio of 1.95–2.05 for CEN stained with PI and excited with the 488nm blue laser.

### Forward and Side Scatter Sensitivity

Enables separation of fixed platelets from noise.

### Forward and Side Scatter Resolution

Performance is optimized for resolving lymphocytes, monocytes, and granulocytes.

### Side Scatter Resolution

Capable to resolve 0.5µm beads from noise

### Fluorescence Resolution

18 bit 5 log decades

### Data Acquisition Rate

7,500 events/s with beads.

## Data Management

FlowJo™ Collector's Edition  
7.5.110 or later

Our acquisition interface can be adapted to any application.

Real time spillover matrix for viewing live compensated data.

Acquisition templates include hardware, gate, spillover, layout and statistical settings.

Save workspaces and use during multiple acquisition sessions.

Cytek AMS software Version 1.0.4

Fast and Easy Setup

Experiment plate mapping, including stain names can be setup on stand alone computer and saved as a template for future use.

Block Inspector

Change the FlowJo Collector's Edition acquisition settings on a per block basis.

Well ID Stamping

Well ID in the file name confirms data file to Well ID relationship.

## Workstation

Operating System  
Windows® 7 32-Bit Professional

Processor  
Intel Quad Core processor, 3.0 GHz

RAM  
4GB (1 x 4GB), 16000 MHz DDR3

Hard Drive  
500GB SATA 3.0Gb/s

DVD Drive  
16x DVD+/- RW, SATA

Video Processor  
HD Graphics GMA 4600

Monitor  
24" LCD

## Options

96-Well Auto-sampling

Cytek's automatic micro-sampler (AMS) can be mounted directly under the sample injection tube reducing dead volume and increasing throughput.

Auto-mode

Full 96-well plate in 40 minutes (15 sec. acquisition/well and 10 sec. wash/well) less than 1% carryover.

High throughput mode

Full 96-well plate in 15 minutes. (9 sec. acquisition/well) less than 3% carryover.

## Installation Requirements

*Dimensions (W x D X H) Sensor module  
(without AMS)*

55 x 52.4 x 57.8 cm (21.7 x 20.6 x 22.8 in)

**Weight**

45.4 kg (100lbs)

**Computer**

48 x 41 x 58 cm (19 x 16 x 23 in)

**Recommended workspace (W x D x H)**

180 x 91 x 132 cm (71 x 36 x 52 in)

### Room Requirements

**Power**

100-240V, 50/60 Hz, 2A max

**Heat dissipation**

450 watts with all solid-state lasers

**Temperature**

16–29°C (60–85°F)

**Humidity**

10% to 90% relative non-condensing

**Air filtering**

No excessive dust and smoke

**Lighting**

Optics and detectors shielded from room

## Regulatory Status

For Research Use Only. Not for use in diagnostic or therapeutic procedures except in countries where the regulatory approval has been obtained from the local regulatory authorities. Please check with your local sales representatives before placing your orders.



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