CYTEK®
TRANSCEND THE CONVENTIONAL

Cytek Aurora™ Evo Flow Cytometer

Preliminary Technical Specifications

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Optics

Excitation Optics

Optical Platform
Fixed optical assembly with active temperature control for thermal stability has the capacity to be configured with two to five spatially separated laser beams. Laser delays are automatically adjusted during instrument QC

Lasers
2-Laser Configurations:
488 nm: 50 mW, 640 nm: 80 mW

405 nm: 100 mW, 488 nm: 50 mW

3-Laser Configurations:
405 nm: 100 mW, 488 nm: 50 mW,
640 nm: 80 mW

488 nm: 50 mW, 561 nm: 50 mW,
640 nm: 80 mW

405 nm: 100 mW, 488 nm: 50 mW,
561 nm: 50 mW

4-Laser Configuration:
405 nm: 100 mW, 488 nm: 50 mW,
561 nm: 50 mW, 640 nm: 80 mW

5-Laser Configuration:
355 nm: 20 mW, 405 nm: 100 mW,
488nm: 50 mW, 561 nm: 50 mW,
640 nm: 80 mW

Beam Geometry
Flat-top laser beam profile with narrow vertical beam height optimized for small particle detection

Emission Optics

Emission Collection
Fused silica cuvette coupled to high numerical aperture (NA) lens for optimum collection efficiency to optical fibers

Forward And Side Scatter Detection
FSC: high-performance semiconductor detector with 488 nm bandpass filter

SSC: two high-performance semiconductor detectors with 405 nm and 488 nm bandpass filters

Fluorescence Detectors
Proprietary high sensitivity Coarse Wavelength Division Multiplexing (CWDM) semiconductor array per laser enabling more efficient spectrum capture in the 365–829 nm range. No filter changes required for any fluorochrome excited by the onboard lasers (i.e., 355 nm, 405 nm, 488 nm, 561 nm, 640 nm lasers)

Fluorescence Detector Configurations
Ultraviolet (355 nm) detector module:
16 channels unevenly spaced bandwidth from 365–829 nm

Violet (405 nm) detector module: 16 channels unevenly spaced bandwidth from 420–829 nm

Blue (488 nm) detector module: 14 channels unevenly spaced bandwidth from 498–829 nm

Yellow-Green (561 nm) detector module:
10 channels unevenly spaced bandwidth from 567–829 nm

Red (640 nm) detector module: 8 channels unevenly spaced bandwidth from 652–829 nm

Fluidics

Sample Flow Rates
Low: 15 µL/min, **Medium**: 30 µL/min,
High: 60 µL/min, **Ultra**: 100 µL/min,
Max: 200 µL/min

Fluidic Modes
Fluidics startup, daily clean, sample injection tube (SIT) flush*, purge filter, clean flow cell, long clean

*Both inner and outer surface of SIT is washed

Manual Sample Input Format
12 x 75 mm polystyrene and polypropylene tubes

Sample Line
254 µm, user replaceable, compatible with both manual tubes and loader carriers without changing tubing

Standard Fluidic Reservoirs
4L fluid container set with real-time, active level-sensing provided. Compatible with 20L sheath and waste cubitainers

Volumetric Sensor
Volumetric measurement during sample recording with in-line flow meter, which enables calculation of counts per µL for any gated population without the need for counting beads. Automated flow meter QC available to confirm proper operational status

Performance

Carryover
≤ 0.1% in manual tube mode

Nominal Acquisition Rate
Up to 35,000 events/sec

Maximum Acquisition Rate
> 60,000 events/sec

Fluorescence Performance

Fluorescence Sensitivity*
FITC: ≤ 5 MESF

PE: ≤ 4 MESF

APC: ≤ 3 MESF

Pacific Blue: ≤ 4 MESF

*Data averaged from multiple systems. Molecules of equivalent soluble fluorochrome (MESF) calculated based on unmixed data accounting for autofluorescence of the unlabeled bead

Fluorescence Linearity
FITC R2 ≥ 0.995 / PE R2 ≥ 0.995

Fluorescence Harmonization
Specified fluorescence-labeled beads provide similar positive-stained MFI +/- 15%

Scatter Performance

Forward Scatter Resolution
Performance is optimized for proportionally resolving lymphocytes, monocytes, and granulocytes reflecting their relative size

Side Scatter Resolution
Large dynamic range of scatter resolution using dual violet SSC and blue SSC (SSC-B) detectors. SSC detector capable of resolving small particles down to 70 nm polystyrene beads. SSC-B detector capable of resolving large cell lines

Preliminary Functional Specifications

Plate Loader

High-Throughput Speed
27 min* for 96-well plate

*Data averaged from multiple systems. Run in high-throughput mode (no agitation, no SIT flush) with 2 sec/well stopping criteria

Input Compatibility
96-well plate, 96-well deep well plate, 384-well plate, 40-tube rack (12 x 75 mm)

Plate Loader Carryover
Default Mode: ≤ 0.3%
Low Carryover Mode: ≤ 0.1%
High-Throughput Mode: ≤ 1.0 %

Software

SpectroFlo® Software

Developed with multicolor assays in mind

Streamlined workflows for experiment setup, data acquisition, and file export

Conventional compensation and spectral unmixing capabilities

Automated QC & Setup module

Live unmixing of samples during acquisition

Autofluorescence extraction and multiple autofluorescence explorer

FCS 3.1 data file standard

Tools for 21 CFR Part 11 compliance

Electronics

Signal Processing
Digital signal processing with automatic window gate adjustment

22-bit 6.5 log decades

Threshold using any single parameter or combination of parameters

Pulse Shape Parameters
Pulse area and height for every parameter. Width for scatter parameters and one fluorescence parameter for each laser

Startup And Shutdown
Automated, scheduled startup. Automated instrument shutdown after daily clean or plate run (with defined cleaning group)

Workstation

Computer Specifications
Operating System: Windows® 11 Pro 64-bit

Processor
Intel® Core™ i5-13500 processor or equivalent

RAM
64 GB

Hard Drive
1 TB SSD and 2 TB SSD (secondary)

Monitor
32" UHD 4K monitor

Installation Requirements
Dimensions (W x D x H)

Instrument Dimensions
66 x 60.1 x 60.1 cm (26 x 24 x 24 in)

Instrument Weight
95 kg (210 lb)*

*5-laser configuration

Recommended Workspace
165 x 76 x 142.2 cm (65 x 30 x 56 in)

Room Requirements

Power
100-140 VAC, 15A or 200-250 VAC, 10A

Heat Dissipation
500 W with all solid-state lasers

Temperature
15-28°C (59 - 82.4°F)

Humidity
20%-85% relative non-condensing

Air Filtering
No excessive dust or smoke

Lighting
No special requirements

Regulatory Status

Class 1 laser product.
For research use only. Not for use in diagnostic or therapeutic procedures

Technical Support

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For Research Use Only. Not For Use in Diagnostic Procedures.
For more information about our products and solutions, please visit www.cytekbio.com

This document reports preliminary technical specifications, final technical specifications will be confirmed upon completion of verification testing.

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