



CYTEK[®]
TRANSCEND THE CONVENTIONAL



CYTEK AURORA[™] CS SYSTEM

Technical Specifications

TECHNICAL SPECIFICATIONS

OPTICS

EXCITATION OPTICS

OPTICAL PLATFORM

Aurora CS system contains a fixed optical assembly with the capacity to be configured with up to five spatially separated laser beams. Laser delays are automatically adjusted during instrument QC

LASERS

Base model three-laser configuration:
405 nm: 100 mW, 488 nm: 50 mW, 640 nm: 80 mW

Available laser upgrades:
355 nm: 20 mW, 561 nm: 50 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 355 nm, 405 nm, 488 nm, 561 nm, 640 nm lasers

STANDARD OPTICAL CONFIGURATION

Violet detector module: 16 channels unevenly spaced bandwidth from 420-829 nm

Blue detector module: 14 channels unevenly spaced bandwidth from 498-829 nm

Red detector module: 8 channels unevenly spaced bandwidth from 652-829 nm

4 AND 5 LASER OPTIONS

Yellow-Green detector module: 10 channels unevenly spaced bandwidth from 567-829 nm

Ultraviolet detector module: 16 channels unevenly spaced bandwidth from 365-829 nm

FLUIDICS

SAMPLE FLOW RATES

Adjustable in increments of 7 $\mu\text{L}/\text{min}$ from 10 $\mu\text{L}/\text{min}$ to 80 $\mu\text{L}/\text{min}$

FLUIDIC MODES

Fluidics startup, fluidics shutdown, SIT flush, purge filter, clean flow cell, aseptic clean, sample return

SAMPLE INPUT FORMATS

12 x 75 mm or 15 mL polystyrene or polypropylene tube with sample mixing

FLUIDIC RESERVOIRS

10 L sheath and waste fluid containers with level-sensing provided. 3 L cleaning tank also included

END OF SAMPLE DETECTOR

An in-line end of sample detector detects air bubbles in the sample line. When air is detected, the sample line is pinched to prevent air from entering the flow cell

ELECTRONICS

SIGNAL PROCESSING

Digital signal processing with automatic window gate adjustment

22-bit 6.5 log decades

PULSE SHAPE PARAMETERS

Pulse area or height for every parameter

Width for scatter parameters and one fluorescence parameter for each laser

WORKSTATION

Workstation specifications may vary between laser configuration; below is for a three laser configuration

OPERATING SYSTEM

Windows® 11 Pro 64-bit

PROCESSOR

Intel® Core™ i7 (13th Gen) or equivalent

RAM

64 GB

HARD DRIVE

1 TB SSD and 2 TB SSD

MONITOR

Two 27" UHD 4K Monitors

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

FORWARD AND SIDE SCATTER RESOLUTION

Performance is optimized for resolving lymphocytes, monocytes, and granulocytes

SIDE SCATTER RESOLUTION

Capable of resolving 0.1 μm polystyrene beads from noise

CARRYOVER

$\leq 0.1\%$

DATA ACQUISITION RATE

25,000 events/s**

**Five laser system

FUNCTIONAL SPECIFICATIONS

SORT OUTPUT

SORT COLLECTION

Up to **2-way sorting**: 15 mL polystyrene and polypropylene tubes

Up to **6-way sorting**: 5 mL and 1.5 mL polystyrene and polypropylene tubes

96-well and 384-well plates with index sorting

Custom plate options available

NOZZLES

Quick-replace 70 and 100 μm nozzles with optimized and user definable pressure and sorter settings; 85 μm and 130 μm nozzles available on request

Up to 6-way sorting with any nozzle size

SORT MODES

Multiple optimized sort modes for purity, enrichment, mixed, and single cell plus user definable sort modes

Deposit 1 cell per well into 96 wells in less than 2 minutes and 384 wells in less than 5 minutes

TEMPERATURE CONTROL

4 to 37°C (39.2 to 98.6°F) for both sample input and output

BIO SAFETY

PRIMARY

Built-in aerosol management with user replaceable HEPA filters

SECONDARY

Optional Class II, Type A2 Biosafety Cabinet specifically designed for Cytek Aurora CS system and tested to major worldwide Biosafety Standards with sorter inside*

* Not manufactured by Cytek

SOFTWARE

SPECTROFLO® CS SOFTWARE

Live unmixing during acquisition and sorting

Sort on raw or unmixed data

Developed specifically to streamline assay setup, data acquisition, and file export

Automated QC module

Autofluorescence extraction

Manual and automated drop delay functionality

Default and customizable sort modes and nozzle settings

Sort collection tube volume monitoring and live view

Autogenerated sort reports

Raw and Unmixed FCS 3.1 files

REGULATORY

Class 1 Laser Product.
For Research Use Only. Not for use in diagnostic or therapeutic procedures

INSTALLATION REQUIREMENTS

Dimensions (W x D x H)

INSTRUMENT DIMENSIONS

75 x 57 x 65 cm (29.5 x 22.4 x 25.6 in)

INSTRUMENT WEIGHT

105 kg (231.5 lb)

BIO SAFETY CABINET DIMENSIONS

137 x 91 x 231 cm (53.9 x 35.8 x 90.9 in)

RECOMMENDED WORKSPACE

183 x 81 x 94 cm (72 x 31.9 x 37 in)

ROOM REQUIREMENTS

POWER

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

HEAT DISSIPATION

1000 W with all solid-state lasers

TEMPERATURE

Outside of Biosafety Cabinet: 18–28°C (64.4 – 82.4°F)

Inside Biosafety Cabinet: 18–26°C (64.4 – 78.8°F)

HUMIDITY

20%–85% relative non-condensing

AIR SUPPLY

551.5 to 586 kPa (80 to 85 PSI) clean dry air

AIR FILTERING

No excessive dust or smoke

LIGHTING

No special requirements

SORT PERFORMANCE

SORT PURITY

1%–2% population of lymphocytes using a 70 μm nozzle, mixed sort mode, and a system threshold rate of 20,000 events/second

Sort purity \geq 95% and sort yield is \geq 90% to theoretical yield

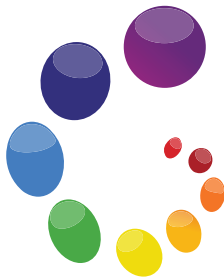
SORT GATES

Sort up to 6 populations up to 64 levels deep in the gating hierarchy

SORT FEATURE

Sort multiple populations into the same tube; up to 40 populations can be sorted across any combination of tubes





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