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
355 nm: 20 mW, 405 nm: 100 mW, 488 nm: 50 mW, 561 nm: 50 mW, and 640 nm: 80 mW

Available Optical Configurations
1-laser: 488 nm*
2-laser: 488 nm, 640 nm*
2-laser: 405 nm, 488 nm*
3-laser: 405 nm, 488 nm, 640 nm
4-laser: 405 nm, 488 nm, 561 nm, 640 nm
5-laser: 355 nm, 405 nm, 488 nm, 561 nm, 640 nm

*Only available in APAC and China

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 µL/min from 10 µL/min to 80 µL/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
≤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, 85, 100, and 130 µm nozzles with optimized and user definable pressure and sorter settings.

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

BIOSAFETY

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)

BIOSAFETY 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 ≥ 95% and sort yield is ≥ 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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For more information about our products and solutions, please visit www.cytekbio.com

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