CYTEK®
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Cytek® Northern Lights™-CLC Flow Cytometer

Advancing Clinical Flow Cytometry

Designed For High Performance And Maximum Lab Efficiency

The Cytek Northern Lights-CLC flow cytometer brings our proven Full Spectrum Profiling™ technology into the clinical laboratory. The unique optical design of the system and advanced unmixing algorithms incorporated in the software maximize efficiency, enabling laboratories to extract more data from a single tube and reduce both time and reagent use. State-of-the-art optics and electronics provide exceptional sensitivity and resolution across flow rates, while flat-top laser beam profiles and a precision-engineered fluidics system deliver outstanding performance at high sample flow rates, enabling faster and more reliable results without compromising performance.

Practical Innovation For The Clinical Lab

The Cytek Northern Lights-CLC flow cytometer paired with SpectroFlo® CLC software delivers tangible improvements to the clinical workflow. Featuring a customizable worklist, portable experiment templates, reusable reference controls, audit trails for experiment traceability, batch sample acquisition, and other efficiency-boosting tools streamline the clinical workflow.

With integrated instrumentation, software, and reagents, the Cytek team has reimagined the entire clinical workflow, providing complete, end-to-end solutions to meet your flow cytometry diagnostic needs.

Features:



Full Spectrum Profiling Technology For Unmatched Performance

Advanced full spectrum technology with state-of-the-art optics and low-noise electronics delivers high sensitivity and exquisite resolution to clearly identify dim and rare populations, even in high-complexity panels



More Insights With Less Sample

Gain comprehensive clinical insights with less samples and fewer tubes, allowing you to save reagents, preserve previous samples, reduce acquisition time, and lower overall operating costs



Intuitive, Standardized Software

SpectroFlo CLC software enables seamless instrument standardization and effortless experiment transfer across different systems, ensuring consistency and supporting reproducibility

Electronics

- Low-noise electronics improves resolution of dim signals

Lasers

- Flat-top excitation optics for consistent data across all flow rates

Detectors

- High efficiency detectors for high quality multi-dimensional data



Fluidics

- Robust vacuum fluidics enabling flexibility of sample inputs and carriers

Loader

- Sample loader compatible with 40-tube racks, 96-well plates, and 96-well deep well plates

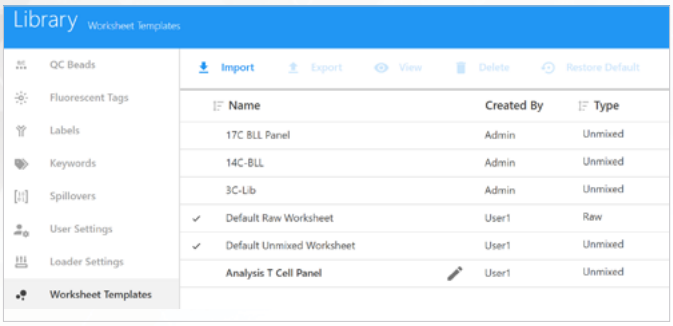


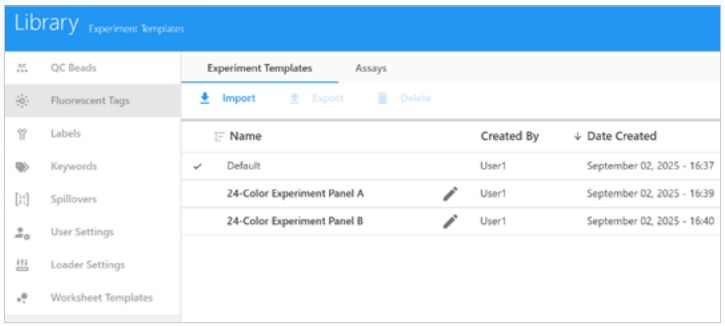
Software

- Customizable worklist for automating routine assays
- Automated Daily QC
- Reference control library
- Administrative defined user levels
- Audit trail logs

Portable Experiment And Worksheet Templates

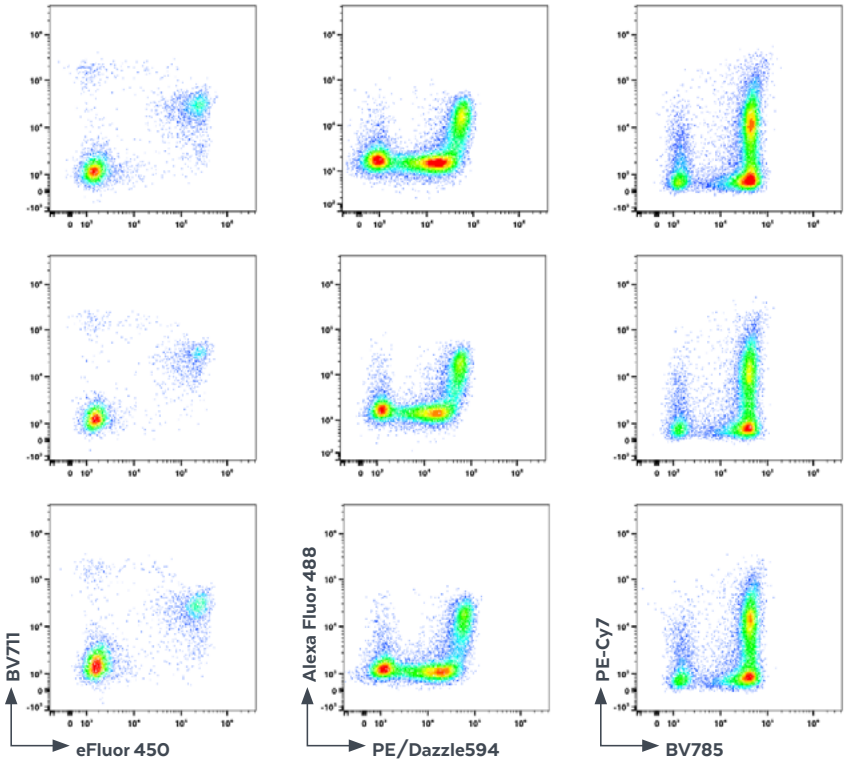
Experiment and worksheet templates are designed to be portable within the SpectroFlo CLC software. Users can easily transfer templates to other Cytek Northern Lights-CLC workstations, ensuring consistency across instruments. Template portability makes it easier to deploy experiments across multi-site laboratories.





Reference Control Stability And Reusability

Enhanced system stability enables reference controls to be acquired, stored in the reference control library, and reused for future assays. Stored reference controls are automatically adjusted by Daily QC to maintain consistent assay performance across time, effectively eliminating the need to run single color controls with every experiment.



Experiment Workflow With SpectroFlo CLC Software



From The Acquisition Menu, You Can Start A New Experiment And Get To Your Data In Four Simple Guided Steps

Create Your Experiment

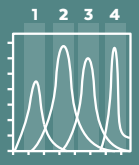
Create your experiment, choose fluorochromes, add labels, define carrier type, create worksheets, and add stopping criteria in a guided workflow

Acquire Your Samples

Load and acquire your controls and samples

Unmix Your Data

Visualize your reference control spectra and unmix your data with the unmixing wizard



Analyze Your Unmixed Data

Create an analysis worksheet and save it as a template to reuse and share

Technical Specifications

Optics

Excitation Optics

Optical Platform
The Cytek Northern Lights-CLC system contains a fixed optical assembly configured with one to three spatially separated laser beams. Laser delays are automatically adjusted during instrument Daily QC

Lasers
1-Laser Configuration:
488 nm: 50 mW

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

405 nm: 100 mW, 480 nm: 50 mW

3-Laser Configuration:
405 nm: 100 mW, 488 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

*405 nm side scatter only applies to systems with the violet 405 nm laser.

Fluorescence Detectors
Proprietary high sensitivity Spectrum Profile Detection Module per laser enables more efficient spectrum capture in the 420-829 nm range. No filter changes required for any fluorochrome excited by the onboard lasers (i.e., 405 nm, 488 nm, 640 nm lasers)

Fluorescence Detector Configurations
Violet (405 nm) detector module (available on select configurations): 16 channels unevenly spaced bandwidth from 420-829 nm

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

Fluidic Modes
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

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 enables calculation of counts per µL for any gated population

Plate Loader

High Throughput Speed
27 min for 96-well plate

Input Compatibility
96-well plate, 96-deep 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%

Performance

Carryover
≤ 0.1% in manual tube mode

Data Acquisition Rate
Up to 35,000 events/sec*

*Three-laser system

Scatter Performance

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

Side Scatter Resolution
Capable of resolving 0.2 µm beads from noise

Software

SpectroFlo CLC Software

Live unmixing of samples during acquisition

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

Automated Daily QC module

Autofluorescence extraction

Raw and Unmixed FCS 3.1 data files

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

Workstation

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

Processor
Intel® Core™ i7 processor or equivalent

RAM
16 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
Without Loader: 54 x 52 x 52 cm
(21.3 x 20.5 x 20.5 in)

With Loader: 58 x 62 x 52 cm
(22.8 x 24.4 x 20.5 in)

Instrument Weight
Instrument Weight (3 lasers): 61 kg (134.5 lbs)

Loader Weight: 13 kg (28.7 lbs)

Recommended Workspace
165 x 76 x 132 cm (65 x 30 x 52 in)

Room Requirements

Power
110-140 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

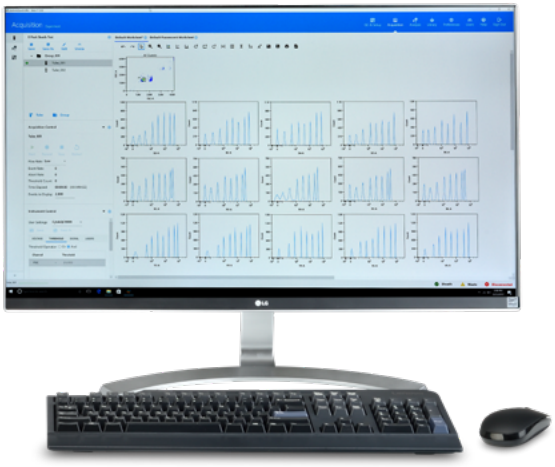
Lighting
No special requirements

Regulatory Status

The Cytek Northern Lights-CLC flow cytometer is intended for use as an in vitro diagnostic device in countries where the regulatory approval has been obtained from the local regulatory authorities, and is currently available for clinical use only in China and the European Union.

Please check with your sales representative for local status





Ordering Information

Description	Part Number
Cytek Northern Lights-CLC 1000 System	N7-00071
Cytek Northern Lights-CLC 2000 B-R System	N7-00072
Cytek Northern Lights-CLC 2000 B-V System	N7-00073
Cytek Northern Lights-CLC 3000 B-V-R System	N7-00074
SpectroFlo® QC Beads (IVD)	B7-20002
Sheath Fluid (30X)	TNB-4600-L600

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