



Where Light Meets Life™

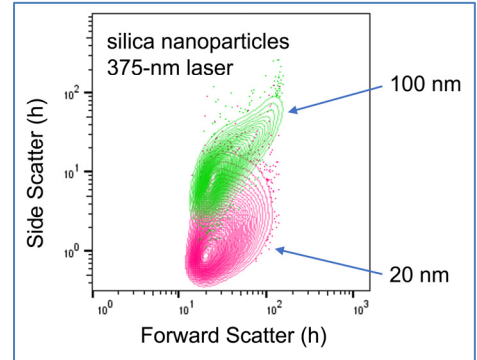
Delaware

Flow NanoCytometer™

Tech Notes*

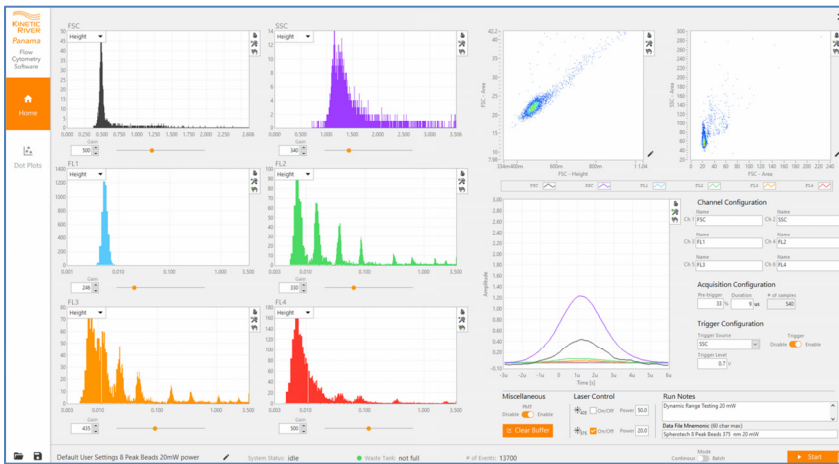
*Preliminary data as of May 2022

Detection and characterization of sub-micron entities, including extracellular vesicles (EVs) and tumor-derived exosomes, represents an important next frontier in both research and clinical applications. These nanoparticles produce exceedingly small scattering and fluorescent signals which standard commercial flow cytometers cannot detect. Even systems designed to address this application have, thus far, fallen short, creating an unmet and growing demand for a nanoparticle analysis system with suitable usability and throughput.



Silica nanoparticles run on the Delaware

We designed and developed the Delaware Flow NanoCytometer specifically to meet the demanding needs of nanoparticle researchers, providing sensitive detection and characterization of biological and non-biological nanoparticles. Based on our modular, customizable Potomac architecture, the system incorporates design modifications specifically intended to enhance nanoparticle sensitivity without compromising throughput.



The Panama software for instrument control and data visualization

The Delaware's high-power lasers provide up to five excitation wavelengths (375, 405, 488, 532, and 640nm) and a proprietary high-NA collection lens delivers maximum sensitivity. The system offers two scattering channels and up to eight fluorescence detection channels. The Delaware features Kinetic River's Shasta fluidic control system for ultrastable sheath flow and superior core stream control. The Cavour always-on flowcell monitor allows you to optimize laser alignment and core stream dimensions in real-time without removing the cover. The entire system is

operated using our intuitive, easy-to-use Panama flow cytometry software for instrument control and data visualization, providing researchers with the flexibility their cutting-edge research requires.

This carefully-crafted instrument provides better than 50-nm sensitivity (with silica nanoparticles) to meet some of the most demanding applications. The Delaware Flow NanoCytometer combines ease of use with advanced nanoparticle sensitivity to offer users a powerful new tool for exosome and ECV research.

The Delaware – see what you've been missing.

The Delaware, or use thereof, may be covered in whole or in part by patents in the U.S. and other jurisdictions. A current list of applicable patents can be found at <https://www.kineticriver.com/kinetic-river-corp-patents>.





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Preliminary Specifications*

* as of May 2022

Excitation Optics

Standard laser options:

- 375 nm (70 mW)
- 405 nm (500 mW)
- 488 nm (300 mW)
- 532 nm (50 mW)
- 640 nm (25 mW)

Custom laser options (powers vary from 30 – 500 mW):

- 266, 350, 395, 420, 445, 460, 473, 505, 515, 561, 591/594, 633, 660, 685, 705, 730, 750, 785, 830, 850 nm

Emission Optics

Scattering channels:

- FSC: customizable
- SSC: 90°, 1.25 NA

Fluorescence channels:

- up to 8 channels
- customizable bandpass selections

Detectors:

- all PMTs

Fluidics

Dual hydrostatic pressure injection option:

- 8-L sheath capacity, pressure up to 10 psig
 - Sample injection speed:
 - option A: variable 0.2 – 20 µL/min*
 - option B: variable 2 – 200 µL/min*
- * higher and lower custom rates available

Signal Processing

Data formatting:

- CSV files (directly importable into FlowJo, FCS Express)

Performance

Sensitivity (405-nm excitation, 466/40-nm channel):

- BV421 ≤ 80 MESF (est.)
- 8/8 Spherotech Rainbow bead peaks

Nanoparticle detection (375-nm excitation, FSC/SSC):

- 50-nm Alpha Nanotech colloidal silica

Resolution (375-nm excitation):

- FSC CV 2% (ThermoFisher W500CA beads)
- FL CV 4% (G1 peak)

Throughput: 10,000 events/s (typ.)

Installation Requirements

Dimensions:

- 36" x 20" x 23" (W x D x H)
- (monitors, sheath and waste tanks separate)

Weight:

- 175 lbs. (5-laser, 5-detector system; monitors, sheath and waste tanks separate)

Environmental:

- 15°–30°C, 60% RH

Power:

- North America: 120 VAC, 50/60 Hz, 8A
- Japan: 100 VAC, 50/60 Hz, 8A
- Rest of world: 230 VAC, 50/60 Hz, 5A

