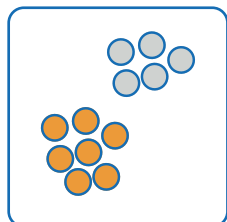
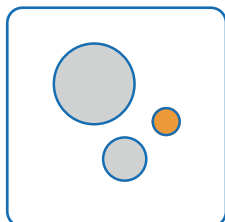


# ZetaView®

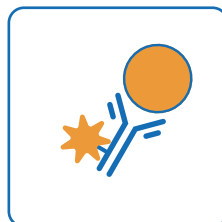
Nanoparticle Tracking Analyzer



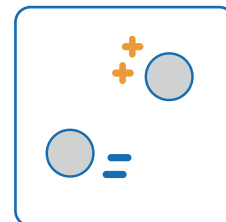
Concentration



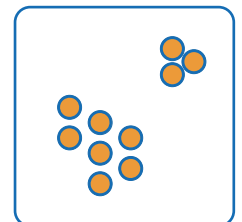
Size



Fluorescence



Zeta Potential



Subpopulations



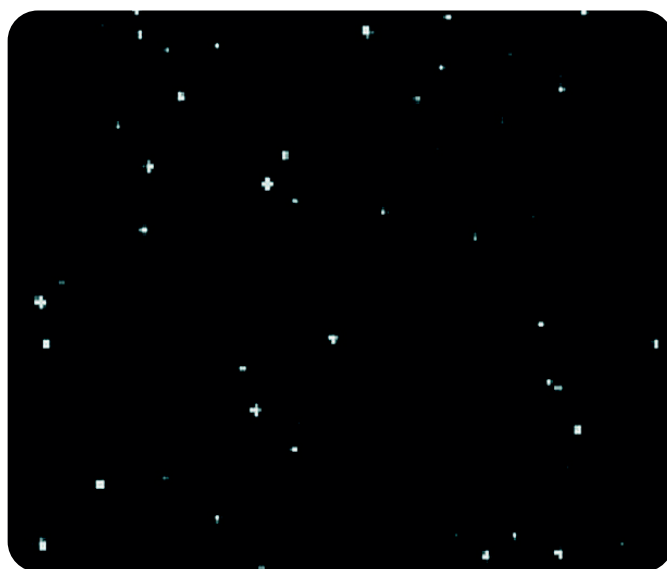
# ZetaView®

## Nanoparticle Tracking Analyzer

ZetaView® is a nanoparticle tracking analysis (NTA) instrument for measuring hydrodynamic particle size, zeta potential and concentration.

### Key Features & Benefits

- ★ **Scanning NTA** – automated measurements are taken at 11 positions through the sample cell, providing a thorough and robust interrogation of samples, without need for additional accessories.
- ★ **Auto-alignment & auto-focus** – the optical setup is automatically optimized by the software, saving the user time preparing the instrument for use and removing subjective user input bias.
- ★ **Fast measurements** – analysis of over 2,000 particles in as little as 60 seconds.
- ★ **Quick and simple cleaning** – cleaning between samples requires only a quick flush.
- ★ **Intuitive software** – traffic-light system gives an instant indication of whether the sample is at a suitable concentration for measurement and indicates the dilution factor of the sample.
- ★ **Compact all-in-one design** – measure size, concentration, zeta potential and fluorescence with one instrument. Compatible with the laboratory environment; small footprint and data files.
- ★ **Fluorescence analysis** – fluorescence NTA measurements allow interrogation of subpopulations in the sample. A sensitive CMOS camera, selective filters, and low bleaching performance yield high fluorescence sensitivity.
- ★ **No high-cost consumables** – just syringes and reference standards for scattering and fluorescence measurements (if applicable).
- ★ **No calibration** – size measurements do not need to be calibrated as the method is absolute.



The 10x objective of the ZetaView allows analysis of up to 400 particles in the field of view – yielding superior concentration results.

### Key Applications

- **Bio-nanoparticles:**
  - Extracellular Vesicles (EVs)
  - Exosomes
  - Liposomes & Micelles
  - Protein Agglomerates
  - Viruses & Virus-Like-Particles (VLPs)
  - Drug Delivery
  - Fluorescent-labelled NPs
- **Low Concentration Samples:**
  - Nanobubbles
  - Trace Particles

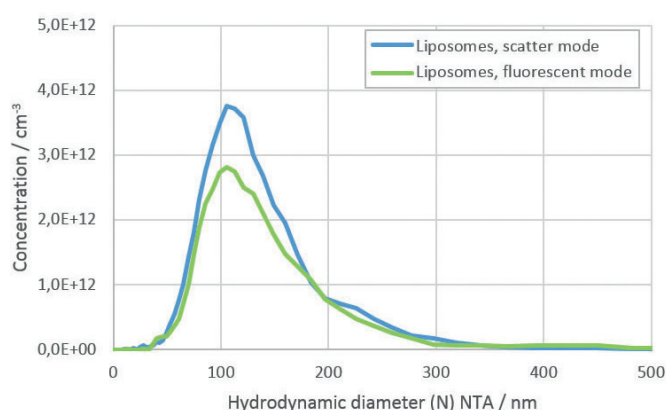


## ZetaView and Fluorescence (F-NTA)

With NTA, particles are viewed by detection of the light they scatter. Due to the physical nature of this detection method, a chemical discrimination is not provided. In order to add specificity to particle characterization, Fluorescent Nanoparticle Tracking Analysis (F-NTA) can be employed.

Nanoparticles such as vesicles can be labelled with a specific antibody bearing a fluorescent molecule (fluorophore). ZetaView® has a LWP filter option to block scattered light from the laser, allowing through only fluorescence of a longer wavelength, generated by excitation of the fluorophores by the laser. As a result, only the fluorescent-labelled particles will be detected and measured by the camera.

### Example - Characterisation of Liposome Staining Efficiency using F-NTA



In this example, liposomes were stained with the membrane dye DiO and then characterized in both scattering and fluorescence mode. In fluorescence mode, the laser light is blocked, allowing only fluorescent light from the stained liposomes to be detected. Therefore, only the labelled liposomes appear and we are able to calculate the proportion of particles successfully stained as 79% of the total.

The ZetaView® is now available as a two laser TWIN and a four laser QUATT model, giving users a choice of two or four excitation wavelengths for fluorescent labelling. Up to four different fluorophores can therefore be used on the same sample, for identification of different sub-populations.

[Please ask for details](#)

## Zeta Potential (Z-NTA)

ZetaView® uses nano-electrophoresis to calculate zeta potential; a measure of particle surface charge. Zeta potential distribution is calculated from the electrophoretic mobility results at the two stationary layers in the sample cell, or from an electrokinetic velocity profile obtained by scanning at all 11 positions throughout the sample cell.

Zeta potential provides information about the surface chemistry of a particle. As a general rule, the higher the magnitude of zeta potential, the more particles repel each other in solution and remain stable. It is therefore of interest with respect to agglomeration and stability. ZetaView® is available with two interchangeable cell assemblies – with and without zeta potential functionality.



## ZetaView® Standard Technical Data

For more details please see separate datasheet

### Measurement Principles

- ★ Precision-engineered motorized scanning NTA instrument for tracking movement of individual visualized nanoparticles in suspension
- ★ Real-time visualization of Brownian Motion and electrophoretic mobility, for measuring size, concentration and zeta potential in scattering and fluorescence mode (model dependent)
- ★ Fast scanning to acquire and analyze typically 2000 particles in less 1 minute

### Samples

- ★ Nanoparticles suspended in polar liquids (e.g. water, alcohols) for size, concentration, fluorescence and zeta potential studies
- ★ Nanoparticles suspended in polar and organic solvents for size, concentration and fluorescence studies

### Size / Concentration

- ★ Concentration range:  $10^5 - 10^9$  particles/ml
- ★ Particle size: 10nm – 2000nm (dependent on sample & laser)
- ★ Accuracy:  $\pm 5$ nm (for 100nm polystyrene latex)
- ★ Reproducibility:  $\pm 2$ nm (for 100nm polystyrene latex)

### Lasers

- ★ Available laser wavelengths: 405nm, 488nm, 520nm, 640nm, 660nm at typical laser power of >30 mW
- ★ Pulse duration 0.1 ms up to continuous

**For more information on the ZetaView®, or to discuss your requirements, please contact us.**

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