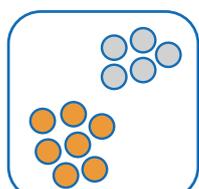
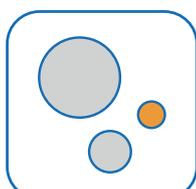


ZetaView®

Nanoparticle Tracking Analyser



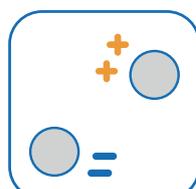
Subpopulations



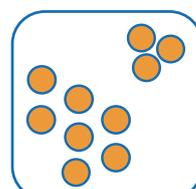
Size



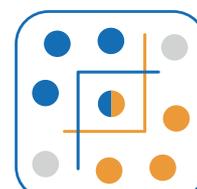
Fluorescence



Zeta Potential



Concentration



Colocalization

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 optimised 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. The fixed cell design allows very quick access to the measuring cell with a bayonet lock.
- ✓ **Intuitive software** – traffic-light system gives an instant indication of whether the sample is at a suitable concentration for measurement and what the dilution factor of the samples is.
- ✓ **Compact all-in-one design** – compatible with the laboratory environment; small footprint and data files. Measure size, concentration, zeta potential and fluorescence with one instrument.
- ✓ **Fluorescence analysis** – fluorescence NTA measurements allow interrogation of sample sub-populations. A sensitive CMOS camera, up to 11 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 600 particles in the field of view – yielding superior concentration results.

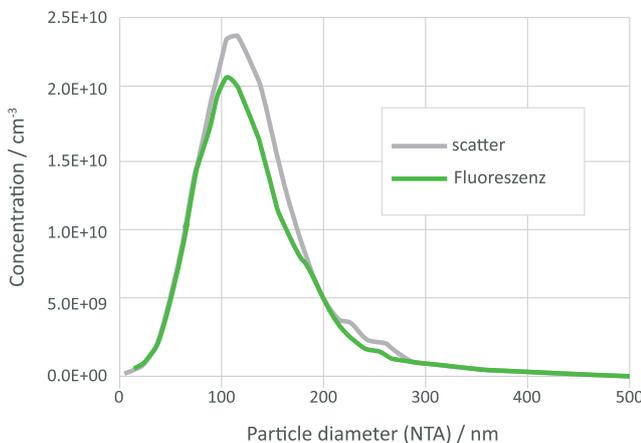
Key Applications

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

ZetaView and Fluorescence (F-NTA)

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

Nanoparticles such as biological 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 EVS using F-NTA

In this example, lyophilized EVs were stained with the membrane dye Cell Mask™ Green and then characterized in both scatter and fluorescence mode. In fluorescence mode, the laser excitation light is blocked, allowing only fluorescent emission light from the stained EV to be detected. Therefore, only the fluorescently labelled EVs appear. As ZetaView® measures both scatter and fluorescence signal, the proportion of successfully stained particles can be easily calculated.

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

Please ask for details

ZetaView and Zeta Potential measurement using Electrophoretic Motion Tracking (EMT)

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 in two configurations - with and without zeta potential functionality.

Zetaview® Standard Technical Data

For more details please see separate datasheet

Measurement Principles

- Precision-engineered motorised scanning NTA instrument for tracking movement of individual visualised nanoparticles in suspension
- Real-time visualisation 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 analyse typically 2000 particles in less than 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

Colocalization

- Colocalization of two biomarkers plus scatter channel

Size / Concentration

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

Lasers

- Available laser wavelengths: 405nm, 488nm, 520nm, 640nm, 660nm at typical laser power of >30 mW

For more information on the ZetaView®, or to discuss your requirements, please contact us on 01954 232 776

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ZetaView® Multi-laser TWIN/QUATT Systems

Multi-Fluorescence Nanoparticle Tracking Analysers



Further expanding the versatility of the ZetaView® system, Particle Metrix offers multi-wavelength fluorescence-NTA with the two laser **ZetaView® TWIN** and four laser **ZetaView® QUATT**.

Upgradable from one to four lasers, changes between 405, 488, 520 or 640nm excitation lasers and between scattering and fluorescent modes are automated. The movement and patterns of particles emitting scattered or fluorescent light are recorded in standard NTA or in Z-NTA surface charge electrophoresis mode and the new design of the PMX-x30 family, with fixed cell assembly, combines enhanced performance and reliable, error free measurements with simplicity and fast and easy instrument cleaning.



Key Applications

- Extracellular Vesicles
- Multi-fluorescent Nanoparticles
- Nanobubbles
- Vesicles
- SPIONs
- Viruses & Virus-like Particles
- Quantum-dots

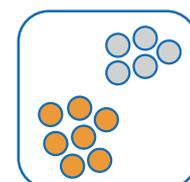
Key Features & Benefits

- ✓ **Concentration and size measurement of biomarker conjugated nanoparticles in fluorescence**

Up to 4 simultaneously built-in high-performance excitation lasers and a supersensitive CMOS camera in combination with 11 different fluorescence emission filters, short illumination times and anti-bleach technology makes ZetaView® F-NTA a powerful tool for seeing small vesicles and other nanoparticles even in fluorescence.

- ✓ **2 in 1 - Surface charge Z-NTA and fluorescence F-NTA**

Both parameters, surface charge by Electrophoretic Motion Tracking (EMT) and fluorescent signals by F-NTA react on molecules, which may be conjugated to the surface. This option of combining F-NTA and Z-NTA in ZetaView® is unique. Optional sub-population analysis may deliver additional information.



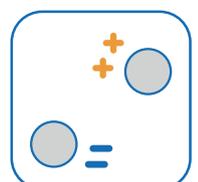
Subpopulations



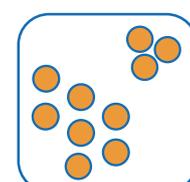
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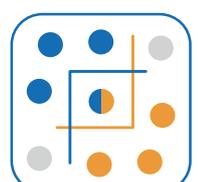
Fluorescence



Zeta Potential



Concentration

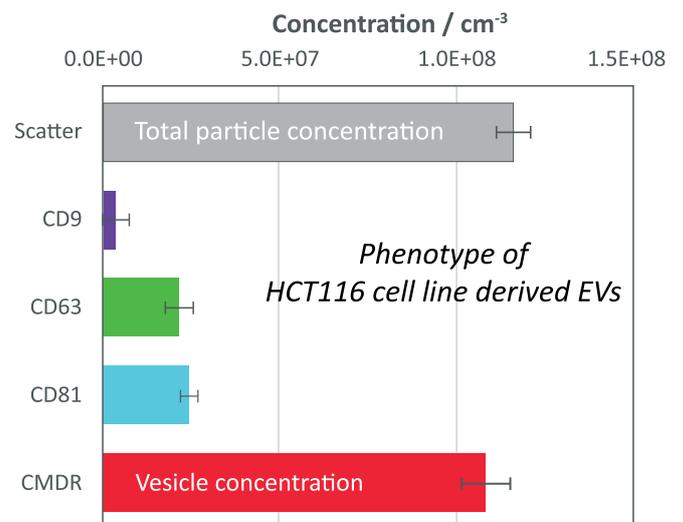
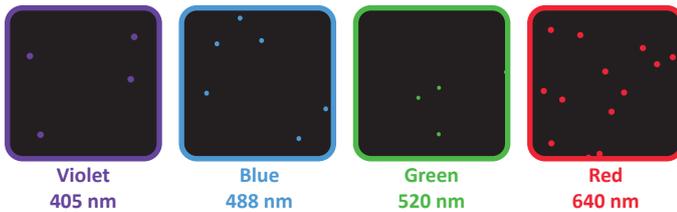


Colocalization

Available ZetaView® Models

For more details please see instrument datasheets

- PMX-130 MONO Laser ZetaView®
- PMX-230 TWIN Laser ZetaView®
- PMX-430 QUATT Laser ZetaView®



For more information on the ZetaView® TWIN or ZetaView® QUATT, or to discuss your requirements or upgrade options, please contact us.

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