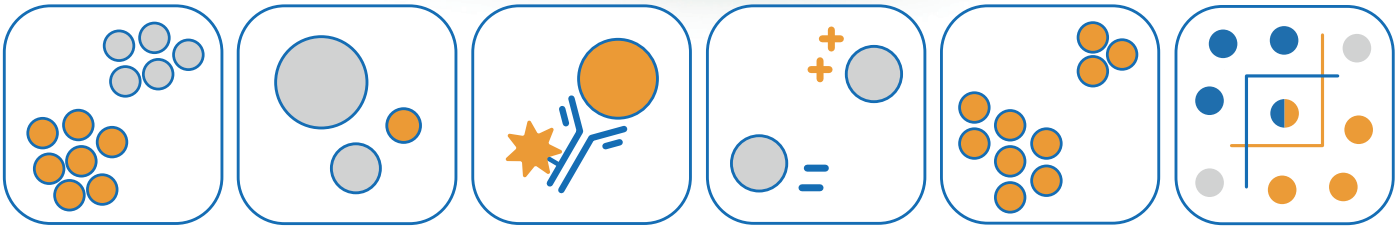
ZetaView® QUATT

Technical Data



Technical Data:

PMX-430 ZetaView QUATT Laser

General Features

Measurement Principle	• Precision-engineered motorized scanning Nanoparticle Tracking Analysis (NTA) instrument for tracking the movement of individual visualized nanoparticles in suspension • Real-time visualization of Brownian Motion and Electrophoretic Mobility, for measuring size, concentration and zeta potential in scatter and fluorescence mode • Four simultaneous aligned and software-controlled lasers for enhanced fluorescence measurements • Software controlled 11-position fluorescence emission filter wheel for quick changes between scatter and fluorescence measurements as well as between different emission filters • Fast scanning to acquire and analyze typically 2000 particles in less than one minute • Two software-controlled pumps for liquid transport and sample dosing
Samples	• Nanoparticles suspended in polar liquids and organic solvents (e.g. water, biological buffers, alcohols) for size, concentration, fluorescence and zeta potential studies*

Hardware

Equipment	• ZetaView® PMX-430 QUATT Laser main unit is equipped with a fixed NTA cell assembly, four simultaneous aligned lasers (see section Lasers) and bottles for buffer rinse • Two software-controlled pumps for liquid transport and sample dosing • Power of statistics by automated unique scan and dose control for measurement of 1 - 100 independent sub volumes • Zeta potential option* • Software controlled double fluorescence option features short acquisition times to avoid negative effect of photo bleaching
Optical Layout	• 90° laser scattering video microscope with x10 magnification for maximized sample volume and highest statistics • Automated alignment and focusing of laser and microscope
Camera	• High sensitive CMOS camera 640 x 480 pixels • Variable frame rate from 2 to 60 Hz for optimum resolution and fast acquisition
Lasers	• Special QUATT Laser design with 405 nm / 488 nm / 520 nm / 640 nm quadruple excitation laser at typical laser power of >30 mW per laser • Pulse duration each laser 0.1 ms up to continuous
Fluorescence	• Software controlled, automated 11 position filter wheel with four long-pass fluorescence emission filters (LWP) with cut-off at 430 nm / 500 nm / 550 nm / 680 nm • Customized LWP and bandpass filter available on request
Cleaning	• Tool-free access to glass cuvette for quick and simple cleaning process • Cell cleaning recommended weekly or monthly depending on sample type and usage • Cleaning kit and spare parts included in delivery
Temperature Range/Control	• Working external temperature range: 5°C to 45°C • Sample temperature control: Peltier temperature control from RTP-5°C to 55°C with automated dew-point sensing

* With zeta potential option

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Computer System

Control Device	• Intel® NUC Mini PC • 500 GB SSD hard drive • Windows 10 Professional • Maclean holder for mounting computer at backside of screen • Keyboard and mouse
Monitor	• 24'' LED screen (or better)

Software

Communication	• Software provided on pre-configured PC, communication via Ethernet
Quality Control	• Cell quality check, daily performance check, outlier control with automatic Grubbs statistical analysis of measurement data
Live Monitoring	• Number of detected particles in scatter and fluorescence mode, scattering intensity, conductivity*, temperature, particle drift
Standard Operating Procedures (SOP)	• Fully-customizable SOPs for different samples/applications
Analysis and Reports	• Data Analysis in scatter and / or fluorescence mode: particle size distribution profiles, concentration, overlays and averaging, scatter plots, zeta potential distribution profiles, sub-population analysis • Data export format: AVI, TXT, CSV, FCS, PDF reports containing key results
ZetaNavigator Software**	• Live monitoring of particle size distribution • Colocalization feature

Measurement Specifications

Size/Concentration	• Concentration range:	10^5 – 10^9 particles/ml
	• Particle size:	10nm – 1000nm (dependent on sample and laser selection)
	• Accuracy:	±5nm (for 100nm polystyrene latex)
	• Reproducibility:	±2nm (for 100nm polystyrene latex)
Fluorescence	• Concentration range:	10^5 – 10^9 particles/ml
	• Particle size:	20nm – 1000nm (dependent on Fluorescent dye and laser selection)
	• Accuracy:	±5nm (for 100nm polystyrene latex)
	• Reproducibility:	±2nm (for 100nm polystyrene latex)
Zeta Potential*	• Working range:	-500 to +500mV
	• Concentration range:	10^6 – 10^{10} particles/ml
	• Particle size:	20nm – 5000nm (dependent on sample and laser selection)
	• Conductivity range:	3µS/cm – 15mS/cm
	• Accuracy:	±4mV (zeta potential standard)
	• Reproducibility:	±2mV (zeta potential standard)
General	• Minimum sample quantity:	500µl of sample at 10^5 particles/ml
	• pH range:	1 – 13
	• Temperature:	5°C to 45°C (external temperature)
	• Sample volume visualised and tracked by the camera for a single measurement: 11 x 3.3 nL	
Reference Materials	• Nominal 100 nm reference suspension for size • Four nominal 100 or 200 nm reference suspensions for fluorescence • Nominal -50mV reference suspension for zeta potential*	

* With zeta potential option, ** With colocalization option

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Dimensions

Physical	• Footprint (W x D x H): 20 x 30 x 25cm • Weight: 8.5 kg (main unit, PC and monitor extra) • Shipping box with standard content: Main unit: 62 x 51 x 47cm; 16,7 kg to 18,5 kg* Minimum 24'' Monitor: 67 x 19 x 39cm; 6,12 kg
Electrical	• 90-240V, 47-63Hz, 50VA

Warranty & Support

Warranty	• 1 year (glass excluded)
Service & Support	• Reaction time: 48 hours • Maintenance, service and IQ/OQ contracts can be purchased on request • Support via telephone, e-mail and remote desktop software • Software for trained users free of charge during warranty period • Training courses for new users available on demand • Special arrangements and specifications can be purchased on request – quotation required

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Innovation paired with cooperative spirit

* With zeta potential option