

PMX 120 Scanning ZetaView® & PMX 121 Laser Module

Standard Technical Data (availability depending on selected modules)

General Features

Measurement Principle:	<ul style="list-style-type: none"> ● 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 scattering and fluorescence mode. ● Fast scanning to acquire and analyze typically 1000 particles in ~ 1 minute ● Pumps for flushing and sub-dosing
Samples:	<ul style="list-style-type: none"> ● Particles suspended in polar liquids (e.g. water, alcohols) for size, concentration, fluorescence and zeta potential studies* ● Particles suspended in polar and organic solvents for size, concentration and fluorescence studies

Hardware

Equipment:	<ul style="list-style-type: none"> ● ZetaView® PMX-120 main unit is equipped with Cell Assembly, laser (see section Lasers) and bottles for buffer rinse ● Power of statistics by automated unique scan and dose control for measurement of 1 - 100 independent sub-volumes ● Zeta potential option (Z-NTA) ● Fluorescence option features short acquisition time to avoid negative effect of photo bleaching ● Additional excitation wavelengths for fluorescence by PMX-121 Laser Module (can only be combined with PMX-120 main unit)
Optical Layout :	<ul style="list-style-type: none"> ● 90° laser scattering video microscope with x10 magnification ● Automated focusing of laser and microscope
Lasers:	<ul style="list-style-type: none"> ● Available laser wavelengths: 405 nm, 488 nm, 520 nm, 660 nm at typical laser power of >30 mW ● Pulse duration 0.1 ms up to continuous
Camera:	<ul style="list-style-type: none"> ● Sensitive CMOS camera 640 x 480 pixels ● Variable frame rate from 1 to 60 Hz for optimum resolution and fast acquisition
Fluorescence Filters:	<ul style="list-style-type: none"> ● Long wave-pass (LWP) cut-off filters: @405 nm: 430 nm @488 nm: 500 nm @520 nm: 550 nm @660 nm: 680 nm ● Bandpass filter available on request
Cell Assemblies:	<ul style="list-style-type: none"> ● <u>NTA</u> – slide-in assembly for size, concentration and fluorescence measurements in aqueous and organic solvents ● <u>X-NTA</u> – as NTA, for isolating samples from contact with others ● <u>Z-NTA</u> – as NTA, plus equipped for zeta-potential experiments; incorporated fluidic system with pumps for 2 different liquids/buffers – for rinsing and sub-dosing experiments, electrical field sensing
Cleaning:	<ul style="list-style-type: none"> ● Cell cleaning recommended weekly – cell resistant to >1000 brush cleanings ● Cleaning of driver electrodes required after 1000 zeta potential runs* ● Cleaning kit and basic replacement parts included in delivery

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Temperature Range/Control:	<ul style="list-style-type: none"> ● Working external temperature range: 5°C to 45°C ● Sample temperature control: Peltier temperature control from RTP-5oC to 55oC with dew-point sensing
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Software

Communication:	<ul style="list-style-type: none"> ● Software provided on pre-configured PC, communication via Ethernet
Quality Control:	<ul style="list-style-type: none"> ● Cell quality check, daily performance check, outlier control with automatic Grubbs statistical analysis of measurement data
Live Monitoring:	<ul style="list-style-type: none"> ● Number of detected particles, concentration, scattering intensity, conductivity*, temperature, particle drift
Standard Operating Procedures (SOP):	<ul style="list-style-type: none"> ● Fully customisable SOPs for different samples/applications
Analysis and Reports:	<ul style="list-style-type: none"> ● Data Analysis: particle size distribution profiles, concentration, overlays and averaging, scatter plots, zeta-potential distribution profiles, sub-population analysis (using additional 'Particle Explorer' software) ● Data export format: AVI, TXT, CSV, FCS ● PDF reports containing key results

Measurement Specifications

Size/ Concentration:	<ul style="list-style-type: none"> ● Concentration range: 10⁵ – 10⁹ particles/ml ● Particle size: 10nm – 1000nm (dependent on sample and laser selection) ● Accuracy: ±5nm (for 100nm polystyrene latex) ● Reproducibility: ±2nm (for 100nm polystyrene latex)
Zeta Potential*:	<ul style="list-style-type: none"> ● Working range: -500 to +500mV ● Concentration range: 10⁶ – 10¹⁰ particles/ml ● Particle size: 20nm – 5000nm (dependent on sample and laser selection) ● Conductivity range: 3µS/cm – 15mS/cm ● Accuracy: ±4mV (for alumina zeta potential standard) ● Reproducibility: ±2mV (for alumina zeta potential standard)
General:	<ul style="list-style-type: none"> ● Minimum sample quantity: 500µl of sample at 10⁵ particles/ml ● pH range: 2 – 12 ● Temperature: control: 5°C below room temperature to 45°C (external temperature) ● Sample volume visualised and tracked by the camera for a single measurement: 11 x 3nL
Reference Materials:	<ul style="list-style-type: none"> ● Nominal 100nm reference suspension for size ● Nominal +50mV reference suspension for zeta potential*

Dimensions.

Physical:	<ul style="list-style-type: none"> ● Footprint (W x D x H): 20 x 30 x 25cm ● Weight: 8.5kg (main unit, PC extra) ● Shipping box with standard content: 48 x 62 x 63cm; 22kg
Electrical:	<ul style="list-style-type: none"> ● 90-240V, 47-63Hz, 50VA

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Warranty & Support

Warranty:	<ul style="list-style-type: none">● 1 year (glass excluded).
Service & Support:	<ul style="list-style-type: none">● Reaction time 48 h.● Maintenance, Service and IQ/OQ/PQ contracts on demand.● Support per telephone and TeamViewer for the initially trained persons free of charge during the warranty period.● Training courses for new personnel or groups on demand.● Special arrangements and specifications available on demand – quotation required

** With 'Z-NTA' cell assembly only.*

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Manufactured by Particle Metrix, distributed in the UK and Ireland by **analytik**.