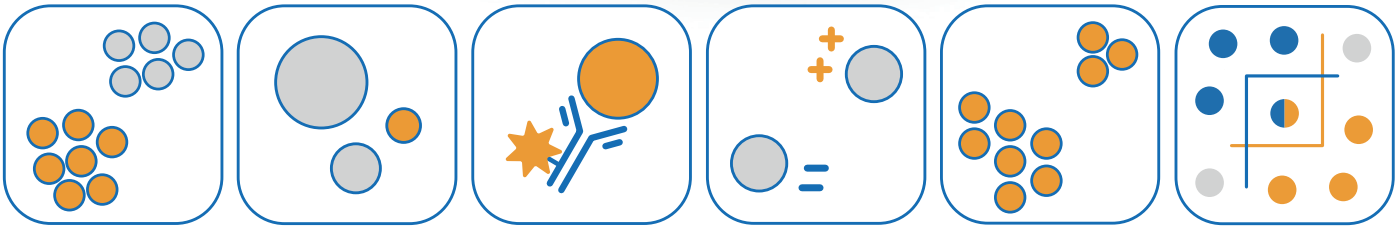
# ZetaView® TWIN

## Technical Data

# Technical Data:
# PMX-230 ZetaView TWIN Laser

## General Features

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| **Measurement Principle** | • Precision-engineered motorized scanning Nanoparticle Tracking Analysis (NTA) instrument for tracking the movement of individual visualized nanoparticles in suspension<br>• Real-time visualization of Brownian Motion and Electrophoretic Mobility, for measuring size, concentration and zeta potential in scatter and fluorescence mode<br>• Two simultaneous aligned and software-controlled lasers for enhanced fluorescence measurements.<br>• Software controlled 11-position fluorescence emission filter wheel for quick changes between scatter and fluorescence measurements as well as between different emission filters<br>• Fast scanning to acquire and analyze typically 2000 particles in less than one minute<br>• 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

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| **Equipment** | • ZetaView® PMX-230 TWIN Laser main unit is equipped with a fixed NTA cell assembly, two simultaneous aligned lasers (see section Lasers) and bottles for buffer rinse<br>• Two software-controlled pumps for liquid transport and sample dosing<br>• Power of statistics by automated unique scan and dose control for measurement of 1 - 100 independent sub volumes<br>• Zeta potential option*<br>• Software controlled fluorescence option with 2 fluorescence channels 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<br>• Automated alignment and focusing of laser and microscope |
| **Camera** | • High sensitive CMOS camera 640 x 480 pixels<br>• Variable frame rate from 2 to 60 Hz for optimum resolution and fast acquisition |
| **Lasers** | • Available laser wavelengths combinations: 405 nm / 488nm, 405 nm / 520 nm, 405 nm / 640 nm, 488 nm / 520 nm, 488 nm / 640 nm and 520 nm / 640 nm at typical laser power of >30 mW<br>• On request, the 640 nm laser can be exchanged by a 660 nm excitation laser free of charge<br>• Pulse duration 0.1 ms up to continuous |
| **Fluorescence** | • Software controlled, automated 11 position fluorescence filter wheel<br>• Available long wave pass (LWP) filter combinations:<br>430 nm / 500 nm for 405 / 488 laser combination<br>430 nm / 550 nm for 405 / 520 laser combination<br>430 nm / 680 nm for 405 / 6X0 laser combination<br>500 nm / 550 nm for 488 / 520 laser combination<br>500 nm / 680 nm for 488 / 6X0 laser combination<br>550 nm / 680 nm for 520 / 6X0 laser combination<br>• Customized LWP and bandpass filter available on request |
| **Cleaning** | • Tool-free access to glass cuvette for quick and simple cleaning process<br>• Cell cleaning recommended weekly or monthly depending on sample type and usage<br>• Cleaning of driver electrodes required after >1000 zeta potential runs*<br>• Cleaning kit and spare parts included in delivery |
| **Temperature Range/Control** | • Working external temperature range: 5°C to 45°C<br>• 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

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

## Software

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| **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<br>• Data export format: AVI, TXT, CSV, FCS, PDF reports containing key results |
| **ZetaNavigator Software**** | • Live monitoring of particle size distribution<br>• Colocalization feature |

## Measurement Specifications

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|---|---|---|
| **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<br>• Two nominal 100 or 200 nm reference suspensions for fluorescence<br>• Nominal -50mV reference suspension for zeta potential* | |

* With zeta potential option, ** With colocalization option

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## Dimensions

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

## Warranty & Support

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


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## Innovation paired with cooperative spirit

* With zeta potential option