THE NEW GENERATION OF **TRPS** HAS ARRIVED

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The **new generation** of **TRPS** has arrived

The heterogenous nature of biological particles means that obtaining high-resolution, individual particle data is essential in order to gain a true understanding of the sample.

However, light-based techniques provide solution-averaged data and individual particle measurements can be difficult, requiring extensive sample preparation and laborious measurements.

With the rapid expansion of the field of nanomedicines, there is an urgent need for reliable, accurate, and standardised measurement techniques that perform individual particle measurements in easy-to-use systems.


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The **Exoid** is the solution that researchers have been waiting for

Incorporating the unparalleled accuracy of tunable resistive pulse sensing (TRPS) into a semi-automated machine with improved sensitivity and usability represents a reliable method of measuring individual particles.

The new features of the Exoid include:

- Significant hardware improvements reduce noise levels significantly over the qNano, meaning that smaller particles can be measured more reliably.
- Automation of the tunable elements mean that the possibility of operator error is eliminated, and consistency of measurements is ensured.
- Automation of pressure control reduces the possibility of leaks or inaccuracies in applied pressure.
- New software continually monitors the baseline, pressure, and blockade size and carries out optimisation, troubleshooting, and data quality monitoring without user intervention.
- Better layout of the software allows users to be guided through the setup and measurement process.

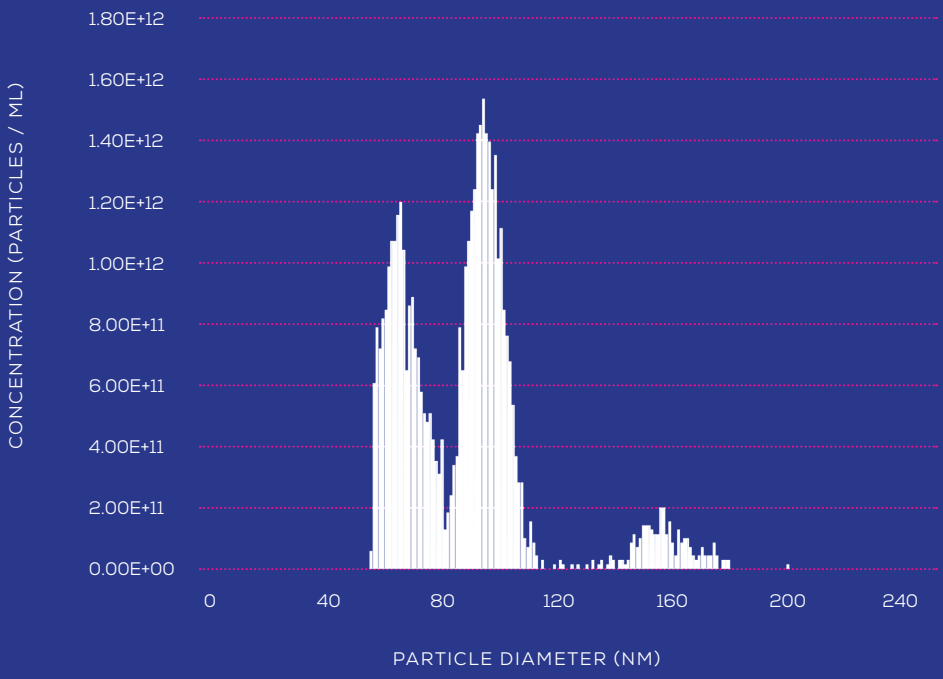
The next big thing **is even smaller**

Progression in the fields of nanomedicine and bioanalysis is limited by the solution-averaged data that can be obtained using light- and laser-based techniques; these bulk estimations are inappropriate and provide insufficient data for analysis, quality control, and regulation of biological particles.

Furthermore, increased awareness of the existence and potential of smaller nanoparticles (below 50 nm) has led to an increasing need for techniques capable of providing accurate single-particle data in this range.

While the qNano enables users to measure particles down to 40 nm, this is often only achievable with high-quality samples and skilled users.

Improvements in both the software and hardware of the Exoid reduce background noise, meaning that smaller particles can be reliably measured.


CONCENTRATION (PARTICLES / ML)
1.80E+12
1.60E+12
1.40E+12
1.20E+12
1.00E+12
8.00E+11
6.00E+11
4.00E+11
2.00E+11
0.00E+00
0
40
80
120
160
200
240
PARTICLE DIAMETER (NM)

You wanted it, **we did it**

Automated control of tunable instrument settings

Although the quality of data that can be obtained using the qNano is undisputed, user feedback has indicated that proper operation of the instrument required technical skill and training. Automated control of pressure, voltage, and pore size on the Exoid enable easy operation even by inexperienced users, leading to greatly decreased inter- and intra-operator variability and increased reliability of results. The technology is therefore accessible to a wider range of lab members enabling up to 2-fold increases in productivity for intermediate-level users.

Integration of the pressure module

A new internal, automated pressure unit replaces the VPM included with the qNano. This makes measurements with the Exoid significantly more accurate, consistent and easier to run.

Improved electronics

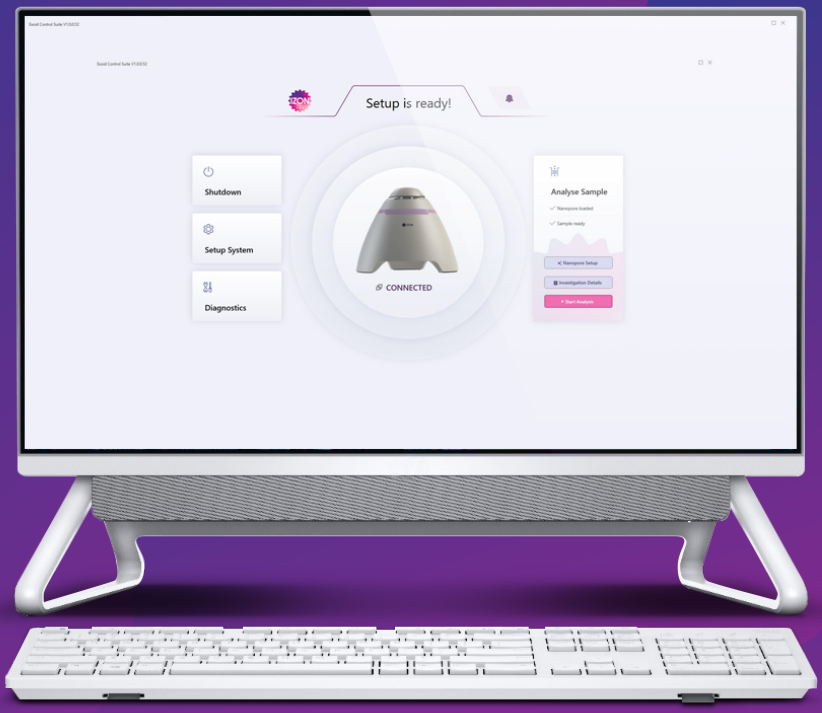
The completely redesigned electronics reduce the background noise significantly compared with the qNano, meaning that the dynamic range of the instrument is increased and smaller particles can be detected more reliably.

Improved nanopore quality

The nature of the flexible nanopores means that variation exists between pores. While this can be identified by skilled users, it may not always be obvious to those with less experience. The continual automated monitoring of the Exoid means that any issues with the pore are detected and addressed quickly.

Real-time evaluation of calibrated results

The automated calibration and new software of the Exoid deliver calibrated results in real-time giving a quick insight into the sample or enabling users to evaluate the progression of a reaction or occurrence of aggregation.


Setup is ready!
Shutdown
Setup System
Diagnostics
CONNECTED
Analyse Sample

Increased output **with minimal intervention**

With increasing pressure on researchers to provide outputs and rapid progress in the field meaning that the competition to discover or develop novel products has never been greater, instruments that achieve accurate results while reducing the need for user intervention and monitoring are invaluable to any lab group.

The sophisticated software of the Exoid provides users with a "press and go" system in which measurement parameters and protocols can be pre-programmed enabling complex experiments involving measurements at multiple pressures, voltages, and pore sizes to be performed with minimal user intervention.

The instrument will carry out troubleshooting, re-calibration when required, monitoring for inconsistencies or deviations, and automatically change the instrument settings to perform measurements.

The colour-coded lighting display allows users to check the progress of the experiment at a glance.

Together these features mean that multiple instruments can be run simultaneously with ease, greatly increasing output.

The Exoid is essential for **bioanalysis and quality control**

TRPS is well established in the fields of bioanalysis and nanomedicine as the most precise and accurate method of particle measurement. Individual particle size and zeta potential can be measured as well as the concentration of particles in defined size ranges to provide a true representation of the nature of the sample. Because the technology does not rely on knowledge or input of the refractive index of particles, TRPS has the unique ability to determine the zeta potential of individual particles with ease and accuracy.

TRPS is an essential aspect of nanomedicine research and development

Accurate knowledge of particle size, number, and concentration is required in order to predict the in vivo behaviour of particles and is an essential aspect of the stringent quality control and safety checks involved in the production, monitoring, and regulation of nanomedicines. Currently, progress in the field is limited by the lack of standardised methods for particle measurement. Specific regulatory procedures and requirements are likely to come into play soon; therefore, reliable methods of measuring nanoparticles with single-particle resolution will be indispensable. As the only technique with the capability to provide such measurements, TRPS is rapidly becoming essential in many areas of nanomedicine.

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