

Optical Particle Analysis Instrument - CX300



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The CX300 is a compact, high-sensitivity fluorescence detector for particle counting and quantification in flow-through capillaries.

- Light weight
- Small footprint
- Easily transportable
- Flexible fluidics
- Simple to operate
- Near instant results

Example Application Areas

- **Covid 19.** Clinical trials have demonstrated the effectiveness of detecting the SARS-CoV-2 Virus in samples collected from patients. The initial CX300 is three times quicker than conventional PCR tests at delivering a test result, with opportunity for speed improvements in the future through automation.
- To accelerate the diagnosis of **sepsis** by quickly identifying, whether bacteria in a blood sample are Gram positive or negative as well as identifying which of the three most common sepsis-causing pathogens are present.
- **Lipid nanoparticles** are used to deliver drugs and vaccines such as the Pfizer Covid-19 vaccine into living cells. The CX300 has the potential to reduce both the time and cost of this work, and therefore speeding up the development of new treatments.
- **Extra-cellular vesicles** are a natural form of Lipid nanoparticle. Cancer cells excrete extra-cellular vesicles and researchers want to characterise them. There is intense interest in this area with 7,500 papers published on the subject last year. Current methods are either expensive or difficult, the CX300 has the potential to reduce both the time and cost of this work, which would speed up the development of new treatments.

- **Adeno-associated viruses.** In gene therapy, virus-like particles such as adeno-associated viruses are used to encapsulate the new gene and deliver it into the body. There is potential for the CX300 to be used by gene therapy manufacturers to assess the quality of their adeno-associated virus products.
- **Protein aggregation analysis.** Proteins are used in the production of many drugs and diagnostics. Medical protein producers need to know if the material is denatured or aggregated. The CX300 has the potential to greatly increase this sensitivity and assist in the production of better drugs and diagnostics.
- **Specific Immune cells** in blood. There is the potential to use the CX300 to inexpensively detect immune cells. These are used when diagnosing and monitoring diseases, such as when studying cancer auto-immunity and immunodeficiency.
- **Micro clots** cause various problems including possible involvement in long Covid. Sufferers with circulatory problems caused by micro clots need to be diagnosed. There is currently no simple method of quantitative detection. The CX300 has the potential to offer a simple fast quantitative method of detection of micro clots aiding medical diagnosis.

Technical

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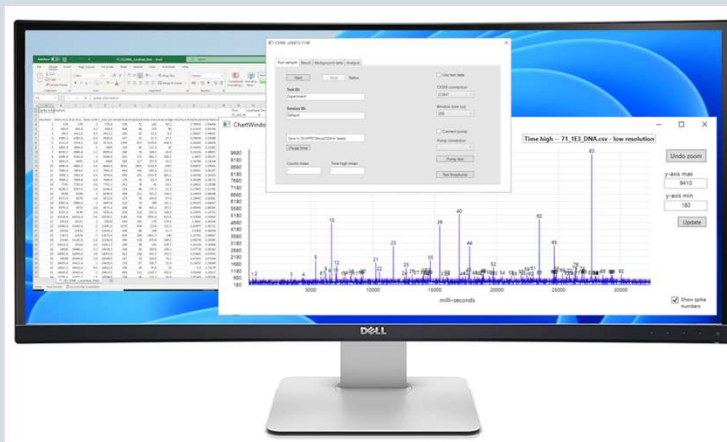
- Flow cytometry without complex fluidics
- Data points every 0.2 ms
- Picomolar sensitivity for fluorescein and AlexaFluor 488
- Fused silica capillary, 360 µm OD, 50 – 200 µm ID.
- Detection of fluorophore-labelled single particles 20 µm to 100 nm size
- Overall Size 225 mm x 145 mm x 170 mm
- Mass: 2.0 kg
- Power Requirement: 100-240 V, 50/60 Hz, 1.7 A

Wide application range:

- Detection of particles sized from nanometre to micrometre
- Customisable to different fluorophores
- Miniaturised, low-cost instrument
- Connectivity - USB Cable
- Operating Temperature 0 to +40C
- Operating Humidity
- Sensitive to condensation
- Simple, robust design

In the box:

- CX300 instrument
- Power Supply
- USB Cable
- Software



The software

The software enables instrument control and saves raw data in a standard CSV file format, allowing interrogation by other proprietary applications as well as built-in bespoke analysis algorithms, which generate parameters, including:

- Number of peaks, individually identifiable with timings, amplitudes and peak areas
- Sums of the amplitudes and the areas of the peaks
- The average width and standard deviation of peak width (to correlate with the expected size and velocity range for particles)

Custom-made functions can be added to suit specific experimental applications

