

What is the Moxi Z?

Moxi Z is a mini automated cell counter that provides the most precise and accurate cell count and sizing information along with an automatic, reagent-free culture health assessment.

How does it work?

The unit uses a novel combination of the gold-standard Coulter Principle and a patented thin-film sensor technology. Particles are measured one-at-a-time as they flow through an aperture, providing accurate and repeatable cell counts and precise sizing information.

What parameters can I measure?

1.) Cell Size 2.) Cell Counts 3.) Culture Health

How does it measure size so accurately?

The technique (Coulter Principle) involves applying an electric field across a micron-sized aperture and fluidically streaming the sample particles through the aperture. The resulting occlusion of the aperture by the particles/cells yields a measurable change in electric impedance that can be directly and precisely correlated to cell size/volume.

How does it measure cell counts so accurately?

The underlying count approach is that every particle in the sample is measured individually and directly. This ensures that all particles in a sample are included in the count and it eliminates the errors (e.g. focusing and image analysis/interpretation) that are widely associated with image based systems. Additionally, a precise measurement of sample volume is made within the cassette enabling an extremely accurate calculation of the cell concentration.

How does it measure cell health?

The Moxi Z automatically reports cell health via the Moxi Population Index (MPI). MPI allows researchers to assess and QC the general health and composition of monodisperse mammalian cell cultures, without the need for reagents. Specifically, MPI is a metric of the relative purity of the cell population with respect to other sample components such as lysed cell debris, shrunken necrotic cells and microbial aggregates.

How is it different from other cell counting methods?

Today, cell counting is often performed using (a) hemocytometers that involve laborious manual counting, (b) image-based counting systems that are based on the old hemocytometer principle and deliver imprecise results, or (c) expensive and difficult to use Coulter counters or flow cytometers. The Moxi Z is fully automated, highly accurate, involves no subjectivity, and is an ultra-compact and affordable unit.

What is the measurement speed?

A complete measurement takes just 8 seconds (Type M cassette) to 15 seconds (Type S cassette).

How much sample/cells do I need for a measurement?

A measurement requires 75 μ L of sample volume in the 3,000 – 500,000 cells/mL range (Type M cassette) or 3,000 – 2,500,000 cells/mL (Type S cassette).

What maintenance/calibration does the Moxi Z require?

None. Moxi Z is a very robust instrument with few moving parts and has been validated to be extremely stable over time. If a lab needs to confirm that the instrument is working per specifications, calibration check beads or the electronic calibration cassette (sold separately) may be used for this purpose.



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Can I run more than one sample with each cassette?

Yes. Each disposable cassette allows you to run 2 samples.

What cells/particles can I measure with Moxi Z?

There are 2 cassette types available with the unit. With the Type M cassette, the instrument accurately measures cells with sizes in the range of 34 - 8200 fL (4 – 25 microns in effective diameter). With the Type S cassette, the instrument accurately measures cells with sizes in the range of 14 - 4200 fL (3 – 20 microns in effective diameter). The size range allows for measuring smaller particles than with any other automated cell counter. As a result, the Moxi Z can be used for measuring mammalian cells, RBC's, WBC's, most yeast, and even some algae and protozoa.

Will I be able to measure heterogeneous populations?

Yes, as long as the size distributions of the heterogeneous populations are sufficiently separated (typically > 2 microns separation in mean cell diameter). The data for each test includes a gate-able, high-resolution cell size histogram of all the particle populations in the sample.

Will I be able to monitor cell changes from culture to culture?

Yes. Since it is well-understood that cell size and culture composition are indicators of culture state, comparisons of histograms from culture-to-culture provides a quick and easy way to monitor such changes.

Does it store my data?

Yes. Data (including histograms) for over 500 samples can be stored on the unit itself. Additionally, all historical sample data can be uploaded to a Mac/PC.

What connectivity options does Moxi Z have?

The Moxi Z supports Bluetooth and USB "on-the-go" connectivity to a Mac/PC. With USB on-the-go, the Moxi Z appears as a drive on the PC/Mac when plugged in. Tests appear as individual .csv files that can be copied to the computer. A data management and analysis software package (MoxiChart) is also provided at no extra charge.

Can I use it in a hood?

Yes. The instrument is small enough to fit in the palm of one hand, does not require a computer to operate, is easy to clean, and does not require that a person hold it while performing a measurement. The unit can be sprayed with isopropyl alcohol or ethanol for placement in the sterile environment of a cell culture hood. Sterile Type M and Type S cassettes are also available. Additionally, the Bluetooth connectivity to MoxiChart provides a means for wirelessly transferring and managing data.

Is there any performance data for the Moxi Z?

Yes. Performance data comparing Moxi Z to a gold standard method are available at www.orflo.com. This data shows a high correlation between the two systems ($R^2 > 0.978$).

How can I try the Moxi Z in my own lab?

We have an In-your-own-lab demo program to give potential customers the opportunity to test the Moxi Z directly. Demos are arranged via our local Support Specialists (VWR for the U.S., Canada and the E.U.). Demo requests can be made at <http://www.orflo.com/demo.html>.