



Making ISO Cleanroom Certification easy with Kanomax Particle Counters

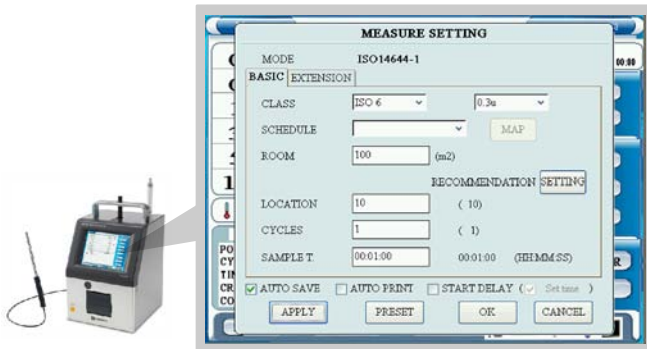
Application Note

This article is a brief look at how the Kanomax Particle Counters can simplify the job of certifying your ISO class cleanroom.

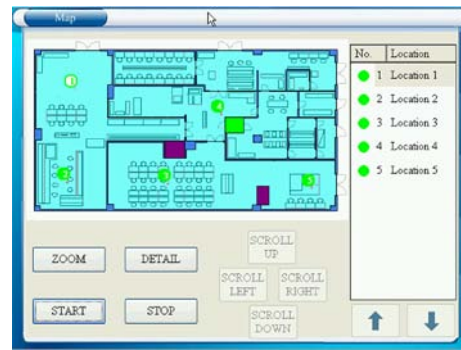
The ISO procedure can be broken down into 7 basic steps to certify a cleanroom. Let's take a look at these steps and then we'll go over how the features of Kanomax particle counters can help you with the job.

Step 1: Calculating the number of locations

The portable particle counter 3900 and 3910 have a Standard mode that allows you to enter the area of the room in cubic meters. Once this is done the instrument will calculate how many points need to be measured. You can still adjust the number of points manually if desired, but if you are following the ISO standard the instrument does the calculation for you.



3900 ISO Mode Settings



Example of a map uploaded to the 3900

Summary of Seven Steps to Cleanroom Certification:

- 1) Calculate the number of locations that need to be sampled based on the cleanroom size.
- 2) Determine the particle sizes to be measured, max concentrations allowed and the minimum sampling volume at each location.
- 3) Measure the particles at each sampling location.
- 4) If you are performing multiple samples at each location take the average from each location.
- 5) Take an average of the measurements from all the locations.
- 6) If the number of points sampled was between 2 and 9 then calculate the 95% UCL.
- 7) Determine if the cleanroom passed or failed by comparing the UCL to the maximum particles per cubic meter as shown on the ISO table.

Step 2: Determine particle size, max. concentration and minimum sampling volume.

The cleanroom certifier will need to determine these numbers per the ISO procedure. It's important to note the flow rate of the 3886 and 3887 is 2.83 LPM, the 3900 is 28.3 LPM, and the 3910 is 50.0 LPM. If you will be certifying multiple cleanrooms and typically need to samples a high volume of air then the 3910 is a better choice with its higher sampling rate. The 3887 is the perfect tool for smaller air samples. Both instruments can be programmed to sample for a specified length of time making it easy to sample precise volumes of air flow.

Kanomax particle counters have the following flow rates:

Particle Counter Model #	Flow Rate
3887 Handheld	2.83 L/min
3886 Handheld	2.83 L/min
3900 Portable	28.3 L/min
3910 Portable	50.0 L/min

Step 3: Measure particles at each location.

The 3887 has an ISO mode that will allow you to program it with the number of sample points and sample duration needed to certify the cleanroom. The 3900 and 3910 have a similar mode called Standard mode that includes a configurable setup to certify ISO (as well as other standards such as EU GMP). You can even upload a map of your cleanroom and specify the measuring locations on it in the 3900.

Step 4 through 6: Average the measurements taken at each location, then average the final results from all locations and calculate the UCL.

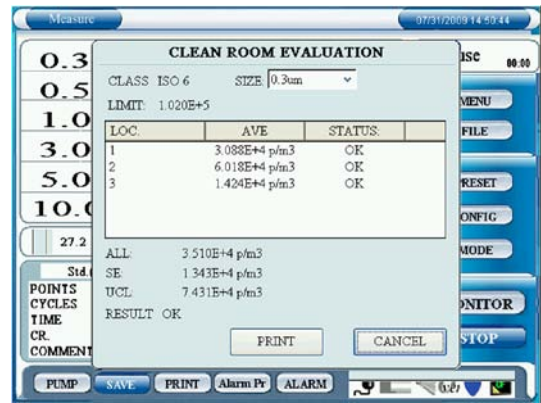
Both instruments will automatically calculate the averages and the UCL for you. These steps are essentially eliminated from your workload.



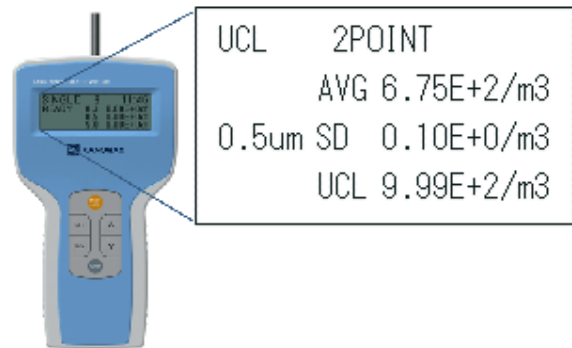
50LPM Portable Particle Counter Model 3910

Step 7: Determine if the cleanroom passed.

You can determine if the cleanroom passed or failed by comparing the UCL to the maximum particle concentration allowed as shown on the ISO table. The 3887 will calculate the UCL for you and you can just compare the final number to the ISO table. The 3900 and 3910 are programmed with the ISO standards and will tell you on the spot if your cleanroom has passed or failed. With its built-in printer it can even issue an on-the-spot report.



3900 ISO mode results showing UCL and passing results for a Class 6 cleanroom



3887 ISO mode results showing UCL