Fast Mobility Particle Sizer™ Spectrometer

Model 3091
Measures size distribution and number concentration of rapidly changing, submicrometer aerosol particles in real time.

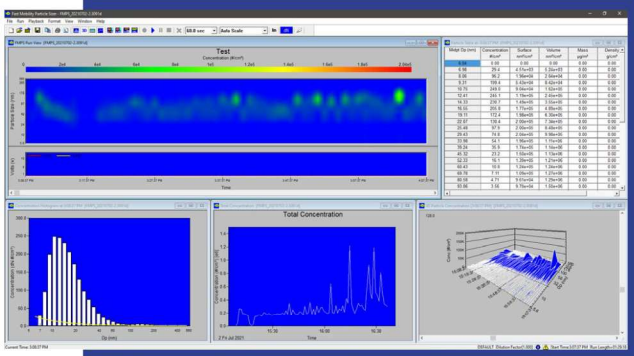
The Fast Mobility Particle Sizer™ (FMPS™) spectrometer measures particles in the range from 5.6 to 560 nm, offering a total of 32 channels of resolution (16 channels per decade of size). This submicrometer particle sizer uses an electrical mobility measurement technique similar to that used in the SMPS™ spectrometers. However, instead of a CPC, the model 3091 FMPS™ spectrometer uses multiple, low-noise electrometers for particle detection. This produces particle-size-distribution measurements with 1-second resolution, providing the ability to visualize particle events and changes in particle size distribution in real time.

The model 3091 operates at a high flow rate (10 L/min) to minimize diffusion losses of ultrafine and nanoparticles. It operates at ambient pressure to prevent evaporation of volatile and semivolatile particles. It requires no consumables. Plus, it uses an efficient pair of unipolar chargers to eliminate the need for a radioactive neutralizer.

The FMPS™ is easy to transport, set up, and operate. It can be configured to measure single or multiple runs continuously for up to 12 hours. Its large, color-LCD display and built-in control knob provide easy access to instrument functions, and data displays. The FMPS™ software highlights include a variety of graphing options, including 3-D playback of size distribution and concentration versus time, data export capabilities, and the ability to input individual effective densities per channel to calculate a continuous output of total particulate mass.

All of these features make the FMPS spectrometer appropriate for a variety of applications, especially particle formation and growth studies, indoor air quality measurements, environmental research, inhalation toxicology studies, urban canyon studies, and transient emission studies from stacks, boilers, and wood burners.

Developed by TSI Incorporated under license from Airel, Ltd. of Tartu, Estonia.



FMPS™ software offers advanced options for data display, such as Run View, concentration histogram, and 3D particle concentration graphs.