

Fast Condensation Particle Counter

Model 3650

- Ultrafast response time, $\tau \sim 20$ msec
- Small particle detection down to 1.9 nm
- Integrated, compact design

The Model 3650 Fast Condensation Particle Counter (FastCPC) pushes aerosol nanoparticle measurement performance to new heights. Using the classical approach of enlarging particle size through condensational growth from a supersaturated alcohol vapor, particles as small as 1.9 nanometers grow into micron-sized droplets that are individually counted with a laser droplet sensor. Vapor-diffusive, laminar-flow operation provides a stable detection efficiency.

The FastCPC's compact package includes internal sheath and transport pumps with critical orifice flow control. A patent-pending parallel-plate flow geometry shortens the aerosol flow path for faster response time and lower diffusion losses.

A robust active working fluid transport system reduces flooding and reliability problems common with competing products. With no internal alcohol reservoir, the instrument is more tolerant to tipping, vibration, and rapid pressure fluctuations at the inlet making it suitable for applications in mobile transportation studies.

With faster response than any competing CPC on the market, the FastCPC is the ideal detector for rapidly changing aerosol systems and electrical mobility size distribution measurements.

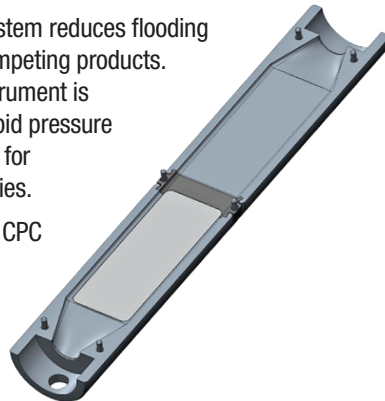


Figure 2. Patent pending aerosol flow path facilitates axisymmetric aerosol sheathing and coupling to a focusing nozzle for optical detection.



Figure 1. Photo of the 3650.

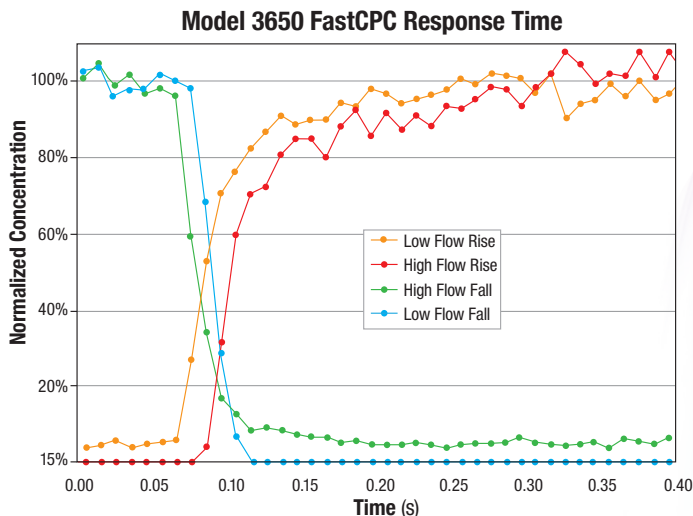


Figure 3. FastCPC response time to a step change in concentration at high and low inlet flow.

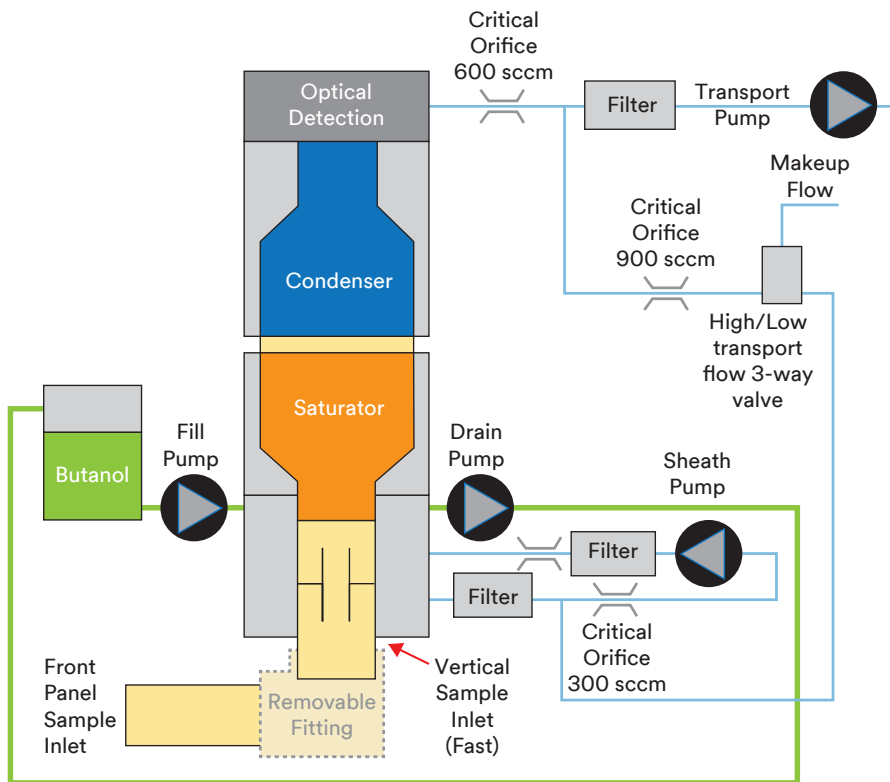


Figure 4. Air and liquid flow schematic of the Model 3650 FastCPC.

Specifications

FastCPC (Model 3650)

Particle size detection	1.9 nm to >3 μm
Concentration range	1 to 100,000 particles/cm ³
Response time	50% response time ~ 80 ms, 10-90% response time ~ 35 ms, time constant (τ) ~ 20 ms
Working condensing fluid	n-butyl alcohol
Flow control	Critical orifices with internal pumps
Aerosol sample flow	300 cm ³ /min
Inlet flow	600 or 1500 cm ³ /min (user selectable)
Aerosol inlet	Front panel, or vertical from the bottom (user selectable, fitting access on right side of instrument)
Dimensions LWH cm (inches)	8.5" \times 7.5" \times 8.5" (21.6 cm \times 19 cm \times 21.6 cm)
Weight Kg (lbs)	15 lbs (6.8 kg)
Power requirements	50/60 Hz, 100-220 VAC, 75 Watts
I/O	RJ-45 with Ethernet, 9-pin D-subminiature connector with RS-232 serial communications, pulse output and user selectable analog output

Specifications subject to change without notice.



Kanomax FMT, Inc.

4104 Hoffman Road
 White Bear Lake, MN 55110-3708
 Phone: 651-762-7762
 FAX: 651-762-7763
 Website: www.kanomaxfmt.com
 Email: sales@kanomaxfmt.com