

# CONDENSATION PARTICLE COUNTER MODEL 3752

THE SPECIALIST FOR  
HIGH CONCENTRATIONS

The 4th generation of TSI Butanol-CPCs (Condensation Particle Counters) include a High-Concentration CPC that now detects up to 100,000 particles/cm<sup>3</sup> in single-counting and further up to 10,000,000 particles/cm<sup>3</sup> (photometric detection). This high concentration model features an intuitive direct-touch user-interface, new software, improved reliability, and secure internal data storage for months of data. Modern communication options, wired or wireless, let you connect to your device remotely and ultimately optimize your particle research.



## Features and Benefits

- + Extended single-counting concentration range up to 100,000 particles/cm<sup>3</sup>
- + Photometric concentration up to 10,000,000 particles/cm<sup>3</sup>
- + Detect particles down to 4 nm (D50)
- + Data rate up to 50 Hz -  
Capture highly dynamic processes
- + Water-removal system -  
Compatible to high-humidity environments
- + Improved Diagnostics with Pulse Height Monitoring

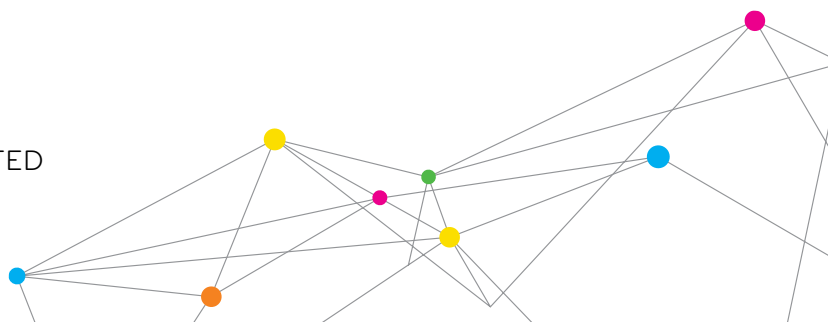
The High Concentration CPC model 3752 fits seamlessly into the family of four Butanol-based CPCs including the Standard model, the Ultrafine Particle and the 1-nm model, and is fully integrated into the SMPS<sup>1</sup> family series 3938. With its concentration and size range it serves all applications from filter testing, basic aerosol research, combustion, health and atmospheric studies specifically for high concentrations such as polluted areas (harbors, mega-cities, etc.).

All TSI CPCs are equipped with a removable saturator wick for easy transport and maintenance, as well as anti-flooding features and pulse height monitor for reliable, good measurements.

<sup>1</sup> SMPS stands for Scanning Mobility Sizer, another reference system by TSI to measure nanoparticle size distributions.



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# SPECIFICATIONS

## CONDENSATION PARTICLE COUNTER MODEL 3752

### Particle Size Range

4 nm min. detectable particle size (D50), verified with monodisperse sucrose particles  
>3 µm max. detectable particle size

### Particle Concentration Range

Up to 100,000 (1x10<sup>5</sup>) particles/cm<sup>3</sup>

Single particle counting with continuous live-time coincidence correction

Extended to 10,000,000 (1x10<sup>7</sup>) particles/cm<sup>3</sup> with photometric detection

### Particle Concentration Accuracy

±5% at <100,000 particles/cm<sup>3</sup> single-counting  
±20% at <10,000,000 particles/cm<sup>3</sup> photometric

### False Background Counts

<0.01 particles/cm<sup>3</sup> based on 12 hour average

### Response Time

Response time described in percentage to concentration step change

High flow

<1.5 seconds for 90% to 10% (T10-90, T90-10)

<3 seconds for 0 to 95% (T95)

Low flow

<2 seconds for 90% to 10% (T10-90, T90-10)

<4 seconds for 0 to 95% (T95)

### Flow System

0.3 ± 0.015 L/min or 1.5 ± 0.05 L/min inlet flow (volumetric)

0.3 ± 0.015 L/min counting flow (volumetric)

### Liquid System

Butanol (n-Butyl alcohol, not included) used as working fluid

Use of the internal water removal pump to remove condensate is recommended for use in humid environments

### Communication Interfaces

Embedded touch-display

Pulse output: BNC connector, TTL level pulse, nominally 350 nanoseconds wide

USB type C to connect CPC directly to computer operating control software Aerosol Instrument Manager (included)

Ethernet port (8-wire RJ-45 jack, 10/100 BASE-T, TCP/IP) for remote connection. Configurable for automated (DHCP) or manual network settings

USB type B for external memory drives.

A Wi-Fi adapter can be used to enable wireless network integration.

### Ambient Operating Conditions

Temperature 10 to 35°C (50 to 95°F)

Humidity 0 to 90% RH, noncondensing

Pressure 75 to 105 kPa (0.75 to 1.05 atm)

### Accessories

#### Required

Electrical: 100 to 240 VAC, 50/60 Hz, 335 W maximum.  
Auto recovery from power failure built in.

#### Included

Fill and drain bottles

Aerosol Instrument Manager for Count products license

USB C to A cable for connecting to a computer

### Data Storage

Internal memory lasts for approx. 1 year of data at 50 Hz data rate.

### Dimensions (H x W x D)

30.0 cm x 28.6 cm x 34.3 cm (11.83 in. x 11.05 in. x 13.54 in.), not including fill bottle and bracket

### Weight

~10 kg (~22 lbs)

Specifications are subject to change without notice.

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