



## Model 651 Ultrafine Particle Monitor

The Teledyne API Model 651 is the first network-ready total ultrafine particle monitor for use in routine ambient air monitoring applications.

The Model 651 instrument is designed to measure a wide spectrum of ultrafine particles found in ambient air, including the smallest ones found close to emissions sources. The instrument uses a patented water-based condensation particle counting technique which provides extremely small particle detection limits, as well as real-time continuous data availability.

The particles enter the instrument through a standard inlet and are passed through a condenser tube where they are grown to a uniform size. Immediately following the condenser tube, the particles are focused through an inlet nozzle and individually passed through an optical chamber where they are counted.

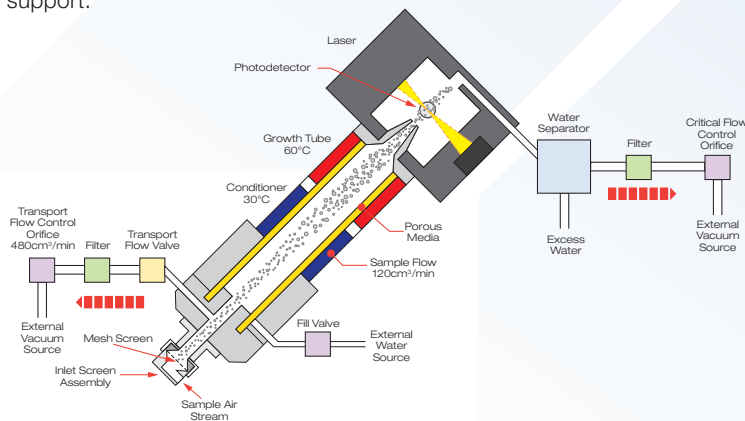
The user interface is simple and easy to use. Through the color touch screen interface, you can view the current operating parameters, real-time graphs, and obtain diagnostic information. Key operating parameters within the instrument are continuously logged to ensure accurate operation. This diagnostic information is stored in the internal data buffer. The instrument can be accessed through connection to a digital datalogging system or using the supplied remote communications software package installed on a personal computer.

Routine maintenance is straight-forward and is typically performed on a 30 day interval. The primary maintenance items include refilling the water supply bottle, replacing the supply wick, and cleaning the mesh inlet screen. These

- ▶ **Real-time, continuous ultrafine particle monitoring**
- ▶ **Standard 19" Rack mountable chassis**
- ▶ **Long autonomy period – 30 day maintenance period**
- ▶ **Automated health and status monitoring**
- ▶ **7 nanometer detectable particle size**
- ▶ **Sampling interval down to 1-second**
- ▶ **Matches time base of other continuous measurements**
- ▶ **Internal Data Storage**
- ▶ **Communication via USB, Ethernet, or RS-232**
- ▶ **Remote monitoring, data retrieval, and control**
- ▶ **Teledyne API Customer Service and Support**

preventative maintenance procedures can be completed in about 5-10 minutes. Flow checks and data downloading can be done as frequently as necessary.

The Teledyne API Model 651 Ultrafine Particle Monitor represents the latest advancement in routine, ambient air quality monitoring of ultrafine particles. The instrument joins the growing portfolio of Teledyne API products, and is of course backed by our world class customer service and support.



## Specifications

### General

Principle of Analysis:	Water-based condensation particle counter
Range:	0.001 to 10 <sup>6</sup> particles/cm <sup>3</sup>
Particle Size Range (D <sub>50</sub> ):	0.007µm (7nm) to ~3 µm
Particle Concentration Accuracy:	+/-10% at 10 <sup>6</sup> particles/cm <sup>3</sup>
Measurement Averaging Time:	1 to 3600 seconds (1 hour)
Response Time:	<3 seconds to 95% in response to concentration step change (high flow mode: 3 lpm); <5 seconds to 95% in response to concentration step change (low flow mode: 0.6 lpm)
Flow rate:	0.6 +/- 0.06 lpm (low flow mode); 3.0 +/- 0.3 lpm (high flow mode)
Environmental Conditions (Shelter):	10 – 38°C (50 – 100°F) non-condensing (Recommended: 20 – 25°C)

### Interfaces

User interface:	Color touchscreen display
Communications:	Ethernet, RS232, USB
Analog Output:	0-4V proportional to log concentration

### Electrical

Power Requirements:	100-240 VAC, 50/60Hz, 145W max
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### Physical Specifications

Dimensions:	8" x 19" x 12" (20.3 x 48.3 x 30.5 cm)
Weight:	22 lbs (9.9 kg)

## How to Order

### Model 651 includes:

- One year warranty
- External vacuum pump with tubing
- Ears / handles for rack mount
- Static dissipative sample inlet tubing (3m)
- RS-232, Ethernet, and USB Ports
- USB and serial cables
- AC power cord
- Operations Manual
- Quick Start Guide
- Annual Maintenance Kit – Replacement wicks, wick cartridge, and set of replacement orifices
- Aerosol Instrumentation Manager® PC Software on USB stick

### Options:

- PM cyclone inlet
- PM inlet system (PM10 first stage + PM1 cyclone inlet with nafion dryer)
- Vacuum pump for PM inlet system

### Mounting Option:

- Sliding shelf kit

### Consumables:

- Annual Maintenance Kit

### Verifications:

- Flow Transfer Standard

Specifications subject to change without notice.  
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