



® Knowledge Beyond Measure.

Sampling System for Atmospheric Particles

Model 3750200



System for representative and accurate sampling and conditioning of atmospheric aerosol. Compliant to CEN/TS 16976 and CEN/TS 17434.

Sampling particles from ambient air is not trivial. Varying wind conditions, humidity, and diffusion losses are all barriers to obtaining representative data. The Sampling System for Atmospheric Particles 3750200 is designed to match the requirements of two CEN/TS standards, thus permitting a standardized measurement of sub-micrometer airborne particles. Proven components - such as the PM inlet and the effective and low-maintenance membrane (Nafion™) dryer - enable the harmonized measurement of ultrafine and fine particles in the atmosphere.

Applications

- Air quality monitoring for ultrafine and fine particle number concentrations and size distributions
- Atmospheric research

Features and Benefits

- CEN/TS 16976 and CEN/TS 17434 compliant
- Less than 30% diffusion losses for 7 nm particles
- Efficient and low maintenance aerosol drying: relative humidity (RH) reduced to < 40%
- Supports operation with up to 4 particle counters/sizers

CEN stands for European Committee for Standardization. CEN is an association - officially recognized by the European Union and by the European Free Trade Association - that brings together the National Standardization Bodies of 33 European countries. CEN is committed to develop European Standards for various kinds of products, materials, services and processes.



Specifications

Sampling System for Atmospheric Particles Model 3750200

Particle Size Range

7 nm to 10 µm (up to 2.5 µm when using cyclone)*

* Particles smaller than 7 nm can be measured using an ultrafine CPC; increased diffusion losses may require system modification.

Flow Rate

16.7 L/min at inlet

Up to 4.0 L/min adjustable at sampling port

Humidity Reduction

Aerosol humidity reduced to < 40% RH using Nafion™ dryer for outdoor dewpoints < 25° C, a vacuum of 225 mbar, and indoor temperature of > 20° C.

For more humid conditions (dewpoint > 25° C), a stronger vacuum pump may be necessary.

Particle Transmission Efficiency*

>75% for 7 nm particles

>80% for 10 nm particles

>90% for 15 nm particles

* without additional transport tubing

| Description | Quantity Needed | Included with 3750200 | Accessory Available from TSI® Separately | User Supplied |
|---|-----------------|-----------------------|--|---------------|
| US-EPA Approved PM10 Inlet | 1 | ▪ | | |
| Nation® Dryer | 1 | ▪ | | |
| Dryer to Inlet Fitting | 1 | ▪ | | |
| PM2.5 Cyclone | 1 | ▪ | | |
| Conductive Tubing | 10 inch | ▪ | | |
| Four-way Flow Splitter | 1 | ▪ | | |
| Temperature & RH Sensor | 1 | | ▪ | |
| Vacuum Pump | 1 | | ▪ | |
| Flowmeter | optional | | ▪ | |
| Roof Port | optional | | | ▪ |
| Tripod or Guy-Wires | optional | | | ▪ |
| Stainless Steel Sampling Tube 1.25" OD x 0.062" | as needed | (1.5 m) | | ▪ |



The Sampling System for Atmospheric Particles 3750200 is designed to sample and condition aerosol in preparation for measurement by the Condensation Particle Counter (CPC) 3750-CEN and by the Scanning Mobility Particle Sizer™ (SMPS™) 3938W50-CEN. The humidity and temperature sensor RHT3000 is installed at the inlet of the CPC 3750-CEN (or SMPS™); this sensor provides relative humidity and temperature data for the sample, as required by CEN/TS 16976:2016 and CEN/TS 17434.

To Order

Sampling System for Atmospheric Aerosol

| Specify | Description |
|---------|--|
| 3750200 | CEN/TS 16976 Compliant Sampling System for Atmospheric Aerosol |

Optional Accessories

| Specify | Description |
|---------|---|
| 3032-EC | Vacuum Pump (230 VAC; EU Configuration) |
| 3333-10 | Aerosol Diluter for CPC (dilution ratio 10:1) |
| RHT3000 | Relative Humidity and Temperature Sensor |
| 4048 | Flow Calibrator, up to 200 L/min |
| 4148 | Flow Calibrator, up to 20 L/min |

Accessories must be ordered separately

Specifications are subject to change without notice.

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