

The Thermo Scientific Partisol-Plus 2025 has PM-10 and PM-2.5 US EPA reference designations. Based on the field-proven Partisol, the platform provides a user-friendly, robust and flexible air sampler with a unique, pneumatic filter exchange mechanism.

Thermo Scientific Partisol®-Plus 2025 Sequential Air Sampler



Key Features / Benefits

- USEPA PM-2.5 and PM-10 Ref (RFPS-0498-118, RFPS-1298-127), European PM-10 (EN12341)
- Choice of sample inlets for PM-1, PM-2.5, PM-10 and TSP
- Sequential sampling system with 16-filter capacity
- Filter integrity assured through sealed magazines
- Pneumatic filter exchange—no belts, motors or gears

Advanced Manual Sampling

The Thermo Scientific Partisol-Plus 2025 Air Sampling System defines the state of the art in flexible, field-proven sequential air sampling. The device exchanges 47 mm diameter sample filters automatically by a user-defined time interval or other condition. It has a capacity of 16 filter cassettes, allowing for two weeks of unattended daily sampling of particulate matter (PM).

Robust and Flexible

The sampler is designed to be installed at an outdoor sampling location without additional protection. It draws a particulate-laden ambient air stream through a size-selective or TSP (total suspended particulate) inlet, and then through a 47 mm diameter filter. A variety of filter materials is available in this size. A built-in pump provides the vacuum required to pull the air flow through a sample filter and a mass flow controller.

Unique Exchange

Filter exchange is performed using pneumatic pressure from the sample pump, and does not involve any special electromechanical components, belts or motors. New filter cassettes from the supply magazine (left) are pushed up and rightward to the sampling position, while the previous cassette is moved to the storage magazine (right). The supply and storage magazines are covered to seal off filter cassettes when not used for sampling.

Worldwide Acceptance

The system forms the backbone of the USEPA PM-2.5 national sampling network, and is being implemented by air monitoring organizations worldwide for the sampling of PM-10, PM-2.5, PM-1 and TSP onto 47 mm diameter filters.

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Regulatory Designations

- PM-2.5: USEPA Reference Method RFP-0498-118.
- PM-10: USEPA Reference Method RFP-1298-127.
- EN12341: Candidate equivalent PM-10 manual sampling method for European Norm EN12341.

Safety/Electrical Designations

Meets the following safety and electrical designations:

- CE: EN550011 Group 1, Class B (Emissions); EN55082-1 (Immunity); EN61010-1 (Safety)
- ETL: UL- and CSA-equivalent approval

Filter Holders and Media

Accommodates 47 mm filter in the single-flow and dual-flow configurations.

For USEPA PM-2.5 sampling, regulations only allow the use of Teflon® 2 µm pore size membrane filter. For PM-10 reference method sampling, the USEPA permits the use of Pallflex TX-40, quartz filter and Teflon® materials.

Optional cassette separators may be used to eliminate passive volatilization losses or cross-contamination for speciation work.

Sample Flow Control, Reporting, and Audit/Calibration

- Activo™ flow control system uses a mass flow controller and the measured ambient temperature and pressure to maintain a constant volumetric flow rate. The unit can control at rates ranging from 5 to 18 volumetric l/min.
- The sampler displays the current volumetric flow rate (l/min). For each filter exposed, the unit stores the total volume in volumetric or standard m³.
- Direct software support for single-point and multi-point audit/calibrations of the volumetric flow rate using a volumetric flow meter.
- Software support for the use of the Streamline™ FTS Flow Transfer Standard for flow audits and calibrations.

Internal Data Storage

Interval Data (every 5 minutes), Input Data (stored at user-defined interval) and Filter Data (one record for each filter). This stored information may be viewed on the display and retrieved through the RS232 interface. The sampler has the following capacities:

- 16 days of Interval Data (stored every 5 minutes)
- 32 days of Input Data (stored every 30 minutes, default)
- 50 filter records

Data Input and Output

- Keypad/display for data retrieval and user programming.
- RS232 interface for data retrieval and remote operation. Supports advanced bi-directional AK Protocol.
- 3 user-defined analog outputs (0-5 VDC) for data logging.
- 2 user-defined TTL alarm outputs.
- Wind vane/anemometer connection with 24 VDC power output and 2 0-5 VDC inputs for wind speed and direction.
- 3 averaged analog inputs (0-5 VDC) with conversion to engineering units (in addition to wind speed and direction above).
- RS485 interface for connection with other Thermo devices.
- Automatic calibration of analog inputs and output channels.

Meteorological Features

- The sampler always stores the following meteorological information in each record of Input Data and Filter Data: average ambient temperature, ambient pressure, average ambient relative humidity
- With an optional wind vane/anemometer connected to the unit, the following data are also stored in each record of Input Data and Filter Data: average wind speed, wind velocity (vector averaged), average wind direction (vector averaged)
- In the case of Input Data, these values are averaged over the data storage interval, which is user-selectable (default 30 minutes). Data are sampled once per second.
- In the case of Filter Data, these values are averaged over the periods during which the hardware sampled through a given filter. Data are sampled once per second.

Operating Range, Dimensions and Power Requirements

- Temperature: -30 to +50 °C. Temperatures down to -40 °C require additional optional hardware.
- Enclosure: 25.2" (64.0 cm) W x 15.8" (40.2 cm) D x 26.3 (67.3 cm) H. Height is 31" (78.8 cm) with the top cover, and 35.3" (89.5 cm) with the inlet connector.
- Weight: 101 lb (46 kg).
- Stand: Top Section: 30.8" (78.2 cm) W x 27.1" (68.8 cm) H x 14.0" (35.6 cm) D. Footprint: 42.0" (106.7 cm) W x 18.1" (46.0 cm) D.
- Power Requirements: 3 A @ 120 VAC, 1.5 A @ 240 VAC.

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