

AIR SAMPLER

PARTISOL 2000 I

i

The 2000i PARTISOL is a microprocessor controlled air sampler, with a large range of accessories turning it into an ideal platform for measuring particle concentrations, and more generally the concentration of any other solid or gaseous pollutant in ambient air.

In its simplest version, the 2000i PARTISOL System is an autonomous air sampler equipped with a 47 mm filter holder, a sampling pump with a regulated flow of 5-18 lpm, a PM-10, PM-2.5, PM-1.0 or total dust sampling head, a microprocessor programmer and data acquiring options.

Featuring enhanced communication capabilities and long-term unattended operation, the Thermo Scientific™ Partisol 2000i Air Sampler provides reliable and quiet operation, low maintenance requirements and a single-action filter exchange mechanism for added convenience.



BENEFITS

- ⊕ U.S. EPA PM-2.5, PM-10 and PM-Coarse Reference Method
- ⊕ Improved data downloads and flash memory for increased data storage
- ⊕ Simplified pump exchange
- ⊕ Remote data access and large interface screen
- ⊕ iPort communication software

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SAMPLER FUNCTIONS

The PARTISOL 2000i is small, lightweight, silent, weatherproof device that can be set up both outside and inside the premises.

The sample suction is provided by an internal vacuum pump.

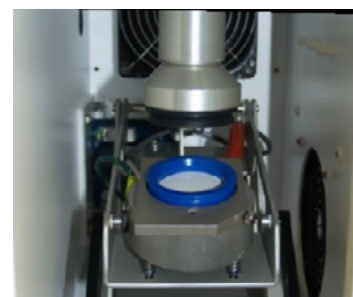
The suction flow rate is regulated by an electronic flow controller, in order to operate the sampling heads at their nominal flow rate, regardless of the sampling altitude or the air temperature. The adjustment range is from 5 to 18 lpm. The default setting is of 16.67 lpm (1 m³/h), nominal flow of PM-10, PM-2.5 or PM-1 sampling heads.

The flow controller - connected to a mass flow meter, a temperature probe and a pressure gauge - estimates in real time the nominal sampling flow rate and adjusts the servo-valve in order to maintain a constant flow rate during the sample.

To ensure low maintenance needs, a vacuum pump of large capacity has been selected. This pump is dimensioned to ensure a nominal flow rate through the various types of commonly used filter media (glass fibre, quartz fibre, Teflon membrane, etc...), and through mixed cartridges, filter/PUF foams or filter/resin.

An internal microprocessor allows the programming of the sampling cycle, as well as recording collected volumes, events, mean temperatures and pressures during the sampling time, wind speed and direction (if a weather probe is attached to the central).

The sample is housed in a weatherproof casing, whose temperature is controlled by an internal heater and a cooling fan.



TEMPERATURE CONDITIONING OF THE FILTRATION BLOCK

It is important that during the sampling, filters should not be exposed to temperatures likely to cause the volatilisation of some of the collected dust. To avoid these problems, the filtration block is temperature controlled by compulsory cooling so that the temperature gradient between the filter and the ambient air is insignificant. Ventilation conditions are controlled via a temperature probe positioned near the collection filter and by an external temperature probe.

These conditions are programmable depending on the needs of the user or local regulations.

The filter's temperature is part of the parameters stored in the audit reports.

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METEOROLOGICAL MEASUREMENTS

In standard mode, the 2000i PARTISOL measures and displays the outside temperature and atmospheric pressure.

It stores the average value of these two parameters for a programmable time period (by default: 30 minutes). The 2000i PARTISOL can also be equipped with an optional weather probe providing wind speed and direction. In this case, it also stores the average speed and the mean wind direction.



SAMPLING SEQUENCE

The sampling sequence is programmable on the internal microcontroller. Pre-recorded programs can trigger simple sequences allowing the exposure of a filter for 24 hours starting at midnight.

It is also possible to custom program sequences based not only on time and date, but also on the external parameters, such as wind speed and direction (as long as the optional weather probe is connected to 2000i PARTISOL). Sampling can also be triggered remotely by RS 232, as well as by 3 additional Analog inputs.



TYPES OF COLLECTION MEDIA

The standard media is a 47 mm diameter filter holder. To simplify the exchange, the filters are positioned in tapes. The filter holder shifts by manual action on a lever. The system was designed to be operated by a person wearing gloves in winter. The filter holder can adjust to any type of 47 mm diameter filter media, Teflon-coated glass fibre, Nylon, Teflon, quartz, etc... An optional holder replacing the standard filter holder allows the installation a large number of collection media (the list below is not exhaustive):

- 4 stage cascade Filter holder
- Polyurethane (PUF) cartridge holder with a 47 mm filter holder



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SPECIFICATIONS

FILTER HOLDERS AND MEDIA	Accommodates 47mm filter in two sample positions (for U.S. EPA PM-10 and PM-2.5 sampling); PTFE 2µm pore size membrane filter (regulation required) (for U.S. EPA PM-10 reference sampling: Pallflex TX-40, quartz filter and PTFE materials)
INTERNAL DATA STORAGE	86 days of Interval data (stored every 5 minutes)
Safety and Electrical Designations	CE: EN61326:1997 (Emissions & Immunity); EN6101010-1:1995 (Safety); ETL: UL and CSA Equivalent approval
SAMPLE FLOW CONTROL AND REPORTING	Activol flow control system using mass flow controller. Controls at rates ranging from 5 to 18 lpm
CALIBRATION	Direct software support for single-point and multi-point audit/calibrations of the volumetric flow
INPUT/OUTPUT	Keypad/display for data retrieval and user programming, RS232 interface, Wind vane/anemometer connection with 24Vdc power output and 2 0-5Vdc inputs for wind speed and direction, RS485 interface connection
Regulatory Compliance	U.S. EPA PM-2.5 Reference Method: RFPS-0498-117U.S. EPA PM-10
REFERENCE METHOD	RFPS-1298-126U.S. EPA PM-Coarse Reference Method: RFPS-0509-175
DIMENSIONS	- Height: 33cm (Overall)/82cm (Stand) - Width: 41cm (Overall)/ 108cm (Stand) - Depth: 61cm
WEIGHT	28kg
TEMPERATURE OPERATING	-40° to +50°C
POWER CONSUMPTION	2.2 (at 120 VAC); 1.1 (at 240 VAC)



ECOMESURE

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