

Asbestos Constant Flow Sampler

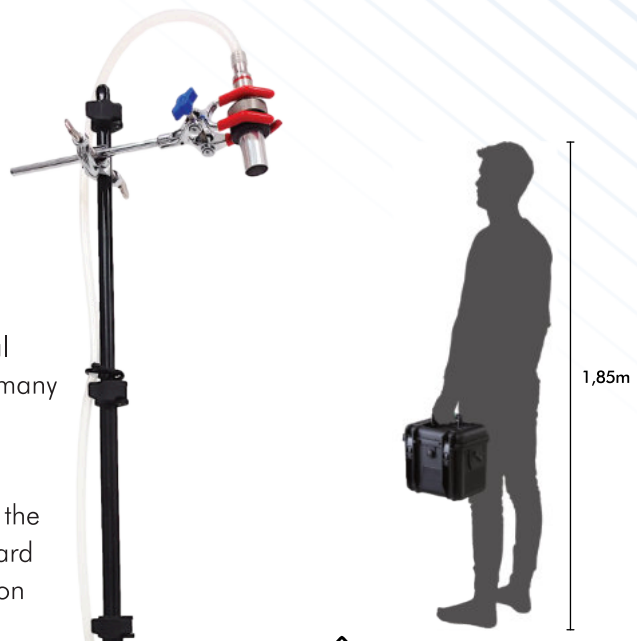
Mini DELTA X

Mini DELTA X is the new portable constant flow sampler developed and built by TCR TECORA®.




Thanks to work on adapting to specific new applications and technological redesign, the R&D division (environmental-research.tcr-tecora.com) has introduced many features in the new Mini DELTA X version that make it an even more responsive working tool to the needs expressed by its customers.

Mini DELTA X is a constant flow sampler and can work in a wide range, the flow can be adjusted from a minimum value of 50 cc/min (option - standard 1 l/min) to a maximum value of 20 l/min in the single sampling line version and up to 45 l/min in the dual line version (Mini DELTA X DUO).

The Sampler can be set with flow and time or volume and flow (as the standards require). The Mini DELTA X DUO can simultaneously handle two single sampling lines with flow up to 20 l/min per single line. In case a higher flow rate is needed, the maximum flow rate of 40 l/min can be achieved using a single sampling line.



Battery Autonomy
(hours of continuous operation)

 POLYCARBONATE FILTER Ø 25 mm 10 HOURS AT 10 L/min	 FILTER Ø 37 mm 16 HOURS	 AT 7 L/min 40 HOURS
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Main Features

- ⊙ Single or dual-line sampler;
- ⊙ Standard flow: 1–20 L/min;
- ⊙ Extended flow: 0.05–20 L/min;
- ⊙ Programmable start/stop time with delay function;
- ⊙ 5" color touchscreen display;
- ⊙ USB port for data download;
- ⊙ User-performable flow calibration with special software features;
- ⊙ Traceable calibration stored in memory;
- ⊙ Easily washable and decontaminable;
- ⊙ Capable of storing up to 1,500 samples;
- ⊙ Lithium-ion battery (optional);
- ⊙ Optical particle counter with 24 channels (optional);
- ⊙ Suitable for a wide range of indoor and outdoor applications;
- ⊙ PM₁, PM_{2.5}, PM₁₀ in real time (optional);
- ⊙ Weight: 4 kg (single-line version);
9,5 kg (dual-line version).
- ⊙ Power supply: 230 Vac or external battery
 - Single line: 12 Vdc;
 - Dual line: 24 Vdc.





Autonomy (in battery-powered models):

- ⊗ Operating time: 10 hours at 10 L/min with 25 mm polycarbonate membrane;
- ⊗ Operating time: 30–42 hours at 8.5 L/min with 37 mm 0.45 μm membrane;
- ⊗ LiFePO4 battery with 6–8 hours charging time;
- ⊗ Integrated BMS (Battery Management System).

Electrical Safety and Compliance:

- ⊗ Electrical class (e.g., “Class II – Extra Low Voltage 12 V DC”);
- ⊗ High resistance to dust and water jets (not suitable for immersion).

Environmental and Operating Data:

- ⊗ Operating temperature range: e.g., –10 °C to +40 °C;
- ⊗ Atmospheric pressure / altitude range: 2000 m operational; 750–1060 mbar;
- ⊗ Rugged, impact-resistant housing, made with rotomolded process and easily decontaminable with water.

Traceability and Connectivity:

- ⊗ User access with password for configuration levels;
- ⊗ Calibration/user logs with configurable data recording frequency;
- ⊗ Read-only data review capability (for traceability);
- ⊗ Communication via modem for remote control (in addition to USB);
- ⊗ Bidirectional data transfer function (PC ↔ instrument).

DUSTY X

Dusty X is an optional module for the **Mini DELTA X** sampler, designed to provide **real-time measurements of the concentration and size distribution of airborne particulate matter**.

Thanks to the integration of a 24-channel optical particle counter, **Dusty X** enables continuous monitoring and recording of **PM₁**, **PM_{2.5}**, and **PM₁₀** concentrations, as well as the complete **particle size distribution** of airborne particles.

Main Technical Specifications (indicative):

Parameter	Typical Value
Number of size channels	24
Size range	0.35 – 40 μm
PM parameters	PM ₁ , PM _{2.5} , PM ₁₀
Sampling frequency	1–60 s configurable
Optical measurement flow	Up to 5 L/min
Data interface	Mini DELTA X
Power supply	5 VDC or via Mini DELTA X
Weight	< 380 g
Installation	Integrated or external with dedicated bracket

DUSTY X

Operating Principle:

The module uses a high-resolution Optical Particle Counter (OPC) that measures the **light scattering** generated as particles pass through a calibrated laser beam.

Particles are classified into **24 size channels** ranging from **0.35 μm to 40 μm**, allowing detailed analysis of the particle size distribution.

Measured Parameters:

- ⊗ PM₁, PM_{2.5}, PM₁₀ in μg/m³;
- ⊗ Particle number concentration for each of the 24 size channels;
- ⊗ Temperature and relative humidity (optional);
- ⊗ Adjustable acquisition time and automatic logging to internal memory or control software.

Funzionalità avanzate:

- ⊗ Ability to set combined operating cycles between the sampler and the OPC module;
- ⊗ Automatic start/stop of sampling based on user-set particulate concentration thresholds;
- ⊗ Trigger mode for recording acute events or sudden concentration changes;
- ⊗ Synchronization of OPC and gravimetric data for integrated temporal analysis.

Benefits of Integration with Mini DELTA X:

Direct integration into the sampler enables:

- ⊗ Monitor real-time variations in particle concentration during sampling;
- ⊗ Identify and analyze transient events (concentration peaks, anthropogenic activities, weather changes, etc.);
- ⊗ Generate comprehensive evolutionary reports, including filter mass and temporal trends of events;
- ⊗ Optimize sampling duration and frequency, improving data representativeness;
- ⊗ Support immediate operational decisions in both indoor and outdoor environments.





Mini DELTA X

Technical Features

Mini DELTA X	
Single-Line Power Supply	230 Vac - 12 Vdc
Dual-Line Power Supply	230 Vac - 24 Vdc
Weight	4 Kg single - 10 Kg dual
Single-Line Flow	2-20 l/min (0.05 - 20 l/min optional)
Dual-Line Flow	2-22 + 2-22 l/min (low flow optional)
Display	5" touchscreen
Membrane Keyboard	5 keys
Memory	Up to 1500 reports
Data Download	USB flash (modem/Wi-Fi optional)
Housing	ABS
Connection Panel	Rear with color coding
Filter Support	Single column + handle
Calibration Traceability	User/admin calibration log

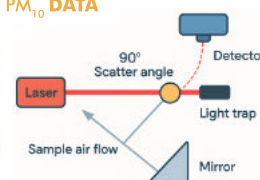
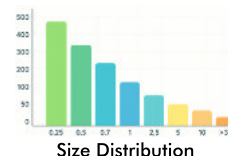
Reference Codes

Mini DELTA X (single line) Automatic flow regulation	AC99-004-0135SP
Mini DELTA X DUO (2 lines) Automatic flow regulation for both lines	AC99-004-0139SP
Mini DELTA X Basic (1 line) Battery pack and charger included – flow regulation via external flowmeter (not included)	AC99-004-0136SP
Monopod + manual clamp	AC99-004-0160SP
Sonic wind sensor	AC99-004-0180SP
Dusty X (24 channels)	AC99-004-0145SP
PM sensor with external OPC (Mini DELTA X DUO - long distance)	AC99-004-0500SP
External battery for Mini DELTA X DUO (24 Vdc)	AC99-004-0150SP
Internal battery for Mini DELTA X (12 Vdc)	AC99-004-0151SP
External battery for Mini DELTA X (12 Vdc)	AC99-004-0137SP

Options and Accessories



DUSTY X **Much more than a sampler** REAL TIME PM₁ | PM_{2.5} | PM₁₀ DATA



Long-life LiFePO4 internal battery – available for external battery option.



A modem is available for full remote control via the TCR Tecora APP for mobile or desktop connections.



External fan for fiber dispersion. The software allows full control of the external fan.



Single or dual sampling line for multiple samples L1 + L2, up to a flow of 40 L/min.



Real-time graphs, with PM sensor; possibility to set a PM threshold to trigger sampling.



Resistant to dust, water, and external agents; fully washable; protective filter at the inlet.



The wind sonic sensor software allows sampling based on wind speed and direction.



65 dBA in the standard version at maximum flow. Silent version available as an option.

Flow Setting



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