Met One Instruments

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LVS–100

Low Volume Air Sampler

The Met One Instruments LVS-100 low volume air sampler provides a flexible sampling platform for PM_{10}, $PM_{2.5}$, or TSP particulates and basic meteorological parameters.

The LVS-100 is suitable for both indoor and outdoor applications. The unit is microprocessor controlled and uses a mass flow sensor in conjunction with ambient temperature and pressure sensors to automatically maintain a constant volumetric flow rate.

Measurements consistent with*

- PM_{10} AS 3580.9.9 2017
- $PM_{2.5}$ AS 3580.9.10 2017

* Keywood et al. (2000) CSIRO Atmospheric Research, 'Testing a low-cost aerosol sampler', Clean Air and Environmental Quality, Vol 34 No 4, pp. 38-42.

Indoor sampling

- Low power consumption.
- Quiet operation - ideal for indoor air quality studies.
- Volumetric flow control automatically corrected to standard reference temperature.
- Ultra-efficient, long life DC pump delivers flow rates of 1.0 to 4.5 L/min.

Outdoor sampling

- Wind direction and speed used to activate/deactivate sampler.
- Fence line monitoring available with a network of samplers.
- Built for all conditions – lightweight, rugged, weatherproof construction.
- Can operate via battery or solar power sources (optional).

Enhanced communication

- RS232 output for data collection and remote communication.
- Filter block and instrument error alarms available.
- Total control of instrument remotely from PC.
- Simple programming of sampling periods, including daily and weekly programs, with built-in "1-in-X day" sampling capability.

Directional sampling

- Wind direction and speed used to activate/deactivate sampler.
- External trigger (0 - 5 VDC) can be used for activating sampling program.

Specifications

Operation:	Microprocessor controlled (internal data logging)
Volumetric flow range/accuracy:	1.0 – 4.5 L/m
Flow accuracy:	± 2 % of reading
Flow repeatability:	± 0.5 % of reading
Temperature range accuracy:	0 to 45 °C ± 1 °C
Barometric pressure range:	600 – 900 Torr ± 4 Torr
Filter types:	47 mm ringed circular filter
Inlets available:	PM_{10}, TSP (standard), $PM_{2.5}$ (optional)
Sampler dimensions:	300 x 170 x 170
Sampler weight:	3.75 kg
Battery pack dimensions:	185 x 170 x 170
Battery pack weight:	4.4 kg
Battery pack life:	Up to 40 hours sampling from fully charged battery pack
Operating voltage:	12 VDC
Power consumption:	2.5 – 3 watts depending on filter loading
Standard accessories:	· TSP/PM_{10} size selective inlet · Single 47 mm filter holder · 100 – 240 AC to 12 VDC power converter · Downloader software · RS232 cable

Communication & data logging

Number of readings

- 150 (averaging period is user selectable, e.g. 75 hrs of 30 min averages).

External inputs

- 1 x wind direction sensor input (10 k potentiometer).
- 1 x wind speed sensor input (contact closure).
- 1 x spare contact closure input (e.g. tipping bucket rain gauge).

Output

- RS232C

Options

- Purpose built battery pack, or solar panel and battery pack.
- Moisture elimination system.
- Optional $PM_{2.5}$ size selective inlet adapter.
- Optional wind speed and direction sensor or tipping bucket rain gauge.

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