

Now... a *personalDataRAM* for Active Air Sampling and Aerodynamic Sizing



Designed for Special Particulate Monitoring Applications

The *personalDataRAM*, the world's smallest, most versatile, real-time aerosol monitor, is now available in a new model for active sampling applications. The *pDR-1200* uses a pump module (*pDR-PU*) or other sampling pump to perform particle size selective measurements. Compact, lightweight, and easy to use, it is ideal for respirable, thoracic, and $PM_{2.5}$ monitoring, as well as continuous emission and test chamber monitoring. With an Isokinetic Sampling Set, the *pDR-1200* can be applied to stack and duct extractive sampling/monitoring. With optional inlet accessories, the *pDR-1200* can also be used for ambient air measurements under variable wind and high humidity conditions.

All the Advantages and Functionality of the Original *personalDataRAM*...

The *pDR-1200* provides all the exceptional performance, advanced features, and ease of use of the original *personalDataRAM*. It offers unmatched measurement precision and stability, data logging and output versatility, ease of programming (using a PC and included software), rugged design, and exceptionally low power consumption.

...Plus Aerodynamic Particle Sizing

The *pDR-1200* incorporates an optimally designed metal cyclone (BGI Model GK 2.05) with sharp, well defined particle separation characteristics. By operating the pump at specific sampling flow rates (see graph on back), the *pDR-1200* cyclone preseparator provides precisely defined particle size cuts.

For example, at 4 liters/minute, the cut point of the standard cyclone is $2.5 \mu m$ as required for $PM_{2.5}$ monitoring. With the attachable pump module, particle cut points can be varied between 2.0 and $10.0 \mu m$. With a larger separate pump, this range can be extended down to $1.0 \mu m$.

Aerodynamic particle size distribution can be computed based on the instrument's readings as a function of flow rate using an algorithm provided.

Primary Calibration and Particle Samples by Filter Collection

An integral filter holder directly downstream of the photometric sensing stage accepts 37-mm filters. Membrane filters of various pore sizes can be used for chemical analysis or for concurrent gravimetric measurements. Fibrous filters can be used for long-term unattended monitoring to protect the pump from particulate contamination.



Primary gravimetric calibration of the instrument concentration readout is easily accomplished under actual field conditions by means of this integral filter. The calibration constant of the *pDR-1200* is simply adjusted to coincide with the filter-determined concentration.

Analog, Digital, and Alarm Outputs for Process Control or Remote Transmission

The *pDR-1200* provides digital output data, as well as two analog outputs (voltage and current) which can be fed to a process controller for ventilation control or to a remote display or data processor. The digital signal is autoranging; the concentration range for the analog signal can be selected using a PC.

Simple to Install and Maintain

In addition to *personal*/hand-held/portable use (typically with a separate *personal*-type pump), the *pDR-1200* can be table top operated, tripod supported, or wall mounted (using an optional bracket).

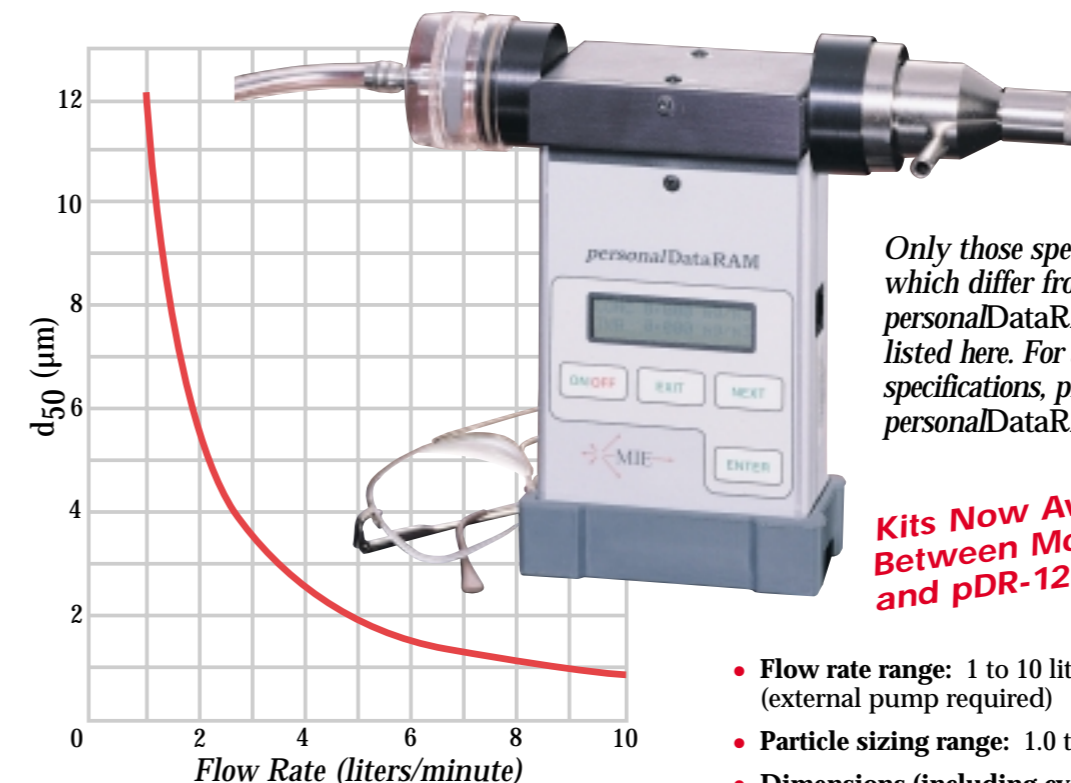
The cyclone sampling inlet can be oriented at any vertical angle, and sample transport tubing (e.g. Tygon) can be connected to the inlet, if required.

The *pDR-1200*'s photometric sensing chamber is readily accessible for occasional cleaning of the optical surfaces. The size selective cyclone is easily disconnected and disassembled for cleaning, as well.

Specifications

pDR-1200

Aerosol Monitor/Data Logger



GK 2.05 Cyclone Cut Point (50%) as a Function of Flow Rate

Only those specifications which differ from the original *personalDataRAM* are listed here. For all other specifications, please refer to the *personalDataRAM* brochure.

Kits Now Available to Convert Between Models *pDR-1000AN* and *pDR-1200* (for S/N 3770 and higher)

- **Flow rate range:** 1 to 10 liters/minute (external pump required)
- **Particle sizing range:** 1.0 to 10 μm
- **Dimensions (including cyclone and filter holder):** 160 mm H x 205 mm W x 60 mm D (6.3 x 8.1 x 2.4 in)
- **Weight:** 0.68 kg (24 oz)

pDR-PU

Attachable Pump Module

An optional accessory designed for use with the *personalDataRAM* family, the *pDR-PU* incorporates a dual-chamber diaphragm pump, a volumetric flow sensing and control unit, and a small rotameter-type flowmeter. The pump module operates from either the optional rechargeable NiMH battery pack (*pDR-BP*) or from AC line current using the power supply/charger (*pDR-AC*) supplied with the *personalDataRAM*.

The *pDR-PU* is designed as a modular unit which can be used in various combinations: attached to, or detached from, the *personalDataRAM*; with the battery pack, or using the AC power supply; etc.

- **Flow rate (user adjustable):** 1 to 5 liters/minute
- **Maximum pressure drop:** 10 in H_2O (25 mbar)
- **Precision of constant flow rate control:** $\pm 2\%$
- **Power:** 9 VDC, 200 mA @ 4 liters/minute (approximate)
- **Dimensions:** 100 mm H x 90 mm W x 45 mm D (4 x 3.6 x 1.8 in.)
- **Weight:** 0.45 kg (1 lb)

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