

Personal DataRAM pDR-1500 Monitor

Active, real-time aerosol monitor/data logger with aerodynamic sizing

The Thermo Scientific™ Personal DataRAM pDR-1500 Portable Monitor is a fully integrated, real-time, high precision sampling instrument that provides maximum ease-of-use and increased operating time.

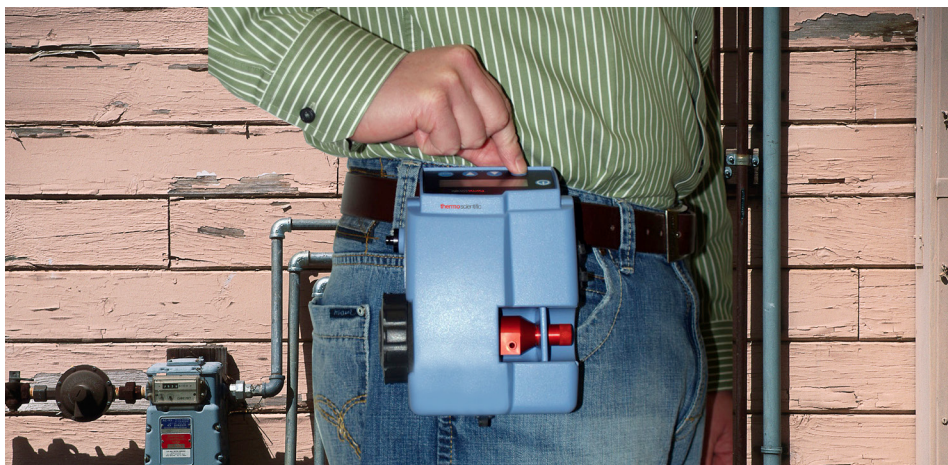
Features

- True volumetric flow control
- Interchangeable cyclones for higher accuracy cut points
- Personal aerosol instrument with benchtop performance
- Full compensation for environmental variables
- Suitable for NIOSH Methods 0500 and 0600

Introduction

The pDR-1500 personal DataRAM is designed for applications such as site remediation, size discrimination, mass validation, exposure modeling, and protection of asthma patients.

The pDR-1500 personal DataRAM accurately measures aerosol



concentration in real-time, with relative humidity compensation, true volumetric flow control and legacy pDR nephelometry. An integrated sample filter enables post-gravimetric validation of data.

Superior particle-cut points compared to those achievable using impactors are

delivered through volumetric flow control and ACGIH traceable cyclones, available in pairs, for PM10 and PM4 or PM2.5 and PM1. A toroidal entrance assures optimized aerosol aspiration and a representative sample even without a cyclone.



Thermo Scientific™ Personal DataRAM
pDR-1500 Monitor

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Specifications	
Concentration measurement range	0.001 to 400 mg/m ³ range (auto ranging) ¹
Scattering coefficient range	1.5 × 10 ⁻⁶ to 0.6m-1 (approx.) @ lambda = 880nm (not displayed)
Precision/repeatability over 30 days	± 2% of reading or ± 0.005 mg/m ³ , whichever is larger, for 1 second (2-sigma) ² averaging time ± 0.5 of reading or ± 0.0015 mg/m ³ , whichever is larger, for 10 second averaging time ± 0.2% of reading or ± 0.0005 mg/m ³ , whichever is larger, for 60 second averaging time
Accuracy ¹	±5% of reading ± precision (traceable to SAE Fine Test Dust)
Resolution	0.1% of reading or 0.001 mg/m ³ , whichever is larger
Particle size range of max. response	0.1 to 10 µm
Aerodynamic particle cut-point range	1.0 to 10 µm
Flow rate range	1.0 to 3.5 liters/minute
Concentration display updating interval	1 second
Concentration display averaging time ³	1 to 60 seconds (user selectable)
Data logging averaging periods ³	1 second to 1 hour
Total number of data points logged in memory	> 500,000
Number of data tags	99 (maximum)
Logged data	Averaging concentration, temperature, RH, barometric pressure, time/date, and data point number
Readout display	LCD 16 characters (4 mm height) × 2 lines
Serial interface	USB / RS-232, 19, 200 baud
Computer requirements	IBM-PC compatible, 486 or higher, Windows 95® or higher, ≥ 8 MB memory, hard disc drive 3.5" floppy, VGA or higher resolution monitor
Real time analog signal	0 to 2V and 4 to 20 mA. Selectable full scale ranges of: 0 – 0.1, 0 – 0.4, 0 –1.0, 0 – 4.0, 0 –10, 0 – 40, 0 –100, and 0 – 400
Internal battery run time	4 AA alkaline, > 24 hour run time, 5 V peak-to-peak @ 1.2 L/min; > 6 hour @ 3.5 L/min
Run time @ 25° C	Run time may vary with temperature
Current consumption	70 to 450 mA (in run mode); 32 mA (in ready mode)
Operation environment	-10° to 50°C (14° to 122°F), 10 to 95% RH, non-condensing
Storage environment	-20° to 70°C (-4° to 158°F)
Dimensions (max external)	181 mm (7.1") H × 143 mm (5.6") W × 84 mm (3.3") D
Weight	1.2 kg (41 oz)

Notes

1. Referred to gravimetric calibration with SAE Fine (ISO Fine) test dust (mmd = 2 to 3 µm. g = 2.5, as aerosolized)
2. At constant temperature and full battery voltage
3. User selectable

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