

Thermo Scientific pDR-1500

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



Key Features / Benefits

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

The pDR-1500 was developed to meet a need for a fully integrated, active sampling personal scale instrument with greater accuracy, increased capabilities, low size and weight, maximum ease-of-use and increased operating time. It was designed for applications such as site remediation, size discrimination, mass validation, exposure modeling, and protection of asthma patients.

A lot gets in the way of accurately measuring aerosol concentration in real-time – temperature, humidity, air pressure and sample representation. The pDR-1500 handles all four – 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 pDR 1500 Specifications

To maintain optimal product performance, you need immediate access to experts worldwide, as well as priority status when your air quality equipment needs repair or replacement. Thermo Scientific offers comprehensive, flexible support solutions for all phases of the product life cycle. Through predictable, fixed-cost pricing, Thermo services help protect the return on investment (ROI) and total cost of ownership of your Thermo Scientific air quality products.

Concentration Measurement Range	0.001 to 400 mg/m ³ range (auto ranging) ¹
Scattered Coefficient Range	1.5 x 10 ⁻⁶ to 0.6 m ⁻¹ (approx) @ lambda= 880nm (not displayed)
Precision/ Repeatability Over 30 days (2-sigma) ²	± 2% of reading or ± 0.005 mg/m ³ , whichever is larger, for 1 second 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
Flow Rate Range	1.0 to 3.5 liters/minute
Aerodynamic Particle Cut-Point Range	1.0 to 10 µm
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 # of Data Points That Can Be 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) x 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 5V 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 with Backlight off	4 AA alkaline, > 24 hr run time, 5 V peak-to-peak @ 1.2 L/min; > 6 hour @ 3.5 L/min
Run Time @25 deg C	run time may vary with temperature
Current Consumption	70 to 450 mA (in Run Mode); 32 mA (in Ready Mode)
Operation Environment	-10°C to 50°C (14°F to 122°F), 10 to 95% RH, non-condensing
Storage Environment	-20°C to 70°C (-4°F to 158°F)
Dimensions (max external)	181 mm (7.1in) H X 143mm (5.6in) W x 84mm (3.3in) D
Weight	1.2kg (41oz)

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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