

# Aurora-3000

## 3 Wavelength Nephelometer

The Aurora-3000 is the instrument of choice when analysis is required on a number of different contributors to air pollution or for studies regarding global warming using backscatter.



Using an innovative LED light source, the Aurora-3000 simultaneously measures at 525nm (green), 450nm (blue) and 635nm (red) to enable wide and in-depth analysis of particulate matter.

By measuring the response of these 3 wavelengths to different particulates in the ambient sample, the user is able to gain further insight into the nature and chemical composition of particulate matter by source groups.

Standard integrating Nephelometers measure the integrated scattering of light ( $10^{\circ}$ - $170^{\circ}$ ) from particulate matter, but do not measure the back and forward scatter separately.

The Ecotech Aurora now includes Backscatter measurement in the standard unit. Backscatter measurement allows the measurement of light scattered back towards the light source ( $90^{\circ}$ - $170^{\circ}$ ) after colliding with particulate matter.

This new feature allows the analysis of parameters involved in climate studies such as global radiation balance. Furthermore it is relevant for general air quality studies such as pollution sources comparison.

## Features

### **Increased accuracy**

- Automatic optical reference calibration
- Enhanced light-source increases measurement accuracy

### **Ease of use**

- Compact and portable
- Span gas selection and calibration values for CO<sub>2</sub>, SF<sub>6</sub>, FM-200, R-12, R-22, R-134 or a user defined gas
- Internal sample heater which can be enabled by the user to eliminate the effects of humidity (RH: <40% to <90%)
- Automatic Zero check or adjust, Automatic Span check or Automatic Zero & Span check available in intervals of 1,3,6,12 or 24 hrs. Checks may also be performed weekly
- Data downloader and Firmware upgrading software supplied on CD

### **Low cost of ownership**

- Facilitates a wide measuring range ( $\sigma_{sp}$  <0.25 Mm<sup>-1</sup> to > 2 000 Mm<sup>-1</sup>)
- Internal 12V heater eliminates the need for external inlet heater
- Long lasting LED light source

**ECOTECH**WORLD CLASS  
environmental  
MONITORING

## Specifications

Parameter:	Light scattering coefficient of particles $\sigma_{sp}$ at (450, 525, 635nm)
Ranges:	<0.25 to >2 000 Mm <sup>-1</sup>
Lower Detectable limit:	<0.3 Mm <sup>-1</sup> (60 second averaged data)
Secondary Measurements:	Sample air temperature, chassis temperature, relative humidity and sample pressure
Intensity function:	full scatter      10-170° back scatter      90-170°
Flow rate:	≈5 l/min
Operating Temperature:	0 to 45°C
Operating RH:	10 to 95%
Outputs:	4 analogue outputs (2 voltage & 2 current) and RS 232 multidrop serial port
Filtering:	Kalman (digital adaptive filter), Moving average (30 seconds) or no filter
Optics:	Reference brightness measurement
Light source:	Stable LED light source
Wavelength:	525nm (green), 450nm (blue) & 635nm (red)
Operating Voltage:	110-240 VAC 50/60 Hz or 12 VDC (60 watts with heater active)
Stored Parameters:	Date & Time, $\sigma_{sp1(635)}$ , $\sigma_{sp2(525)}$ , $\sigma_{sp3(450)}$ , Air temp, Enclosure temp, RH, Pressure, Status
Capacity:	Maximum of 45 days of 5 minute averages, or 10 days of 1 minute averaged data
Dimensions:	170mm x 700mm x 215mm (L x W x H)
Weight:	11.2kg
Options:	Additional sample tube Roof flange kit Rain cap with insect screen Gas Calibration kit Wall mount bracket



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