

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.

The Ecotech Aurora 3000 includes backscatter measurement that allows both standard integrating measurements of 9-170° but also just the back scatter 90-170°.

The Aurora 3000 allows the analysis of parameters (backscatter/forward scatter) involved in climate studies and specifically global radiation balance. Furthermore the Aurora 3000 is relevant for general air quality studies such as pollution sources comparison.



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 CO₂, SF₆, 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 (σ_{sp} <0.3 Mm⁻¹ to >20,000 Mm⁻¹)
- Internal 12V heater eliminates the need for external inlet heater
- Long lasting LED light source

Specifications

Parameter:	Light scattering coefficient (σ_{sp}) at (450, 525 and 635nm)
Ranges:	<0.3 to >20,000 Mm^{-1}
Lower Detectable limit:	<0.3 Mm^{-1} (60 second averaged data)
Secondary Measurements:	Sample air temperature, chassis temperature, relative humidity and sample pressure
Intensity function:	full scatter 9-170° back scatter 90-170°
Flow rate:	≈5 l/min
Operating Temperature:	0 to 45°C
Operating RH:	10 to 95%
Calibration:	Span gas selection and calibration values for CO ₂ , SF ₆ , FM- 200, R-12, R-22, R-134 or a user defined gas
Optics:	Reference brightness measurement
Light source:	Stable LED light source
Wavelength:	525nm (green), 450nm (blue) and 635nm (red)
Operating Voltage:	12 VDC (including 110-240 VAC 50/60 Hz power converter) (60 watts with heater active)
Dimensions:	6.7in x 27.5in x 8.5in(L x W x H) (170 x 700 x 215mm)
Weight:	24.7 lbs (11.2kg)

Communications/Data logging

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
Stored Parameters:	Date & Time, σ_{sp} (635, 525 or 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

Options

- Additional sample tube
- Roof flange kit
- Rain cap with insect screen
- Gas Calibration kit
- Wall mount bracket

Applications

- Studies on Backscatter and forward scatter
- Global radiation balance studies
- Particulate monitoring studies including extra data on particulate characterization