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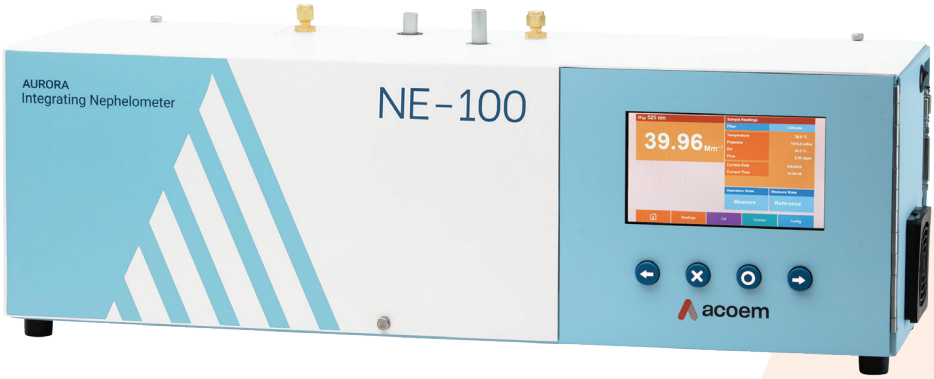

Aurora™ NE-100

Integrating Nephelometer

Easy to use and maintain, the Acoem Aurora NE-100 delivers affordable excellence for aerosol light scattering, visibility and particulate monitoring.

It uses a single wavelength for scattering coefficient visibility measurements at one of three user-specified wavelengths.

By collaborating with globally renowned atmospheric research institutes, Acoem provides the scientific community with the most advanced commercially available nephelometers.

The Aurora NE-100 is equipped with a three wavelength light source. Any one of the following wavelengths can be selected:

- **450 nm (blue) for fine & ultra fine particulates (wood fires, automobiles)**
- **525 nm (green) for visibility**
- **635 nm (red) for large particulates (e.g. pollen, sea salt). Note: If using the 635 nm wavelength, Acoem recommends adding the wide bandwidth PMT option for minimal noise.**

Benefits

- New, more powerful microprocessor enhances signal processing, operation speed, reliability & future expandability
- Real-time remote monitoring with on-board data logging provides practically unlimited data collection
- Enhanced connectivity with network TCP/IP port, micro-SD card, USB port & RS232
- 7″ full colour touchscreen display with an intuitive menu system
- Quick access to instrument cell & filters for easier maintenance & service when required
- Seamless integration of internal ball valves ensures sample isolation during calibration
- Improved calibration process with span & zero gas following the same path into the cell as the ambient sample
- Internal sample heater with temperature or RH control, which you can enable to eliminate the effects of humidity
- Internal sample pump & flow sensor for accurate flow control with the option for volumetric flow control
- Simplified automatic calibration using internal valves, ideal for remote locations
- Fully programmable span check, zero check, span adjust, zero adjust or full calibration
- 24 VDC operation (100 W max with supplied mains power supply)
- Fully integrated data logging of all parameters with storage to either USB or SD card for many years
- Free Airodis™ demo version supplied on USB or via internet
- Storage & automatic backup of configuration & calibration files
- Increased light source intensity & reduced truncation angle, lower instrument noise & decreased wall scattering from internal reflections compared to previous generation Aurora 1000
- LED light source is guaranteed not to fail within 3 years & often exceeds 5 years lifetime
- Heat generated by the light source is reduced by using high efficiency LEDs & fans, minimising changes in sample RH
- LEDs emit light at a specific wavelength eliminating the need for band pass filters.

Applications

- Visibility measurements (airports, city pollution, AAQMS)
- Dust / sand storm monitoring & early detection networks
- Bushfire pollution monitoring & early detection networks
- $PM_{2.5}$ mass measurement correlation studies.

Increased accuracy

- Automatic calibration
- Easy maintenance / cleaning of the measurement cell
- Long-lasting LED light source
- Intuitive software & maintenance
- Automatic optical reference calibration
- Facilitates a wide measurement range (0 to 20,000 Mm^{-1}).

Affordable excellence

- Fully automatic zero & span calibrations
- No bandpass filters to be replaced
- Unique in its simplicity & practicality.

Options

- Wide bandwidth PMT for 635 nm measurement
- Ambient Temperature & RH sensor for volumetric flow control
- Annual service kit
- 20 lpm mass flow control option & external pump
- Roof flange, inlet extensions & rain cap with insect screen
- Gas calibration kit
- Wall mount bracket.

Specifications

Measured parameters:	Light scattering coefficient (σsp) at (450 nm, 525 nm or 635 nm)
Ranges:	0.0 to 20,000 Mm^{-1}
Lower detectable limit:	< 0.1 Mm^{-1} (60-second averaged data)
Secondary measurements:	Sample temperature, pressure & relative humidity (RH) (multiple raw instrument parameters)
Flow rate:	3 - 9 slpm with internal pump & flow sensor 5 - 17 slpm with external pump & MFC option
Operating temperature:	- 20 to 45 °C
Operating RH:	10 to 95 %
Calibration:	Span gas available for CO_2, SF6, FM-200, R-12, R-22, R-134 or a user-defined gas
Optics:	Reference light source measurement
Light source:	Stable LED light source (US patent 7,671,988)
Wavelength:	450 nm (blue), 525 nm (green), 635 nm (red)
Operating voltage:	24 VDC (incl 110 - 240 VAC 50 / 60 Hz power supply)
Dimensions:	260 x 730 x 240 mm
Weight:	13.8 kg
Altitude:	2000 m (15,000 m with 24 VDC operation).

Communications & data storage

Outputs:	25 pin external I/O (4 analog inputs, 6 analog outputs, 4 digital inputs & outputs)
Interfaces:	2 x RS232, USB, TCP/IP
Filtering:	Kalman (digital adaptive filter), moving average, rolling average or no filter
Data average:	1 second to 1 day
Stored parameters:	Date & time, σ_{sp} (450, 525 & 635 nm), sample temperature, pressure & RH, over 100 raw instrument parameters
Capacity:	Minimum 32 GB SD card or USB key
Data collection:	Complimentary Airodis™ demo analysis software provided.

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