Dekati® provides state-of-the-art instrumentation for ambient aerosol research. Our aerosol measurement solutions have been successfully used in various ambient aerosol research areas for over 25 years. Today, our instruments are used globally by thousands of customers both in research and industry to measure different properties of airborne particles <10 µm.

Dekati® Ambient Aerosol Research Solutions

- Particle concentration and size distribution studies in different environments
- Road side measurements
- Direct measurement of condensation and ion sinks
- Particle phase state studies
- Particle density and shape studies
- Eddy covariance flux measurements
- Source apportionment studies
- General research on aerosol properties

ELPI®+ and HR-ELPI®+
for real-time particle number concentration and size distribution measurement

The Dekati® ELPI®+ (Electrical Low Pressure Impactor) is a unique, widely-used and well-characterized instrument for real-time particle size distribution and concentration measurements. The ELPI®+ measures particles 6 nm – 10 µm using only one measurement method throughout the complete size range requiring no complicated calculation routines to combine data from several instruments into one particle size distribution. Due to its wide operational particle size range, ELPI®+ can be used to measure particles in ultrafine, fine and coarse modes covering the complete size range with only one measurement technique. Additionally, ELPI®+’s real-time response of 10 Hz enables detection of rapid changes in the sample concentration and size distribution in up to 500 size fractions. Since ELPI®+ uses an impactor for size classification, particles can also be collected for further determination of chemical composition of the size classified particles.

- Size range 6 nm – 10 µm, the complete range covered with only one measurement technique
- 14 size classes with standard ELPI®+, up to 500 size classes with High Resolution ELPI®+
- 10 Hz time resolution
- Wide operational concentration range allows ambient air measurements in remote areas as well as measurements directly from a local particle source
- Size classified particles are collected — possibility for chemical and SEM/TEM analysis
- ELPI® instrument is specified as an instrument to measure particle number concentration in ambient air according to VDI guideline 3867, Blatt 6 and in ISO 16000-34 standard to monitor indoor air quality
ELPI®+ calibration references


ELPI®+ references


ELPI®+ monitoring inside the Cisarska Cave in the northern part of the Moravian Karst (Czech Republic) by Transport Research Center (CDV). Photo by Krivanek, Transport Research Centre (CDV).
**Dekati® Low Pressure Impactor (DLPI+)**

The Dekati® Low Pressure Impactor (DLPI+) is a widely used and well characterized cascade impactor for detailed particle size distribution analysis. This impactor gives information on particle size distribution in 14 size fractions from 16 nm to 10 μm. The DLPI+ design is the same as in the impactor used in the ELPI®+(Electrical Low Pressure Impactor) enabling an easy upgrade from DLPI+ into a full ELPI®+ system for real-time particle size distribution measurements. The DLPI+ setup in ambient air measurements is simple to use and includes the DLPI+ unit, a vacuum pump and a PM10 inlet.

**Features**

- Gravimetric or chemical analysis of size classified particles
- Particle size distribution in 14 size fractions 16 nm - 10 μm
- Sample flow rate 10 lpm
- Particle collection area Ø25 mm
- Integrated low pressure measurement and control, no additional flow control device needed
- Can be upgraded to an ELPI®+ for real-time measurements
- Stainless steel stages for reliable operation even in challenging environments

**Dekati® eFilter™**

for real-time measurement of particle mass, number, and LDSA

The Dekati® eFilter™ is a unique instrument that combines a standard gravimetric filter holder and sensitive real-time PM, PN and LDSA detection in one compact instrument. The Dekati® eFilter™ assembly includes a standard gravimetric filter holder that is used to determine gravimetric mass of particles in the sample. In addition to the gravimetric filter measurement, the eFilter™ has a real-time particle detection module that measures changes in particle concentration throughout the filter sampling period. The real-time measurement is conducted in a miniature diffusion charger – electrometer module and the resulting current signal can be directly converted to LDSA concentration. The eFilter™ software additionally allows PM and PN calculations in real-time. Since this real-time detection module is replaceable, no complicated cleaning procedures are required to maintain the instrument in perfect condition.

**Features**

- Combined gravimetric PM and real-time PM, PN and LDSA measurement
- Real-time measurement in a miniature diffusion charger - electrometer module
- Replaceable real-time detection module
- Battery operated with internal pump for the real-time measurement
- Fully automated operation with a touch screen user interface
Dekati® Accessories for ambient aerosol research

In addition to measurement instruments, Dekati provides complete particle measurement setups for ambient aerosol measurements. The selection of added accessories includes e.g. sampling inlets, sample dryers, pumps, mass flow controllers, as well as substrates and filters for particle collection:

- TSP and PM10 inlets
- Nafion® dryers for removing excess humidity from the sample
- Pumps, including mass flow controllers
- Aluminium and polycarbonate foils, EMFAB and Teflon filters, etc.
- Tripods and other accessories

Dekati® Dryer for removing humidity from the sample

Dekati® Dryer is a particle dryer designed to remove water in real-time from an aerosol sample. Since most ambient air particles are hygroscopic they grow as the ambient humidity increases. Traditionally this water has been removed from the particle sample after gravimetric collection by equilibration or heating of the sample. Both of these methods may also result in loss of other volatile components from the sample, whereas the Dekati® Dryer only removes the water.

The operation of the Dekati® Dryer is based on co-polymer Nafion® tubes for removing humidity from the sample. The Dekati® Dryer has been specially designed to minimize particle losses and maximize drying efficiency when used together with the ELPI®+ or the High Resolution ELPI®+.

Contact us for details and we can recommend the best solution for your measurements!