



On-board engine emission measurements have gained importance during recent years. Driven by environmental concerns, there is a strong push to make sure that engine emission levels during actual driving - so called RDE or real-driving emissions - are in line with levels measured during laboratory tests. In many regions, lawmakers have made RDE testing compulsory.

RDE tests put additional requirements on test equipment, known as PEMS or Portable Emission Measurement Systems. PEMS equipment needs to be compact, portable, durable and power-efficient while still fulfilling all emission measurement requirements. Dekati offers various set-ups for on-board particle emission measurements, both for development purposes and for regulatory compliance testing.

## Dekati® Solutions for On-board Emission Measurements

- Complete system for standardized EURO 6 RDE measurements
- Advanced aerosol measurement system for real-time concentration and detailed particle size distribution measurements

## Dekati® Mobile Particle Emission Counter MPEC+™ All-in-one solution for EURO 6 RDE measurements

The Dekati® MPEC+™ (Mobile Particle Emission Counter) is a compact and portable instrument for easy onboard PN-PEMS measurements. At the core of the MPEC+™ is the patented Dekati® ePNC™ particle counting technology, which has been further optimized for fast transient emission measurements. The MPEC+™ is the device of choice for highly accurate PN-PEMS testing in accordance with RDE requirements. The Dekati® MPEC+™ has been extensively tested and verified in some of the harshest driving and climate conditions to make sure it always delivers superb measurement performance.

The MPEC+™ system consists of the Dekati® ePNC™ particle counter combined with a sample conditioning system that allows direct connection to raw exhaust gas. The innovative Dekati® ePNC™ particle counting technology is based on diffusion charging, diffusion particle collection and electrical detection of collected particles. Its patented low-pressure operation provides an electrical current signal that is directly proportional to particle number (PN) concentration. For RDE purposes, the ePNC™ has been further enhanced to accurately measure exhaust particle concentration in transient conditions.

- Complete system for PEMS/on-board engine exhaust PN measurements
- PN measurement performance in accordance with EURO 6 RDE (EU RDE Directive 2017/1154)
- Particle counting with a Dekati® ePNC™ combined with a sample conditioning system
- Fast time response
- Up to 10 Hz sampling frequency
- Integrated accelerometer
- Low power consumption, standard 230 VAC power supply, with 24 VDC as an option



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## Dekati® High Temperature ELPI®+ (HT-ELPI®+) for direct tailpipe measurement of particle concentration and size distribution



The Dekati® High Temperature ELPI®+, HT-ELPI®+ is a unique, widely-used and well-characterized instrument for real-time particle size distribution and concentration measurements in the particle size range of 6 nm - 10 µm. The measurement method of the ELPI®+ is the same for all of the particle sizes, making the ELPI®+ the only instrument available in the market that operates in such a broad particle size range using only one measurement technique. Since the ELPI®+ also operates in a wide particle concentration range, it is well suited for both high and low concentration measurements. The ELPI®+'s robust structure is designed to be used even in harsh environmental and sample conditions, and the High Temperature ELPI®+ can even be used to sample aerosols directly from 180 °C.

- Direct measurement from an engine tailpipe
- No dilution system needed - no need for air compressors
- Real-time particle size distribution and concentration measurement
- Particle size range of 6 nm – 10 µm in real-time
- 14 size classes, up to 500 with the High Resolution ELPI®+ (HR-ELPI®+)
- 10 Hz sampling rate to enable detection of rapid changes in the sample concentration and size distribution.
- Can be heated up to 180 °C
- Wide operational concentration range allows measurements from both high and low emitting engines

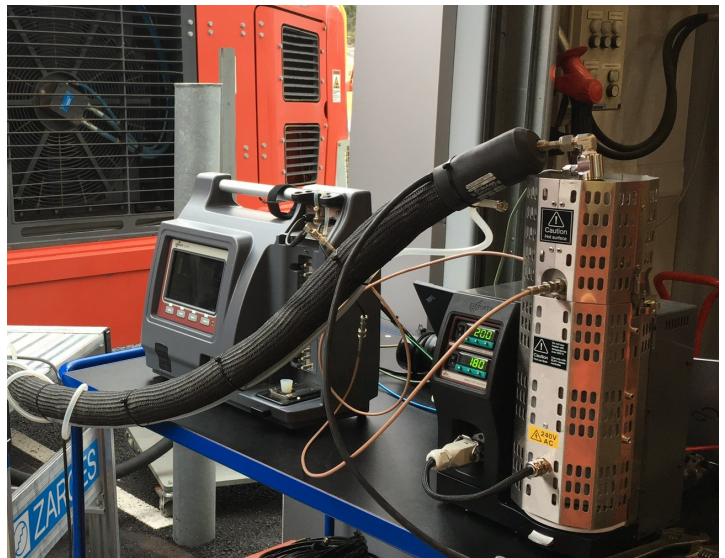
The setup of the HT-ELPI®+ for emission measurements is very simple; a perforated probe extracts the sample from the tailpipe and the sample is then led via a heated transfer line to the HT-ELPI®+ unit. The heated sampling line is always provided with the HT-ELPI®+ unit.

### DEED-150 heated sampling line with temperature controller

The DEED-150 is a heated sampling line that allows drawing hot samples directly from the tailpipe to a dilution and/or measurement instrument. Heating of the sampling line avoids unwanted cooling down of the sample, particle losses and sample transformations. The heating temperature can be set via a separate temperature controller. The heated line is available in two different lengths; 1.5 m and 3.0 m and comes with a perforated sampling probe for tailpipe connection.



► Dekati Ltd. is a world leader in designing and manufacturing innovative fine particle measurement solutions. We have 30 years of experience in providing measurement instruments and complete measurement solutions to a wide variety of environments and sample conditions. All Dekati® Products are developed and manufactured in Finland and are available with up to five-year warranty.



ISO 9001

**BUREAU VERITAS**  
Certification



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