



Excellence in Particle Measurements



Dekati®

Mobile Particle Emission Counter MPEC+™

All-in-one solution for mobile and stationary ultrafine particle (UFP) emission measurements

Fast & accurate particle number (PN) counting

Powered by patented ePNC™ technology



Dekati®

Mobile Particle Emission Counter

MPEC+™

Description

The Dekati® MPEC+™ (Mobile Particle Emission Counter) is a compact, portable instrument designed for a wide range of mobile and stationary particle number (PN) measurements. At its core is the patented Dekati® ePNC™ particle counting technology, further optimized for dynamic emission measurements in the ultrafine particle (UFP) size range. The MPEC+™ delivers accurate, repeatable, and reliable PN measurements for both testing and continuous monitoring applications. It is ideally suited for mobile measurements, including on- and off-road real-driving emissions (RDE), marine PEMS, and automotive non-exhaust emissions (NEE), as well as stationary applications such as generator sets, data centers, industrial workplaces, and airport UFP emission monitoring. Thoroughly tested under some of the world's most demanding field operating conditions, the MPEC+™ provides durability and performance whenever accurate PN measurements are required, and can be used as a stand-alone instrument or easily integrated into a larger measurement system.

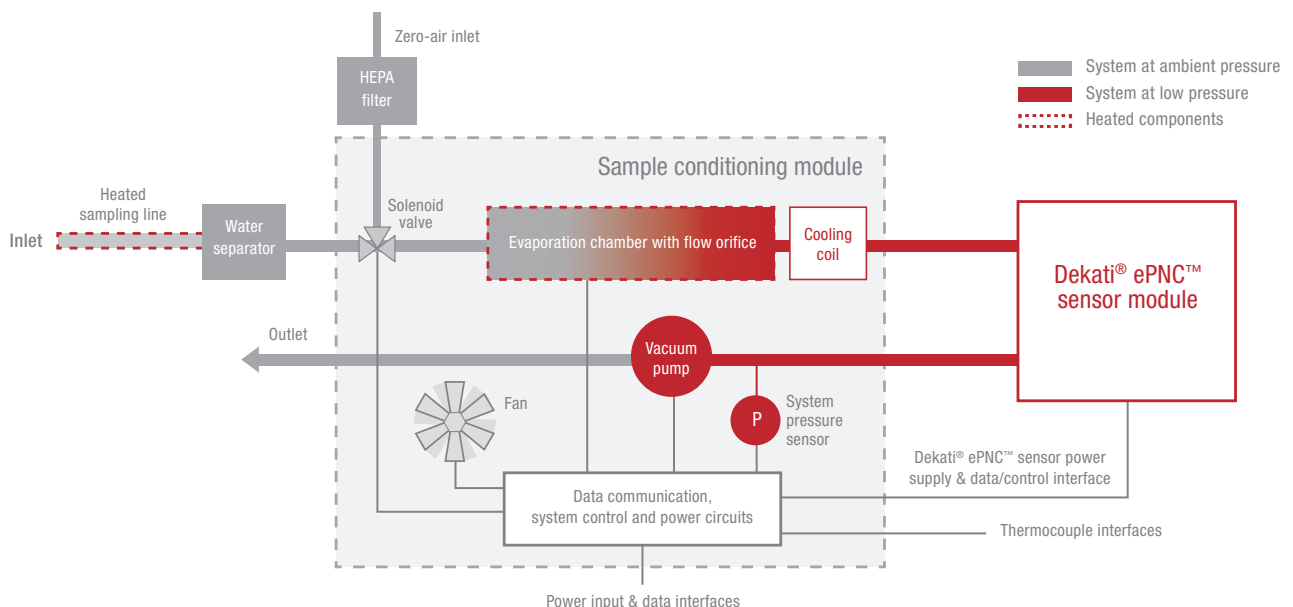
Operating Principle

The Dekati® MPEC+™ combines the Dekati® ePNC™ particle counter sensor with an integrated sample conditioning system, enabling direct sampling from high-temperature samples. The patented Dekati® ePNC™ technology is based on diffusion charging, diffusion particle collection, and electrical detection of collected particles. Its unique



low-pressure operating principle generates an electrical current directly proportional to particle number (PN) concentration. Optimized for extended emission measurements under high load conditions, the ePNC™ sensor accurately tracks rapid changes in particle concentration also under dynamic operating conditions. Its modular design allows for easy maintenance.

The sample is delivered to the MPEC+™ through a heated sampling line and an optimized water separator designed to minimize particle losses. The sampling line temperature is adjustable, and continuously monitored. Inside the MPEC+™, the sample passes through a dedicated conditioning system featuring a heavy-duty heated evaporation chamber (VPR) with an integrated critical orifice that maintains a constant sample flow independent of exhaust pressure fluctuations. Low-pressure operation eliminates the risk of water or VOC condensation in the system. An internal fan ensures stable operating temperatures under all conditions. Integrated temperature and pressure sensors continuously monitor sample conditions throughout the measurement. The evaporation chamber can be switched on or off to measure either solid or total PN concentrations.



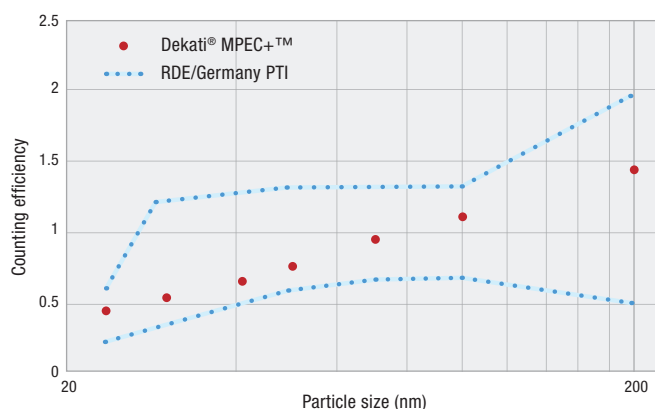
Operating principle of the Dekati® MPEC+™



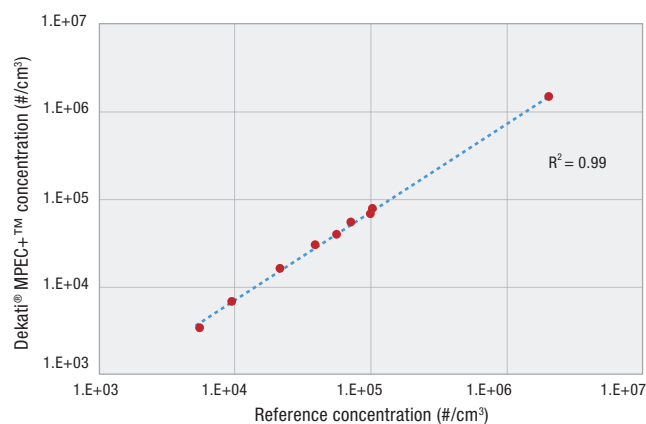
The Dekati® MPEC+™ is a complete and versatile stand-alone PN measurement system featuring an integrated heated sampling line with a removable dedicated sampling probe, a low-loss water separator, a heavy-duty volatile particle remover (VPR), and a fully integrated vacuum pump.

The patented Dekati® ePNC™ particle counter sensor is the core of the Dekati® MPEC+™, combining exceptional durability, reliable long-term performance, and extended service intervals for demanding emission measurement applications.

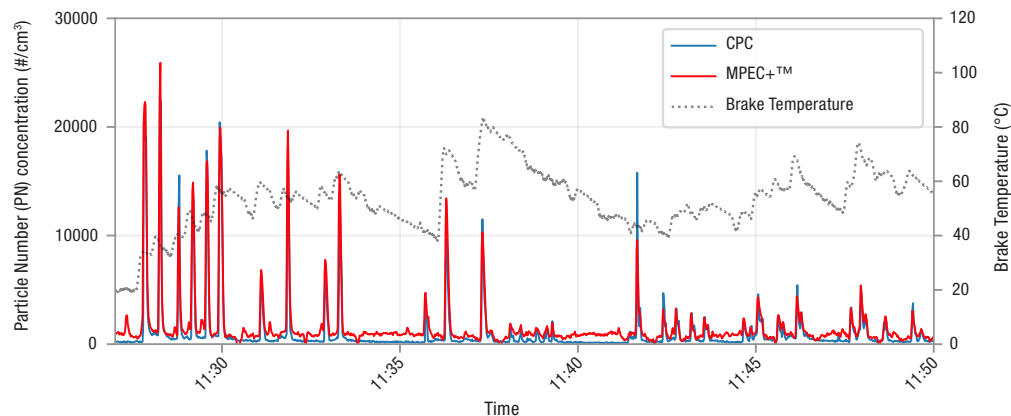
Performance



The counting efficiency of the MPEC+™ complies with the EURO 6 requirements for RDE emissions testing



Linearity of the MPEC+™ response, highlighting its wide PN concentration range



Particle number concentration data gathered by an MPEC+™ in a dynamic brake wear emission test, showing its excellent correlation with CPC values.



Features

- Versatile, all-in-one system for mobile and stationary ultrafine particle number (PN) measurement & monitoring
- Integrated Dekati® ePNC™ PN sensor, adjustable heavy-duty VPR and vacuum pump
- Removable low-loss water-separator and heated sampling line
- PN measurement performance in accordance with EURO 6 (RDE)
- Suitable for solid and total PN measurements
- Integrated accelerometer
- Designed for stand-alone operation or easy integration into measurement systems
- Available for 110/230 VAC or 24 VDC power supply
- Readiness for up to 2 thermocouple inputs
- Input for external trigger signal to start/stop measurements
- Easy user interface
- Built-in system diagnostics and automatic self-checks
- Durable construction for extended operation in demanding environments
- Easy maintenance and service
- USB-C slot for data and communication interface and USB-A slot for external memory card

Specifications

PN concentration range	1.0E+3 – 1.5E+7 #/cm ³
Particle size range	• 23 nm-1.0 µm (readiness for 10 nm) • 23-200 nm range conform to RDE requirements
Counting efficiency, linearity, and VPR efficiency	Conform to RDE Directive EU 2017/1154
Sensitivity	1000 #/cm ³
Sample flow rate	1.8 slpm
Sampling frequency	1 Hz
Sample temperature	max. 200 °C
Operating conditions	0-40 °C
Heated sampling line length	3 meter (Standard)
Power supply	110/230 VAC, optional 24 VDC
Power consumption	max. 600 W (at warm-up)
Exterior dimensions	L448 x D291 x H228 mm
Weight	14 kg (without heated sampling line)

For more information, contact sales@dekati.com or visit dekati.com



Dekati Ltd. is a global leader in advanced fine particle measurement solutions. For more than 30 years, we have developed and manufactured high-precision instruments and complete measurement systems for a wide variety of research and industrial applications. Every Dekati® product is designed and manufactured in Finland to the highest quality standards. Our operations are certified to ISO 9001, and our products are backed by warranties of up to five years. Through a global network of expert distributors in more than 40 countries, Dekati provides local sales, application expertise, and technical support to customers around the world.