

Dekati®

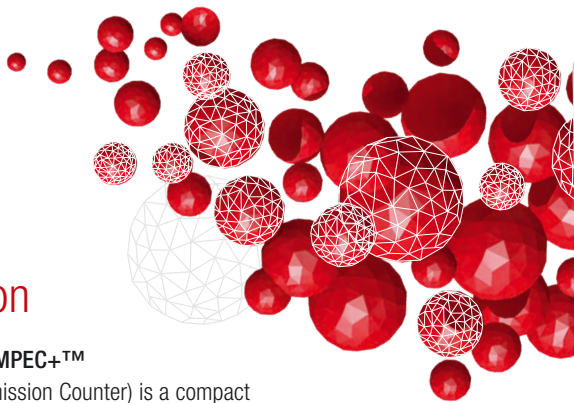
MPEC+™

- ▶ Mobile Particle Emission Counter for PEMS measurements
- ▶ Fast, accurate particle number counting
- ▶ Based on certified ePNC™ technology



Excellence in Particle Measurements

Dekati® MPEC+™



Description

The new 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.

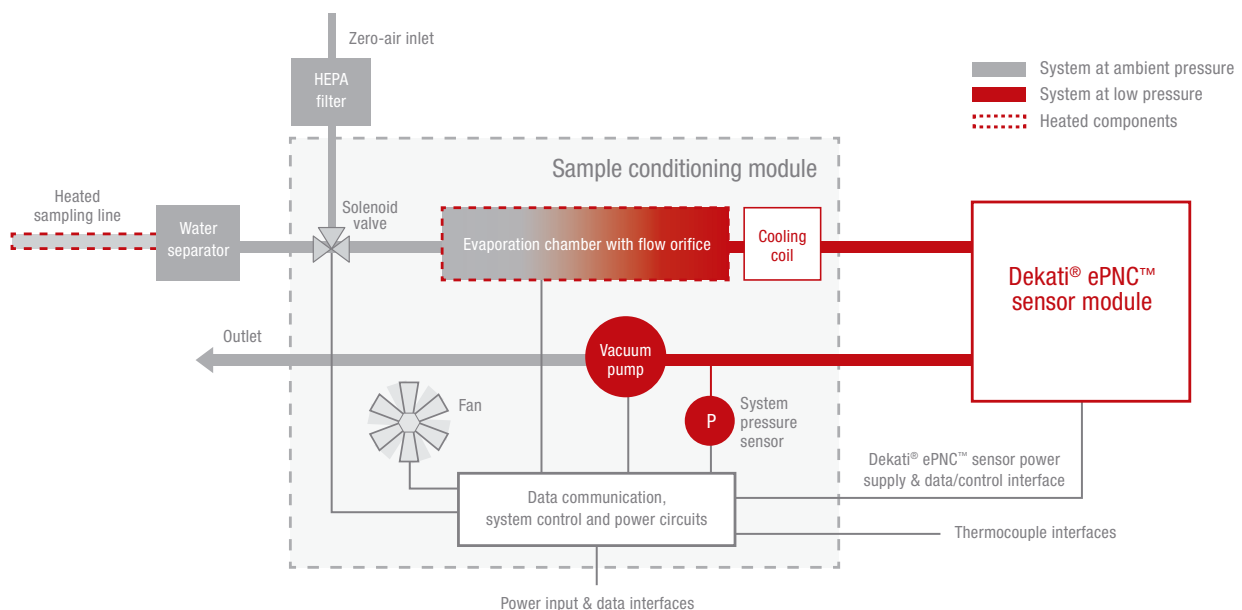
The MPEC+™ is the device of choice for highly accurate PN-PEMS testing in accordance with RDE requirements. The Dekati® MPEC+™ has been thoroughly tested and verified in some of the harshest driving and climate conditions to make sure it always delivers superb measurement performance.



Operating principle

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.

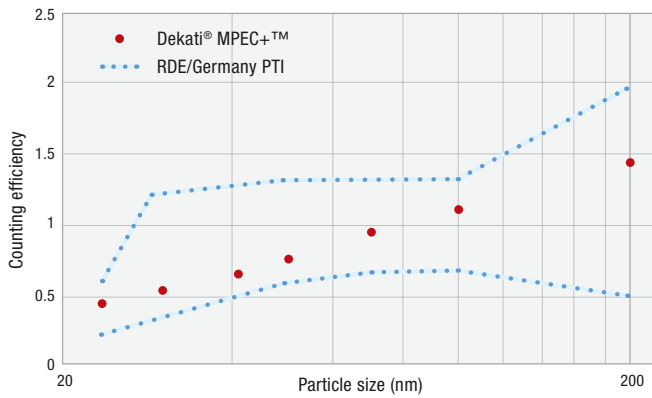
The exhaust gas is lead to the MPEC+™ via a heated sampling line and an innovative water separator that has been optimized for low particle losses. The temperature of the heated sampling line can be easily monitored via the MPEC+™ display. In the MPEC+™, the sample first passes through a dedicated sample conditioning system. This system consists of a heated evaporation chamber with integrated critical orifice that keeps the sample flow constant regardless of pressure fluctuations in the exhaust gas. Since the system operates in low pressure conditions, there is no risk of water or VOC condensation. The MPEC+™ additionally includes various temperature and pressure sensors that constantly monitor the exhaust sample conditions during the measurements.



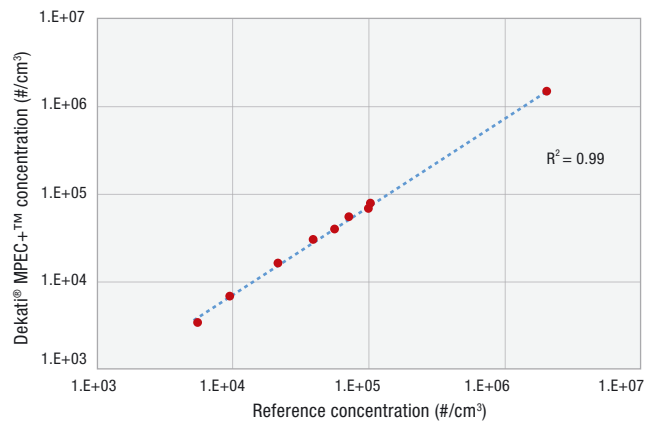
Operating principle of the Dekati® MPEC+™



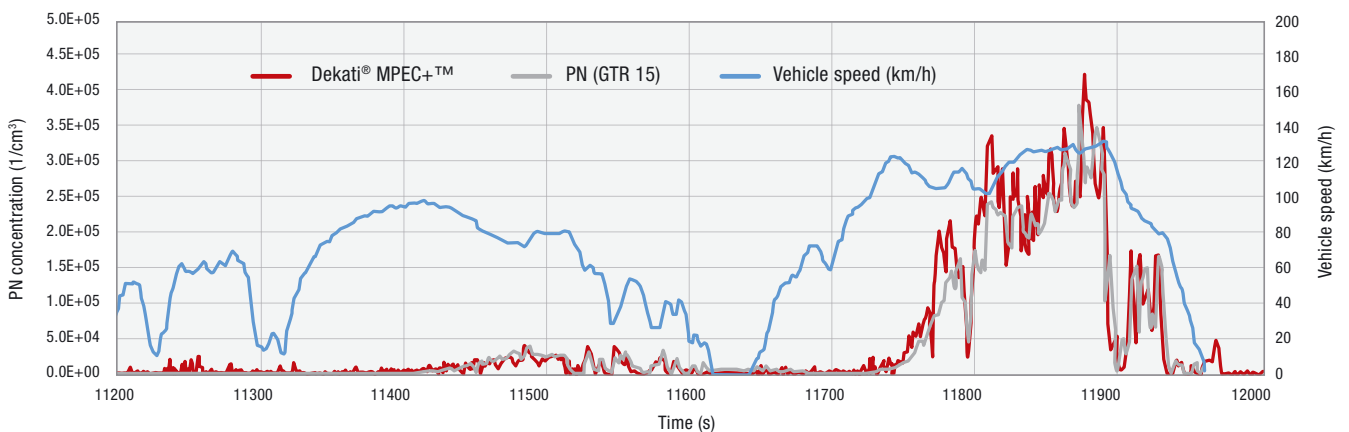
Performance



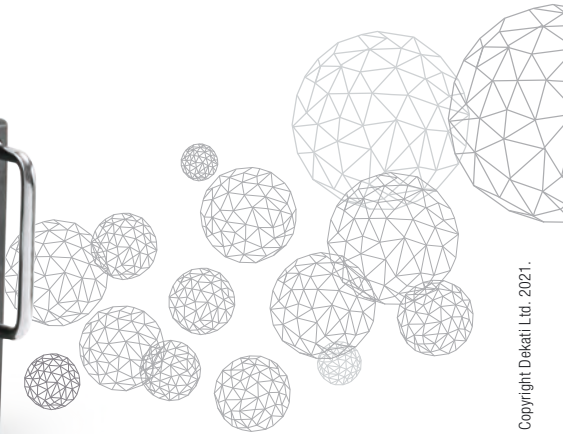
Counting efficiency of the MPEC+™



Linearity of the MPEC+™ response



Particle concentration measurement performance of the MPEC+™ versus measurements according GTR-15



Features

- Complete system for PEMS/on-board engine exhaust PN measurements
- PN measurement performance in accordance with EURO 6 (RDE)
- 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, 24 VDC as an option
- Built-in interface and monitoring for heated sampling line
- Readiness for up to 2 thermocouple inputs
- Input for external voltage signal trigger to start/stop measurements
- Dedicated low-loss water separator with optional heating element for use in cold climate conditions
- Easy user interface
- Robust, sturdy frame
- Easy maintenance and service
- USB-C slot for data and communication interface and USB-A slot for external memory card

Specifications

Counting efficiency, linearity, and VPR efficiency	Conforms to RDE Directive EU 2017/1154
PN concentration range	1.0E3 – 1.5E7 #/cm ³
Particle size range	23 nm-1.0 µm 23-200 nm range in conform with RDE requirements
Sensitivity	1000 #/cm ³
Sample flow rate	1.8 slpm
Sampling frequency	1 Hz / 10 Hz
Operation conditions	10-35 °C
Calibration	According to JRC Real Driving Emissions (RDE) technical report EUR 29036 EN
Heated sampling line length	3 meters (standard)
Power supply	Power supply 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, please contact: sales@dekati.com



► **Dekati Ltd.** is a world leader in designing and manufacturing innovative fine particle measurement solutions. We have over 25 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.

