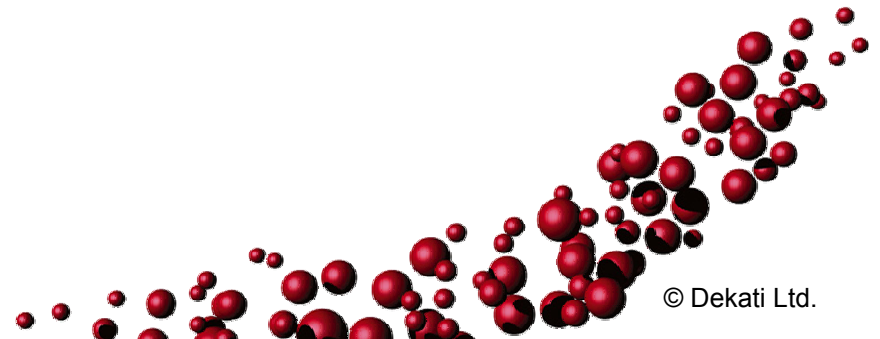


Real Time Particle Measurements for On-Board and Type Approval Testing

Taavi Hiltunen
CEO
Dekati Ltd

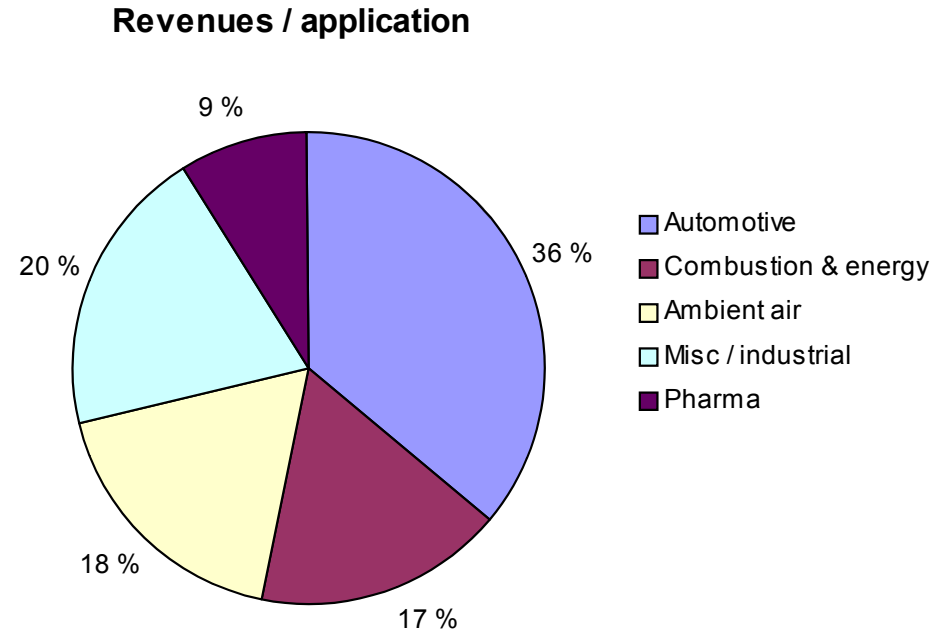
Background

- **Founded 1994**
 - Private owners
 - Technology spin-off from TUT Aerosol Physics Lab
 - Research of real-time measurement techniques
 - ELPI end-development and commercialising by Dekati in mid-1990's
- **Core competence and know-how**
 - Fine particle sampling and measuring technologies
 - Scientific and practical know-how about aerosol measurements



Applications

- Fine particle measurement equipment to a variety of applications
- Automotive market traditionally the most important market for Dekati
- Measurement of particle size, concentration, composition and charge
- Sampling and dilution equipment



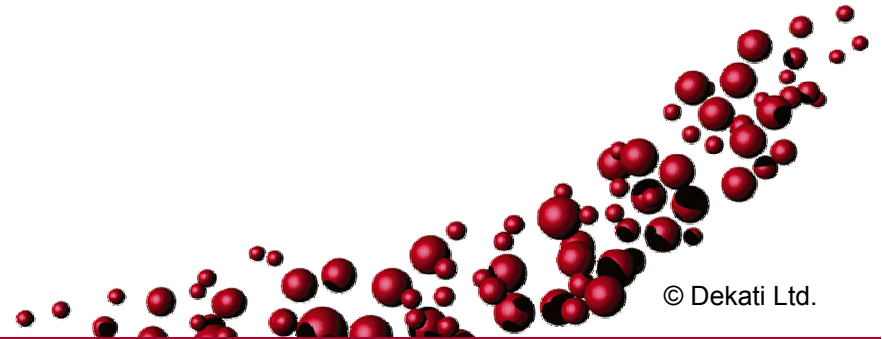
New Releases

Two new product launches

- **Electrical Tailpipe PM Sensor ETaPS** for in-situ on-board particle measurements
- **Dekati Engine Exhaust Diluter DEED** for Euro 5 / Euro 6 particle number count sampling and dilution

Upgrade for the **Dekati Mass Monitor DMM**

- Sheath air upgrade to reduce maintenance need
- Number counting software
- Remote control with AK-protocol



Electrical Tailpipe PM Sensor

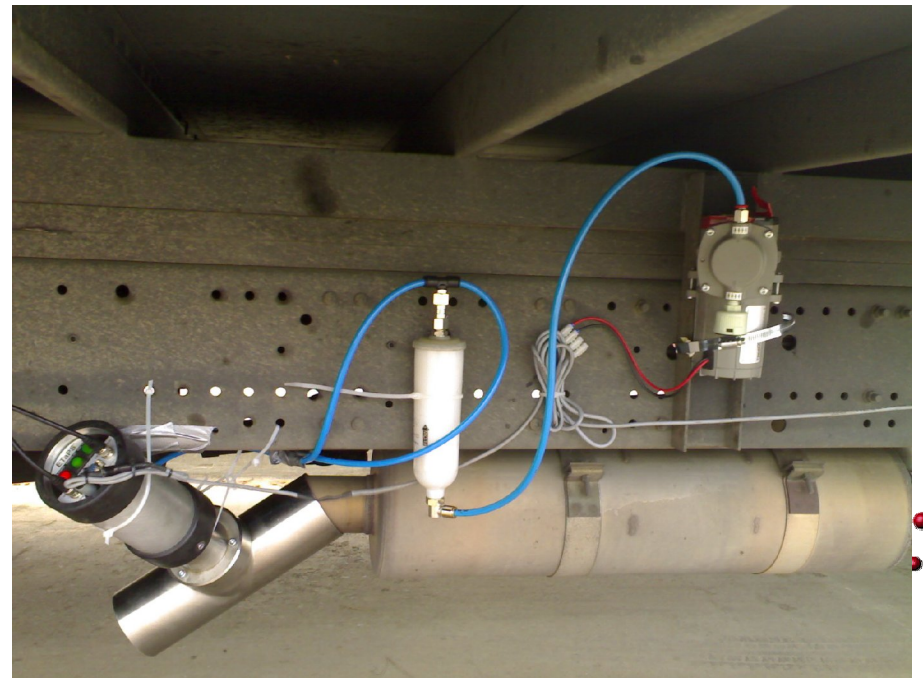
ETaPS™

- An in-situ charger-sensor for vehicle tailpipe PM emission measurements
- Detects the amount of particles flowing through the sensor (escaping charge)
- Non-collecting device
- No sampling or dilution required but needs sheath air
- 12 V operation
- Applications:
 - On-Board measurement
 - In-Use testing (Inspection, testing and maintenance)
 - Engine development
 - Aftertreatment development, trap malfunction tests



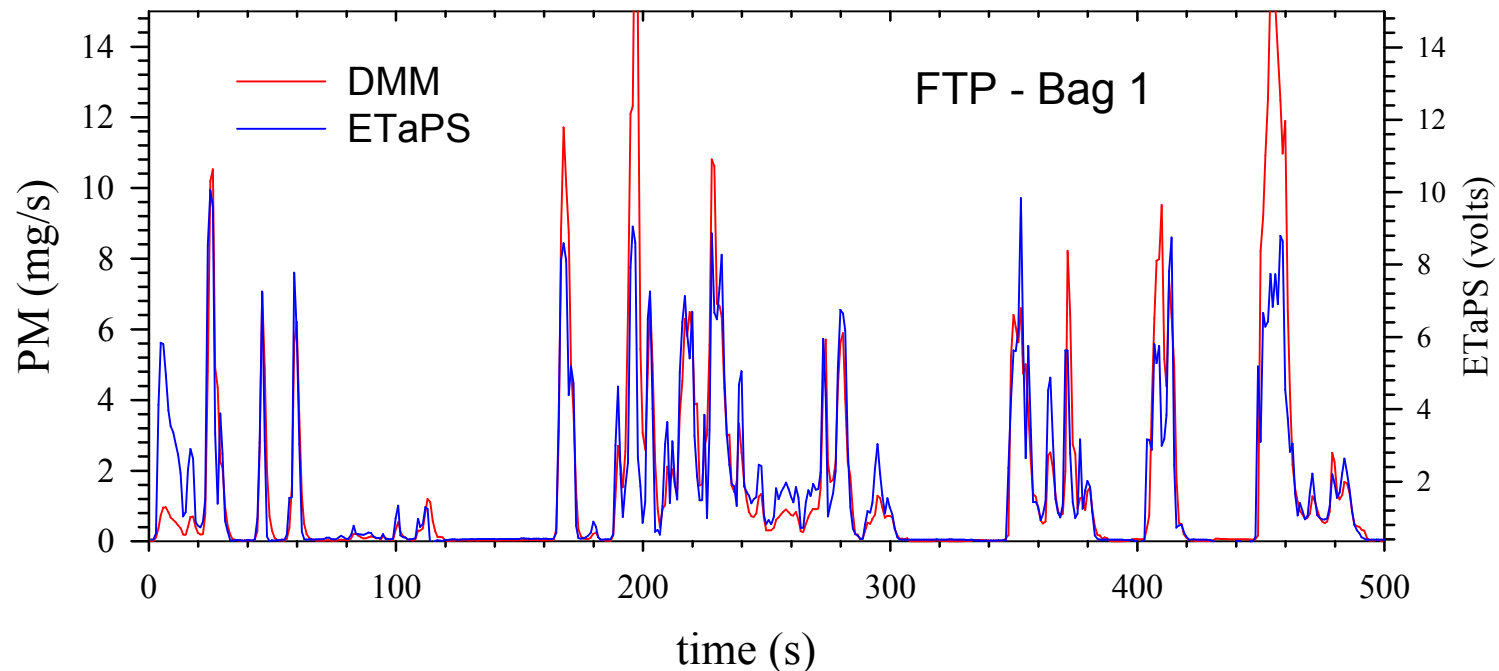
*ETaPS: Electrical Tailpipe
PM Sensor. Pat. Pending*

ETaPS installation examples



ETaPS Example Data

- ETaPS signal is relative – No size classification - never as accurate as size-classifying instruments
- Detects the flux of particles through the sensor – it is not an absolute concentration measurement
- Signal scaled to DMM mass in figure below



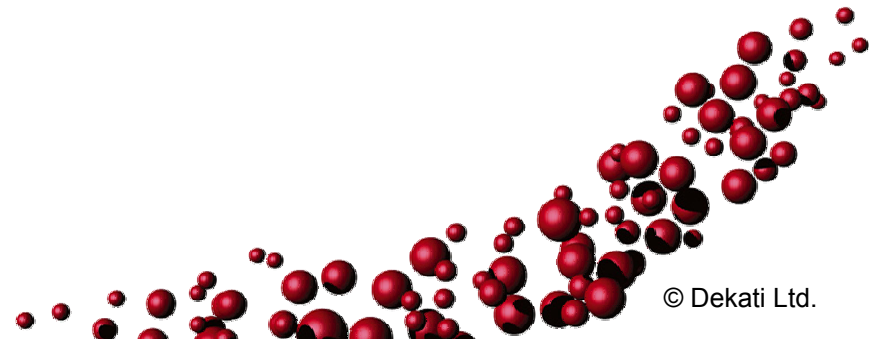
Dekati Engine Exhaust Diluter

DEED™

- Upcoming EURO 5+ legislation includes limits for particle number emissions
- Legislation will specify a detailed sample conditioning system to eliminate measurement variability
- Dekati now offers the Dekati Engine Exhaust Diluter – DEED for this purpose
 - DEED fulfils all requirements and recommendations of the upcoming legislation



Excellence in Particle Measurements



© Dekati Ltd.

Dekati Engine Exhaust Diluter

DEED™

DEED Design criteria:

- Complete compliance to PMP specifications
- Accurate, repeatable and reproducible particle concentration reduction
- Easy operation, no need for user training
- Minimum instrument downtime
- Simple and robust design
- Entire instrument contained within a single rack-mountable cabinet

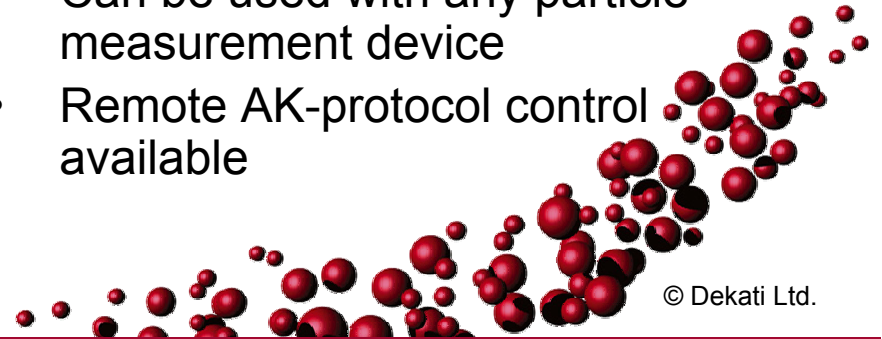
DEED Instrument features:

- Fulfils all PMP recommendations for sample conditioning
- Extremely low solid particle losses
- Simple user interface – only two operation switches
 - High/Low dilution ratio
 - Heating on/off
- Always constant dilution ratio
 - High reproducibility
- Very robust
 - No moving parts
- Can be used with any particle measurement device
- Remote AK-protocol control available



Excellence in Particle Measurements

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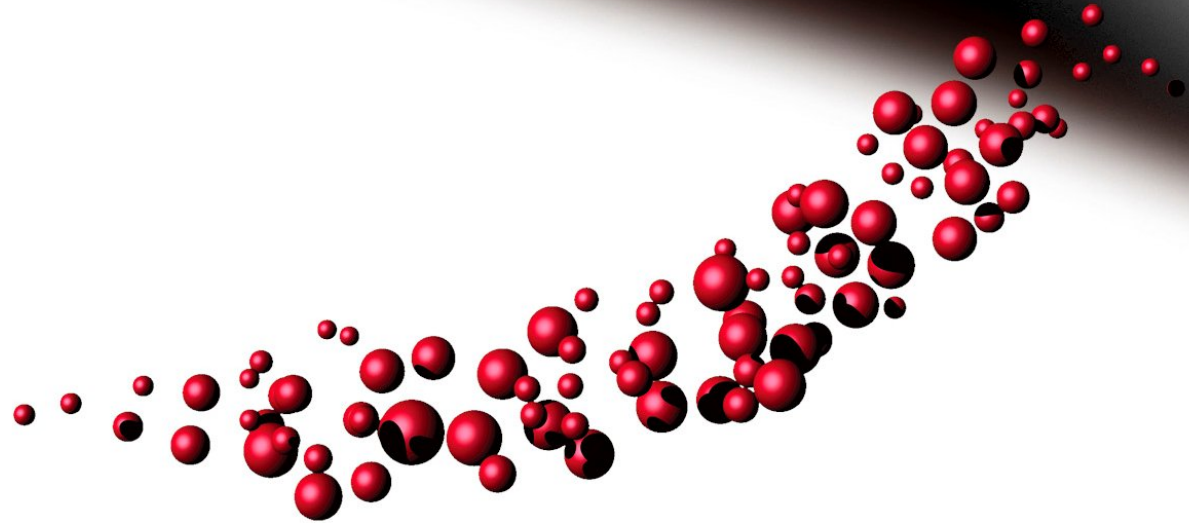


Dekati Mass Monitor

DMM™

- Used for accurate total PM mass measurements both pre- and post DPF
- Sampling systems for tailpipe and CVS tunnel measurements
- **NEW:** Now available with number counting software and AK-Protocol
 - Single device for particle mass and number emission measurements
 - Remote control and system integration with AK-Protocol





Excellence in Particle Measurements

Please visit us at booth n:o 1506

For more information, please contact sales@dekati.fi, office@ms4.info or go to www.dekati.fi