

ExIS Newsletter, March 2012

Preamble

The breaking news in this issue of ExIS newsletter is the release of the new I-series of the mini dilution system PSS-20 from Control Sistem. PSS-20 was one of the first partial dilution systems on the market and has been updated on a regular basis since then. Now, we have come to the "I" series. The features and modifications of this instrument in comparison to previous versions are highlighted.

(Tip: click on the headlines below to navigate to the section of interest in the document)

Headlines

The new I-series of PSS-20 from Control Sistem

The new I-series of the mini dilution system PSS-20 has been launched and the first units have been delivered to customers.

Gas turbine measurements with Dekati instruments

Recently, there has been a significant increase in gas turbine measurements. Dekati provides instruments and equipment for both dilution and mass measurements.

EACS update

An update on the Engine Altitude Conditions Simulator (EACS) from Control Sistem is provided.

Grimm EDM update

An update on Grimm's EDM family of instruments is provided.

Topas Thermodenuder

The Model TDD 590 thermodenuder is designed to remove moisture and volatile particles from an aerosol sample for the subsequent measurement of dry particle size.

DiSCmini instrument from Matter Aerosol is gaining interest

The DiSCmini instrument from Matter Aerosol has gained much interest lately and will be exhibited at the Workplace and indoor aerosols 2012 in Lund 19-20 April.

Pegasor PPS-M update

Results on the Pegasor PPS-M sensor calibration has been published at the CRC workshop in San Diego. The PM calibration is now available in the latest version of the software.

Comitology for heavy-duty Euro VI engines in force

The comitology for heavy-duty Euro VI engines came into force on February 3. ExIS can provide several alternatives for measurements related to this regulation.

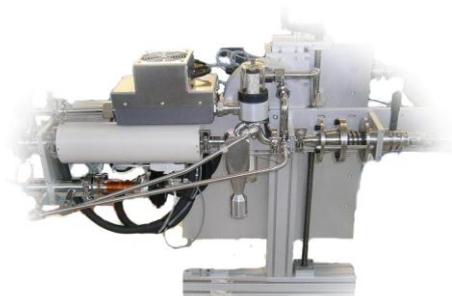
Conferences, exhibitions and workshops

An updated list of conferences, exhibitions and workshops where we will participate is provided.

The new I-series of PSS-20 from Control Sistem

The new I-series of Control Sistem's PSS-20 has been launched. The first unit was delivered to a German engine manufacturer already some months ago. The most significant features of the I-series compared to the predecessor (H-series) are, in short:

- Smaller dilution air pump optimized for 47 mm filters (but still maintaining the use of 70 mm filters)
- EPA heated minitunnel as standard version and thermocouple for diluted gas stream temperature
- Modification of mixing point for easier adaptation to EPA requirements of maximum sample pipe length
- HEPA filter integrated in the trolley just upstream the conditioning system
- Improved heating regulators



Several other modifications (including various re-designs) of the PSS-20 not mentioned here have also been made.

Among the new accessories, the option of having 4 filter holders could be mentioned. The real-time mass emission capability is also an interesting option for many customers. The first successful tests at a customer site (Germany) of a PSS-20 equipped with a real-time particle mass sensor (Pegasor PPS) were made in September 2011. This option is now available for ordering. The first unit with this feature was delivered by end of 2011. Upgrades for older PSS-20 units are available.

Note that both Micro-PSS and PSS-20 fulfils the requirements for all major emission standards and has received an independent third-party certificate from German TÜV.

[PSS-20 brochure](#)

[PSS-20 certificate](#)

Gas turbine measurements with Dekati instruments

There has been a significant increase in interest in measurements of particles produced by aircraft turbines recently. The development includes US EPA and European Union with EPA pushing for mass and EU for number measurement. The development is led by the SAE E-31 Aircraft Exhaust Emissions Measurement Committee. There should be a standard coming out in 2012. The EU research is currently funded through the SAMPLE III program. Dekati is involved in this development in two ways; first and most importantly, the ejector diluter DI-1000 followed by DEED-100 is becoming the de facto standard for sample conditioning; Secondly, Dekati is also promoting measurement of total mass (soot+ash). This could be accomplished by using the Dekati Mass Monitor, DMM.



Dekati has recently sold a number of dilution systems for turbine measurements proving that this is a viable application worldwide. Likewise, the DMM instrument has received a rejuvenated interest from various customer categories, particularly from the automotive industry.

[DMM brochure](#)

[DI-1000 brochure](#)

[DEED-100 brochure](#)

Engine Altitude Conditions Simulator (EACS) update

In December 2011, Control Sistem successfully performed several emission tests (NEDC) for an external customer (FPT, Italy) at the chassis dynamometer in its Testing Centre simulating the conditions of a Brazilian laboratory located at 900m over sea level using the EACS. Results were very consistent with original data and allowed to FPT personnel to define new ECU strategies with no need to travel to America for this development phase.



The demonstrator EACS has now been moved to the newly built engine test cell at the Testing Centre for a permanent installation but EACS can also serve for testing cars on the chassis dynamometer in the test cell nearby. Customer demonstrations can now be made in the Testing Centre. Contact us on phone (+46-8-647 45 99) or [e-mail](#) to schedule a demonstration.

[EACS technical description](#)

Grimm EDM update

Grimm's EDM family of instruments, comprising e.g. EDM 180, 365 and 665, are gaining interest. Several units were delivered to various customers in Sweden by end of 2011. The increased interest is partly due to approval by Swedish EPA as an equivalent instrument to gravimetric PM₁₀ and PM_{2,5} measurements; partly to the numerous features available in comparison to competing instruments. One example is that the more advanced versions of the EDM 180 can also measure PM₁, TSP, TC and 31 size channels from 0,25 to 32 µm in addition to PM₁₀ and PM_{2,5}. No other approved instrument on the market can provide all these features in one single instrument. In addition, EDM 665, the Wide Range Aerosol System (WRAS) can measure particles down to 5,5 nm. Both EDM 365 and 665 come with weather protective housing.



On April 17-18, ExIS and Grimm will organize training on the EDM family of instruments for a number of selected customers. Wolfgang Hertz from Grimm will be the main responsible person for the training. We may have additional time in our schedule for some customer visits, so if you are interested in meeting Mr. Hertz, just contact us on [e-mail](#).

[Recommended instruments \(in Swedish\)](#)

[Recommendation from Swedish EPA \(in Swedish\)](#)

[EDM Catalogue](#)

Topas TDD 590 thermodenuder

When cooling of the aerosol sample takes place, condensation processes will occur and volatile particles can be formed by nucleation. Both processes produce particles or change particle size of solid compounds in the gas by heterogeneous condensation on particle surfaces. Thus, systematic errors in particle measurements occur.



The Model TDD 590 thermodenuder is designed to remove moisture and volatile particles from an aerosol sample for avoiding such measuring errors and the subsequent measurement of dry particle size. Volatile particles completely evaporate in the heating section. Active carbon surrounding the flow path of the particle-gas mixture removes the volatile compounds using the physical effect of adsorption. The TDD 590 thermodenuder operates with minimal loss as the particles never come in direct contact with the active carbon.

Specific advantages of TDD 590 are:

- Exact temperature control up to 400°C
- High efficiency by high residence time and by high temperature
- Long operating life of the activated carbon by large storage capacity
- Manufactured with inert material
- Usable as flexible laboratory equipment and as system element

Since many years, ExIS has offered the Dekati Thermodenuder. This one is intended for higher flow, so with the Topas TDD 590, we can now also cover a much lower flow range.

[Topas TDD 590 brochure](#)

DiSCmini instrument is gaining interest

The DiSCmini instrument is gaining interest with a number of units sold recently. This unique hand-held size classifier provides real-time measurement of nanoparticles. The DiSCmini instrument will be exhibited at the Workplace and indoor aerosols 2012 in Lund 19-20 April (please also refer to the invitation below).

For those of you who are interested in looking at data from the DiSCmini, we have prepared an MS Excel sheet with post-processed data from the DiSCmini.

[Example data.](#)



We now have a DiSCmini instrument available for [demonstration](#). More information is available via the links below:

[DiSCmini brochure](#)

[DiSCmini flyer](#)

[Matter Aerosol website](#)

Pegasor PPS-M update

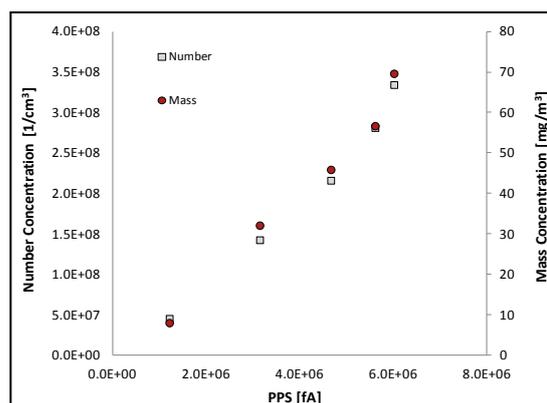
PPS-M presentation at the CRC Workshop in San Diego

The Pegasor PPS-M calibration for mass and solid number was presented at the 22nd CRC Real World Emissions Workshop, San Diego, March 25-28, 2012. The presentation described the scientific background, the experiments carried out to conduct this calibration and the results received. Sensor output for PM and PN is calibrated as a function of the sensor inlet flow, where the sensor flow can be changed by using an inlet flow restrictor (see also note below). The maximum PM concentration with the inlet flow restrictor is 200 mg/m³. The presentation can be downloaded via the link below.

[PPS CRC workshop](#)

PPS-M new software and solid particle number (SPN) calibration

The Pegasor PPS-M sensor is continuously developed. A new version of the PPS software (version 1.18) is available since 26 March. Customers are advised to upgrade by downloading the new software. A significant simplification of using the PPS-M calibration factor for particle mass (PM) in contrast to the previous versions is the most notable feature of the new software. The new calibration calculation can take into account if an inlet flow restrictor is used to reduce the particle concentrations. In addition, corrections to the calibration factor depending on the engine type (LD diesel, HD diesel, etc...) or particle size distribution can now be made. The data collection and analysis for calibration of solid particle number (SPN), i.e. non-volatile PM as in the PMP protocol, has been made and will be implemented in future versions of the software. Customers who urgently need the calibration factor for SPN and are prepared to implement the calculation themselves in post-processing are advised to contact us to obtain the calibration formula.



Note that we have the latest version of the PPS-M sensor available for demonstration (contact us via [e-mail](#) or phone: +46-73 944 34 01).

A new PPS-M brochure will follow shortly but the one available below is from 2010. Finally, you should note that Pegasor recently posted a new website on the Internet. Although this is a fairly new product, the reference list, which is available on the home page, is very impressive.

[PPS brochure](#)

[Pegasor home page](#)

Comitology for heavy-duty Euro VI engines in force

On February 3 2012, the comitology for heavy-duty Euro VI engines finally got into force via the EU Commission Regulation No 64/2012, published in Official Journal 31 January 2012. This regulation addresses measurement of solid particle number emissions (SPN), introduces the Portable Emissions Measurement System (PEMS) and provisions to access vehicle repair and maintenance information in the On-Board Diagnostics (OBD) system. In addition, a couple of other details in previous directives

and regulations are addressed.

Regarding SPN measurements, ExIS is well-prepared with equipment for dilution from Dekati (e.g. DEED, see link to the new brochure below) and Matter Aerosol and particle counters from Grimm. In addition, the PPS-M sensor from Pegasor has the capability to measure SPN, in addition to the current calibration for particle number (see also article above).

The work at the EU laboratory JRC on PEMS instrumentation is still on-going. Our partner Control Sistem participates in this work with the PEMS version of the micro-dilution system Micro-PSS, which integrates a PPS-M sensor from Pegasor. This system is now available for demonstration at customer sites. Alternative PEMS measurement systems from Dekati (DMM-230a with custom-made dilution system) and Pegasor PPS-M are also available.

[Dekati DEED \(new\)](#)

[Matter ViPR](#)

[Grimm CPC #5.430](#)

[Micro-PSS](#)

[Dekati DMM-230a](#)

[Pegasor PPS-M](#)

Conferences, exhibitions and workshops

Workplace and indoor aerosols 2012 in Lund 19-20 April

The 19-20 April the Workplace and Indoor Aerosols conference is to be held in Lund, Sweden. The conference is a continuation of the Conference on Workplace Aerosols 2010 which was held in Karlsruhe, Germany.

ExIS and Dekati will jointly exhibit Dekati instruments at the conference. We will also show some instruments from Grimm and Matter Aerosol.

[Workplace and indoor aerosols 2012, official website](#)

SAE HDDEC Symposium, September 11-12

ExIS will participate in the exhibition at the SAE Heavy-Duty Diesel Emissions Control Symposium held in November 11-12, 2012 in Gothenburg, Sweden. ExIS has participated in SAE HDDEC a couple of times in the past.

The two-day HDDEC symposium provides upcoming regulatory actions, state-of-the-art technical information and first hand experiences relating to heavy duty diesel emission control strategies, engine and aftertreatment systems and integration and the future direction of the industry.

Attendees will hear and interact with the most knowledgeable leaders from the global, heavy duty diesel powertrain industry who best understand the complicated science of the pollutants emitted during engine combustion and how to treat them. This symposium is held every other year in Gothenburg, Sweden with Corning, Johnson Matthey and Volvo as the host companies.

More information about the SAE HDDEC can be found via the link below:

[SAE HDDEC](#)

SAE Emission Control from Large Ships Symposium, September 13-14

A two-day Diesel Emissions Control of Large Ships Symposium will follow the SAE HDDEC Symposium

and be co-located in Gothenburg as well. We will come back with more information about this event later.

Grimm webinars in 2011

We would like to hint you to Grimm's Web Seminars, or "webinars". That is a very cost-effective way to collect information as no travel costs are involved. You can register on the Grimm home page to participate in such a seminar and then you will get a note about when the next possible slot for such a seminar will be.

You will need to install Skype on your computer to follow a webinar. Registration at the Grimm home page is also required. Participation in Grimm webinars is free of charge.

[Grimm webinars, schedule](#)

You are always welcome with questions and we are happy to send you our newsletter.

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Best regards,

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ExIS AB

ExIS represents the Finnish companies DEKATI and PEGASOR, the German company TOPAS, the Swiss company MATTER ENGINEERING, the Italian company CONTROL SISTEM and the French company ECOMESURE in the Scandinavian and/or Nordic countries. We also represent the German company GRIMM AEROSOL TECHNIK in Sweden and the Spanish company IONER in Denmark and Norway. Detailed information about these companies and their products can be found at our [home page](#).

ExIS provide equipment and instruments for sampling, dilution and measurement of particles in air, exhaust and other gases. Our customers are at universities, research institutes, municipalities, hospitals, automotive industry, shipping companies, combustion applications, electronic industry, mechanical industry, metallurgical industry, process industry, pharmaceutical industry and filter manufacturers.

More information

If you do not want to receive our newsletter in the future, just send an e-mail with the heading “unsubscribe” to the e-mail address you find [here](#).

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