

## ExIS Newsletter, June 2012

### Preamble

*As summer holidays are approaching, our newsletter is somewhat briefer than usually. Nevertheless, we have two breaking news with a brand new instrument from Dekati (BOLAR™) and a new integrated measurement unit from Pegasor (Mi2) for the PPS-M sensor.*

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

### Headlines

#### **New bipolar charge analyser, BOLAR, from Dekati**

Dekati's BOLAR™ instrument is the first commercial instrument that can separately detect negatively charged and positively charged particles.

#### **New Pegasor Mi2 measurement unit and new software**

The new integrated measurement unit Mi2 and an air supply unit have been launched. Furthermore, a size-insensitive calibration and operation for particle mass is provided with new software.

#### **Control Sistem's new engine test cell is ready**

Control Sistem's Testing Center is now equipped with a new engine test cell. Engines up to 510 kW and 9 000 rpm can be tested with altitude, temperature and humidity simulation.

#### **IARC classifies diesel exhaust as carcinogenic**

On June 12, IARC, part of the WHO, classified diesel exhaust as carcinogenic to humans.

#### **Conferences, exhibitions and workshops**

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

#### **Summer time**

Generally, July is vacation time in Scandinavia. Thus, the staff at ExIS will not be available all the time during this period.

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## **New bipolar charge analyser, BOLAR™, from Dekati**

The electrical charge carried by inhalation aerosols has been found to affect device performance and lung deposition of both Dry Powder Inhalers (DPI) and Metered Dose Inhalers (MDI).

The Dekati ELPI™ (Electrical Low Pressure Impactor) has been widely used to determine the charge size distribution of inhalation aerosols. However, where the ELPI method gives the net charge of the particles, the new Dekati Bipolar Charge Analyzer (Dekati BOLAR™) is the first commercially available instrument capable of measuring bipolar electrical charge size distribution of inhalation aerosols. Until now, the measurement of size classified bipolar electrical charge levels has not been possible,

which make the Dekati BOLAR™ a completely unique tool for inhaler device development. The Dekati BOLAR™ can separate positively and negatively charged particles in different size fraction and detect each fraction individually.

More information can be found in the press release from Dekati and in the BOLAR™ brochure.

[Dekati press release on BOLAR](#)

[BOLAR brochure](#)



## New Pegasor Mi2 measurement unit and new software

### The new Pegasor integrated measurement unit, Mi2, is launched

The Mi2 was launched at Testing Expo in Stuttgart on June 12. The integrated Pegasor Particle Sensor has been designed especially for particulate mass and number emission monitoring on board vehicle and/or at engine test bench. The full system includes measurement unit and air supply unit. Measurement unit is built around Pegasor M-type sensor and all necessary auxiliary components are integrated to secure proper operation of the sensor. Air supply unit comprise compressors, cleaning and drying of the compressed air and communication to the measurement unit. To enable convenient use, both units can be placed separately on-board the vehicle or in the test cell.

Features of the measurement unit are:

- Sensor equipped with internal heater to secure non-condensing conditions
- Sensor protected from contamination while not in measurement mode. Inlet and outlet valves are closed automatically and power to the sensor turned off
- Sensor self-diagnosed and user warned if any problem with the sensor operation
- Automated sensor zeroing

Features of the air supply unit are:

- Output capacity: 12lpm @ 1,5bar dried and filtered air for Pegasor measurement unit
- Connection to the measurement unit: 1/8" quick connector for tubing

Heated sampling lines at 3 or 6 m length are offered as accessories.



System operated with PPS-M plotter software

Dimensions:  
L798 x W484 x H208  
Weight: 29 kg



Dimensions:  
L489 x W 408 x H208  
Weight: 14 kg

Heating control of the sampling lines is managed by the Mi2 unit. Upgrades of current “stand-alone” Pegasor PPS-M sensors are possible on request.

More information on the Mi2 will be posted on [ExIS](#) and [Pegasor](#) home pages shortly.

### **New size-insensitive operation and calibration for the Pegasor PPS-M sensor**

An optimized ion trap setting and a new calibration for automotive exhaust make the PPS-M particle mass results independent on particle size. Juha Tikkanen, VP Sales&Marketing of Pegasor, explained that, "Recent work by Pegasor has shown that by applying optimized trap voltages, in order to remove part of the ultrafine particles, the PPS-M mass reading becomes insensitive to particle size in all automotive applications (GDI, diesel, downstream DPF). "Knowing that particle size varies with engine type and operating condition this feature is very important for the most accurate particle mass emission measurements. Pegasor has patent pending for this technology. Another calibration enables the measurement of total particle number with very good correlation to PMP systems. The features mentioned will be implemented in the soon to be released PPS software 2.0.



More information can be found in the press release from Pegasor or in an article at DieselNet.

[Pegasor press release](#)

[DieselNet article](#)

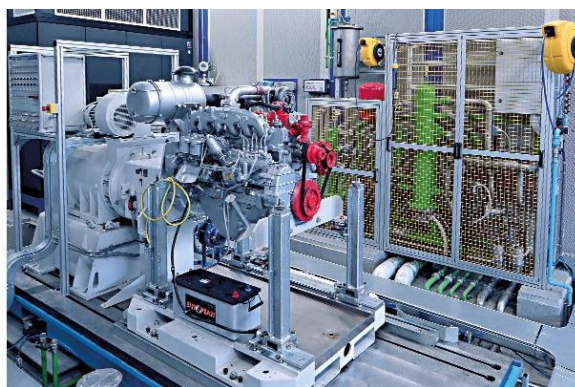
### **Presentation by Beck H. (MAN) at ETH Conference in Zurich**

A presentation by H. Beck from MAN at the 16th ETH Conference on Combustion Generated Particles on June 24-27 was made on results from the Pegasor PPS-M sensor. The signal from the PPS-M sensor showed excellent correlation with results from a solid particle number (SPN) emission instrument conforming to the PMP measurement protocol.

We will post more information on this topic on ExIS website when the documentation is available.

### **Control Sistem's new engine test cell is ready**

Control Sistem's Testing Center in Pianezza (Turin, Italy) is now equipped with a new engine test cell. This is definitely not an ordinary test cell. Engines up to 510 kW and 9000 rpm can be tested covering most needs for automotive passenger car engine as well as all but the very largest heavy-duty engines. The test cell has Control Sistem's altitude simulation EACS (Engine Altitude Conditions Simulator) installed that enable simulating various altitudes (-500 to 5 000 m), temperatures (from -30 to +50°C) and humidity.



The test cell is equipped with instruments for gas analysis of regulated emission components (Horiba MEXA 7200D), unregulated components (V&F mass spectrometer), particulate matter gravimetrically and real-time (PSS-20 with Pegasor PPS-M sensor), particle number (MEXA 2000 SPCS) and an

opacimeter. All the instruments and sub-systems in the test cell are fully integrated using Control Sistem's internally-developed software platform INT-9000. Besides the mentioned analysers, basically all the equipment and software solutions used in the test cell has been developed by Control Sistem, which makes this test cell an excellent showcase of all that can be offered by Control Sistem in this field.

The engine test cell is now available for demonstrations and commissioning of engine testing. Please [contact us](#) for more information.

[Control Sistem press release](#)

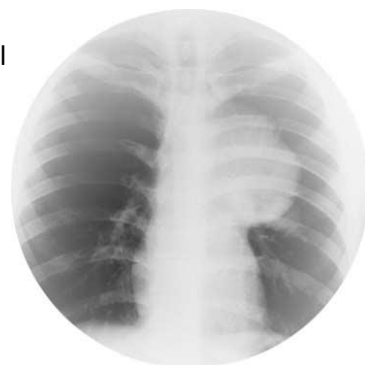
[Test cell info](#)

[Testing center \(new\) brochure](#)

[EACS info](#)

## IARC classifies diesel exhaust as carcinogenic

On June 12, the International Agency for Research on Cancer (IARC), which is part of the World Health Organization (WHO), classified diesel engine exhaust as carcinogenic to humans (IARC Group 1). After a week-long meeting, the group of international experts agreed that there was "sufficient evidence" that diesel exhaust exposure is associated with an increased risk for lung cancer. The Working Group also concluded that gasoline exhaust was possibly carcinogenic to humans (Group 2B), a finding unchanged from the previous evaluation in 1989. More information is available in the IARC press release but also in articles at Green Car Congress (GCC) and DieselNet; all of them provided via the links below.



**Comments:** While we at ExIS promote clean environment and are in the business to provide instrumentation for measurement of particles so that we, in this way, indirectly may contribute to reduction of pollution, we must also note that the results from IARC have been much debated recently. For example, the automotive and engine industry has noted that the classification does not take modern technology into account (exemplified in the statement by Diesel Forum, see link below). As pointed out in the article at DieselNet (see below), much of the evidence come from a mining study, where the monitoring started when the mine company first introduced diesel equipment (between 1947 and 1967) and ended in 1997. In contrast, studies on modern engines, such as in the ACES study carried out by the independent Health Effects Institute (HEI), found few health effects from US 2007 heavy-duty engines.

It will be interesting to follow the debate in the future and to see what kind of actions governments and authorities on various levels may take based on the IARC classification.

[IARC press release](#)

[GCC article on IARC](#)

[DieselNet article on IARC](#)

[GCC article on ACES](#)

[DieselNet article on ACES](#)

[Diesel Forum statement](#)

## Conferences, exhibitions and workshops

### SAE HDDEC Symposium, September 11-12

ExIS will participate in the exhibition at the SAE Heavy-Duty Diesel Emissions Control Symposium held in September 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 2012

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](#)

## Summer time

During the summer, mostly in July, the staff at ExIS will be on vacation. We will be at office from time to time, continuously follow e-mail and answer the phone most of the time during this period but we may not always be able to act as promptly as we would wish.

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

E-mail: [info@exisab.com](mailto:info@exisab.com), phone (office) +46-8-647 45 99

[Peter Ahlvik](#)

phone: +46-739-44 34 01

[Anders Granqvist](#)

phone: +46-733-62 77 64

[Staffan Larsson](#)

phone: +46-705-67 61 23

Best regards,

Peter Ahlvik, Anders Granqvist and Staffan Larsson

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## ExIS AB

ExIS represents the Finnish company 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 Finnish company DEKATI in Sweden and Norway, 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](#).

Do you have questions or comments? Send an e-mail to: [info@exisab.com](mailto:info@exisab.com) or phone +46-8-647 45 99