



## **Oxsensis and Alstom successfully demonstrate first application of pressure and temperature sensor system in an ultra-harsh environment in a full gas turbine engine.**

Oxford, UK, August 2010. Oxsensis Ltd. have demonstrated with Alstom Power their first ever sensor system that can read out dynamic pressure and self-temperature simultaneously whilst being operated at ultra-high temperatures.

Oxsensis have been working closely with gas turbine Original Equipment Manufacturers(OEMs) since it was founded in 2003, with the goal of realising dynamic pressure sensors, which can be mounted in locations in critical gas turbine components, where no sensors have been able to operate before. This is being driven by the need of gas turbine OEMs to increase the operating envelope of their equipment to run on various grades of fuel and to be able to run at flexible loads to match the needs of the grid, whilst maintaining low emissions and also avoiding combustion dynamics which could be potentially harmful to the equipment. This has been achieved by the Wave-Phire sensor system\*, which unlike conventional piezoelectric charged based sensors systems, operates via an optical technique. This technique not only allows the sensor to operate at temperatures in excess of 1000°C, but also allows the temperature of the sensing element to be read out.

Alstom and Oxsensis have combined to demonstrate this multi-parameter sensing capability, on Alstom's equipment. Ian Macafee, Sales Director for Oxsensis Ltd points out: *"Not only were we pleased with the successful performance demonstration shown in this challenging test, Oxsensis have also continued to learn from our in-field experiences gleaned not only here but also from our installations at a commercial power station. This has led to further development of our product to make it truly suited for the heavy duty power sector."*

Oxsensis will now continue the development of the temperature capability of the sensor system via publically funded projects including the UK Government Technology Strategy Board funded FRETSGATE project. This will extend sensor performance towards faster temperature response and higher operating temperatures, both contributing to the protection of these valuable pieces of equipment as users and OEMs look to push their operating envelopes ever further.

### **Editor's note**

\* Oxsensis' sensor technology is based on the micromachining of super resistant materials such as single-crystal sapphire (melting point >2000°C) together with innovative fibre optic interrogation techniques which give high sensitivity and immunity from electro-magnetic interference (EMI) effects common in turbo-machinery such as gas turbines. As part of their close ties working in the gas turbine industry, Oxsensis was part of the recently completed HEATTOP €8.8m European Union collaboration program, involving 16 other European organisations working together on a gas turbine programme.

**About Oxsensis Ltd.**

Oxsensis is a spin-out from STFC Rutherford Appleton Laboratory in Oxfordshire formed in 2003. The company is backed by Venture Capital from Albion Ventures, Carbon Trust, Frog Capital, Seven Spires Investments Ltd., Rainbow Seed Fund and Strathdon Plc., together with prominent individual investors.

**About Alstom**

Alstom is a global leader in the world of power generation, power transmission and rail infrastructure and sets the benchmark for innovative and environmentally friendly technologies. Alstom builds the fastest train and the highest capacity automated metro in the world, provides turnkey integrated power plant solutions and associated services for a wide variety of energy sources, including hydro, nuclear, gas, coal and wind, and it offers a wide range of solutions for power transmission, with a focus on smart grids. The Group employs 96,500 people in more than 70 countries, and had sales of over €23 billion\*\* in 2009/10.

\*\*Pro forma figures

[www.alstom.com](http://www.alstom.com)