

NOVEMBER 2011

[www.sensonics.co.uk](http://www.sensonics.co.uk)

Welcome to our latest newsletter, keeping our customers and partners up-to-date with the latest developments at Sensonics. New projects, new products and case-studies, all helping to protect your critical rotating plant.

## Continued growth in China



The recently completed project for the Chongqing steel company in China underlines the continued success Sensonics is enjoying in the Far East. This contract was for the supply and installation of Sentry G3 Protection Monitors and Proximity Probes and was completed in conjunction with Sensonics Shanghai based partners, Star Royal Industry & Engineering Co Ltd.

The four new systems provide online monitoring and shutdown protection of new turbine installations for power generation at a new Chongqing Steel plant. Two systems are installed in the combined cycle power plant where waste heat from the blast furnace is utilised to drive two 25MW thermal recovery turbines manufactured by Hangzhou Steam Turbine (HTC). The other two G3 racks are installed on Qingdao turbine machines which form part of the Coke Dry Quenching Technology used at the plant. This advanced closed system circulates gas to extract energy from the spent fuel which in turn is used to generate steam to drive the turbines.

Commenting on the project, Joe Chin, the Managing Director of Star Royal said, "The Sentry G3 concept of a universal platform

to cover all machine measurements and protection functions is very good, and we are pleased to see the installations functioning reliably. The customer has been convinced this 'state of the art' system was the correct choice". In fact during the final commissioning stage the G3 system detected a high vibration problem due to incorrect alignment between the turbine and generator. The customer site engineer utilised the G3 FFT display to report the vibration spectrum to the generator manufacturer, who quickly identified the root cause and resolved the installation problem efficiently. The site engineer commented, "This is the first time I have seen and utilised such a tool within this type of monitoring system, a very good experience with the Sentry G3 diagnostics."

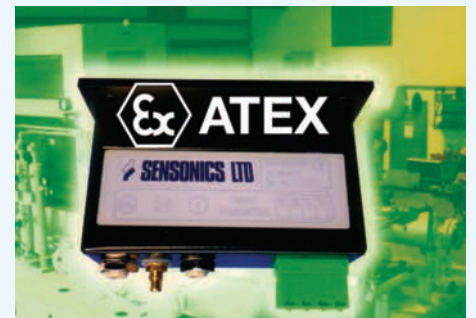
The complete turbine measurement chain is contained within a single Sentry G3 3Ux19" rack system with spare slots for up to 8 additional channels to be added at a later date if required. Only one type of Sentry G3 module is required to cover all the measurement modes, each channel with the capacity to be programmed to any of the required turbine supervisory regimes. This not only permits efficient usage of hardware (note that the first module in the rack is programmed for two channels of thrust position and two channels of speed) but also minimises the required spares holding. The hot swappable modules can be replaced online and the previous settings are simply uploaded through the user interface software.



Main (top) picture shows the mounting of the speed and thrust position probes. This picture shows the Sentry G3 rack system with spare slots for up to 8 additional channels.

## ATEX approval for shaft vibration and thrust transmitters

We have recently enhanced our range of DN803X series shaft vibration and thrust position transmitters following approval for intrinsically safe applications. The DN8031 (vibration) and DN8033 (thrust position) proximity probe systems are now suitable for Ex ia IIC T4 applications when used in conjunction with Sensonics ATEX approved range of AECF proximity probes and AEXC extension cables.

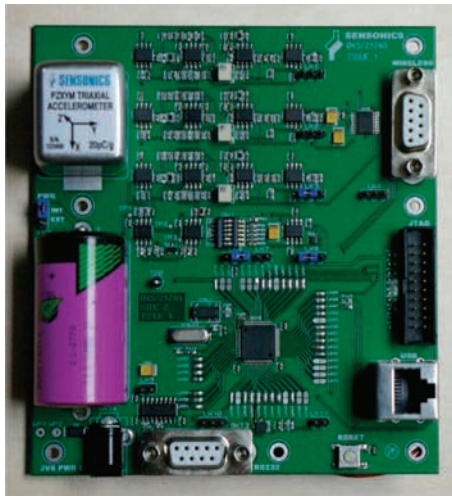


The 4-20mA loop powered modules provide easy integration with either the local machine PLC or a plant wide DCS as they are powered through the safety barrier measurement loop. All signal processing is carried out within the unit providing an output current proportional to either peak to peak shaft vibration or relative position to the probe face. The module permits the adjustment of both gain and offset for ease of calibration to suit the application.

The DN803X series will especially benefit smaller pumps and compressors, where if combined with Sensonics range of compact machine mounted housings, will provide a particularly cost effective solution for critical operational measurements, with a straight forward interface that requires no local power supply. Ideal for OEM applications, the driver also provides a raw buffered output of the vibration signal that can be utilised through portable analysis equipment for a more detailed picture of the dynamic performance of the machine.

## Novel Dynamic Displacement Monitoring Technique

Over the last 6 months Sensonics has carried out a government funded feasibility study into the development of an intelligent software algorithm for the processing of accelerometer vibration signals to realise an accurate peak displacement reading. There are many real world applications that require low cost accurate movement detection and alleviating the price constraint through providing a battery operated unit in conjunction with wireless technology would satisfy a market demand we see across industry from Rail through to Renewables.



*Battery operated prototype with triaxial accelerometer*

The study was a success and generated a prototype which will be fed in to the next stage of the project development. The prototype also included the development of a pcb mounted miniature triaxial sensor. This provided the project the option to compare the results with the superior dynamic range and noise performance offered by the ceramic device in comparison to existing MEM's type devices. The ultimate project aim will be to detect dynamic displacement of up to 50mm peak within a frequency range of 1Hz to 40Hz to a resolution of 0.1mm.

## Achilles Accreditation

Sensonics has recently been awarded the Achilles Verify Category B2 Accreditation, following a two-day external audit. Achilles is one of the world's leading supplier information services that identifies, evaluates and monitors suppliers on behalf of buyers worldwide. Achilles Accreditation is also a mandatory requirement for a number of the UK major utilities and system integrators. The audit included a thorough review of Sensonics's Financial, Health & Safety, Environmental and Quality practices and procedures.

Russell King, Managing Director at Sensonics added "With Achilles accreditation we have increased the visibility of the business to procurement professionals across the Utilities database and at the same time provided qualified assurance to our customers of the high standards Sensonics operates to on a daily basis."



## Regular Calibration the key to reliable monitoring

Periodic calibration of vibration transducers and associated signal processing equipment is essential to ensure that both the accuracy and frequency response of the instruments are as expected for both machine protection and condition monitoring applications.

The Sensonics calibration facility operates fully integrated measurement systems that perform UKAS traceable calibrations for all types of accelerometers, velocity transducers and monitoring equipment. We offer a competitive, fast turnaround and flexible service on both Sensonics and other manufacturer's instruments. With the additional support of our experienced site team, we can offer a full turn key service for your outage requirements.



## New R&D Resource

Sensonics has recently strengthened its research and development team with the appointment of new design engineers located in both UK and China. The expansion has been required to keep pace with the business plan and the new product release strategy the market is demanding. Following the successful launch of the Sentry G3 monitoring system, this technology concept is now being applied to other applications with a view to providing high performance monitoring in robust and flexible platforms for a wider range of machines. Look out for our new DIN rail mount range of monitors due for release early in 2012

### RECENT CONTRACT AWARDS

- Turbine Supervisory Equipment upgrade for a 500MW set.  
**Location UK nuclear power station**
- Volume order for specialist accelerometers for wind turbine monitoring.  
**Location Germany**
- Sentry G3 protection system for turbine supervisory retrofit at Iron & Steel works.  
**Location UK**
- Seismic Sensors and Earthquake Monitoring System replacement for nuclear power station.  
**Location UK**
- Hydro turbine supervisory system upgrade.  
**Location Romania**
- Sentry G3 protection system for fans, pumps and motors for new Iron & Steel works.  
**Location Korea**

**For more details about Sensonics go to: [www.sensonics.co.uk](http://www.sensonics.co.uk)**

Sensonics are a leading supplier of turbine supervisory and high integrity protection equipment to industry. With 30 years experience in providing vibration, displacement and speed instrumentation solutions in demanding environments, not only do they supply a full range of sensors and API 670 compliant measuring and protection equipment, but also offer design through to installation & commissioning services.



Tel: +44 (0) 1442 876833  
Email: [sales@sonsonics.co.uk](mailto:sales@sonsonics.co.uk)  
[www.sensonics.co.uk](http://www.sensonics.co.uk)