

Novel sensors aid tidal turbine development

Non-contact torque sensors from Sensor Technology are playing a key role in the development of commercial-scale in-stream tidal turbines produced by OpenHydro

Irish company OpenHydro is using surface acoustic wave (SAW) sensors to accurately measure rotational speed and frictional forces in a simulator for the turbine bearings, thereby allowing it to optimise the performance and reliability of its innovative products.

OpenHydro's vision is to deploy farms of tidal turbines under the world's oceans, where they will dependably generate electricity with no cost to the environment. This method of producing electricity has many benefits.

Because the turbines are submerged, they are invisible and they produce no noise. And because they are submerged at a considerable depth, they present no hazard to shipping. An advantage that is possibly the most important, however, is that the tides are completely predictable, which means that the energy output of the turbines is equally predictable. There are no large seasonal variations and no dependence on the vagaries of the weather, as there are with many other renewable energy sources.

Reliably and efficiently harvesting energy from the tides, however, requires the use of novel technology and, in the

case of OpenHydro, this takes the form of open-centre turbines that can be deployed directly on the seabed. Clearly, installation in such an inaccessible location makes reliability a prime consideration in the design and construction of the turbines. For this reason, OpenHydro carefully and comprehensively evaluates the performance of all of the components used in its turbines.

For the bearings, this evaluation involves the use of a simulator that allows the company's engineers to determine how frictional forces in the bearings vary with different loads and rotational speeds. Central to the operation of this simulator is the measurement of torque in a shaft from the motor that drives the bearing under test. With conventional sensors, it is hard to carry out this type of torque measurement accurately and reliably, but OpenHydro found that Sensor Technology's TorqSense RWT320 series sensor provided an ideal solution. OpenHydro uses the RWT320 sensor in conjunction with Sensor Technology's TorqView software.

www.sensors.co.uk

Igus UK awarded ISO14001

Northampton based polymer specialist Igus UK is proud to announce that it has achieved ISO14001 certification. Part of an ongoing business objective to reduce the company's environmental footprint, the accreditation endorses the quality and environmental management systems Igus have in place.

www.igus.co.uk

Dedicated engineer for renewables

With extensive experience in renewable energy engineering applications, RA Rodriguez has appointed a dedicated Industry Manager for this growing sector. With a background in power generation, Dave Young is ideally suited to provide dedicated engineering and commercial support to customers in this field.

www.rarodriguez.co.uk

Switches' key role in PV applications

A range of DC switch disconnectors and string boxes for photovoltaic (PV) applications is now available from Switchtec. For use in renewable energy applications, the Telergon switches' main area of use is when isolating the DC supply from a photovoltaic array. These switches are used as the main on/off switch or isolating switch for DC applications.

www.switchtec.co.uk

Materials for renewable energy

Huntsman has worked in co-operation with industry partners to introduce a complete package of new materials and processing technologies that will enable actively temperature controlled PV modules with increased efficiency. By using these new technologies there is potential to increase the efficiency of innovative PV modules by more than 50%. In addition to this, processing is significantly simplified, costs are reduced and aging stability is improved.

www.huntsman.com

Small scale hydro supplies the grid

The regulatory framework is now in place to allow small-scale producers of electricity to export and sell their surplus power via the national grid, but transferring that power to the grid is no trivial task. Washford Mill Hydroelectrical, however, developed a dependable, efficient and cost effective solution based on inverter drives from Parker SSD.

www.parker.com

Renold achieves ISO14001

Renold Hi-Tec Couplings of Halifax, England, has been awarded the ISO 14001 – Environmental Management System (EMS) – standard.

www.renold.com

Laser scanner for welding at up to 500°C

Sensors UK is pleased to announce the new M2-iLAN laser scanner for use in welding, motion control and inspection applications with an operating temperature of 500°C.

The M2-iLAN has a 100Hz scan rate while surface reflections and variations in

colour do not effect the quality of surface recognition. A variety of interfaces are available including LAN, PLC, Serial, etc, which allows for easy set up and control of the application.

MelTrax software gives various algorithms to provide control outputs for motion control of automated equipment. Applications include seam tracking, height, width, angle, and slope while also checking the seam for shape, holes, pores, stability etc.

www.sensorsuk.com

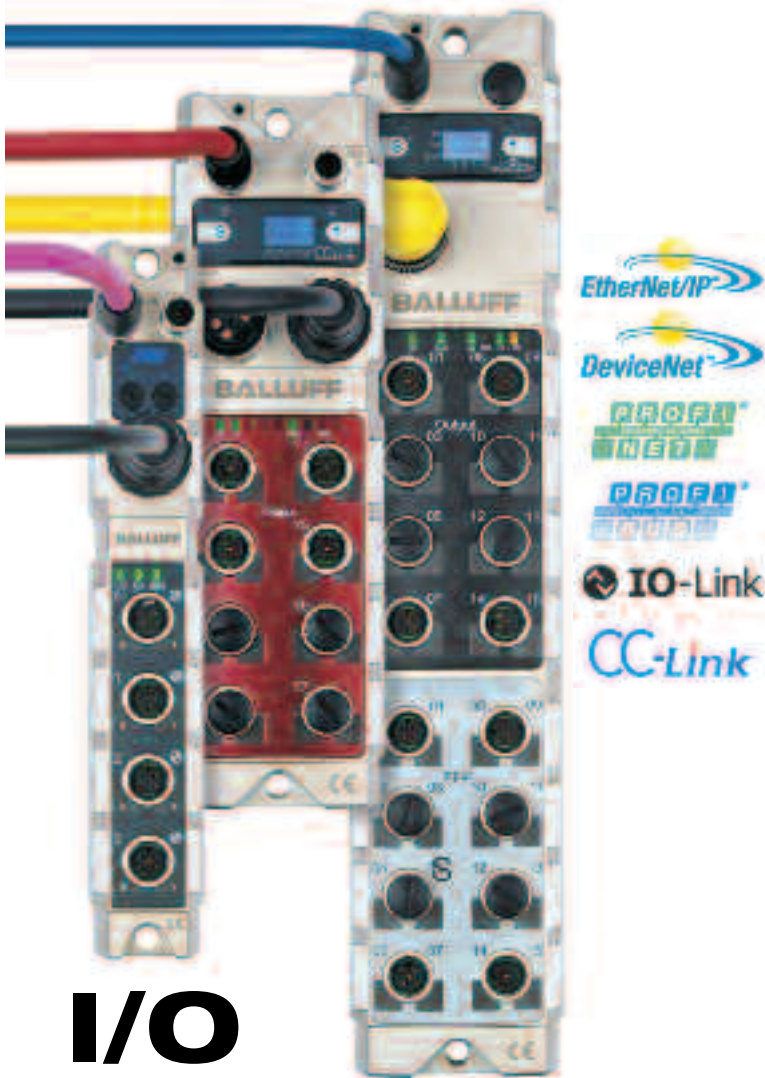


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Technology transfer tests **tree safety**

Highway engineers and horticulturalists have adapted the latest in helicopter technology to solve a critical safety problem in their own industries – that of tree viability

Trees can transform a roadside verge, townscape or recreation space with their beauty and their ability to capture carbon dioxide. But they also present a potential hazard: if they fall, they could block a vital highway or even kill someone. As a result, professionals responsible for trees like to test the strength of their roots, usually by fixing a sling around the trunk and giving it a good tug with a tractor.

“This procedure lacks some finesse,” says Tony Ingham of Sensor Technology, who has been working on ways to improve the technique. “The basic idea is to put a strain gauge in line with the sling, then convert the readout from Newtons to a wind speed equivalent. This is perfectly achievable, but the concept needs refining to make it attractive enough to become widely adopted.”

The tractor crews will not want to spend time setting up instruments, taking readings, recording them and then set about making complex calculations. If they can't rope up a tree, give it a pull and move onto the next one in a matter of minutes, they won't be interested. Sensor Technology realised that they had the solution to this with their LoadSense range. Ingham continues: “This is actually an intelligent cargo hook for

helicopter pilots who need to underslung carry loads. This may seem like a different world, but the concept is that the hook has on-board electronics for measuring the load and a wireless transmitter for sending the live data to a nearby ruggedised PC or custom built handheld readout. “We replaced the hook with one more suited to the tree work, recalibrated the strain gauge and wrote some software appropriate to the job in hand. The procedure with our equipment is to pull the tree until the first suggestions of movement, with the load force being automatically displayed as wind speed and a pass/fail signal.”

In the second stage of calculation, the software can use a look-up table to suggest how often such as wind is likely to be experienced. Tony says that for a future development Sensor Technology is talking to the Met Office about using their wind maps of the UK along with GPS (global positioning system) readings to produce results almost to the individual tree. “All the data handling and calculations are transparent to the crew, they get simple pass/fail reading. But the data can be stored and further resolved into high level management information which will help with developing long-term maintenance programmes.”

www.sensors.co.uk

