

AI

2015 awards



*Award for Excellence  
in Wind Turbine  
Technology*

## **FT Technologies Ltd**

FT Technologies specialises in the design and supply of high performance Acoustic Resonance air flow sensors to wind turbines and meteorological applications. They spoke to us about the intricacies of their products as well as the opportunities and challenges facing them in their industry.



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We are very pleased to receive this award as we think it recognises 10 years of hard work and success developing the world's toughest wind sensor. Our ultrasonic wind sensors are small, rugged and reliable, operating in the harshest of environments, yet delivering high levels of data availability, consistently, for years at a time. Without doubt, we are the market leader in the offshore wind energy sector as more than 70% of all offshore turbines in the world are fitted with an FT sensor.

Our company was established 35 years ago but for the past 12 years we have been focusing on developing wind sensors for the control of utility-scale wind turbines. We do all our design and manufacture in the UK, in our factory in west London, and are particularly proud of the fact that 99% of our products are exported. Our success over the decade has enabled us to more than triple in size. We now have over 55 employees and are having to look for new, larger premises.

Key to our success is the reliability of our products. Our customers demand high levels of performance and data availability in a sensor which does not require regular maintenance or calibration. Our sensors are basically computers and, once they are on top of a wind turbine, they get no service and yet still have to have to deliver an accurate measurement, five times every second, for years on end. Life on the back of a wind turbine is pretty hard and the wind sensor has to survive 300 foot up in the air in the middle of the North Sea, or in a snow storm in Kansas, and it has to keep on working.

What makes FT wind sensors unique is our use of Acoustic Resonance Technology. Invented by our Executive Chairman, Dr Savvas Kapartis, and patented in 1997, Acu-Res® is a solid-state (no moving parts) technology for measuring wind speed and direction. It uses an acoustic (ultrasonic) wave which is resonated inside a small cavity. Using Acu-Res® technology results in a small, easily heated sensor which operates reliably, even under extreme weather conditions.

Our latest news is that we are just about to launch a new product range, the FT7-Series. In response to our customers' demands, these new sensors will have a higher wind speed range, reading up to 75 metres per second, as well as improved accuracy.

With these technical enhancements, the FT7-Series of products will enable us to enter new markets, specifically general meteorology and weather systems at sea. There are many buoys deployed around the world to capture wind data and our sensors, being corrosion-resistant, are ideally suited to this application. Rolls Royce already use our sensors in marine navigation. There are FT sensors at the top of some of the world's tallest buildings, on portable weather stations used to chase hurricanes and along the test track of the Maglev train in Japan. FT sensors were chosen by the Bloodhound SSC Engineering Team as ideal for use in the dusty environment of the Hakskeenpan in South Africa where the Bloodhound Supersonic Car will attempt to break the world land speed record and travel at 1,000mph in 2016.

With our new products coming to market, we are also looking at expanding into new geographies. Brazil, for example, is aggressively developing wind energy. Our sensor has an advantage there because it is resistant to heavy rain, to lightning and to salt in the atmosphere which is a big problem in the coastal districts of Brazil.

Similarly, we believe there may be applications in South Africa where dry, dusty environments are very damaging to mechanical wind sensors. The FT7-Series, with its high resistance to dust, sand and solar radiation will provide excellent wind speed and direction measurements in these harsh environments.

Over the last 10-12 years the wind energy industry has grown significantly, both in volume and in the size of the individual wind turbines. When we first started manufacturing, wind turbines would typically be 700 or 800 kW. They are now typically 2 or 3 MW on land and up to even 7 or 8 MW offshore.

The wind industry has grown but it has also changed dramatically. Whereas it was, essentially, a European and North American industry, the position now is that 45-50% of all wind turbines are installed in China. Also, wind energy has now achieved 'grid parity' meaning that it has become a competitive source of energy. In parts of the US and Europe, it is now as cheap to make wind energy as it is to make energy from fossil fuel. In fact, in many places around the world, wind energy is the most popular choice of new energy installation.

The future for wind energy, and for FT Technologies, is bright. The United States has pledged to generate 35% of its energy from wind by 2050, currently only 4% comes from wind. China is installing 10,000 wind turbines every year. Wind turbines are getting larger and therefore manufacturers are increasingly demanding a quality wind sensor that will minimise their downtime and keep their turbines turning. If you hadn't heard it before, in our industry, wind is money.