Made to Measure – An Interview with Steve Severn, Managing Director of Campbell Scientific

International Environmental Technology editor Rachael Simpson spoke to Steve Severn, Managing Director of Campbell Scientific Ltd (or Europe), in October this year at the Meteorological Technology World Expo, and found out about what makes the company such a success, how their new technology is offering a future-proof approach to science, and how a very different approach to R&D can make all the difference.

First off Steve, tell me a bit about Campbell Scientific and what you do.

Campbell Scientific is actually a measurement company; we help people make the best quality measurements, and that has been the core of the business since starting. It is 40 years since Campbell Scientific was first formed in America and it will be 30 years next year for the European business. For a lot of our customers, the most important aspect of the measurement is our focus on the quality and reliability of our products and the support we provide to them. Our customers span all sorts of markets – weather, agricultural, soil sciences, renewable energy, geotechnical, structural engineering, we also have some small but important users in transport particularly in motor vehicles and the railway sectors – so quite a wide spread. The company has always been interested in science, and the science behind our customers' business, so we tend to focus on people who are dealing with three big issues within the world today; severe weather and climate, the sustainability aspect of food and energy, and also ensuring that we have safe public infrastructure – bridges, tunnels, and large or historic buildings for example.

> *"We originally started with scientists who really understood the importance of measurement quality and accuracy, and that has perpetuated throughout the past 40 years."*

Why do people use Campbell Scientific products?

We help people make the best measurement possible. We have a recurring theme around the quality of the measurement. I think that is because we originally started with scientists who really understood the importance of measurement quality and accuracy, and that has perpetuated throughout the past 40 years. It's an absolutely vital issue for us. We focus on ensuring that our products have good, low noise characteristics - that the signal that we are actually trying to measure is readily available, and not disturbed by the electronics surrounding it.

> *"Customers are a key component to the success of every company, and that is why we are dedicated to looking after both our customers and products to an exceptionally high standard."*

What major changes are you currently witnessing in the systems that Campbell Scientific provide?

That's an interesting question, and one that we have actually talked about on our stand today with various customers. We are seeing a change to more and more digital sensors, such as those that provide data via RS232, RS485 or Ethernet, and away from the traditional sensors that give an analogue signal. That does mean that those digital sensors are now doing the conversion from the raw physical value to the digital value, so it's now very important that all those sensors have an equally high quality in the signal conversion that they are performing. Without that, the quality of the data may suffer, and the researchers and engineers trying to find a solution based on the data they are examining will be hampered. Moving from one centralised conversion aspect around the datalogger to an external analogue-to-digital conversion within each sensor is not without additional considerations that could impact on the quality of the data. Cost is an additional consideration because most of the digital sensors are higher in cost than the analogue ones.

Our products have had to change to reflect the move to more digital sensors. The new products we are introducing focus much more on serial connectivity than the previous generation did. The new datalogger that we have released at the show today offers a combination of high-quality analogue measurement with multiple serial channels, whilst using a minimum number of connection points and terminals – so we are trying to bring the two worlds of Analogue and Digital together in one highly effective Data Logger.

> *"Because our equipment is so reliable, it lasts a long period of time, and therefore the cost of ownership is low."*

You mentioned the reliability of products from Campbell Scientific – why is this so important to your customers?

Many of our installations are in very challenging environments; in the Arctic, the Antarctic, deserts, volcanic mountains, or in difficult to access locations such as the northern regions of Scandinavia, or Canada etc. With that in mind, just the cost to the customer of accessing those places can be extremely high - that's one consideration. The other consideration, perhaps the most important one, is that for some of the events being monitored, particularly things like severe weather, you may have only one opportunity to capture the data you need – that weather event may never repeat itself. So if the equipment is not available when you need it, if it is not reliable and doesn't give the quality that you need, not only will you have high costs to maintain the systems, but you could lose that vital piece of data or that crucial piece of information. Therefore, reliability is absolutely paramount to what we do.

Because our equipment is so reliable, it lasts a long period of time, and therefore the cost of ownership is low. We have many installations where the equipment has been installed for 15 years or more, and we continue to support, repair and maintain that equipment, as well as provide recalibration services necessary to continue to give accurate measurement.

You've mentioned the company's commitment to research and development. What new products are exhibiting at the Meteorological Technology World Expo this year?

Well we have just mentioned a new datalogger, our core product range. It's called the CR6, and it is quite an interesting device. We have consolidated a lot of functionality into the device in terms of communications, such as Ethernet ports, support for expansion memory cards and so on. But perhaps the most radical change for us is that we've integrated what we call Universal Terminals. These are connectors that may be configured as analogue signals, digital signals, inputs or outputs, configured to talk to RS232 or 485 type devices and so on. The increased flexibility offered by this new logger has many benefits to our customers. For example, imagine a situation where a customer has an existing, predominantly analogue, sensor base. The CR6 can seamlessly integrate with those existing sensors now and yet equally handle updates to the sensor base to accommodate digital sensors in the future.

The other main areas that we are focussing on at the show this year are aviation related technologies; sensors for visibility and

The CR6 Datalogger offers high-quality measurements, fast processing speed and easy wiring in a compact and robust design.

present weather, ceilometers, and an integrated hardware and software system for Instrumented Runway Visual Range (IRVR). We are also introducing our Aviation Weather Observation System – an AWOS built around a product called METCOM. We have owned METCOM for some time, but it has actually just gone through a revitalisation. We have updated it to bring it up to modern standards and improved the clarity of the displays in terms of the human factors involved, so the displays are quicker and easier to read.

Meteorological Technology World Expo 2014 Review

Going back to your previous point about future-proofing – obviously technology is changing all the time, and we are also experiencing a time of great climate change and also great awareness of what is going on around the world. How is Campbell Scientific going to ensure that they keep providing the same level of accuracy and reliability to customers in the future?

That's a really good question. Campbell Scientific has a strong commitment to Research and Development, and in recent discussions we actually looked at the distinction between the research and development elements. For many businesses the term 'Research and Development' actually describes a department that is biased towards the development side and much less so towards research. We see these as two quite different aspects to our business. Research is something that may involve a bit of blue-sky thinking and entails looking at the issues that our customers are likely to be facing in three to five years' time. It involves trying to master the science behind the customer requirement and to find solutions for their future measurement problems. Such research may not develop into anything tangible, but it's vital to the science aspect of our business.

> *"Separating the research and development is an interesting approach, but we achieve it with a single team of people who move from the research side to the development side and vice versa."*

Development for us, on the other hand, is where we have a customer with a problem that we substantially understand how to solve. At that point we create a solution with an understanding of the technology required, and then we bring everything together to verify that the solution is actually doing what we originally intended it to do. Our development of a product continues throughout its lifetime. Modern digital electronics allow the dynamic of upgrading firmware in existing products at times without having to remove them from service to do so, and so the useful life of the hardware is extended while accommodating new development. For example, new measurement methods can be implemented, new complex functions added and new protocols and messaging methods added as part of the ongoing development program. The company's CR1000 is an example of this.

Finally Steve, what 3 main points regarding Campbell Scientific do you think readers ought to take away with them?

Firstly, Campbell Scientific helps customers make the best measurement possible for their particular situation. We understand that there are often constraints involved when it comes to equipment choice, possibly due to the environment or the rather more mundane issue of cost. Whatever the constraint, we work together with customers to ensure that the system they have is the best solution for their circumstances.

Secondly, the reliability, accuracy and quality of our measurement products is a large part of our success, and this will continue thanks to our dedicated research and development teams.

Lastly, and this relates to point number two, Campbell Scientific products have longevity on their side. Our devices not only last for many years, but continue performing to a high standard throughout their lifetime. The support services and aftercare we offer to customers ensure that the relationships we forge are long-term. Customers are a key component to the success of every company, and that is why we are dedicated to looking after our customers and to developing relevant products to an exceptionally high standard.

Steve Severn, Managing Director of Campbell Scientific Ltd. (Europe

Compact Weather Stations Launched at Meteorological Technology World Expo 2014

Gill Instruments Limited (UK), a leading meteorological and environmental solutions provider, launched MaxiMet, a new range of compact weather stations at the Meteorological Technology World Expo 2014.

MaxiMet combines the renowned quality and reliability of Gill products into an integrated, easy-to-use and cost-effective compact weather station. Applications such as road weather, solar and wind energy, building controls, agriculture and many more will now be able to take advantage of the widest range of parameters available in any compact weather station.

Visitors to the Gill Instruments stand were treated to the first chance to see the new range, which will be available from the New Year.

The MaxiMet range will be launched with 9 variants, allowing users to choose measurement parameters and communications protocols to suit different requirements. Instrumentation includes options for precipitation, solar radiation, wind, temperature, humidity and pressure, as well as GPS and compass. There are many other selectable parameters and every option in the range includes the new low power 'Eco Mode' and Bluetooth for wireless communications.

"MaxiMet is a range of cost-effective compact weather stations that users can customise to their requirements" says Richard McKay, Product Manager at Gill Instruments. "With MaxiMet no other sensors are necessary to obtain a complete weather snapshot using measurements to the highest standards".

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