

Subsea cables – Reduce your risk through advanced engineering and long-term reliability

Exclusive Interview with Keith Wells, Chief Executive Officer, Scientific Management Associates UK Ltd



Widely recognised as probably THE leading expert in the world when it comes to 'right first time' pressure moulded cable harnesses and connectors for any hostile environment. Keith began his career in the marine industry before taking up Regan's challenge and designing parts of the 'Star Wars' programme.

25 years ago Keith founded Scientific Management Associates UK Ltd and has since focused on creating a company whose reputation is built on 10,000 installations and zero leaks on products operating in some of the most hostile environments across the globe.



Keith participated at the 10th Annual International Tidal Energy Summit as a key speaker on the Marine Operations panel on the 22nd November.

I'm aware that SMA didn't begin in the tidal industry. Could you explain how you got into the Tidal market?

For 25 years, 18 of which we have held uninterrupted Capability Approval from the MoD we have been producing cable harnesses and connectors for the submarine industry worldwide including our own nuclear fleet. Clearly an error here could result in the loss of a boat with all lives on board so our mantra of 'right first time, every time, fit and forget' means no other cable harness installation is likely to phase us.

The inevitable parallels between marine turbines installed in some of the world's most unfriendly environments, whilst not perhaps as challenging as a submarine diving to maximum depth, they are non the less one of the most technically challenging installations we could tackle. For us and our 25 year heritage this seemed a very natural progression.

What's the big deal with cables? I recall John Griffiths, EMEC's technical director, saying at the Tidal Summit that over 70% of problems in offshore wind arise from the cabling. Is that true?

Historically we work from an early stage hand in glove with our customers bringing all our expertise and experience to bear so that our installations are right first time, fit and forget with zero leaks. My observation would be that this is not how many suppliers work and both suppliers and customers have a tendency to focus on initial costs at the expense of reliability.

You only need one failure in service for that decision to look very questionable. The cost of rectification can often cost many times more than having done the job right in the first place. We firmly believe that fit and forget in hostile environments is always preferable to mission failure and when we are involved from an early enough stage in development such reliability doesn't necessarily need to equal a higher price.

Which tidal projects have you been involved with in 2015 and 2016?

We've been asked to put our 100% record, fit and forget, to good use in the first two projects as we've been fixing problems from other manufacturers - SeaGen (Marine Current Turbines) was our first tidal installation replacing other suppliers failed harnesses, which had suffered cathodic delamination due to the close proximity of sacrificial anodes. We also replaced problem instrumentation harnesses with a multi-way termination. We can mould up to 20 cables into a single termination though SeaGen only required 7 so that was no problem.

We also supplied the export cable terminations for Tidal Energy's Deltastream installation in Pembrokeshire, with low and medium voltage and fibre optic connectors

One of the real stand outs for me this year though is that we have been a supplier to the recently commissioned OH turbine at Cape Sharp, in the Bay of Fundy which has just started producing power. We're very proud of this technical achievement, and from a personal note the engineers who worked on the installation couldn't have been more capable - so a great result all round.

All these projects have spanned cable systems, connectors and glands for:

- LV auxiliary power
- MV power at 6.6 and 13.8 kV,
- And fibre optic connectors with 12 or 24 fibres contacts

All have been installed and worked first time - fit and forget

What are the lessons learnt from your experiences in tidal – as well as your advice to developers and turbine manufacturers

Having provided over 10,000 installations - with zero leaks - over the last 25 years - we watch others learn from bitter experience that the cost of rectification significantly outweighs the upfront cost - that's not to say we are expensive because we are not, in fact, some solutions are lower cost because they are a more graceful engineering solutions, designed for purpose from the start.

I guess this naturally leads me to my second comment which is it's sensible to work with us early to ensure we can design something with best fit for purpose for your particular project and installation. We are a partner, and not competing with you, so our preference is always to work with customers to provide them with the best possible solution to their needs.

How are your products unique?

We launched at Tidal Today's recent summit the combination of our Slipstream low profile fibre optic connector and our PlastEthUrm dual jacket sealing in order to offer a lifetime warranty.

Here then are three commitments coming together – A high technology low profile 90 degree fibre optic moulding which can even include remote sensing technologies if required. This is mated to a range of connectors and at the back end bonded to our patented PlastEthUrm dual jacket cabling offering strength and longevity with the combination of PE and TPPU. By combining these technologies we are able to offer a lifetime warranty which we believe is unique in the industry. Without going into specifics on circumstance we know that our thermal and chemical bonding techniques are so advanced that they can withstand a material explosion at very close quarters and still be relied on to work.

Finally, what is your final take home message to the tidal industry?

Don't be pennywise, pound foolish seeking the lowest costs today and experiencing performance interruption tomorrow.

Involve your suppliers early so that they can bring their expertise to the table for your ultimate competitive advantage.

Finally, and I'm sorry but I can't recall whose quote this is but something to keep in mind: "There's no right way of doing the wrong thing".

