

DOBLE Case Study: High voltage condition monitoring partnership



Doble Engineering Company has brought new investment to Scotland's engineering sector through its newly created Innovation Centre for On-Line Systems and has hired its first employee based in the country.

Operating in more than 110 countries worldwide, Doble is a leader in diagnostic test instruments, expert consulting and knowledge services for the electric power industry, including parts of the UK's National Grid infrastructure.

As part of its research and development process, Doble has established Centres of Innovation, which are comprised of critical team members from across Doble and its partner organisations focused on developing core technologies.

Working with Glasgow Caledonian University's Institute for Sustainable Engineering and Technology Research, Doble Solutions Architect Philip Boreham is directing R&D activities to improve the measurement and assessment of the condition of high voltage systems, identifying new opportunities to enhance the reliability and integrity of power stations and developing new partial discharge monitoring products and technologies.

Doble has appointed Stuart Simpson, formerly of Thales, as an Electronic Engineer

to contribute to the company's research and development activities and projects in collaboration with Glasgow Caledonian University (GCU). Stuart will be responsible for participating in the design of electronic systems, managing the documentation control process and interfacing with contract manufacturers.

GCU has a rich history in both the theory and practical aspects of partial discharge application. Doble, with its long tradition of reliable condition assessment equipment, is partnering with GCU to develop innovative and advanced partial discharge surveying and monitoring tools. Developments to date include the PDS100 partial discharge surveyor, which is successfully used in many power industry sites worldwide. Further developments in integrated monitoring, smart analysis algorithms and complete condition assessment tools will help the electric supply industry around the world as that industry moves towards on-line monitoring systems and predictive maintenance programs.

Working with GCU researchers, Doble's team will be responsible for electronic systems development to support the next generation instruments for condition monitoring in the high voltage and power industries. Doble

is expanding its range of online diagnostic systems, including the Intelligent Diagnostic Device (IDD), which are used to monitor electrical apparatus in the field, under extreme weather conditions and electrical interference found in normal substation operations.

Stuart will use his detailed understanding of the I/O interfaces, mixed signal design and of standard inter-processor communication topologies to work with the software engineers as an active part of the product development team.

Robert Ryan, Doble VP, Global Engineering and Operations, says: "This partnership brings the best minds from GCU's staff and researchers together with engineers from Doble's global engineering organisation to develop online monitoring products for the critically important electrical power utility market. Doble will market and sell these products world-wide. Together we are establishing a roadmap for long term engagement. The important element in this relationship is the mutual collaboration towards a common goal."

Doble and GCU recently signed a three-year £1.2 million framework partnership, which

builds on GCU's reputation for world class research in the field of sustainable engineering and technology and reinforces the University's excellent track record in working with international business.

The GCU research team is led by Professor Scott McMeekin, Associate Dean (Research), School of Engineering and Built Environment and the Institute for Sustainable Engineering and Technology Research's Diagnostic Systems and Sensors Group lead.

The group combines expertise from high voltage insulation diagnostics and the analytical sciences. Research activities include the development of condition monitoring systems, electronic and photonic sensors, wireless sensors networks, chemical diagnostics and remote monitoring engineering.

Professor McMeekin said: "The team at GCU brings together its expertise in sensors, data analysis, electronics and software, which is combined with an in depth knowledge of high voltage systems and the power industries to develop market ready solutions for Doble. In addition to fully supporting Doble in getting novel and innovative products to market, the

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team works with the company to develop best practice and new applications for the products and to deliver this knowledge base to Doble engineers and clients around the globe."

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At Glasgow Caledonian University, we work with industry and public sector partners to ensure our expertise responds to the need for real-world innovation. GCU's strategic business development and knowledge transfer teams work with academic experts in our Schools and Research Institutes to support businesses with a problem-solving approach.

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FURTHER INFORMATION:

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