

CASE STUDY

OUTSOURCED MANUFACTURING GIVES EM ELECTRONICS A VITAL COMPETITIVE EDGE



EM Electronics, a world leader in the design, development and production of extremely specialised low DC voltage instrumentation, has partnered with Offshore Electronics to outsource the manufacture of the circuit boards and assemblies that are critical to the success of its products. This partnership is key to the company's ability to ensure consistent quality and accuracy of its measuring instruments, which are capable of operating at picovolt levels, and of maintaining a flexible and competitive service to its customers.

Founded in 1979, EM Electronics is a small family owned business that has successfully carved a niche for itself in the development of ultra-low voltage amplifiers and DC measuring instruments. Today, the company is an acknowledged leader in this specialised field, with its products being used in scientific research institutes, standards testing and calibration laboratories, medical centres and for process and systems improvement in applications throughout industry.

Founder and Managing Director, Ernest Moorey, explains that, "Our customers are typically working at exceptionally low DC voltages, in areas that can range from cryogenics and calorimetry, to sonar detection.

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Our amplifiers and measuring instruments are therefore designed to provide extremely high levels of sensitivity and accuracy, for example, with noise resistance less than 1 ohm and resolution down to 20 picovolts. The way in which each device is manufactured is therefore critical if we are to ensure optimum quality and consistency between instruments."

EM Electronics had previously considered setting up a dedicated electronics manufacturing facility. However, as Ernest Mooney, points out, "We eventually concluded that we should focus on our core skill sets – designing and developing instruments and supporting our customers – and then outsource some of the more specialised manufacturing processes to partners that had already made the investment required to produce the highest quality electronics and electro-mechanical assemblies, and who had the knowledge and experience to ensure that our boards and assemblies are produced in the most effective manner."



EM Electronics talked to a number of potential suppliers and initially worked with one in the UK. "Unfortunately, this was unsuccessful, as they were unable to meet our specification, quality expectations or provide a reasonable standard of customer service", says Ernest Mooney. Subsequently EM Electronics worked with another supplier prior to the company being put in touch with Offshore Electronics, a specialised Contract Electronics Manufacturer based in Guernsey.

"This proved to be a revelation," explains Ernest Mooney. "Offshore Electronics is run by experienced engineers who understand both our business requirements and the technical demands of our instruments. They take a genuine interest in helping us manufacture the best possible products. From the outset, they have been able to provide us with an outstanding service, in terms of both manufacturing capabilities and customer support. For example, they have helped us modify the design of our boards to make them easier to manufacture while simultaneously improving quality and performance. They also help us with component sourcing, product assembly, testing and trouble-shooting."

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EM Electronics' instruments include the A20 sub-nanovolt amplifier. This has an extremely low short circuit input equivalent noise resistance of less than 10 ohms, and provides a resolution of a hundred picovolts with a comparatively short response time; this makes it ideal for use in areas such as super conductivity research. To achieve this level of performance requires precision electronics manufacturing techniques, combined with the use of specialised components and materials, including for example, super mu-metals.

"These require careful handling and assembly if we're to guarantee the performance of our instruments", explains Ernest Mooney. "Offshore Electronics is exceptionally proficient in this area, giving us complete confidence in them as a business partner; in fact, it's fair to say that they have been a major contributor to the ongoing success of EM Electronics, providing the manufacturing resources and technical expertise that have made us a world leader in our field."

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