

The Client



Renishaw plc is one of the world's leading engineering and scientific technology companies, supplying products and services used in applications as diverse as jet engine and wind turbine manufacture, through to dentistry and brain surgery. Their Encoder Product Division (EPD) products include a range of encoders, used to digitally transmit position information.

Hear Renishaw's story for yourself at: www.ldra.com/renishaw

The Project

EPD has an established product in their RESOLUTE true-absolute, fine pitch optical encoder system. They have identified markets demanding similar characteristics, where the encoder feedback is required to be functionally safe in accordance with IEC 61508 SIL 2.

Although the RESOLUTE product was developed in a very professional manner, the compliant RESOLUTE FS demanded a different level of detail.



Liz Smith, a Software Engineer on the project, takes up the story. "Much of the firmware was already written, but the development process was not in accordance with IEC 61508 SIL2" she said. With new, detailed requirements in place, static analysis was a logical starting point for re-engineering code.

"We had confidence in LDRA from the start, based on the recommendations of consultants SIRA and certification authority CSA. Even so, the availability of LDRArules stand-alone gave us the opportunity to experience the quality of LDRA products and support, without committing to the whole tool suite."

Experience with both LDRArules and its support led to an easy decision to deploy LDRA's TBrun. "We needed an efficient way of unit testing, and of showing code coverage associated with it" said Liz.

The Benefits

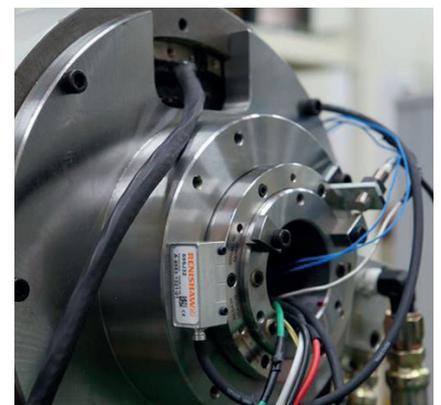
Renishaw reported a positive experience throughout. "The retrospective application of MISRA C:2012 proved less challenging than imagined." said Liz. "LDRA rules helped significantly by breaking down the high level MISRA guidelines to more granular and complete definitions."

Perhaps the biggest unexpected benefit came from TBrun. "Regression tests allowed us to ensure existing functionality remained intact during development" said Liz. "Less obviously, they also give the ability to easily confirm that software is functioning in accordance with requirements if problems ever arise."

The Future

The EPD team are now keen advocates of the software development processes laid down by the standard, exemplified by their involvement in Renishaw's Quality Focus Group, and not only for certified products. Liz concluded: "The beneficial effect of adhering to IEC 61508 and applying the LDRA tool suite means that we will look to apply them even when certification is not the aim."

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For more information contact:
www.ldra.com