*January 2017 – for immediate release Further information: Chris Pockett, +44 1453 524133*

**Renishaw launches first functionally safe absolute open optical encoder**

Renishaw builds on its existing functionally safe (FS) portfolio by introducing the RESOLUTE™ FS absolute open-optical encoder for both linear and rotary axis applications. The RESOLUTE FS encoder system, part of the RESOLUTE series, offers all the benefits of the standard RESOLUTE variant but with FS certification.

The standard RESOLUTE encoder is already designed to be inherently safe due to a built-in separate and independent position checking algorithm\*, which has allowed seamless progression to full FS status and compliance with both the ISO 13849-1:2015 (Performance Level D) and IEC 61508:2010 (SIL2) standards. Full FS certification is required to guarantee the safe use of functions that include safe stops 1 and 2, safe operating stop (SOS) and safe limited speed (SLS) - all of which require functionally safe encoder feedback. A practical example of the SLS function in action is when an interlocked machine guard is opened during normal operation. SLS will act to limit traverse speed to 0.1 m/s and spindle rotation to 100 RPM, thereby minimising the risk of personal injury. RESOLUTE FS is currently compatible with Siemens DRIVE-CLiQ serial communications protocols, with other FS protocols expected in the near-term.

Renishaw's RESOLUTE encoder is the world's most advanced single-track true-absolute optical encoder system delivering up to 1 nanometre resolution, superior long-term reliability, instant operation after power-up without reference return and high speed performance to 100 m/s. The RESOLUTE series is ideal for advanced motion control applications and enables smooth velocity control with cyclical errors of <±40 nm and excellent positional stability via jitter (noise) of < 10 nm RMS. The advantages of open-absolute encoders over enclosed designs include large through-hole rotary (angle) ring scales for easy design-in, low inertia and low profile components and the absence of wear associated with contacting parts. Furthermore, the RESOLUTE encoder’s easy installation as a result of generous set-up tolerances and an integral set-up LED, excellent dirt immunity and IP64 sealing, gives outstanding performance even on the very long axes typical of heavy industrial applications.

RESOLUTE FS encoder systems still offer customers the same outstanding performance of the RESOLUTE series but with the added peace-of-mind that comes from compliance with the world’s most stringent functional safety standards.

\*White paper: Safety first - [the position determination and checking algorithms of the RESOLUTE™ true-absolute optical encoder](http://resources.renishaw.com/en/details/white-paper-safety-first-the-position-determination-and-checking-algorithms-of-the-resolute-true-absolute-optical-encoder)

*DRIVE-CLiQ is a registered trademark of Siemens.*

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