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**The world’s first true-absolute optical encoder for Ultra-High Vacuum (UHV) environments**

RESOLUTE™ UHV is the latest ultra-high vacuum compatible readhead from Renishaw, offering true-absolute position feedback, sub-micron accuracy and resolutions to 1 nm for both linear and rotary applications. The new range of RESOLUTE UHV encoders are constructed from clean vacuum-compatible materials and adhesives to give low outgassing rates and proven clean residual gas analysis (RGA) making them suitable for high performance, semiconductor and scientific applications requiring vacuum compatibility to 10-10 Torr.

Like the standard range of RESOLUTE true-absolute encoders, the new ultra-high vacuum variant determines position immediately upon switch-on, without the need for any movement or battery back-up. Instant commutation means that axes are immediately under complete control after power loss, thus eliminating risks of unchecked movements or collisions; an advantage that is essential in applications, such as wafer handling, where safe extraction of high value wafers is critical.

Safety is assured by a built-in separate and independent position-checking algorithm. This actively checks every reading, ensuring any potential problem is flagged long before it reaches the controller. RESOLUTE UHV uses pure serial communications with CRC (cyclic redundancy check) which eliminates the need for auxiliary 1 Vpp signals, offers higher noise immunity and detects data corruption. Available with a wide range of serial protocols, including *BiSS*, FANUC, Mitsubishi and Panasonic, RESOLUTE UHV is compatible with industry standard controllers.

With over a decade of experience in supplying high accuracy optical encoders for UHV environments, Renishaw carefully selects materials to ensure low outgassing rates and a proven clean RGA, and is the only encoder company that publishes representative RGA test results. All UHV encoders are also supplied with an RFI screened UHV compatible cable, are manufactured in clean conditions and shipped in specially designed packages that avoid contamination.

RESOLUTE UHV systems are available for both linear and rotary position feedback, and because the RESOLUTE system uses a single track scale code, each installation is compact with wide set-up tolerances for quick, easy fitment and long-term operation. All scale formats are coating-free and can be subjected to specialist cleaning and degreasing if required.

Designers can choose from a variety of linear scales in either stainless steel or ZeroMet™ low thermal expansion alloy with accuracy to better than ±1 µm on lengths up to 1.13 m. Mounting can be either self-adhesive, mechanical or track-mounted, with even the self-adhesive scales having proven clean RGA spectra. Stainless steel rotary rings feature large through-holes and patented taper mounting for quick, easy and precise adjustment of eccentricity, whilst minimising shaft preparation costs.

As with all Renishaw encoders, RESOLUTE UHV is RoHS compliant and is backed by a truly responsive global sales and support network.

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