

New super-compact optical encoder offers speed, accuracy and reliability

TONiC™ is Renishaw's new super-compact non-contact optical encoder that offers speeds up to 10 m/s and resolutions down to 5 nm for both linear and rotary applications. Offering significant enhancements to Renishaw's existing range of high speed non-contact optical encoders, TONiC™ also gives improved signal stability and long-term reliability, low cost of ownership and unrivalled simplicity.

Motion system designers usually face a compromise between speed and accuracy. With the **TONiC™ optical encoder**, this dilemma is removed and even at resolutions as low as 0.1 µm offers speeds in excess of 3 m/s, across a variety of linear and rotary scale types. This includes a new version of Renishaw's flexible gold tape scale which features the highly regarded customer selectable *IN-TRAC™* optical reference mark, which is auto-phased simply by the press of a button. Uniquely, the *IN-TRAC™* reference mark is directly embedded into the incremental channel, which maximises immunity to yaw-induced de-phasing and furthermore, ensures phasing is retained throughout the entire speed and temperature range.

Renishaw's range of optical encoders is widely recognised for giving machine builders fast and easy installation. In addition to the *IN-TRAC™* bi-directional reference mark, the new TONiC™ encoder takes this simplicity to the next level by offering auto-calibration and a readhead with two integral diagnostic LEDs.

The new TONiC™ readheads may be small, but signal purity and stability are further enhanced by incorporating dynamic signal processing within the readhead, providing an ultra-low Sub-Divisional Error of better than ±30 nm. System designers can use an analogue 1 Vpp signal taken direct from the readhead, or use a digital output from the 15-pin D-type housing, offering interpolation and diagnostics. Long-term operational reliability is further assured with Renishaw's proven filtering optics, which are now enhanced by Auto Gain Control for rugged signals that can withstand dust, scratches and even light oils on the scale.

As with all Renishaw encoders, the TONiC™ encoder system is also built to withstand difficult operating environments, with robust heat tolerance to 70 °C. Furthermore it satisfies the highest environmental standards, with both WEEE and RoHS compliance.



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