

RESOLUTE™ absolute encoder with FANUC serial communications is now in linear encoder format

Renishaw's RESOLUTE absolute encoder is now available with FANUC serial communications in linear encoder formats, offering sub-micron accuracy and resolutions to 1 nm. The RESOLUTE range is therefore ideal for precision machine tool builders who require more performance from linear axes, giving smoother velocity ripple, improved servo stiffness and reduced hysteresis errors.

RESOLUTE is a true absolute encoder, meaning it determines absolute position immediately upon switch-on, thus eliminating the need for battery back-up or reference returns. It uses an innovative detection method that is analogous to an ultra-high-speed digital camera reading from a non-repeating, fine-pitch bar-code scale. Even at speeds up to 100 m/s, images are captured, analysed and interpolated to resolutions as fine as 1 nm.

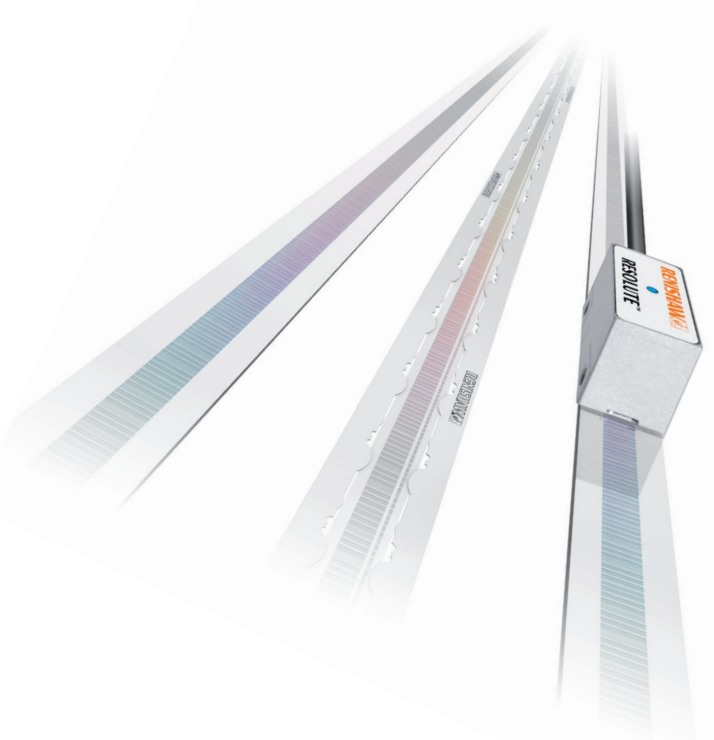
This technique features excellent immunity to contamination, owing to sophisticated cross-checking and dirt-rejection capability, and also attains wide set-up and running tolerances. Safety is assured through RESOLUTE's unique built-in separate checking algorithm, which constantly monitors position and ensures any problems are flagged-up before they reach the controller.

The combination of a high-performance readhead and superior scale technology also provides users with higher-fidelity encoder feedback. Dynamic response is significantly improved thanks to Sub-Divisional Error (SDE) being controlled to within ± 40 nm, jitter (noise) less than 10 nm RMS, and a non-contact format that eliminates the mechanical uncertainty of fragile wheeled-carriages found inside traditional enclosed linear encoders for machine tools.

Overall accuracy to better than ± 1 μm is offered as standard on RELA Invar® scales, whilst RSLA stainless steel scales offer very high accuracy at long lengths up to 5 metres. Also available are RTLA and RTLA-S rugged steel tape scales which allow ± 5 $\mu\text{m}/\text{m}$ accuracy, lengths up to 10 metres, and quicker and easier installation.

Applications for RESOLUTE absolute linear encoders with FANUC serial communications include high-precision machine tools, grinding machines and diamond-turning machines. The range of absolute encoders is also available in angle encoder format and with a variety of protocols to interface with a wide range of industry-standard servo drives and controllers.

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For more information about RESOLUTE, please visit the relevant pages on www.renishaw.com/resolute or contact your local Renishaw representative.

