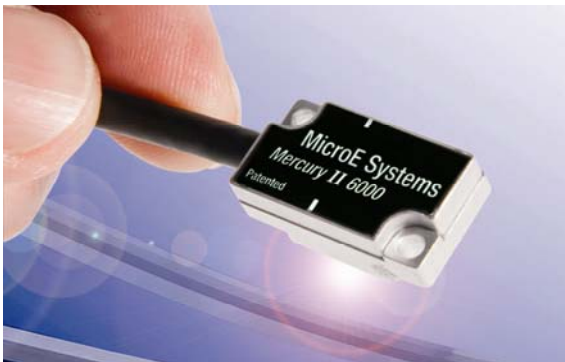


New Encoder from MicroE Systems Is World's Smallest with Nanometer Resolution

MicroE Systems' new Mercury II™ 6000 series of encoders sets a new benchmark for small sensor size with high resolution and accuracy. The sensor is only 8.2mm high, weighs just 3 grams and provides output resolution as fine as 1.2 nanometers. The small, high-performance encoder system will enable a broad range of new capabilities in compact motion control stages and positioners through a combination of accurate nanometer-level positioning, compact system design, and unprecedented affordability for this level of performance. Applications include microscopy, life sciences, automated optical inspection, fiber optics manufacturing, nano-positioning, instrumentation, laser processing, metrology and many more.

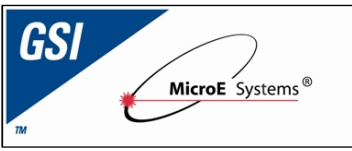


Capable of linear and rotary applications, Mercury II 6000's exceptional cyclical error (short-travel accuracy) of ± 20 nanometers provides the precise nano-positioning feedback and smooth velocity control of encoders costing 2-3 times more. Long-travel accuracy of $\pm 1\mu\text{m}$ is achieved using glass scales.

Low heat generation at the sensor minimizes errors and distortions due to thermal effects, a critical feature for achieving the best performance in nano-positioning applications. Power consumption at the Mercury II 6000 sensor is only 50mA @ 5VDC – a fraction of other encoders in this resolution class.

Low jitter, a key feature for nanometer applications, is achieved by a combination of the optical design, signal processing electronics and a user-programmable low pass output filter. The result is high signal stability and up to $\pm 1.2\text{nm}$ of repeatability.

Output resolution is also user programmable and ranges from $5\mu\text{m}$ to 1.2nm, linear, making Mercury II 6000 adaptable to a range of application requirements. High speed applications are supported by the fastest A-quadrant-B output in the $20\mu\text{m}$ encoder class, providing up to 1m/s at 20nm resolution; optional serial word output increases encoder speed capability to 10m/s at 1.2nm resolution.



Fast setup with minimal skill is achieved with Mercury II's optical system, featuring the broadest alignment tolerances of any 20µm-pitch encoder. Rotational tolerance about the Z axis is $\pm 2^\circ$ – fully 300% better than the next best competitive encoder – and ride height tolerance is $\pm 0.15\text{mm}$.

Adhesive-mount PurePrecision™ tape scales provide accuracy, robustness, and rapid installation. This is due to MicroE Systems' PurePrecision™ system, which allows the installer to cut any required length from a reel of tape scale; adhesive backing and a unique application tool make installation fast and accurate. Linear glass scales satisfy applications requiring long-range accuracy up to $\pm 1\mu\text{m}$. Index and limit marks can be built-in or applied as stick-on markers.

Rotary / angle encoding with resolutions up to 268M CPR is also a standard feature of the encoder. The same sensor works in both linear and rotary applications, reducing design time and unique parts count for applications with both linear and rotary requirements.

A vacuum version of the sensor is available with rating to 10^{-8} torr, and bake out at 150°C for 48 hours.

Integral index, limits, low signal alarm, and status LED's enhance Mercury II 6000's usefulness in many motion control applications. Use of a standard D-sub connector, in conjunction with the miniature sensor, minimize system footprint.

MicroE Systems manufactures a complete series of miniature, high-performance encoders, including linear, rotary, digital, analog, low-cost PCB mount and vacuum-rated models.

For more information, contact:

Mitchell R. Jones
Market Development Manager
MicroE Systems
125 Middlesex Turnpike
Bedford, MA 01730 USA
Tel: 781-266-5750
Fax: 781-266-5112
Email: mjones@gsiq.com
www.microesys.com