Press Release

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Incremental Vs. Absolute Sensors

Most engineers still specify incremental position sensors because they believe that absolute versions are too expensive. The market has changed in recent years and so Mark Howard, General Manager of Zettlex Ltd. provides an up to date review of the relative merits of incremental vs. absolute approaches.

Incremental vs. absolute position sensors

If you've never really understood the difference between incremental and absolute measurement , don't worry – you're in good company. Plenty of engineers have never really got to grips with this area and sensor manufacturers have confused matters by claiming absolute measurement when what their sensors really offer is incremental. So let's start with some definitions. An incremental sensor produces indications of incremental displacement. An absolute sensor produces an indication of

Problems with Incremental Approach

The angle of the primary shaft is calculated from the angle of the secondary – assuming that the rotation of the secondary varies proportionately with the primary. Not

Absolute Measurement

So why doesn't everyone use direct measurement? The reason is that, until recently, large bore rotary encoders were disproportionately expensive, delicate and difficult to fit.

New Generation

Ring style optical encoders have been around for years but are expensive, bulky, need careful installation and are prone to failure with foreign matter. Similarly, large bore resolvers have been around for many years but their price, complex electrical

supply/signal processing and bulk make them unsuitable for most mainstream applications.

New generation inductive devices enable a simple, effective and accurate way to measure the angle of large diameter shafts. These devices work on similar principles to contactless resolvers and are just as reliable in harsh conditions. Rather than wire spools or windings they use printed, laminar windings. This enables a low profile, annular encoder ideally suited to large diameter shafts. The electrical interface is simple due to on-board electronics – DC voltage in; absolute digital data out. The mechanical arrangement of these new generation devices is simple and eradicates all gearing. The result: a simple, compact, lightweight, low inertia, accurate and reliable solution.

Fig. 3 – Incremental Motor Encoders account for the largest market segment

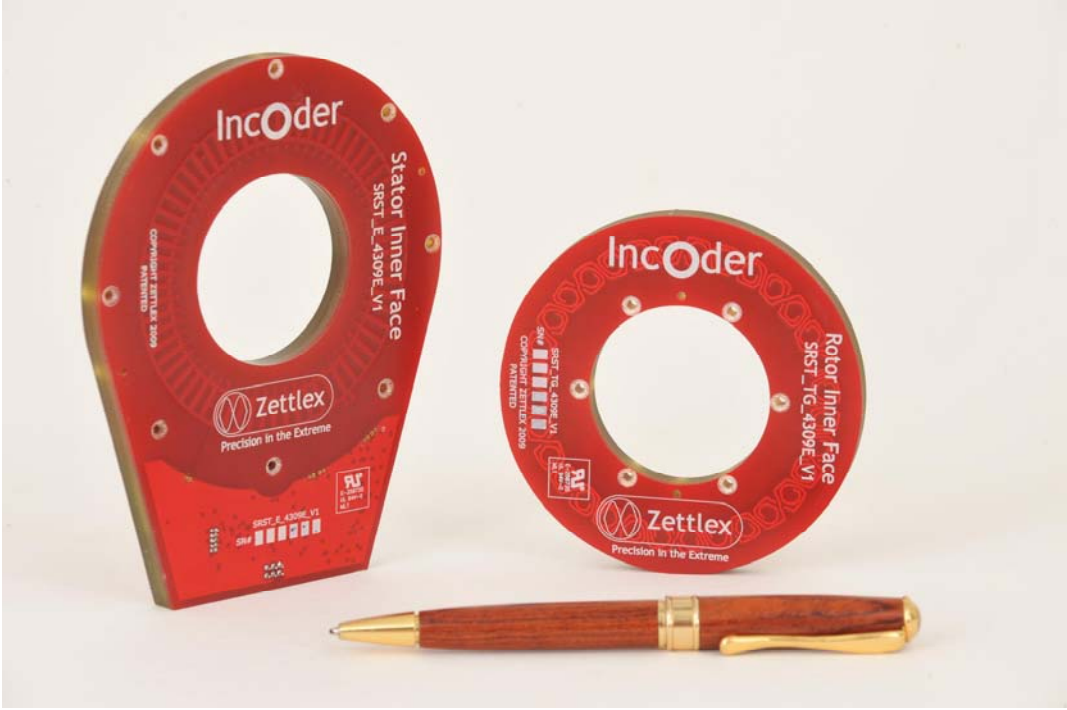

Fig 4 – New Generation Inductive Devices are tipping the balance towards greater use of absolute measurement

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