

## Glossary

### **What is the Electric Encoder™ about?**

In Electric Position Sensing angular displacement influences a patterned electric field that is continuously measured to provide position feedback. This technology can be regarded as a rare breakthrough where practically every imaginable performance parameter improves, compared with existing technologies at no compromise.

### **Is the terminology used in specifying performance different from other encoder technologies?**

Basically they are the same. Resolution, accuracy and repeatability, operating speed, etc. are used in the same way to define the desired performance of the encoder. However, the Electric Encoder output is a Sine/Cosine signal and there are also some new features described below.

### **What is a Sine/Cosine signal pair?**

The outputs of the electric encoders are continuously varying voltages proportional to the sine and cosine of the measured angle, and thus the position is available at any time. The user determines the rate at which it will be interrogated and the resolution is practically determined by the A/D conversion. The digitized values are converted to an electric angle by means of ArcTan lookup table and then to a position information based on the Fine channel period length

### **What does "holistic" encoder mean?**

The Rotary Electric Encoder™ uses the whole physical area of the rotor at any time, unlike the optical encoder that uses only a small section of the rotor. In addition, the sine and cosine output signals are generated and processed in a common channel and are very pure and tightly matched. The result is insensitivity to mechanical assembly, vibrations and installation errors as well as to temperature and contaminant effects. Contrary to logic, the correlation between high measurement accuracy and construction precision is no longer valid.

### **What is an ECR?**

The number of Electrical Cycles per mechanical Revolution that the electric encoder provides as an output.

**Is the output of the Electric Encoder™ absolute?**

Yes<sup>1</sup>. Upon power-on, the Electric Encoder (rotary or linear) provides the absolute rotation angle without having to move to an index position, or "home". This is based on a Coarse and Fine channels where the Fine channel, with its many EC/Rs, provides the accuracy and resolution and the Coarse channel is responsible for the unambiguous (absolute) position. This is based on single EC/R in the Coarse channel in some designs, or other number of EC/Rs (as long as there is no common divider with the number of Fine channel EC/Rs). The Coarse channel is only needed on power turn on, but in special designs it can be interrogated at any time.

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<sup>1</sup> Post processing algorithm should be deployed for full mechanical absolute position in case of the analog version of the encoders.