

Accuracy of Encoders

What is accuracy of an encoder?

Accuracy is defined as how close an actual pulse is to the theoretical perfect position. Many applications require encoders with a high degree of accuracy to function well. With poor accuracy, measurements can be erratic, motion control is more difficult and position control is sloppy. The accuracy specification is expressed in either degrees, arc minutes or arc seconds. There are 360 degrees per revolution, 60 minutes per degree and 60 seconds per minute, making 21,600 arc minutes per revolution and 1,296,000 arc seconds per revolution.

What determines accuracy?

A number of factors determine the accuracy of an encoder. The accuracy of the grating, the quality of the bearings, stability of the rotating assembly, concentricity of the disc pattern to the true center and the stability of the optics are among the most important factors. The quality, design and alignment of flex couplings also play an important role in determining overall accuracy.

Why are Accu-Coders™ so accurate?

Encoder Products Company has an extremely accurate disc generation system and encoder accuracy tester. This system uses a master encoder with an extremely accurate 7,200,000 pulse per revolution encoder. To test an encoder for accuracy, every pulse is recorded and compared to the theoretical perfect position. The difference is charted in a spreadsheet for analysis

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