

Linear Feedback ScrewCoder



By combining a precision linear encoder with a lead screw, true "Straight-Line" positioning is now possible with Newall's revolutionary ScrewCoder.



PRINCIPLE OF OPERATION

The nut of the ScrewCoder contains a series of coils and the supporting electronics. The screw is comprised of a stainless steel tube that houses a column of precision nickel-chrome steel balls. The balls are maintained under a calibrated pre-load to ensure accurate pitch spacing.

The ScrewCoder operates on the principle of induction. A drive coil that is contained within the nut generates an electromagnetic field.

This field interacts with the balls that are contained in the screw. A set of pickup coils detect the variations of the induced field which are then combined and processed to generate signals that vary in sine and cosine form caused by axial movement along the scale. The degree of phase shift between 0° and 360° is related to the position of the nut over a ball.

A high-speed Digital-Signal-Processor (DSP) samples the signals and converts them from their natural analogue state to an industry standard differential quadrature. The DSP also synchronizes the periodic reference marker pulse to the A and B High output levels.

KEY BENEFITS:

- IP67 Rating (fully submergible)
- Accuracy of the ScrewCoder is not influenced by screw pitch or reversal errors
- The system will not mis-read due to geometric errors such as pitch, roll and yaw of the machine
- Linear positional readings will register only when linear movement of the nut occurs
- Does not require periodic recalibration due to screw wear

SPECIFICATION - ELECTRICAL

- Accuracy: +/- 10µm + 5µm/m
- Resolution: 10µm, 5µm, 2µm, 1µm or 0.5µm
- Shock (11ms): 100g (IEC 69-2-6)
- Vibration (55-2000Hz): 30g (IEC 68-2-27)
- Operating Voltage: 5VDC +/-5%
- Power Supply: 5VDC +/-5%, <180mA
- Screw O.D.: 15.24mm (0.60")
- Output Signal: TTL level square wave
- Reference Marker: Every 0.500"

SPECIFICATION - ENVIROMENTAL

- IP Rating: 67 (IEC529), Exceeds NEMA Type 6
- Operating Temp: 0 to 55° C
- Storage Temp: -20 to 70° C
- Coefficient Of Expansion: 12x10⁻⁶/K
- EMC Compliance: BS EN 50081-2 / BS EN 61000-6-2

