

RVDT Sensors

Kavlico RVDTs are the industry standard for angular and rotary measurements in aviation applications. The lightweight, robust sensors are capable of up to $\pm 80^\circ$ angular range in single or multiple channel designs. RVDTs with integral gear heads are available for applications with higher angular displacements or multiple revolutions. DC/DC RVDTs are also available for a variety of aerospace applications.

Kavlico RVDTs have been qualified to 80g vibration and 400°F for some engine applications and can be designed to operate in a pressurized environment. Hermetically sealed RVDTs capable of containing hydraulic pressure are also available.

Features

- High reliability (MTBF of 1,000,000 hrs. typical)
- High accuracy ($\pm 0.25\%$ full scale)
- Stable output up to 80g vibration
- Pressurized & hermetically sealed designs available
- Precision alignment or coupling features
- Angular & rotary measurements
- Multiple channels (tandem or parallel)
- Single cycle ($\pm 80^\circ$) or dual cycle ($\pm 40^\circ$)
- Non-contact brushless rotor design
- Infinite angular displacement with gear reduction designs
- Size 8 or size 11 servo or flange mount
- AC/AC or DC/DC models
- Lightweight, robust designs, small package (diameter 0.700", length 0.500")
- Constructed for stability and interchangeability over its life
- Qualified to MIL-STD 810 and RTCA-DO 160 specs

Applications

- Flight control actuators
- Valves
- Nose wheel steering systems
- Cockpit controls
- Engine bleed air systems
- Fuel controls
- Fly-by-wire systems
- Brake-by-wire systems
- Environmental control systems
- Power plant (intrinsically safe certified units available)



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Glossary of Terms

Sensitivity – The slope of a best-fit straight line drawn through the output data. An RVDT is a ratiometric device and the sensitivity should be expressed as the ratio of the volts out (V_1-V_2), per volt in (V_E or V_1+V_2), per degree of rotation (V/V/degree).

Accuracy – The maximum allowed deviation from the nominal output, when the output is taken per the above sensitivity definition. Typically specified as a \pm percent of full scale.

Linearity – The maximum deviation of any calibration point from a specified straight line. The error is usually expressed as a percentage of Full Scale output. The most commonly used line is the “Best Fit Straight Line” (BFSL).

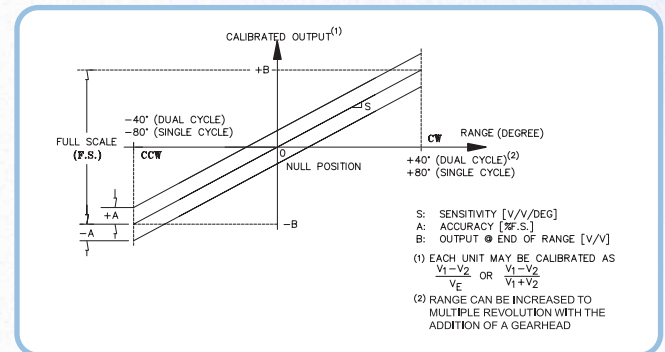
Tracking – The uniformity of performance between channels of multiple channel RVDTs. Each channel’s output is compared and the maximum difference between any two channels is termed “tracking”. Tracking is normally expressed as a percentage of Full Scale.

Crosstalk – The term used for multiple channel units to describe the voltage produced in the secondary of one channel by the primary excitation of another channel.

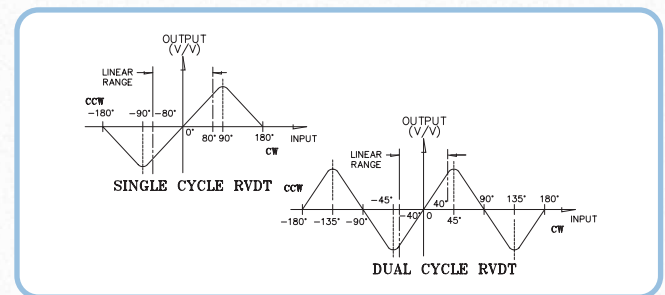
Full Scale – The full electrical range multiplied by the sensitivity.

Temperature Coefficient – The % change in the RVDT sensitivity over a temperature range. Usually defined as a percentage per 100°F max. Example: 0.25%/100°F.

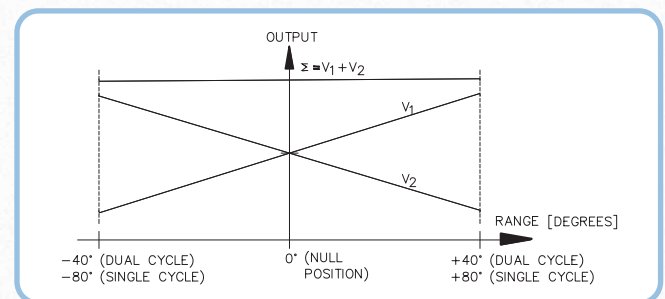
Typical Output (Calibrated Range)



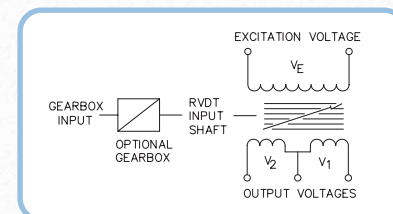
Typical Output (Full 360°)



Nominal Individual Output



Electrical Schematic



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