

R30D

Non-contact Rotary Transducer

- Measurement range $\pm 30^\circ$
- RVIT
- Linearity 0.5 %
- Output signal $\pm 3.75\text{ V}$
- Supply voltage $\pm 15\text{ VDC}$



RVDTs incorporate a proprietary non-contact design that dramatically improves long term reliability when compared to other traditional rotary devices such as syncros, resolvers and potentiometers. This unique design eliminates assemblies that degrade over time, such as slip rings, rotor windings, contact brushes and wipers, without sacrificing accuracy.

High reliability and performance are achieved through the use of a specially shaped rotor and wound coil that together simulates the linear displacement of a Linear Variable Differential Transformer (LVDT). Rotational movement of the rotor shaft results in a linear output signal that shifts ± 60 (120 total) degrees around a factory preset null position. The phase of this output signal indicates the direction of displacement from the null point. Non-contact electromagnetic coupling of the rotor provides infinite resolution, thus enabling absolute measurements to a fraction of a degree.

Although capable of continuous rotation, most RVDTs are calibrated over a range of ± 30 degrees, with nominal non-linearity of less than $\pm 0.25\%$ of full scale (FS). Extended range operation up to a maximum of ± 60 degrees is possible with compromised linearity.

The R30D RVDT is a DC operated non-contacting rotary transducer. Integrated signal conditioning enables the R30D to operate from a bipolar $\pm 15\text{ VDC}$ source with a high level DC output that is proportional to the full range of the device. Calibrated for operation to ± 30 degrees, the R30D provides a constant scale factor of 125 mVDC/degree . Nonlinearity error of less than $\pm 0.25\%$ FS is achieved while maintaining superior thermal performance over -18°C to 75°C .

The DC excitation is internally converted to an AC carrier signal which excites the transducer's primary coil. An integrated demodulator amplifier and filter convert the differential secondary output into a smooth, high level, DC output signal that is linear with the shaft angle position. Resolution is infinite enabling measurements to a fraction of a degree.

The R30D features a rugged aluminum size 11 housing making this rotary transducer ideal for applications where integrated signal conditioning and small size are required. Typical applications include hydraulic pump control, rotary actuator feedback, and throttle lever position feedback.

■ Wiring



