



R30D

DC Operated, Light Weight RVDT

SPECIFICATIONS

- ◆ Bipolar DC operation
- ◆ ± 60 degree sensing range
- ◆ Light-weight
- ◆ Non-contact electrical design
- ◆ Wide operating temperature range
- ◆ Size 11 servo mount
- ◆ Anodized aluminum housing

The **R30D RVDT** (Rotary Variable Differential Transformer) is a DC operated non-contacting rotary position transducer. Integrated signal conditioning enables the R30D to operate from a bipolar ± 15 VDC supply, and provide a high level DC output that is proportional to the full angular sensing range of the device. Calibrated for operation over ± 30 degrees, the R30D provides a ± 3.75 VDC output, with a non-linearity of less than $\pm 0.25\%$ of full range. Extended range operation up to a maximum of ± 60 degrees is possible with increased non-linearity.

Internally, the DC supply voltage is converted into an AC carrier signal which excites the primary coil of the sensor. An integrated demodulator amplifier with low-pass filter converts the differential secondary output into a smooth, high level, linear DC output signal relative to the angular position of the shaft.

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). Non-contact electromagnetic coupling of the rotor provides infinite resolution thus enabling absolute measurements to a fraction of a degree.

The R30D features a rugged aluminum size 11 housing making this rotary position sensor ideal for applications where integrated signal conditioning and small size are required.

FEATURES

- ◆ Extended operation up to $\pm 60^\circ$
- ◆ High level, low noise DC output
- ◆ Long term reliability
- ◆ Excellent temperature performance
- ◆ Rugged anodized aluminum housing
- ◆ Shielded ABEC 3 precision bearings

APPLICATIONS

- ◆ Hydraulic pump control
- ◆ Throttle lever position feedback
- ◆ Rotary actuator feedback
- ◆ Dancer arm position
- ◆ Reeler/Dereeler
- ◆ Valve position

PERFORMANCE SPECIFICATIONS

ELECTRICAL SPECIFICATIONS			
Angular range, degrees	±30° (standard)	±40°	±60°
Non-linearity, % of FR, max.	±0.25%	±0.5%	±2%
Output at range ends	±3.75VDC	±5.00VDC	±7.50VDC
Sensitivity	0.125 V/degree		
Temp coefficient of sensitivity	0.04%/°F [0.07%/°C], over operating temperature range		
Input voltage	+/-15VDC ±10%		
Input current	25mA maximum		
Output current	5mA		
Output impedance	1 Ω maximum		
Frequency response	500Hz @ -3dB		

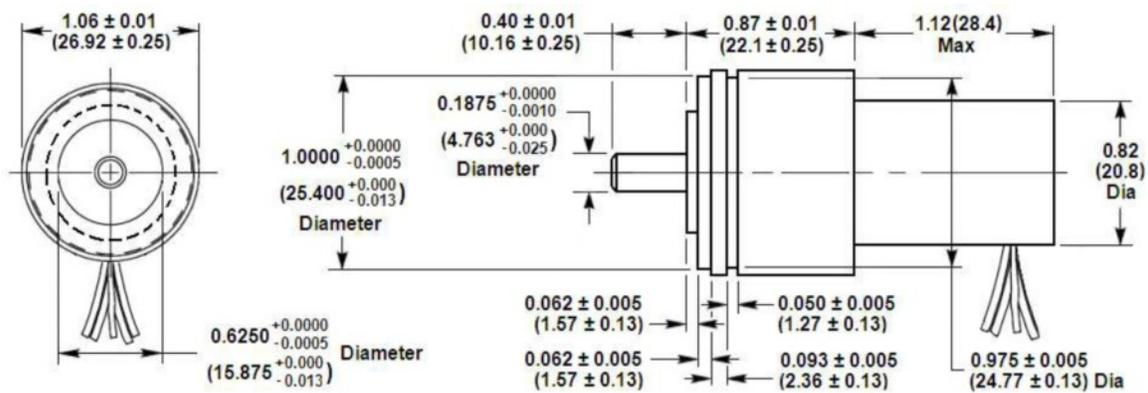
ENVIRONMENTAL AND MECHANICAL SPECIFICATIONS	
Operating temperature	0°F to +158°F [-18°C to 70°C]
Storage temperature	-67°F to +257°F [-55°C to 125°C]
Mechanical angular range	360 degrees (no stops)
Bearings	Shielded ABEC 3 precision
Shaft diameter	3/16 inch [4.76mm]
Housing material	Aluminum, anodized
Mounting	Size 11 servo mount BU-ORD
Moment of inertia	0.53 x 10 ⁻⁶ inch.lb-force.second ² [0.61 x 10 ⁻⁶ Kg-force.cm.second ²]
Maximum torque, unbalance	0.004 inch.ounce-force [0.3 gram-force.cm]
Maximum torque, friction	0.015 inch.ounce-force [1.1 gram-force.cm]
Shaft load capability	10 lb [4.5Kg] Axial; 8 lb [3.6 Kg] Radial
Electrical connection	4 lead wires, 28AWG , PTFE insulation, 12 inches [30cm] long
Weight	1.9 oz [54 grams]
IEC 60529 rating	IP60

Notes:

All values are nominal unless otherwise noted

FR (Full Range) is the angular range, end to end; 2xA° for ±A° angular range

DIMENSIONS

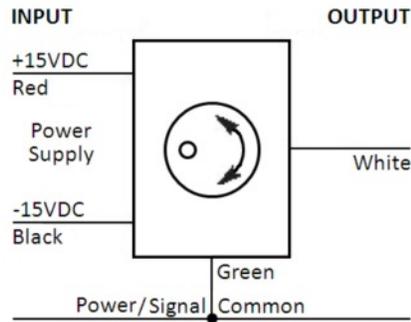


Dimensions are in inch (mm)

R30D

DC Operated, Light Weight RVDT

WIRING INFORMATION



ORDERING INFORMATION

Description	Model	Part Number
RVDT $\pm 30^\circ$	R30D	02560234-000
OPTIONS		
RVDT with $\pm 40^\circ$ calibration	R30D-040	02560234-040
RVDT with $\pm 60^\circ$ calibration	R30D-060	02560234-060
ACCESSORIES		
R-FLEX multipurpose coupling kit	R-FLEX	66530072-000
Dual rail DC power supply ($\pm 15\text{VDC}$)	PSD 40-15	02291339-000

The information given herein, including drawings, illustrations and schematics which are intended for illustration purposes only, is believed to be reliable. However, TE Connectivity makes no warranties as to its accuracy or completeness and disclaims any liability in connection with its use. TE Connectivity's obligations shall only be as set forth in TE Connectivity's Standard Terms and Conditions of Sale for this product and in no case will TE Connectivity be liable for any incidental, indirect or consequential damages arising out of the sale, resale, use or misuse of the product. Users of TE Connectivity products should make their own evaluation to determine the suitability of each such product for the specific application.