

# R30A/R36AS RVDTs

## AC-Operated Rotary Variable Differential Transformers

### DESCRIPTION

**RVDTs** incorporate a proprietary noncontact 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 change in the output signal, directly proportional to change in shaft angle, over  $\pm 60$  degrees from the null position. The phase of this output signal indicates the direction of displacement from the null point. Noncontact electromagnetic coupling of the rotor provides infinite resolution, thus enabling absolute measurements to a fraction of a degree.

### R30A/R36AS

The R30A and R36AS RVDTs are AC operated rotary transducers. AC excitation of 3 V rms results in a ratiometric AC output voltage that varies in direct proportion to the change in angular position of the transducer shaft. AC operation eliminates the need for integrated signal conditioning components thereby offering the user an extremely wide operating temperature range of  $-55^{\circ}\text{C}$  to  $150^{\circ}\text{C}$ .

Factory calibrated to operate over a  $\pm 30$  degree range, both the R30A and R36AS offer a nonlinearity of less than  $\pm 0.5\%$  of full scale. Extended range operation up to a maximum of  $\pm 60^{\circ}$  is possible with compromised linearity.

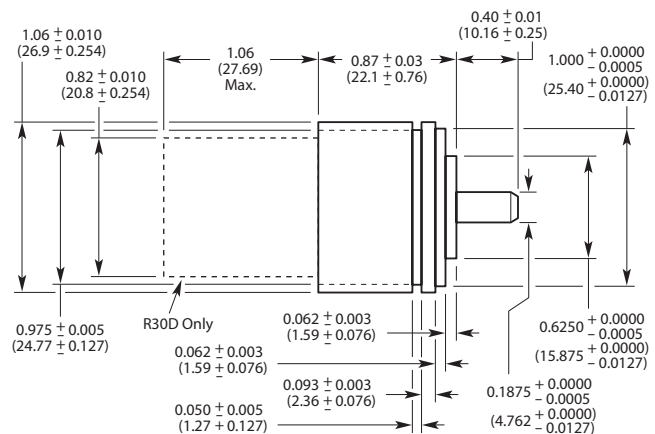
The R36AS is distinguished from the R30A in that it incorporates a more rugged stainless steel size 15 package, and MS style connector. The R30A is packaged in a smaller size 11 aluminum housing with flying lead termination for slightly less aggressive applications. Both transducers offer superb performance and long term reliability for applications such as machine tool equipment, valve positioning, and rotary actuator feedback.



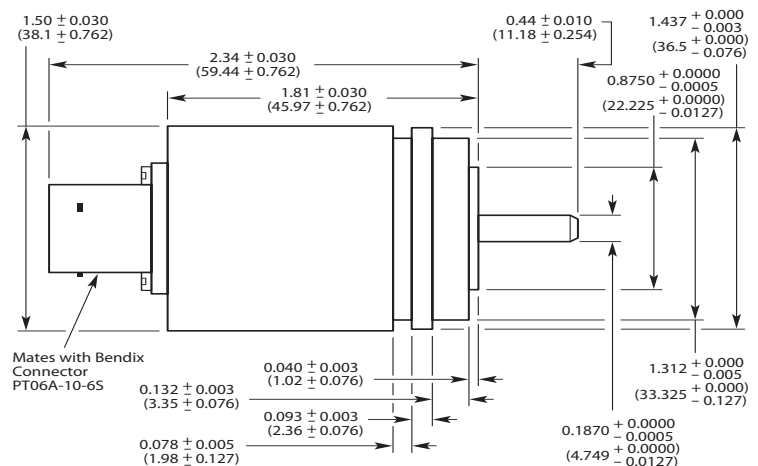
### dimensions

in (mm)

#### R30A



#### R36AS



# R30A/R36AS RVDTs

Specifications	R30A	R36AS
Input Voltage (nominal)	3 V rms	3 V rms
Input Frequency	10 kHz	2.5 kHz
Primary DCR	83.4 Ohms	265 Ohms
Secondary DCR	444 Ohms	1130 Ohms
Operating Temperature Range	-67°F to 300°F (-55°C to 150°C)	-67°F to 300°F (-55°C to 150°C)
Temperature Coefficient of FS	±0.02% of FS/20 to 160°F (±0.04% of FS/-5 to 75°C)	±0.02% of FS/20 to 160°F (±0.04% of FS/-5 to 75°C)
Null Voltage	0.5% of full scale output	0.5% of full scale output
Lead Wires	28 AWG, Teflon® insulation, 6 wire minimum 12" long	Mates w/Bendix PTO6A-10-6S
Mounting	Size 11 servo mount BU-ORD	Size 15 servo mount BU-ORD
Bearings	Shielded ABEC 3 precision	Shielded ABEC 3 precision
Shaft Diameter	3/16 in (4.76 mm)	3/16 in (4.76 mm)
Casing Material	Aluminum	Stainless Steel

## Mechanical Specifications

RVDT Model	MOMENT OF INERTIA Pound-Inch-Second <sup>2</sup>	MAXIMUM TORQUE Unbalance Friction Inch-Ounces		MAXIMUM LOAD Unbalance Friction Inch-Ounces		WEIGHT Grams	SERVO MOUNT BU-ORD
R30A	0.53 X 10 <sup>-6</sup>	.004	.015	8	10	36	11
R36AS	1.62 X 10 <sup>-6</sup>	.012	.75	25	25	255	15

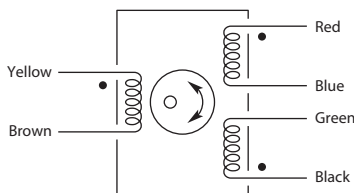
\*Shaft end

## Electrical Specifications

RVDT Model (@2.5 kHz)	LINEARITY PERCENT OF RANGE			SENSITIVITY mV/V/°	IMPEDANCE		PHASE ANGLE Degrees
	±30°	±40°	±60°		Pri	Sec	
R30A	±30°	±40°	±60°	2.3	125	500	+35
R36AS	0.25	0.5	1.5				
(@10 kHz)	0.5	1.0	3.0	2.2	750	2000	+4
R30A				2.9	370	1300	+3
R36AS	0.25	0.5	1.5				
	0.5	1.0	3.0	1.7	2500	5400	-17

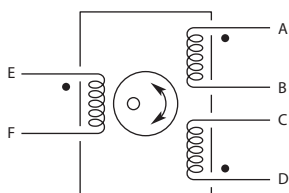
## wiring

### R30A



Connect Green to Blue for differential output

### R36AS



Connect (B) to (C) for differential output

## ordering information

Specify by model number.

Model Number	Size	Range
R30A	11	±30°
R36AS	15	±30°



R-Flex coupler available separately