



R36AS

AC Operated RVDT for Harsh Environments

SPECIFICATIONS

- AC operation
- ± 60 degree angular sensing range
- Non-contact electrical design
- Wide operating temperature range
- Size 15 servo mount
- Stainless steel housing
- MS style hermetic connector

The **R36AS RVDT** (Rotary Variable Differential Transformer) is an angular position sensor that incorporates a proprietary non-contact design which dramatically improves long term reliability when compared to other traditional rotary devices such as synchros, 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 stator coil that together simulate the operation of a Linear Variable Differential Transformer (LVDT). Rotational movement of the rotor shaft results in a linear change in the amplitude of the output signal, directly proportional to the shaft angle change, while the phase of this signal indicates the direction of displacement from the null point. Non-contact electromagnetic coupling of the rotor provide infinite resolution.

AC operation eliminates the need for integrated signal conditioning components, thereby offering the user a very wide operating temperature range of -55°C to $+150^{\circ}\text{C}$. Factory calibrated to operate over a ± 30 degree range, the R36AS offers a non-linearity of less than $\pm 0.5\%$ of full range. Extended range operation up to a maximum of ± 60 degrees is possible with increased non-linearity.

Packaged in Size 15 servo mount stainless steel housing, an MS style hermetic connector, and a shaft seal, the R36AS is the perfect choice for angular position sensing in harsh environments.

FEATURES

- High accuracy
- Infinite resolution
- Long term reliability
- Wide -55° to $+150^{\circ}\text{C}$ operating temp range
- Rugged stainless steel housing
- Shielded ABEC 3 precision bearings

APPLICATIONS

- Valve position
- Machine tool equipment
- Rotary actuator feedback
- Dancer arm position
- Process control

PERFORMANCE SPECIFICATIONS

| ELECTRICAL SPECIFICATIONS | | | | | | |
|---|---|--------|---------|------------------------|---------|----------|
| Parameter | @2.5kHz Input Frequency (recommended) | | | @10kHz Input Frequency | | |
| Angular range, degrees | ±30° | ±45° | ±60° | ±30° | ±45° | ±60° |
| Non-linearity, % of FR | ±0.5% | ±1% | ±3% | ±0.5% | ±1% | ±3% |
| Output at range ends (*) | 66mV/V | 99mV/V | 132mV/V | 51 mV/V | 76 mV/V | 102 mV/V |
| Sensitivity | 2.2 mV/V/degree | | | 1.7 mV/V/degree | | |
| Temp coefficient of sensitivity | 0.02%/°F [0.036%/°C] +20 to +160°F [-7 to +71°C] | | | Not specified | | |
| Input / Output impedances | 750Ω / 2000 Ω | | | 2500Ω / 5400Ω | | |
| Phase shift | +4° | | | -17° | | |
| Input voltage and frequency | 3 VRMS @ 2.5 to 10 kHz (2.5kHz recommended) | | | | | |
| Null voltage | 0.5% of FRO, maximum | | | | | |
| ENVIRONMENTAL AND MECHANICAL SPECIFICATIONS | | | | | | |
| Operating temperature | -67°F to +300°F [-55°C to 150°C] | | | | | |
| Mechanical angular range | 360 degrees (no stops) | | | | | |
| Bearings | Shielded ABEC 3 precision | | | | | |
| Shaft diameter | 3/16 inch [4.75 mm] | | | | | |
| Housing material | AISI 304 stainless steel | | | | | |
| Mounting | Size 15 servo mount per BU-ORD | | | | | |
| Moment of inertia | 1.62 x 10 ⁻⁶ inch.lb-force.second ² [1.866 x 10 ⁻⁶ Kg-force.cm.second ²] | | | | | |
| Maximum torque, unbalance | 0.012 inch.ounce-force [0.87 gram-force.cm] | | | | | |
| Maximum torque, friction | 0.75 inch.ounce-force [54 gram-force.cm] | | | | | |
| Shaft load capability | 25 lb [11Kg] Axial or Radial | | | | | |
| Electrical connection | 6-pin MS type connector (MIL-C-5015) | | | | | |
| Weight | 9 oz [255 Grams] | | | | | |
| IP 60529 rating | IP65 | | | | | |

Notes:

All values are nominal unless otherwise noted

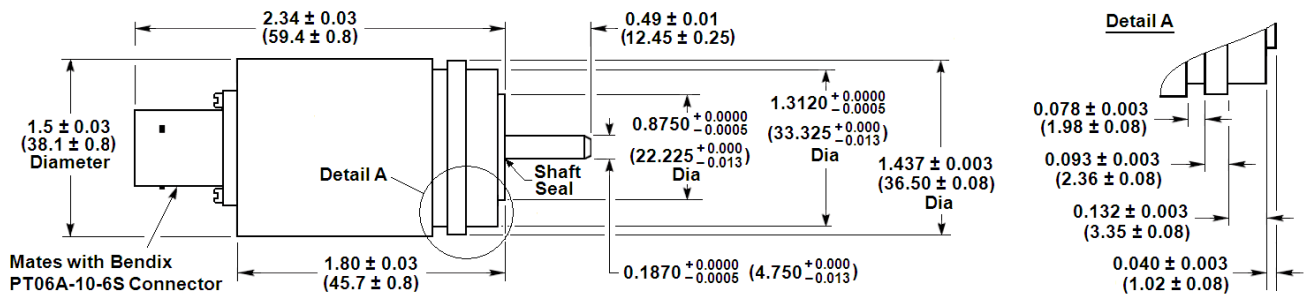
Dimensions are in inch [mm] unless otherwise noted

(*): Unit for output at range ends is millivolt per volt of excitation (input voltage)

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

FRO (Full Range Output): Algebraic difference in outputs measured at the ends of the range

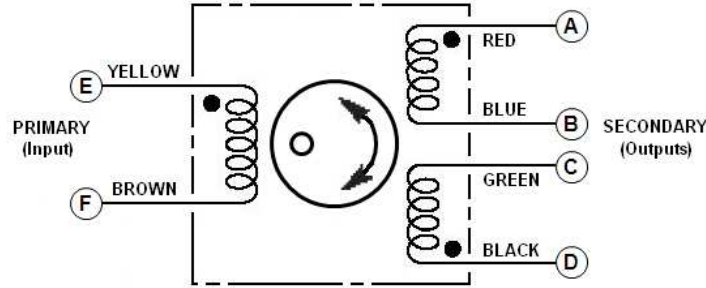
DIMENSIONS



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WIRING INFORMATION



A through F: Connector pin assignments; Connect B to C for differential output

ORDERING INFORMATION

| Description | Model | Part Number |
|--|--------------------------|--------------|
| RVDT $\pm 30^\circ$, 2.5kHz calibration (standard) | R36AS | 02560927-000 |
| RVDT $\pm 45^\circ$, 2.5kHz calibration | R36AS | 02560927-045 |
| ACCESSORIES | | |
| Multipurpose coupling kit | R-FLEX | 66530072-000 |
| Mating connector kit | PT06A-10-6S(SR) | 62101011-000 |
| Interconnect cable for LVM-110/LiM 4-20/CTS 420 Conditioners (1) | R36AS to Stripped/Tinned | 04290417-000 |
| Interconnect cable for ATA-2001 Signal Conditioner (1) | R36AS to DB-9P | 04290457-000 |
| Interconnect cable for MP2000 Series Set-Point Controller (1) | R36AS to 05BL5M | 04290560-000 |
| Interconnect cable for LDM/PML-1000 Signal Conditioners, 200°C (1) | R36AS to Stripped/Tinned | 04290595-000 |

(1) All cables are shielded, 10 foot long, and rated 80°C [176°F] operating unless otherwise noted. Consult factory for other lengths.

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