R36AS – AC Operated RVDT for Harsh Environments

- **AC operation**
- **+/-60º angular sensing range**
- **Non-contact design**
- **Wide operating temperature range**
- **Size 15 servo mount**
- **Stainless steel housing**
- **MS style hermetic connector**

DESCRIPTION

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 change in the shaft angle, 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°C. Factory calibrated to operate over a ±30 degree range, the R36AS offers a non-linearity of less than ±0.5% of full scale. Extended range operation up to a maximum of ±60° is possible with larger non-linearity.

Packaged in a 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.

Also see our other angular position sensors, **R30A** (AC operation, aluminum housing), **RSYN** (high output, shock and vibration tolerant), **R30D and R60D** (bipolar DC operation), and the **RVIT-15 Series** (single ended DC operation, voltage or current output).

Measurement Specialties, Inc. (NASDAQ MEAS) offers many other types of sensors and signal conditioners.

*MEAS acquired Schaevitz Sensors and the **Schaevitz**® trademark in 2000.*

FEATURES

- High accuracy
- Infinite resolution
- Long term reliability
- Wide -55° to +150°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

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PERFORMANCE SPECIFICATIONS

ELECTRICAL SPECIFICATIONS						
Parameter	**@2.5 KHz Input Frequency** *(recommended)*			**@10KHz Input Frequency**		
Angular range	±30º	±45º	±60º	±30º	±45º	±60º
Linearity, % of FS	±0.25% max.	±0.5% max.	±1.5%	±0.25% max.	±0.5% max.	±1.5%
Output at range end (*)	66mV/V	99mV/V	132mV/V	51 mV/V	76 mV/V	102 mV/V
Sensitivity	2.2 mV/V/º			1.7 mV/V/º		
Temp coefficient of sensitivity	0.02%/ºF [0.036%/ºC] +20 to +160ºF [-7 to +71ºC]			Not specified		
Input impedance (primary)	750Ω			2500Ω		
Output impedance (secondary)	2000Ω			5400Ω		
Phase shift	+4°			-17º		
Input voltage	3 VRMS					
Input frequency range	2.5 to 10 kHz (2.5KHz recommended)					
Null voltage	0.5% of FSO, maximum					

ENVIRONMENTAL AND MECHANICAL SPECIFICATIONS	
Operating temperature	-67°F to +300°F [-55°C to 150°C]
Bearings	Shielded ABEC 3 precision
Shaft diameter	3/16 [4.75 mm]
Housing material	AISI 410 stainless steel
Mounting	Size 15 servo mount per BU-ORD
Moment of inertia	1.62×10^{-6} inch.lb-force.second^2 [1.866×10^{-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]
Axial shaft load capability	25 lb [11Kg]
Radial shaft load capability	25 lb [11Kg]
Electrical connector	6-pin MS type connector (MIL-C-5015)
Weight	9 oz [255 Grams]

Notes:
All values are nominal unless otherwise noted
Dimensions are in inch [mm] unless otherwise noted
(*): Unit for output at stroke ends is millivolt per volt of excitation (input voltage)
FS (Full Scale) is 2xAº for ±Aº angular range
FSO (Full Scale Output) is the output at Aº angular position for ±Aº range

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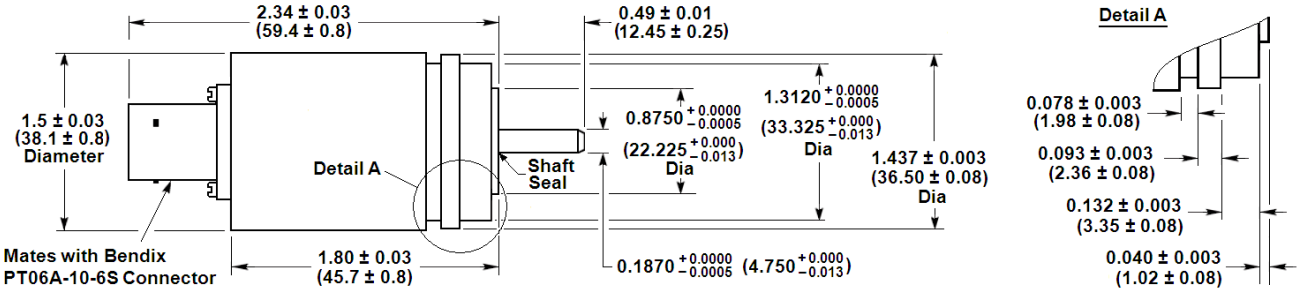
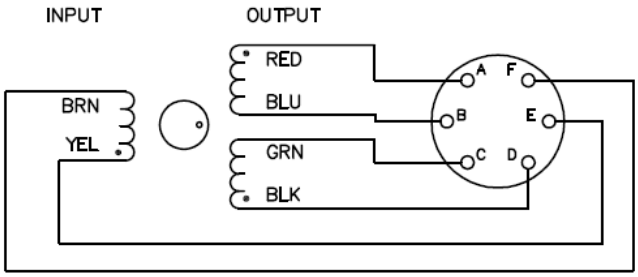
DIMENSIONS



Dimensions are in inches (mm)

WIRING DIAGRAM



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ORDERING INFORMATION

Description	Model	Part Number
RVDT, ±30º calibration	R36AS	02560927-000
RVDT, ±45º calibration, ±1% of FS linearity	R36AS	02560927-045
ACCESSORIES		
R-FLEX multipurpose coupling kit		66530072-000
Mating connector kit	PT06A-10-6S(SR)	62101011-000
Interconnect cable assy for ATA-2001 Signal Conditioner	PTO6A-10-6S to 9 PIN D	04290457-000
Interconnect cable assy for LVM-110, LiM 4-20, & CTS 420 Conditioners	PTO6A-10-6S to open wires	04290417-000
Interconnect cable assy for MP2000 Series Set-Point Controller	PTO6A-10-6S to 05BL5M	04290560-000

Notes:

- *All cables are 10 foot long. Consult with factory for different lengths.*
- *Refer to our "RVDT and RVIT Accessories" brochure for our RVDT signal conditioning instrumentation and other accessories*