





# **FEATURES**

- High accuracy
- Infinite resolution
- Long term reliability
- Wide -55° to +150°C operating temp range
- Rugged anodized aluminum housing
- Shielded ABEC 3 precision bearings

#### **APPLICATIONS**

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

# **R30A**

# AC Operated, Light Weight RVDT

# **SPECIFICATIONS**

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

The **R30A RVDT** (Rotary Variable Differential Transformer) is an angular position sensor that incorporates a proprietary noncontact 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 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 amplitude of the output signal, directly proportional to the shaft angle change, while 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.

AC operation eliminates the need for integrated signal conditioning components, thereby offering the user an extremely wide operating temperature range of -55°C to +150°C. Factory calibrated to operate over a  $\pm 30$  degree range, the R30A offers a non-linearity of less than  $\pm 0.25\%$  of full range. Extended range operation up to a maximum of  $\pm 60$  degrees is possible with increased non-linearity. Packaged in a small, size 11 servo mount, aluminum housing with flying lead termination, the R30A is ideal for space restrictive applications.

# PERFORMANCE SPECIFICATIONS

ELECTRICAL SPECIFICATIONS							
Parameter	@10kHz Input Frequency (recommended)			@2.5kHz Input Frequency			
Angular range, degrees	±30º	±40º	±60º	±30º	±40°	±60º	
Non-linearity, % of FR	±0.25%	±1%	±2%	±0.25%	±1%	±2%	
Output at range ends (*)	87mV/V	116mV/V	174mV/V	69 mV/V	92 mV/V	138 mV/V	
Sensitivity	2.9 mV/V/degree			2.3 mV/V/degree			
Temp coefficient of sensitivity	0.02%/ºF [0.036%/ºC], 20 to +160ºF [-7 to +71ºC]			Not specified			
Input / Output impedances		370Ω / 1300Ω			135Ω / 600Ω		
Phase shift		+3º			+35º		
Input voltage and frequency	3 VRMS @ 2.5 to 10 kHz (10kHz recommended)						
Null voltage	0.5% of FRO, m	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 [4.76 mm]						
Housing material	Aluminum, anodized						
Mounting	Size 11 servo mount per BU-ORD						
Moment of inertia	0.53 x 10 <sup>-6</sup> inch.lb-force.second <sup>2</sup> [0.61 x 10 <sup>-6</sup> Kg-force.cm.second <sup>2</sup> ]						
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	6 lead wires, AWG 28, PTFE insulation, 12 inches [30cm] long						
Weight	1.3 oz [36 Grams]						
IEC 60529 rating	IP60						

#### Notes:

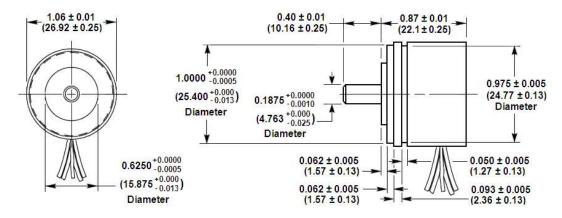
All values are nominal unless otherwise noted

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

FR (Full Range) is the angular range, end to end; 2xAº for ±Aº angular range

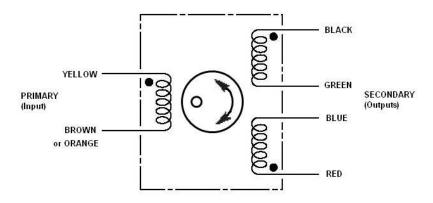
FRO (Full Range Output): Algebraic difference in outputs measured at the ends of the range

#### **DIMENSIONS**



Dimensions are in inch (mm)

# WIRING INFORMATION



Connect Green to Blue for differential output

# ORDERING INFORMATION

Description		el Part Number				
RVDT ±30º, 10KHz calibration (standard)		A 02560231-000				
OPTIONS						
RVDT ±40°, 10KHz calibration	02560231-140					
RVDT ±60°, 10KHz calibration		02560231-160				
RVDT with 2.5KHz calibration		02560231-2XX				
ACCESSORIES						
R-FLEX multipurpose coupling kit		66530072-000				

#### **NORTH AMERICA**

Measurement Specialties, Inc., a TE Connectivity Company Phone +1-800-522-6752 Email: customercare.hmpt@te.com

#### **EUROPE**

MEAS Deutschland GmbH(Europe) a TE Connectivity Company Phone: +49-800-440-5100 Email: customercare.dtmd@te.com

#### ASIA

Measurement Specialties (China), Ltd., a TE Connectivity Company Phone: +86-0400-820-6015 Email: customercare.shzn@te.com

#### TE.com/sensorsolutions

Measurement Specialties, Inc., a TE Connectivity company.

Accustar, American Sensor Technologies, AST, ATEXIS, DEUTSCH, IdentiCal, TruBlue, KPSI, Krystal Bond, Microfused, UltraStable, Measurement Specialties, MEAS, Schaevitz, TE Connectivity, TE, and the TE connectivity (logo) are trademarks of the TE Connectivity Ltd. family of companies. Other logos, product and company names mentioned herein may be trademarks of their respective owners.

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.

