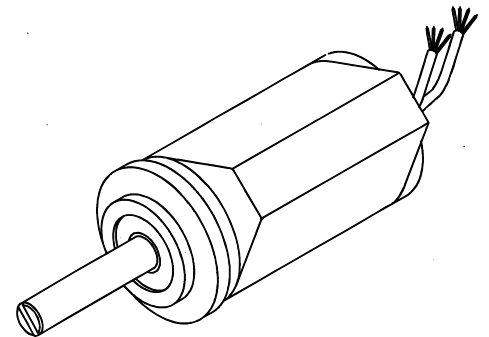


## ROTARY VARIABLE DIFFERENTIAL TRANSFORMER (RVDT), TANDEM

The Kearfott tandem Rotary Variable Differential Transformer (RVDT) is designed to provide two highly accurate, redundant output signals which are directly proportional to input shaft position over a wide temperature range. Each channel of the RVDT is energized with an AC signal of voltage and frequency determined by the user (typical values are shown below). The output consists of two AC voltages ( $V_a$  and  $V_b$ ) whose magnitudes vary with input shaft position. The output signal  $(V_a - V_b)/(V_a + V_b)$  is directly proportional to the input shaft position. This item was specifically designed to operate in an actuator in the fuel flow system of the Atlas rocket at the extremely low temperatures associated with liquid rocket fuel.



The RVDTs are brushless continuous rotation devices which therefore have long life and high reliability. They may be used to replace potentiometers in applications where wiper backlash and wear are problems. RVDT's are used to measure position in aircraft throttle control and flap control systems as well as in fuel control systems for aircraft and spacecraft. Since there are no windings on the rotor, these devices have been adapted for special applications where the rotor operates in jet fuel or liquid ammonia while the stationary member containing all the windings is protected from the corrosive effects of the fluid by a seal. Pressures up to 1800 psig are available.

### ELECTRICAL DATA 25 ±5°C

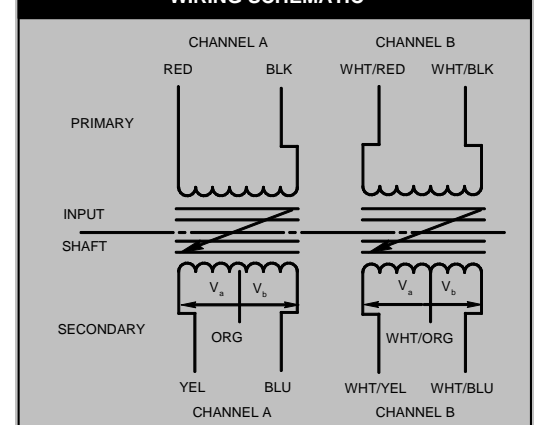
CHARACTERISTICS	UNITS	SYMBOL	VALUE
RATED VOLTAGE	VOLTS rms	$E_{IN}$	4.0
RATED FREQUENCY	HERTZ	$f$	2930
PRIMARY CURRENT (MAX)	MILLIAMPS	$I$	8.0
PRIMARY IMPEDANCE (REF) (SECONDARY OPEN CIRCUIT)	OHMS	$Z_{PO}$	165 + j604
SECONDARY IMPEDANCE (REF) (PRIMARY OPEN CIRCUIT)	OHMS	$Z_{SS}$	1087 + j2330
RANGE	DEGREES	-	±40°
TR FULL SCALE	VOLTS rms	$E_{OUT}$	0.500
PHASE SHIFT INPUT TO OUTPUT (OPEN CIRCUIT) (REF)	DEGREES	$\Phi$	±10
SCALE FACTOR	VOLTS rms/DEG	-	0.0125
ACCURACY	DEGREES	-	0.5
SECONDARY DC RESISTANCE (REF)	OHMS	$S_{DC}$	940
PRIMARY DC RESISTANCE (REF)	OHMS	$R_{DC}$	117

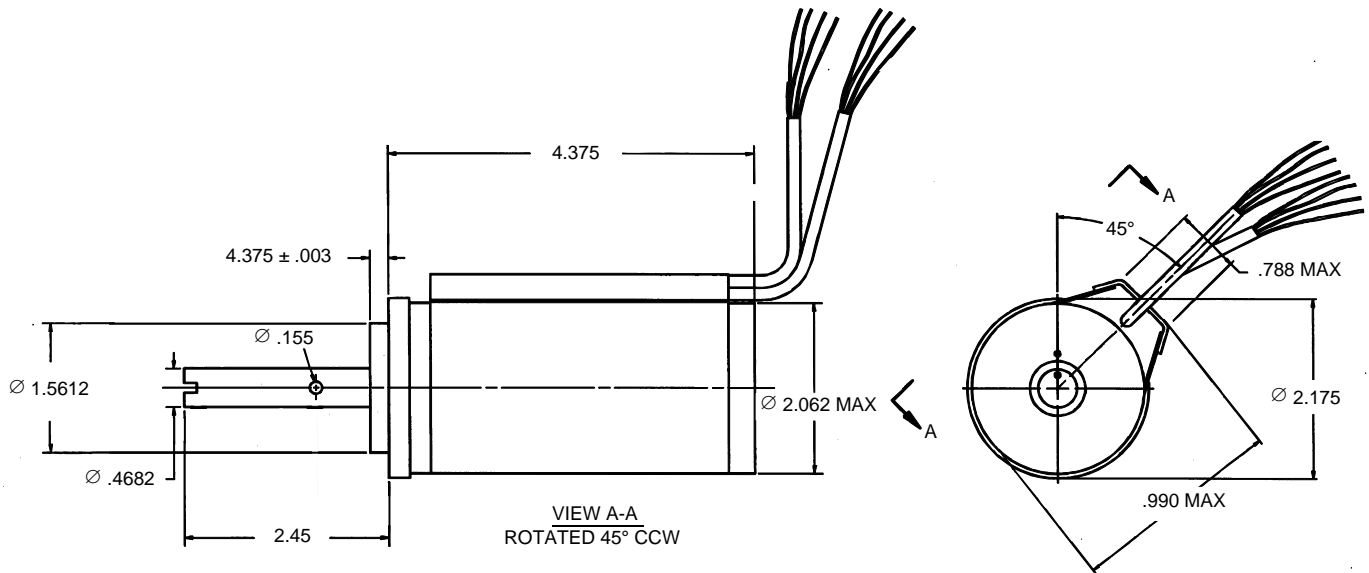
OPERATING TEMPERATURE RANGE	DEGREES F	$t$	-180° to 160°
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### MECHANICAL DATA

CHARACTERISTICS	UNITS	SYMBOL	VALUE
WEIGHT (REF)	OUNCES	$W_T$	6.0
ROTOR MOMENT OF INERTIA (REF)	GRAM-CENTIMETER*	$J$	1.0
FRICTION (MAX)	GRAM-CENTIMETER	$T_f$	4.0

### WIRING SCHEMATIC





## **ASHEVILLE PRODUCT LIST**

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RVDT  
Synchros  
Resolvers

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Brush/Brushless  
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Rotary

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Angle Sensors  
Torquers  
Tachometers  
Generators  
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*For additional information on this product or any other product listed above please contact Kearfott's Marketing Department at:*

**Kearfott Corporation • Motion Systems Division**

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