

**SERIES 61K**  
High Resolution, 4-Pin

**FEATURES**

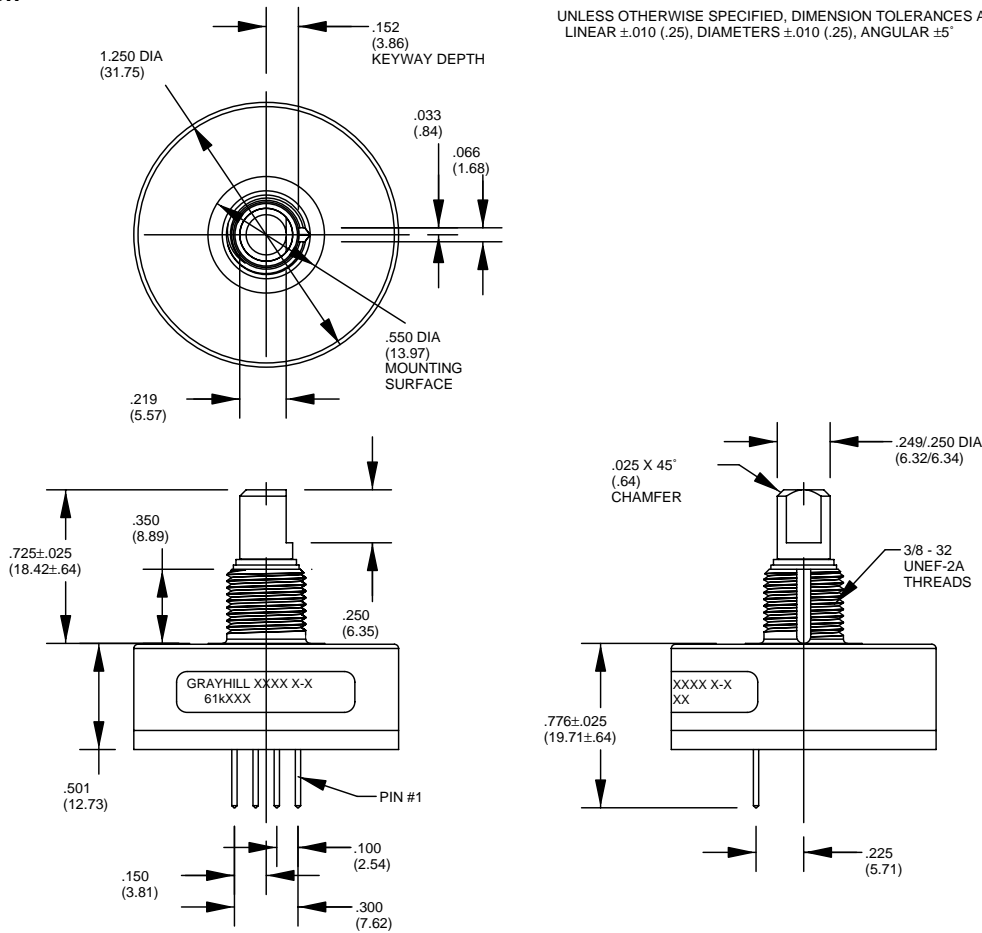
- 25, 32, 50, 64, 100, 128 and 256 Cycles per Revolution Available
- Sealed Version Available
- Rugged Construction
- Cable or Pin Versions
- 10 Million Life Cycles
- 300 RPM Shaft Rotation



**DIMENSIONS** In inches (and millimeters)

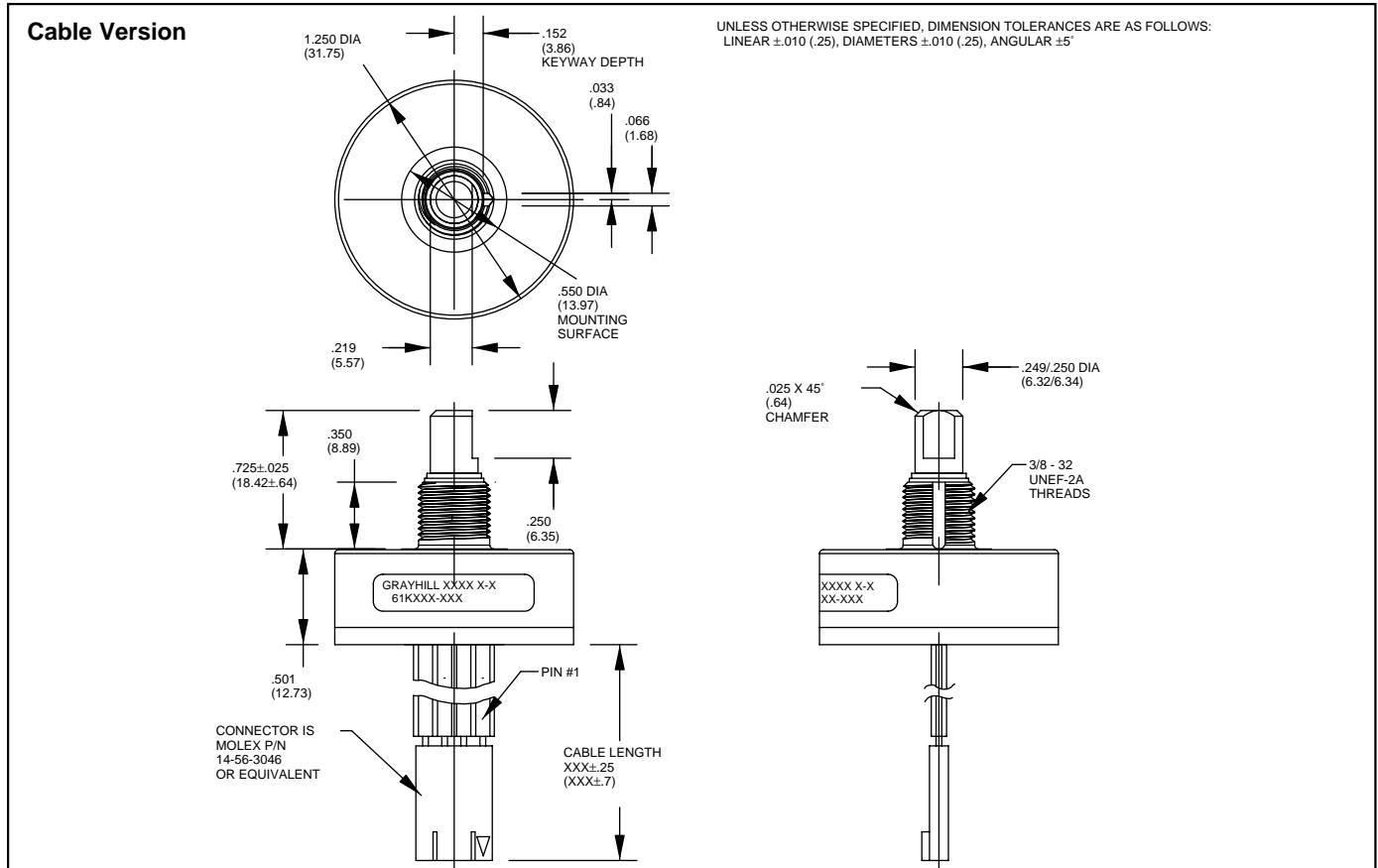
**Pin Version**

UNLESS OTHERWISE SPECIFIED, DIMENSION TOLERANCES ARE AS FOLLOWS:  
LINEAR  $\pm 0.10$  (.25), DIAMETERS  $\pm 0.10$  (.25), ANGULAR  $\pm 5^\circ$



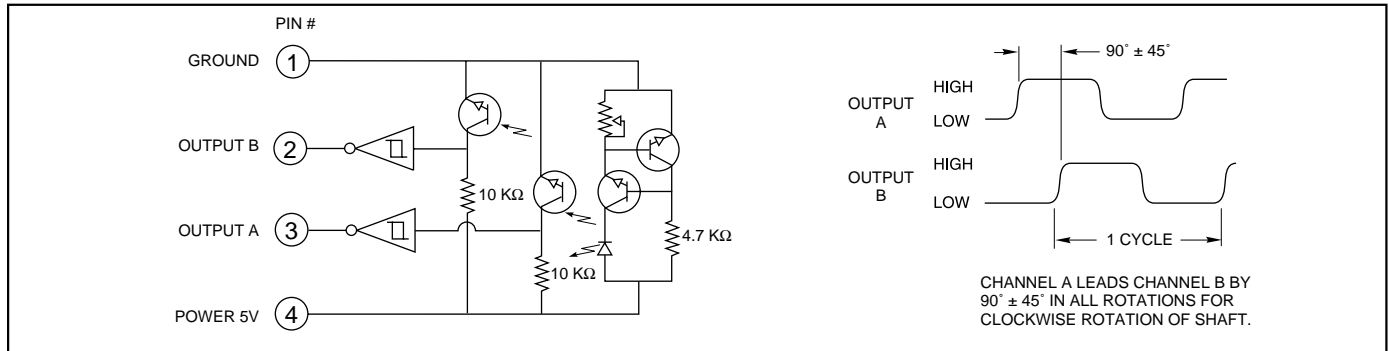
Optical and Mechanical Encoders

**DIMENSIONS** In inches (and millimeters)



Optical and Mechanical Encoders

**CIRCUITRY, TRUTH TABLE, AND WAVEFORM: Standard Quadrature 2-Bit Code**



**SPECIFICATIONS**

**Electrical Ratings**

**Operating Voltage:** 5.0  $\pm$  .25 Vdc  
**Supply Current:** 30 mA maximum at 5 Vdc  
**Logic Output Characteristics:**  
 Output Type: Open collector with integrated Schmitt Trigger and 10K ohms pull-up resistor  
 Maximum Sink Current: 16 mA at .40 volts  
**Power Consumption:** 150 mW maximum  
**Optical Rise Time:** 500 nS typical  
**Optical Fall Time:** 16 nS typical

**Mechanical Ratings**

**Mechanical Life:** 10 million revolutions  
**Time Life:** Guaranteed for 10 years of continuous operation (calculated from emitter degradation data)

**Mounting Torque:** 20 in-lbs maximum  
**Shaft Push Out Force:** 100 lbs  
**Terminal Strength:** 5 lbs terminal pull-out force minimum  
**Solderability:** 95% free of pin holes and voids  
**Operating Torque:** 1.5 in-oz maximum (no detents) for unsealed versions

**Environmental Ratings**

**Operating Temperature Range:** -40°C to 85°C  
**Storage Temperature Range:** -55°C to 100°C  
**Relative Humidity:** 90-95% at 40°C for 96 hours  
**Vibration Resistance:** Harmonic motion with amplitude of 15g, within a varied 10 to 2000 Hz frequency for 12 hours per MIL-STD-202, Method 204

**Mechanical Shock:** Test 1: 100g for 6 mS, half-sine wave with velocity change of 12.3 ft/s. Test 2: 100g for 6 mS, sawtooth wave with velocity change of 9.7 ft/s.

**Materials and Finishes**

See page I-41.

**ACCESSORIES**

See page I-41. For control knobs see page I-57.

**ORDERING INFORMATION**

See page I-41.

**SERIES 61R**  
**High Resolution, 5-Pin**  
**(Polarized Connection)**

**FEATURES**

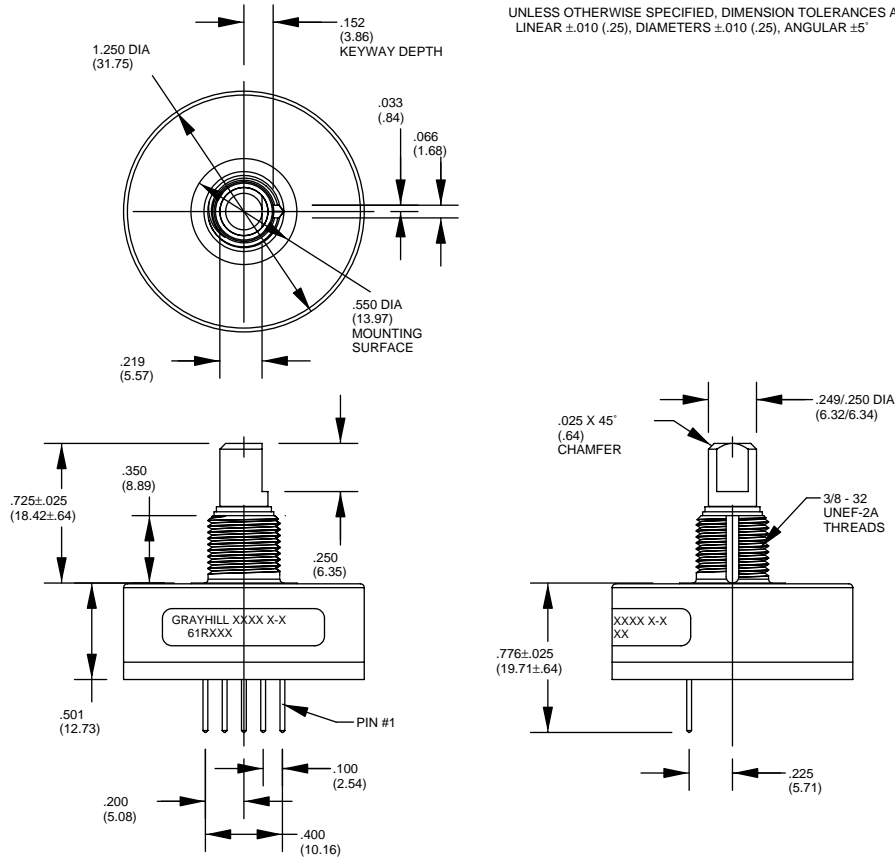
- 25, 32, 50, 64, 100, 128 and 256 Cycles per Revolution Available
- Sealed Version Available
- Rugged Construction
- Cable or Pin Version
- 10 Million Life Cycles
- 300 RPM Shaft Rotation
- Index Pulse Available



**DIMENSIONS** In inches (and millimeters)

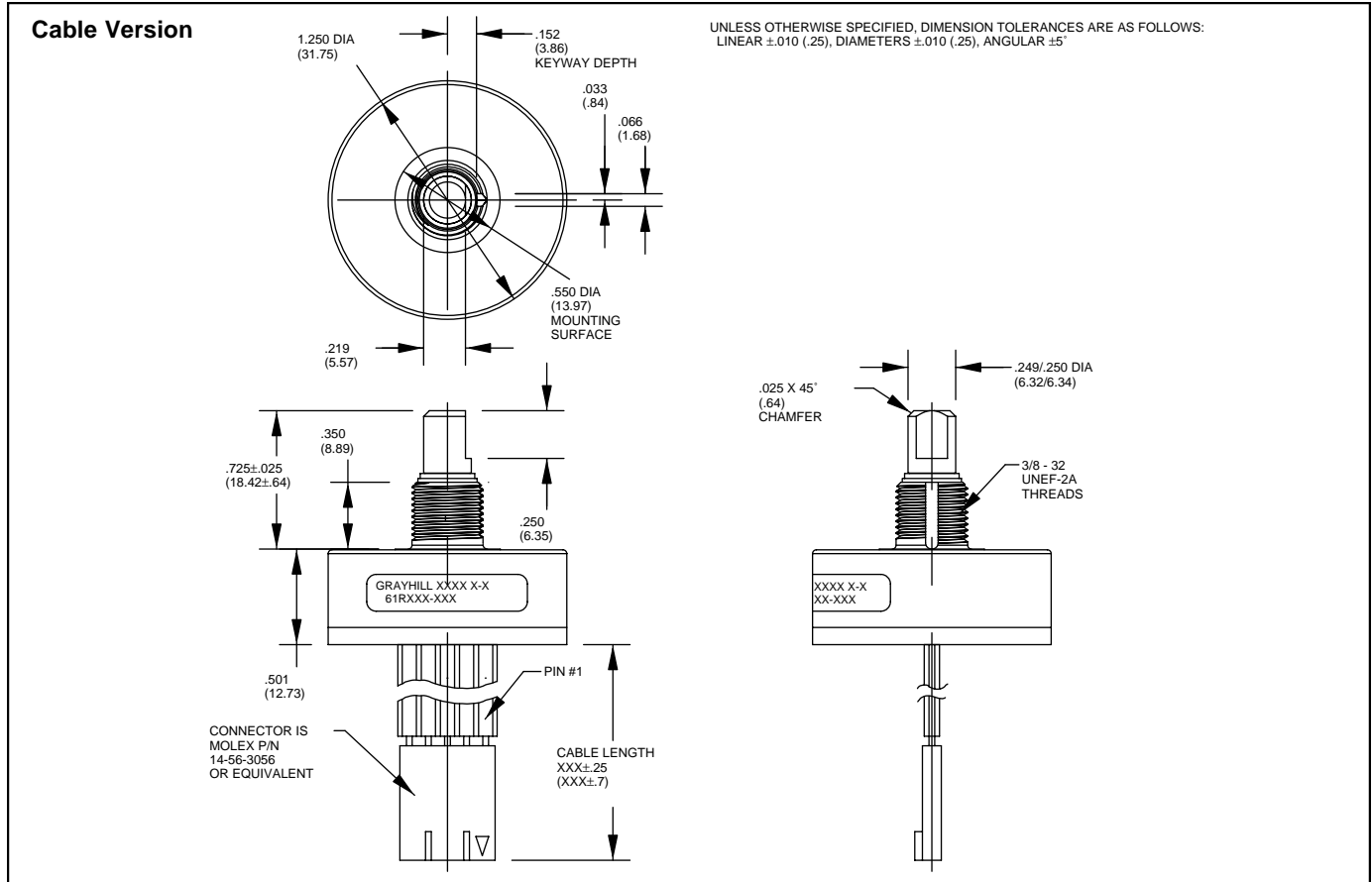
**Pin Version**

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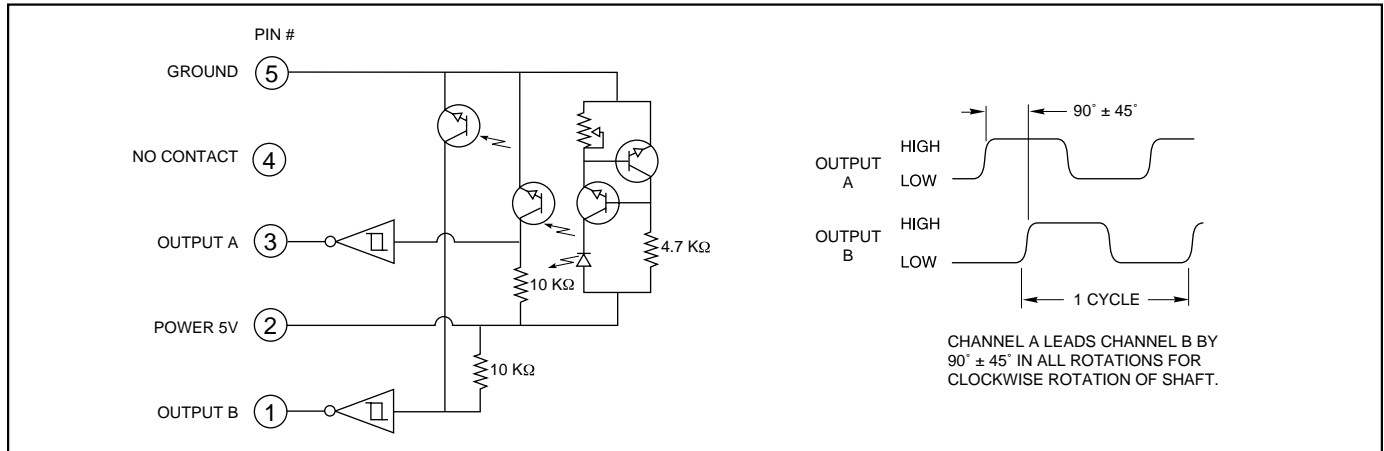
Optical and Mechanical Encoders

**DIMENSIONS** In inches (and millimeters)



Optical and Mechanical Encoders

**CIRCUITRY, TRUTH TABLE, AND WAVEFORM: Standard Quadrature 2-Bit Code**



**SPECIFICATIONS**

**Electrical Ratings**

- Operating Voltage:** 5.0  $\pm$ .25 Vdc
- Supply Current:** 30 mA maximum at 5 Vdc
- Logic Output Characteristics:**  
 Output Type: Open collector with integrated Schmitt Trigger and 10K ohms pull-up resistor  
 Maximum Sink Current: 16 mA at .40 volts  
 Maximum Sink Current: 150 mW maximum
- Optical Rise Time:** 500 nS typical
- Optical Fall Time:** 16 nS typical

**Mechanical Ratings**

- Mechanical Life:** 10 million revolutions
- Time Life:** Guaranteed for 10 years of continuous operation (calculated from emitter degradation data)
- Mounting Torque:** 20 in-lbs maximum
- Shaft Push Out Force:** 100 lbs
- Terminal Strength:** 5 lbs terminal pull-out force minimum
- Solderability:** 95% free of pin holes and voids
- Operating Torque:** 1.5 in-oz maximum (no detents) for unsealed versions

**Environmental Ratings**

- Operating Temperature Range:** -40°C to 85°C
- Storage Temperature Range:** -55°C to 100°C
- Relative Humidity:** 90-95% at 40°C for 96 hours
- Vibration Resistance:** Harmonic motion with amplitude of 15g, within a varied 10 to 2000 Hz frequency for 12 hours per MIL-STD-202, Method 204
- Shock Resistance:** Test 1: 100g for 6 mS, half-sine wave with velocity change of 12.3 ft/s. Test