



SERIES 63K OPTICAL ENCODER

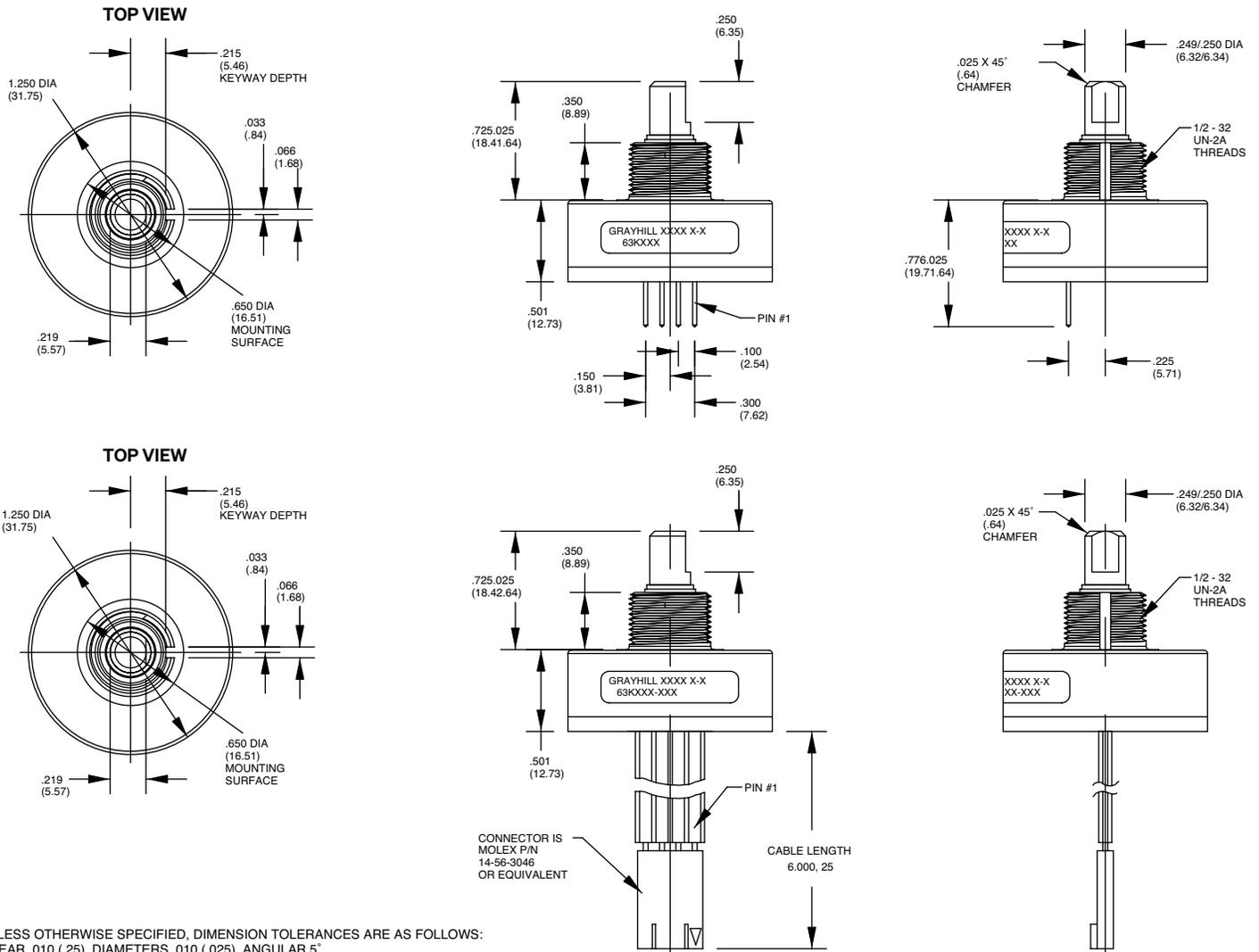
High Resolution, Ball Bearing, 4-Pin

FEATURES

- 25, 32, 50, 64, 100, 128 and 256 cycles per revolution available
- Sealed version available
- Rugged construction
- Cable or pin version
- 300 million rotational cycles
- 500 RPM shaft rotation



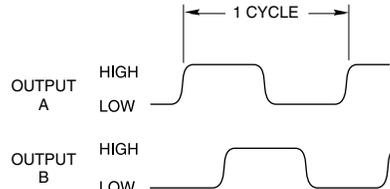
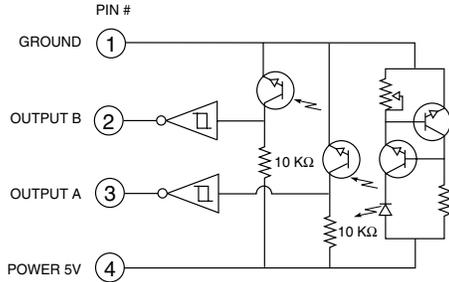
DIMENSIONS in inches (and millimeters)



UNLESS OTHERWISE SPECIFIED, DIMENSION TOLERANCES ARE AS FOLLOWS:
 LINEAR .010 (.25), DIAMETERS .010 (.025), ANGULAR 5°



CIRCUITRY AND WAVEFORM: Standard Quadrature 2-Bit Code



CHANNEL A LEADS CHANNEL B BY $90^\circ \pm 45^\circ$ IN ALL ROTATIONS FOR CLOCKWISE ROTATION OF SHAFT.

SPECIFICATIONS

Electrical Ratings

- Operating Voltage:** $5 \pm .25$ Vdc
- Supply Current:** 30 mA maximum at 5 Vdc
- Logic Output Characteristics:**
- Output Type:** Open collector with integrated Schmitt Trigger and 10 KW 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:** 14 nS typical

Mechanical Ratings

- Mechanical Life:** 300 million revolutions
- Time Life:** Guaranteed for 10 years of continuous operation (calculated from emitter degradation data)
- Mounting Torque:** 20 in-lbs maximum
- Terminal Strength:** 5 lbs terminal pull-out force minimum
- Solderability:** 95% free of pin holes and voids
- Externally Applied Shaft Force:** Axial: 15 lbs maximum; Radial: 15 lbs maximum
- Operating Torque:** 0.5 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 2: 100g for 6 mS, sawtooth wave with velocity change of 9.7 ft/s.

Materials and Finishes

- Bushing:** Zinc diecast
- Housing:** Zytel FR-50
- Shaft:** Stainless steel insert molded into nylon rotor support
- Code Rotor and Aperture:** Chemically etched stainless steel/electroformed nickel
- Printed Circuit Board:** NEMA Grade FR-4. Five microinches minimum gold over 100 microinches minimum nickel over copper
- Optical Barrier:** Polyphenylene sulfide, 94 V-0

Backplate: Polyester

Header: Phosphor bronze, 200 microinches tin over 50 microinches nickel (pin version only)

Infrared Emitter: Gallium aluminum arsenide

Photo IC: Planar silicon

Retaining Ring: Stainless steel

Cable: 26 AWG, stranded/tinned wire, PVC coated on .100 (2,54) centers (cable version only)

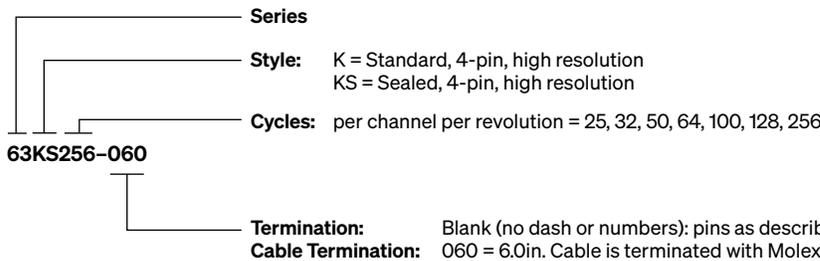
Connector: Glass-filled PCT, UL94V-0

Bearing Subassembly

Bearing: NSK ABEC 5 (stainless steel)

Preload Collar: 303 stainless steel

ORDERING INFORMATION



Available from your local Grayhill Distributor. For prices and discounts, contact a local Sales Office, an authorized local Distributor or Grayhill.