



Optical Encoders

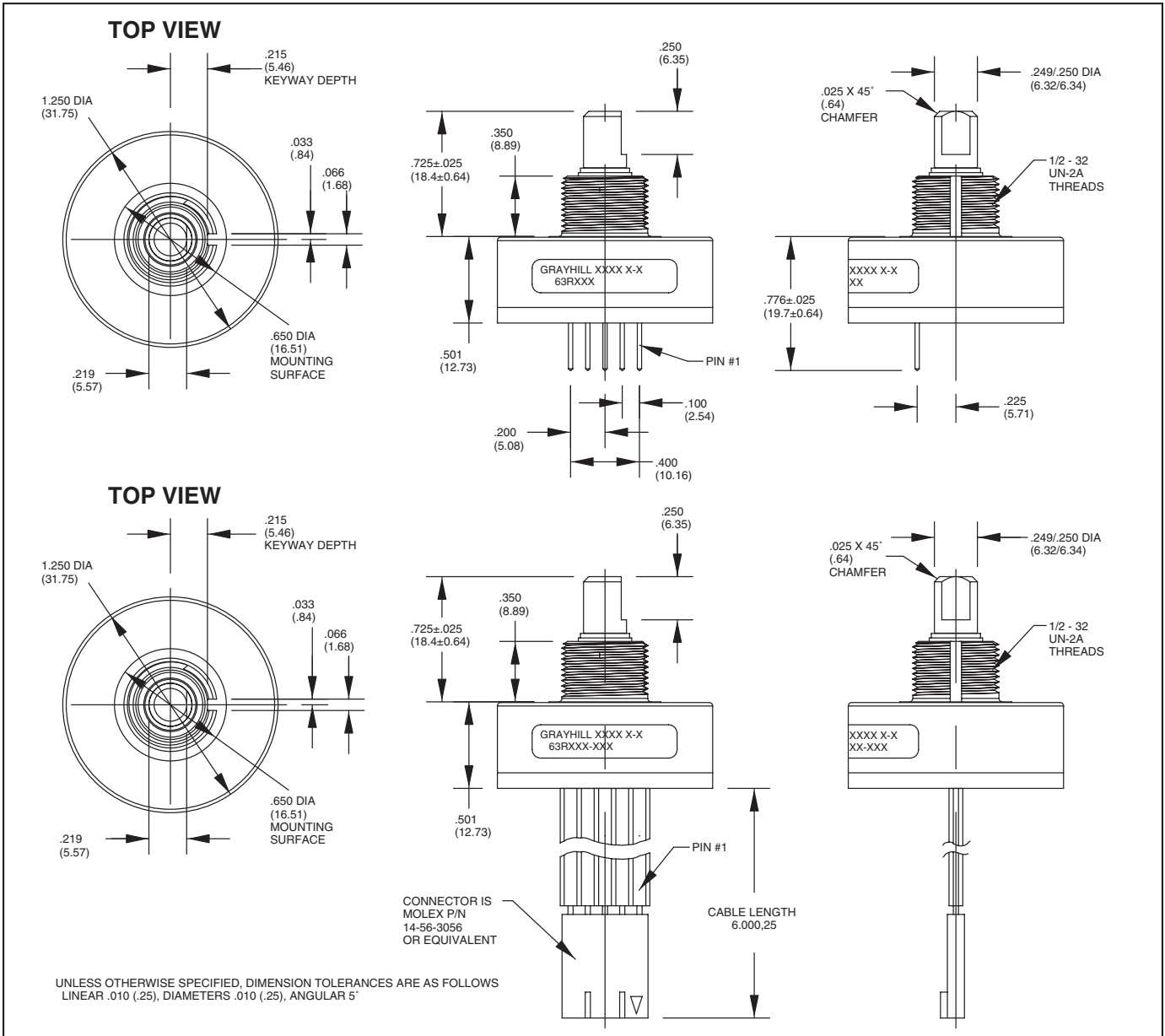
SERIES 63R
High Resolution, Ball Bearing,
5-pin (Polarized Connection)

FEATURES

- 25, 32, 50, 64, 100, 128 and 256 Cycles per Revolution Available
- Sealed Version Available
- Rugged Construction
- Cable or Pin Versions
- 300 Million Rotational Cycles
- 5000 RPM Shaft Rotation
- Index Pulse Available

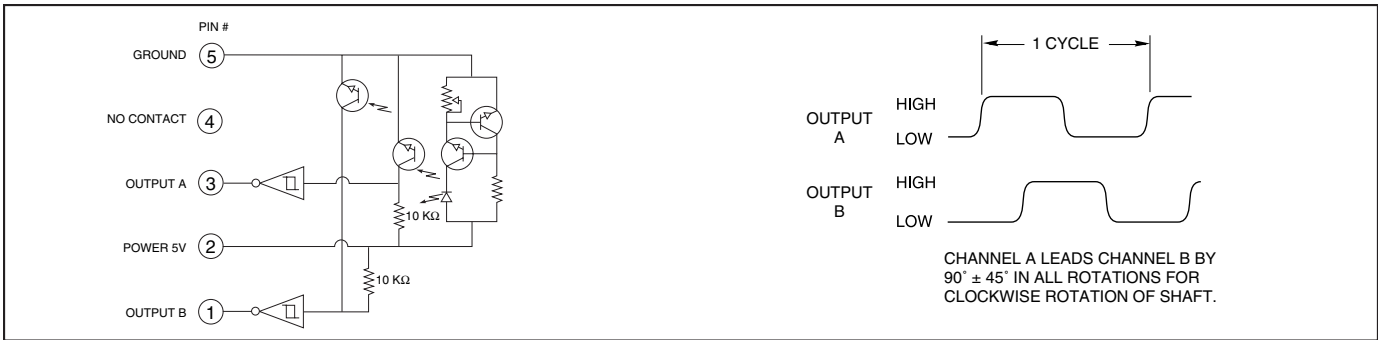


DIMENSIONS In Inches (and millimeters)



Optical and Mechanical Encoders

CIRCUITRY AND WAVEFORM: Standard Quadrature 2-Bit Code



SPECIFICATIONS

Electrical Ratings

- Operating Voltage:** 5 ±.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% @ 40°C to 60°C
- 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 6ms half-sine wave with velocity change of 12.3ft/s. Test 2: 100g for 6ms, sawtooth wave with velocity change of 9.7ft/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:** Polyphenylenesulfide, 94V-0

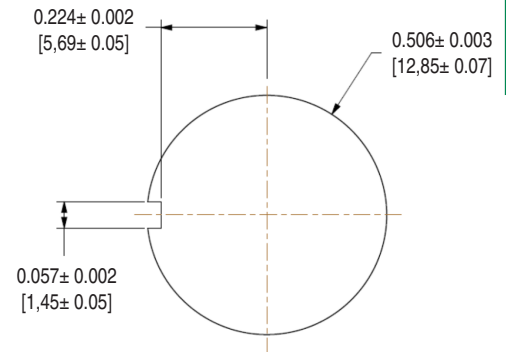
Backplate:

- 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: 26AWG, stranded/tinned wire, PVC coated on 100(2,54) centers (cable version only)
- Connector: Glass-filled PCT, UL 94V-0

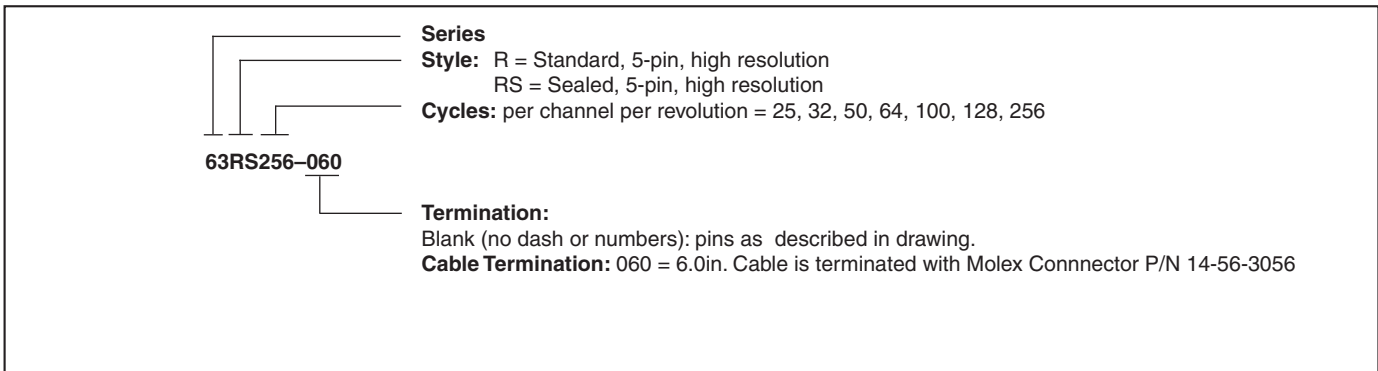
Bearing Subassembly

- Bearing: NSK ABEC5 (stainless steel)
- Preload Collar: 303 stainless steel
- Spacer: 303 stainless steel
- Bellville Spring: spring steel (stainless)

RECOMMENDED PANEL CUTOUT



ORDERING INFORMATION



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

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