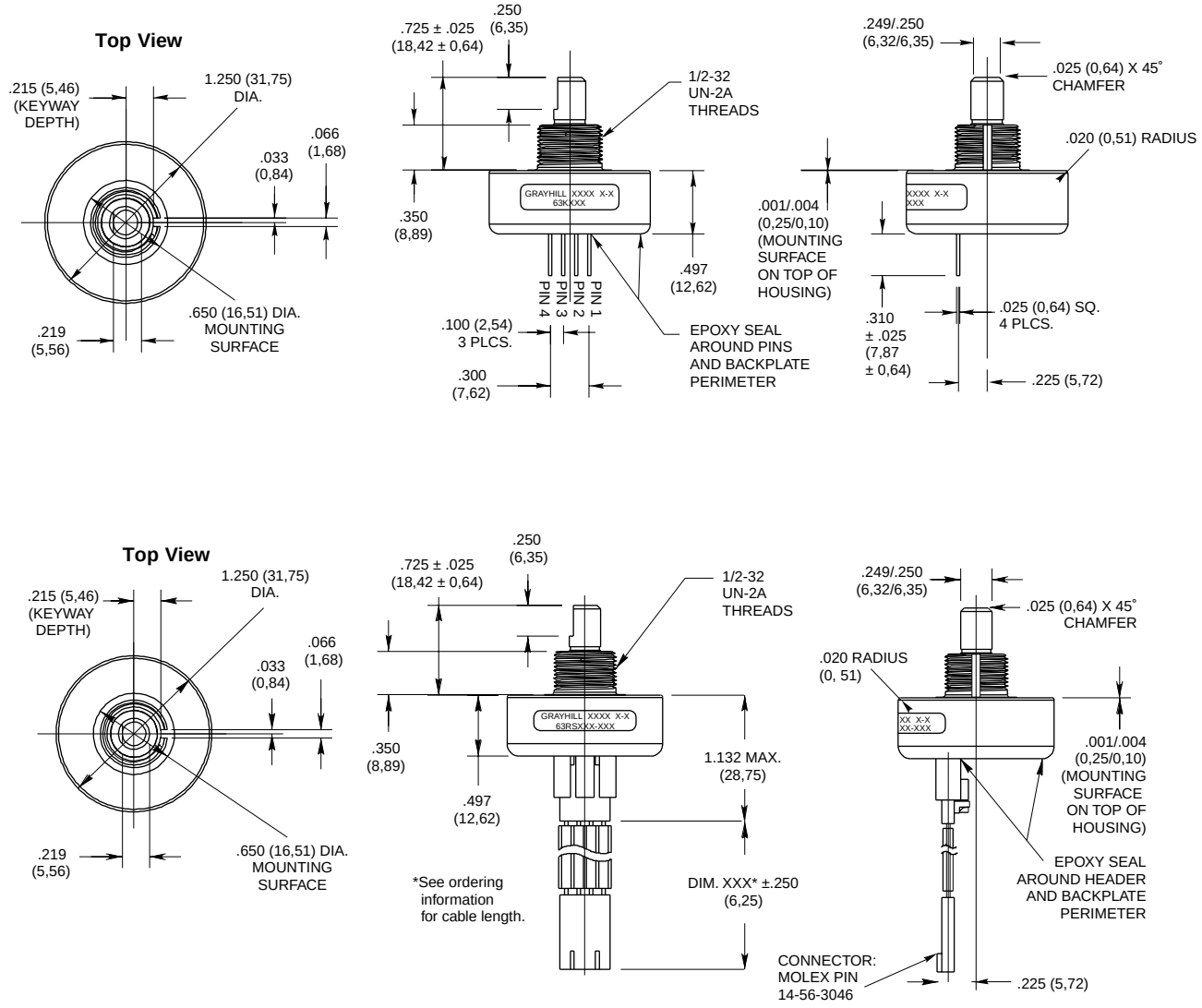
SERIES 63K

High Resolution, Ball Bearing, 4-Pin

FEATURES

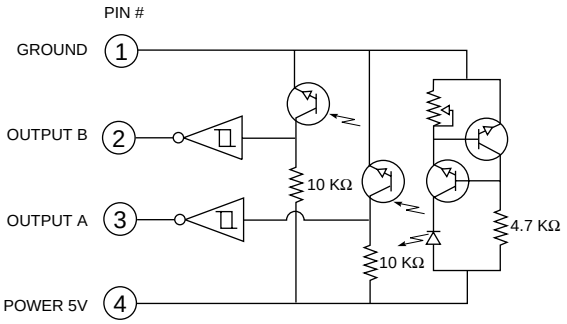
- 25, 32, 50, 64, 100, 128 and 256 Cycles per Revolution Available
- Sealed Version Available
- Rugged Construction
- Cable or Pin Version
- 300 Million Life Cycles
- 5,000 RPM Shaft Rotation

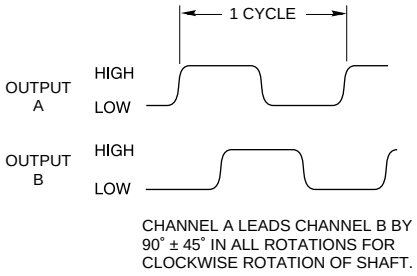
DIMENSIONS In inches (and millimeters)



Unless otherwise specified, dimension tolerances are as follows: linear ± .010 (0,25), diameters ± .010 (0,25), angular ± 5°

CIRCUITRY AND WAVEFORM: Standard Quadrature 2-Bit Code





CHANNEL A LEADS CHANNEL B BY 90° ± 45° IN ALL ROTATIONS FOR CLOCKWISE ROTATION OF SHAFT.

SPECIFICATIONS

Electrical Ratings

Operating Voltage: 5.0 ±.25 Vdc
Supply Current: 30 mA maximum at 5 Vdc
Logic Output Characteristics:
Output Type: Open collector with integrated Schmitt Trigger and 10 KΩ 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
Operating Torque: 0.5 in-oz maximum (no detents) for unsealed versions
Externally Applied Shaft Force: Axial: 15 lbs maximum; Radial: 15 lbs maximum

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: 6262-T9 aluminum alloy
Housing: Hiloy 610B
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)
Spacer: 303 (stainless steel)
Bellville Spring: spring steel (stainless steel)

ORDERING INFORMATION

63KS256–020

Series
Style: K = Standard, 4-pin, high resolution
KS = Sealed, 4-pin, high resolution
Cycles: per channel per revolution = 25, 32, 50, 64, 100, 128, 256

Termination:
Blank (no dash or numbers): pins as described in drawing.
Cable Termination: 020 = 2.0 inches minimum to 250 = 25 inches maximum. Provided in increments of 1/2 inch. (Example 035 = 3.5", 060 = 6".) Cable is terminated with standard Molex part no. 14-56-3046. Use any standard .100 center 4-pin header to interface with cable. Recommended to be mounted with Molex header part no. 70543-0003 or 70553-0003.

Control knobs available, see page E-39.

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

SERIES 63R

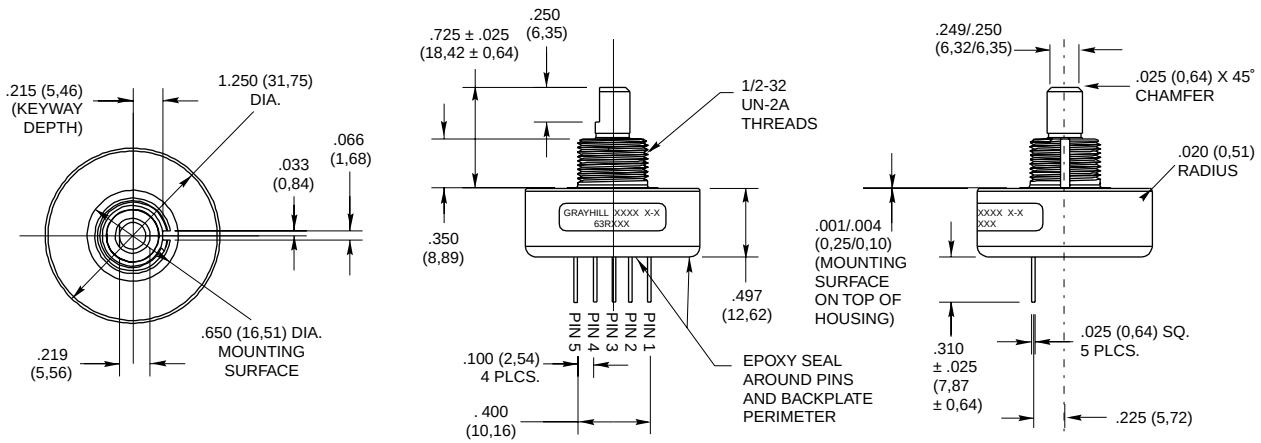
High Resolution, Ball Bearing, 5-pin (Polarized Connection)

FEATURES

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

DIMENSIONS In Inches (and millimeters)

Top View



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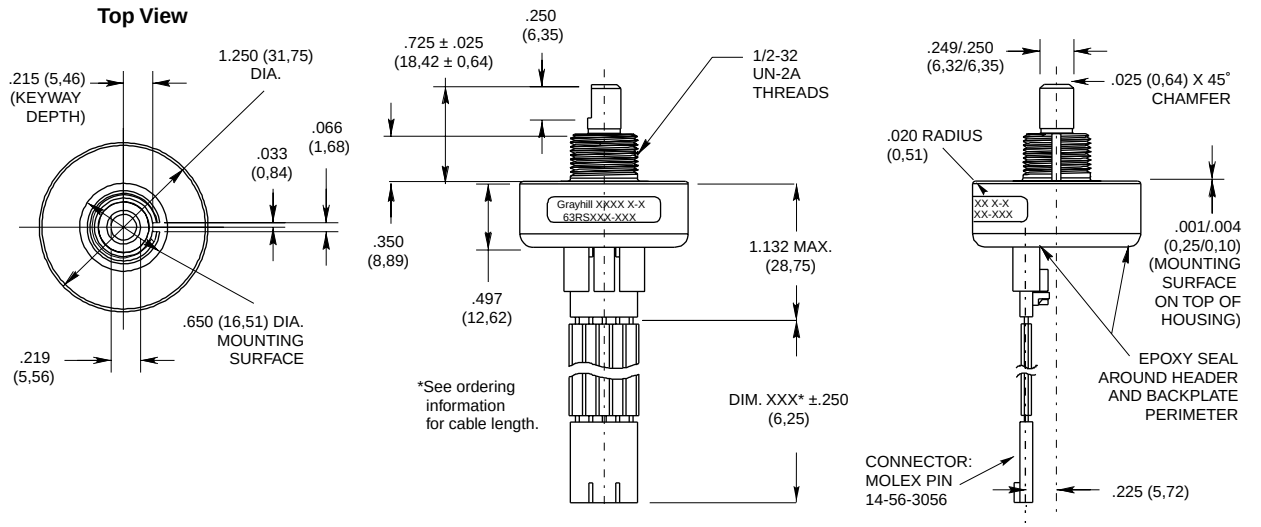
Top View



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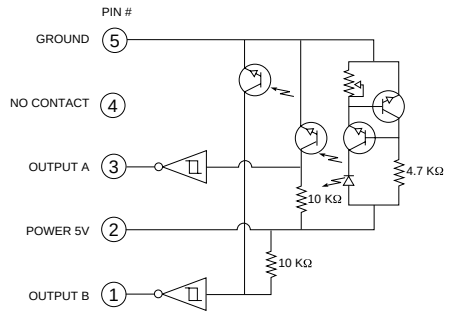
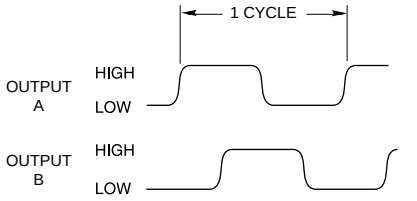
CIRCUITRY AND WAVEFORM: Standard Quadrature 2-Bit Code





CHANNEL A LEADS CHANNEL B BY 90° ± 45° IN ALL ROTATIONS FOR CLOCKWISE ROTATION OF SHAFT.

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% 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: 6262-T9 aluminum alloy
Housing: Hiloy 610B
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
Spacer: 303 stainless steel
Bellville Spring: Spring steel (stainless steel)

ORDERING INFORMATION

63RS256–020

Series
Style: R = Standard, 5-pin, high resolution
RS = Sealed, 5-pin, high resolution
Cycles: per channel per revolution = 25, 32, 50, 64, 100, 128, 256

Termination:
Blank (no dash or numbers): pins as described in drawing.
Cable Termination: 020 = 2.0 inches minimum to 250 = 25 inches maximum
Provided in increments of 1/2 inch. (Example 035 = 3.5", 060 = 6".)
Cable is terminated with standard Molex part no. 14-56-3056.
Use any standard .100 center 5-pin header to interface with cable.

Control knobs available, see page E-39.

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