



# Optical Encoders

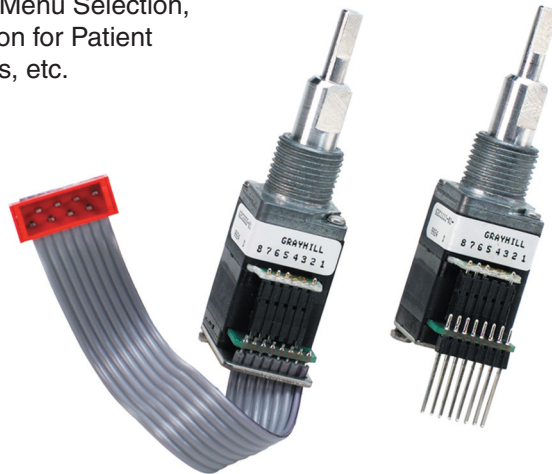
## SERIES 62C Concentric Shaft

### FEATURES

- Economical Size
- Combined Functionality
- Optically Coupled for more than a Million Cycles of Operations
- Optional Integral Pushbutton
- Compatible with CMOS, TTL, and HCMOS Logic
- Available with 12, 16, 24, and 32 Detent Positions for Deck
- Choices of Cable Length and Terminations
- Available in 3.3 Volt Input (contact Grayhill for details)

### APPLICATIONS

- Used to Set Radio Frequency, Drill Depth, RPM, Menu Selection, Parameter Selection for Patient Monitoring Devices, etc.

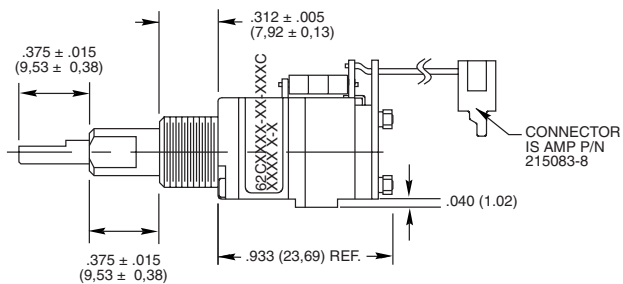
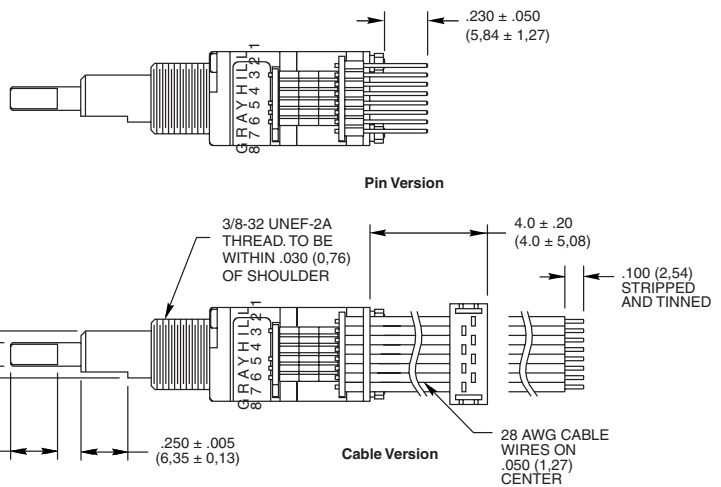
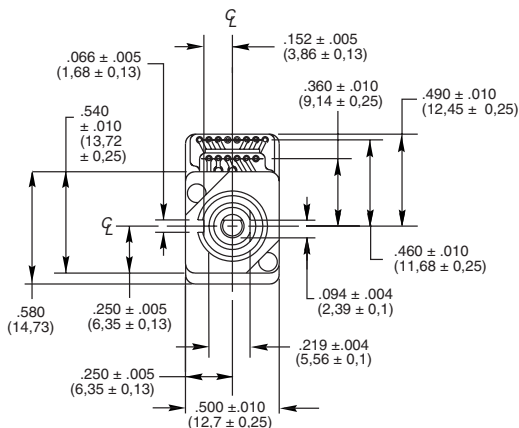
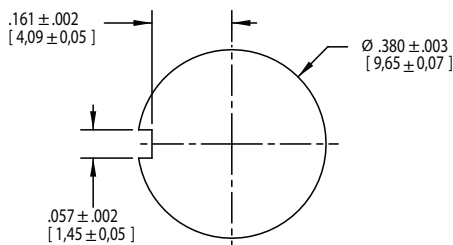


### DIMENSIONS in inches (and millimeters)

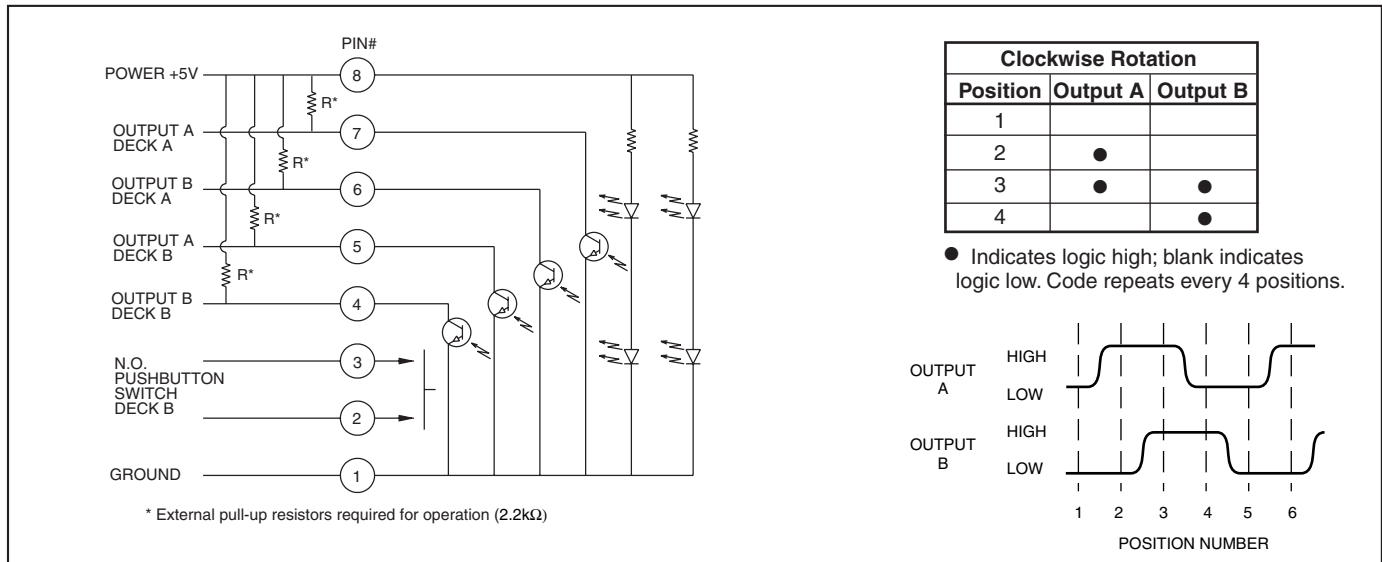
Unless otherwise specified, standard tolerance are:

- Linear  $\pm .025$
- Diameter  $\pm .010$
- Angle  $\pm 2.0^\circ$
- Deck A: 0.250 (6,35) shaft
- Deck B: 0.125 (3,18) shaft

#### Suggested Mounting Panel Cutout



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



**SPECIFICATIONS**

**Pushbutton Switch Ratings**

- Rating:** 5 Vdc, 10 mA, resistive
- Contact Resistance:** less than 10 ohms (TTL or CMOS compatible)
- Voltage Breakdown:** 250 Vac between mutually insulated parts
- Contact Bounce:** less than 4 mS at make, less than 10 mS at break
- Actuation Life:** 3,000,000 operations
- Actuation Force:** 1000 ± 300 grams
- Pushbutton Travel:** .010 / .025 inch

**Encoder Ratings**

- Coding:** 2-bit quadrature coded output
- Operating Voltage:** 5 ± .25 Vdc
- Supply Current:** 50 mA maximum at 5 Vdc
- Logic High:** 3.8V minimum
- Logic Low:** 0.8V maximum
- Logic Rise and Fall Times:** less than 30 mS
- Operating Torque:** 2.0 in-oz ± 1.4 in-oz initially

- Rotational Life:** more than 1,000,000 cycles of operation (1 cycle = 360° rotation)
- Shaft Push Out Force:** 45 lbs minimum
- Mounting Torque:** 15 in-lbs maximum
- Operating Speed:** 100 RPM maximum
- Axial Shaft Play:** 0.010 max. for each shaft

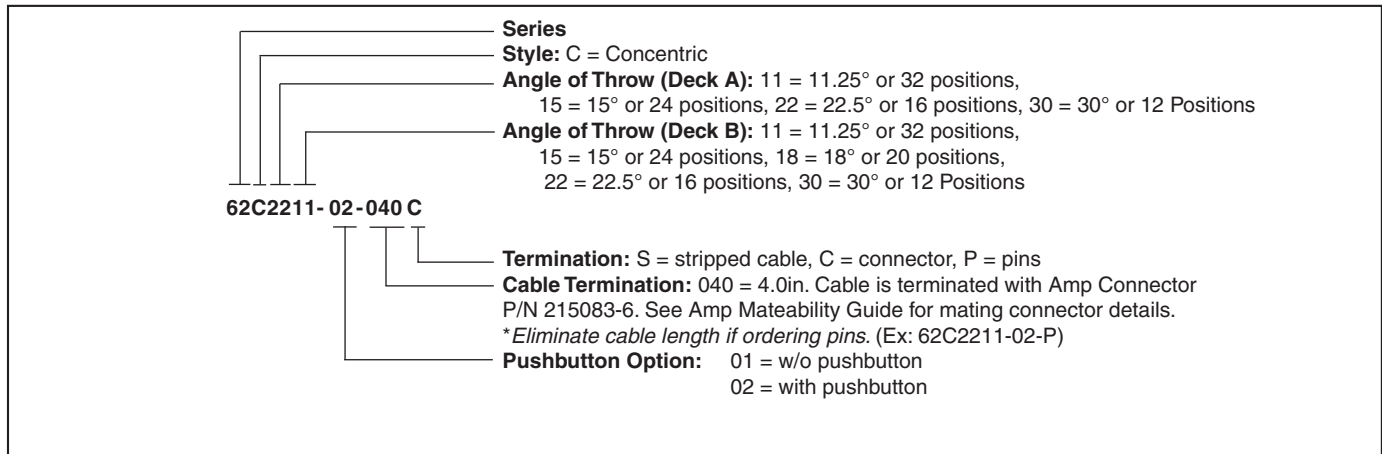
**Environmental Ratings**

- Operating Temp. Range:** -40°C to 85°C
- Storage Temp. Range:** -55°C to 100°C
- Relative Humidity:** 90–95% at 40°C, 96 hrs.
- 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: Tested at 100g for 6 mS, half sine, 12.3 ft/s Test 2: 100g for 6 mS, sawtooth, 9.7 ft/s

**Materials and Finishes**

- Bushing:** Zinc casting
- Shaft:** Aluminum
- Shaft Retaining Ring:** Stainless steel
- Detent Spring:** Stainless steel
- Printed Circuit Board:** NEMA grade FR-4
- Terminals:** Brass, tin-plated
- Mounting Hardware:** One brass, nickel-plated nut and zinc-plated spring steel with clear trivalent chromate finish lockwasher supplied with each switch. (Nut is 0.094 inches thick by 0.433 inches across flats)
- Rotor:** Thermoplastic
- Code Housing:** Reinforced thermoplastic
- Pushbutton Dome:** Stainless steel
- Pushbutton Housing:** Thermoplastic
- Pushbutton Contact:** Brass, nickel-plated
- Dome Retaining Disk:** Thermoplastic
- Strain Relief:** Stainless steel
- Cable:** 28 AWG, stranded/top coated wire, PVC coated on .050 centers (cable version)
- Header Pins:** Phosphor bronze, tin-plated
- Insulator:** Glass-filled polyester
- Spacer:** Zinc casting

**ORDERING INFORMATION**



Custom shaft, pushbutton actuation force and termination options are available.

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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