

## SERIES 62H High Torque, Concentric Shaft

### FEATURES

- High Rotational Torque Provides Positive Tactile Feedback
- Optically Coupled for More than a Million Cycles
- Optional Integral Pushbutton
- Compatible with CMOS, TTL and HCMOS Logic

- Available in 8, 12 and 16 Detent Positions
- Choice of Cable Length and Terminations

### APPLICATIONS

- Avionics

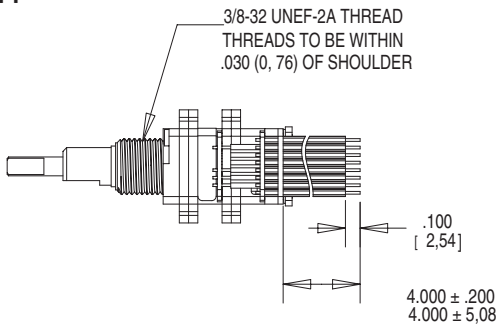


### DIMENSIONS in inches (and millimeters)

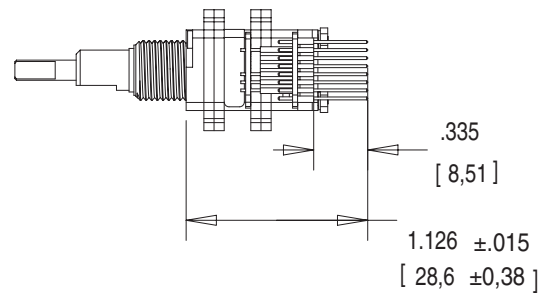
#### Cable Version



#### Stripped Version



#### Pin Version



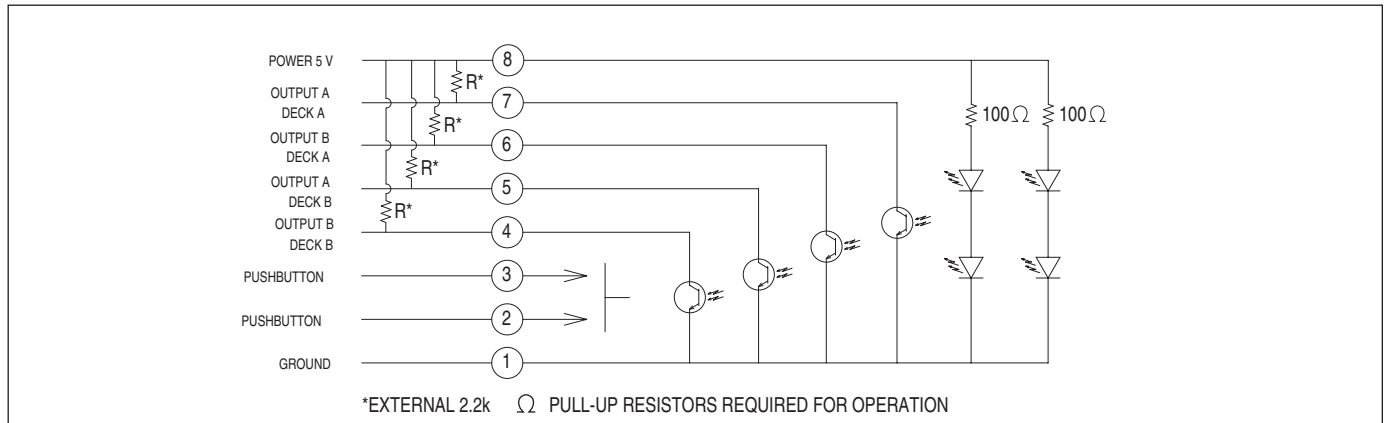
### WAVEFORM AND TRUTH TABLE



Clockwise Rotation		
Position	Output A	Output B
1		
2	●	
3	●	●
4		●

● Indicates logic high; blank indicates logic low. Code repeats every 4 positions.

**CIRCUITRY**



**SPECIFICATIONS**

**Pushbutton Switch Ratings**

- Rating:** at 5 Vdc, 10 mA, resistive
- Contact Resistance:** less than 10 ohms (TTL or CMOS compatible)
- Pushbutton Life:** 3 million actuations minimum
- Voltage Breakdown:** 250 Vac between mutually insulated parts
- Contact Bounce:** less than 4 mS at make and less than 10 mS at break
- Actuation Force:** 1100  $\pm$ 300g
- Shaft Travel:** .020 $\pm$ .010 inch

**Encoder Ratings**

- Coding:** 2-bit quadrature coded output
- Operating Voltage:** 5.0  $\pm$ .25 Vdc
- Supply Current:** 50 mA maximum@5.0 Vdc
- Logic Output Characteristics:**
  - Logic High:** 3.0 Vdc minimum
  - Logic Low:** 1.0 Vdc maximum
- Mechanical Life:** 1,000,000 cycles minimum (One cycle is a rotation through all positions and a full return)
- Minimum Sink Current:** 2.0 mA for 5 Vdc
- Power Consumption:** 150mW maximum
- Output:** open collector phototransistor
- Logic Rise and Fall Times:** less than 30 mS maximum

- Operating Torque:** 5.0 in-oz +/- 1.5 in-oz initial
- Shaft Push Out Force:** 45 lbs minimum
- Mounting Torque:** 15 in-lbs maximum
- Terminal Strength:** 15 lbs cable pull-out force minimum
- Operating Speed:** 100 RPM maximum

**Environmental Ratings**

- Operating Temperature Range:** -40°C to 85°C
- Storage Temperature Range:** -55°C to 100°C
- Vibration Resistance:** Harmonic motion with amplitude of 15G, within a varied 10 to 2000 Hz frequency for 12 hours
- Mechanical Shock:** Test 1: 100G, 6 mS, half sine, 12.3 ft/s; Test 2: 100G, 6 mS, sawtooth, 9.7 ft/s
- Relative Humidity:** 90–95% at 40°C for 96 hours

**Materials and Finishes**

- Code Housing:** Reinforced thermoplastic
- Shafts:** Stainless Steel

- Bushing:** Zinc casting
- Pushbutton Actuator:** Zytel 70G33L
- Shaft Retaining Rings:** Stainless steel
- Detent Spring:** Stainless steel
- Detent Ball:** Stainless steel
- Detent Section:** Hiloy 610
- Printed Circuit Boards:** NEMA grade FR-4 gold over nickel or palladium
- 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
- Pushbutton Dome:** Stainless steel
- Phototransistor:** Planar Silicon NPN
- Infrared Emitter:** Gallium aluminum arsenide
- Flex Cable:** 28 AWG, stranded/top coated wire, PVC coated on .050 or .100" centers (cabled version)
- Header Pins:** Brass, tin-plated
- Spacer:** Hiloy 610
- Shim:** Stainless Steel
- Backplate/Strain Relief:** Stainless steel
- Lockwashers:** Stainless steel
- Hex Nuts:** Stainless steel
- Studs:** Stainless steel

**ORDERING INFORMATION**

**62HXXX-XX-040C**

- Series**
- Style:** H = High Torque, Concentric
- Angle of Throw (Deck A):** 45 = 45° or 8 positions, 30 = 30° or 12 positions, 22 = 22.5° or 16 positions
- Angle of Throw (Deck B):** 45 = 45° or 8 positions, 30 = 30° or 12 positions, 22 = 22.5° or 16 positions
- Termination:** S = stripped cable, C = connector, P = pins
- Cable Termination:** 040 = 4.0in. Cable is terminated with Amp Connector P/N 215083-8. See Amp Mateability Guide for mating connector details. \*Eliminate cable length if ordering pins. (Ex: 62H2222-H9-P)
- Pushbutton Option:** 0 = w/o pushbutton, 9 = 1100g pushbutton
- Rotational Torque:** H = High Torque

Optical and Mechanical Encoders