

SERIES 62A,V,D

1/2" Package

FEATURES

- Low Cost
- Long Life
- Available in 3.3 or 5.0 Vdc Operating Voltages
- High Torque Version to Emphasize Rotational Feel
- Economical Size
- Optically Coupled for More than a Million Cycles
- Optional Integral Pushbutton
- Compatible with CMOS, TTL and HCMOS Logic
- Available in 12,16, 20, 24 and 32 Detent Positions (Non-detent also available)
- Choice of Cable Lengths and Terminations

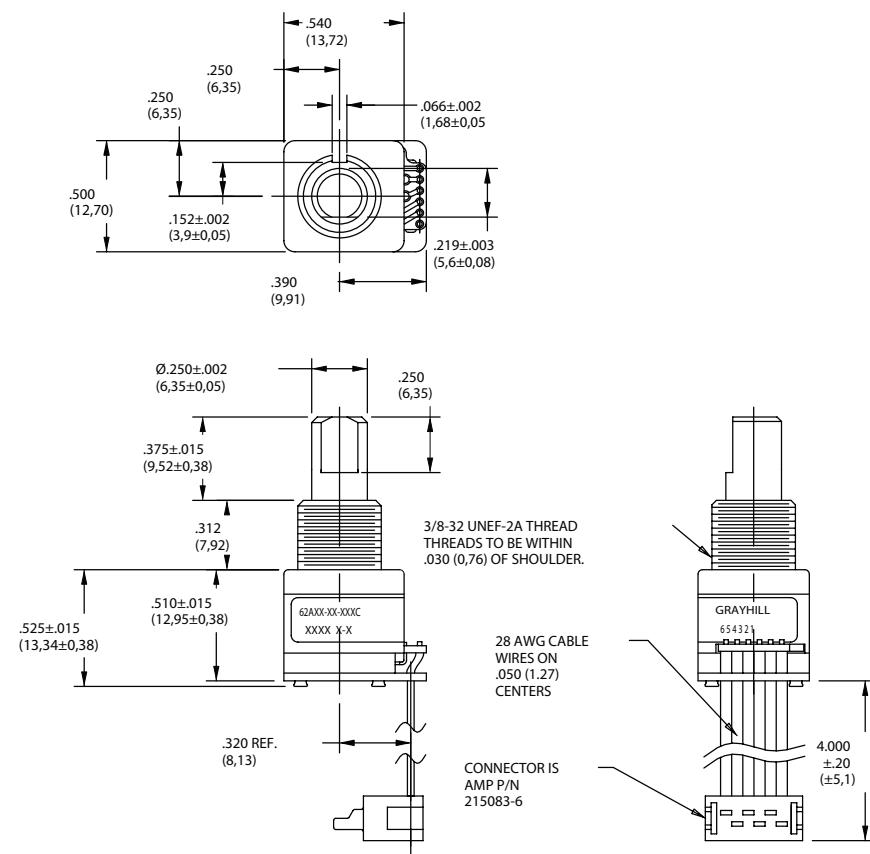
APPLICATIONS

- Global Positioning/Driver Information Systems
- Medical Equipment



DIMENSIONS in inches (and millimeters)

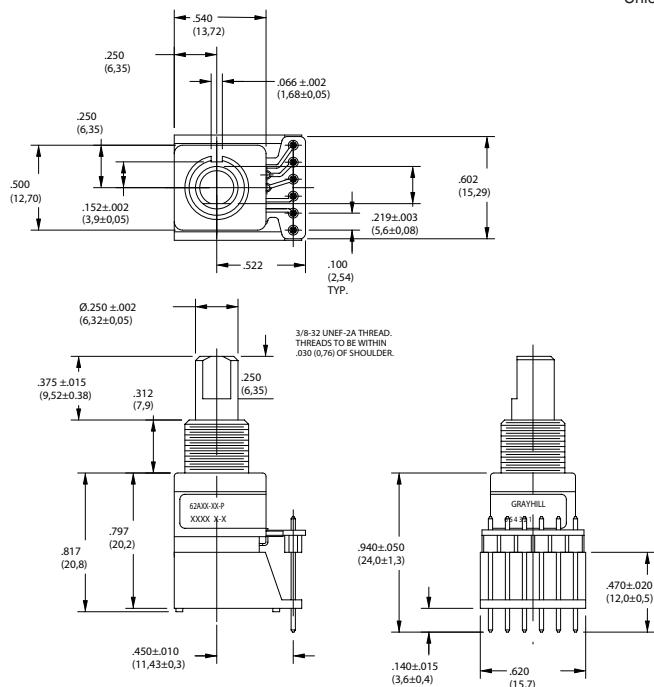
Cable Version



DIMENSIONS in inches (and millimeters)

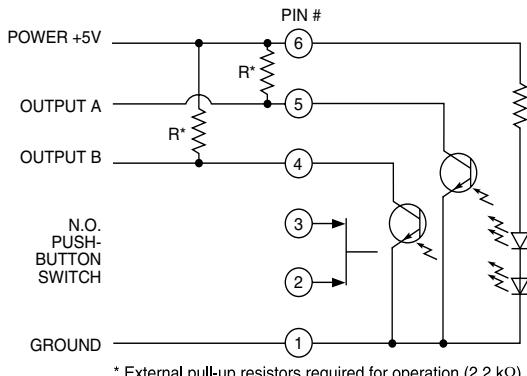
Pin Version

Unless otherwise specified, standard tolerance is $\pm .010$ (0.25)



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

Standard 5.0 Volt (Styles A and D)

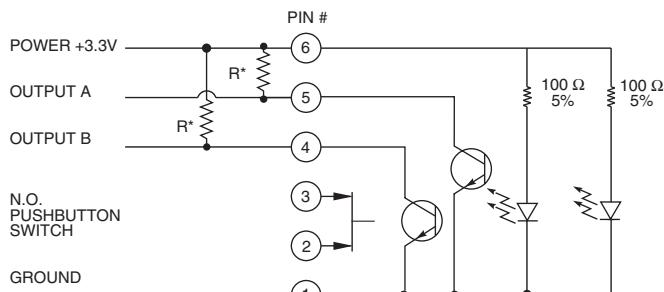


* External pull-up resistors required for operation ($2.2\text{ k}\Omega$).

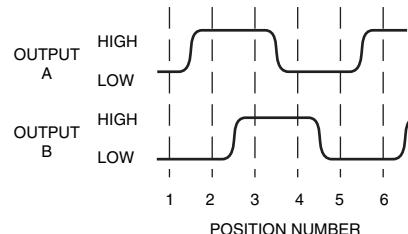
Clockwise Rotation		
Position	Output A	Output B
1		
2	●	
3	●	●
4		●

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

3.3 Volt (Style V only)



* External pull-up resistors required for operation ($2.2\text{ k}\Omega$)



SPECIFICATIONS**Electrical and Mechanical Ratings****Rating:** 5 Vdc, 10 mA, resistive**Contact Resistance:** less than 10 ohms (TTL or CMOS compatible)**Pushbutton Life:** 3 million actuations min.**Contact Bounce:** less than 4 mS at make and less than 10 mS at break**Actuation Force:** 1000 ±300 grams**Pushbutton Travel:** .010/.025 inch**Coding:** 2-bit quadrature coded output**Operating Voltage:** 5.0 ±.25 Vdc, 3.30±.125 Vdc (style V only)**Voltage Breakdown:** 250 Vac between mutually insulated parts**Supply Current:** 30 mA maximum**Logic Output Characteristics:**

Logic High: 3.8 Vdc (5.0 Vdc); 2.3 (3.3 Vdc) minimum

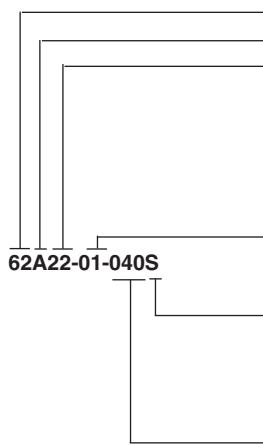
Logic Low: 0.8 Vdc maximum

Rotational 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; 1.0 mA for 3.3 Vdc**Power Consumption:** 150 mW maximum for 5 Vdc; 80 mW for 3.3 Vdc**Optical Rise and Fall Times:** less than 30 mS maximum**Operating Torque:**

Style A and V: 2.0 ±1.4 in-oz. initially

Style D: 3.5 ±1.4 in-oz initially

Non-detent: less than 1.5 in-oz initially

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**Axial Shaft Play:** .010 maximum**Materials and Finishes****Code Housing:** Reinforced thermoplastic**Shaft:** Zinc or aluminum**Bushing:** Zinc casting**Shaft Retaining Ring:** Stainless steel**Detent Spring:** Stainless steel**Printed Circuit Boards:** NEMA grade FR-4 gold over nickel or palladium**Terminals:** Brass, tin-plated**Mounting Hardware:** One brass, nickel-plated nut and stainless steel lockwasher supplied with each switch. Nut is 0.094 inches thick by 0.562 inches across flats.**Rotor:** Thermoplastic**Code Housing:** Thermoplastic**Pushbutton Dome:** Stainless steel**Dome Retaining Disk:** Thermoplastic**Pushbutton Housing:** Thermoplastic**Phototransistor:** Planar Silicon NPN**Infrared Emitter:** Gallium aluminum arsenide**Pushbutton Contact:** Brass, nickel-plated**Flex Cable:** 28 AWG, stranded/top coated wire, PVC coated on .050 or .100" centers (cabled version)**Header Pins:** Phosphor bronze, tin-plated**Spacer:** ABS**Backplate/Strain Relief:** Stainless steel**ORDERING INFORMATION****Series****Style:** A = 1/2" package, 5.0 Vdc Input, D = high torque w/5.0 Vdc input, V = 3.3 Vdc input**Angle of Throw:****Detent**

11 = 11.25° or 32 positions

15 = 15° or 24 positions

18 = 18° or 20 positions

22 = 22.5° or 16 positions

30 = 30° or 12 positions

Non-detent (Styles A&V only)

01 = 11.25° or 32 positions

05 = 15° or 24 positions

08 = 18° or 20 positions

02 = 22.5° or 16 positions

03 = 30° or 12 positions

Pushbutton Option: 01 = w/o pushbutton, 02 = with pushbutton**Termination:**

S = Stripped cable; .050" centers

SH = Stripped cable; .100" centers

C = Connector; .050" centers

CH = Connector; .100" centers

P = Pin; .100" centers

Cable Length: Cable Termination: 040 = 4.0in. Cable is terminated with

Amp P/N 215083-6. See Amp Mateability Guide for Mating Connector details.

**Eliminate cable length if ordering pins. (Ex: 62A22-02-P).*

These switches have Quadrature 2-bit code output and an optional shaft actuated pushbutton switch.

Custom materials, styles, colors, and markings are available. Control knobs available.

Available from your local Grayhill Component Distributor.

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