

Model : **A**

Model : **B**



## SERIES 61C A61C22 \ B61C22 16 or 32 Position with Pushbutton

### FEATURES

- Competitively Priced to Similar Electromechanical Switches
- Optically Coupled For More Than A Million Trouble-Free Rotations
- Has Data Entry Pushbutton Switch Activated By Switch Shaft
- Compatible With CMOS, TTL and HCMOS Logic
- Operationally Used to Move Display Icon and Input Data
- Used to Set Radio Frequency, Drill Depth, RPM, etc.

**61C22-01-04-02**

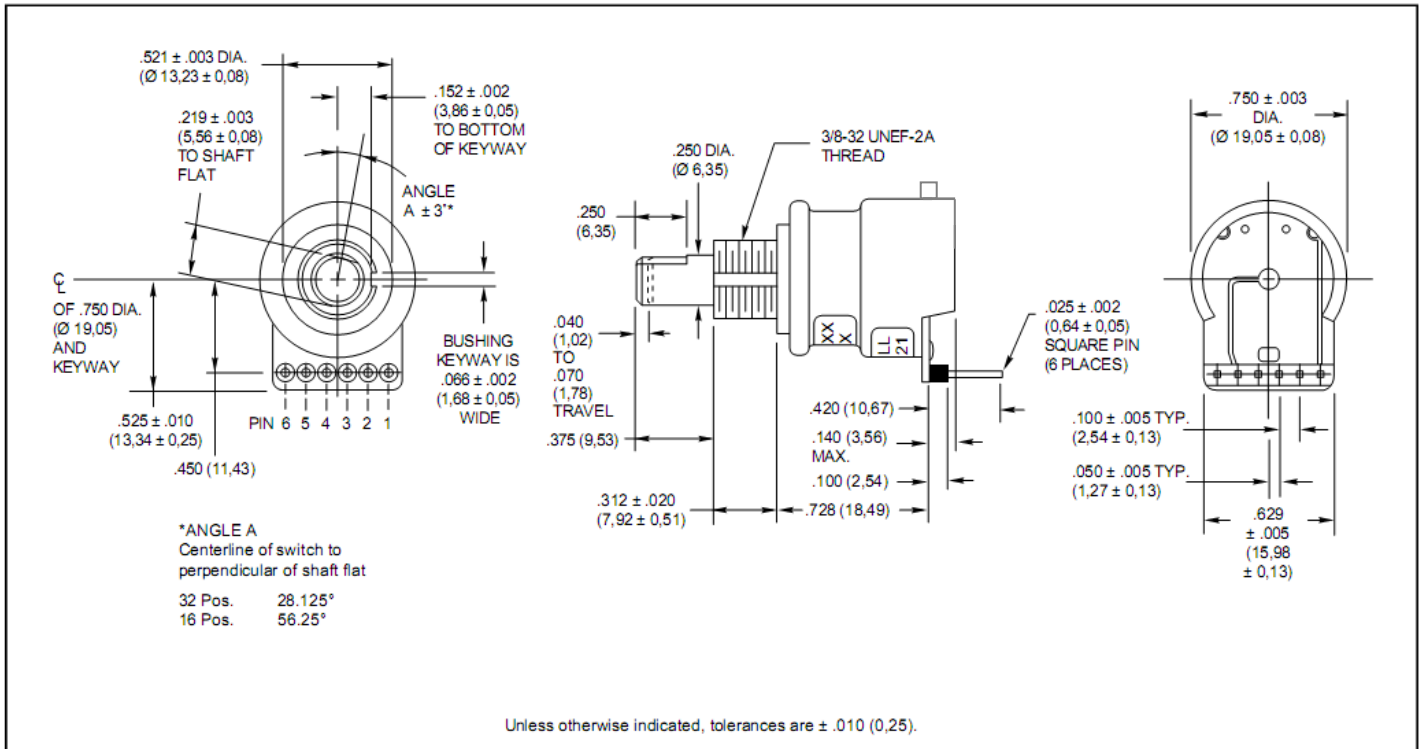
**B61C22-01-04-02-3**

**A61C22-01-04-02-3**

**B61C22-01-04-02-5**

**A61C22-01-04-02-5**

### DIMENSIONS In inches (and millimeters)



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

POWER	
+5V	150 Ω
+3V	51 Ω

\* External pull-up resistors required for operation.  
8.2 kΩ is suggested for TTL; 3.3 kΩ is suggested for CMOS.

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

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

### 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 milliseconds at make and less than 10 milliseconds at break.  
**Actuation Life:** 3,000,000 operations.  
**Actuation Force:** maximum actuation force of 330 grams and a minimum actuation force of 250 grams.

#### Encoder Ratings

**Coding:** 2-bit quadrature coded output.  
**Operating Voltage:** 5.0 ± 0.25 Vdc  
**Supply Current:** 30 mA maximum at 5 Vdc  
**Logic High:** 3.8V for CMOS and 2.7V for TTL minimum.  
**Logic Low:** 0.8V maximum  
**Logic Rise and Fall Times:** Rise Time less

than 30 mS at 16.6 RPM. Fall Time less than 30 mS at 16.6 RPM.  
**Operating Torque:** 1.5 in-oz ± 30% initial (1.0 in-oz ± 50% after life for 32 position only)  
**Rotational Life:** more than 1,000,000 cycles of operation (1 cycle = 360° rotation and return)  
**Shaft Push Out Force:** 20 lbs minimum  
**Mounting Torque:** 10 in-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: 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:** Reinforced thermoplastic  
**Shaft:** Reinforced thermoplastic  
**Detent Balls:** Steel, nickel-plated  
**Detent and Pushbutton Springs:** Tinned music wire  
**Printed Circuit Boards:** NEMA grade FR-4  
**Pushbutton Contact:** Stainless steel, gold-plated  
**Board Terminals:** Phosphor bronze, tin-plated  
**Mounting Hardware:** One brass, cadmium-plated nut and lockwasher supplied with each switch. Nut is 0.094 inches thick by 0.562 inches across flats.  
**Rotor:** Reinforced thermoplastic  
**Aperture/Dome Retainer:** Lexan 141, Polycarbonate

### ORDERING INFORMATION

**Series /Pin direction:** See picture  
**Style:** C = Standard  
**Angle of Throw:** 00 = No detent  
                   11 = 11.25° or 32 Positions  
                   22 = 22.25° or 16 Positions  
**Coding:** 01 = Quadrature  
**Input Voltage:** 3=3V, 5=5V  
**Pushbutton Option:** 01 = Without pushbutton, 02 = With pushbutton  
**Number of Changes per Revolution:** 04 for no detent and 22.25° angle of throw  
   08 for no detent and 11.25° angle of throw