

## SERIES 61B

### 16, 24, or 32 Position, Optional Pushbutton

#### FEATURES

- Positions Screen Cursor
- More Friendly than Keyboards
- Permits Visual Concentration
- Economic Touchscreen Alternative
- Pushbutton for Entry Function
- Detent for Tactile Feedback and Minimal Backlash
- Optical Coupled for Long Life
- Rugged Construction



#### APPLICATIONS

##### Display Input

The Series 61 rotary encoder switch can move cursor or icon on a display. Use the rotary and pushbutton switch to simply select a menu item and enter it, or write more elaborate display software. Use the Series 61 to input limit settings for a monitored function. Change an item on a checklist to a new value while viewing the remainder of the list.

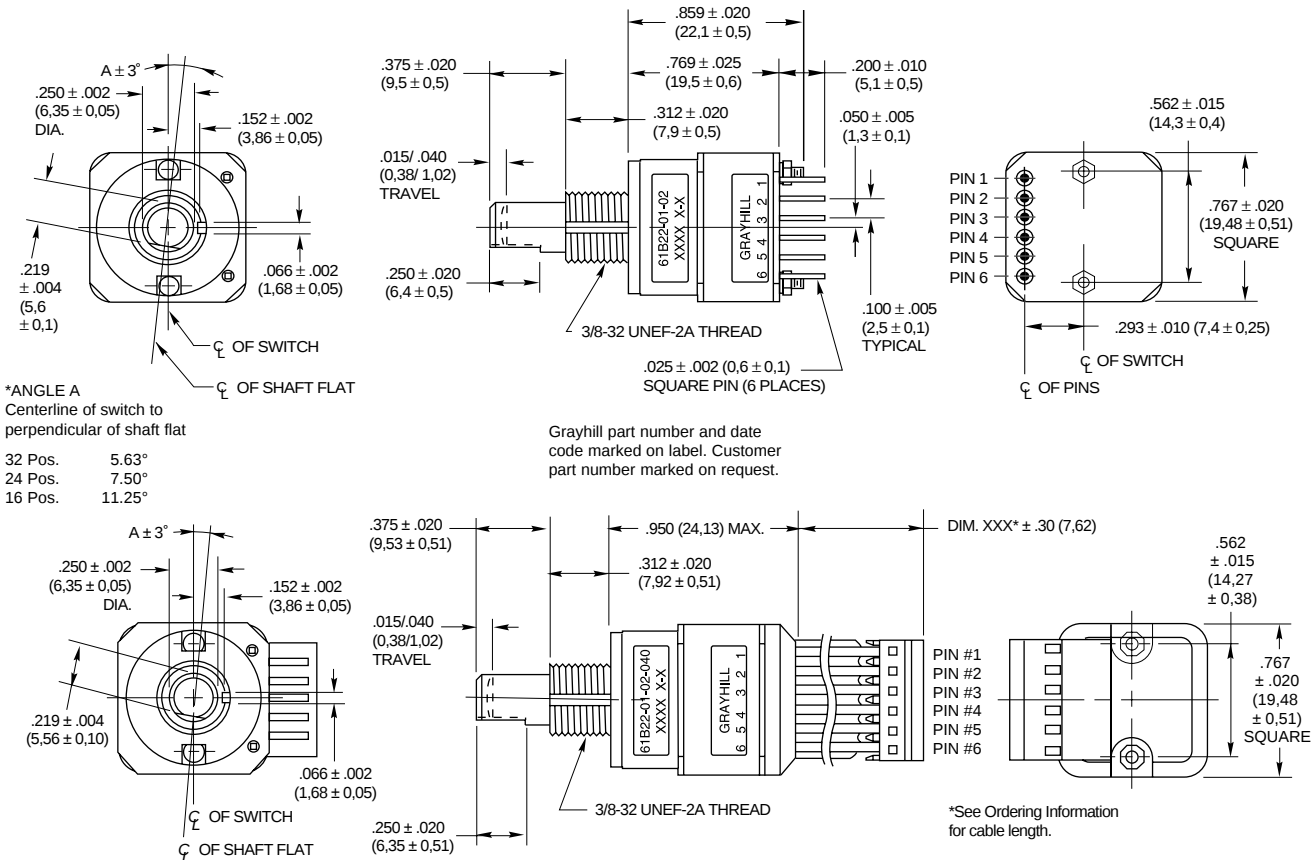
##### Incremental Input

Use the Series 61 with an interface chip to provide step by step input for setting radio frequency, drill depth, RPM, etc. These changes are usually a few steps, and you need not turn the switch several revolutions for the desired value. Some examples are as follows:

- Robot Position
- Volume Setting
- Radio Tuning
- Limit Setting
- Motor Control

#### DIMENSIONS In inches (and millimeters)

Diagram illustrates a 16-position switch with integral pushbutton switch.



Unless otherwise indicated, tolerances are  $\pm .010$  (0,25).

## SPECIFICATIONS

### Pushbutton Switch Ratings

**Rating:** 5 Vdc, 10 mA, Resistive

**Contact Resistance:** less than 10 (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 615 grams and a minimum actuation force of 415 grams.

### Encoder Ratings

**Coding:** 2-bit quadrature coded output

**Operating Voltage:** 5  $\pm$  .25 Vdc

**Supply Current:** 30 mA maximum at 5 Vdc

**Logic High:** 3.8V 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:** 2.0  $\pm$  .75 in-oz

**Rotational Life:** more than 1,000,000 cycles of operation (1 cycle = 360° rotation and return)

**Shaft Push Out Force:** 50 lbs minimum

**Mounting Torque:** 15 in-lbs 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 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.

**Relative Humidity:** 90–95% at 40°C for 96 hours

### Materials and Finishes

**Detent Cover:** Thermosetting plastic

**Bushing:** Zinc casting, cadmium-plated per QQP-416, Class 2, Type II

**Shaft:** Reinforced thermoplastic *Note: Earlier versions may have electropolished stainless steel shafts (still available in customs only).*

**Detent Balls:** Passivated, stainless steel

**Detent Spring:** Tinned music wire

**Printed Circuit Boards:** NEMA Grade FR-4

**Board Terminals:** Copper alloy, CDA No. 725

**Through Bolts:** Stainless steel, unplated

**Through Bolt Nuts:** Stainless steel

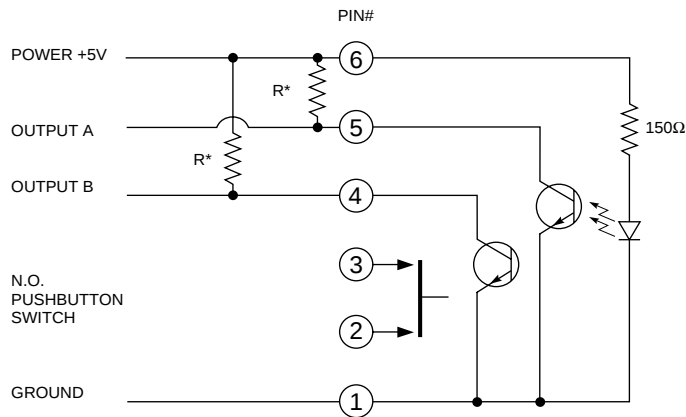
**Switch Assembly Cover and Code Rotor:** PBT polyester thermoplastic

**Mounting Hardware:** One brass, cadmium-plated nut and lockwasher supplied with each switch. Nut is 0.094" thick by 0.562" across flats.

**Strain Relief:** PBT polyester thermoplastic (cable version only)

**Cable:** 26 AWG, stranded/tinned wire, PVC coated on .100 (2,54) centers (cable version only)

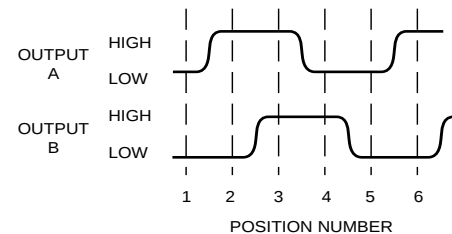
## CIRCUITRY, TRUTH TABLE, AND WAVEFORM: Standard Quadrature 2-Bit Code



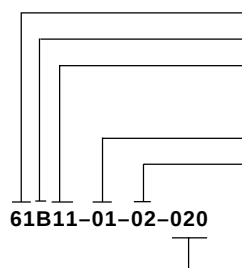
\*EXTERNAL PULL UP RESISTORS REQUIRED FOR OPERATION. 8.2 kΩ IS SUGGESTED FOR TTL; 3.3 kΩ IS SUGGESTED FOR CMOS

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

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



## ORDERING INFORMATION



### Series

**Style:** B = Standard, unsealed

**Angle of Throw:** 11 = 11.25° or 32 Positions

15 = 15° or 24 Positions

22 = 22.25° or 16 Positions

**Coding:** 01 = Quadrature

**Pushbutton Option:** 01 = Without pushbutton, 02 = With pushbutton

**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 inches. Cable is terminated with standard Amp Connector 640442-6. Use any 6 position, .100 center header to mate with the cable assembly. Contact Grayhill

Custom shaft and bushing lengths, shaft/panel seal, and additional supply voltages are available through Grayhill only. Control knobs available, see page I-57.

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

## ACCESSORIES

See page I-41.

## Данный компонент на территории Российской Федерации

**Вы можете приобрести в компании MosChip.**

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

<http://moschip.ru/get-element>

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

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