

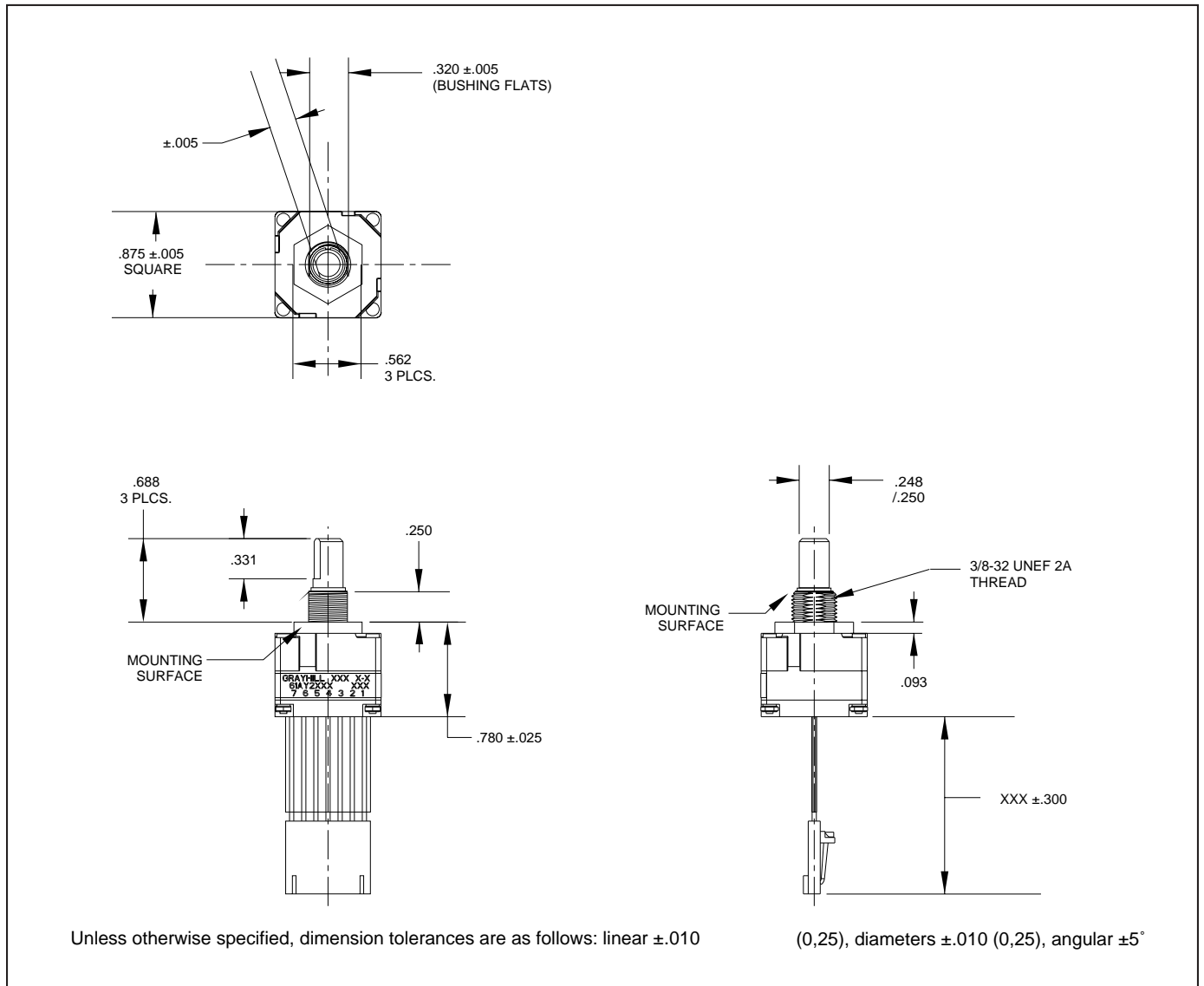
SERIES 61A
Custom, Absolute

FEATURES

- Absolute Position Sensing
- 3, 4, or 5-Bit Custom Output Coding
- 8 to 32 Positions
- Continuous Rotation and Fixed Stops Available
- Angles of Throw to 45° (Design Specifications Will Dictate the Angle of Throw)



DIMENSIONS In inches (and millimeters)



Optical and Mechanical Encoders

SPECIFICATIONS

Ratings

Operating Voltage: 5 ±.25V DC
Supply Current: 85 mA maximum at 5V DC
Life: 1 million cycles of operation; 1 cycle is rotation through all positions and a full return
Rotational Torque: 1.5 in-oz (Initial)
Output High: 3.8V minimum for CMOS & HCMOS; 2.7V minimum for TTL
Output Low: 0.8V maximum
Shaft Push Out Force: 25 lbs.
Mounting Torque: 10 in-lb maximum
Load Current: 5 mA maximum per channel
Logic Rise and Fall Times: 30 mSec typical

Environmental

Operating Temperature Range: -40°C to +85°C
Storage Temperature Range: -55°C to +100°C
Vibration: MIL-STD 202, method 204, condition B
Mechanical Shock: 100 g's, 6 ms, half Sine 12.3 ft/s and 100 g's, 6 ms, sawtooth, 9.7 ft/s
Humidity: 90-95% Relative humidity at 40°C for 96 hrs.

Materials and Finishes

Detent Housing/Bushing: Nylon 6/10
Shaft: Glass-filled nylon
Detent Balls: Steel, nickel-plated
Code Housings: Nylon 6/10
Backplate: Nylon 6/10
Aperture: Chemically etched stainless steel with black oxide finish
Rotor: Electroformed nickel and chemically etched stainless steel with black nickel finish
Detent Springs: Tinned music wire
PC Boards: NEMA grade FR-4
Through Bolts: Stainless steel, unplated
Through Bolt Nuts: Stainless steel
Switch Assembly Cover: Thermosetting plastic
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.

ACCESSORIES

See page I-41. For control knobs see page I-57.

ORDERING INFORMATION

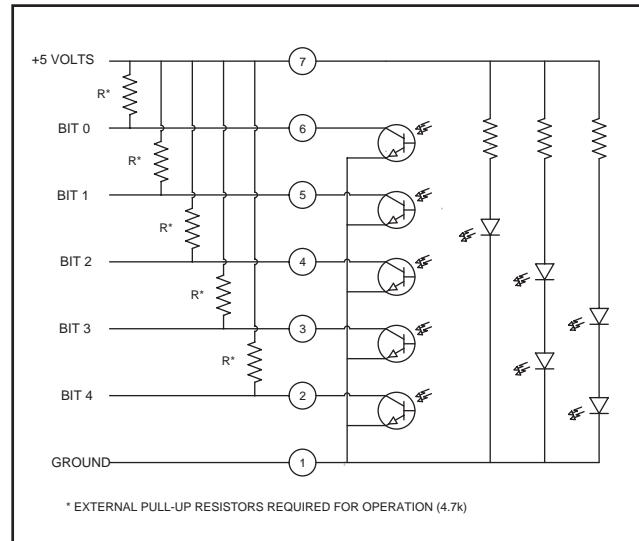
Options include stainless steel detent housing for higher rotational torque applications. Metal shaft and bushing available. Custom shaft and bushing configurations available. Contact Grayhill for information on angles of throw and stop strength.

61A32-025

NUMBER OF POSITIONS
 32 = 32 POSITIONS WITH 10° OF THROW
 24 = 24 POSITIONS WITH 12° OF THROW
 16 = 16 POSITIONS WITH 18° OF THROW
 8 = 8 POSITIONS WITH 36° OF THROW

TERMINATION
 BLANK = PINS
 -XXX = CABLE LENGTH
 CABLE LENGTH IS DENOTED IN .5" INCREMENTS FROM 025=2.5 INCHES TO 250=25.0 INCHES.

CIRCUITRY



TRUTH TABLE

3 BIT, 8 POSITION

| Position | B2 | B3 | B4 |
|----------|----|----|----|
| 1 | | | |
| 2 | | | ● |
| 3 | | ● | ● |
| 4 | | ● | |
| 5 | ● | ● | |
| 6 | ● | ● | ● |
| 7 | ● | | ● |
| 8 | ● | | |

● INDICATES LOGIC HIGH
 BLANK INDICATES LOGIC LOW

4 BIT, 16 POSITION

| Position | B1 | B2 | B3 | B4 |
|----------|----|----|----|----|
| 1 | | | | |
| 2 | | | | ● |
| 3 | | | ● | ● |
| 4 | | | ● | |
| 5 | | ● | ● | |
| 6 | | ● | ● | ● |
| 7 | | ● | | ● |
| 8 | | ● | | |
| 9 | ● | ● | | |
| 10 | ● | ● | | ● |
| 11 | ● | ● | ● | ● |
| 12 | ● | ● | ● | |
| 13 | ● | ● | ● | |
| 14 | ● | | ● | ● |
| 15 | ● | | ● | |
| 16 | ● | | | ● |

● INDICATES LOGIC HIGH
 BLANK INDICATES LOGIC LOW

5 BIT, 32 AND 24 POSITION

| Position | B0 | B1 | B2 | B3 | B4 |
|----------|----|----|----|----|----|
| 1 | | | | | |
| 2 | | | | | ● |
| 3 | | | | ● | ● |
| 4 | | | | ● | |
| 5 | | | ● | ● | |
| 6 | | | ● | ● | ● |
| 7 | | | ● | | ● |
| 8 | | | ● | | |
| 9 | | ● | ● | | |
| 10 | | ● | ● | | ● |
| 11 | | ● | ● | ● | ● |
| 12 | | ● | ● | ● | |
| 13 | | ● | | ● | |
| 14 | | ● | | ● | ● |
| 15 | | ● | | | ● |
| 16 | | ● | | | |
| 17 | ● | ● | | | |
| 18 | ● | ● | | | ● |
| 19 | ● | ● | | ● | ● |
| 20 | ● | ● | | ● | |
| 21 | ● | ● | ● | ● | |
| 22 | ● | ● | ● | ● | ● |
| 23 | ● | ● | ● | | ● |
| 24 | ● | ● | ● | | |
| 25 | ● | | ● | | |
| 26 | ● | | ● | | ● |
| 27 | ● | | ● | ● | ● |
| 28 | ● | | ● | ● | |
| 29 | ● | | | ● | |
| 30 | ● | | | ● | ● |
| 31 | ● | | | | ● |
| 32 | ● | | | | |

● INDICATES LOGIC HIGH
 BLANK INDICATES LOGIC LOW