

SERIES 62AG

Price Competitive Solution

FEATURES

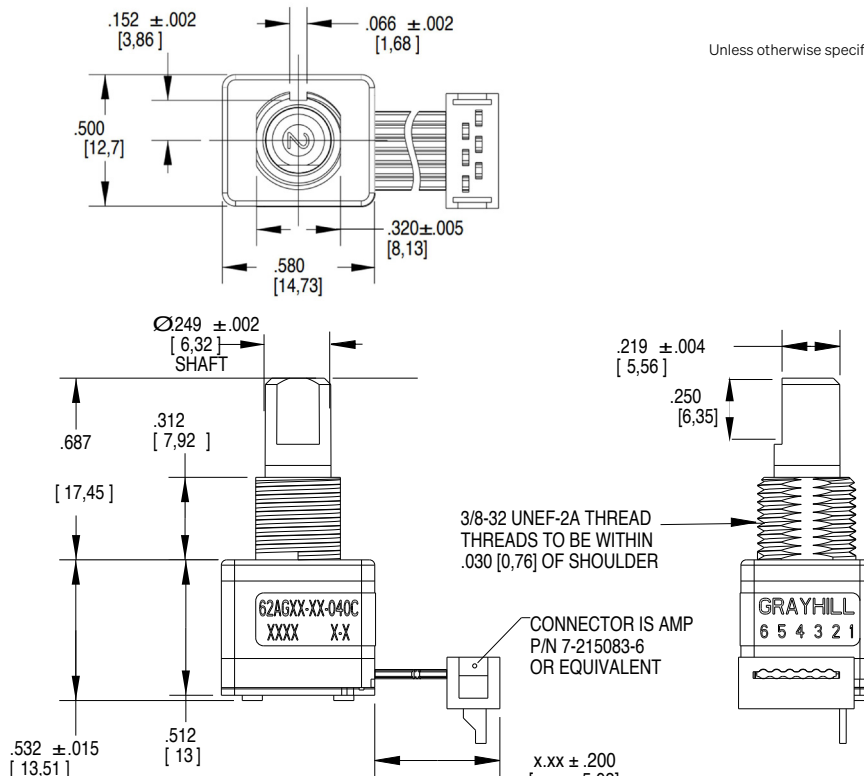
- Over 1 million rotational cycles
- 2-bit gray code output
- Quadrature coding
- Available in 16, 20, 24 and 32 detent positions
- Choices of cable length and terminations
- Available for 5Vdc and 3.3Vdc
- Optional integrated pushbutton
- Patented light pipe technology
- Cost competitive with mechanical encoders at higher volumes
- Optional shaft and panel seal

APPLICATIONS

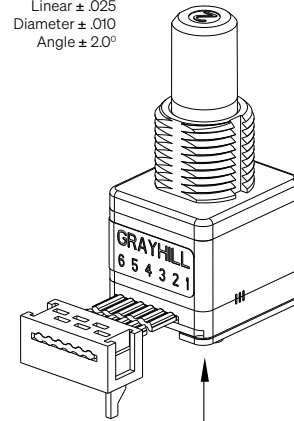
- AUTOMOTIVE**
- audio systems
 - navigation systems
- MEDICAL**
- patient monitoring systems
- TEST & MEASUREMENT**
- analyzers
 - oscilloscopes
- AUDIO & VIDEO**
- consumer electronics
 - professional editing equipment



DIMENSIONS in inches (and millimeters)

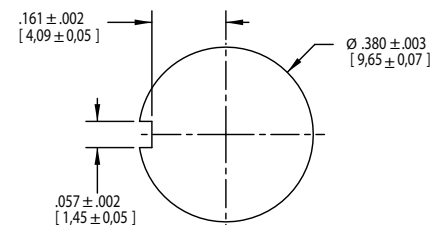


Unless otherwise specified, standard tolerances are:
 Linear $\pm .025$
 Diameter $\pm .010$
 Angle $\pm 2.0^\circ$

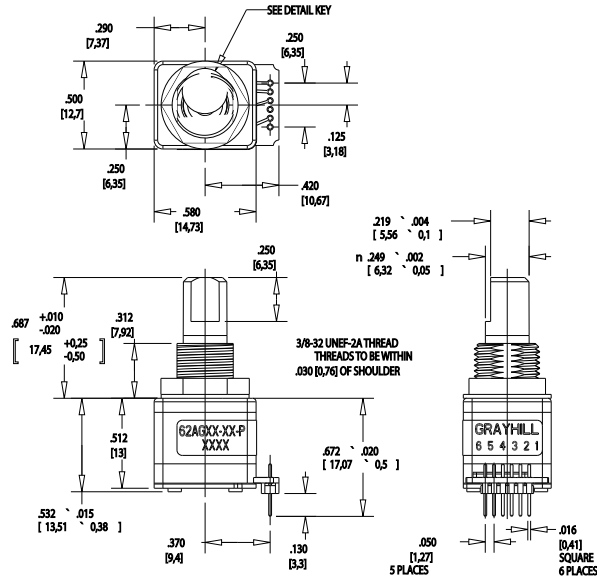
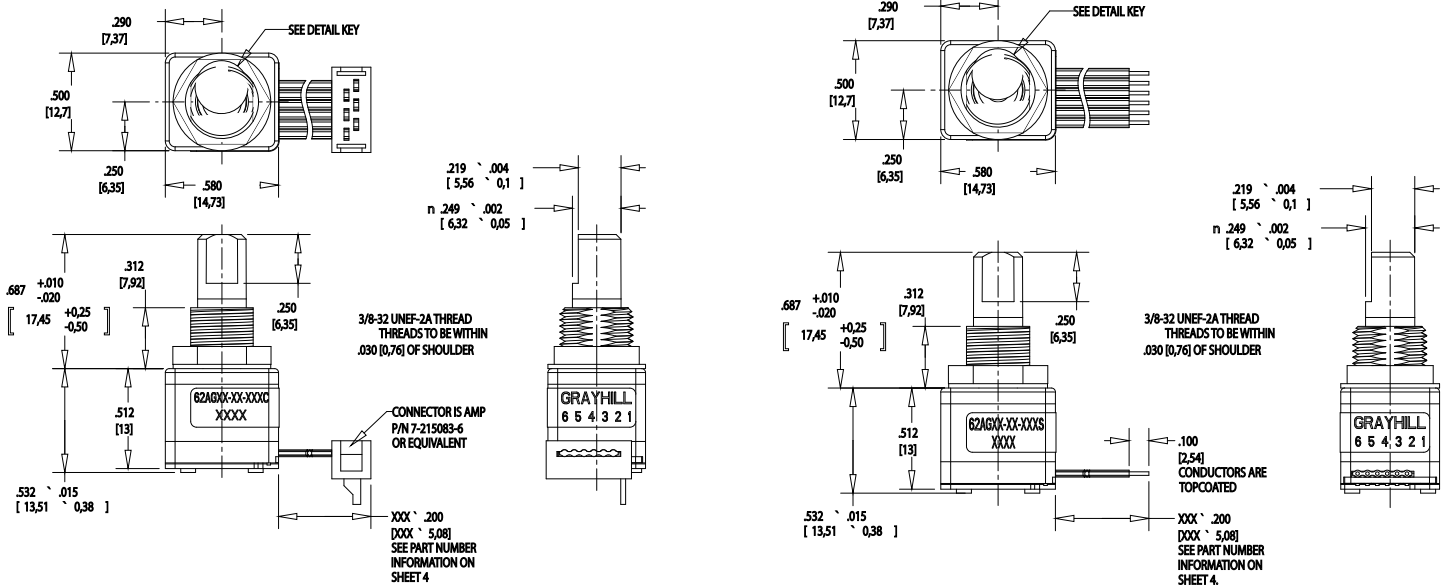


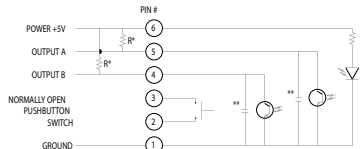
NOTE: GRAYHILL ALLOWS MULTIPLE ORIENTATIONS FOR THE GRAYHILL TEXT ON THE BACKPLATE.

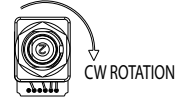
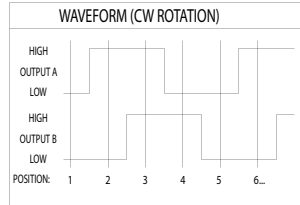
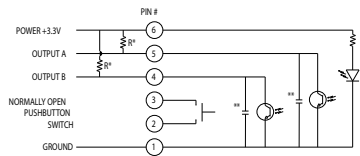
Suggested Mounting Panel Cutout



- MOUNTING PANEL RECOMMENDATIONS FOR PANEL SEAL VERSIONS:
1. PANEL THICKNESS SHOULD NOT EXCEED .157.
 2. MOUNTING HOLE TO BE $\text{Ø} .375 - \text{Ø} .385$.
 3. $\text{Ø} .470 \times .020$ DEEP COUNTERBORE ON REVERSE OF PANEL REQUIRED FOR PROPER SEALING.
 4. ANTI-ROTATION FEATURE IS RECOMMENDED. FEATURE SHOULD BE DESIGNED TO LOCK INTO BUSHING KEYWAY.

TERMINATION OPTIONS

P - .050 Center Pins with 0.185 inch length

C - .050 Center Ribbon Cable with connector
S - .050 Center Ribbon Cable with .100 stripped end

WAVEFORM AND TRUTH TABLE
**Standard 5.0V
(Style AG)**

 *10K Ω PULL-UP RESISTOR REQUIRED FOR OPERATION
 **NOISE FILTERING CAPACITOR, LESS THAN 1000pF

**Standard 3.3V
(Style VG)**


TRUTH TABLE (CW ROTATION)		
POSITION	OUTPUT A	OUTPUT B
1	LOW	LOW
2	●	LOW
3	●	●
4	LOW	●

BLANK = LOGIC LOW
 ● = LOGIC HIGH
 CODE REPEATS EVERY FOUR POSITIONS.

SPECIFICATIONS
Environmental Specifications
Operating Temperature: -40°C to 85°C

Storage Temperature: -40°C to 85°C

Humidity: 96 hours@90-95% humidity@40°C

Mechanical Vibration: Harmonic motion with amplitude of 15g within a varied frequency of 10 to 2000 Hz for 12 hours

Mechanical Shock:

Test 1: 100g for 6 ms half-sine wave with a velocity change of 12.3 ft/s

Test 2: 100g for 6 ms sawtooth wave with a velocity change of 9.7 ft/s

Seal: Meets IP67 (above panel for sealed options only)

Average Rotational Torque:

Low = 2.0±1.4 in-oz initially

High = 3.5±1.4 in-oz initially

50% of initial value after 1 million cycles

Mechanical Life: 1,000,000 cycles of operation.

1 cycle is a rotation through all positions and a full return.

Mounting Torque: 15in.-lbs. maximum

Shaft Pushout Force: 45 lbs. minimum

Terminal Strength: 15 lbs. Cable pull out force minimum

Solderability: 95% free of pin holes & voids

Maximum rotational speed: 100 rpm

Detent Spring: 303 Stainless Steel

Housing, Upper: Nylon 6/6 25% glass reinforced. Zytel FR-50

Light Pipe: Lexan, GE

Code Rotor: Delrin 100

Housing, Lower: Nylon 6/6 25% glass reinforced. Zytel FR-50

Pushbutton Actuator: Reinforced nylon.

Zytel 70G33L. UL 94

Pushbutton Dome: Stainless Steel

Printed Circuit Board: NEMA Grade FR4, double clad with copper, Plated with gold over nickel

Infrared Emitting Diode: Gallium Arsenide

Phototransistor Diode: NPN Silicon

Resistor: Metal oxide on ceramic substrate

Spacer: Pet plastic

Backplate: Stainless Steel

Label: TT406 thermal transfer cast film

Solder: 96.5% tin / 3% silver / 0.5% copper.

No clean.

Hex Nut: Brass, Plated with nickel

Lockwasher: Zinc Plated Spring Steel with Clear Trivalent Chromate Finish

Cable: Copper Stranded with topcoat in PVC insulation

Connector (.050 center): PA4.6 with tin/nickel plated phosphor bronze

Rotary Electrical and Mechanical Specifications
Operating Voltage:

AG Style 5.00±0.25 Vdc

VG Style 3.30±0.125 Vdc

Supply Current:

AG Style 30 mA maximum

VG Style 30 mA maximum

Logic Output Characteristics:

AG Style - Logic high no less than 3.0 Vdc Logic

low shall be no greater than 1.0 Vdc

VG Style - Logic high no less than 2.0 Vdc

Logic low shall be no greater than 1.0 Vdc

Output: Open Collector Phototransistor

Optical Rise Time: 30ms maximum

Optical Fall Time: 30ms maximum

Pushbutton Electrical and Mechanical Specifications
Rating: 10 mA @ 5 Vdc

Contact Resistance: <10 Ω (Compatible with CMOS or TTL)

Life: 1 million actuations minimum

Contact Bounce: <4 ms make, <10ms break

Actuation Force: 5 = 510±150 grams,

9 = 950±200 grams

Shaft Travel: .017 ± .008 INCH

Materials and Finishes
Bushing: Zamak 2

Shaft: Zamak 2

Shaft and Panel Seals: Silicone Rubber

Detent Rotor: Reinforced Nylon Zytel 70G33L UL 94

ORDERING INFORMATION
Available from your local Component Grayhill Distributor.

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

