

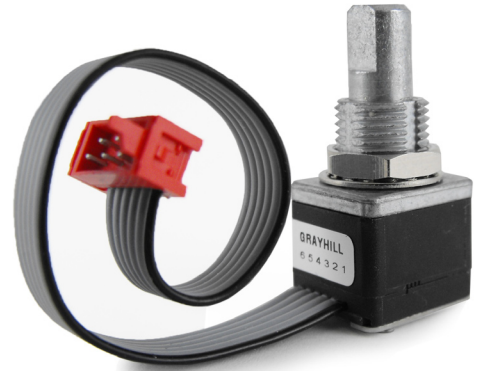
SERIES 62AG
Price Competitive Solution

FEATURES

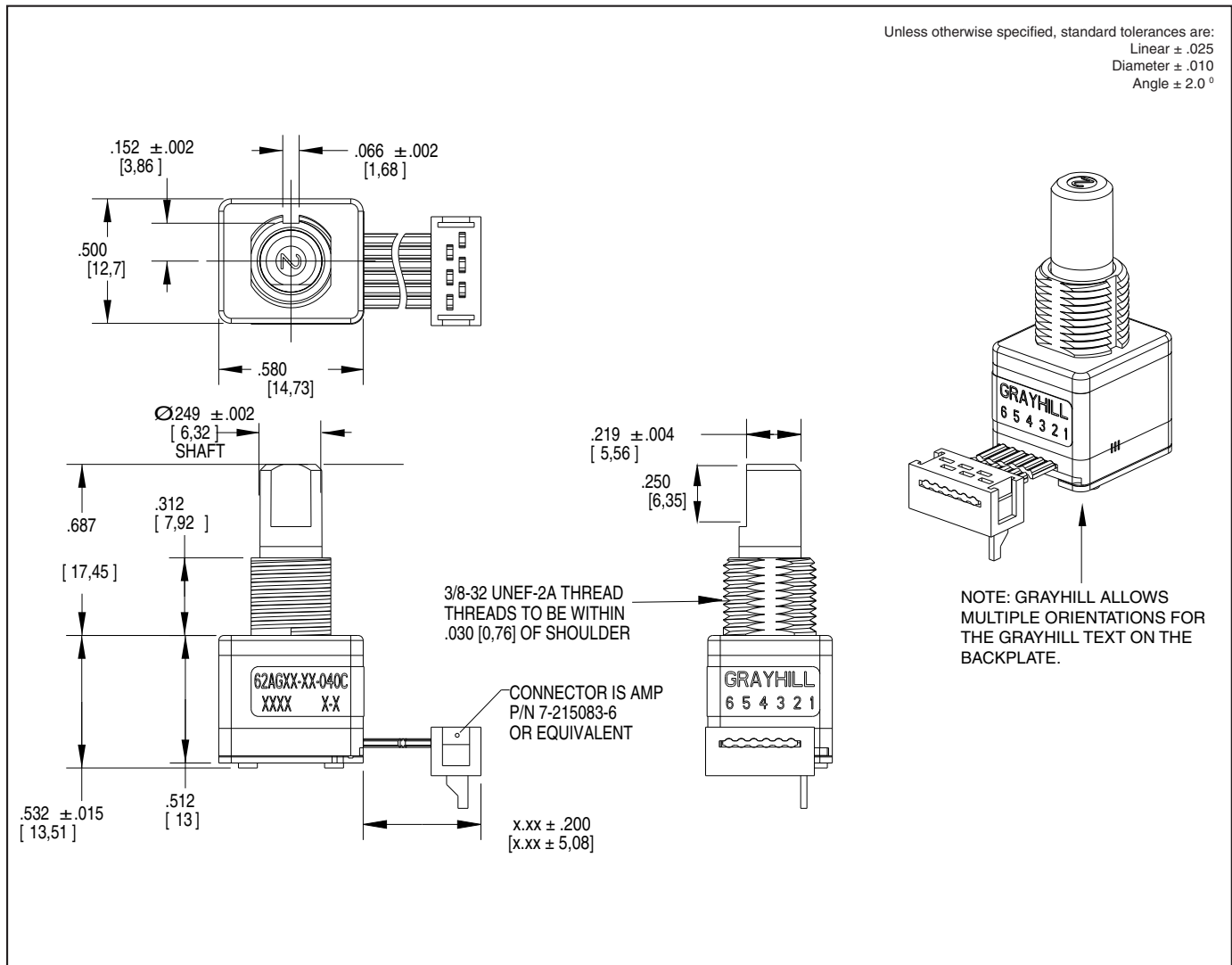
- Over 1 million rotational cycles
- 2-bit gray code output
- Quadrature coding
- Available in 16, 20, 24 and 32 detent positions
- Choices of cable length and terminations
- Available for 5Vdc and 3.3Vdc
- Optional integrated pushbutton
- Patented light pipe technology
- Cost competitive with mechanical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

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)



Optical and Mechanical Encoders

WAVEFORM AND TRUTH TABLE

Standard 5.0V (Style AG)

Standard 3.3V (Style VG)

WAVEFORM (CW ROTATION)

CW ROTATION

TRUTH TABLE (CW ROTATION)

POSITION	OUTPUT A	OUTPUT B
1		
2	●	
3	●	●
4		●

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.

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.

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.

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

Detent Rotor: Reinforced Nylon Zytel 70G33L UL 94
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.

Optical and Mechanical Encoders

62AGXX-XX-XXXX

Series
 Style: AG = 5.0V; VG = 3.3V
 Angle of Throw: 11 = 11.25° code change and 32 detent positions; 15 = 15° code change and 24 detent positions
 18 = 18° code change and 20 detent positions; 22 = 22.5° code change and 16 detent positions

Rotational Torque Option: L = Low Torque, H = High Torque
 Pushbutton Option: 0 = No pushbutton, 5 = 510 grams, 9 = 950 grams

Termination:
 C = .050 Center Ribbon Cable with connector, S = .050 Center Ribbon Cable with .100 stripped end,
 P = .050 Center Pins with 0.185 inch length

Cable Length:
 020 = 2.0 inch cable, 030 = 3.0 inch cable, 040 = 4.0 inch cable, 050 = 5.0 inch cable, 060 = 6.0 inch cable

Available from your local Grayhill Distributor. For prices and discounts, contact a local sales office, an authorized distributor, or Grayhill.