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)

Unless otherwise specified, standard tolerances are:
- Linear ± .025
- Diameter ± .010
- Angle ± 2.0°
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)**

**Standard 3.3V (Style VG)**

**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.
  - VG Style - Logic high no less than 2.0 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:**
- 100 rpm.

**Maximum rotational speed:**
- 160 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, <10 ms 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.

**Light Pipe:**
- Lexan, GE

**Code Rotor:**
- Delrin 100

**Housing, Lower:**
- Nylon 6/6 25% glass reinforced.

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

**Hex Nut:**
- Brass, Plated with nickel

**Lockwasher:**
- Zinc Plated 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.

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