

SERIES 68P

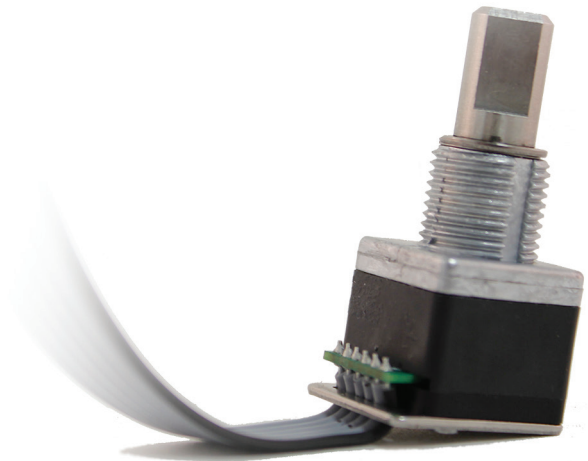
Long Life Potentiometer Substitute

FEATURES

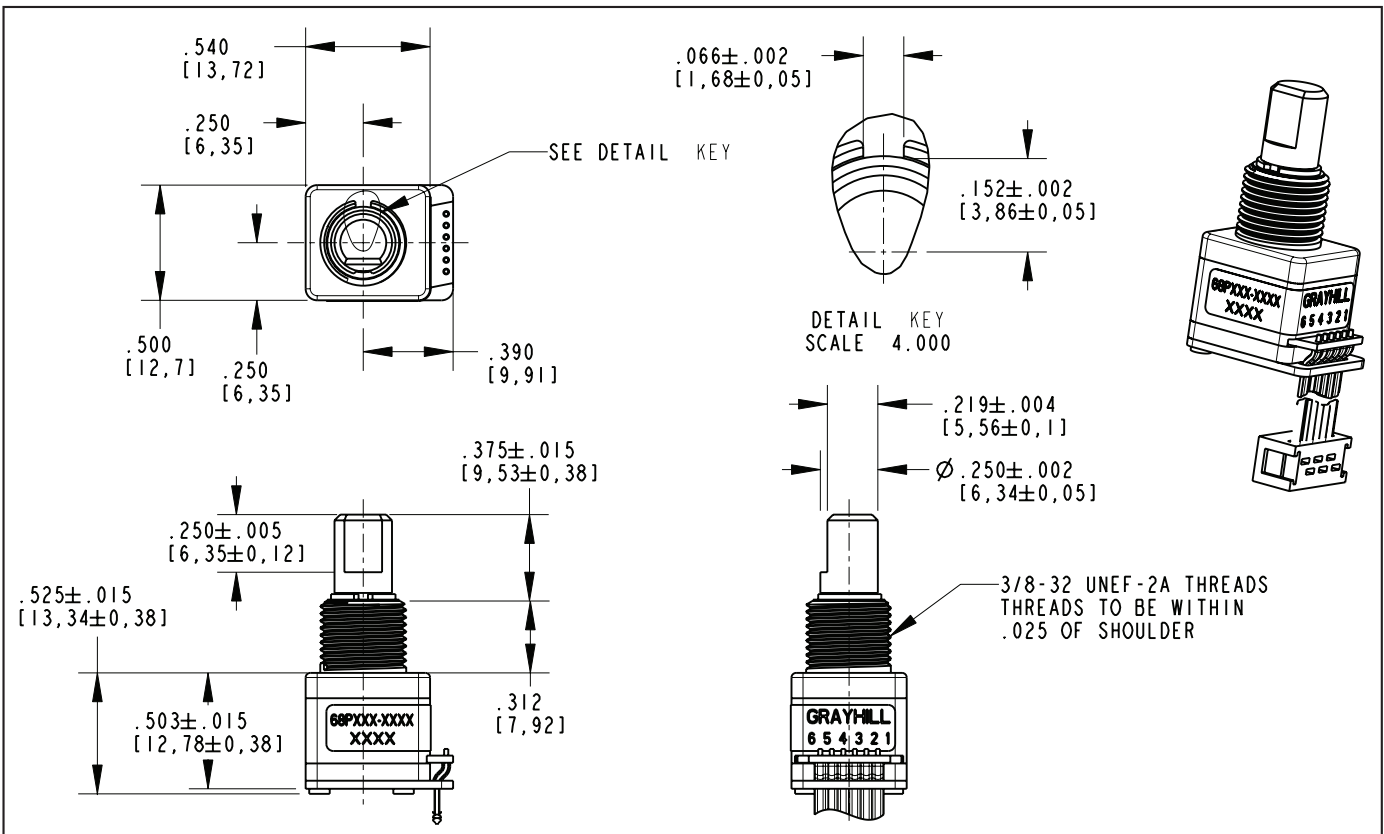
- Ratiometric analog output
- Debris resistant Hall effect sensor technology
- 3 million rotational cycles
- Single or redundant output
- Custom output options

APPLICATIONS

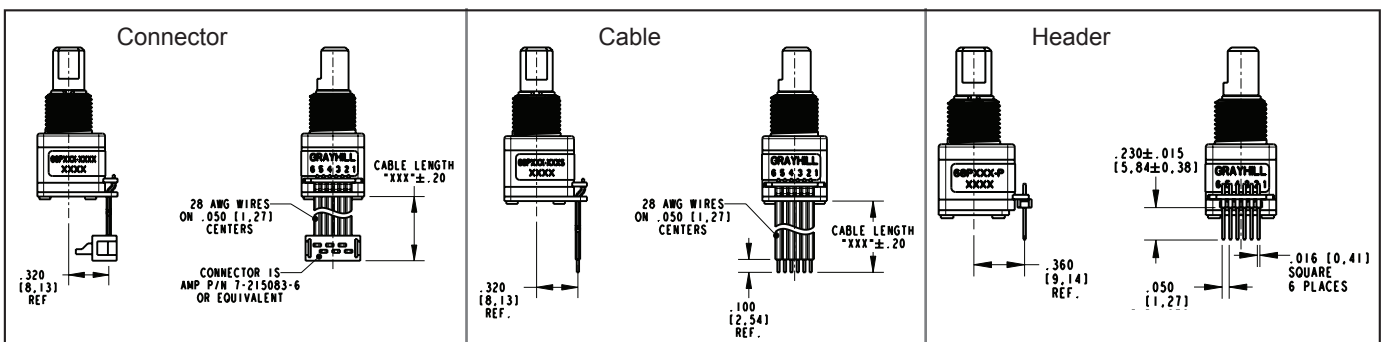
- Test & Measurement equipment
- Audio / Visual equipment
- Agriculture & Construction throttle control
- Potentiometer substitute with long life



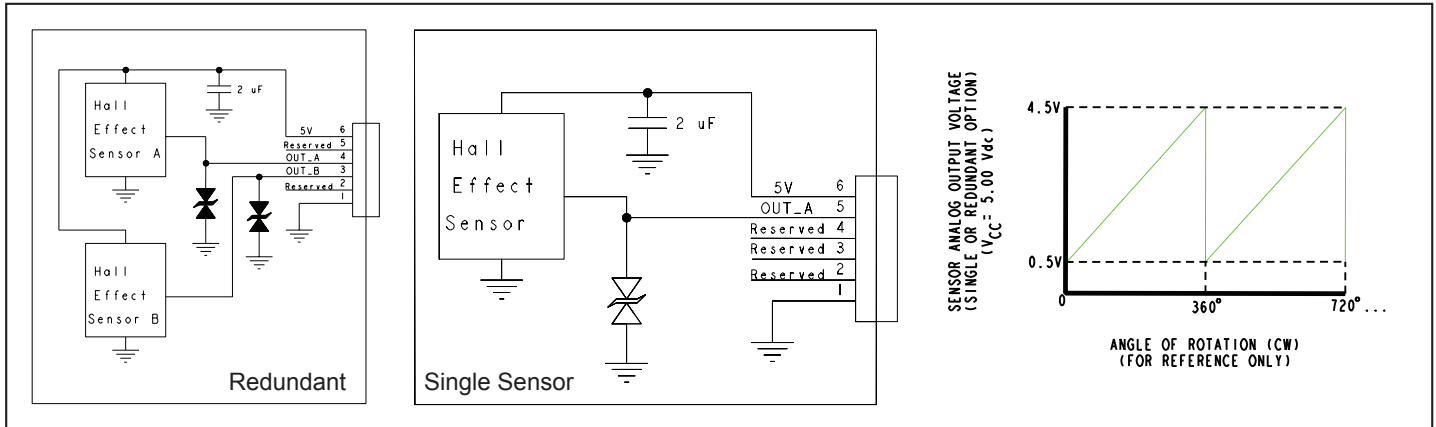
DIMENSIONS in inches [millimeters]



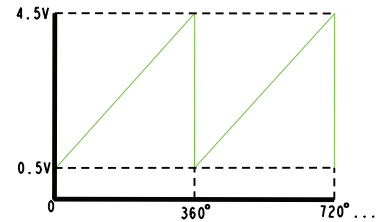
TERMINATION OPTIONS



ELECTRICAL SCHEMATIC



SENSOR ANALOG OUTPUT VOLTAGE
(SINGLE OR REDUNDANT OPTION)
($V_{CC} = 5.00 \text{ Vdc}$)



ANGLE OF ROTATION (CW)
(FOR REFERENCE ONLY)

* Customized electrical outputs are available. Contact Grayhill for additional details.

SPECIFICATIONS

Electrical Ratings

Operating Voltage: Minimum 4.5V, maximum 5.5V (VDD)

Supply Current Redundant Sensors: Typical 22mA, maximum 40mA

Supply Current Single Sensor: Typical 11mA, maximum 20mA

Isource: 6mA (Vout Error $\leq 1\%$)

Isink: -6mA (Vout Error $\leq 1\%$)

Power-Up Time: 10ms

System Propagation Delay: 100 μs

Output Leakage Current: Minimum -20 μA , maximum 20 μA

DC Supply Voltage @ PIN VDD

Overvoltage: Minimum -18V, maximum 27V

Sensor Error: When an internal sensor error occurs, the output goes to $\leq 4\%$ of supply (VDD)

EMC Ratings

Radiated Immunity: IEC 61000-4-3

Conducted Immunity: IEC 61000-4-6

Radiated Emissions: ANSI C63.4

Conducted Emissions: EN 55022

Electrostatic Discharge: IEC 61000-4-2

Power Frequency Magnetic Field:

Tested per IEC 61000-4-8

Physical & Mechanical Ratings

Mechanical Life: 3,000,000 cycles of operation. 1 cycle is a rotation through all positions and a full return

Average Rotational Torque: 1.5 in-oz maximum

Maximum rotational speed: 100 rpm

Mounting Torque: 15 in-lbs. maximum

Shaft Pushout / Pullout Force: 45 lbs. / 45 lbs. minimum

Terminal Strength: 15 lbs. minimum. Cable or Header pullout force

Solderability: 95% free of pin holes & voids

Environmental Ratings

Operating Temperature: -40°C to 85°C

Storage Temperature: -55°C to 100°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: IP67, Meets IEC 60529

Materials and Finishes

Bushing: Zamak 2

Shaft: Stainless Steel

Housing: Zytel FR - 50; Glass Reinforced Nylon 6/6

Hex Nut: Nickel plated brass

Washers: 302 Stainless Steel

Shaft Seal: Silicone

Panel Seal: Silicone

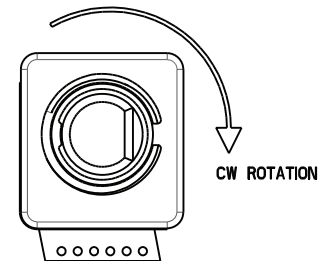
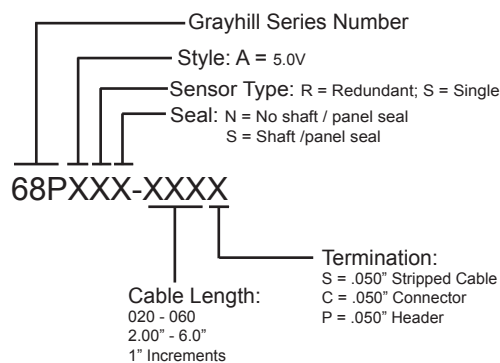
Header Pins: Tin plated phosphate bronze

Lockwasher: Spring steel, zinc plate with clear trivalent chromate finish

Cable: Copper stranded with topcoat in PVC

Encoder has ratiometric analog output (output levels are proportional to the supply voltage). Specifications on this datasheet apply @ VDD = 5.00 V.

ORDERING INFORMATION



0° POSITION
(SHAFT FLAT AND BUSHING
KEYWAY ALIGNED AS SHOWN)

For prices and custom configurations, contact a local sales office, an authorized distributor, or Grayhill's sales department.