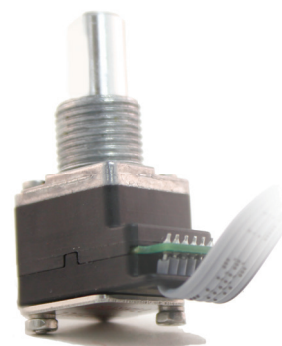


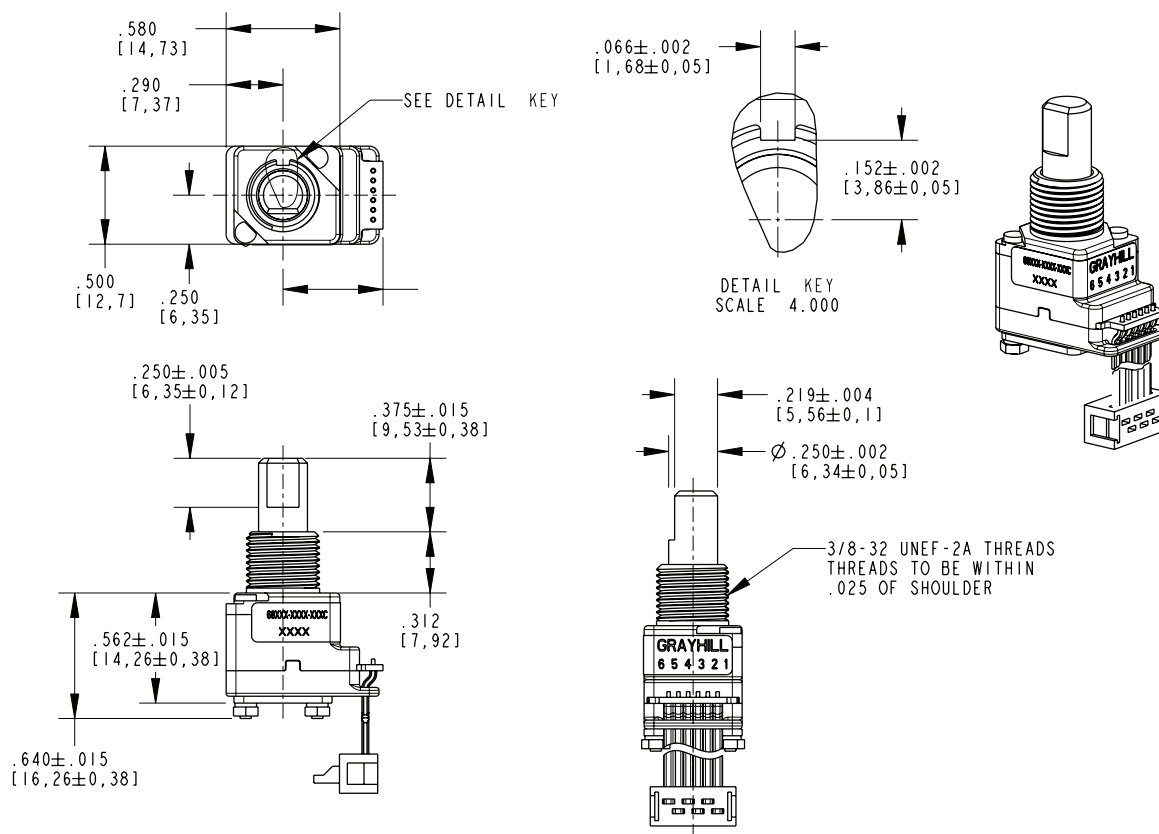
Hall Effect Encoder

- Quadrature Output - choice of open collector or push / pull
- Debris resistant hall effect sensor technology
- Over 1 million rotational cycles
- Integrated pushbutton
- Low power consumption
- Reverse voltage protection
- Choice of cable lengths and termination
- Available in 5Vdc and 3.3Vdc
- High torque version available

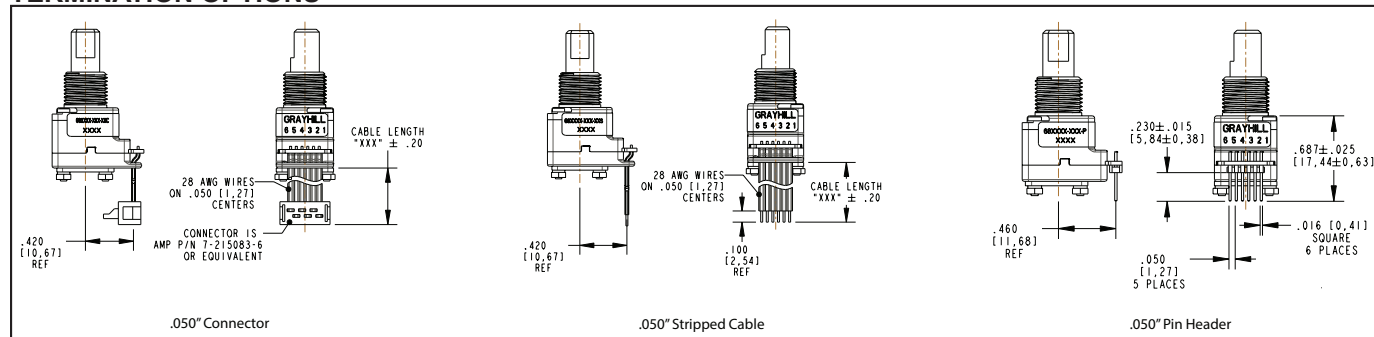
- Automotive
- Medical
- Test & Measurement
- Audio / Visual
- Agriculture & Construction



DIMENSIONS in inches (and millimeters)

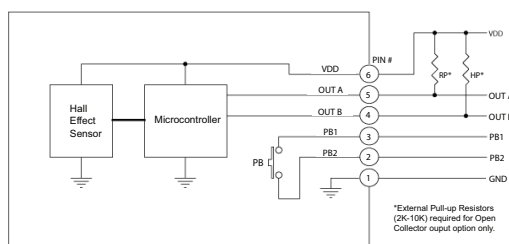


TERMINATION OPTIONS

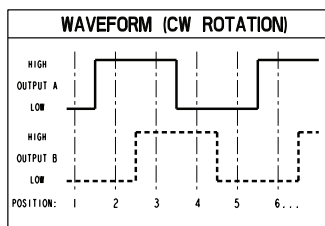


SCHEMATICS, WAVEFORM, AND TRUTH TABLE

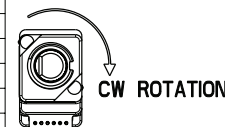
FIG. 1 - 68A ELECTRICAL CONNECTION DIAGRAM



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



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: -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.

Electrical Specifications

Operating Voltage: Minimum 3.0 V, maximum 3.6 V (3.3V Style); minimum 4.5 V, maximum 5.5 V (5V Style)

Absolute Maximum Voltage on VDD pin:

Maximum 4.0V for 3.3V style, 6.5V for 5V style, minimum -0.3V for both styles

VDD Rise Rate (min): 0.05 V/ms (Ensures proper start-up at power-up).

Avg Supply Current for 3.3V Style: Typical: 1.2 mA, Maximum: 2.0 mA (at 3.30 V)

Peak Supply Current for 3.3V Style: 12 mA (at 3.30 V)

Avg Supply Current for 5V Style: Typical: 1.8 mA, Maximum: 3.0mA (at 5.00 V)

Peak Supply Current for 5.0V Style: 12 mA (at 5.00 V)

Output Low Voltage: 0.6V maximum for IOL = 4mA, VDD = 3.3V and for IOL = 4mA, VDD = 5.0V

Output High Voltage (Push-Pull Outputs Only):

2.6V minimum for IOH = -2mA, VDD = 3.3V, 4.3V minimum for IOH = -2mA, VDD = 5.0V

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

Voltage on Pins 4 or 5 W/ Respect to Gnd:

Minimum -0.3V, maximum VDD + 0.3V

Power-Up Time: A & B outputs valid 120 ms (max)

after VDD reaches 3.0 V (3.3 V Style) or 4.5 V (5V Style).

Mechanical Specifications

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

Average Rotational Torque:

Low Detent = 2.0±1.4 in-oz initially

High = 3.5±1.4 in-oz initially

50% of initial value after 1 million cycles

Non-Detented: 1.5 in-oz maximum

Maximum rotational speed: 100 rpm

Mounting Torque: 15in-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

Pushbutton Electrical and

Mechanical Specifications

Electrical Ratings: 6.0 V max, 10 mA, Resistive

Contact Resistance: <10 Ω

Contact Bounce: <4 mS make,

<10mS break

Actuation Force: 5 = 1150 ± 300g

Pushbutton Travel: .017 ± .008in

Pushbutton Life Expectancy: 1 million actuations minimum

Voltage on Pins 2 or 3 W/ Respect to Gnd:

Minimum -0.3V, maximum 6.0V

Materials and Finishes

Bushing: Zamak 2

Shaft: Aluminum

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

Studs: Stainless steel

Shaft & Panel Seal: Silicone

Lockwashers: Stainless steel

Cable: Copper stranded with topcoat in PVC insulation (Cable version only)

Header Pins: Tin plated phosphorus bronze

Hex Nut: Nickel plated brass

Backplate: Stainless steel

EMC Ratings

Radiated Immunity:

Tested per IEC 61000-4-3

Conducted Immunity:

Tested per IEC 61000-4-6

Radiated Emissions: Tested per ANSI C63.4

Conducted Emissions:

Tested per EN 55022

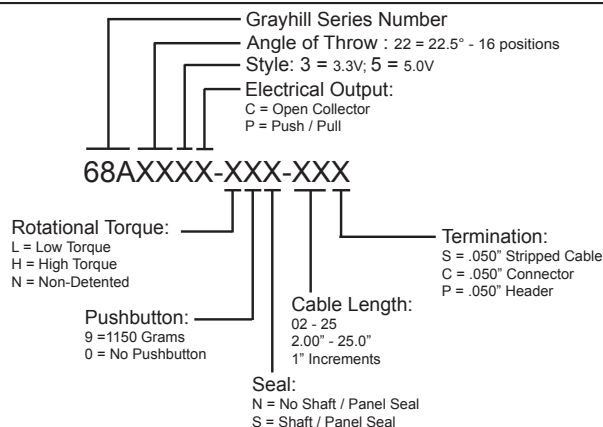
Electrostatic Discharge:

Tested per IEC 61000-4-2

Power Frequency Magnetic Field:

Tested per IEC 61000-4-8

ORDERING INFORMATION



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