



## SERIES 61K

### High Resolution, 4-Pin

#### FEATURES

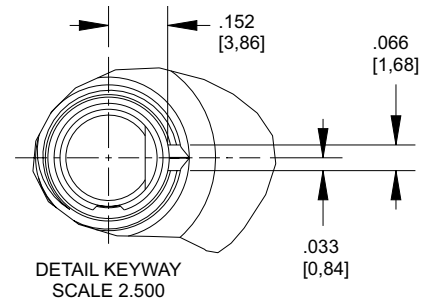
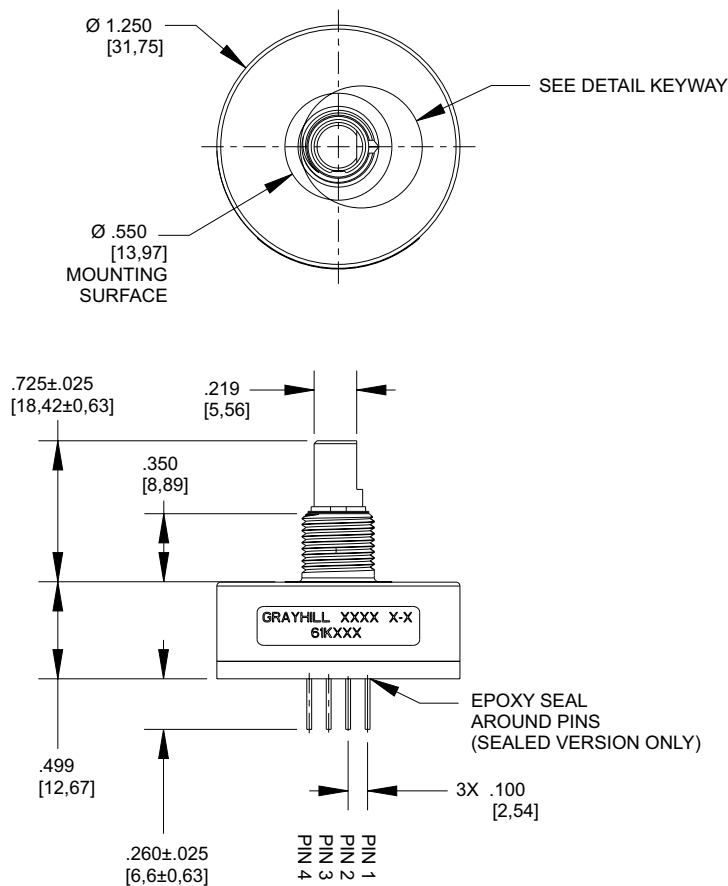
- Debris resistant Hall-effect sensor technology
- 25, 32, 50, 64, 100, 128, and 256 cycles per revolution available
- Sealed version available
- Rugged construction
- Cable or pin versions
- 10 million rotational life cycles
- 300 RPM shaft rotation



#### DIMENSIONS in inches [and millimeters]

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

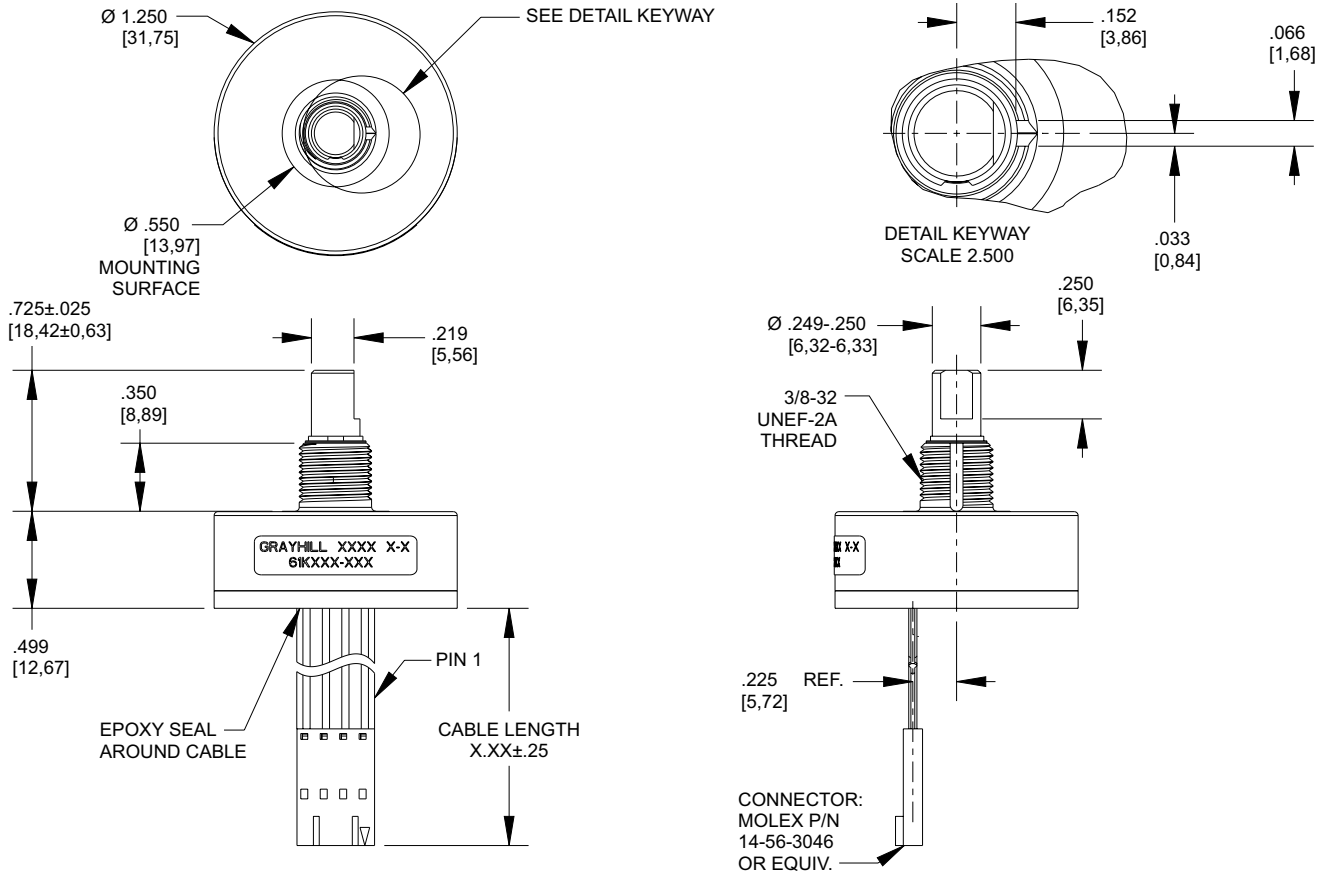
#### Pin Version



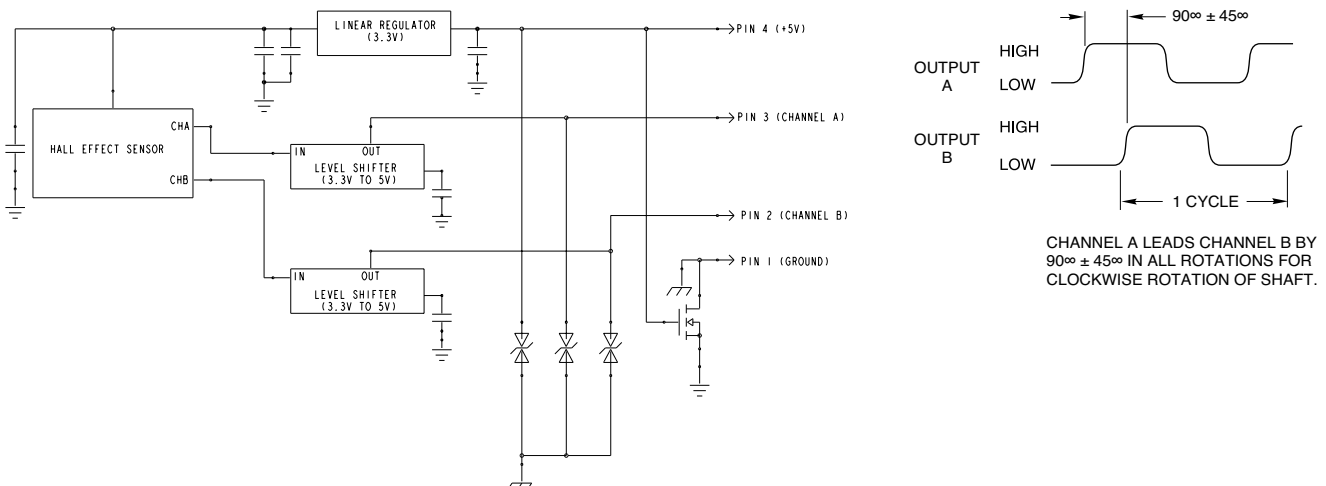
## DIMENSIONS in inches [and millimeters]

### Cable Version

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



## CIRCUITRY, TRUTH TABLE, AND WAVEFORM: Standard Quadrature 2-Bit Code



## SPECIFICATIONS

### Electrical Ratings

Operating Voltage	5.0±.25 Vdc
Supply Current	20 mA maximum at 5 Vdc
Logic Output Characteristics	Logic High: $V_{OH} = 4.5 V_{dc}$ min at $V_{CC} = 4.75 V_{dc}$ at 1 mA load Logic Low: $V_{OL} = 0.5 V_{dc}$ max at $V_{CC} = 5.25 V_{dc}$ at 1 mA load
Output Type	Push-pull output
Output Rise/Fall Time	100 nS max
Output Sink Current	8 mA minimum at output voltage of 0.35 V
Output Source Current	-8 mA minimum at output voltage of 3.95 V

### Environmental Ratings

Operating Temperature Range	-40 °C to 85 °C
Storage Temperature Range	-55 °C to 100 °C
Relative Humidity	90-95% at 40 °C for 96 hours
Vibration Resistance	Harmonic motion with amplitude of 15 g, within a varied 10 to 2000 Hz frequency for 12 hours per MIL-STD-202, Method 204
Mechanical Shock	Test 1: 100 g for 6 mS, half-sine wave with velocity change of 12.3 ft/s Test 2: 100 g for 6 mS, sawtooth wave with velocity change of 9.7 ft/s
Shaft Seal	IP67 above panel (sealed version only)

### Mechanical Ratings

Mechanical Life	10 million revolutions
Mounting Torque	20 in-lbs max
Shaft Push Out Force	100 lbs
Terminal Strength	5 lbs terminal pull-out force min
Solderability	95% free of pin holes and voids
Operating Torque	1.5 in-oz max (no detents) for unsealed versions

### Materials and Finishes

Bushing	Aluminum
Code Housing	Hiloy 610B
Shaft	Stainless steel
Retaining Ring	Stainless steel
Printed Circuit Board	NEMA grade FR-4
Backplate	Polyester
Header	Phosphor bronze, 200 microinches tin over 50 microinches nickel (pin version only)
Cable	26 AWG, stranded/tinned wire, PVC coated on .100 (2,54) centers (cable version only)
Magnet	N-35SH sintered NdFeB

## ACCESSORIES DIMENSIONS in inches [and millimeters]

### Non-Turn Washer

The Series 61 bushing is .375" in diameter and has a non-turn keyway to prevent rotation of the switch body when the panel is cut to fit. Another way to keep the switch from turning is to use a non-turn washer. The washer is cadmium-plated brass.

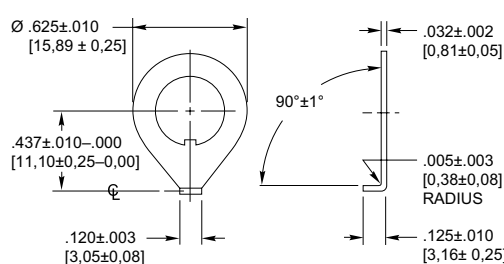
#### Part Number: 12C1087-1

Part Number: SHH694-11,  
302-2B stainless steel, no plating

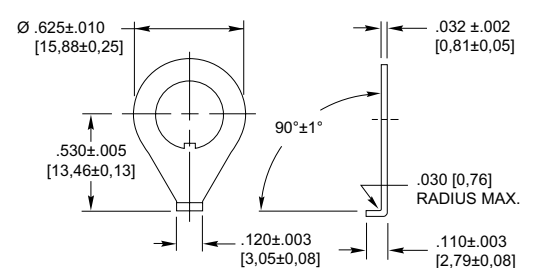
### Shaft and Panel Seal

For shaft and panel seal version, the shaft is sealed by an o-ring inside the bushing. The panel is sealed by a flat gasket .045" thick at the base of the bushing. The panel seals will increase the behind panel dimension by .020" to .040", when the switch is mounted. The panel seal is silicon rubber.

#### Part Number: 12C1087-1



#### Part Number: SHH694-11



## ORDERING INFORMATION

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

