



# Optical Encoders

## SERIES 62S Compact 1/2" Package

### FEATURES

- Compact Size
- Requires Minimal Behind Panel Space
- 1 Million Rotational Cycles for Low and Medium Torque, 1/2 Million for High
- 3 Million Rotations for Non-Detent Styles
- Optional Integral Pushbutton
- Choices of Cable Length and Terminations

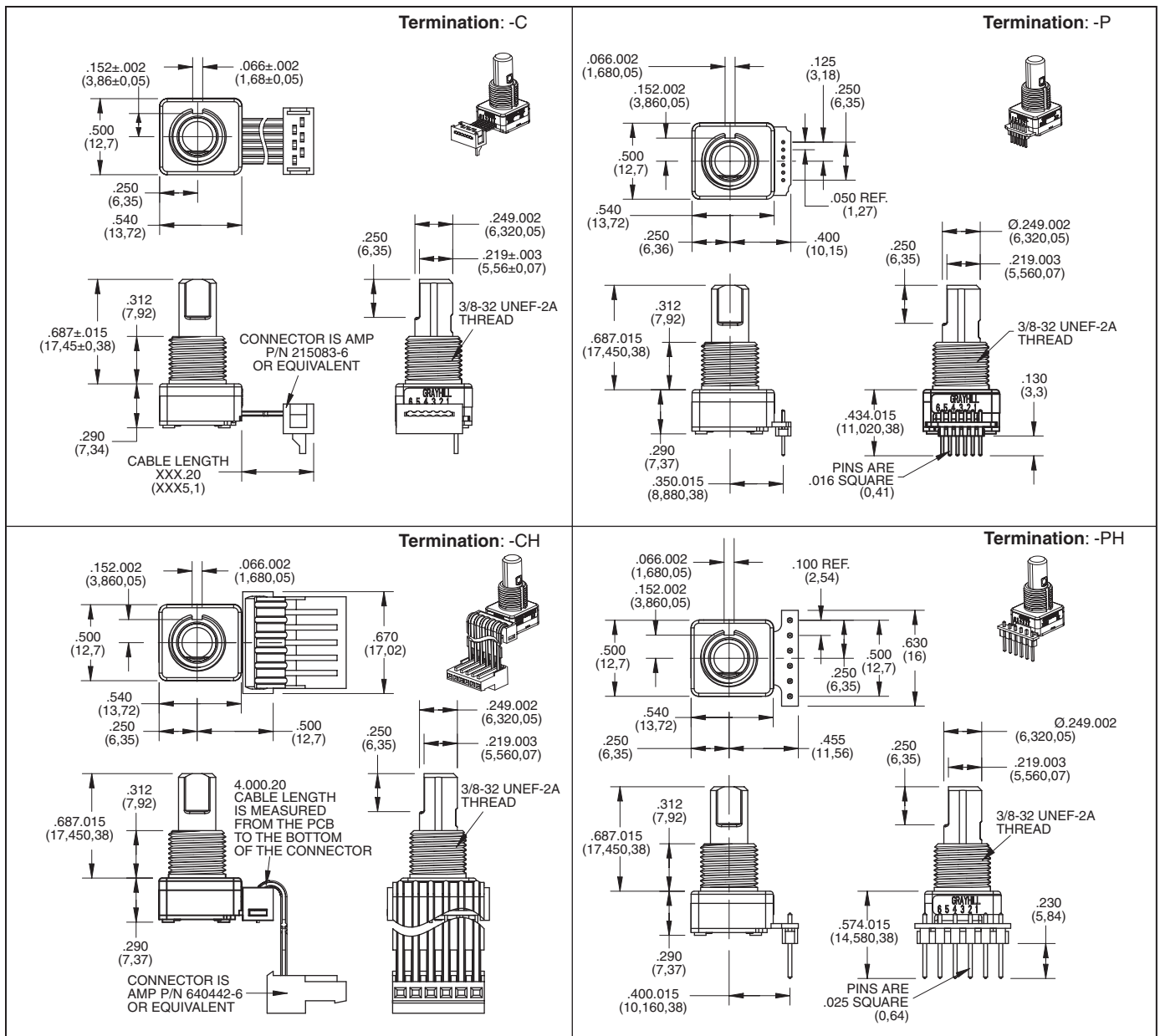
### APPLICATIONS

- Global Positioning/Driver Information Systems
- Medical Equipment

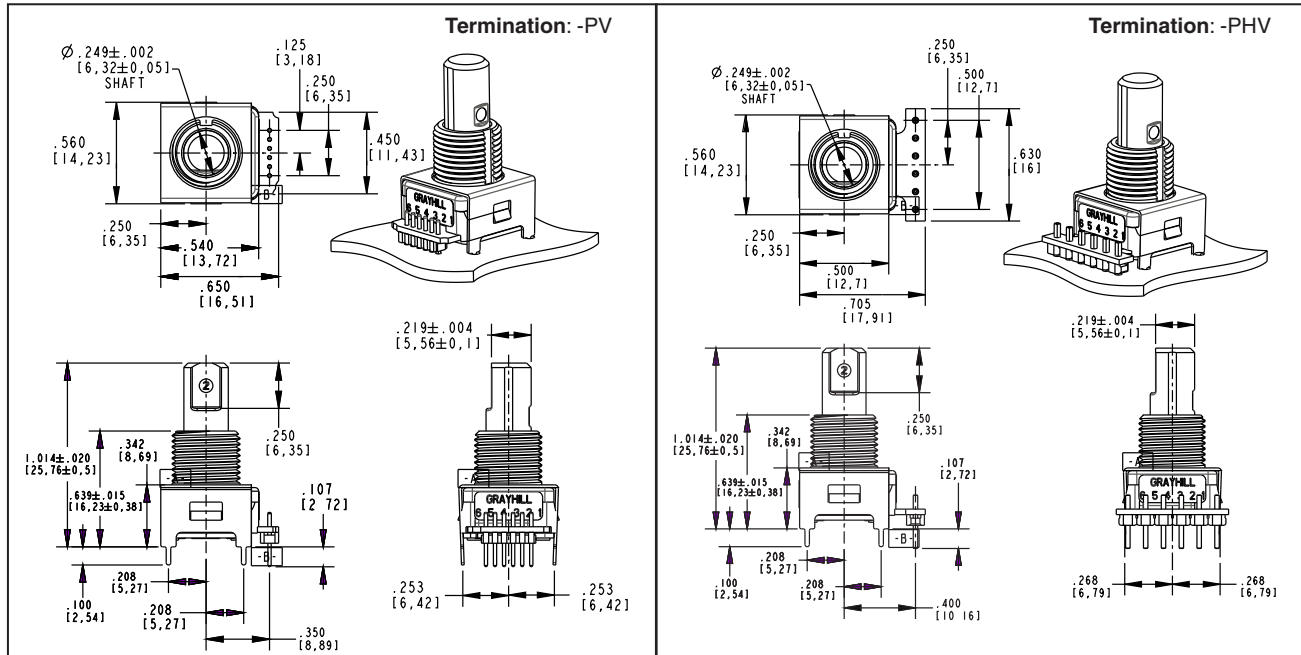


### DIMENSIONS in inches (and millimeters)

Unless otherwise specified, standard tolerance is  $\pm 0.010$  (0,25)



Optical and Mechanical Encoders



## SPECIFICATIONS

### Environmental Specifications

**Operating Temp. Range:** -40°C to 85°C

**Storage Temp. Range:** -55°C to 100°C

**Humidity:** 96 Hours at 90–95% humidity at 40°C

**Mechanical Vibration:** Harmonic motion with amplitude of 15G's, within a varied frequency of 10 to 2000 Hz

**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:** 5.00 ±0.25 Vdc

**Supply Current:** 25mA max at 5.25Vdc

**Output:** Open collector phototransistor, external pull up resistors are required

**Output Code:** 2-Bit quadrature, channel A leads channel B by 90° electrically during clockwise rotation of the shaft

#### Logic Output Characteristics:

Logic High shall be no less than 3.8 Vdc

Logic Low shall be no greater than 0.8Vdc

**Minimum Sink Current:** 2.0 mA

**Power Consumption:** 132mW maximum (includes power in 2 pull-up resistors)

#### Mechanical Life:

Non-Detent 3 Million Cycles

Low & Medium 1 Million Cycles

High 1/2 Million Cycles

1 cycle is a rotation through all positions and a full return

Torque shall be within 50% of initial value throughout life

**Mounting Torque:** 15 in-lbs maximum

**Shaft Push-Out Force:** 45 lbs minimum

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**Terminal Strength:** 15 lbs minimum terminal

pull-out force for cable or header termination

**Solderability:** 95% free of pin holes and voids

### Pushbutton Electrical & Mechanical Specifications

**Rating:** 10 mA at 5 Vdc

**Contact Resistance:** <10Ω

**Life:** 3 million actuations minimum

**Contact Bounce:** <4 ms Make, <10 ms Break

**Actuation Force:** 9-950±150 grams, 5-510±150 grams, 4-400±100 grams, 3-300±90 grams, 2-200±75 grams

**Shaft Travel:** .025±.010 inch

### Materials and Finishes

**Bushing:** Zamak 2

**Shaft:** Aluminum or Zamak 2

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

**Connector (.050 Center):** PA4.6 with tin over nickel plated phosphor bronze

**Connector (.100 Center):** Nylon UL94V-2, tin plated copper alloy

**Solder:** Sn/Ag/Cu, Lead-Free, No Clean

**Hex Nut:** Nickel, plated with brass

**Lockwasher:** Zinc Plated Spring Steel with Clear Trivalent Chromate Finish

**Header:** Hi-Temp glass filled thermoplastic UL94V-0, phosphor bronze (pin versions only)

**Strain Relief:** Glass filled thermoplastic (.100 center cable versions only)

This product series is ROHS Compliant.

### OPTIONS

Contact Grayhill for custom terminations, shaft and bushing configurations, rotational torque pushbutton force, and code output.