



Optical Encoders

SERIES 62HS High Torque

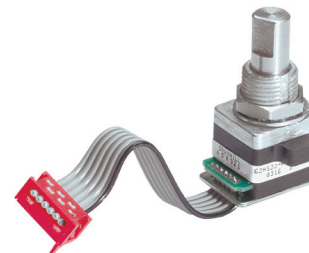
FEATURES

- High Rotational Torque Provides Positive Tactile Feedback
- Optically Coupled for More than a Million Cycles
- Optional Integral Pushbutton
- Compatible with CMOS, TTL and HCMOS Logic

- Available in 8, 12 and 16 Detent Positions
- Choice of Cable Length and Terminations

APPLICATIONS

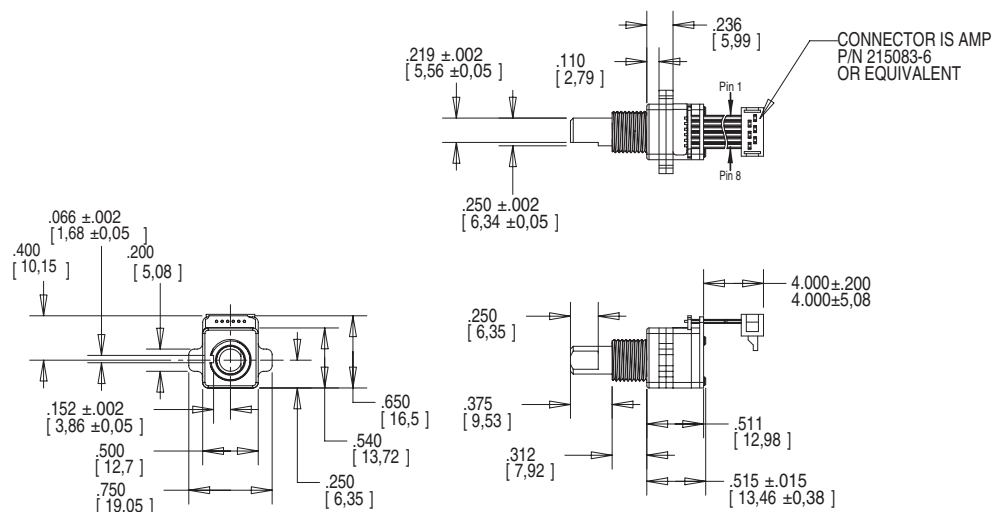
- Avionics



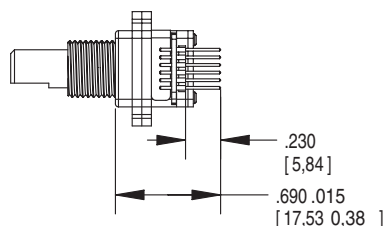
DIMENSIONS in inches (and millimeters)

Unless otherwise specified, standard tolerance is ± 0.010 (0,25).

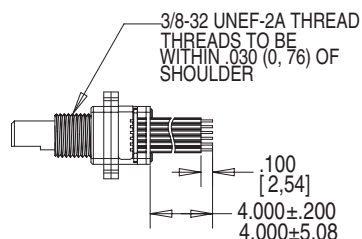
Cable Version



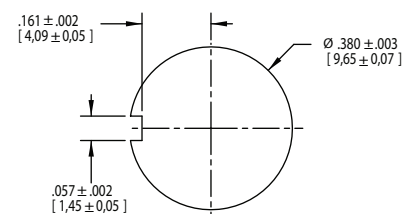
Pin Version



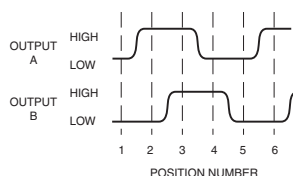
Stripped Version



Suggested Mounting Panel Cutout



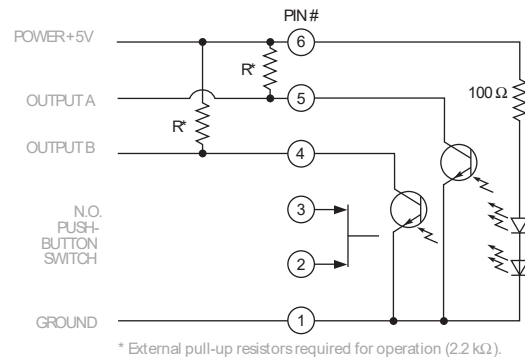
WAVEFORM AND TRUTH TABLE



Clockwise Rotation		
Position	Output A	Output B
1		
2	●	
3	●	●
4		●

- Indicates logic high; blank indicates logic low. Code repeats every 4 positions.

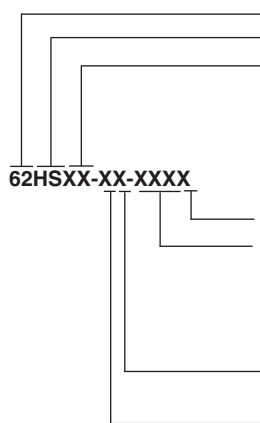
CIRCUITRY



SPECIFICATIONS

Pushbutton Switch Ratings**Rating:** at 5 Vdc, 10 mA, resistive**Contact Resistance:** less than 10 ohms (TTL or CMOS compatible)**Pushbutton Life:** 3 million actuations minimum**Voltage Breakdown:** 250 Vac between mutually insulated parts**Contact Bounce:** less than 4 mS at make and less than 10 mS at break**Actuation Force:** 1100 ±300g**Shaft Travel:** .025+/- .010 inch**Encoder Ratings****Coding:** 2-bit quadrature coded output**Operating Voltage:** 5.0 ±.25 Vdc**Supply Current:** 30 mA maximum @ 5.0 Vdc**Logic Output Characteristics:****Logic High:** 3.0 Vdc minimum**Logic Low:** 1.0 Vdc maximum**Mechanical Life:** 1,000,000 cycles minimum (One cycle is a rotation through all positions and a full return)**Minimum Sink Current:** 2.0 mA for 5 Vdc**Power Consumption:** 150mW maximum**Output:** open collector phototransistor**Logic Rise and Fall:** less than 30 mS max**Operating Torque:** 5.0 in-oz +/- 1.5 in-oz initial**Shaft Push Out Force:** 45 lbs minimum**Mounting Torque:** 15 in-lbs maximum**Terminal Strength:** 15 lbs cable pull-out force minimum**Operating Speed:** 100 RPM maximum**Environmental Ratings****Operating Temperature Range:** -40°C to 85°C**Storage Temperature Range:** -55°C to 100°C**Vibration Resistance:** Harmonic motion with amplitude of 15G, within a varied 10 to 2000 Hz frequency for 12 hours**Mechanical Shock:** Test 1: 100G, 6 mS, half sine, 12.3 ft/s; Test 2: 100G, 6 mS, sawtooth, 9.7 ft/s**Relative Humidity:** 90–95% at 40°C for 96 hours**Materials and Finishes****Code Housing:** Reinforced thermoplastic**Shaft:** Stainless steel**Bushing:** Zinc casting**Shaft Retaining Ring:** Stainless steel**Detent Spring:** High carbon steel**Detent Ball:** Stainless steel**Detent Section:** Hiloy 610**Printed Circuit Boards:** NEMA grade FR-4 gold over nickel or palladium**Terminals:** Brass, tin-plated**Mounting Hardware:** One brass, nickel-plated nut and zinc-plated spring steel with clear trivalent chromate finish lockwasher supplied with each switch. (Nut is 0.094 inches thick by 0.433 inches across flats)**Rotor:** Thermoplastic**Pushbutton Dome:** Stainless steel**Phototransistor:** Planar Silicon NPN**Infrared Emitter:** Gallium aluminum arsenide**Flex Cable:** 28 AWG, stranded/top coated wire, PVC coated on .050" centers (cabled version)**Header Pins:** Brass, tin-plated**Spacer:** Hiloy 610**Shim:** Stainless Steel**Backplate/Strain Relief:** Stainless steel

ORDERING INFORMATION

**Series****Style:** HS = High Torque**Angle of Throw:** 45 = 45° or 8 positions, 30 = 30° or 12 positions, 22 = 22.5° or 16 positions**Termination:** S = stripped cable, C = connector, P = pins**Cable Termination:** 040 = 4.0in. Cable is terminated with

Amp P/N 215083-6. See Amp Mateability Guide for mating connector details.

*Eliminate cable length if ordering pins. (Ex: 62HS22-H9-P)

Pushbutton Option: 0 = w/o pushbutton, 9 = 1100g**Rotational Torque:** H = High Torque