

# SERIES 62HGS

## 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

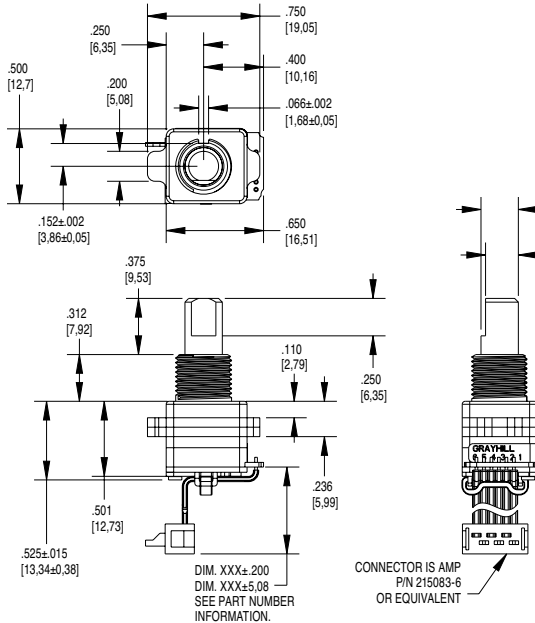
- Avionics
- Agriculture and Construction
- Military



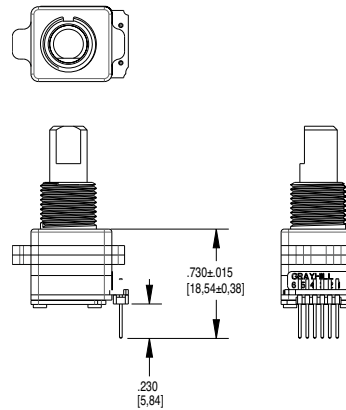
### DIMENSIONS in inches (and millimeters)

Unless otherwise specified, standard tolerance is  $\pm .010$  (0,25)

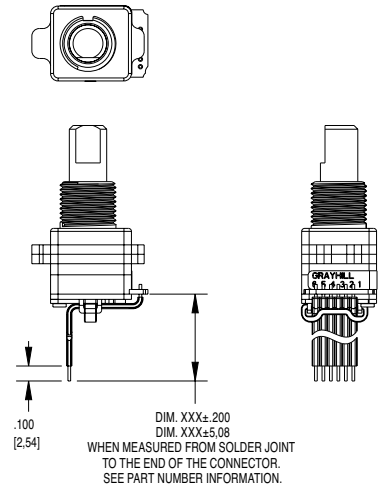
#### Cable Version



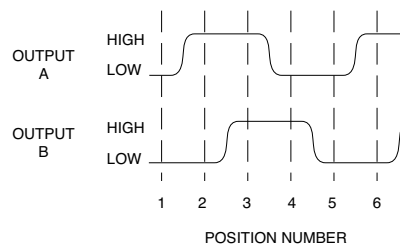
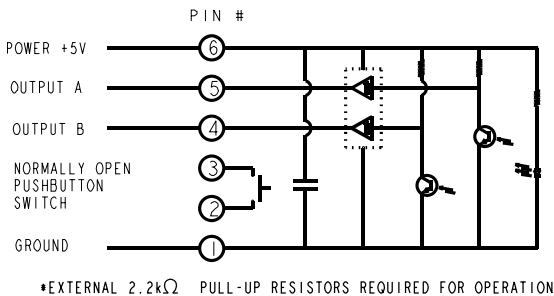
#### Pin Version



#### Stripped Version



### CIRCUITRY, WAVEFORM, AND TRUTH TABLE



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

○ Indicates logic low  
 ● Indicates logic high  
 Code repeats every four positions.

Specifications are subject to change.

## SPECIFICATIONS

### Pushbutton Switch Ratings

<b>Rating</b>	At 5 Vdc, 10 mA, resistive
<b>Contact Resistance</b>	Less than 10 ohms (TTL or CMOS compatible)
<b>Pushbutton Life</b>	1 million actuations minimum
<b>Voltage Breakdown</b>	250 Vac between mutually insulated parts
<b>Contact Bounce</b>	Less than 4 mS at make and less than 10 mS at break
<b>Actuation Force</b>	1100±300 g
<b>Shaft Travel</b>	.025±.010 inch

### Encoder Ratings

<b>Coding</b>	2-bit quadrature coded output
<b>Operating Voltage</b>	5.0±.25 Vdc
<b>Supply Current</b>	30 mA maximum @ 5.0 Vdc
<b>Logic Output Characteristics</b>	Logic High: 3.0 Vdc minimum Logic Low: 1.0 Vdc maximum
<b>Mechanical Life</b>	1,000,000 cycles minimum <i>1 cycle is a rotation through all positions and a full return</i>
<b>Minimum Sink Current</b>	2.0 mA for 5 Vdc
<b>Power Consumption</b>	150 mW maximum
<b>Output</b>	Push-pull phototransistor
<b>Logic Rise and Fall</b>	Less than 30 mS max
<b>Operating Torque</b>	5.0 in-oz±1.5 in-oz initial
<b>Shaft Push-Out Force</b>	45 lbs minimum
<b>Mounting Torque</b>	15 in-lbs maximum
<b>Terminal Strength</b>	15 lbs cable pull-out force minimum
<b>Operating Speed</b>	100 RPM maximum

### Environmental Ratings

<b>Operating Temperature Range</b>	-40 °C to 85 °C
<b>Storage Temperature Range</b>	-55 °C to 85 °C
<b>Vibration Resistance</b>	Harmonic motion with amplitude of 15 G, within a varied 10 to 2000 Hz frequency for 12 hrs
<b>Mechanical Shock</b>	Test 1: 100G, 6 mS, half sine, 12.3 ft/s Test 2: 100G, 6 mS, sawtooth, 9.7 ft/s
<b>Relative Humidity</b>	90-95% at 40 °C for 96 hrs

### Materials and Finishes

<b>Code Housing</b>	Reinforced thermoplastic
<b>Shaft</b>	Stainless steel
<b>Bushing</b>	Zinc casting
<b>Shaft Retaining Ring</b>	Stainless steel
<b>Detent Spring</b>	High carbon steel
<b>Detent Ball</b>	Stainless steel
<b>Detent Section</b>	Reinforced thermoplastic
<b>Printed Circuit Boards</b>	NEMA grade FR-4 gold over nickel or palladium
<b>Mounting Hardware</b>	One brass, nickel-plated nut and zinc-plated spring steel with clear trivalent chromate finish lockwasher supplied with each switch. (Nut is 0.094" thick by 0.433" across flats)
<b>Rotor</b>	Thermoplastic
<b>Pushbutton Dome</b>	Stainless steel
<b>Phototransistor</b>	Planar Silicon NPN
<b>Infrared Emitter</b>	Gallium aluminum arsenide
<b>Flex Cable</b>	28 AWG, stranded/top coated wire, PVC coated on .050" centers (cabled version)
<b>Header Pins</b>	Brass, tin-plated
<b>Spacer</b>	Reinforced thermoplastic
<b>Shim</b>	Stainless steel
<b>Backplate/Strain Relief</b>	Stainless steel

## ORDERING INFORMATION

