

1/2" Package, Redundant Circuitry High Torque

FEATURES

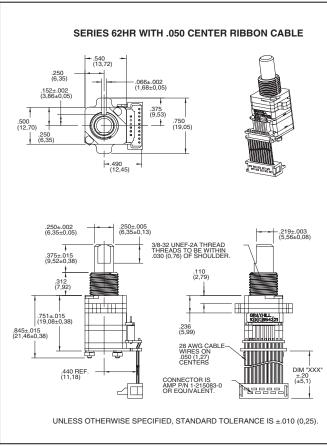
- Redundant Circuitry
- 1 Million Rotational Cycles
- Compatible with CMOS, TTL and HCMOS Logic
- Optional Integral Pushbutton
- Available in 12, 16, 24, and 32 Detent Positions
- Choices of Cable Length and Terminations
- Ideal for Critical Applications

APPLICATIONS

- Cockpit Controls
- Medical Equipment



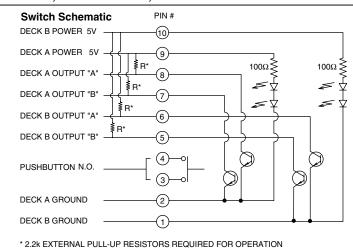
DIMENSIONS in inches (and millimeters)



SERIES 62HR WITH .050 CENTER TERMINAL PINS (6.35) (1.68±.002 (1.68±.005) (1.6.35) (

Grayhill

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

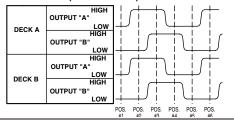


Truth Table (CW Rotation)

POSITION	DECK A		DECK B	
	OUTPUT "A"	OUTPUT "B"	OUTPUT "A"	OUTPUT "B"
1				
2	•		•	
3	•	•	•	•
4		•		•

● INDICATES LOGIC HIGH. BLANK INDICATES LOGIC LOW. CODE REPEATS EVERY 4 POSITIONS

Wave Form (CW Rotation)



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

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

maximum

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:** Stainless 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

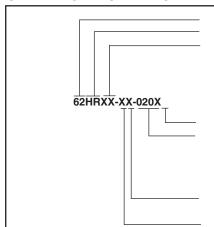
version)

Header Pins: Brass, tin-plated

Spacer: Hiloy 610 Shim: Stainless Steel

Backplate/Strain Relief: Stainless steel

ORDERING INFORMATION



Series

Style: HR = High Torque, Redundant

Angle of Throw: $45 = 45^{\circ}$ or 8 positions, $30 = 30^{\circ}$ or 12 positions, $22 = 22.5^{\circ}$ or 16 positions

Termination: S = stripped cable, C = connector, P = pins

Cable Length: 020 = 2.0 inches. Cable is terminated with Amp Connector P/N 1-215083-0. See Amp Mateability Guide for mating connector details.

*Eliminate cable length if ordering

pins. (Ex: 62HR22-H9-P)

0 = w/o pushbutton, 9 = 1100g**Pushbutton Option:**

pushbutton **Rotational Torque:** H = High Torque