

# SERIES 62HR 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 8, 12, 16 Detent Positions
- Choices of Cable Length and Terminations
- Ideal for Critical Applications

# DIMENSIONS in inches (and millimeters)

#### SERIES 62HR WITH .050 CENTER RIBBON CABLE SERIES 62HR WITH .050 CENTER TERMINAL PINS ·.540 (13,72) .540 (13,72) .250 (6,35) .250 (6,35) .066±.002 (1,68±0,05) .066±.002 (1,68±0,05) .152±.002 (3,86±0.05 .152±.002 (3.86±0.05) .375 (9,53) .375 (9,53) .500 (12,70) .750 (19,05) .750 (19,05) .500 ŧ. ŧ +.490 (12,45) .490 (12,45) .250±.005 (6,35±0,13) .250±.005 (6,35±0,13) .250±.002 (6,35±0,05) .250±.002 (6,35±0,05) .219±.003 (5.56±0.08) -.219±.003 (5.56±0.08) 3/8-32 UNEF-2A THREAD THREADS TO BE WITHIN .030 (0.76) OF SHOULDE 3/8-32 UNEF-2A THREAD THREADS TO BE WITHIN .030 (0.76) OF SHOULDE .375±.015 (9.52±0.38) .375±.015 (9.52±0.38) .110 (2,79) .110 (2,79) .312 (7,92 .312 (7,92) .751±.015 (19,08±0,38 .751±.015 (19,08±0,38 1.075±.020 (27,31±0,50) .236 (5,99) .236 (5.99) .845±.015 (21,46±0,38) .845±.015 (21,46±0,38) TERTIFIC PINS ARE 28 AWG CABLI WIRES ON .050 (1,27) CENTERS DIM 'xxx .440 REF. (11.18) .460 (11.68) ±.20 (±5,1) AMP P/N 1-215083-0 OR EQUIVALENT. .230±.025 (5,84±0,64) $\Box$ 3...... UNLESS OTHERWISE SPECIFIED, STANDARD TOLERANCE IS ±.010 (0,25). UNLESS OTHERWISE SPECIFIED, STANDARD TOLERANCE IS ±.010 (0,25).

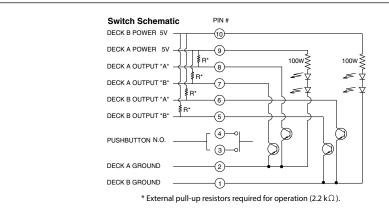
## **APPLICATIONS**

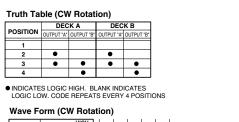
- Cockpit Controls
- Medical Equipment
- Avionics

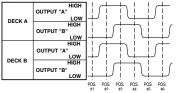




## CIRCUITRY, TRUTH TABLE, AND WAVEFORM Standard Quadrature 2-Bit Code







## 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 per deck 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

# **ORDERING INFORMATION**

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: 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

#### arsen

Flex Cable: 28AWG, 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

 Series

 Style: HR = High Torque, Redundant

 Angle of Throw: 45 = 45° or 8 positions, 30 = 30° or 12 positions, 22 = 22.5° or 16 positions

 62HRXX-XX-020X

 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)

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

 pushbutton

 Rotational Torque:
 H = High Torque