Optical Encoders

## SERIES 62C

## Concentric Shaft

## FEATURES

- Economical Size
- Combined Functionality
- Optically Coupled for More than a Million Cycles of Operations
- Optional Integral Pushbutton
- Compatible with CMOS, TTL, and HCMOS Logic
- Available with 12, 16, 24, and 32 Detent Positions for Each Code Section
- Choices of Cable Length and Terminations
- Available in 3.3 Volt Input. (Contact Grayhill for details)


## APPLICATIONS

- Used to Set Radio Frequency, Drill Depth, RPM, Menu Selection, Parameter Selection for Patient Monitoring Devices, etc.


DIMENSIONS In inches (and millimeters)


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


## SPECIFICATIONS

## Pushbutton Switch Ratings

Rating: $5 \mathrm{Vdc}, 10 \mathrm{~mA}$, resistive
Contact Resistance: less than 10 ohms (TTL or CMOS compatible)
Voltage Breakdown: 250 Vac between mutually insulated parts
Contact Bounce: less than 4 mS at make, less than 10 mS at break
Actuation Life: 3,000,000 operations
Actuation Force: $1000 \pm 300$ grams
Pushbutton Travel: . 010 / . 025 inch

## Encoder Ratings

Coding: 2-bit quadrature coded output
Operating Voltage: $5 \pm .25 \mathrm{Vdc}$
Supply Current: 50 mA maximum at 5 Vdc
Logic High: 3.8 V minimum
Logic Low: 0.8 V maximum
Logic Rise and Fall Times: less than 30 mS
Operating Torque: $2.0 \mathrm{in}-\mathrm{oz} \pm 1.4 \mathrm{in}-\mathrm{oz}$ initially

Rotational Life: more than $1,000,000$ cycles of operation ( 1 cycle $=360^{\circ}$ rotation and return)
Shaft Push Out Force: 45 lbs minimum Mounting Torque: 15 in-lbs maximum Operating Speed: 100 RPM maximum Axial Shaft Play: .010 maximum for each shaft

## Environmental Ratings

Operating Temperature Range: $-40^{\circ} \mathrm{C}$ to $85^{\circ} \mathrm{C}$ Storage Temperature Range: $-55^{\circ} \mathrm{C}$ to $100^{\circ} \mathrm{C}$ Relative Humidity: $90-95 \%$ at $40^{\circ} \mathrm{C}$ for 96 hours
Vibration Resistance: Harmonic motion with amplitude of 15 g , within a varied 10 to 2000 Hz frequency for 12 hours per MIL-STD-202, Method 204
Shock Resistance: Test 1: Tested at 100 g for 6 mS , half sine, $12.3 \mathrm{ft} / \mathrm{s}$ Test 2: 100 g for 6 mS , sawtooth, $9.7 \mathrm{ft} / \mathrm{s}$

ORDERING INFORMATION

## Materials and Finishes

Bushing: Zinc casting
Shaft: Aluminum
Shaft Retaining Ring: Stainless steel
Detent Spring: Stainless steel
Printed Circuit Board: NEMA grade FR-4
Terminals: Brass, tin-plated
Mounting Hardware: One brass, nickel-plated nut and lockwasher supplied with each switch. (Nut is 0.094 inches thick by 0.562 inches across flats)
Rotor: Thermoplastic
Code Housing: Reinforced thermoplastic Pushbutton Dome: Stainless steel Pushbutton Housing: Thermoplastic Pushbutton Contact: Brass, nickel-plated Dome Retaining Disk: Thermoplastic Strain Relief: Stainless steel
Cable: 28 AWG, stranded/top coated wire, PVC coated on . 050 centers (cable version only)
Header Pins: Phosphor bronze, tin-plated Insulator: Glass-filled polyester
Spacer: Zinc casting

