Optical Encoders

## SERIES 62T

Thumbwheel with Pushbutton

## FEATURES

- Scroll and select functions
- Sealed against dust and particles
- Custom bezels that will blend with HMI grips and control panels
- Optional integrated pushbutton with over three million actuations
- MIL-STD-202 and MIL-STD-810F Compliant
- Standard panel seal
- Choice of cable length and termination


## APPLICATIONS

- Scroll \& select equipment in industrial and non-automotive transportation applications
- Display selectors
- Hand-grip joysticks

DIMENSIONS in inches (and millimeters)


## WAVEFORM AND TRUTH TABLE

| POSITION | OUTPUTA | OUTPUTB |
| :---: | :---: | :---: |
| $\# 1$ |  |  |
| $\# 2$ | $\bullet$ |  |
| $\# 3$ | $\bullet$ | $\bullet$ |
| $\# 4$ |  | $\bullet$ |

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


## SPECIFICATIONS

## Environmental Specifications

MIL-STD-810F Qualified
Operating Temperature Range: $-40^{\circ} \mathrm{C}$ to $85^{\circ} \mathrm{C}$ Storage Temperature Range: $-55^{\circ} \mathrm{C}$ to $100^{\circ} \mathrm{C}$ Humidity: 240 hours at $95 \%$ humidity at $30^{\circ} \mathrm{C}$
Mechanical Vibration: Harmonic motion with amplitude of 15 g , within a varied frequency of 10 to 2000 Hz
Mechanical Shock:
Test 1: 100 g for 6 ms half-sine wave with a velocity change of $12.3 \mathrm{ft} / \mathrm{sec}$
Test 2: 100 g for 6 ms sawtooth wave with a velocity change of $9.7 \mathrm{ft} / \mathrm{sec}$

## Pushbutton Electrical and

Mechanical Specifications
Rating: 10mA @ 5 Vdc
Contact Resistance: <10ohms
Life: 3 million actuations minimum
Contact Bounce: <4 ms make, <10ms
break
Actuation Force: N - None, $7-700 \mathrm{~g}$, 10-1000g.
Thumbwheel Travel: $.060 \pm .015$ in

## Rotary Electrical and Mechanical Specifications

Operating Voltage: $5.00 \pm 0.25 \mathrm{Vdc}$ Supply Current: 25 mA Max. Output: Open collector phototransistor, external pull up resistors are required Output Code: Two-bit quadrature, channel A leads channel $B$ by $90^{\circ}$ electrically during clockwise rotation of the thumbwheel Logic high shall be no less than 3.8 Vdc Logic low shall be no greater than 0.8 Vdc Power Consumption: 125 mW Max. Mechanical Life: 1,000,000 cycles of operation for Low and Non-Rotational Torque. 500,000 cycles of operation for Medium Rotational Torque. 1 cycle is a rotation through all positions and a full return. Average Rotational Torque:
M: $2.2 \pm .75$ in-oz, L: $1.2 \pm 0.5$ in-oz, $\mathrm{N}:<0.50$ in-oz. Initially torque shall be within $75 \%$ of initial value throughout life.

## Materials and Finishes

Face Plate: Plastic
Wheel: Plastic


Series
Angle of Throw: $22=22.5^{\circ}$ for code change and 16 detent positions
Rotational Torque: $\mathrm{N}=$ Non-Detent, $\mathrm{L}=$ Low Torque, $\mathrm{M}=$ Medium Torque Pushbutton Option: $0=$ No Pushbutton, $7=700$ grams, 10=1000 grams

Termination: $\mathrm{C}=.050$ Center ribbon Cable with connector Cable Termination: 040=4.0 inches. Cable is terminated with Amp Connector P/N 7-215083-6.
See Amp Mateability Guide for Mating Connector details.
Available from your local Grayhill Component Distributor. For pricing an discounts, contact a local Sales Office, an authorized local Distributor, or Grayhill.

