

SERIES 62S

Compact 1/2" Package

FEATURES

- Compact Size, Requires Minimal Behind Panel Space
- 1/2 Million Rotations for High Torque
- 1 Million Rotational Cycles, 3 Million for Non-Detent Styles
- Optional Integral Pushbutton

- Choices of Cable Length and Terminations

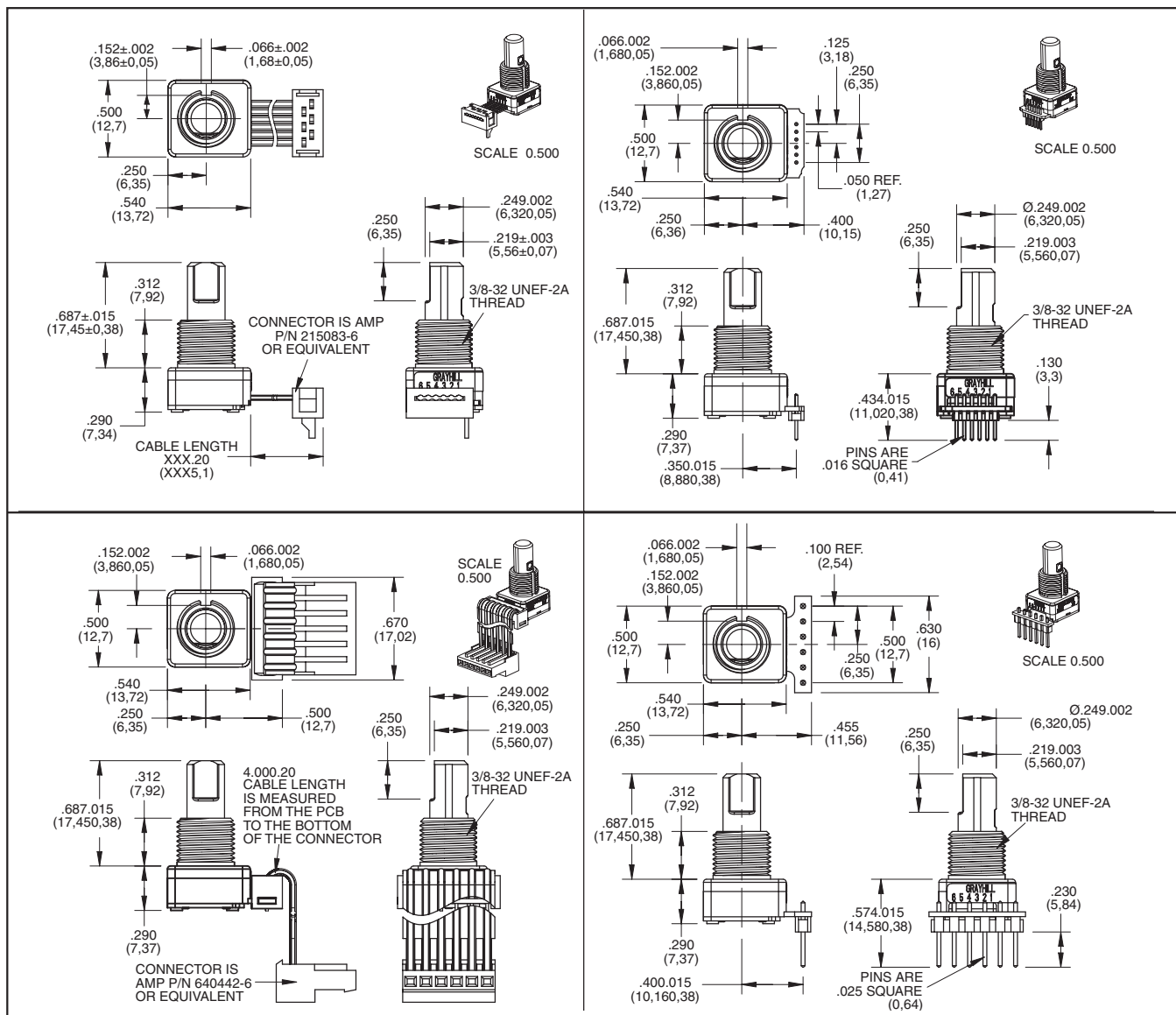
APPLICATIONS

- Global Positioning/Driver Information Systems
- Medical Equipment



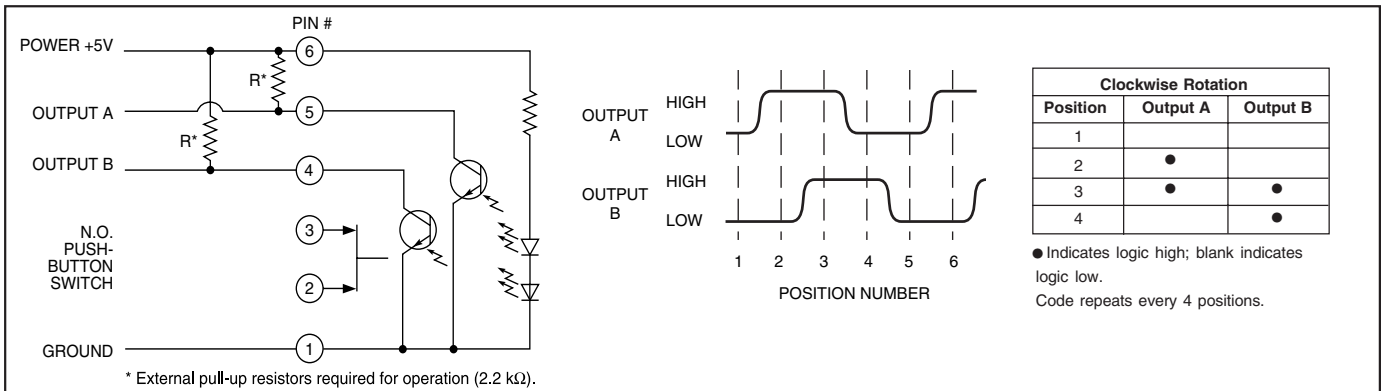
DIMENSIONS In inches (and millimeters)

Unless otherwise specified, standard tolerance is ± 0.010 (0,25)



Optical and Mechanical Encoders

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



* External pull-up resistors required for operation (2.2 kΩ).

SPECIFICATIONS

Environmental Specifications

Operating Temperature Range: -40°C to 85°C
Storage Temperature Range: -55°C to 100°C
Humidity: 96 Hours at 90–95% humidity at 40°C

Mechanical Vibration: Harmonic motion with amplitude of 15G's, within a varied frequency of 10 to 2000 Hz

Mechanical Shock: Test 1: 100G for 6 mS, half sine wave with a velocity change of 12.3 ft/s; Test 2: 100G for 6 mS, sawtooth wave with a velocity change of 9.7 ft/s

Rotary Electrical and Mechanical Specifications

Operating Voltage: 5.00 ±0.25 Vdc
Supply Current: 30mA maximum at 5Vdc
Output: Open collector phototransistor, external pull up resistors are required
Output Code: 2-Bit quadrature, channel A leads channel B by 90° electrically during clockwise rotation of the shaft
Logic Output Characteristics:
 Logic High shall be no less than 3.0 Vdc
 Logic Low shall be no greater than 1.0 Vdc
Minimum Sink Current: 2.0 mA
Power Consumption: 150 mW maximum
Mechanical Life:
 Non-Detent 3 Million Cycles
 Low & Medium 1 Million Cycles
 High 1/2 Million Cycles
 1 cycle is a rotation through all positions and a full return

	LOW ±0.50 IN-OZ	MEDIUM ±1.40 IN-OZ	HIGH ±1.60 IN-OZ
8 POSITION	1.10	1.85	2.75
12 POSITION	1.00	1.70	2.95
16 POSITION	1.40	2.35	3.40
20 POSITION	1.35	2.05	2.80
24 POSITION	1.25	1.95	2.95
32 POSITION	0.95	1.40	2.15

Torque shall be within 50% of initial value throughout life

Mounting Torque: 15 in-lbs maximum
Shaft Push-Out Force: 45 lbs minimum
Shaft Pull-Out Force: 45 lbs minimum
Terminal Strength: 15 lbs minimum terminal pull-out force for cable or header termination
Solderability: 95% free of pin holes and voids

Pushbutton Electrical and Mechanical Specifications

Rating: 10 mA at 5 Vdc
Contact Resistance: <10Ω
Life: 3 million actuations minimum
Contact Bounce: <4 ms Make, <10 ms Break
Actuation Force: 9-950±250 grams, 5-510±110 grams, 4-400±100 grams, 3-300±90 grams, 2-200±75 grams
Shaft Travel: .020±.010 inch

Materials and Finishes

Bushing: Zamak 2
Shaft: Aluminum or Zamak 2
Retaining Ring: Stainless steel
Pushbutton Actuator: Zytel 70G33L
Detent Spring: Music wire
Detent Ball: Stainless steel
Code Housing: Polyamide polymer, nylon 6/10 alloy UL94HB

Code Rotor: Delrin 100

Printed Circuit Boards: NEMA grade FR-4, double clad with copper, plated with gold over nickel

Infrared Emitting Diode Chips: Gallium aluminum arsenide

Silicon Phototransistor Chips: Gold and Aluminum Alloys

Resistor: Metal oxide on ceramic substrate

Solder Pins: Brass, plated with tin

Pushbutton Dome: Stainless steel

Backplate: Stainless steel

Cable: Copper stranded with topcoat in PVC insulation (Cable version only)

Connector (.050 Center): PA4.6 with tin over nickel plated phosphor bronze

Connector (.100 Center): Nylon UL94V-2, tin plated copper alloy

Label: TT406 Thermal transfer cast film

Solder: Sn/Ag/Cu, Lead-Free, No Clean

Lubricating Grease: NYE nyogel 774L

Hex Nut: Nickel, plated with brass

Lockwasher: Stainless steel

Header: Hi-Temp glass filled thermoplastic UL94V-0, phosphor bronze (pinned versions only)

Strain Relief: Glass filled thermoplastic (.100 center cable versions only)

OPTIONS

Contact Grayhill for custom terminations, shaft and bushing configurations, rotational torque pushbutton force, and code output. Control knobs are also available.

ORDERING INFORMATION

