

SERIES 62SG

Compact / Cost Effective

APPLICATIONS

AUTOMOTIVE

- Audio systems, Navigation systems

MEDICAL

- Patient monitoring systems

TEST & MEASUREMENT

- Analyzers, oscilloscopes

AUDIO & VIDEO

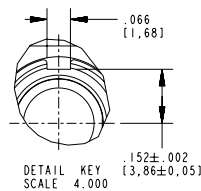
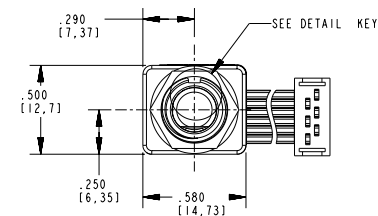
- Consumer electronics, professional editing equipment

FEATURES

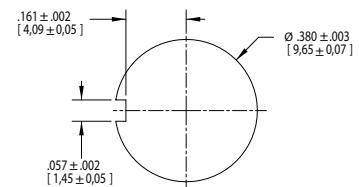
- Just 0.3-inch behind panel depth
- Over 1 million rotational cycles
- 2-bit gray code output
- Quadrature coding
- Available in 16, 24 and 32 detent positions
- Optional integrated pushbutton
- Light pipe technology
- Cost competitive with mechanical encoders at higher volumes
- Optional shaft and panel seal



DIMENSIONS in inches (and millimeters)

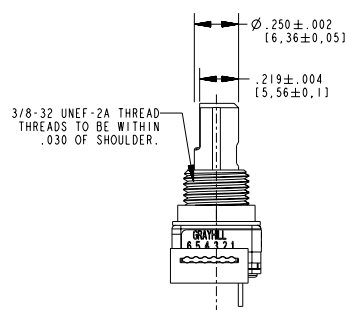
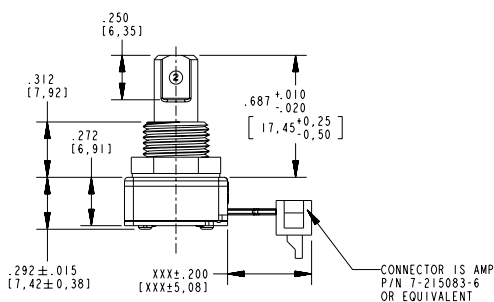


SUGGESTED MOUNTING PANEL CUTOUT



MOUNTING PANEL RECOMMENDATIONS FOR PANEL SEAL VERSIONS:

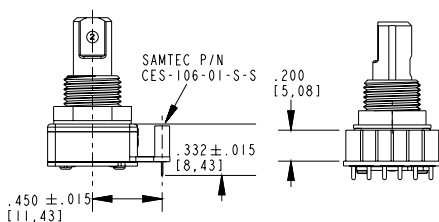
1. PANEL THICKNESS SHOULD NOT EXCEED .157.
2. MOUNTING HOLE TO BE Ø.375 - Ø.385.
3. Ø.470x.020 DEEP COUNTERBORE ON REVERSE OF PANEL REQUIRED FOR PROPER SEALING.
4. ANTI-ROTATION FEATURE IS RECOMMENDED. FEATURE SHOULD BE DESIGNED TO LOCK INTO BUSHING KEYWAY.



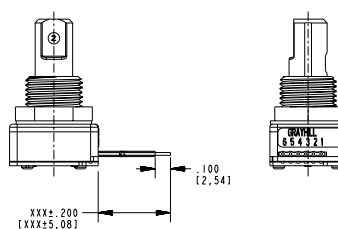
Unless otherwise specified, standard tolerances are:

Linear ± .025
Diameter ± .010
Angle ± 2.0 °

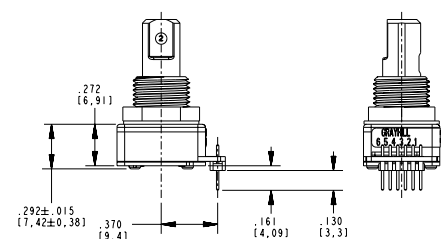
OTHER TERMINATION OPTIONS



RAC: Right Angle Connector

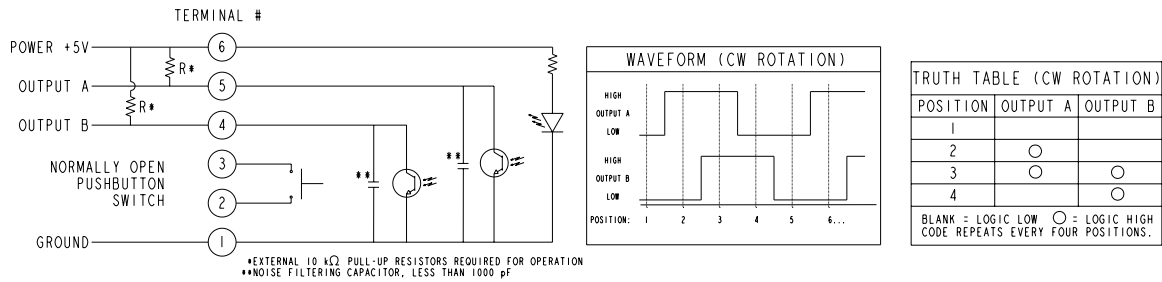


.050" Stripped Cable



.050" Pin Header

WAVEFORM AND TRUTH TABLE



SPECIFICATIONS

Environmental Specifications

Operating Temperature: -40°C to 85°C

Storage Temperature: -40°C to 85°C

Humidity: 96 hours@90-95% humidity@40°C

Mechanical Vibration: Harmonic motion with amplitude of 15g within a varied frequency of 10 to 2000 Hz for 12 hours

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

Seal: Meets IP67 (above panel for sealed options only)

Rotary Electrical and Mechanical Specifications

Operating Voltage: 5.00 ± 0.25 Vdc

Supply Current: 30 mA maximum

Logic Output Characteristics:

Logic High: $V_{OH} = 3.0$ Vdc MIN at $V_{CC} = 4.75$ Vdc with 10 kΩ PULL-UP RESISTOR

Logic Low: $V_{OL} = 1.0$ Vdc MAX at $V_{CC} = 5.25$ Vdc with 10 kΩ PULL-UP RESISTOR

Output: Open Collector Phototransistor

Optical Rise Time: 30ms maximum

Optical Fall Time: 30ms maximum

Mechanical Life: 1,000,000 cycles of operation. 1 cycle is a rotation through all positions and a full return

Mounting Torque: 15in.-lbs. maximum

Shaft Pushout Force: 45 lbs. minimum

Terminal Strength: 15 lbs. cable pull out force minimum

Solderability: 95% free of pin holes & voids

Pushbutton Electrical and Mechanical Specifications

Rating: 30 mA @ 5 Vdc

Contact Resistance: <10 Ω (Compatible with CMOS or TTL)

Life: 1 million actuations minimum

Contact Bounce: <4 ms make, <10ms break

Actuation Force: 5 = 550 ± 200 grams

9 = 1050 ± 200 grams

Shaft Travel: .020 ± .008 inch

Materials and Finishes

Bushing: Zamak 2

Shaft: Zamak 2

Shaft and Panel Seals: Silicone Rubber

Detent Ball: 302 Stainless Steel

Detent Spring: Music Wire

Retaining Ring: 301 Stainless Steel

Code Housing: Nylon 6/6 25% glass reinforced. Zytel FR-50

Light Pipe: Lexan, GE

Code Rotor: Delrin 100

Pushbutton Actuator: Glass reinforced nylon 6/6. Zytel 70G33L. UL 94

Pushbutton Dome: 301 Stainless Steel

Printed Circuit Board: NEMA Grade FR4, double clad with copper, Plated with gold over nickel

Infrared Emitting Diode: Gallium Aluminum Arsenide

Phototransistor Diode: NPN Silicon

Resistor: Metal oxide on ceramic substrate

Spacer: Pet plastic

Backplate: 302 Stainless Steel

Label: TT406 thermal transfer cast film

Solder: 96.5% tin / 3% silver / 0.5% copper. No clean

Hex Nut: Brass, Plated with nickel

Lockwasher: Zinc Plated Spring Steel with Clear Trivalent Chromate Finish

Cable: Copper Stranded with topcoat in PVC insulation

Connector (.050 center): PA4.6 with tin/nickel plated phosphor bronze.

TORQUE TABLE (IN-OZ)	L	M	H
16-POSITION	1.70±1.05	2.10±1.20	3.05±1.50
24-POSITION	1.15±0.75	1.50±0.75	2.80±1.40
32-POSITION	1.00±0.65	1.20±0.8	1.50±0.9

TORQUE TABLE (IN-OZ)	L	M	H
16-POSITION	1.80±1.20	2.35±1.30	3.30±1.60
24-POSITION	1.35±1.00	1.75±1.10	2.75±1.00
32-POSITION	1.40±0.7	1.60±0.8	1.75±0.9

40% of initial value after 1 million cycles.

ORDERING INFORMATION

ROTATIONAL TORQUE AND PUSHBUTTON AVAILABILITY				
ROTATIONAL TORQUE	PUSHBUTTON			
	0 NONE	5 550 GRAMS	9 1050 GRAMS	
	L	L0	L5	L9
	M	M0	M5	M9
H	H0	NOT AVAILABLE		H9

