



SERIES 62SG

Compact and Cost Effective

FEATURES

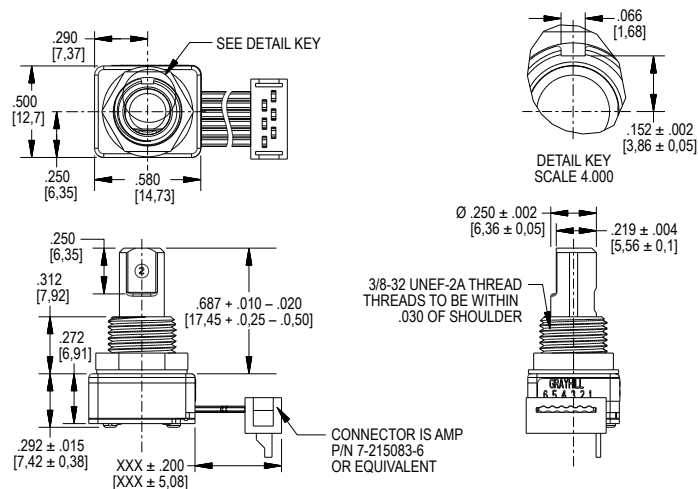
- Just 0.3-inch behind panel depth
- Over 1 million rotational cycles
- 2-bit gray code output
- Quadrature coding
- Available in 16, 24 and 32 detent positions
- Optional integrated pushbutton
- Light pipe technology
- Cost competitive with mechanical encoders at higher volumes
- Optional shaft and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

APPLICATIONS

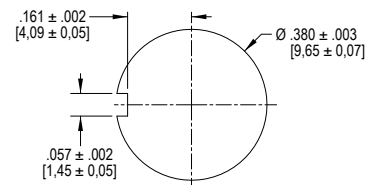
- AUTOMOTIVE**
- Audio systems, navigation systems
- MEDICAL**
- Patient monitoring systems
- TEST & MEASUREMENT**
- Analyzers, oscilloscopes
- AUDIO & VIDEO**
- Consumer electronics, professional editing equipment



DIMENSIONS in inches [and millimeters]



Suggested Mounting Panel Cutout



MOUNTING PANEL RECOMMENDATIONS FOR PANEL SEAL VERSIONS:

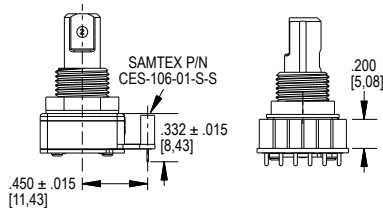
1. PANEL THICKNESS SHOULD NOT EXCEED .157.
2. MOUNTING HOLE TO BE $\varnothing .375 - \varnothing .385$.
3. $\varnothing .470 \times .020$ DEEP COUNTERBORE ON REVERSE OF PANEL REQUIRED FOR PROPER SEALING.
4. ANTI-ROTATION FEATURE IS RECOMMENDED. FEATURE SHOULD BE DESIGNED TO LOCK INTO BUSHING KEYWAY.

Unless otherwise specified, standard tolerances are:

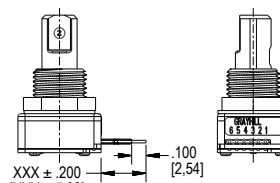
Linear $\pm .025$
Diameter $\pm .010$
Angle $\pm 2.0^\circ$

OTHER TERMINATION OPTIONS

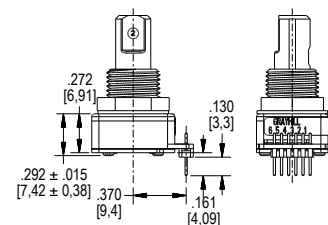
RAC: Right Angle Connector



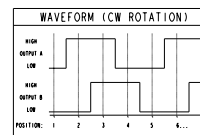
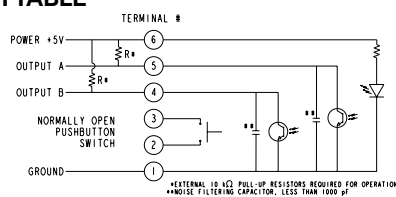
.050" Stripped Cable



.050" Pin Header



WAVEFORM AND TRUTH TABLE



POSITION	OUTPUT A	OUTPUT B
1	LOW	LOW
2	HIGH	LOW
3	LOW	HIGH
4	HIGH	HIGH

BLANK : LOGIC LOW ○ = LOGIC HIGH
CODE REPEATS EVERY FOUR POSITIONS.

Specifications are subject to change.

SPECIFICATIONS

Environmental Specifications

Operating Temperature	-40 °C to 85 °C
Storage Temperature	-40 °C to 85 °C
Humidity	96 hours at 90-95% humidity at 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 minimum at VCC = 4.75 Vdc with 10 kΩ pull-up resistor Logic Low: V _{OL} = 1.0 Vdc maximum at VCC = 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 at 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

Without Shaft and Panel Seal

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

40% of initial value after 1 million cycles.

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

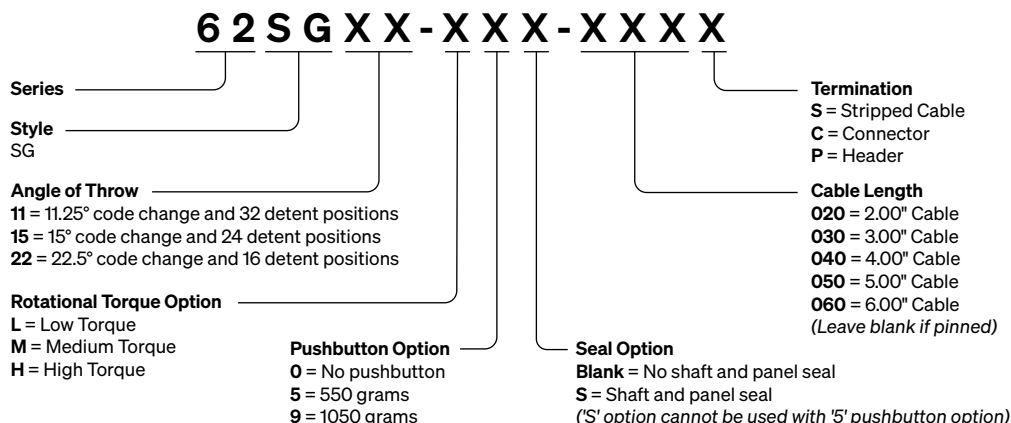
With Shaft and Panel Seal

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	3.00 ± 1.50
32-POSITION	1.40 ± 0.7	1.60 ± 0.8	1.75 ± 0.9

ORDERING INFORMATION

Rotational Torque and Pushbutton Availability

		Pushbutton		
		0 None	5 550 grams	9 1050 grams
Rotational Torque	L	L0	L5	L9
	M	M0	M5	M9
	H	H0	NOT AVAILABLE	H9



Specifications are subject to change.