



Optical Encoders

SERIES 62F

1/2" Package, Lighted Shaft

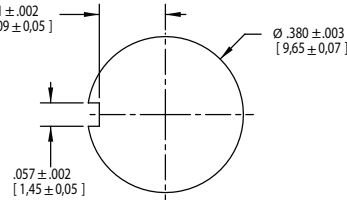
FEATURES

- Integrated Self-Lighting System for Knob Illumination
- 1 Million Rotational Cycles
- 1/2" Package
- Compatible with CMOS, TTL and HCMOS Logic
- Optional Integral Pushbutton
- Choices of Cable Length and Terminations
- Customized Solutions Available

APPLICATIONS

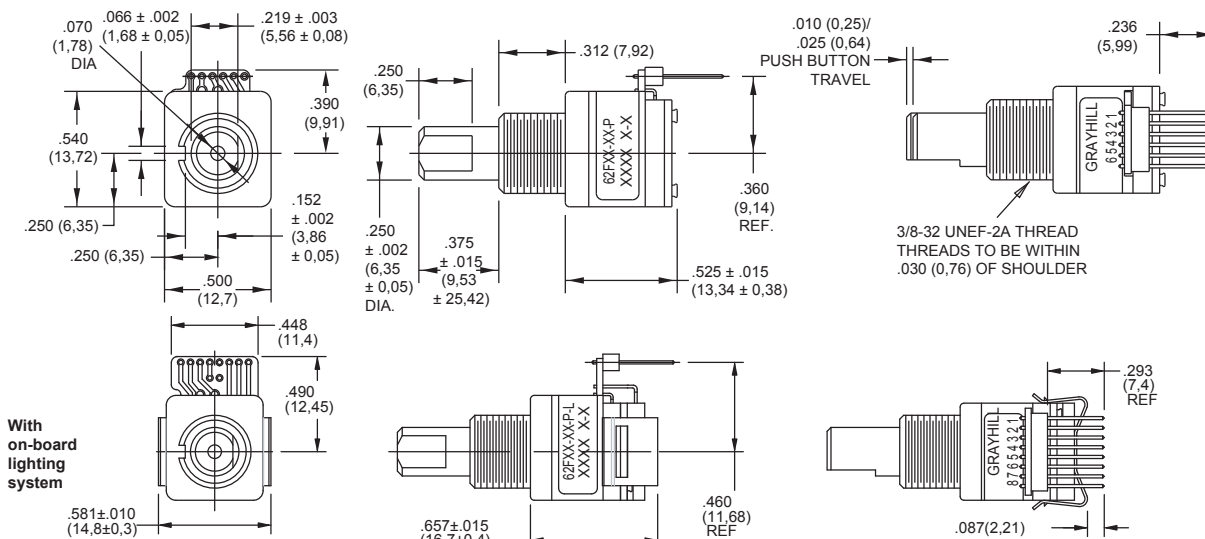
- Global Positioning
- Driver Information Systems
- Medical Equipment
- Cockpit Controls
- Mixing Boards

Suggested Mounting Panel Cutout

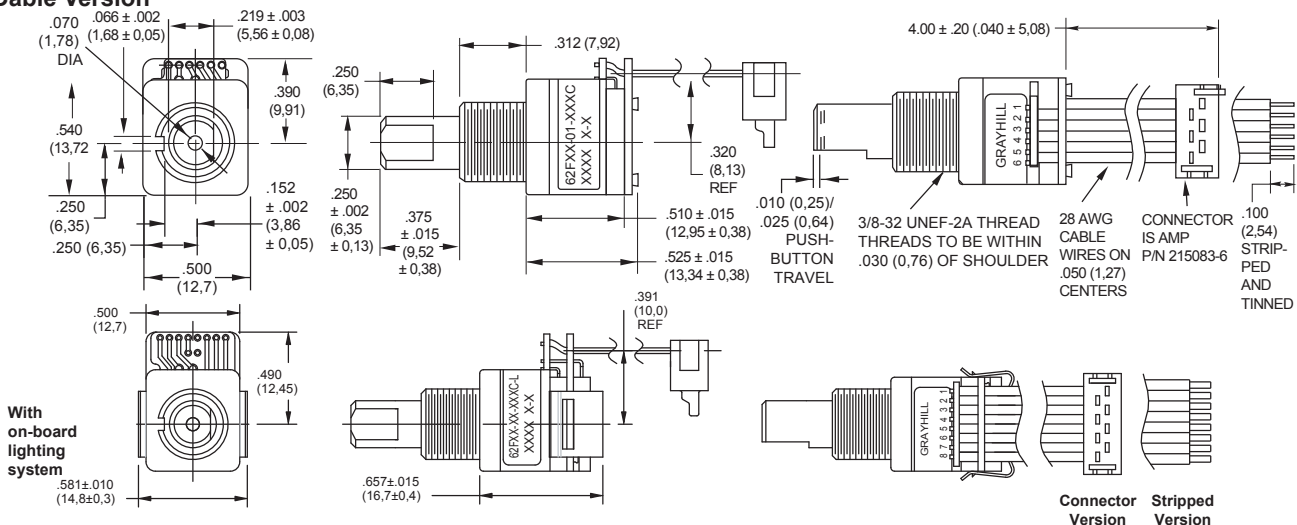


DIMENSIONS in inches (and millimeters)

Pin Version

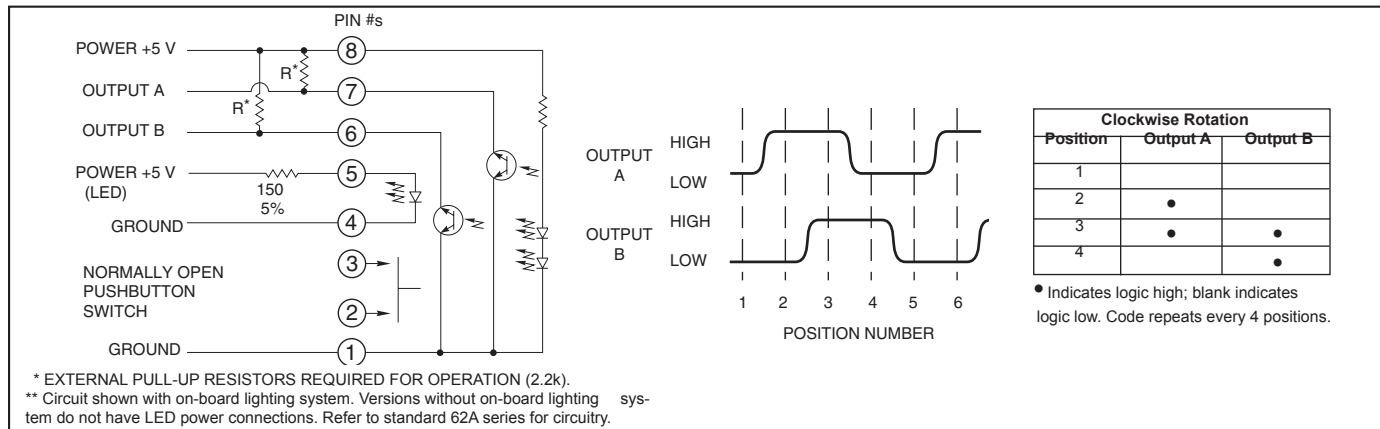


Cable Version



Unless otherwise specified, standard tolerance is ± 0.010 (0.25).

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



SPECIFICATIONS

Pushbutton Switch Ratings

Rating: 5 Vdc, 10 mA, resistive**Contact Resistance:** less than 10 ohms (TTL or CMOS compatible)**Pushbutton Life:** 3 million actuations minimum**Contact Bounce:** less than 4 mS at make and less than 10 mS at break**Actuation Force:** 1000 ± 300 grams**Pushbutton Travel:** .010/.025 inch

Switch Ratings

Coding: 2-bit quadrature coded output**Operating Voltage:** 5.0 ± .25 Vdc**Voltage Breakdown:** 250 Vac between mutually insulated parts**Supply Current:** 30 mA maximum**Logic Output Characteristics:****Logic High:** 3.8 Vdc minimum**Logic Low:** 0.8 Vdc maximum**Rotational Life:** 1,000,000 cycles minimum (One cycle is a rotation through all positions and a full return)**Minimum Sink Current:** 2.0 mA**Power Consumption:** 150mW maximum**Optical Rise and Fall Times:** less than 30 mS maximum

Operating Torque:

Detent: 2.0 ± 1.4 in-oz initially**Non-detent:** less than 1.5 in-oz initially**Shaft Push Out Force:** 45 lbs minimum**Mounting Torque:** 15 in-lbs maximum**Terminal Strength:** 15 lbs cable pull-out force minimum**Operating Speed:** 100 RPM maximum**Axial Shaft Play:** .010 maximum

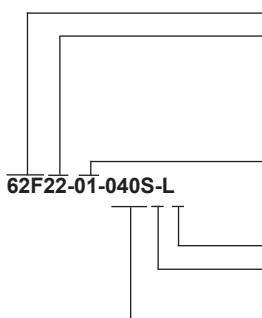
Environmental Ratings

Operating Temperature Range: -40°C to 85°C**Storage Temperature Range:** -55°C to 100°C**Relative Humidity:** 90–95% at 40°C for 96 hours**Vibration Resistance:** Harmonic motion with amplitude of 15G's, within a varied 10 to 2000 Hz frequency for 12 hours per MIL-STD-202, Method 204**Mechanical Shock:** Test 1: 100G for 6 mS, half sine, 12.3 ft/s; Test 2: 100G for 6 mS, sawtooth, 9.7 ft/s

Materials and Finishes

Code Housing: Reinforced thermoplastic**Shaft:** Aluminum**Bushing:** Zinc casting**Shaft Retaining Ring:** Stainless steel**Detent Spring:** Stainless steel**Printed Circuit Boards:** NEMA grade FR-4 gold over nickel or palladium**Terminals:** Brass, tin-plated**Mounting Hardware:** One brass, nickel-plated nut and zinc-plated spring steel with clear trivalent chromate finish lockwasher supplied with each switch. (Nut is 0.094 inches thick by 0.433 inches across flats)**Rotor:** Thermoplastic**Code Housing:** Thermoplastic**Pushbutton Dome:** Stainless steel**Dome Retaining Disk:** Thermoplastic**Pushbutton Housing:** Thermoplastic**Phototransistor:** Planar Silicon NPN**Pushbutton Contact:** Brass, nickel-plated**Flex Cable:** 28 AWG, stranded/top coated wire, PVC coated on .050 or .100" centers (cabled version)**Header Pins:** Phosphor bronze, tin-plated**Spacer:** ABS**Backplate/Strain Relief:** Stainless steel**Light Pipe:** Thermoplastic**LED Housing:** Thermoplastic

ORDERING INFORMATION

	Series	
	Angle of Throw: Detent	11 = 11.25° or 32 pos. 15 = 15° or 24 positions 18 = 18° or 20 pos. 22 = 22.5° or 16 positions
	Non-detent	01 = 11.25° or 32 positions 05 = 15° or 24 positions 08 = 18° or 20 positions 02 = 22.5° or 16 positions
	Pushbutton Option:	01 = w/o pushbutton, 02 = with pushbutton
	LED:	blank = no LED, L = supplied with LED
	Termination:	S = Stripped cable; S-L = Stripped cable, LED; C = Connector; C-L = Connector, LED; P = Pin; P-L = Pin, LED
	Cable Termination:	040 = 4.0in. Cable is terminated with Amp P/N 215083-6. See Amp Mateability guide for mating connector details.
		*Eliminate cable length if ordering pins. (Ex: 62A22-02-P)

Custom materials, styles, colors, and markings are available. Control knobs available.

Available from your local Grayhill Component Distributor. For prices and discounts, contact a local Sales Office, an authorized local Distributor, or Grayhill.