

SERIES 62C Concentric Shaft

FEATURES

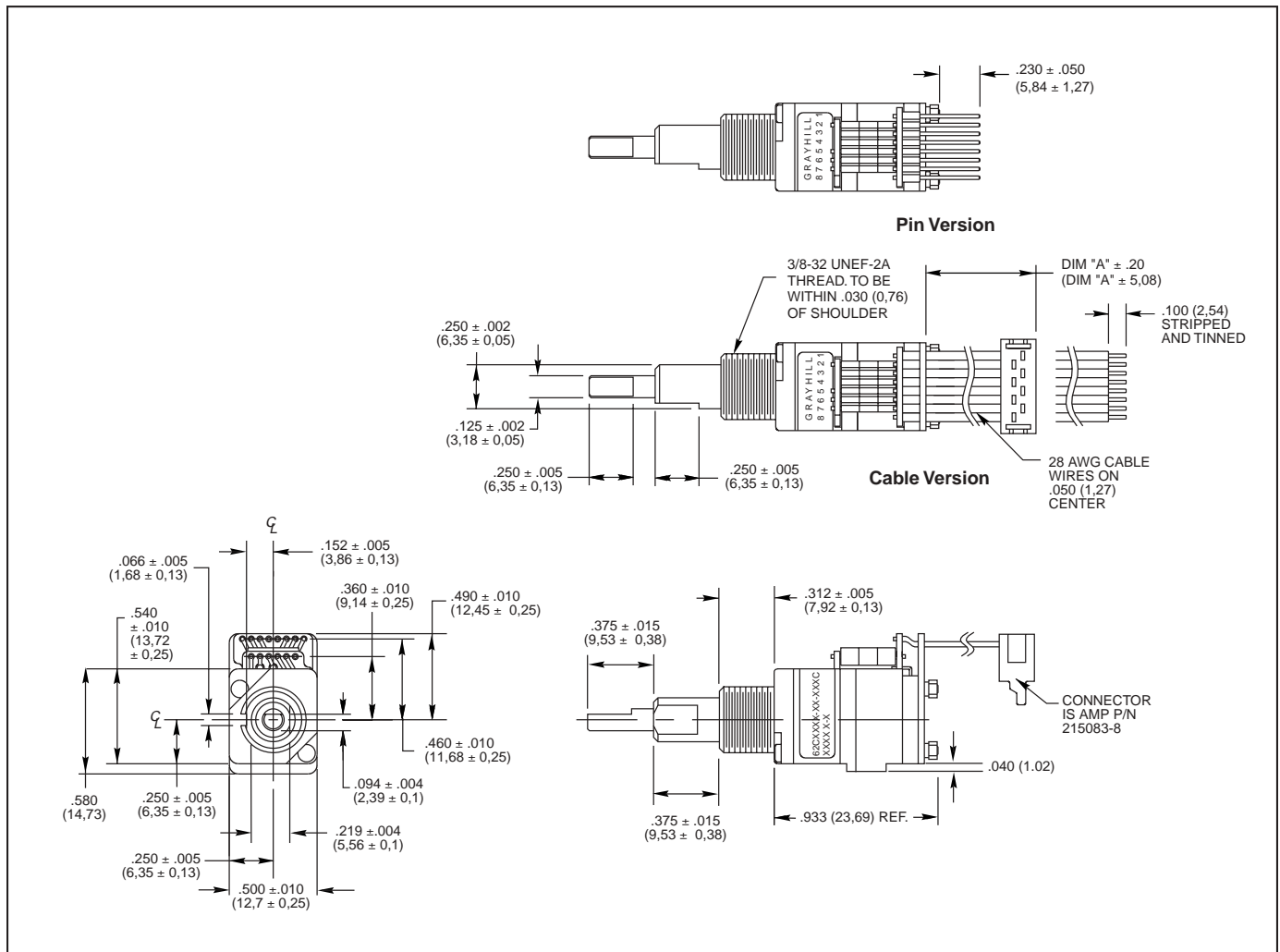
- Economical Size
- Combined Functionality
- Optically Coupled for More than a Million Cycles of Operations
- Optional Integral Pushbutton
- Compatible with CMOS, TTL, and HCMOS Logic
- Available with 12, 16, 24, and 32 Detent Positions for Each Code Section
- Choices of Cable Length and Terminations
- Available in 3.3 Volt Input.
(Contact Grayhill for details)

APPLICATIONS

- Used to Set Radio Frequency, Drill Depth, RPM, Menu Selection, Parameter Selection for Patient Monitoring Devices, etc.



DIMENSIONS In inches (and millimeters)



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

| Clockwise Rotation | | |
|--------------------|----------|----------|
| Position | Output A | Output B |
| 1 | | |
| 2 | ● | |
| 3 | ● | ● |
| 4 | | ● |

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

POSITION NUMBER

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

SPECIFICATIONS

Pushbutton Switch Ratings

- Rating:** 5 Vdc, 10 mA, resistive
- Contact Resistance:** less than 10 ohms (TTL or CMOS compatible)
- Voltage Breakdown:** 250 Vac between mutually insulated parts
- Contact Bounce:** less than 4 mS at make, less than 10 mS at break
- Actuation Life:** 3,000,000 operations
- Actuation Force:** 1000 ± 300 grams

- Rotational Life:** more than 1,000,000 cycles of operation (1 cycle = 360° rotation and return)
- Shaft Push Out Force:** 45 lbs minimum
- Mounting Torque:** 15 in-lbs maximum
- Operating Speed:** 100 RPM maximum
- Axial Shaft Play:** .010 maximum for each shaft

Materials and Finishes

- Bushing:** Zinc casting
- Shaft:** Aluminum
- Shaft Retaining Ring:** Stainless steel
- Detent Spring:** Stainless steel
- Printed Circuit Board:** NEMA grade FR-4
- Terminals:** Brass, tin-plated
- Mounting Hardware:** One brass, nickel-plated nut and lockwasher supplied with each switch. (Nut is 0.094 inches thick by 0.562 inches across flats)
- Rotor:** Thermoplastic
- Code Housing:** Reinforced thermoplastic
- Pushbutton Dome:** Stainless steel
- Pushbutton Housing:** Thermoplastic
- Pushbutton Contact:** Brass, nickel-plated
- Dome Retaining Disk:** Thermoplastic
- Strain Relief:** Stainless steel
- Cable:** 28 AWG, stranded/top coated wire, PVC coated on .050 centers (cable version only)
- Header Pins:** Phosphor bronze, tin-plated
- Insulator:** Glass-filled polyester
- Spacer:** Zinc casting

Encoder Ratings

- Coding:** 2-bit quadrature coded output
- Operating Voltage:** 5 ± .25 Vdc
- Supply Current:** 50 mA maximum at 5 Vdc
- Logic High:** 3.8V minimum
- Logic Low:** 0.8V maximum
- Logic Rise and Fall Times:** less than 30 mS
- Operating Torque:** 2.0 in-oz ± 1.4 in-oz initially

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, within a varied 10 to 2000 Hz frequency for 12 hours per MIL-STD-202, Method 204
- Shock Resistance:** Test 1: Tested at 100g for 6 mS, half sine, 12.3 ft/s Test 2: 100g for 6 mS, sawtooth, 9.7 ft/s

ORDERING INFORMATION

62C2211-02-020 C

- Series**
- Style:** C = Concentric
- Angle of Throw (Deck A):** 11 = 11.25° or 32 positions, 15 = 15° or 24 positions, 22 = 22.5° or 16 positions, 30 = 30° or 12 Positions
- Angle of Throw (Deck B):** 11 = 11.25° or 32 positions, 15 = 15° or 24 positions, 18 = 18° or 20 positions, 22 = 22.5° or 16 positions, 30 = 30° or 12 Positions
- Termination:** S = stripped cable, C = connector, P = pins
- Cable Length*:** 020 = 2.0 inches minimum to 250 = 25.0 inches maximum Provided in increments of 1/2 inch. Example: 035 = 3.5", 060 = 6"
- Pushbutton Option:** 01 = w/o pushbutton, 02 = with pushbutton

*Eliminate cable length if ordering pins. (Ex: 62C2211-02-P)

Custom custom shaft, pushbutton actuation force and termination options are available. Control knobs available, see page I-57.

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

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Grayhill:

| | | | | | |
|--|--|--|--|--|--|
| <u>62C1111-02-060C</u> | <u>62C2211-02-020S</u> | <u>62C1111-02-020C</u> | <u>62C2222-02-060C</u> | <u>62C1111-01-100C</u> | <u>62C1515-01-020C</u> |
| <u>62C2222-01-035C</u> | <u>62C2222-01-080C</u> | <u>62C1515-02-020C</u> | <u>62C2211-01-060C</u> | <u>62C1111-01-060S</u> | <u>62C3011-02-060C</u> |
| <u>62C2230-01-020C</u> | <u>62C1111-02-060S</u> | <u>62C1111-02-250S</u> | <u>62C2222-01-120S</u> | <u>62C3030-01-060S</u> | <u>62C2215-02-035S</u> |
| <u>62C2215-02-080S</u> | <u>62C1122-01-020C</u> | <u>62C2222-02-100C</u> | <u>62C1111-01-020C</u> | <u>62C1111-01-120S</u> | <u>62C2222-02-060S</u> |
| <u>62C2222-02-100S</u> | <u>62C2222-02-030C</u> | <u>62C1111-02-090C</u> | <u>62C2222-01-125C</u> | <u>62C1111-02-070C</u> | <u>62C1522-02-100C</u> |
| <u>62C1515-01-035C</u> | <u>62C2222-01-050C</u> | <u>62C1515-01-050C</u> | <u>62C1515-01-080S</u> | <u>62C1122-01-060C</u> | <u>62C2211-02-060C</u> |
| <u>62C2222-02-020C</u> | <u>62C1511-01-020S</u> | <u>62C2222-01-060C</u> | <u>62C1111-02-090S</u> | <u>62C3011-01-020C</u> | <u>62C1111-02-075S</u> |
| <u>62C1515-02-060C</u> | <u>62C2222-01-250C</u> | <u>62C1111-02-030S</u> | <u>62C2222-02-250C</u> | <u>62C2222-01-025C</u> | <u>62C2215-02-060S</u> |
| <u>62C1111-01-030C</u> | <u>62C1111-01-060C</u> | <u>62C1111-02-120C</u> | <u>62C2211-02-100S</u> | <u>62C1518-01-020S</u> | <u>62C1511-02-020S</u> |
| <u>62C1111-02-100C</u> | <u>62C2211-02-035S</u> | <u>62C2222-02-080S</u> | <u>62C1111-02-250C</u> | <u>62C2230-01-060C</u> | <u>62C2222-02-020S</u> |
| <u>62C3030-02-020C</u> | <u>62C1515-01-100S</u> | <u>62C1111-02-050S</u> | <u>62C2211-02-060S</u> | <u>62C2222-02-120S</u> | <u>62C2222-01-060S</u> |
| <u>62C2222-01-120C</u> | <u>62C1515-02-035C</u> | <u>62C2222-01-035S</u> | <u>62C1515-02-020S</u> | <u>62C1522-01-100C</u> | <u>62C2215-02-060C</u> |
| <u>62C3030-02-060S</u> | <u>62C1515-02-120C</u> | <u>62C1515-01-050S</u> | <u>62C2218-02-060C</u> | <u>62C2222-01-080S</u> | <u>62C2222-01-020S</u> |
| <u>62C1111-01-070C</u> | <u>62C1515-02-060S</u> | <u>62C1122-02-020C</u> | <u>62C2222-02-025C</u> | <u>62C3011-01-020S</u> | <u>62C1515-02-030C</u> |
| <u>62C1111-01-080S</u> | <u>62C2222-01-030S</u> | <u>62C1111-02-100S</u> | <u>62C1522-02-055C</u> | <u>62C1111-02-080S</u> | <u>62C1111-02-020S</u> |
| <u>62C2211-02-035C</u> | <u>62C1111-02-030C</u> | <u>62C1111-01-020S</u> | <u>62C2222-02-160S</u> | <u>62C2222-02-120C</u> | <u>62C1530-02-030C</u> |
| <u>62C1511-02-020C</u> | <u>62C1530-02-030S</u> | <u>62C1515-01-060C</u> | <u>62C2222-01-020C</u> | | |