



Optical Encoders

SERIES 62B Push-Pull, High Torque

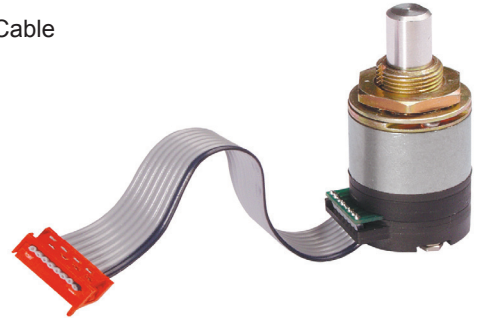
FEATURES

- Multiple Switching Functions Available in One Compact Device
- Push and Pull Travel Options
- Pull Shaft Resists Accidental Actuation
- High Rotational Torque for Positive Detent Feel and Superior Tactile Feedback
- Long Life, High Reliability
- CMOS, HCMOS, and TTL Compatible

- Pin, Cable and Connector with Cable Termination Options
- Custom Modifications Available

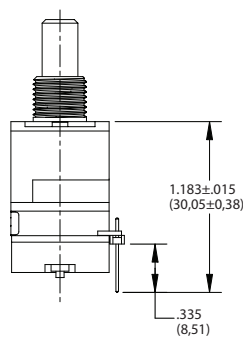
APPLICATIONS

- Use for Menu Scrolling or Function Selection
- Avionics
- Industrial
- Medical

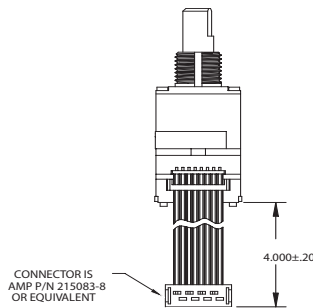


DIMENSIONS in inches (and millimeters)

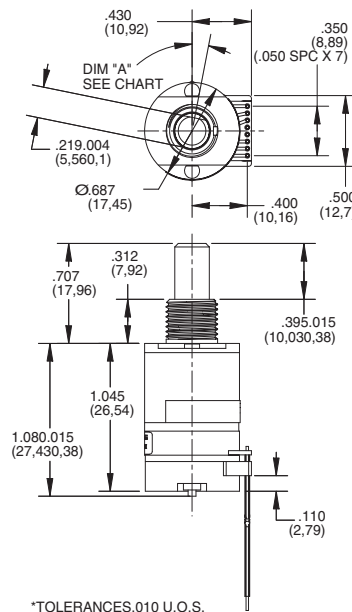
Pinned Version



Connector Version

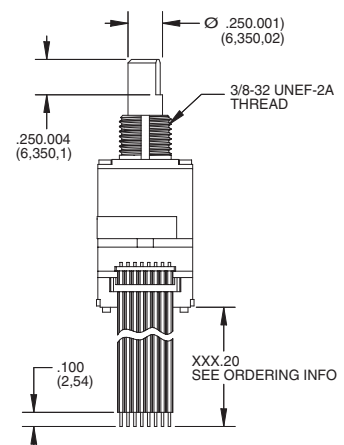


Stripped Version

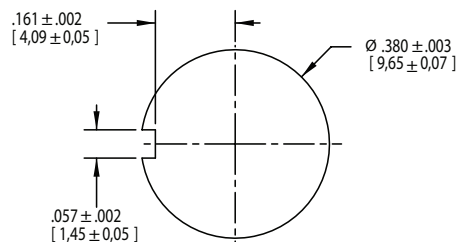


| # POS | DIM "A" |
|-------|---------|
| 16 | 11.25 |
| 32 | 5.625 |

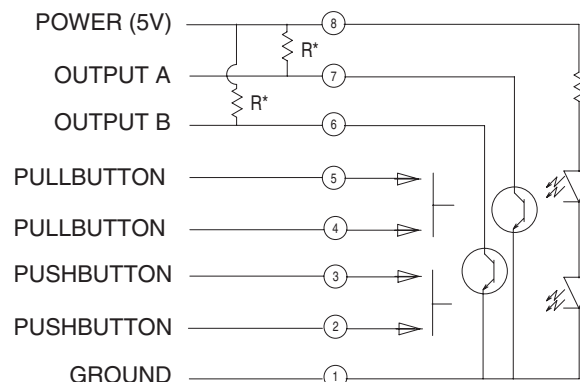
*SHAFT SHOWN IN A DETENT POSITION



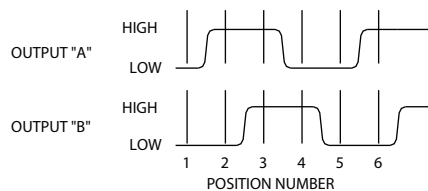
Suggested Mounting Panel Cutout



SWITCH SCHEMATIC, WAVEFORM, AND TRUTH TABLE



WAVEFORM AND TRUTH TABLE 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.

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 15 g, within a varied frequency of 10 to 2000 Hz

Mechanical Shock:

Test 1: 100 g for 6 ms half-sine wave with a velocity change of 12.3 ft/sec

Test 2: 100 g for 6 ms sawtooth wave with a velocity change of 9.7 ft/sec

Rotary Electrical and

Mechanical Specifications

Operating Voltage: 5.00±.25 Vdc

Supply Current: 30 mA maximum at 5 Vdc

Output: Open collector phototransistor, external pull-up resistors are required

Output Code: Two-bit quadrature, channel A leads channel B by 90° electrically during clockwise rotation of the shaft

Logic Output Characteristics:

Logic high signal shall be no less than 3.0 Vdc

Logic low signal shall be no greater than 1.0 Vdc

Minimum Sink Current: 2.0 mA

Power Consumption: 150 mW maximum

Mechanical Life: 1 million rotational cycles of operation. One cycle is a rotation through all positions and a full return

Average Rotational Torque: 16 position: 5.0 ± 1.5 in-oz, 32-position: 2.5 ± 1.5 in-oz. Torque shall be within 50% of initial value throughout life

Mounting Torque: 15 in-oz maximum

Shaft Push-Out Force: 45 lbs minimum

Shaft Pull-Out Force: 20 lbs minimum

Terminal Strength: 15 lbs minimum terminal pull-out force for cable or header termination

Solderability: 95% free of pin holes and voids

Pull-Button/Push-Button Electrical and Mechanical Specifications

Rating: 10 mA at 5 Vdc

Contact Resistance: <10 ohms

Life: 3 million actuations minimum

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

Actuation Force: 1700±450 g for both push and pull-button

Shaft Travel: .030±.010 standard travel.

.050±.010 long travel

Materials and Finishes

Bushing: Zinc Diecast, Cadmium Plated per QQP-416, Class II, Type II

Shaft: Aluminum

Detent Cover: Powdered Metal per SS-316N1-25

Through Bolts: 305 Stainless Steel

Through Bolts Nuts: 305 Stainless Steel

Shaft Travel Springs: Carbon Steel, Oil Dip Finish

Detent Ball: Stainless Steel

Detent Spring: Tinned Music Wire

Spacer/Push Dome Retainer: Ryton R-4

Push Actuator: Zytel 70G33L

Snap Dome: Stainless Steel

Printed Circuit Boards: Nema Grade FR4, Double Clad with Copper, Plated with Gold

over Nickel

Infrared Light 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

Code Rotor: Delrin 100

Code Housing: Hiloy-610

Pull Dome Retainer: Ryton R-4

Pull Actuator: Polyurethane, Isoplast 101 LGF40 Blk

Cover: Ryton R-4

Cable: Copper Standard with Topcoat in PVC Insulation (Cabled Versions Only)

Connector: PA4.6 with Tin over Nickel Plated Phosphor Bronze (Cable/Connector Versions)

Label: TT406 Thermal Transfer Cast Film

Solder: Sn/Ag/Cu, lead-free, no clean

Lubricating Grease: Nye Nyogel 774L

Mounting Hex Nut: Tin/Zinc Over 1/2 Hard Brass

Lockwasher: 8-18 Stainless Steel, Passivate Finish

Pin Header: Hi-Temp Glass Filled Thermoplastic UL94V-0, Phosphor Bronze (Pinned Versions Only)

ORDERING INFORMATION



Series

Angle of Throw: 22 = 22.5° For Code Change and 16 Detent Positions.

11 = 11.25° For Code Change and 32 Detent Positions.

Push/Pull-Button Travel: S = Standard Travel (.030" Both Directions). L = Long Travel (.050" Both Directions)

Push/Pull Option: P = Pull-Button Only. PP = Push and Pull-Button

Termination: C = .050" Pitch Ribbon Cable with Connector

S = .050" Pitch Ribbon Cable with Stripped End

P = .050" Pitch Pin Header

Cable Termination: 040 = 4.0in. Cable is terminated with Amp Connector P/N 215083-6.

See Amp Mateability Guide for mating connector details.

*Eliminate cable length if ordering pins (Ex: 62B22-SP-P)

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Grayhill:

[62B11-LP-P](#) [62B11-LPP-040S](#) [62B22-SPP-040S](#) [62B11-LP-040C](#) [62B22-LPP-040C](#) [62B22-SPP-P](#) [62B22-SP-P](#)
[62B11-LPP-040C](#) [62B11-SPP-040S](#) [62B11-LPP-P](#) [62B22-SPP-040C](#) [62B11-SPP-P](#) [62B11-LP-040S](#) [62B11-SP-](#)
[040C](#) [62B11-SPP-040C](#) [62B22-LPP-040S](#) [62B11-SP-P](#) [62B22-LPP-P](#)