

## SERIES 63A

High Resolution, 20mm,  
Absolute Encoding

### FEATURES

- Miniature Size, 20mm (0.787") Diameter
- Single Ended Outputs
- Long Service Life
- Conductive Carbon Fiber Housing
- IP 50 Sealing
- High Noise Immunity
- Low Supply Current Requirements
- 8-Bit Gray Code or Binary Output
- Single Turn 8-Bit Word

### APPLICATIONS

- Steer by Wire
- Machine Tool Controls
- Material Handling
- Flow Meters
- Any Application Requiring Discrete Digital Positioning and Angular Detection at Start Up.

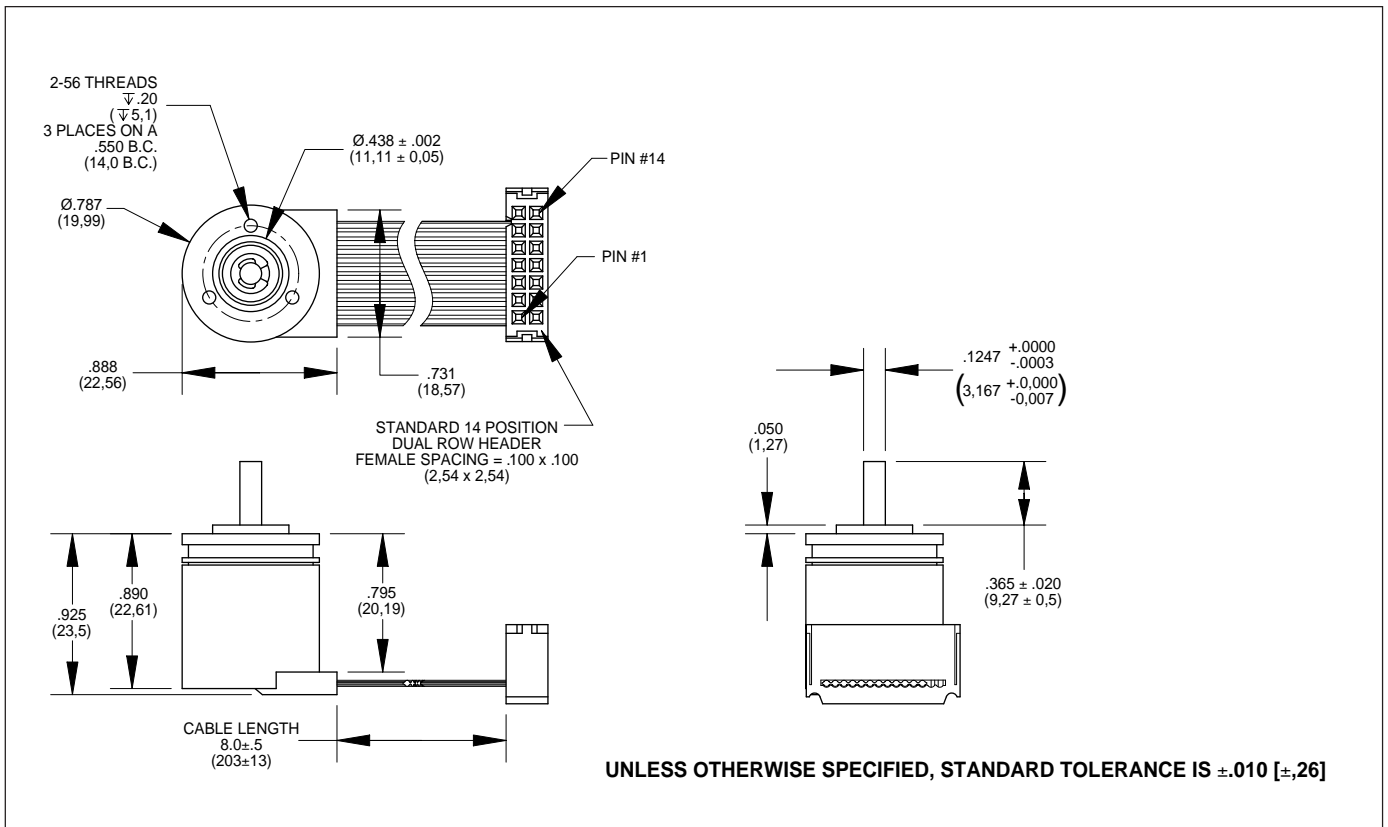


### DESCRIPTION

The Series 63A is intended for applications requiring high performance, high-resolution digital feedback in a very small package. The Series 63A encoder provides 8-bit absolute resolution in a package only 20mm (0.787") in diameter.

Outputs can be configured in either gray code or binary code. The encoder housing is constructed of a conductive carbon fiber composite that provides the EMI shielding of an all metal housing and the performance of a lightweight robust assembly.

### DIMENSIONS In inches (and millimeters)



## SPECIFICATIONS

### Electrical Ratings

**Input Voltage:** 5.0 ± 5% Vdc or 5-26 Vdc

**Input Current Requirements:** 40 mA maximum plus interface loads

**Ripple Current:** 2% peak-to-peak @ 5 Vdc

**Output Circuits:** TTL Compatible

VOH >3.80v@-8mA, VOL<0.44v@8mA

VOH >2.50v@-20mA, VOL<0.50v@20mA

### Output Format:

Gray code or Binary Code: 8-bit, single turn, single ended. Gray code option utilizes low true Chip Enable (CE') that is pulled down with internal 10K resistor. Positive TTL signal to CE' will force the 8-bit outputs to tri-state condition allowing for shared data paths between encoders, easing basic microprocessor bus interfacing.

**Frequency Response:** 50 kHz

**Output Count Increase:** Clockwise rotation (Option A); counter clockwise rotation (Option B) See ordering information.

**Positional Accuracy:** ±0.5 LSB maximum error

### Mechanical Ratings

**Maximum Shaft Speed:** 8,000 RPM

**Shaft Diameter:** 0.125" (3,175mm)

**Shaft Material:** Stainless steel

**Bearings:** Radial ball bearing, R2 type

**Radial Shaft Load:** 2 lbs maximum

**Axial Shaft Load:** 1 lb maximum

**Housing:** Carbon fiber composite (case ground via connector)

**Housing Volume Resistivity:** 10<sup>-2</sup> ohm-cm

**Termination:** 8" 12-conductor ribbon cable with 2x7 connector

**Mounting:** Servo

**Moment of Inertia:** 9.5x10<sup>-6</sup> oz-in-sec<sup>2</sup>

**Acceleration:** 1x10<sup>5</sup> radians per second<sup>2</sup>

### Environmental Ratings

**Operating Temperature Range:** 0 to 70°C typical; -20°C to 100°C optional (contact Grayhill for more information)

**Thermal Shutdown:** Tambiant max. vs. input voltage max. 40°C = 25.0v, 60°C = 20.0v, 80°C = 15.0v, 100°C = 10.0v (Total load currents=30 mA)

**Storage Temperature Range:** -40°C to 125°C

**Humidity:** 98% non-condensing

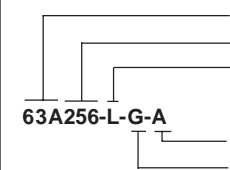
**Vibration:** 20g @ 50-500 CPS

**Mechanical Shock:** 50g @ 11mS duration

## ELECTRICAL CONNECTIONS

Pin#	Gray Code	Binary Code	Pin#	Gray Code	Binary Code
1	COM	COM	8	G <sub>5</sub>	2 <sup>5</sup>
2	+V	+V	9	G <sub>6</sub>	2 <sup>6</sup>
3	G <sub>0</sub>	2 <sup>0</sup>	10	G <sub>7</sub>	2 <sup>7</sup>
4	G <sub>1</sub>	2 <sup>1</sup>	11	Case	Case
5	G <sub>2</sub>	2 <sup>2</sup>	12	CE'	N.C.
6	G <sub>3</sub>	2 <sup>3</sup>	13	N.C.	N.C.
7	G <sub>4</sub>	2 <sup>4</sup>	14	N.C.	N.C.

## ORDERING INFORMATION



**Series:** 63A

**Resolution:** 256 Absolute Positions

**Voltage:** L = 5.0 ±5% Vdc, H = 5-26 Vdc

**63A256-L-G-A**

**Output Count Increase:** A = shaft turned clockwise\*, B = shaft turned counterclockwise\* (\*flange side view)

**Output Option:** B = Binary, G = Gray Code

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