

Optical Encoders

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

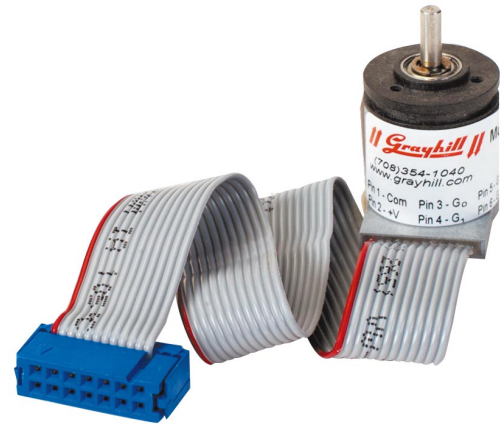
APPLICATIONS

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

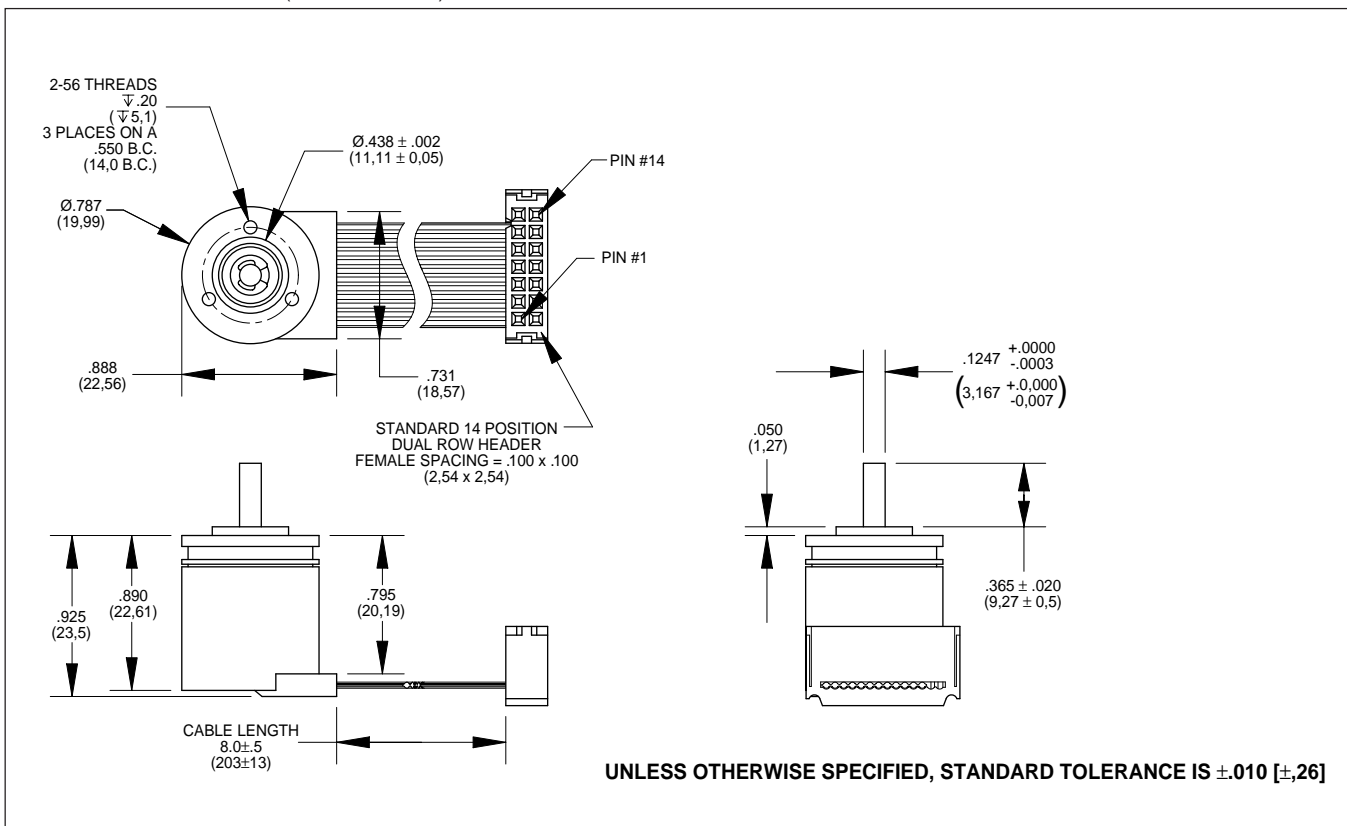
DESCRIPTION

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: 10⁻² ohm-cm

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

Mounting: Servo

Moment of Inertia: 9.5x10⁻⁶ oz-in-sec²

Acceleration: 1x10⁵ radians per second²

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 ₅	2 ⁵
2	+V	+V	9	G ₆	2 ⁶
3	G ₀	2 ⁰	10	G ₇	2 ⁷
4	G ₁	2 ¹	11	Case	Case
5	G ₂	2 ²	12	CE'	N.C.
6	G ₃	2 ³	13	N.C.	N.C.
7	G ₄	2 ⁴	14	N.C.	N.C.

OPTIONS

Contact Grayhill for custom terminations and temperature ratings.

ORDERING INFORMATION

Series: 63A

Resolution: 256 Absolute Positions

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

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

Output Option: B = Binary, G = Gray Code

63A256-L-G-A

Available from your local Grayhill Component Distributor. For prices and discounts, contact a local Sales Office, an authorized local Distributor, In Beijing, CHINA, Phone:(010)6858-5001, Fax:(010)6851-9889, Homepage: [Http://www.hmcs.com.cn](http://www.hmcs.com.cn)