

## SERIES 63Q High Resolution, 20mm

### FEATURES

- Miniature Size, 20mm (0.787") Diameter
- Resolutions up to 1024 Lines per Revolution
- Single Ended and Differential Outputs
- 1 Billion Rotational Life Cycles
- Conductive Carbon Fiber Housing
- IP 50 Sealing
- High Noise Immunity
- Low Supply Current Requirements

### APPLICATIONS

- Steer by Wire
- Fractional Horse Power Motors
- Machine Tool Controls
- Material Handling
- Flow Meters

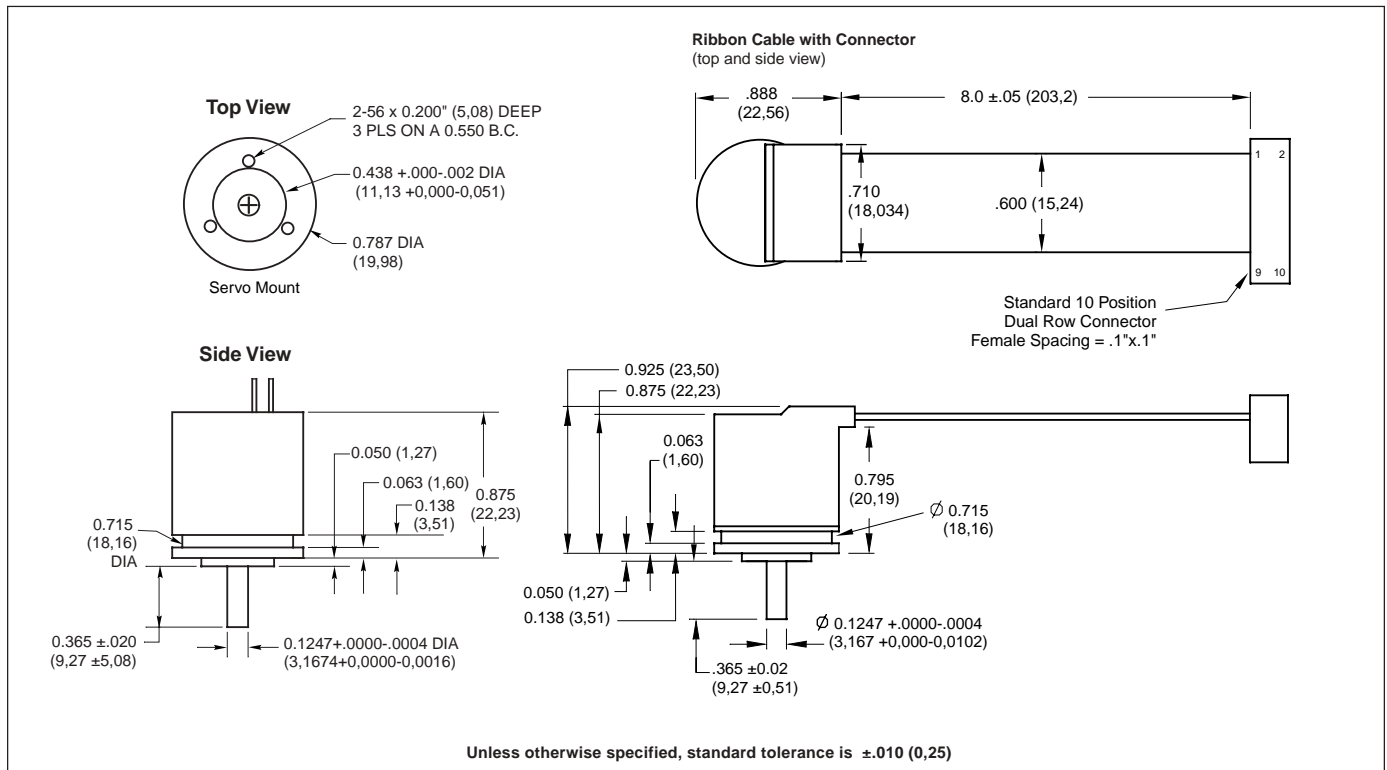


### DESCRIPTION

The Series 63Q is intended for applications requiring high performance, high-resolution digital feedback in a very small package. It provides the resolution of larger encoder packages but in a package only 20mm (0.787") in diameter. Outputs can be configured in either single ended, open collector or internal pull-up resistor, or with an industrial standard RS422A differential line driver. The

sensing scheme also embodies a much simplified encoder design, which ultimately results in longer service life, and less down time due to feedback device failure. 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)



**PIN WIRING, CIRCUITRY, AND WAVEFORM STANDARD**

Pin Wiring	Waveforms	Output Circuits
Pin #1 Common Pin #2 +Vdc Pin #3 Z Pin #4 Z' Pin #5 B Pin #6 B' Pin #7 A Pin #8 A' Pin #9 N/C Pin #10 Case		<b>TTL Output</b>  <b>RS422A Line Driver, OL7272 5-26VDC Line Driver</b> 

**SPECIFICATIONS**

**Electrical Ratings**

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

**Input Current Requirements:** 100 mA maximum output option 1 and 2, 50 mA maximum output option 3; plus interface loads

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

**Output Circuits:** AM26LS31 RS422A line driver, OL7272 line driver, TTL

**Logic Output Characteristics:**

Output Type: Quadrature with channel A leading channel B for CW rotation with ungated index pulse true over A and B high

**Frequency Response:** 200 kHz

**Symmetry:** 180° ±10% typical

**Minimum Edge Separation:** 54 electrical degrees

**Mechanical Ratings**

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

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

**Shaft Material:** Stainless steel

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

**Radial Shaft Load:** 2 lbs maximum

**Axial Shaft Load:** 1 lbs maximum

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

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

**Termination:** Two rows of 5 pins on 0.100" centers. 8" ten conductor ribbon cable with 2x5 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)

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

**Relative Humidity:** 98% non-condensing

**Vibration:** 20G's @ 50-500 CPS

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

**OPTIONS**

Contact Grayhill for custom terminations, resolutions, mounting configurations, shaft couplings and configurations, and absolute positioning up to 256 positions.

Optical and Mechanical Encoders

**ORDERING INFORMATION**

**63QAL-1-P**

- Series**
- Resolution:** (quadrature cycles per revolution) A = 500, B = 512, C = 1000, D = 1024
- Voltage:** L = 5 ±5% Vdc, H = 5-26 Vdc
- Termination:** C = 8" cable with connector, P = pin (no cable)
- Output Option:** 1 = RS422A line driver; 2 = OL7272 (5-26 Vdc) line driver; 3 = TTL output

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