

### QD200 (2.00") Diameter Optical Encoder

#### Design Features:

- 500 kHz Fundamental Frequency Response
- Low profile, 0.93" assembled height
- Bearing design simplifies encoder attachment
- Resolutions up to 5000 lines per revolution direct read
- 4, 6 or 8 pole commutation
- Conductive carbon fiber housing
- Standard 2.375" Bolt Circle mounting
- Through shaft sizes up to 0.625" Diameter
- High Noise Immunity

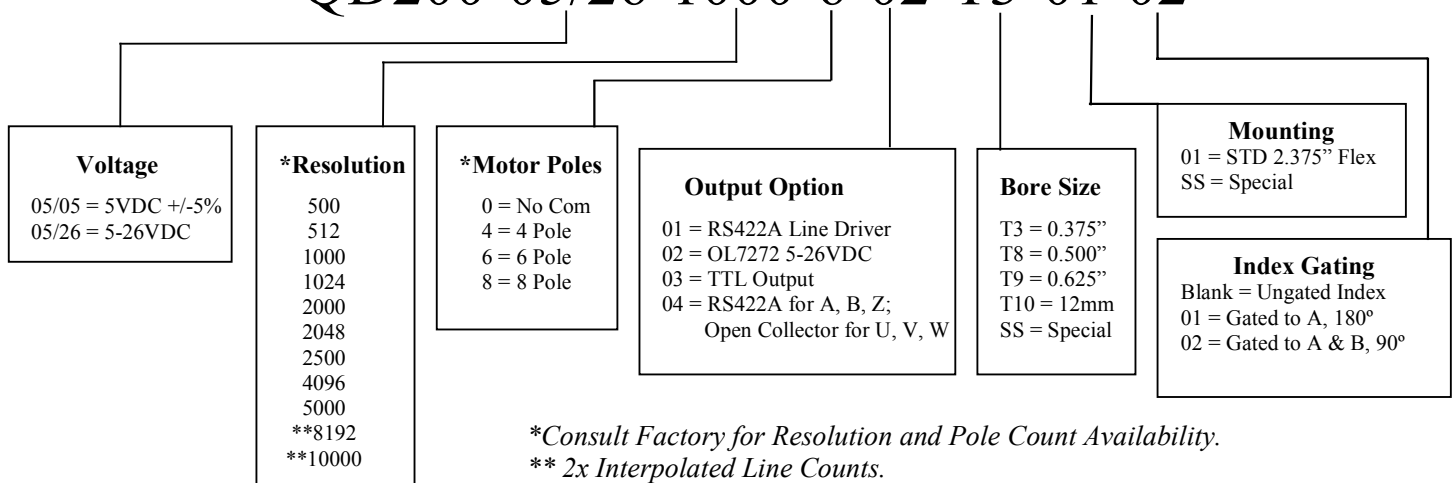


#### Description:

Quantum Devices, Inc. Model QD200 provides an improved feedback solution in applications typically using modular encoders. With an overall length of 0.93" and the stability of a bearing encoder design, the model QD200 can provide significant performance upgrades in applications limited by traditional modular encoder solutions. Outputs consist of a quadrature with reference pulse and three-phase commutation, which can be configured with either the industrial standard 5 volt RS422A Line Driver or the 5 to 26 volt OL7272 line driver. A flexible spring mount allows for much greater tail shaft run out than can be tolerated by modular encoder designs, plus it provides 30 degrees of rotation for commutation timing. A housing constructed of conductive carbon fiber composite provides the EMI shielding of an all metal housing and the performance of a lightweight robust assembly.

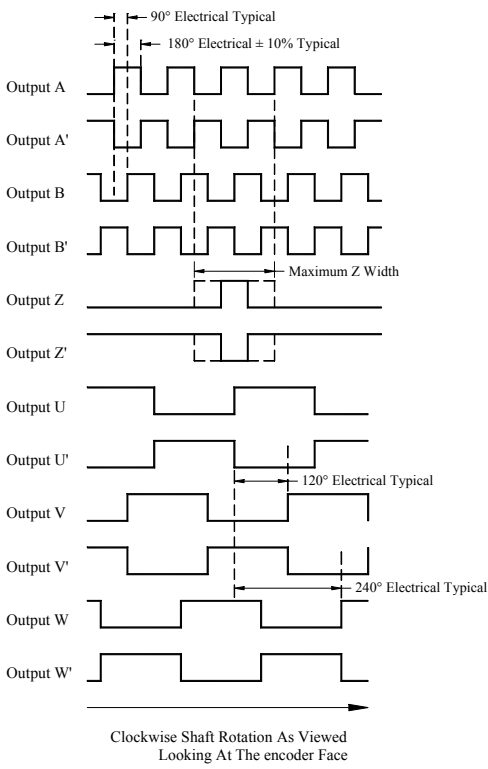
#### Ordering Information:

### QD200-05/26-1000-6-02-T3-01-02



\*Consult Factory for Resolution and Pole Count Availability.  
\*\* 2x Interpolated Line Counts.

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See figure below

### Output Waveforms

**Note:** TTL Output Option consists of +VDC, Common, Case Ground and Output's A, B & Z wires only

#### QD200 Wiring Diagram

Red -+VDC
Black - Common
Brown - Output A
White - Output A'
Blue - Output B
Green - Output B'
Orange - Output Z
Yellow - Output Z'
Violet - Output U
Gray - Output U'
Brown/White - Output V
Red/White - Output V'
Orange/White - Output W
Yellow/White - Output W'
Black/White - Case Ground
Drain Wire - Cable Shield

### Electrical Specifications

Input Voltage	5 VDC $\pm$ 5% or 5-26 VDC
Input Current Requirements	125mA Typical @ 5VDC Plus Interface Loads
Input Ripple	2% Peak to Peak @ 5 VDC
Output Circuits	AM26LS31 RS 422A line driver OL7272 High Voltage Line Driver TTL Output
Incremental Output Format	Quadrature with A leading B for CW rotation with Index Pulse centered over A for 2500 line count and below. Index Pulse true over A and B High for 2500 line count and above
Frequency Response	500 kHz
Symmetry	180 Degrees $\pm$ 10% Typical
Minimum Edge Separation	54 electrical degrees
Commutation Format	Three Phase 4, 6 or 8 poles
Commutation Accuracy	$\pm$ 1° mechanical

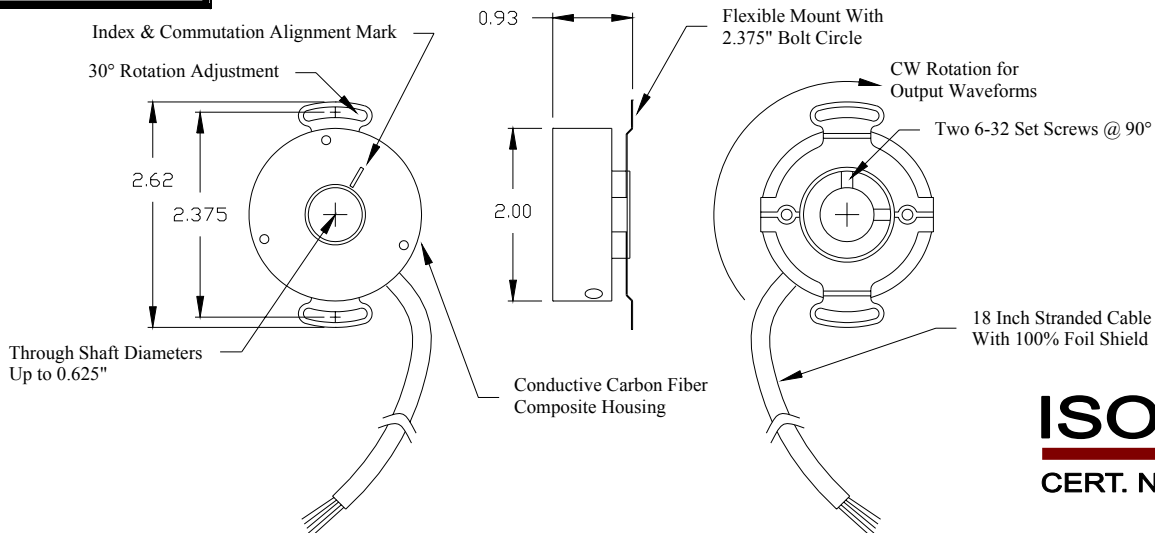
### Environmental Specifications

Storage Temperature	-40 to 125° C
Operating Temperature	-20 to 100° C Typical -20 to 120° C Optional**
Humidity	98% Non-Condensing
Vibration	20 g's @ 50 to 500 CPS
Shock	50 g's @ 11mS Duration

### Mechanical Specification

Maximum Shaft Speed	8000 RPM
Through Shaft Diameter	0.375", 0.500", 0.625", 12mm (-0.0000, +0.0005)
Radial Shaft Movement	0.007" TIR
Axial Shaft Movement	$\pm$ 0.030"
Housing	Carbon Fiber Composite (case ground via cable)
Housing Volume Resistivity	$10^{-2}$ ohm-cm
Termination	15 conductor Cable, 28 AWG 18" long, 9 conductor Cable for non-commutated and TTL outputs
Mounting	2.375" Bolt Circle
Moment of Inertia vs. Shaft $\emptyset$	$\emptyset$ 0.375( $6.5 \times 10^{-4}$ oz -in -s <sup>2</sup> ), $\emptyset$ 0.500( $6.0 \times 10^{-4}$ oz -in -s <sup>2</sup> ), $\emptyset$ 0.625( $5.1 \times 10^{-4}$ oz -in -s <sup>2</sup> )
Acceleration	$1 \times 10^5$ Radians/S <sup>2</sup>
Accuracy	$\pm$ 1.0 arc minute

\*\* Contact Factory for more information



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