

# Quantum Devices, Inc.

"Improving the Quality of Life through the Power in Light"

## QPhase™

### QD110 Size 11 High Resolution Optical Encoder

#### Design Features:

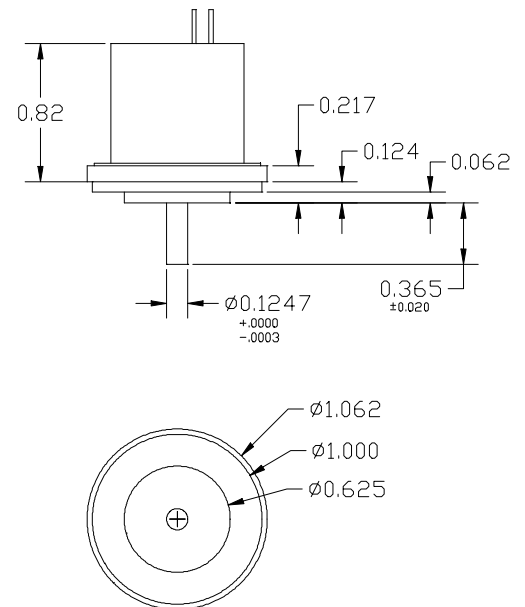
- Standard Size 11 encoder mounting
- Compatible with Size 11 Resolver mounting
- Resolutions up to 2048 line per Revolution Direct Read
- Unique Optical Sensing System
- Differential and single ended outputs
- Nickel coated carbon fiber composite housing
- IP 50 sealing
- High noise immunity
- Low supply current requirements



#### Description:

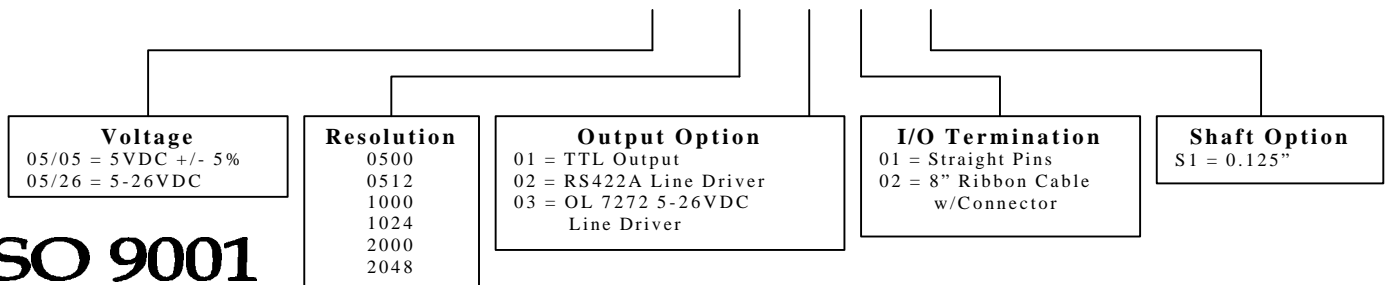
Quantum Devices, Inc. Model QD110 is designed to provide high resolution digital feedback in an industrial standard size 11 mounting format. Quadrature with reference pulse output format, resolutions up to 2048 lines per revolution (direct read) and a variety of electrical options are easily capable of satisfying the most demanding feedback application. The QD110 provides the user digital position information, directly from the feedback device, without the external R to D converters that are typically used with resolver feedback. Converting from size 11 resolver to encoder feedback is easily accomplished with the QD110 without the need for costly mounting modification to existing designs. QDI's unique optical sensing system embodies a much simplified encoder design, which ultimately results in longer service life and less down time due to feedback device failure. A nickel coated carbon fiber composite housing provides the EMI shielding of an all-metal housing and the high performance of a lightweight assembly.

#### Package Dimensions



#### Ordering Information

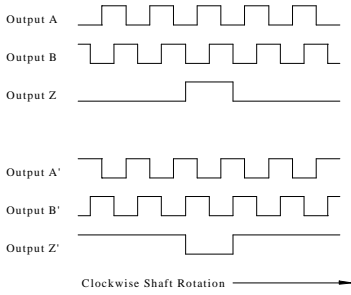
**QD110-05/05-0500-01-01-S1**



### ISO 9001

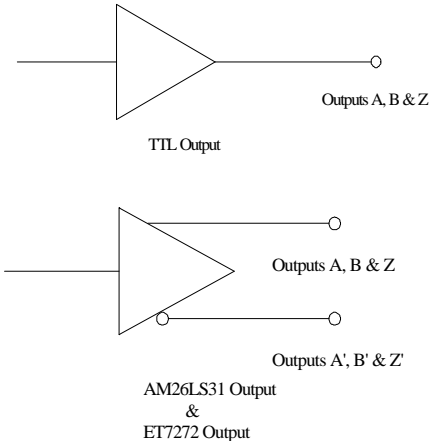
CERT. NO. FM 52711

### Output Waveforms



Viewed From Shaft End

### Output Circuits



### Electrical Specifications

Input Voltage	5 VDC $\pm$ 5% or 5-26 VDC
Input Current Requirements	80 mA Max. Output Option 01 & 02, 35mA Max Output Option 03; plus Interface Loads
Input Ripple	2% Peak to Peak @ 5 VDC
Output Circuits	AM26LS31 RS 422A line driver TTL Output OL7272 Line Driver
Output Format	Quadrature with A leading B for CW rotation. Index centered over A
Frequency Response	200 kHz
Symmetry	180 Degrees $\pm$ 10%
Minimum Edge Separation	54 electrical degrees max

### Environmental Specifications

Storage Temperature	-40 to 125° C
Operating Temperature	0 to 70° C Typical -20 to 100° C Optional**
Humidity	98% Non-Condensing
Vibration	20 g's @ 50 to 500 CPS
Shock	50 g's @ 11mS Duration

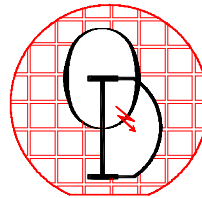
### Mechanical Specification

Maximum Shaft Speed	8000 RPM
Shaft Diameter	0.125"
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>

\*\*Contact Factory for more information

### QD110 Wiring Information

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



For more information contact...

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\*Quantum Devices, Inc. reserves the right to make changes in design, specifications and other information at any time without prior notice.

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