

## QR787 w/Shaft

### DESIGN FEATURES

- Miniature size, 20 mm (0.787") diameter
- Resolutions up to 2048 PPR direct read
- Single ended and differential outputs
- Long service life
- Conductive carbon fiber housing
- IP50 sealing
- High noise immunity
- RoHS Construction
- Low supply current requirements



Quantum Devices, Inc. Model QR787 is intended for applications requiring high performance, high-resolution digital feedback in a very small package. The model QR787 provides the resolution of larger encoder packages but in a package only 20 mm (0.787") in diameter. Outputs can be configured in either single ended, 5 volt RS-422 differential or with high voltage differential line driver. QDI's patented sensing scheme embodies a much simplified encoder design, which ultimately results in longer service life and less downtime 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 performance of a lightweight robust assembly.



#### Configuration Options:

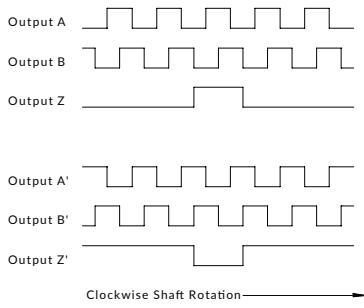
Voltage	Resolution	Output	I/O Termination	Solid Shaft
05/05 = 5 VDC 05/26 = 5-26 VDC	500, 512, 1000, 1024, 2000, 2048	01 = TTL 02 = Line Driver 03 = 5-26 VDC Line Driver	01 = Straight Pins 02 = 8" Ribbon Cable w/ Connector	S1 = 0.125"

Sold & Serviced By:



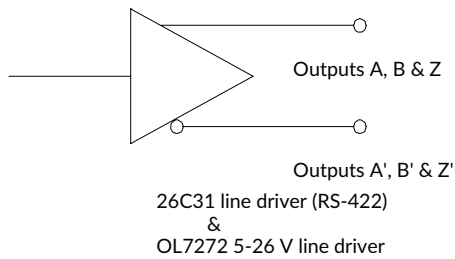
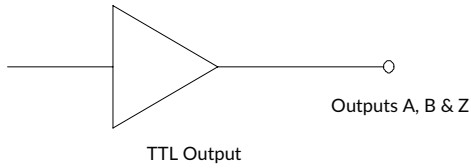
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## OUTPUT WAVEFORMS



Viewed From Shaft End

## OUTPUT CIRCUITS



## QR787 WIRING INFORMATION

Pin Number	Function
1	Common
2	Vcc
3	Z
4	Z'
5	B
6	B'
7	A
8	A'
9	NC
10	Case

## ELECTRICAL SPECIFICATIONS

Input Voltage	5 VDC $\pm$ 5% or 5-26 VDC
Input Current Requirements	100 mA Max. output option 01 & 02, 50mA max output option 03; plus interface loads
Input Ripple	2% peak to peak @ 5 VDC
Output Circuits	01 = TTL output (single-ended) 02 = 26C31 line driver (RS-422) 03 = OL7272 high voltage line driver
Output Format	Quadrature with A leading B for CW rotation Ungated Z index pulse true over A and B high
Max Operating Frequency	200 kHz
Symmetry	180° electrical $\pm$ 10%
Minimum Edge Separation	54° electrical

## 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 @ 11 ms duration

## MECHANICAL SPECIFICATIONS

Maximum Shaft Speed	8000 RPM
Nominal Shaft Diameter	0.125"
Shaft Material	Stainless steel
Bearings	Radial ball bearing, R2 type
Radial Shaft Load	2 lb maximum
Axial Shaft Load	1 lb maximum
Housing	Carbon fiber composite (case ground via connector)
Housing Volume Resistivity	$10^{-2}$ 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	$9.5 \times 10^{-6}$ oz-in-s <sup>2</sup>
Acceleration	$1 \times 10^5$ radians/s <sup>2</sup>

\*\*Contact factory for more information

