



QPhase™
Encoders

QR787 w/Blind Bore

DESIGN FEATURES

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



Quantum Devices, Inc. Model QR787 blind bore version provides a high performance, high resolution digital feedback solution for small motor applications. The QR787 model 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.

QR787 - 05/05 - 0500 - 01 - 01 - H1

Voltage Resolution Output I/O Termination Bore Size

Configuration Options:

Voltage
05/05 = 5 VDC
05/26 = 5-26 VDC

Resolution
500, 512,
1000, 1024,
2000, 2048

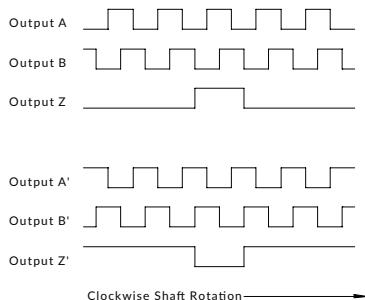
Output
01 = TTL
02 = Line Driver
03 = 5-26 VDC Line Driver

I/O Termination
01 = Straight Pins
02 = 8" Ribbon Cable w/Connector

Bore Size
H1 = 2.5 mm
H2 = 2 mm
H3 = 0.125"
H4 = 3 mm
H5 = 4 mm

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OUTPUT WAVEFORMS

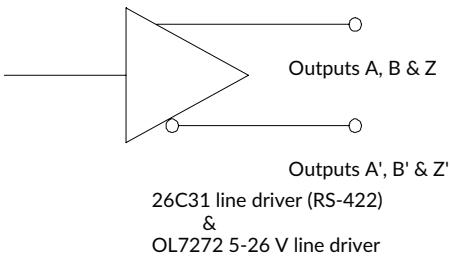
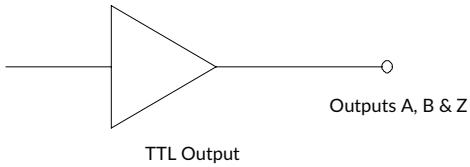


Viewed From Shaft End

ELECTRICAL SPECIFICATIONS

Input Voltage	5 VDC ± 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 Currents	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 ± 10%
Minimum Edge Separation	54° electrical

OUTPUT CIRCUITS



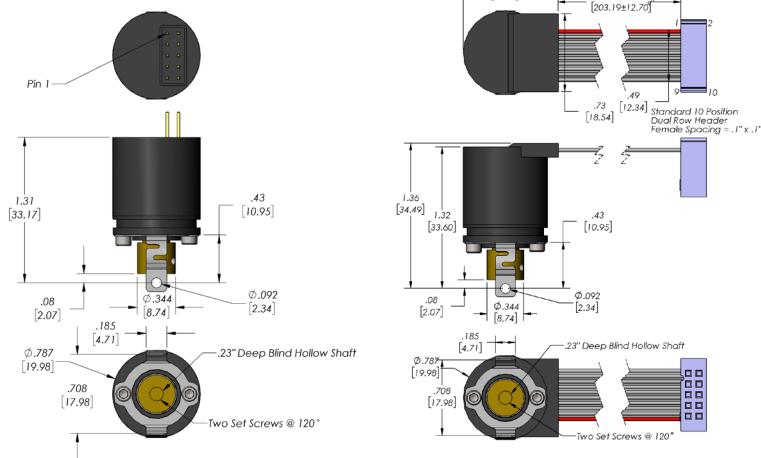
ENVIRONMENTAL SPECIFICATIONS

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
Bore Diameter (Tolerance)	0.125", 2 mm, 2.5 mm, 3 mm, 4 mm (+0.0005/-0.0000")
Shaft Material	360 brass
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 x 10 ⁻⁶ oz-in·s ²
Acceleration	1x10 ⁵ radians/s ²

**Contact factory for more information



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

REV. 200601

ISO 9001
CERT. NO. FM 52711