Quantum Devices

QPhase™ Encoders

QR110

DESIGN FEATURES

- Standard size 11 encoder mounting
- Compatible with size 11 resolver mounting
- Resolutions up to 2048 PPR direct read
- Unique optical sensing system
- Differential and single ended outputs
- Nickel coated carbon fiber composite housing
- IP50 sealing
- High noise immunity
- RoHS Construction
- Low supply current requirements

Quantum Devices, Inc. Model QR110 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 QR110 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 QR110 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 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.

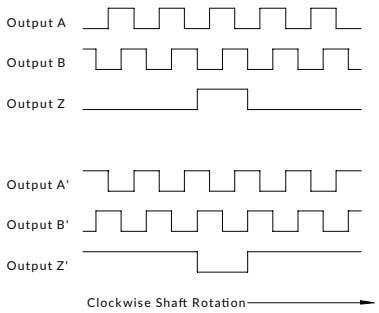
QR110	-	05/05	-	0500	-	01	-	01	-	S1
		Voltage		Resolution		Output		I/O Termination		Solid Shaft

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"

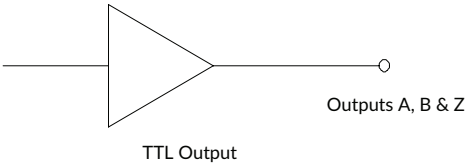
ISO 9001
CERT. NO. FM 52711

OUTPUT WAVEFORMS

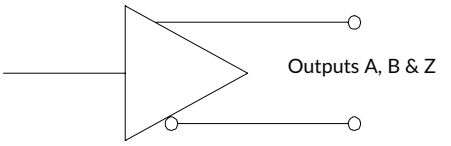


Viewed From Shaft End

OUTPUT CIRCUITS



TTL Output



26C31 line driver (RS-422)
&
OL7272 5-26 V line driver

QR110 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 ± 5% or 5-26 VDC
Input Current Requirements	80 mA max. Output option 01 & 02, 35 mA 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 ± 10%
Minimum Edge Separation	54° electrical

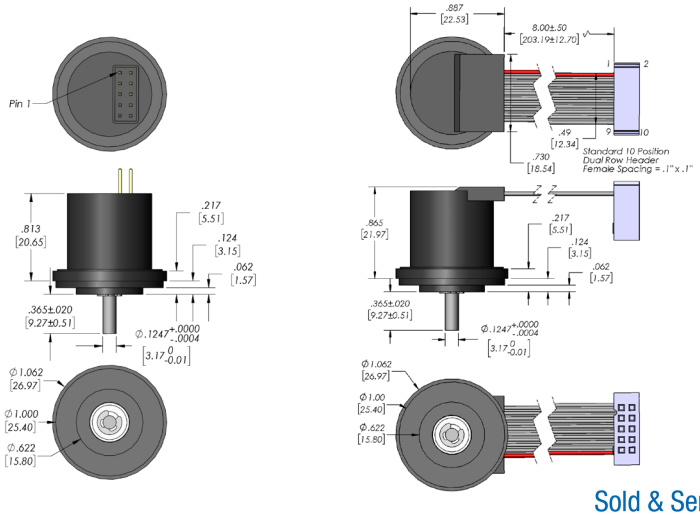
ENVIRONMENTAL SPECIFICATIONS

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	Size 11 resolver
Moment of Inertia	$9.5x10^{-6}$ oz·in·s²
Acceleration	$1x10^{5}$ radians/s²

***Contact factory for more information*



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