DNA/DNR-QUAD-604

Quadrature Encoder Input / Data Acquisition Board

- 4 quadrature encoder inputs with A, B and Z (index) inputs
- Buffered or single point readings
- Simultaneous updates on all four channels
- 8 digital output and 4 digital input bits
- x1, x2 and x4 input modes
- Debouncing/glitch removal on A, B and Z inputs
- DNA- version for "Cube" and DNR- version for RACKtangle™ chassis

10-Year Availability Guarantee

Supports **UEIDaq Framework** Data Acquisition Software Library for Windows. Linux and QNX drivers available. Visit our website for more details.

General Description

The DNA-QUAD-604 and DNR-QUAD-604 are four channel quadrature encoder input boards for UEI's "Cube" and RACKtangle I/O chassis respectively. The boards are electronically identical and provide A, B and Z (index) inputs for each channel. The 16.5 MHz max. input frequency coupled with the board's 32 bit counters ensure the board easily handles the most challenging applications. A programmable deglitch/debounce circuit allows the user to select debounce intervals between 60.6 nanoseconds and 1 second.

The Index pin may be set to perform a variety of tasks. It may be set to; reset/load the counter immediately, reset/load the counter on the next A/B: low/low, low/high, high/low or high/high cycle, generate an interrupt, generate a cube-wide trigger pulse, etc. The index may be based on either rising or falling edge signals.

The counters may be read on software command or the board may be set to transfer the counter data into buffers at fixed timing intervals. The 1024 count FIFO ensures ample time to read the FIFOs without risking an overflow condition.

The DNA/DNR-QUAD-604 also provides 4 digital inputs (in addition to the four A, B, Z channels) and 8 digital outputs. These digital I/O lines may be used as auxilliary digital inputs and outputs or configured as trigger in, trigger out and clock out signals for each of the channels. The digital I/O is compatible with both +5 and +3.3 volt logic, and the digital outputs are rated to supply ±12 mA of drive current. The board offers 350 V of isolation and 7 kV of ESD protection.

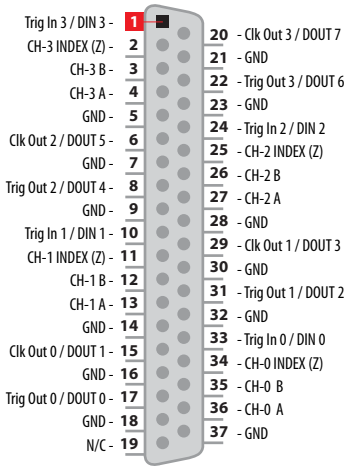
All connections are made through a convenient 37-pin D connector. The DNA/DNR-QUAD-604 provide an ideal solution in a wide assortment of quadrature input data acquisition and data logging applications.

Technical Specifications:

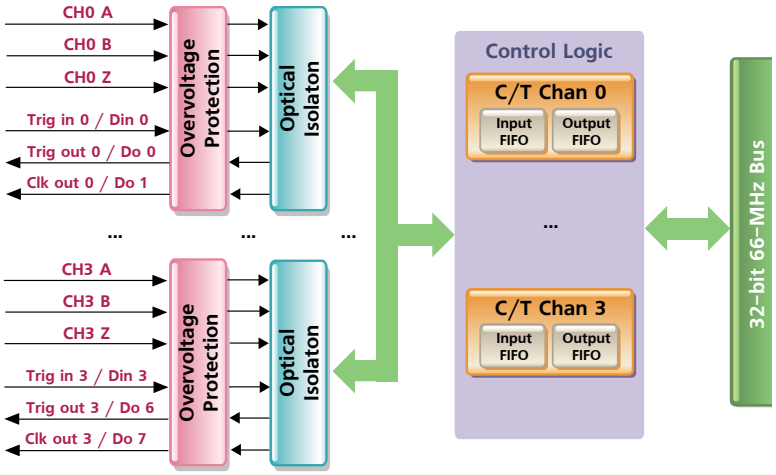
Number of inputs	4
Counter depth	32 bits
Input encoder modes	x1, x2 and x4
Maximum input frequency	16.5 MHz
Minimum input rise/fall time	1 µsec
Minimum frequency	no low limits
Minimum pulse width / period	15.15 nsec / 30.30 nsec
On-board FIFOs, per input	1024 counts
Debounce interval	60.6 nS to 1 S (user programmable in 256 nS steps)
Protection	7 kV ESD, ±40 VDC (80 mA per pin, max), 350V isolation
Input Low voltage	0.0-0.8V
Input High voltage	2.0-5.0V
Output Low voltage	0.0-0.8V
Output High voltage	2.0-5.0V at ±12 mA
Power consumption	2W
Operating range	Tested -40 to +85 °C
Humidity range	90%, noncondensing
Vibration	5 g (10 - 500 Hz)
Shock	50 g, 18 shocks at 6 orientations
Alltitude	to 70,000 feet

Pinout Diagram:

DB-37 (female) connector



Block Diagram



Connection Options:

Cable	Terminal Panel	Description
DNA-CBL-37	DNA-STP-37	DNA-CBL-37 3 foot ribbon cable connects directly to the DNA-STP-37 Screw Terminal Panel.
DNA-CBL-37S	DNA-STP-37	DNA-CBL-37S 3 foot shielded cable connects directly to the DNA-STP-37 Screw Terminal Panel.