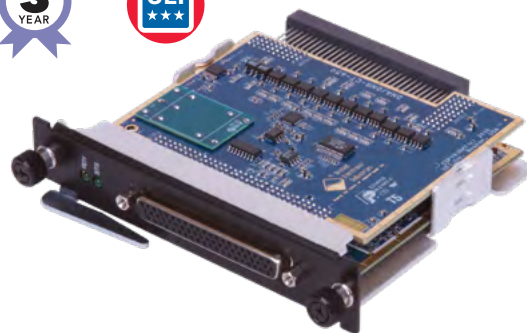


DNA/DNR-IRIG-650

IRIG Timing Generation and Synchronization board

- IRIG-A/B/E/G output allows cube to provide timing signals
- IRIG-A/B/E/G input allows cube to synchronize with external IRIG sources
- Modulated or DC level inputs and outputs
- 1 PPS input or output
- Event input captures timing to UTC
- Direct GPS input (active antenna)
- 10 MHz, 1 ppm time base or slaved to external 10 MHz



General Description

The DNA-IRIG-650 and DNR-IRIG-650 are IRIG-A, -B, -E or -G timing interfaces designed for use in UEI's popular Cube and RACKtangle chassis respectively. The boards may be used to capture IRIG-A, -B, -E or -G data when the Cube/RACKtangle will be slaved to an external master timing device. The DNX-IRIG-650 also provides IRIG-A/B/E/G outputs, allowing the Cube/RACKtangle to be configured as the system's master time keeper.

The DNX-IRIG-650 provides inputs for standard analog, modulated IRIG signals as well as non-modulated DC, DCLS and Manchester II inputs. In addition to the IRIG inputs, the board also allows the user to provide an external 10 MHz master clock and/or a 1 PPS synchronization pulse. A generic digital input may also be used to directly capture event timing.

The DNX-IRIG-650 can also be configured as an IRIG source which will provide timing and synchronization for other devices in the system. The board provides both modulated analog and digital IRIG outputs as well as 10 MHz and 1 PPS synchronization and timing DCLS/Manchester II signals. When used in systems with multiple Cubes or RACKS, synchronization may be provided by either taking advantage of the UEI sync interface or via the installation of a DNX-IRIG-650 in each chassis.

The board may also be used to convert one version of IRIG signal to another. Support for NASA-36, XR3, 2137 and WWVB is also possible (call for details).

The boards also include a built-in GPS interface. The GPS input is only compatible with active GPS antennas.

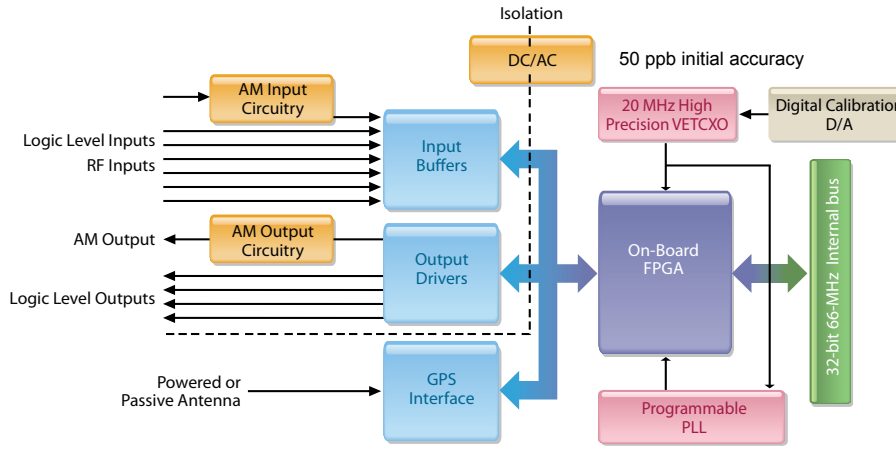
All connections are made through a convenient 62-pin D connector. The DNA-CBL-650 cable harness is included with the board. It breaks out the AM-IN, AM-OUT, EXTTRIG-IN and GPS connections to standard BNC connections while making connection to all other signals via a 37-pin "D" connector.

Software is included, providing a comprehensive, yet easy-to-use API that supports all popular operating systems, including Windows, Linux, and most real-time operating systems—such as QNX, Intime, VXworks, and more. Additionally, the UEIDAQ Framework—an even higher level Windows driver—supplies complete support for those creating applications in many popular Windows programming languages, as well as data acquisition software packages such as LabVIEW and MATLAB/Simulink.

Technical Specifications:

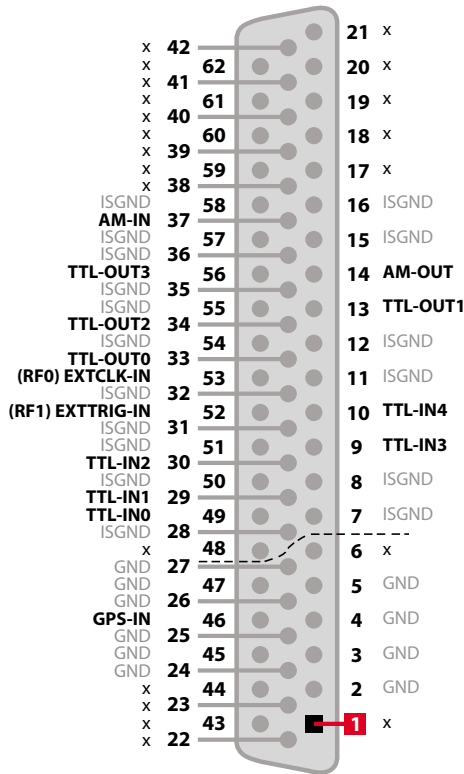
Inputs	
IRIG Analog inputs	A, B, E and G types supported
Modulation ratio	3:1 to 6:1
Input amplitude	500 mV to 5 V P-P (AC coupled)
Input impedance	> 10 k Ω
IRIG-B DC inputs	3.3/5 V logic compliant
10 MHz input	3.3/5 V logic compliant 40% to 60% duty cycle
1 PPS input	3.3 and 5 V logic compliant
GPS (up to 59,000 feet)	
Antenna configuration	Only active antennas are supported
Position (Velocity) accuracy	1.8 m (0.1 m/S) rms
UTC time accuracy	\pm 50 nS rms
Outputs	
IRIG Output types	A, B, E and G types supported
Analog output	3:1 ratio, 4 V P-P output (50 ohm)
Digital output high voltage	1.1 V - 50 Ω (min) 2.4V - 1 Meg Ω (min)
Digital output low voltage	0.3V - 50 Ω (max) 0.7V - 1 Meg Ω (max)
Sync and Clock outputs	TTL/CMOS compatible
Output timing signal selection	Std 1 & 10 PPS/PPM plus custom
Output clock selection	1, 5 and 10 MHz plus custom freqs.
On-Board Clock	
Frequency	10 MHz
Initial accuracy	50 PPB
Temperature stability	50 PPB over full temp range
Time stability	300 PPB per year
Output Voltage	TTL/CMOS compatible
General	
Power consumption	2W
Operating range	Tested -40 to +85 $^{\circ}$ C
Isolation	350 Vrms between all IRIG signals and the chassis. (GPS is not isolated)
Humidity range	0-95%, non-condensing
Vibration IEC 60068-2-6 IEC 60068-2-64	5 g, 10-500 Hz, sinusoidal 5 g (rms), 10-500Hz, broadband random
Shock IEC 60068-2-27 IEC 60068-2-64	100 g, 3 ms half sine, 18 shocks @ 6 orientations 30 g, 11 ms half sine, 18 shocks @ 6 orientations
Altitude	120,000 FT
MTBF	240,000 hours

Block Diagram



Pinout Diagram:

DB-62 (female) connector on DNX-IRIG-650 board



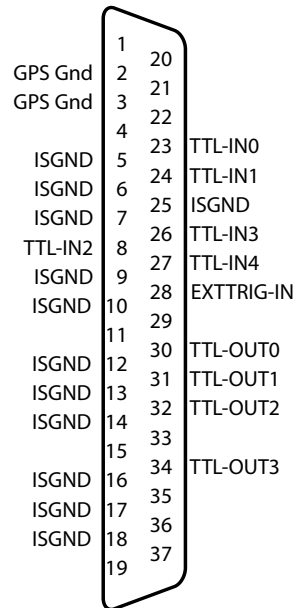
Pinout Diagram:

DNA-CBL-IRIG cable provided with board

The following signals are brought out to BNC connectors on the DNA-CBL-IRIG which is included with the purchase of the board:

PIN	Signal
37	IRIG AM Input
14	IRIG-AM Output
53	ExtClk-Input
46	GPS antenna input

The remaining signals are brought out to a 37-pin, Female connector at the end of the cable as shown below:



Connection Options:

Part #	Description
DNA-CBL-650	IRIG cable provides BNC connections for IRIG IN/OUT, GPS and EXTTRIG-IN signals and 37-pin "D" for other I/O. This cable is included with the board.
DNA-STP-37	Optional screw terminal board brings out TTL level signals from the CBL-650 to easy to use screw terminals

Related Products:

Part #	Description
DNA-GPS	GPS interface for PowerDNA, UEILogger, and UEIPAC
DNA-STP-37	Optional screw terminal board brings out TTL level signals from the CBL-650 to easy to use screw terminals
Extended Warranty	Option to purchase UEI's extended 3-5 year warranty is available