



FEATURES

- One-Board Design: 4-channel pulser/receiver and A/D converter on a single PCI board
- 32-bit PCI bus for ultra-fast data transfer
- On-board microprocessor for various custom applications
- Up to 4 on-board encoder counters for on-position acquisition
- Time stamps, XYZW positions, and I/O statuses for each A-scan
- 4-channel automatic timing and switching capability
- Distance amplitude correction (DAC) for all 4 channels
- Up to 100MSPS high-speed A/D conversions with 9-bit resolution
- Optional logarithmic amplifier
- FIFO memory for storage of multiple A-scans
- Pulser switcher-off while taking data for low pulser noise
- Wide-range dynamic gain
- Adjustable DC offset
- Included UT oscilloscope software for Windows 95/98/2000/NT
- Optional Windows 95/98/2000/NT software development kits for C/C++, Visual BASIC, or LabView

DESCRIPTION

UTM is a combination of a 4-channel pulser/receiver and a high-speed analog to digital converter on a single PCI board. The board generates an electrical pulse with the user-defined pulse voltage and pulse width through one of the 4 channels. The pulse is transmitted to an ultrasonic transducer, which then converts the electrical excitation pulse to an ultrasonic pulse that is propagated into either the tested material or couplant. The transducer also receives the echoes that are reflected from the interface and converts the ultrasonic pulse back into an electrical signal. The on-board receiver processes the signal with the user defined parameters, and the A/D converter converts analog signals into digital data at a rate of 100 million samples per second. The digital data is transferred to the computer's RAM at about 10 MB per second. The resolution of the conversion is 9 bits, which can be a number from 0 to 511. The memory depth can reach up to 256 kilo samples.

Other adjustable parameters include pulse voltage, pulse width, damping, internal relay for pulse/echo or through transmission switching, receiver gain, DC offset, low-pass filter, high-pass filter, rectifications, sampling rates, external trigger, buffer length and adjustable trigger delay. The pulsing channel and the receiving channel can also be set at the user's preference. And they do not have to be the same. A standard scope software is included with the board.

Options include digital inputs and outputs, an external clock input, a sync output, memory updates, an on-board hardware key module, a logarithmic amplifier, distance amplitude correction (DAC), additional two 14-bit analog to digital converters, and software development kits. Refer to PCIUT3100 all-in-one UT board and DT16B 16-channel pulser/receiver switching board for more channel solutions.

SPECIFICATIONS

Pulse Voltage	-40V to -300V, 256 steps. Higher voltages available upon request.	Resolution	8 bits (0 to 255) or 9 bits (0 to 511)
Pulse Width	50 ns to 484ns, 256 steps	Memory	16 kilo samples and 256 kilo samples
Damping	500 ohms, or 50 ohms	Waveform Length	16 to 16382 in 4 sample steps
Internal Trigger	10 Hz to 5000 Hz in 10 Hz increments when internal trigger is selected.	Trigger Source	external, internal or software
Receiver Gain	0 dB to 80 dB in 0.1dB increments.	Connectors	BNC connectors: 4 Pulse out, 4 receiver in, and 1 external trigger in
DC Offset	-2.5V to 2.5V in 5mV increments	Post Trigger Delay	2 to 32764 samples in 2 sample step
Low Pass Filter	All, 48MHz, 28MHz, 18MHz, 8.8MHz, 7.5MHz, 6.7MHz, or 5.9MHz	Dimensions	12.5"x4.25" not including BNC and PCI edge connectors
High Pass Filter	4.8MHz, 1.8MHz, 0.8MHz, or 0.6MHz	Add-on Options	<ul style="list-style-type: none"> - BNC external clock connector - BNC trigger sync output connector - Logarithmic amplifier - Distance amplitude correction (DAC) - Two additional 14-bit A/D converters - 256K sample memory upgrade - Windows software development kits - Hardware security key module - Hardware key development kit
Waveform	Full rectify, + half rectify, - half rectify, or RF		
Sampling Rate	100MHz, 50MHz, 25MHz, 12.5MHz, 6.25MHz, 3.125MHz, 1.5725MHz, and external clock < 100MHz		

Scope Window Screen

