

High Performance Instrumentation in a PC

Features

- 12 Bit Resolution at 40 MSPS
- 64k Samples/channel
- 20 MHz Bandwidth
- 10 Voltage Ranges
- Burst Mode
- Options: Video Trigger (Line Counter) Master/Slave, and Differential Inputs

The PCI-443 and PCI-444 Digital Oscilloscopes occupy one PC expansion slot and provide extensive features and outstanding specifications. Some of the advanced features of the PCI-443/4 include:

- External Sample Clock
- HF Reject, LF Reject, and Bandpass Trigger Filters
- Programmable Trigger Gain and an "Arm" Input
- Baseband Sampling for I/F Strips
- Temperature Compensated Offset Voltage

And, three options are available for enhancing the measurement performance of the PCI-443/4 :

- Video Trigger with Line Counting
- Differential Inputs
- Master/Slave for Multi-Channels

Test and Production engineers will benefit from the small size, excellent measurement characteristics, fast system throughput and extensive software support provided with the PCI-443/4. Resolution of 12 bits, an offset range independent of the vertical range, and a lifetime free-upgrade software policy are just a few of the features making the PCI-443/4 a smart addition to your ATE test set.

A sampling rate of 40 MSPS, 12 bit ADC resolution, flat frequency response, and overvoltage protection that works with the power on or off, combine to make the PCI-443/4 an excellent choice for use in High Voltage Impulse testing. These same features, combined with the optional differential inputs, make the PCI-443/4 ideal for measuring waveforms from motor controllers/starters, and power supplies.

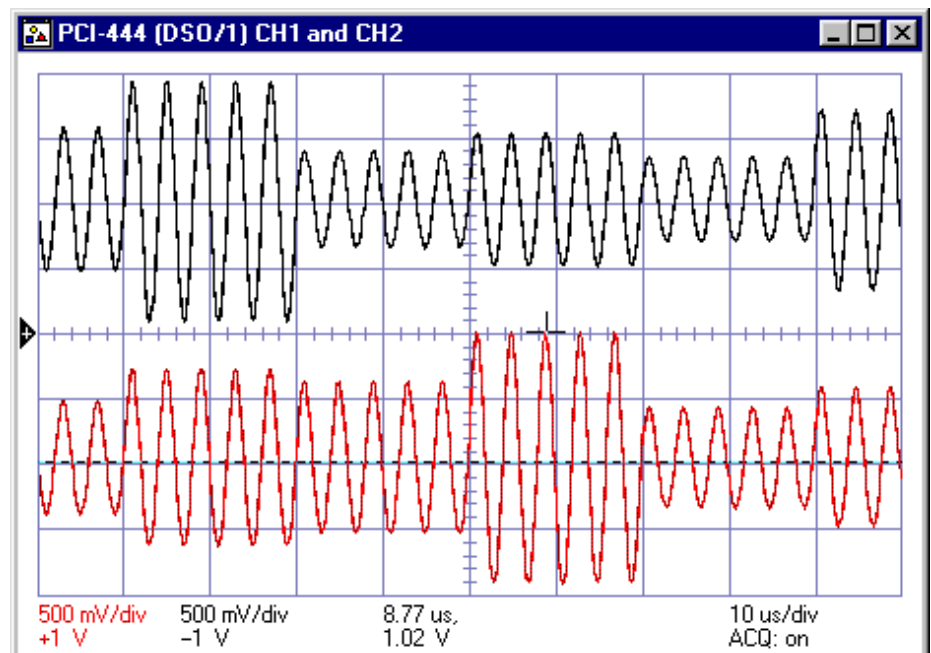
Applications

- ATE and Functional Test Systems
- Video, TV, and HDTV Measurements
- Ultrasound (Industrial and Medical)
- Radar, Sonar, and Lidar Systems
- Laser Detectors, PZT and Fast Sensors
- Modulated Communications Signals
- High Voltage Impulse Testing
- Test Motor Controllers and Starters

The PCI-443/4's feature the capability of measuring band-limited signals with center frequencies (i.e. carriers) as high as 80 MHz. Also, I/Q signals can be measured accurately due to the simultaneously sampled inputs of the dual channel PCI-444.

The external sample clock feature, coupled with the programmable memory length feature, is essential for engineers testing the characteristics of rotating machinery or for systems integrators building a network analyzer based on a peak detector.

The BenchCom™ software bundle, provided with the PCI-443 and the PCI-444, provides programmer's libraries, third-party drivers, 16/32 bit DLLs, and the BenchTop™ Lite graphical user interface for Windows NT, 98/95, and 3.X. Also available is the optional BenchTop Plus software package providing advanced features including FFT, pulse analysis adhering to IEEE Standard, boundaries testing, and the ATL interpreter.



Using baseband sampling, the PCI-444 can measure I/Q communication signals from a 70 MHz I/F strip.

PCI-443 and PCI-444 Digital Oscilloscopes

Vertical Section

Channels One (PCI-443), Two (PCI-444)
 Inputs Single-Ended, BNC, Simultaneous Sampled
 Vertical Resolution 12 Bits

Standard

Vertical Ranges* 20 mV/div to 2 V/div
 Offset Range & Internal Trigger Range ± 10 Volts
 RMS Noise (typical) 0.1 %FS + 0.7 mV
 Common Mode Range** ± 16 Volts

05V Option

Vertical Ranges* 50 mV/div to 5 V/div
 Offset Range & Internal Trigger Range ± 25 Volts
 RMS Noise (typical) 0.1 %FS + 2 mV
 Common Mode Range** ± 40 Volts

10V Option

Vertical Ranges* 100 mV/div to 10 V/div
 Offset Range & Internal Trigger Range ± 50 Volts
 RMS Noise (typical) 0.1 %FS + 4 mV
 Common Mode Range** ± 80 Volts

*Also includes vernier control

**Differential Inputs (Option DEI)
 Differential Bandwidth 1 MHz
 CMRR 80 dB @ 100 Hz, 70 dB @ 1 kHz

Input Resistance and Capacitance 1 M Ω , 15 pF
 Input Coupling AC or DC
 Gain Accuracy $\pm 1\%$ at 10 kHz
 Offset Accuracy $\pm(0.07\%$ Offset + 0.4% FS + 3 mV)
 Maximum Voltage (Power On or Off) ± 200 Volts
 Bandpass Flatness (typical) ± 0.3 dB
 (100 Hz - 500 kHz, relative to 10 kHz)

Horizontal Section

Maximum Sample Rate 40 Megasamples/second
 Time/Division 200 ns/div - 100 sec/div
 Maximum Resolution 25 ns/sample
 Timebase Accuracy $\pm 0.01\%$

Memory

64k Samples/channel
 Pre-, Post- Trigger 1 Sample to 64k Samples
 Variable Length 1 Sample to 64k Samples
 Variable Length Increment 1 Sample

Burst Mode (i.e. Segmented or Stacked)

Bursts 1 to 64k
 Burst Length 1 Sample to 64k Samples
 Burst Length Increment 1 Sample
 Burst Deadtime 150 ns

Sample Clock Internal (40 MSPS to 50 SPS)
 External (Maximum of 10 MSPS)
 Master/Slave Option MSL

Trigger Section

Sources Channel 1, Channel 2 or External (BNC)
 Slope + or -
 Trigger Gain X1, X2, or X10
 External Range ± 10 V (X1), ± 5 V (X2), ± 1 V (X10)
 Sensitivity (DC to 10 MHz Square Wave):
 200 mVpp (X1), 100 mVpp (X2), 20 mVpp (X10)
 Level Settability 10 mV
 External Trig Resistance/Capacitance 1 M Ω , 15 pF
 Filters DC, AC, HF Reject, and LF Reject
 Video with Line Counting Option VID
 Modes Normal, Auto, Auto-Level, and Software
 Arm Input (Contact Factory) SMB Connector

General

Sweep Averaging On-board Hardware
 Compensation Signal (Typical) ± 1.3 Volts, 1 kHz
 Specified Temperature Range 18 °C to 28 °C

Software

Programming Support 16 and 32 Bit DLLs,
 C and C++ Programmer's Libraries, Basic and
 Pascal File I/O, Visual Basic and C (Windows)
 User Interface BenchTop™ Lite (3.X and 95)
 Third Party Drivers, Compilers Contact Factory

Computer Requirements

Processor 80386 and Up
 Bus ISA 16-bit (PC/AT)
 PC Bus Power Requirements

	+5V	+12V	-5V	-12V
PCI-443	1.85 A	280 mA	35 mA	110 mA
PCI-444	3.26 A	500 mA	35 mA	110 mA

Specifications are subject to change without notice. Where applicable, PC Instruments uses the test procedures in IEEE STD 1057, Standard for Digitizing Waveform Recorders. PC Instruments, BenchCom, BenchTop and the PC Instruments logo are trademarks of PC Instruments Incorporated. Other brand and product names are trademarks or trade names of their respective companies.

Document #97091



PC Instruments Incorporated
 526 South Main Street
 Akron, OH 44311 USA
330-762-8500
 FAX 330-762-8855
 www.pcinstruments.com