PC INSTRUMENTS

PCI-441 and PCI-442 Digital Oscilloscopes

High Performance Instrumentation in a PC

NEW FROM

Features

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

Applications

- **ATE and Functional Test Systems**
- **Video, TV, and HDTV Measurements**
- **Ultrasound (Industrial and Medical)**
- **Radar, Sonar, and Lidar**
- **Laser Detectors, PZT and Fast Sensors**
- **Modulated Communications Signals**
- **Telephony**

The PCI-441 and PCI-442 Digital Oscilloscopes occupy one PC expansion slot and provide a wide bandwidth measurement in a convenient PC-based digital oscilloscope. The single channel PCI-441 and the dual channel PCI-442 feature a 20 MHz bandwidth and seven vertical voltage ranges from 20 mV/div to 2 V/div. The timebase can be adjusted from 200 ns/division up to 100 sec/division.

Test and Production engineers will benefit from the small size, excellent measurement characteristics, fast system throughput and extensive software support provided with these oscilloscopes. Resolution of 10 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-441 or PCI-442 smart additions to your ATE test set.

A combination of an optional video trigger feature with line counting, 20 MHz bandwidth, and 10 bits of resolution make the PCI-442 an ideal choice for TV, video, and HDTV test systems. ATE and functional test systems for communications products will benefit from the PCI-442's simultaneous sampling (important for I/Q signals) and the external oscillator mode. And, the differential input option is valuable for measuring signals from sensors and for constructing an impedance measurement instrument using current sense resistors.

The PCI-441/2's Burst Mode capability is valuable in a system that needs to measure a succession of pulses, such as found in Radar, Sonar, Lidar, Ultrasound, and Impulse test systems. Features such as a minimum burst incre-

ment of 1 sample and a short burst deadtime make the PCI-441 and PCI-442 easy to adapt to a wide variety of burst applications.

The BenchCom™ software bundle, provided with the PCI-441 and the PCI-442, provides programmer's libraries, third-party drivers, 16/32 bit DLLs, and the BenchTop™ Lite graphical user interface for Windows® and Windows® 95. Also available is the optional BenchTop Plus software package providing advanced features including FFT, pulse analysis adhering to IEEE Standard 181, boundaries testing, and the ATL interpreter.

Reliability has been built into every PC Instruments product. External ground planes shield the scope from noise and provide a safe path for static charge dissipation. The high performance of these oscilloscopes is accomplished without incorporating any adjustments, therefore improving reliability and providing "covers-on" calibration. A two-year warranty is provided.
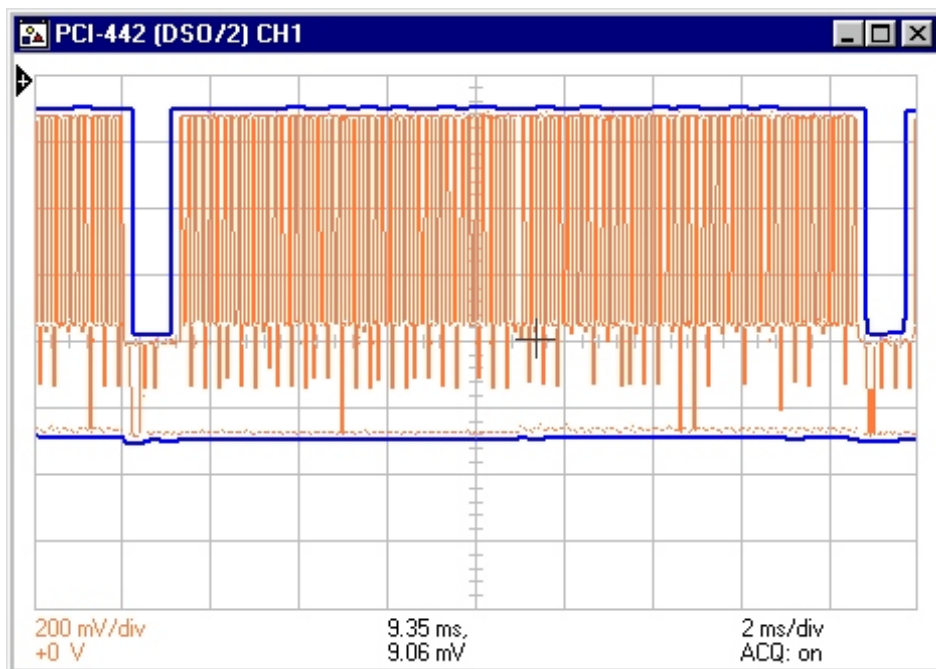
The video trigger option of the PCI-442 is used with the Boundaries Test capability of BenchTop Plus to check the framing of a composite video signal.

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PCI-441 and PCI-442 Digital Oscilloscopes

SPECIFICATIONS

Vertical Section

Channels	One (PCI-441), Two (PCI-442)
Inputs	Single-Ended, BNC, Simultaneous Sampled
Vertical Resolution	10 Bits

Standard
Vertical Ranges*	20 mV/div to 2 V/div
Offset Range & Internal Trigger Range	± 10 Volts
RMS Noise (typical)	0.2 %FS + 1 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)	0.2 %FS + 3 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)	0.2 %FS + 5 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 MΩ, 15 pF
Input Coupling	AC or DC
Gain Accuracy	± 1% at 10 kHz
Offset Accuracy	±(0.1% Offset+0.5% FS + 4 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	± 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)
Master/Slave	Option MSL

General

Sweep Averaging	On-board Hardware
Compensation Signal (Typical)	± 1.2 Volts, 1 kHz
Specified Temperature Range	18 °C to 28 °C
Warm-up Time	30 minutes

Trigger Section

Sources	Channel 1, Channel 2, External (BNC), TTL
Slope	+ or -
External Trigger Range	± 10 volts
Sensitivity (DC to 10 MHz Square Wave)	200 mVpp
Level Settability	10 mV
External Trigger Resistance/Capacitance	1 MΩ / 15 pF
External Trigger Coupling	AC or DC
Video with Line Counting	Option VID
Modes	Normal, Auto, Auto-Level, and Software

Software

Programming Support	16 and 32 Bit DLLs
	C and C++ Programmer's Libraries
	Visual Basic and C (Windows)
User Interface	BenchTop™ Lite (95/98, NT, 3.X)
Third Party Drivers	Many (Contact Factory)
Supported Compilers	Microsoft QuickC v2.5
	Microsoft C and C++ v7.0 and up
	Borland C and C++ v3.1 and up
	Visual Basic for Windows v1.0 and up

Computer Requirements

Processor	80386, 80486, and Pentium
Bus	ISA 16-bit (PC/AT)

PC Bus Power Requirements

	+5V	+12V	-5V	-12V
PCI-441	1.85 A	280 mA	35 mA	110 mA
PCI-442	3.26 A	500 mA	35 mA	110 mA

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