ZT430PXI Datasheet

200 MS/s, 12-Bit Digital Storage Oscilloscope

Overview

Features

- 2 channels
- 12-bit resolution
- 100 MS/s dual-channel simultaneous or 200 MS/s single-channel interleaved
- 90 MHz analog bandwidth
- Up to 4 MS per channel
- Programmable range, coupling, impedance, sampling rate, and digital filtering
- Real-time signal processing, waveform math, and measurement
- Envelope and averaging acquisition modes
- Powerful triggering and multiple waveform capture
- Multi-module synchronization with optional ZT1000PXI



The ZT430PXI is a high-performance digital storage oscilloscope (DSO) in a 3U PXI/CompactPC modular instrument form factor.

Theintrument's excellent analog signal dynamic range and very low noise enable the acquisition of video, IF, RF and other analog signals where very fine resolution is necessary. Programmable analog signal range, coupling, sample rate and channel configuration cover a wide variety of input signal configurations.

The instrument provides precise waveform acquisition and measurement with 12 bits of vertical resolution and a low phase noise sampling clock. Extensive memory segmenting, sequencing, and triggering options, along with a very deep memory provide flexible and powerful signal acquisition modes.

The instrument comes with Plug and Play style drivers that can be used with National Instruments LabVIEW™ and LabWindows™. Instrument control can also be achieved through the command interface or register-level access.

Oscilloscope Measurement & Math Functions

Extensive processing and analysis capability provide complete measurement solutions for mixed signal test applications. The on-board 100 MHz DSP provides signal processing in hardware such as signal measurements, digital filtering, two-waveform math functions, waveform averaging and waveform envelope processing.

Low Noise Analog Input

The ZT430PXI is the first 200 MSample/s 12-Bit Digitizer/DSOs for PXI. The combination of high speed and more than 70 dB of input signal dynamic range enable the instrument to be used as a spectrum analyzer or a digital RF/IF receiver.

Deep Memory, Multiple Capture

The instrument offers enhanced DSO features such as deep memory and register-based data access. The deep memory on the instrument can be segmented into multiple smaller records to enable a user to capture many waveforms before downloading. The deep memory, multiple capture DSO allows designers to capture entire event sequences at high sample rates in one record or to capture multiple records in very rapid succession.

Flexible Signal Conditioning

The instrument provides a variety of input signal configurations including: 8 analog signal ranges between 100 mV and 50 V, AC and DC coupling, 50 and 1M Ohm input impedances, sample rates between 200 MS/s and 25 kS/s, and programmable multiplexing of the analog inputs to the analog-to-digital converters.

External Timebase and Sampling Clock

External synchronization of the sampling clocks enable multiple instruments to capture data simultaneously. The internal sampling clock generator can be phase-locked to the PXIbus backplane 10 MHz clock lines, or be bypassed to directly use an external sampling clock input.

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Flexible Trigger Control

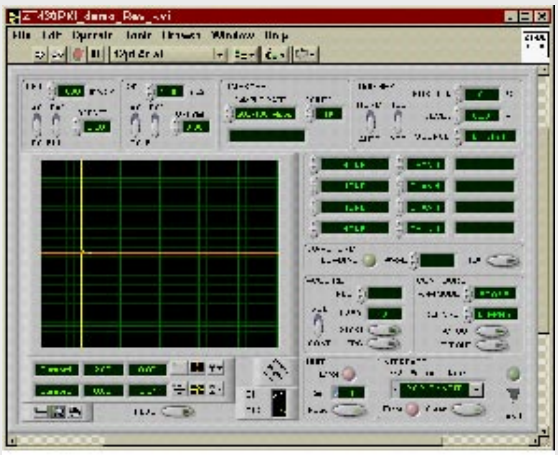
Powerful triggering and gating functions allow the instrument to be synchronized to external events and acquire waveforms at predefined time intervals. Multiple modules can be easily synchronized using the PXIbus backplane clock and trigger lines. Powerful operational modes include pre-trigger and post-trigger acquisition, trigger B functionality, and delay-by-time or delay-by-events signal capture. Edge, glitch and pulse width triggering allow the instrument to trigger on unusual or intermittent events. Pattern triggering provides a method to trigger and capture a specific pattern on multiple simultaneous input signals.

Software Integration

The ZT432PXI is delivered with plug-and-play drivers that can be used in most application programming environments, such as LabVIEW, LabWindows/CVI, Visual Basic, and C/C++. An extensive example program library is provided to show various implementations of the driver using both LabVIEW and C.

Instrument control can also be achieved using an intuitive command interface. In addition, register-level access is also supported to provide high speed data transfers and flexible integration into non-standard operating environments.

ZT430PXI LabVIEW soft front panel



Expect More from your Modular Instrument

Specifications such as frequency and resolution are obvious considerations when selecting a modular instrument. However, you must look beyond the obvious to ensure the overall success of your test and measurement project. You must consider functionality and expect not to make any sacrifices when moving to a modular form factor. You should expect your modular instruments to be built using the latest technology. You should expect a modular instrument to include the tools you need to integrate their products into your system, regardless of your application environment. You should also expect to receive the assistance you need, when you need it. In summary, you should expect more from your modular instrumentation company.



At ZTEC, we are committed to meeting your specification needs and providing the feature, integration, technology, and service you expect from a modular instrumentation company. Our unique products provide more functionality by including traditional bench-top instrument capabilities in modular instrument form factors. Using the latest commercially available digitization technology, we are able to rapidly deliver new and exciting products to the market. Our instrument software and communication interface allows for simplified integration into your system. And when you have a problem or question, our on-line and phone support is available to provide complete assistance.

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Technical Specifications

ZT430 Performance Characteristics

Analog Inputs

Channels		1 @ Full Sample Rate 2 @ Half Sample Rate
Bandwidth		DC to 90 MHz
Impedance		50Ω or 1 MΩ || 12 pF
Input VSWR (50Ω)		< 1.3:1 DC to 100 MHz < 1.5:1 100 MHz to 250 MHz
Signal Range	50Ω:	100 mVpp to 10 Vpp in 8 steps
	1MΩ:	500 mVpp to 50 Vpp in 8 steps
Coupling		DC or AC
AC Coupling Cutoff		
	50Ω:	>1 MHz
	1MΩ:	>50 Hz
Connectors		SMB
DC Gain Accuracy		
	50Ω:	±(0.25% of full scale + 1 mV)
	1MΩ:	±(0.25% of full scale + 5 mV)
DC Offset Accuracy		
	50Ω:	±(0.25% of full scale + 1 mV)
	1MΩ:	±(0.5% of full scale + 5 mV)

Analog-to-Digital Converter

Sample Rate	50 kS/s to 200 MS/s (1 channel) 25 kS/s to 100 MS/s (2 channels)
Resolution	12 bit
RMS Noise	< (100 µV + 0.1% range)
Channel Skew	< 200 ps difference between channels (channels at same range & coupling)

Waveform Memory

Total Memory	2M samples/channel
Option 1 Memory	4M samples/channel
Maximum Record Size	2M samples 4M samples (Option 1)
Segmentation	Multiple Record Capture
Number Records	1 to 1024, depending on record size
Re-Arm Time	< 10 microseconds

PXI Triggering

Trigger Source	Channels 1-2, External, Backplane
Trigger Level (Ch 1-2)	-Full-Scale to +Full-Scale
Trigger Edge	Rising or Falling
External Trigger	Trigger Input or Output, SMB Connector
Trigger Input	TTL Compatible, 10 kΩ Input Impedance
Trigger Output	TTL Compatible into 50Ω
Detection Delay	< 20 ns
Trigger Holdoff	250 ns to 12 s

Acquisition

Acquisition	Pre-Trigger and Post-Trigger
Time Stamp	100 ns resolution, 1 second rollover

10MHz Timebase Reference

Clock Source	Internal TCXO, Backplane
Internal TCXO	±2.5 ppm accuracy

Sampling Clock Input

Level	Square or Sine, 500 mVpp to 1 Vpp
Frequency	1 MHz to 200 MHz 1X sample rate (2 channels)
Termination	50Ω, AC Coupling
Connector (PXI)	SMB

PXI Interface

PCI Interface	33 MHz, 32-bit Address, 16-bit Data
PCI Voltage	Universal, +3.3V or +5V
PCI Compatibility	Version 2.2
PXI Backplane Signals	PXI_TRIGn input/output selectable PXI_STAR input selectable 10 MHz reference input selectable Left and right local buses not used

Data Processing

Signal Measurement	Min, Max, Low, High, Average, Amplitude, Peak-to-Peak, RMS, Rise Time, Fall Time, +Width, –Width, Period, Frequency, +Duty, –Duty
Waveform Math (PXI)	Add, Subtract, Histogram, Absolute Value, Digital Smoothing Filter
Digital Smoothing	10% of Sample Rate

Physical & Environmental

Physical size	Single-Wide 3U CompactPCI/ PXI

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Ordering Information

Model Numbers

Standard Configuration

2 MSample Memory	ZT430PXI-00

Options

4 MSample Memory	ZT430PXI-01

Services

Extended warranty	ZTEXTPXI-00
Calibration	ZTCALPXI-00

Accessories



ZTPXIKIT-00
SMB to BNC cable kit
for PCI instruments



ZT250PRB-01
250 MHz probe for SMB

Improve the Accuracy of your PXI Instruments with the ZT1000PXI

The ZT1000PXI provides an improved frequency standard and control of the PXI star trigger (Slot 2) and the PXI triggers. The improved trigger capabilities allow PXI instruments to be synchronized together and for additional synchronized chassis to be added to the test system. When fitted with the GPS option, the frequency reference can synchronized to the GPS network. Trigger events can be tagged with information identifying to within 25 ns of when they occurred in universal time. The ZTX1000PXI is an ideal way of improving the accuracy of your PXI instruments, instrument synchronization and unambiguous event recording.

For more information please contact us or visit www.ztec-inc.com.



ZT1000PXI Model Numbers

Standard Configuration

PXI	ZT1000PXI-00

Options

GPS	ZT1000PXI-01

Accessories

SMB to BNC cable kit	ZTPXIKIT-00
GPS Patch Antenna	ZT2000ANT-00
GPS Rooftop Bullet Antenna	ZT2001ANT-00

Services

Extended warranty	ZTEXTPXI-00
Calibration	ZTCALPXI-00

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