

PXI8008 Data Acquisition

PXI8008

- 16 simultaneous analog inputs
- 14-bit resolution
- 80KS/s maximum sampling rate
- Clock Source: External ,Internal Clock
- Trigger Mode: software, hardware trigger
- $\pm 5, \pm 10, 0\sim 2.5$, and $0\sim 5V$ input ranges

Operating system

- Windows Vista/XP/2000

Recommended Software

- VC++
- LabVIEW
- CVI
- Vb



Overview

ART PXI8008 module is specifically designed for synchronization data acquisition applications. With sixteen 14-bit analog inputs per module, ART PXI8008 module is ideal for making precision measurements with data and other transducers that have very large dynamic ranges. The module of dynamic range and synchronization sampling on all 16 channels at rates up to 80 kS/s. Common applications for PXI8008 module include noise, vibration, and harshness analysis; and dynamic structural test. The module is compatible with ART Data Acquisition Measurement Suite analysis software to complete your application with a variety of time and frequency measurements.

Analog Input Operation

Each input signal is simultaneously amplified, sampled by a 14-bit analog-to-digital converter (AD) that performs digital filtering with a cutoff frequency that automatically adjusts to a software-programmable sampling rate. The 14-bit resolution provides the necessary accuracy to make ART PXI8008 well-suited for analysis applications that the precision measurements with data.

Measure the frequency and the amplitude of the signal via two frequency-measured lines, and one voltage-measured line. Show as the follow.

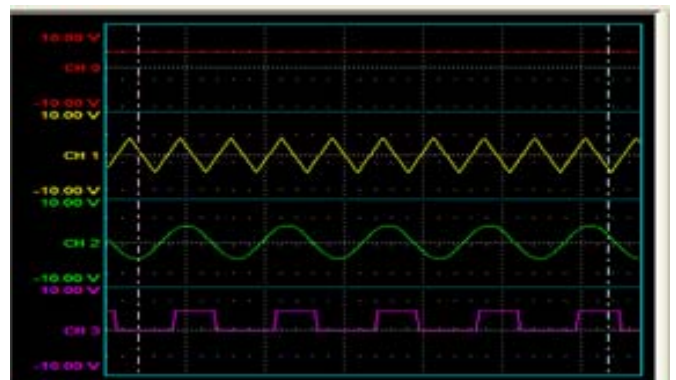


Figure 1. Graphical Acquisition

You can measure the frequency and the amplitude of the signal via 2 frequency-measured lines and 1 amplitude-measured line.

ART PXI8008 module uses an AD7865 which is a fast, low power, four-channel synchronization sampling 14-bit A/D converter that operates from a single +5V supply. The part contains a 2.4us successive approximation ADC, four track/hold amplifiers, 2.5Vreference, on-chip clock oscillator, signal conditioning circuitry and a high speed parallel interface. The input signals on four channels are sampled simultaneously thus preserving the relative phase information of the signals on the four analog inputs. The part allows any subset of the four channels to be converted in order to maximize the throughput rate on the selected sequence. The channels to be converted can be selected either via hardware (channel select input pins) or via software (programming the channel select register).

Triggering

ART PXI8008 module feature analog and digital signal triggering for acquisition with two modes of operation (hardware and software triggering). Trigger sources can come from any analog input channel, the external digital trigger input, or the PXI trigger bus. The external digital trigger, which is 5 V TTL/CMOS-compatible, is activated by a choice of rising or falling edge. When used in the start trigger mode, an ART PXI8008 acquires signals only after the trigger condition has occurred. Triggering is often used in applications with transient signals. For example, when measuring vibrations resulting from striking a mechanical structure with a hammer, acquisition of accelerometer signals is triggered by the hammer impact.

Calibration

ART calibrates the offset voltage and gain accuracy of the analog input before every device leaves the factory. An onboard precision voltage reference is included on each device for internal calibration to ensure that the gain and offset remain stable and accurate.

Signal Connectivity

Terminal board



Figure 2 A50D Terminal Board

ART PXI8008 module uses one A50D terminal board, with 50 connecting terminals and one SCSI interface.



Figure 3 SCSI connector

To connect the ART PXI8008 and the terminal board, a SCSI connector, carrying 50 channels, include sixteen analog input channels, AI0-15, is needed.

Software

Analysis Software

ART PXI8008 module is well-suited for precision synchronization data acquisition analysis applications, which you can specifically address with the ART Data Acquisition Measurement Suite. The suite has two components—digital and graphics mode analysis for voltage, frequency response and other analysis.

The Data Acquisition Measurement Suite is interactive software designed to simplify the process of acquiring and analyzing voltage signals, and it can analyze the precision when single channel is selected.

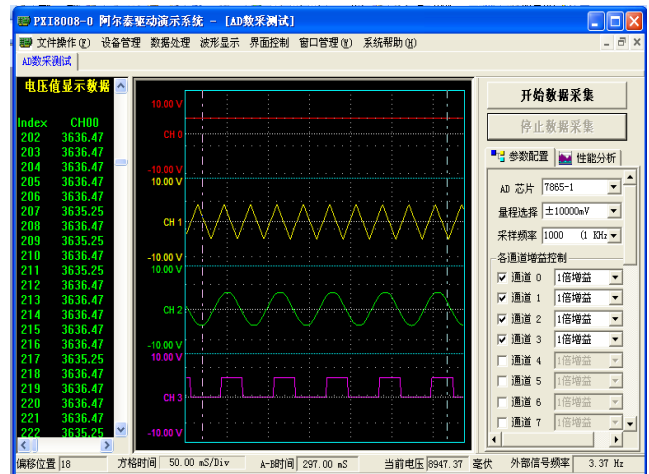


Figure 3 ART Data Acquisition Measurement Suite

You can instantly configure a measurement and analysis application with the following direction:

- *Data window: display the value of the input signal instantly*
- *Graphical display window: display the graph of the input signal*
- *Chips selection: confirm the chip number you select in the Data Acquisition Measurement accord with the number on the module*
- *Voltage Range: two types of voltage-range are offered, the input signal should not exceed the maximum of the voltage range.*
- *Sample Rate: you can set the sample rate according to the value you need.*
- *Channels and gain: set the number of channels and gain that you need*
- *Trigger control: include trigger source, trigger mode, trigger type, trigger direction and trigger level*
- *Clock source: internal clock source and external clock source*

Product	Bus	Input Resolution (Bits)	Sampling Rate (Per Channel)	Analog Inputs	Input Range	Gain Settings	Analog Output
High Density							
PCI8002A	PCI	12	40MS/s	4	±5V, ±2.5V ±1V, ±0.5V		0
High Performance							
PXI8008	PXI	14	80KS/s	16	±10V, ±5V, 0 to 2.5V, 0 to 5V	1, 2, 4, 8times or 1, 2, 5, 10times or 1, 10, 100, 1000times	0
PXI8996	PXI	24	192KS/s	8	±10V, ±1V		0

Table 1. Additional ART Dynamic Signal Acquisition Devices

Additional Dynamic Signal Acquisition Platforms

There are numerous system requirements to consider when selecting data acquisition hardware for measuring or generating sound and vibration signals. From IEPE signal conditioning for accelerometers and microphones to high dynamic range and multichannel synchronization, ART offers a range of hardware products for your application.

Ordering Information

ART PXI8008	
with AD7865-1.....	240101-01-01
ART PXI8008	
with AD7865-2	240101-01-02
ART PXI8008	
with AD2850	240101-02
ART PXI8008	
with AD2851	240101-03
ART PXI8008	
with AD2853	240101-04.

BUY NOW!

For complete product specifications, pricing, and accessory information, call +86-10-64862359/64861583(CN) or go to art-control.com/english.

Specifications

>> For complete specifications, see the **PXI8008 Specifications** manual in the optical disk

Gains

Chip	Gains
AD8250	1, 2, 5, 10 time(s)
AD8251 (default)	1, 2, 4, 8 time(s)
AD8253	1, 10, 100, 1000 time(s)

Time

AD Conversion Time..... $\leq 2.4\mu\text{S}$
 Amplifier Set-up time.....785nS (0.001%)(max)

Voltage Range

Chip	Voltage Range
AD7865-1	$\pm 5\text{V}$, $\pm 10\text{V}$
AD7865-2	0~2.5V, 0~5V

Mismatch

Non-linear mismatch..... $\pm 1\text{LSB}$ (Maximum)
 System Measurement Accuracy 0.05%

ART Services and Support



ART has the services and support to meet your needs around the globe and through the application life cycle—from planning and development through deployment and ongoing maintenance. We offer services and service levels to meet customer requirements in research, design, validation and manufacturing.

Training and Certification

ART training is the fastest, most certain route to productivity with our products. ART training can shorten your learning curve, save development time, and reduce maintenance costs over the application life cycle. We hold courses at our facility. We also offer a professional certification program that identifies individuals who have high levels of skill and knowledge on using ART products.

Professional Services

Our ART Professional Services team is composed of ART applications and systems engineers. Services range from start-up assistance to turnkey system integration.

OEM Support

We support OEM cooperation with our partners. For information about the details, contact us or visit art-control.com.

Local Sales and Technical Support

In offices worldwide, our staff is local to the country, giving you access to engineers who speak your language. ART delivers industry-leading technical support through online knowledge bases, our applications engineers, and access to measurement and automation professionals within ART Developer Exchange forums. Find immediate answers to your questions.

We also offer service programs that provide automatic upgrades to your application development environment and higher levels of technical support.

Hardware Services

System Assurance Programs

ART system assurance programs are designed to make it even easier for you to own an ART system. These programs include configuration and deployment services for your ART system. The ART Basic System Assurance Program provides a simple integration test and ensures that your system is delivered completely assembled in one box.

When you configure your system with the ART Standard System Assurance Program, you can select from available ART system driver sets and application development environments to create customized, reorderable software configurations. Your system arrives fully assembled and tested in one box with your software preinstalled. When you order your system with the standard program, you also receive system-specific documentation including a bill of materials, an integration test report, a recommended maintenance plan, and frequently asked question documents. Finally, the standard program reduces the total cost of owning an ART system by providing two years of warranty coverage and calibration service.

Calibration Services

ART recognizes the need to maintain properly calibrated devices for high accuracy measurements. We provide manual calibration procedures, services to recalibrate your products.

Repair and Extended Warranty

ART provides complete repair services for our products. Express repair and advance replacement services are also available. We offer extended warranties to help you meet project life-cycle requirements.