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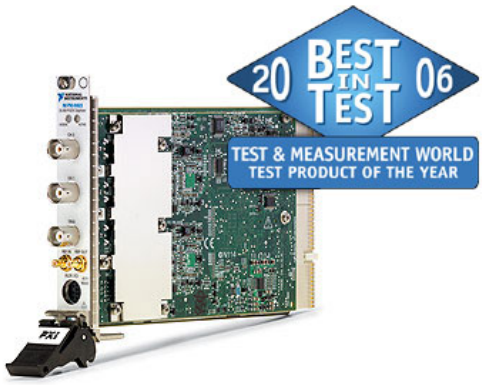
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Requirements and Compatibility | Ordering Information | Detailed Specifications
For user manuals and dimensional drawings, visit the product page resources tab on ni.com.

Last Revised: 2014-11-06 07:14:12.0

24-Bit Flexible-Resolution Digitizers

NI PXI/PCI-5922 Digitizers



- Resolution from 24 bits at 500 kS/s to 16 bits at 15 MS/s
- 2 simultaneously sampled channels
- ±1 and ±5 V input ranges
- -114 dBc SFDR
- -120 dBFS rms noise
- 50 Ω or 1 MΩ software-selectable input impedance
- Deep onboard memory up to 256 MB/ch
- Integrated antialias protection across all sample rates

Overview

National Instruments 5922 flexible resolution digitizers feature two simultaneously sampled channels, with variable resolution. NI 5922 digitizers can trade sampling rate for resolution to sample anywhere from 24 bits at rates less than 500 kS/s to 16 bits at 15 MS/s. NI 5922 digitizers have low noise as well as low distortion, which is possible because of the NI Flex II ADC.

Back to Top

Requirements and Compatibility

OS Information

- Windows 2000/XP
- Windows 7
- Windows NT
- Windows Vista

Driver Information

- NI-SCOPE

Software Compatibility

- LabVIEW
- LabWindows/CVI
- Measurement Studio
- SignalExpress Development System
- Visual Basic
- Visual C#
- Visual C++

Back to Top

Application and Technology

By combining the flexible-resolution NI 5922 with software such as LabVIEW, you can create numerous different types of instruments, such as DC and rms voltmeters, audio analyzers, frequency counters, spectrum analyzers, IF digitizers, or I/Q modulation analyzers. The graphic below illustrates the resolution performance that can be achieved across different sample rates, making the 5922 suitable for a wide range of applications.

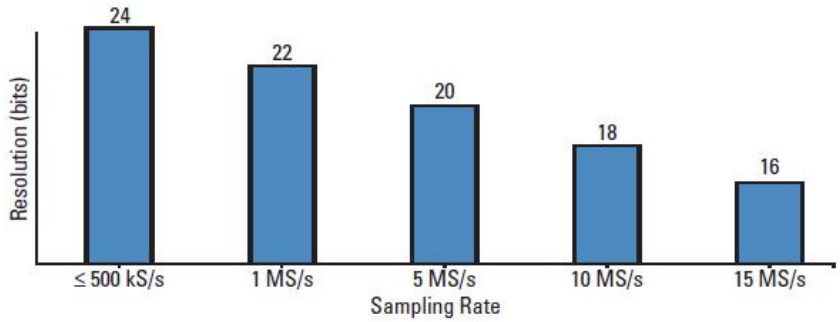


Figure 1. Frequency versus Resolution of NI 5922 Flexible-Resolution Digitizers

Analog Input Performance

The PXI-5922 is a low-noise, low-distortion digitizer with rms noise as low as -120 dBFS at sampling rate of 50 kS/s, and spurious-free dynamic range (SFDR) as high as -108 dBc for dynamic signals all the way up to 100 kHz in frequency. This high dynamic performance is achieved with the development of the next generation flexible resolution analog-to-digital converter – the Flex II ADC, a portion of which is implemented on a fully custom analog ASIC designed by National Instruments. The Flex II ADC is an enhanced multibit deltasigma (Æ·) converter that uses a patented linearization technique to reduce the harmonics inherent to multibit delta-sigma converters (See Figure 3 for an illustration). The result is a high dynamic range over a wide range of sampling rates.

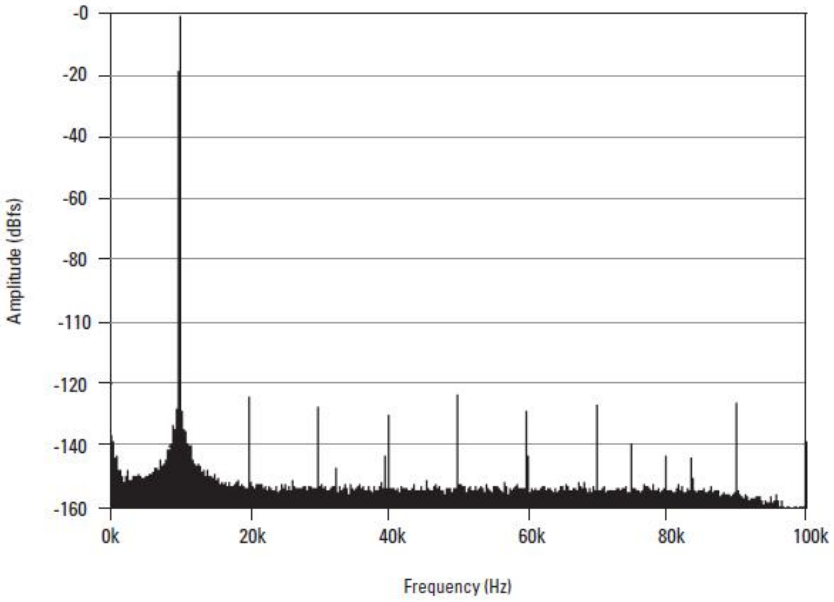


Figure 2. FFT of a Pure 10 kHz Sine Wave Acquired Using the PXI-5922

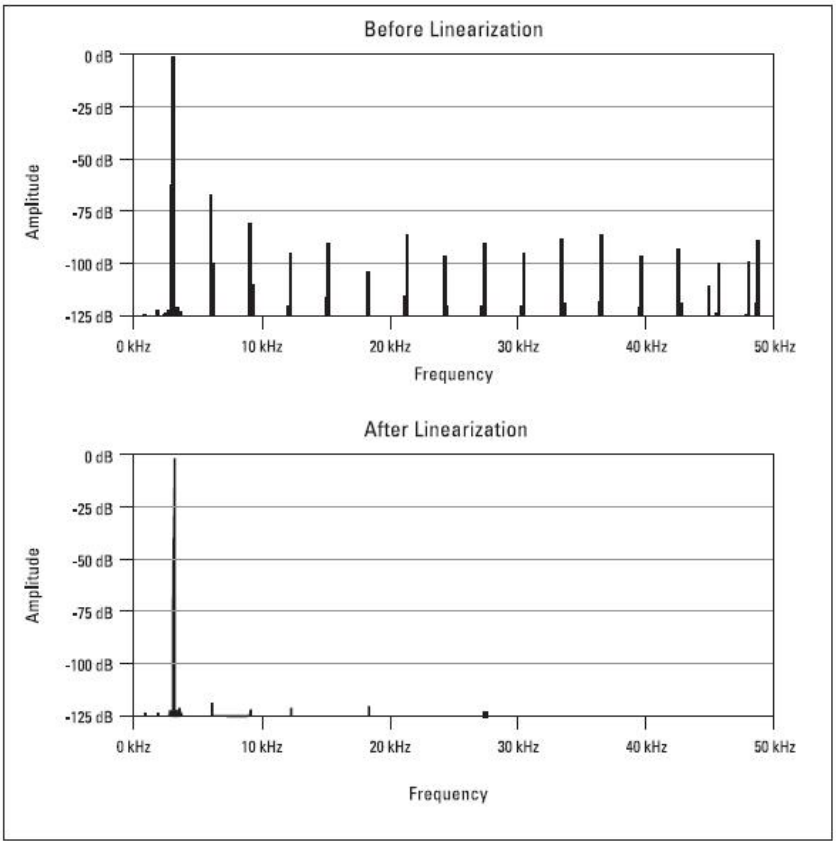


Figure 3. FFT Plot of a Pure 3 kHz Sine Wave Applied to the 6-Bit Delta-Sigma ADC Before and After Linearization

Timing and Synchronization

An advanced 120 MHz clock generator produces the low-jitter, lowphase- skew clock for the precise clocking and stable synchronization necessary for high-speed, high-resolution digitizers. Synchronize multiple instruments using the PXI backplane 10 MHz reference clock or an external reference ranging from 1 to 20 MHz in 1 MHz increments.You can also export the reference clock through the front CLK OUT connector. Because the PXI-5922 is built on the SMC architecture, you can synchronize two or more digitizers for highchannel- count applications, and build mixed-signal test systems using SMC-based digitizers, arbitrary waveform generators, and digital waveform generator/analyzers using TCIk technology.

Deep Onboard Memory

The PXI-5922, based on the SMC architecture, comes with 8, 32, or 256 MB of high-speed memory per channel (2, 8, or 64 million samples). The PXI-5122 can acquire more than 400,000 triggered waveforms without software intervention in multiple-record acquisition mode, for applications such as RADAR, ultrasound, and event detection, that require short trigger rearm times. The PXI-5922 can stream data continuously from onboard memory to host memory for longer acquisitions and streaming to disk. The high-speed PXI bus and the scatter-gather bus mastering capabilities of the NI MITE ASIC move data to the computer at speeds up to 100 times faster than traditional instrument interfaces, thereby dramatically decreasing overall test time.

Calibration

Every PXI-5922 is factory calibrated to verify that it meets NIST-traceable standards. The PXI-5922 has an onboard calibration circuit that corrects for environmental effects on linearity, gain, offset, and input bias current. You can perform self-calibration to ensure that your board is within specifications. The PXI-5922 also offers a 2-year calibration cycle, reducing your downtime.When you want to externally calibrate your device, return your digitizer to National Instruments or ship it to a qualified metrology lab for routine calibration.

Software

Every National Instruments high-speed digitizer comes with the IVI-compliant NI-SCOPE driver, which is fully compatible with NI LabVIEW, LabWindows/CVI, and Measurement Studio, as well as Microsoft Visual C++ and Visual Basic. NI-SCOPE includes more than 50 built-in measurement and analysis functions, and an interactive Scope Soft Front Panel. The Spectral Measurements Toolkit gives you sophisticated frequency-domain measurements such as power in-band, multiple peak search, and 3D spectrogram, for applications in communications, laser, signal intelligence, and avionics.

Back to Top

Ordering Information

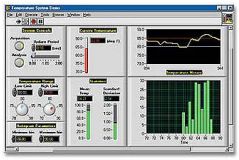
For a complete list of accessories, visit the product page on ni.com.

Products	Part Number	Recommended Accessories	Part Number
		No accessories required.	
NI PCI-5922_32			
NI PCI-5922 32MB/ch Requires: 1 Cables ;	779659-02	**Cables:** Unshielded - SMB112, Double Shielded SMB to BNC Male Coax Cable, 50 Ohm, 1m ***Also Available: [Shielded]*	778827-01

Back to Top

Software Recommendations

LabVIEW Professional Development System for Windows



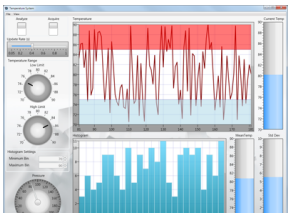
- Advanced software tools for large project development
- Automatic code generation using DAQ Assistant and Instrument I/O Assistant
- Tight integration with a wide range of hardware
- Advanced measurement analysis and digital signal processing
- Open connectivity with DLLs, ActiveX, and .NET objects
- Capability to build DLLs, executables, and MSI installers

NI LabWindows™/CVI for Windows



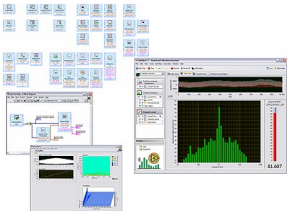
- Real-time advanced 2D graphs and charts
- Complete hardware compatibility with IVI, VISA, DAQ, GPIB, and serial
- Analysis tools for array manipulation, signal processing statistics, and curve fitting
- Simplified cross-platform communication with network variables
- Measurement Studio .NET tools (included in LabWindows/CVI Full only)
- The mark LabWindows is used under a license from Microsoft Corporation.

NI Measurement Studio Professional Edition



- Customizable graphs and charts for WPF, Windows Forms, and ASP.NET Web Forms UI design
- Analysis libraries for array operations, signal generation, windowing, filters, signal processing
- Hardware integration support with native .NET data acquisition and instrument control libraries
- Automatic code generation for all NI-DAQmx data acquisition hardware
- Intelligent and efficient data-logging libraries for streaming measurement data to disk
- Support for Microsoft Visual Studio .NET 2012/2010/2008

NI Sound and Vibration Measurement Suite



- Minimize development time with ready-to-run application examples
- Get started quickly with application example projects
- Build custom DAQ systems faster than ever with DAQ configuration XControl
- Avoid the expense of verification with NI ANSI- and IEC-compliant octave and sound-quality analysis
- Decrease test time with parallel processing

Back to Top

Support and Services

System Assurance Programs

NI system assurance programs are designed to make it even easier for you to own an NI system. These programs include configuration and deployment services for your NI PXI, CompactRIO, or Compact FieldPoint system. The NI 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 NI Standard System Assurance Program, you can select from available NI 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 NI system by providing three years of warranty coverage and calibration service. Use the online product advisors at ni.com/advisor to find a system assurance program to meet your needs.

Calibration

NI measurement hardware is calibrated to ensure measurement accuracy and verify that the device meets its published specifications. To ensure the ongoing accuracy of your measurement hardware, NI offers basic or detailed recalibration service that provides ongoing ISO 9001 audit compliance and confidence in your measurements. To learn more about NI calibration services or to locate a qualified service center near you, contact your local sales office or visit ni.com/calibration.

Technical Support

Get answers to your technical questions using the following National Instruments resources.

- **Support** - Visit ni.com/support to access the NI KnowledgeBase, example programs, and tutorials or to contact our applications engineers who are located in NI sales offices around the world and speak the local language.
- **Discussion Forums** - Visit forums.ni.com for a diverse set of discussion boards on topics you care about.
- **Online Community** - Visit community.ni.com to find, contribute, or collaborate on customer-contributed technical content with users like you.

Repair

While you may never need your hardware repaired, NI understands that unexpected events may lead to necessary repairs. NI offers repair services performed by highly trained technicians who quickly return your device with the guarantee that it will perform to factory specifications. For more information, visit ni.com/repair.

Training and Certifications

The NI training and certification program delivers the fastest, most certain route to increased proficiency and productivity using NI software and hardware. Training builds the skills to more efficiently develop robust, maintainable applications, while certification validates your knowledge and ability.

- **Classroom training in cities worldwide** - the most comprehensive hands-on training taught by engineers.

- **On-site training at your facility** - an excellent option to train multiple employees at the same time.
- **Online instructor-led training** - lower-cost, remote training if classroom or on-site courses are not possible.
- **Course kits** - lowest-cost, self-paced training that you can use as reference guides.
- **Training memberships** and training credits - to buy now and schedule training later.

Visit ni.com/training for more information.

Extended Warranty

NI offers options for extending the standard product warranty to meet the life-cycle requirements of your project. In addition, because NI understands that your requirements may change, the extended warranty is flexible in length and easily renewed. For more information, visit ni.com/warranty.

OEM

NI offers design-in consulting and product integration assistance if you need NI products for OEM applications. For information about special pricing and services for OEM customers, visit ni.com/oem.

Alliance

Our Professional Services Team is comprised of NI applications engineers, NI Consulting Services, and a worldwide National Instruments Alliance Partner program of more than 700 independent consultants and integrators. Services range from start-up assistance to turnkey system integration. Visit ni.com/alliance.

Back to Top

Detailed Specifications

Flexible-Resolution Digitizer

This topic lists the specifications for the NI PXI/PCI-5922 (NI 5922) flexible-resolution digitizer. Unless otherwise noted, these specifications are valid for the following conditions:

- Full operating temperature range
- All impedance selections
- All sample rates
- Source impedance ≤50 Ω

Typical values are representative of an average unit operating at ambient temperatures of 15 ºC to 35 ºC. Specifications are subject to change without notice. For the most recent NI 5922 specifications, visit ni.com/manuals.

To access the NI 5922 documentation, including the *NI High-Speed Digitizers Getting Started Guide*, which contains functional descriptions of the NI 5922 signals, navigate to **Start»All Programs»National Instruments»NI-SCOPE»Documentation**.

Caution If the NI 5922 has been in use, it may exceed safe handling temperatures and cause burns. Allow the NI 5922 to cool before removing it from the PXI chassis or PC. Refer to the *Environment* section for operating temperatures of this device.

Vertical

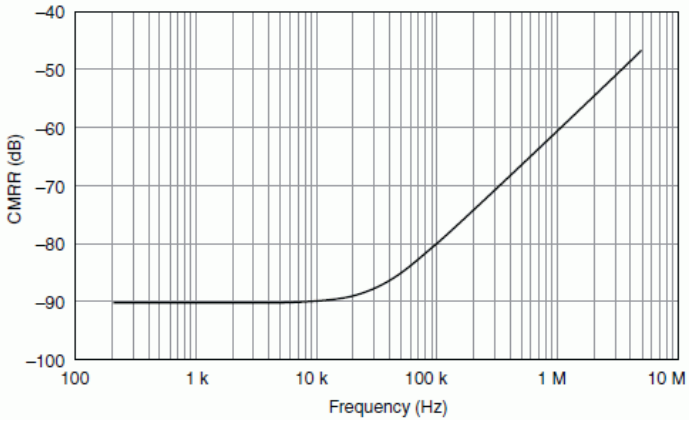
Analog Input (Channel 0 and Channel 1)

Specification	Value		Comments
Number of Channels	Two simultaneously sampling, single-ended or unbalanced differential channels or One differential channel		Software selectable
Connector	BNC		—
Impedance and Coupling			
Input Impedance	50 Ω ±2.0%	1 MΩ ±2.0% in parallel with a typical capacitance of 60 pF	Software selectable
Input Coupling	AC, DC, GND		—
Voltage Levels			
Full Scale (FS) Input Range	±1 V (2 V_{pk-pk})	±5 V (10 V_{pk-pk})	—
Maximum Input Overload	50 Ω	1 MΩ	—
	7 V_{rms} with |Peaks| ≤10 V	|Peaks| ≤ 42 V	
Accuracy			
Resolution	Sample Rate	Resolution	—
	50 kS/s	24 bits	
	500 kS/s	24 bits	
	1 MS/s	22 bits	
	5 MS/s	20 bits	
	10 MS/s	18 bits	

Specification	Value		Comments
	15 MS/s	16 bits	
DC Accuracy	Range (V_{pk-pk})	Accuracy	1 MΩ input impedance Within ±5 °C of self-calibration temperature ppm = parts per million (1×10^{-6})
	2	±(500 ppm (0.05%) of input + 50 µV)	
	10	±(500 ppm (0.05%) of input + 100 µV)	
DC Drift	Range (V_{pk-pk})	Drift	1 MΩ input impedance
	2	±(20 ppm of input + 5 µV per °C)	
	10	±(20 ppm of input + 10 µV per °C)	
AC Amplitude Accuracy, Typical	±600 ppm (0.06%) at 1 kHz		1 MΩ input impedance Within ±5 °C of self-calibration temperature
Crosstalk, Typical	≤–110 dB at 100 kHz ≤–100 dB at 1 MHz ≤–80 dB at 6 MHz		CH 0 to/from CH 1, External Trigger to CH 0 or CH 1

Specification	Value	Comments
Common-Mode Rejection Ratio (CMRR)	50 dB up to 1 kHz	Unbalanced differential input terminal configuration

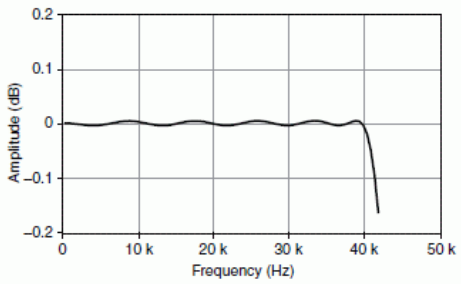
NI 5922 CMRR with Differential Terminal Configuration (Typical)



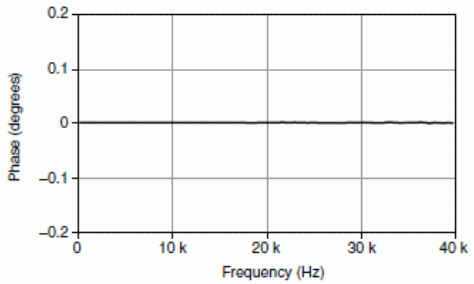
Specification	Value					Comments
Bandwidth and Transient Response						
Alias-Free Bandwidth	0.4 × *Sample Rate*					—
Alias Protection, Typical	Attenuation	Sample Rate				Input frequencies ≥ 0.6 × *Sample Rate*
		<5 MS/s	5 MS/s	<7.5 MS/s	≤15 MS/s	
		100 dB	96 dB	90 dB	80 dB	
AC Coupling Cutoff (–3 dB)	90 Hz					—
Passband Flatness, Typical	Sample Rate	50 Ω and 1 MΩ				Referenced to DC Input frequencies up to 0.4 × *Sample Rate*
	1 MS/s	0.03 dB				
	5 MS/s	0.06 dB				
	10 MS/s	0.15 dB				
	15 MS/s	0.3 dB				

NI 5922 Frequency and Phase Response (Typical)

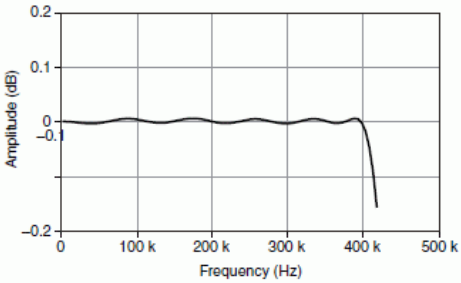
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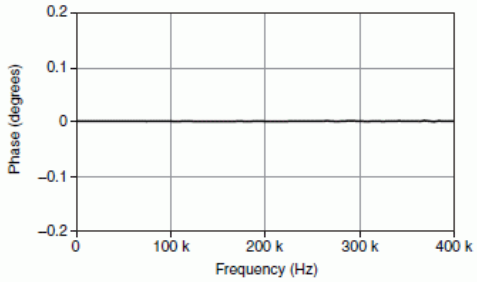
100 kS/s Frequency Response



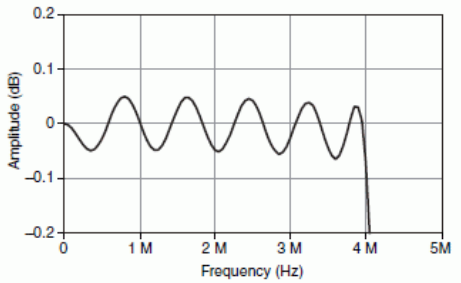
100 kS/s Phase Response



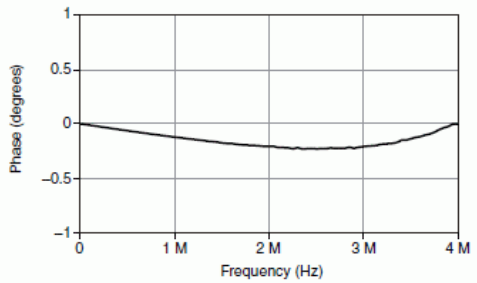
1 MS/s Frequency Response



1 MS/s Phase Response



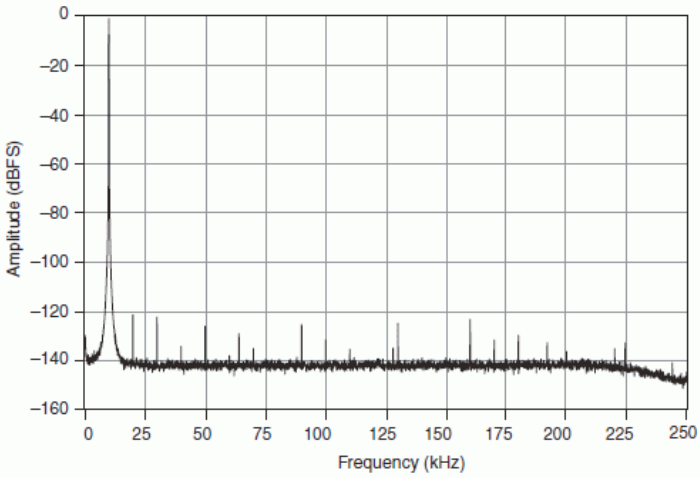
10 MS/s Frequency Response



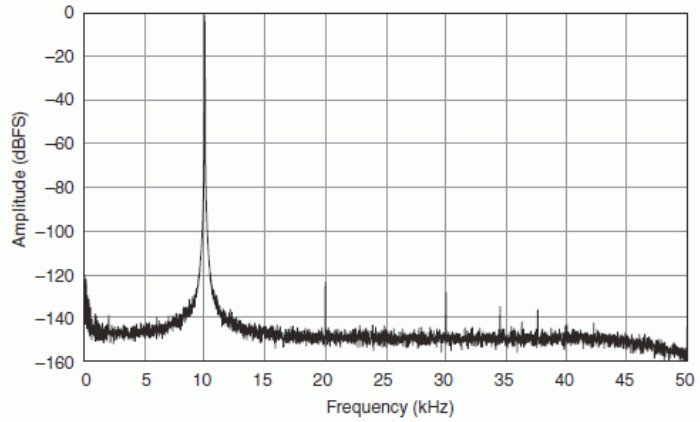
10 MS/s Phase Response

Specification	Value				Comments
Spectral Characteristics					
Spurious-Free Dynamic Range (SFDR), Typical	Range (V_{pk-pk})	Input Frequency			–1 dBFS input signal *Sample Rate* is 10 × input frequency Within ±2 °C of self-calibration temperature
		10 kHz	100 kHz	1 MHz	
	10	114 dBc	110 dBc	96 dBc	
	2	109 dBc	103 dBc	92 dBc	

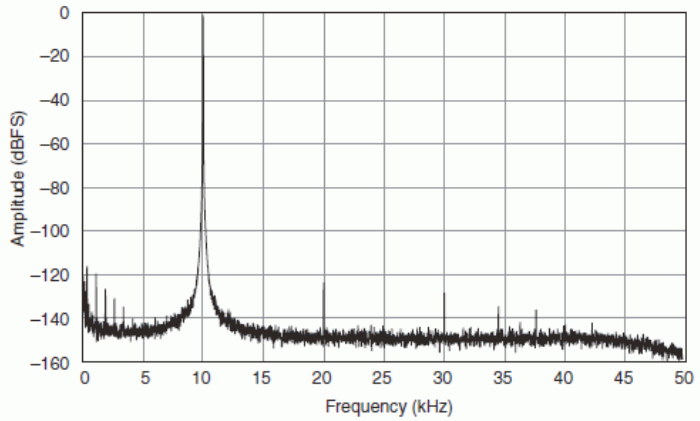
NI PXI/PCI-5922 Dynamic Performance with 10 kHz Input Signal (Typical) 1 MΩ, 10 V_{pk-pk} Range, 500 kS/s, Unbalanced Differential, 10,000-Point FFT with 10 Averages



NI PXI-5922 Dynamic Performance with 10 kHz Input Signal (Typical) 1 MΩ, 2 V_{pk-pk} Range, 100 kS/s, Unbalanced Differential, 10,000-Point FFT with 10 Averages



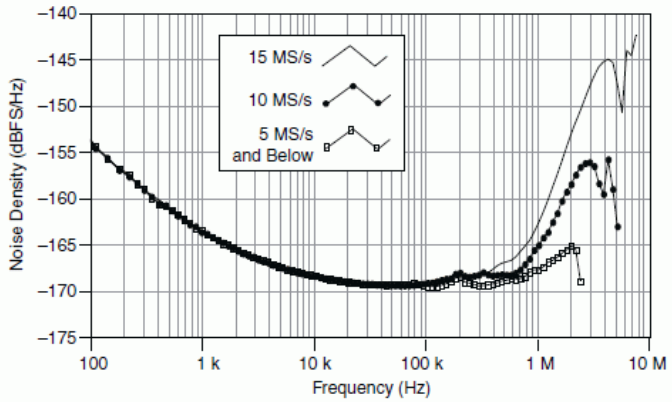
NI PCI-5922 Dynamic Performance with 10 kHz Input Signal (Typical) 1 MΩ, 2 V_{pk-pk} Range, 100 kS/s, Unbalanced Differential, 10,000-Point FFT with 10 Averages



Specification	Value				Comments
Total Harmonic Distortion (THD), Typical	Range (V_{pk-pk})	Input Frequency			–1 dBFS input signal
		10 kHz	100 kHz	1 MHz	Includes the 2nd through the 5th harmonics
	10 V_{pk-pk}	–112 dBc	–108 dBc	–94 dBc	Within ±2 °C of self-calibration temperature
	2	–107 dBc	–101 dBc	–90 dBc	
Signal-to-Noise and Distortion (SINAD), Typical	Range (V_{pk-pk})	Sample Rate			–1 dBFS input signal
		1 MS/s	10 MS/s		Input frequency is 0.1 × *Sample Rate*
	10	105 dB	89 dB		Within ±2 °C of self-calibration
	2	99 dB	87 dB		Calculated from THD and rms noise
Signal-to-Noise Ratio (SNR) without Harmonics, Typical	Range (V_{pk-pk})	Sample Rate			–1 dBFS input signal
		1 MS/s	10 MS/s		Input frequency is 0.1 × *Sample Rate*

Specification	Value					Comments
	10	108 dB		91 dB		Within ±2 °C of self-calibration temperature
	2	104 dB		90 dB		Calculated from SINAD and THD
RMS Noise	Sample Rate	Range				100 Hz to 0.4 × *Sample Rate*
		10 V_{pk-pk}		2 V_{pk-pk}		DC coupling
		dBFS	μV_{rms}	dBFS	μV_{rms}	Input 50 Ω terminated
	50 kS/s	–120	3.4	PXI: –117	PXI: 1.0	
				PCI: –110	PCI: 2.2	
	100 kS/s	–118	4.3	PXI: –115	PXI: 1.2	
				PCI: –110	PCI: 2.2	
	1 MS/s	–108	13	–104	4.2	
	5 MS/s	–101	31	–98	8.7	
	10 MS/s	–91	92	–91	20	
	15 MS/s	–79	401	–79	80	

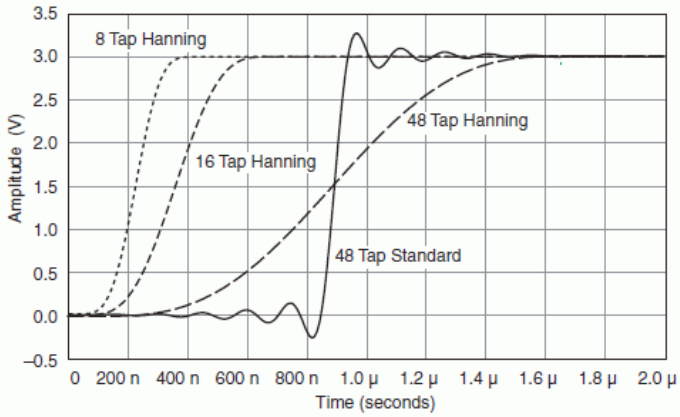
NI 5922 Noise Density (Typical)



Specification	Value			Comments
Skew, Input Bias Current				
Channel-to-Channel Skew, Typical	≤500 ps			1 MHz input, 5 MS/s sample rate
Input Bias Current	≤500 nA			Within ±5 °C of self-calibration temperature
Settling Time				
Settling Time	Filter Type[1]	1%	0.01%	For a 3 V step from 0 V DC, excluding noise
	48 Tap Standard	800 ns	2.5 µs	Time referenced to 1.5 V (50%) trigger
	48 Tap Hanning	700 ns	1.5 µs	Applies to 15 MS/s sample rate only
	16 Tap Hanning	300 ns	1.4 µs	
	8 Tap Hanning	200 ns	1.3 µs	

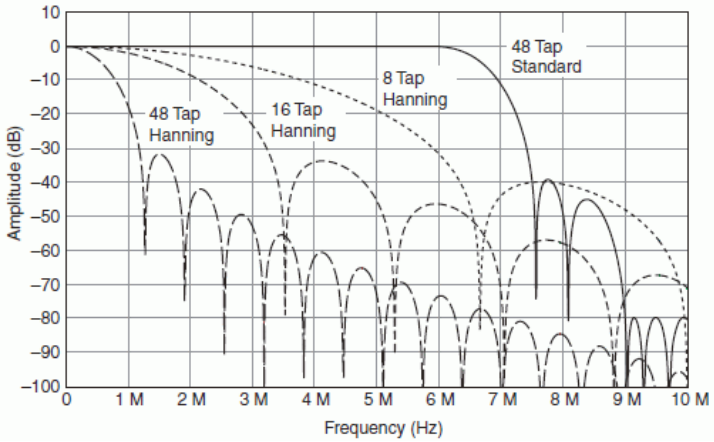
[1] To set or change the filter type, use the LabVIEW property Flex FIR Antialias Filter Type or the C attribute NISCOPE_ATTR_FLEX_FIR_ANTIALIAS_FILTER_TYPE.

NI 5922 Step Response Using Different Filter Types



Time (t=0) represents the actual time the edge arrived at the BNC connector on the NI 5922.

NI 5922 Frequency Response Using Different Filter Types



Horizontal

Sample Clock

Specification	Value		Comments
Sample Clock			
Sources	Internal onboard clock (internal VCXO)		Internal sample clock is locked to the reference clock or derived from the onboard VCXO
Onboard Clock (Internal VCXO)			
Sample Rate Range	Real-Time Sampling (Single Shot)		Available rates are 60 MS/s/*n*, where *n* is an integer value from 4 to 1200
	50 kS/s to15 MS/s		
Phase Noise Density, Typical	<–133 dBc/Hz at 10 kHz <–145 dBc/Hz at 100 kHz		5 MHz input signal
Sample Clock Jitter, Typical	≤3 ps $_{rms}$ (100 Hz to 1 MHz)		Includes the effects of the converter aperture uncertainty and the clock circuitry jitter Excludes trigger jitter
Timebase Frequency	120 MHz		—
Timebase Accuracy	Not Phase-Locked to Reference Clock	Phase-Locked to Reference Clock	—
	±50 ppm, typical	Equal to the reference clock accuracy	
Sample Clock Delay Range	±1 Sample clock period		—
Sample Clock Delay Resolution	400 ps		—

Phase-Locked Loop (PLL) Reference Clock

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Specification	Value	
Reference Clock Sources	NI PXI-5922	NI PCI-5922
	PXI_CLK10 (backplane connector) CLK IN (front panel SMB connector)	RTSI 7 CLK IN (front panel SMB connector)
Frequency Range	1 MHz to 20 MHz in 1 MHz increments; the default value is 10 MHz Must be accurate to ±50 ppm	
Duty Cycle Tolerance	45% to 55%	
Exported Reference Clock Destinations	NI PXI-5922	NI PCI-5922
	CLK OUT (front panel SMB connector) PFI<0..1> (front panel 9-pin mini-circular DIN connector) PXI_TRIG<0..6> (backplane connector)	CLK OUT (front panel SMB connector) PFI<0..1> (front panel 9-pin mini-circular DIN connector) RTSI <0..7>
CLK IN (Reference Clock Input, Front Panel Connector)		
Input Voltage Range	Square wave: 0.2 V_{pk-pk} to 1 V_{pk-pk}	
Maximum Input Overload	7 V_{rms} with |Peaks| ≤10 V	
Impedance	50 Ω	
Coupling	AC	
CLK OUT (Reference Clock Output, Front Panel Connector)		
Output Impedance	50 Ω	
Logic Type	5 V CMOS	
Maximum Drive Current	±50 mA	

Trigger

Reference (Stop) Trigger

Specification	Value		Comments
Trigger Types	Edge, window, hysteresis, digital, immediate, and software		Refer to the *NI High-Speed Digitizers Help* for more information about the sources available for each trigger type.
Trigger Sources	CH 0, CH 1, TRIG, PXI_Trig <0..6>, PFI <0..1>, PXI Star Trigger, RTSI <0..6>, and software		—
Time Resolution	Sample clock period		—
Rearm Time	144 × Sample clock period		Holdoff set to 0.
Holdoff	Up to (2^{32} – 1) × Sample clock period		—
Analog Trigger (Edge, Window, and Hysteresis Trigger Types)			
Sources	CH 0 (front panel BNC connector) CH 1 (front panel BNC connector) TRIG* (front panel BNC connector)		* TRIG—analog edge trigger only
Trigger Level Range	100% FS		—
Edge Trigger Sensitivity	CH 0, CH 1	TRIG (External Trigger)	—
	2% FS	0.3 V_{pk-pk} typical, up to 1 MHz	
Jitter	Sample clock period		—
Digital Trigger (Digital Trigger Type)			
Sources	NI PXI-5922	NI PCI-5922	—
	PXI_Trig <0..6> (backplane connector) PFI <0..1> (front panel 9-pin DIN connector) PXI Star Trigger (backplane connector)	RTSI <0..6> PFI <0..1> (front panel 9-pin DIN connector)	

TRIG (External Trigger, Front Panel Connector)

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Specification	Value
Connector	BNC
Impedance	100 kΩ in parallel with 52 pF
Input Voltage Range	±2.5 V
Coupling	DC
Level Accuracy, Typical	±0.3 V up to 100 kHz
Maximum Input Overload	|Peaks| ≤ 42 V

PFI 0 and PFI 1 (Programmable Function Interface, AUX Front Panel Connectors)

Specification	Value
Connector	9-pin mini-circular DIN
Direction	Bi-directional
As an Input (Trigger)	
Destinations	Start Trigger (Acquisition Arm) Reference (Stop) Trigger Arm Reference Trigger Advance Trigger
Input Impedance	150 kΩ
V_{IH}	2.0 V
V_{IL}	0.8 V
Maximum Input Overload	–0.5 V, 5.5 V
Maximum Frequency	25 MHz
As an Output (Event)	
Sources	Start Trigger (Acquisition Arm) Reference (Stop) Trigger End of Record Done (End of Acquisition)
Output Impedance	50 Ω
Logic Type	3.3 V CMOS
Maximum Drive Current	±24 mA
Maximum Frequency	20 MHz

TClk Specifications

National Instruments TClk synchronization method and the NI-TClk driver are used to align the sample clocks on any number of SMC-based modules in a chassis. For more information about TClk synchronization, refer to the *NI-TClk Synchronization Help*, which is located within the *NI High-Speed Digitizers Help*.

- Specifications are valid for any number of modules installed in one NI PXI-1042 chassis.
- All parameters set to identical values for each SMC-based module.
- Sample Clock set to 15 MS/s and all filters are disabled.
- For other configurations, including multichassis systems, contact NI Technical Support at ni.com/support.

Note Although you can use NI-TClk to synchronize nonidentical modules, these specifications apply only to synchronizing identical modules.

Specification	Value	Comments
Intermodule SMC Synchronization Using NI-TClk for Identical Modules (Typical)		
Skew	500 ps	Caused by clock and analog path delay differences No manual adjustment performed
Average Skew After Manual Adjustment	<10 ps	For information about manual adjustment, refer to the *Synchronization Repeatability Optimization* topic in the *NI-TClk Synchronization Help*. For additional help with the adjustment process, contact NI Technical Support at ni.com/support.
Sample Clock Delay/Adjustment Resolution	≤5 ps	—

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Waveform Specifications

Specification	Value		Comments
Onboard Memory Size	8 MB/channel	2 MS/channel	—
	32 MB/channel	8 MS/channel	
	256 MB/channel	64 MS/channel	
Minimum Record Length	1 Sample		—
Number of Pretrigger Samples	0 up to full *Record Length*		Single-record mode and multiple-record mode
Number of Posttrigger Samples	0 up to full *Record Length*		Single-record mode and multiple-record mode
Maximum Number of Records in Onboard Memory	8 MB/channel	13,107	* It is possible to exceed these numbers if you fetch records while acquiring data. For more information, refer to the *NI High-Speed Digitizers Help*.
	32 MB/channel	52,428	
	256 MB/channel	100,000*	
Allocated Onboard Memory per Record	(*Record Length* × 4 bytes/S) + 400 bytes, rounded up to next multiple of 128 bytes or 640 bytes, whichever is greater		—

Calibration

Specification	Value
Self-Calibration	Self-calibration is done on software command. The calibration corrects for gain and offset for all input ranges, input bias current, and nonlinearities in the ADCs.
External Calibration (Factory Calibration)	The external calibration calibrates the VCXO and the voltage reference. Appropriate constants are stored in nonvolatile memory.
Interval for External Calibration	2 years
Warm-Up Time	15 minutes

Power

Specification	Typical Value	
+3.3 VDC	NI PXI-5922	NI PCI-5922
	2.0 A	2.0 A
+5 VDC	1.4 A	2.5 A
+12 VDC	330 mA	450 mA
–12 VDC	280 mA	0
Total Power	20.9 W	24.5 W

Software

Specification	Comments
Driver Software	NI PXI-5922: NI-SCOPE 2.8 or later NI PCI-5922: NI-SCOPE 3.0 or later NI-SCOPE is an IVI-compliant driver that allows you to configure, control, and calibrate the NI 5922. NI-SCOPE provides application programming interfaces for many development environments.
Application Software	NI-SCOPE provides programming interfaces, documentation, and examples for the following application development environments: ▪ LabVIEW ▪ LabWindows™/CVI™ ▪ Measurement Studio ▪ Microsoft Visual C/C++ ▪ Microsoft Visual Basic
Interactive Soft Front Panel and Configuration	The Scope Soft Front Panel 2.2 or later supports interactive control of the NI 5922. The Scope Soft Front Panel is included on the NI-SCOPE CD.

Specification	Comments
	National Instruments Measurement & Automation Explorer (MAX) also provides interactive configuration and test tools for the NI 5922. MAX is also included on the NI-SCOPE CD.

Environment

NI PXI-5922

Note To ensure that the NI PXI-5922 cools effectively, follow the guidelines in the *Maintain Forced-Air Cooling Note to Users* included in the NI PXI-5922 kit. The NI PXI-5922 is intended for indoor use only.

Specification	Value
Operating Temperature	0 ºC to +55 ºC in all NI PXI chassis except the following: 0 ºC to +45 ºC when installed in an NI PXI-1000/B or PXI-101*x* chassis. Meets IEC-60068-2-1 and IEC-60068-2-2
Storage Temperature	–40 ºC to +71 ºC Meets IEC-60068-2-1 and IEC-60068-2-2
Operating Relative Humidity	10% to 90%, noncondensing Meets IEC-60068-2-56
Storage Relative Humidity	5% to 95%, noncondensing Meets IEC-60068-2-56
Operating Shock	30 g, half-sine, 11 ms pulse Meets IEC-60068-2-27 Test profile developed in accordance with MIL-PRF-28800F
Storage Shock	50 g, half-sine, 11 ms pulse Meets IEC-60068-2-27 Test profile developed in accordance with MIL-PRF-28800F
Operating Vibration	5 Hz to 500 Hz, 0.31 g_{rms} Meets IEC-60068-2-64
Storage Vibration	5 Hz to 500 Hz, 2.46 g_{rms} Meets IEC-60068-2-64 Test profile exceeds requirements of MIL-PRF-28800F, Class 3
Altitude	2,000 m maximum (at 25 °C ambient temperature)
Pollution Degree	2

NI PCI-5922

Note To ensure that the NI PCI-5922 cools effectively, make sure that the chassis in which it is used has active cooling that provides at least some airflow across the PCI card cage. To maximize airflow and extend the life of the device, leave any adjacent PCI slots empty. Refer to the *Maintain Forced-Air Cooling Note to Users* included in the NI PCI-5922 kit for important cooling information. The NI PCI-5922 is intended for indoor use only.

Specification	Value
Operating Temperature	0 ºC to +45 ºC Meets IEC-60068-2-1 and IEC-60068-2-2
Storage Temperature	–40 ºC to +71 ºC Meets IEC-60068-2-1 and IEC-60068-2-2
Operating Relative Humidity	10% to 90%, noncondensing Meets IEC-60068-2-56
Storage Relative Humidity	5% to 95%, noncondensing Meets IEC-60068-2-56
Storage Shock	50 g, half-sine, 11 ms pulse Meets IEC-60068-2-27

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Specification	Value
	Test profile developed in accordance with MIL-PRF-28800F
Storage Vibration	5 Hz to 500 Hz, 2.46 g_{rms} Meets IEC-60068-2-64 Test profile exceeds requirements of MIL-PRF-28800F, Class 3
Altitude	2,000 m maximum (at 25 °C ambient temperature)
Pollution Degree	2

Safety, Electromagnetic Compatibility, and CE Compliance

Safety Standards

This product is designed to meet the requirements of the following standards of safety for electrical equipment for measurement, control, and laboratory use:

- IEC 61010-1, EN 61010-1
- UL 61010-1, CSA 61010-1

Note For UL and other safety certifications, refer to the product label or the *Online Product Certification* section.

Electromagnetic Compatibility

This product meets the requirements of the following EMC standards for electrical equipment for measurement, control, and laboratory use:

- EN 61326 (IEC 61326): Class A emissions; Basic immunity
- EN 55011 (CISPR 11): Group 1, Class A emissions
- AS/NZS CISPR 11: Group 1, Class A emissions
- FCC 47 CFR Part 15B: Class A emissions
- ICES-001: Class A emissions

Note For the standards applied to assess the EMC of this product, refer to the *Online Product Certification* section.

Note For EMC compliance, operate this device with RG223/U or equivalent shielded cable. Operate according to product documentation.

CE Compliance CE

This product meets the essential requirements of applicable European Directives, as amended for CE marking, as follows:

- 2006/95/EC; Low-Voltage Directive (safety)
- 2004/108/EC; Electromagnetic Compatibility Directive (EMC)

Online Product Certification

Refer to the product Declaration of Conformity (DoC) for additional regulatory compliance information. To obtain product certifications and the DoC for this product, visit ni.com/certification, search by module number or product line, and click the appropriate link in the Certification column.

Environmental Management

National Instruments is committed to designing and manufacturing products in an environmentally responsible manner. NI recognizes that eliminating certain hazardous substances from our products is beneficial not only to the environment but also to NI customers.

For additional environmental information, refer to the *NI and the Environment* Web page at ni.com/environment. This page contains the environmental regulations and directives with which NI complies, as well as other environmental information not included in this document.

Waste Electrical and Electronic Equipment (WEEE)

EU Customers At the end of the product life cycle, all products *must* be sent to a WEEE recycling center. For more information about WEEE recycling centers, National Instruments WEEE initiatives, and compliance with WEEE Directive 2002/96/EC on Waste Electrical and Electronic Equipment, visit ni.com/environment/weee.htm.

电子信息产品污染控制管理办法 （中国 RoHS）

中国客户 National Instruments 符合中国电子信息产品中限制使用某些有害物质指令 (RoHS)。
关于 National Instruments 中国 RoHS 合规性信息，请登录 ni.com/environment/rohs_china。
(For information about China RoHS compliance, go to ni.com/environment/rohs_china.)

Physical

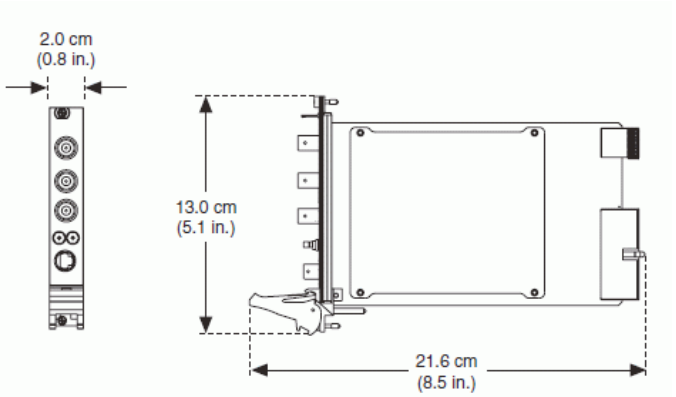
Front Panel Connectors

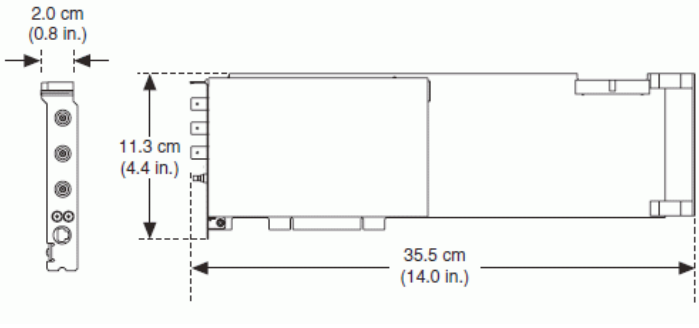
Label	Function	Connector Type
CH 0	Analog input	BNC female
CH 1	Analog input	BNC female
TRIG	External trigger	BNC female
CLK IN	Reference clock input	SMB jack

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CLK OUT	Reference clock output	SMB jack
AUX I/O	PFI 0, PFI 1	9-pin mini-circular DIN
Front Panel Indicators (NI PXI-5922)		
ACCESS	The ACCESS LED indicates the status of the PCI bus and the interface from the NI PXI-5922 to the controller.	
ACTIVE	The ACTIVE LED indicates the status of the onboard acquisition hardware of the NI PXI-5922.	

Dimensions and Weight

NI PXI-5922	
Dimensions	3U, One slot, PXI/cPCI Module 21.6 × 2.0 × 13.0 cm (8.5 × 0.8 × 5.1 in.) 
Weight	336 g (11.8 oz)

NI PCI-5922	
Dimensions	35.5 × 2.0 × 11.3 cm (14.0 × 0.8 × 4.4 in.) 
Weight	415 g (14.6 oz)

Back to Top

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