

# NI PXI/PCI-5122 Specifications

## 14-Bit 100 MS/s Digitizer

Unless otherwise noted, the following conditions were used for each specification:

- All filter settings
- All impedance selections
- Sample clock set to 100 MS/s

Typical values are representative of an average unit operating at room temperature. Specifications are subject to change without notice. For the most recent NI 5122 specifications, visit [ni.com/manuals](http://ni.com/manuals).

To access the NI 5122 documentation, including the *NI High-Speed Digitizers Getting Started Guide*, which contains functional descriptions of the NI 5122 signals, navigate to **Start»Programs»National Instruments»NI-SCOPE»Documentation**.



**Caution-Hot Surface** Allow time to cool before extracting NI 5122 hardware from PXI chassis or PC to reduce risk of burns. Exercise caution when handling, as recently used NI 5122 devices may exceed safe handling temperatures.

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# Vertical

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## Analog Input (Channel 0 and Channel 1)

Table 1.

Specification	Value		Comments
Number of Channels	Two (simultaneously sampled)		—
Connector	BNC		—
<b>Impedance and Coupling</b>			
Input Impedance	50 $\Omega$ $\pm$ 2.0%	1 M $\Omega$ $\pm$ 0.75% in parallel with a typical capacitance of 27 pF $\pm$ 2 pF	Software selectable
Input Coupling	AC, DC, GND		AC coupling available on 1 M $\Omega$ only

**Table 1.** (Continued)

Specification	Value				Comments
<b>Voltage Levels</b>					
Full Scale (FS) Input Range and Programmable Vertical Offset	50 $\Omega$		1 M $\Omega$		—
	Range (V <sub>pk-pk</sub> )	Vertical Offset Range (V)	Range (V <sub>pk-pk</sub> )	Vertical Offset Range (V)	
	0.2	$\pm 0.1$	0.2	$\pm 0.1$	
	0.4	$\pm 0.2$	0.4	$\pm 0.2$	
	1	$\pm 0.5$	1	$\pm 0.5$	
	2	$\pm 1$	2	$\pm 1$	
	4	$\pm 2$	4	$\pm 2$	
	10	—	10	$\pm 5$	
Maximum Input Overload	50 $\Omega$		1 M $\Omega$		—
	7 V <sub>rms</sub> with  Peaks  $\leq$ 10 V		Peaks  $\leq$ 42 V		
<b>Accuracy</b>					
Resolution	14 bits				—
DC Accuracy (Programmable Vertical Offset = 0 V)	Range (V <sub>pk-pk</sub> )	50 $\Omega$ and 1 M $\Omega$			Within $\pm 5$ °C of self-calibration temperature
	0.2, 0.4, 1, 2	NI PXI-5122: $\pm(0.65\%$ of Input + 1.0 mV)  NI PCI-5122: $\pm(0.65\%$ of Input + 2.0 mV)			
	4, 10	$\pm(0.65\%$ of Input + 8.0 mV)			
	20 (1 M $\Omega$ only)	$\pm(0.65\%$ of Input + 10.0 mV)			
Programmable Vertical Offset Accuracy	$\pm 0.4\%$ of offset setting				Within $\pm 5$ °C of self-calibration temperature
DC Drift	$\pm(0.057\%$ of Input + 0.006% of FS + 100 $\mu$ V) per °C				—

**Table 1.** (Continued)

Specification	Value		Comments
AC Amplitude Accuracy	50 $\Omega$	1 M $\Omega$	Within $\pm 5$ °C of self-calibration temperature
	$\pm 0.06$ dB ( $\pm 0.7\%$ ) at 50 kHz	$\pm 0.09$ dB ( $\pm 1.0\%$ ) at 50 kHz	
Crosstalk, Typical	$\leq -100$ dB at 10 MHz		CH 0 to/from CH 1, External Trigger to CH 0 or CH 1
<b>Bandwidth and Transient Response</b>			
Bandwidth (-3 dB)	Range ( $V_{pk-pk}$ )	50 $\Omega$ and 1 M $\Omega$	Filters off * 78 MHz above 40 °C
	All ranges except 0.2	100 MHz	
	0.2	80 MHz up to 40 °C*	
Rise/Fall Time, Typical	Range ( $V_{pk-pk}$ )	50 $\Omega$ and 1 M $\Omega$	—
	All ranges except 0.2	3.5 ns	
	0.2	4.2 ns	
Bandwidth Limit Filters	Noise Filter	Antialias Filter	Only one filter can be enabled at any given time. The antialias filter is enabled by default.
	20 MHz 2-pole Bessel filter	40 MHz (-6 dB, typical) 35 MHz (-3 dB) 6-pole Chebyshev filter	
AC-Coupling Cutoff (-3 dB)	12 Hz		AC coupling available on 1 M $\Omega$ only

**Table 1.** (Continued)

Specification	Value			Comments
Passband Flatness	Filter Settings	Range ( $V_{pk-pk}$ )	50 $\Omega$ and 1 M $\Omega$	Referenced to 50 kHz
	Filters Off	All ranges except 0.2	$\pm 0.4$ dB DC to 20 MHz $\pm 1$ dB 20 MHz to 50 MHz	
		0.2	$\pm 0.4$ dB DC to 20 MHz $\pm 1$ dB 20 MHz to 40 MHz	
	Antialias Filter On	All ranges	$\pm 1.2$ dB DC to 16 MHz $\pm 1.6$ dB 16 MHz to 32 MHz	

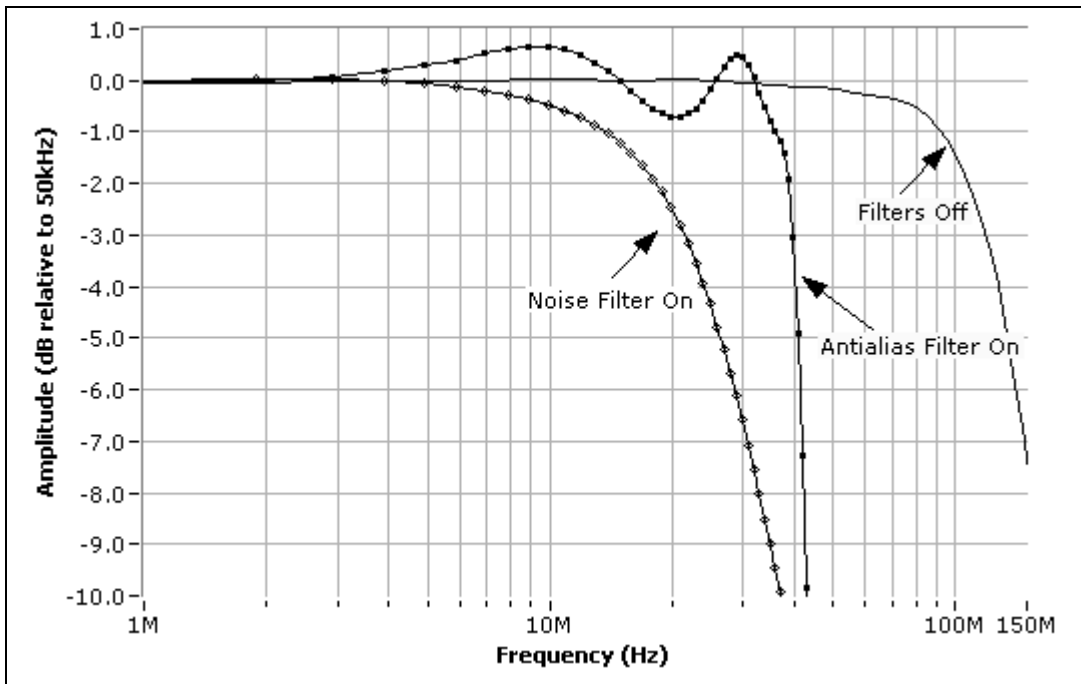


Figure 1. NI 5122 Frequency Response (Typical)

Table 1. (Continued)

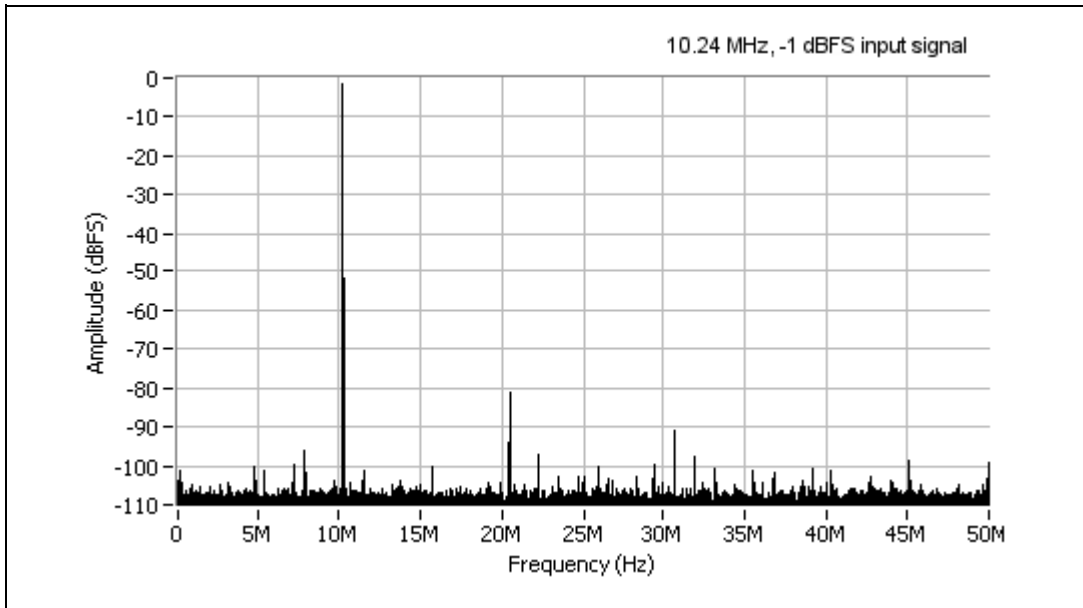
Specification	Value			Comments
<b>Spectral Characteristics</b>				
Spurious Free Dynamic Range with Harmonics (SFDR), Typical	Range ( $V_{pk-pk}$ )	50 $\Omega$	1 M $\Omega$	10 MHz, -1 dBFS input signal.
	0.2	-75 dBc	-70 dBc	Includes the 2nd through the 5th harmonics.
	0.4	-75 dBc	-70 dBc	
	1	-75 dBc	-70 dBc	
	2	-75 dBc	-70 dBc	
	4	-65 dBc	-70 dBc	Measured from DC to 50 MHz on NI PXI-5122.
	10	-65 dBc	-60 dBc	Measured from 5 kHz to 50 MHz on NI PCI-5122.
	20 (1 M $\Omega$ only)	N/A	-60 dBc	

**Table 1.** (Continued)

Specification	Value				Comments	
Total Harmonic Distortion (THD), Typical	Range ( $V_{pk-pk}$ )	50 $\Omega$		1 M $\Omega$		10 MHz, -1 dBFS input signal.  Includes the 2nd through the 5th harmonics.
	0.2	-75 dBc		-68 dBc		
	0.4	-75 dBc		-68 dBc		
	1	-75 dBc		-68 dBc		
	2	-73 dBc		-68 dBc		
	4	-63 dBc		-68 dBc		
	10	-63 dBc		-58 dBc		
	20 (1 M $\Omega$ only)	N/A		-58 dBc		
Intermodulation Distortion, Typical	0.2 $V_{pk-pk}$ to 2.0 $V_{pk-pk}$ Ranges on 50 $\Omega$ Input				Two tones at 10.2 MHz and 11.2 MHz. Each tone is -7 dBFS.	
	-75 dBc					
Signal-to-Noise Ratio (SNR), Typical	Range ( $V_{pk-pk}$ )	50 $\Omega$		1 M $\Omega$		10 MHz, -1 dBFS input signal.  Excludes harmonics.  Measured from DC to 50 MHz.
		Filters Off	Antialias Filter On	Filters Off	Antialias Filter On	
	0.2	60 dB	60 dB	56 dB	60 dB	
	0.4	62 dB	62 dB	61 dB	62 dB	
	1	62 dB	62 dB	62 dB	62 dB	
	2	62 dB	62 dB	62 dB	62 dB	
4	—	—	61 dB	62 dB		

**Table 1.** (Continued)

Specification	Value				Comments	
Signal to Noise and Distortion (SINAD), Typical	Range ( $V_{pk-pk}$ )	50 $\Omega$		1 M $\Omega$		10 MHz, -1 dBFS input signal. Includes harmonics.
		Filters Off	Antialias Filter On	Filters Off	Antialias Filter On	
	0.2	60 dB	60 dB	56 dB	59 dB	Measured from DC to 50 MHz.
	0.4	62 dB	62 dB	60 dB	61 dB	
	1	62 dB	62 dB	61 dB	61 dB	
	2	62 dB	62 dB	61 dB	61 dB	
4	—	—	60 dB	61 dB		



**Figure 2.** NI 5122 Dynamic Performance, 50  $\Omega$ , 1  $V_{pk-pk}$  Range (Typical)



**Table 1.** (Continued)

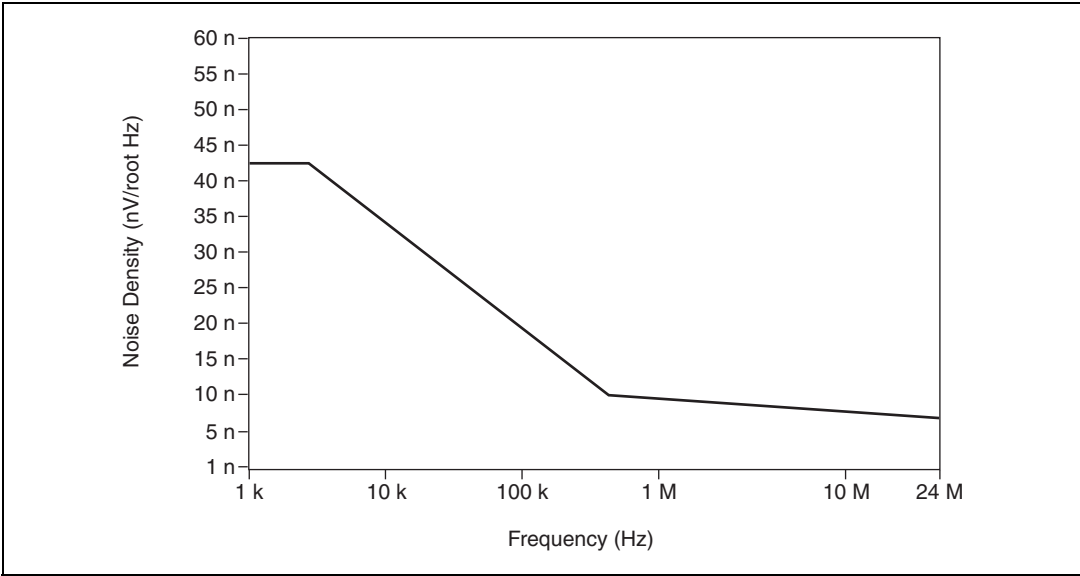
Specification	Value			Comments
RMS Noise (Noise Filter On)	Range ( $V_{pk-pk}$ )	50 $\Omega$	1 M $\Omega$	50 $\Omega$ terminator connected to input.
	0.2	NI PXI-5122: 46 $\mu V_{rms}$ (0.023% FS)  NI PCI-5122: 56 $\mu V_{rms}$ (0.028% FS)	NI PXI-5122: 60 $\mu V_{rms}$ (0.030% FS)  NI PCI-5122: 72 $\mu V_{rms}$ (0.036% FS)	
	0.4	92 $\mu V_{rms}$ (0.023% FS)	92 $\mu V_{rms}$ (0.023% FS)	
	1	230 $\mu V_{rms}$ (0.023% FS)	230 $\mu V_{rms}$ (0.023% FS)	
	2	460 $\mu V_{rms}$ (0.023% FS)	460 $\mu V_{rms}$ (0.023% FS)	
	4	920 $\mu V_{rms}$ (0.023% FS)	920 $\mu V_{rms}$ (0.023% FS)	
	10	2.3 mV <sub>rms</sub> (0.023% FS)	2.3 mV <sub>rms</sub> (0.023% FS)	
	20 (1 M $\Omega$ only)	N/A	4.6 mV <sub>rms</sub> (0.023% FS)	

**Table 1.** (Continued)

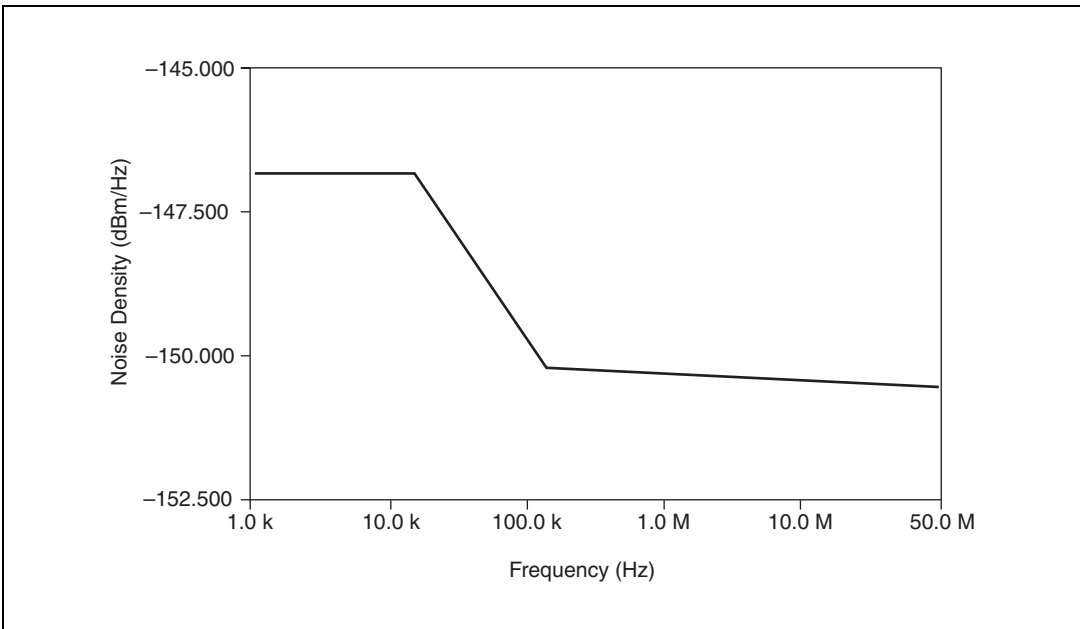
Specification	Value			Comments
RMS Noise (Antialias Filter On)	Range ( $V_{pk-pk}$ )	50 $\Omega$	1 M $\Omega$	50 $\Omega$ terminator connected to input.
	0.2	NI PXI-5122: 66 $\mu V_{rms}$ (0.033% FS)  NI PCI-5122: 82 $\mu V_{rms}$ (0.041% FS)	NI PXI-5122: 80 $\mu V_{rms}$ (0.040% FS)  NI PCI-5122: 96 $\mu V_{rms}$ (0.048% FS)	
	0.4	100 $\mu V_{rms}$ (0.025% FS)	120 $\mu V_{rms}$ (0.030% FS)	
	1	250 $\mu V_{rms}$ (0.025% FS)	300 $\mu V_{rms}$ (0.030% FS)	
	2	500 $\mu V_{rms}$ (0.025% FS)	600 $\mu V_{rms}$ (0.030% FS)	
	4	1 mV <sub>rms</sub> (0.025% FS)	1.2 mV <sub>rms</sub> (0.030% FS)	
	10	2.5 mV <sub>rms</sub> (0.025% FS)	3 mV <sub>rms</sub> (0.030% FS)	
	20 (1 M $\Omega$ only)	N/A	6 mV <sub>rms</sub> (0.030% FS)	

**Table 1.** (Continued)

Specification	Value			Comments
RMS Noise (Filters Off)	Range ( $V_{pk-pk}$ )	50 $\Omega$	1 M $\Omega$	50 $\Omega$ terminator connected to input.
	0.2	NI PXI-5122: 66 $\mu V_{rms}$ (0.033% FS)  NI PCI-5122: 90 $\mu V_{rms}$ (0.045% FS)	NI PXI-5122: 110 $\mu V_{rms}$ (0.055% FS)  NI PCI-5122: 110 $\mu V_{rms}$ (0.055% FS)	
	0.4	100 $\mu V_{rms}$ (0.025% FS)	160 $\mu V_{rms}$ (0.040% FS)	
	1	250 $\mu V_{rms}$ (0.025% FS)	300 $\mu V_{rms}$ (0.030% FS)	
	2	500 $\mu V_{rms}$ (0.025% FS)	600 $\mu V_{rms}$ (0.030% FS)	
	4	1 mV <sub>rms</sub> (0.025% FS)	1.6 mV <sub>rms</sub> (0.040% FS)	
	10	2.5 mV <sub>rms</sub> (0.025% FS)	3 mV <sub>rms</sub> (0.030% FS)	
	20 (1 M $\Omega$ only)	N/A	6 mV <sub>rms</sub> (0.030% FS)	



**Figure 3.** Representation of NI 5122 Spectral Noise Density on 0.2 V Range, Noise Filter Enabled, 1 M $\Omega$  Input Impedance



**Figure 4.** Representation of NI 5122 Spectral Noise Density on 0.2 V Range, Full Bandwidth, 50  $\Omega$  Input Impedance (Does Not Include System Spurs. All Spurs  $\leq$  135 dBm/Hz)

# Horizontal

## Sample Clock

Table 2.

Specification	Value		Comments
Sources	NI PXI-5122	NI PCI-5122	* Internal Sample Clock is locked to the Reference Clock or derived from the onboard VCXO.
	Internal, Onboard Clock (internal VCXO)*	Internal, Onboard Clock (internal VCXO)*	
	External, CLK IN (front panel SMB connector)	External, CLK IN (front panel SMB connector)	
	External, PXI Star Trigger (backplane connector)		
<b>Onboard Clock (Internal VCXO)</b>			
Sample Rate Range	Real-Time Sampling (Single Shot)	Random Interleaved Sampling (RIS)	* Divide by $n$ decimation used for all rates less than 100 MS/s. For more information about Sample Clock and decimation, refer to the <i>NI High-Speed Digitizers Help</i> .
	1.526 kS/s to 100 MS/s*	200 MS/s to 2 GS/s in multiples of 100 MS/s	
Phase Noise Density, Typical	$< -100$ dBc/Hz at 100 Hz $< -120$ dBc/Hz at 1 kHz $< -130$ dBc/Hz at 10 kHz		10 MHz input signal
Sample Clock Jitter, Typical	$\leq 1$ ps rms (100 Hz to 100 kHz) $\leq 2$ 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	100 MHz		—

**Table 2.** (Continued)

Specification	Value		Comments
Timebase Accuracy	Not Phase-Locked to Reference Clock	Phase-Locked to Reference Clock	—
	±25 ppm	Equal to the Reference Clock accuracy	
Sample Clock Delay Range	±1 Sample Clock period		—
Sample Clock Delay Resolution	10 ps		—
<b>External Sample Clock</b>			
Sources	NI PXI-5122	NI PCI-5122	—
	CLK IN (front panel SMB connector) PXI Star Trigger (backplane connector)	CLK IN (front panel SMB connector)	
Frequency Range	30 MHz to 105 MHz		Divide by $n$ decimation available where $1 \leq n \leq 65,535$ . For more information about Sample Clock and decimation, refer to the <i>NI High-Speed Digitizers Help</i> .
Duty Cycle Tolerance	45% to 55%		—

**Table 2.** (Continued)

Specification	Value		Comments
<b>Sample Clock Exporting</b>			
Exported Sample Clock Destinations	Destination	Maximum Frequency	* Decimated Sample Clock only
	CLK OUT (front panel SMB connector)	105 MHz	
	PXI_Trig <0..6> (backplane connector)*	20 MHz	
	PFI <0..1> (front panel 9-pin mini-circular DIN connector)*	25 MHz	
	RTSI<0..6>*	20 MHz	

# Phase-Locked Loop (PLL) Reference Clock

Table 3.

Specification	Value		Comments
Sources	NI PXI-5122	NI PCI-5122	—
	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. Default of 10 MHz.  The PLL Reference Clock frequency has to be accurate to $\pm 50$ ppm.		—
Duty Cycle Tolerance	45% to 55%		—
Exported Reference Clock Destinations	NI PXI-5122	NI PCI-5122	—
	CLK OUT (front panel SMB connector) PFI <0..1> (front panel 9-pin mini-circular DIN connector) PXI_Trig <0..7> (backplane connector)	CLK OUT (front panel SMB connector) PFI <0..1> (front panel 9-pin mini-circular DIN connector) RTSI <0..7>	

## CLK IN (Sample Clock and Reference Clock Input, Front Panel Connector)

Table 4.

Specification	Value	Comments
Input Voltage Range	Sine wave: $0.65 V_{pk-pk}$ to $2.8 V_{pk-pk}$ (0 dBm to 13 dBm) Square wave: $0.2 V_{pk-pk}$ to $2.8 V_{pk-pk}$	—
Maximum Input Overload	$7 V_{rms}$ with $ Peaks  \leq 10 V$	—
Impedance	$50 \Omega$	—
Coupling	AC	—



# CLK OUT (Sample Clock and Reference Clock Output, Front Panel Connector)

Table 5.

Specification	Value	Comments
Output Impedance	50 $\Omega$	—
Logic Type	3.3 V CMOS	—
Maximum Drive Current	$\pm 48$ mA	—

## Trigger

### Reference (Stop) Trigger

Table 6.

Specification	Value			Comments
Trigger Types and Sources	Types		Sources	Refer to the following sections and <i>NI High-Speed Digitizers Help</i> for more information about what sources are available for each trigger type.
	Edge, Window, Hysteresis, Video, Digital, Immediate, and Software		CH 0, CH 1, TRIG, PXI_Trig <0..6>, PFI <0..1>, PXI Star Trigger, Software, and RTSI <0..6>	
Time Resolution	TDC	Onboard Clock	External Clock	TDC = Time to Digital Conversion Circuit
	On	100 ps	N/A	
	Off	10 ns	External Clock Period	
Holdoff	TDC	Onboard Clock	External Clock	—
	On	10 $\mu$ s to 171.79 s	N/A	
	Off	2 $\mu$ s to 171.79 s	200 $\times$ (External Clock Period) to $(2^{32} - 1) \times$ (External Clock Period)	

**Table 6.** (Continued)

Specification	Value		Comments
<b>Analog Trigger (Edge, Window, and Hysteresis Trigger Types)</b>			
Sources	CH 0 (front panel BNC connector) CH 1 (front panel BNC connector) TRIG (front panel BNC connector)		—
Trigger Level Range	CH 0, CH 1	TRIG (External Trigger)	—
	100% FS	±5 V	
Trigger Level Resolution	10 bits (1 in 1,024)		—
Edge Trigger Sensitivity	CH 0, CH 1	TRIG (External Trigger)	—
	2.5% FS up to 50 MHz, increasing to 5% FS at 100 MHz	0.25 V <sub>pk-pk</sub> up to 100 MHz, increasing to 1 V <sub>pk-pk</sub> at 200 MHz	
Level Accuracy, Typical	CH 0, CH 1	TRIG (External Trigger)	—
	±3.5% FS up to 10 MHz	±0.35 V (±3.5% FS) up to 10 MHz	
Jitter	≤80 ps rms		Within ±5 °C of self-calibration temperature
Trigger Filters	Low-Frequency (LF) Reject	High-Frequency (HF) Reject	—
	50 kHz	50 kHz	
<b>Digital Trigger (Digital Trigger Type)</b>			
Sources	NI PXI-5122	NI PCI-5122	—
	PXI_Trig <0..6> (backplane connector)	RTSI <0..6>	
	PFI <0..1> (front panel SMB connector)	PFI <0..1> (front panel SMB connector)	
	PXI Star Trigger (backplane connector)		

**Table 6.** (Continued)

Specification	Value	Comments
<b>Video Trigger (Video Trigger Type)</b>		
Sources	CH 0 (front panel BNC connector) CH 1 (front panel BNC connector) TRIG (front panel BNC connector)	—
Types	Specific Line Any Line Specific Field	—
Standard	Negative sync of NTSC, PAL, or SECAM signal	—

## TRIG (External Trigger, Front Panel Connector)

**Table 7.**

Specification	Value	Comments
Connector	BNC	—
Impedance	1 M $\Omega$ in parallel with 22 pF	—
Coupling	AC, DC	—
AC-Coupling Cutoff (-3 dB)	12 Hz	—
Input Voltage Range	$\pm 5$ V	—
Maximum Input Overload	$ \text{Peaks}  \leq 42$ V	—

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

Table 8.

Specification	Value	Comments
Connector	9-pin mini-circular DIN	—
Direction	Bi-directional	—
<b>As an Input (Trigger)</b>		
Destinations	Start Trigger (Acquisition Arm) Reference (Stop) Trigger Arm Reference Advance Trigger	—
Input Impedance	150 k $\Omega$	—
V <sub>IH</sub>	2.0 V	—
V <sub>IL</sub>	0.8 V	—
Maximum Input Overload	-0.5 V to 5.5 V	—
Maximum Frequency	25 MHz	—
<b>As an Output (Event)</b>		
Sources	Start Trigger (Acquisition Arm) Reference (Stop) Trigger End of Record Done (End of Acquisition) Probe Compensation (1 kHz, 50% duty cycle square wave, PFI 1 only)	—
Output Impedance	50 $\Omega$	—
Logic Type	3.3 V CMOS	—

**Table 8.** (Continued)

Specification	Value	Comments
Maximum Drive Current	±24 mA	—
Maximum Frequency	25 MHz	—

## Waveform Specifications

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**Table 9.**

Specification	Value		Comments
Onboard Memory Size	8 MB per Channel Standard	4 megasamples per channel	—
	32 MB per Channel Option	16 megasamples per channel	
	256 MB per Channel Option	128 megasamples per channel	
	512 MB per Channel Option	256 megasamples per channel	
Minimum Record Length	1 Sample		—
Number of Pretrigger Samples	Zero up to full Record Length		Single-record mode and multiple-record mode
Number of Posttrigger Samples	Zero up to full Record Length		Single-record mode and multiple-record mode

**Table 9.** (Continued)

Specification	Value		Comments
Maximum Number of Records in Onboard Memory	8 MB per Channel Standard	32,768	—
	32 MB per Channel Option	131,072	
	256 MB per Channel Option	1,048,576	
	512 MB per Channel Option	2,097,152	
Allocated Onboard Memory per Record	<i>Record Length</i> in samples + 100 samples. Round the sum up to the next multiple of 64 samples. 1 sample = 2 bytes		—

## Calibration

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**Table 10.**

Specification	Value	Comments
Self-Calibration	Self-calibration is done on software command. The calibration corrects for gain, offset, frequency response, triggering, and timing adjustment errors for all input ranges.	—
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

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**Table 11.**

<b>Specification</b>	<b>Typical Value</b>		<b>Comments</b>
	NI PXI-5122	NI PCI-5122	—
+3.3 VDC	1.4 A	1.4 A	
+5 VDC	1.5 A	2.4 A	
+12 VDC	110 mA	110 mA	
–12 VDC	270 mA	0 A	
Total Power	16.7 W	17.9 W	

# Software

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**Table 12.**

<b>Specification</b>	<b>Value</b>	<b>Comments</b>
Driver Software	NI-SCOPE 2.6 or later  NI-SCOPE is an IVI-compliant driver that allows you to configure, control, and calibrate the NI 5122. 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: <ul style="list-style-type: none"><li>• LabVIEW</li><li>• LabWindows™/CVI™</li><li>• Measurement Studio</li><li>• Microsoft Visual C/C++</li><li>• Microsoft Visual Basic</li></ul>	—
Interactive Soft Front Panel and Configuration	The Scope Soft Front Panel 2.0.1 or later supports interactive control of the NI 5122. The Scope Soft Front Panel is included on the NI-SCOPE CD.  National Instruments Measurement & Automation Explorer (MAX) also provides interactive configuration and test tools for the NI 5122. MAX is included on the NI-SCOPE CD.	—



# Environment

## NI PXI-5122 Environment



**Note** To ensure that the NI PXI-5122 cools effectively, follow the guidelines in the *Maintain Forced Air Cooling Note to Users* included in the NI PXI-5122 kit. The NI PXI-5122 is intended for indoor use only.

**Table 13.**

Specification	Value	Comments
Operating Temperature	0 °C to +55 °C in all NI PXI chassis except the following: 0 °C to +45 °C when installed in an NI PXI-1000/B or PXI-101x chassis  Meets IEC-60068-2-1 and IEC-60068-2-2.	—
Storage Temperature	–40 °C to +70 °C. 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 <sub>rms</sub> . Meets IEC-60068-2-64.	—
Storage Vibration	5 Hz to 500 Hz, 2.46 g <sub>rms</sub> . Meets IEC-60068-2-64. Test profile exceeds requirements of MIL-PRF-28800F, Class B.	—
Altitude	2,000 m maximum (at 25 °C ambient temperature)	—
Pollution Degree	2	—

## NI PCI-5122 Environment



**Note** To ensure that the NI PCI-5122 cools effectively, follow the guidelines in the *Maintain Forced Air Cooling Note to Users* included in the NI PCI-5122 kit. Also, to maximize airflow and extend the life of the device, leave any adjacent PCI slots empty. The NI PCI-5122 is intended for indoor use only.

**Table 14.**

Specification	Value	Comments
Operating Temperature	0 °C to +45 °C. Meets IEC-60068-2-1 and IEC-60068-2-2.	—
Storage Temperature	–40 °C to +70 °C. 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. Test profile developed in accordance with MIL-PRF-28800F.	—
Storage Vibration	5 Hz to 500 Hz, 2.46 g <sub>rms</sub> . Meets IEC-60068-2-64. Test profile exceeds requirements of MIL-PRF-28800F, Class B.	—
Altitude	2,000 m maximum (at 25 °C ambient temperature)	—
Pollution Degree	2	—

# Safety, Electromagnetic Compatibility, and CE Compliance

**Table 15.**

Specification	Value	Comments
Safety	<p>The NI 5122 meets the requirements of the following standards for safety and electrical equipment for measurement, control, and laboratory use:</p> <ul style="list-style-type: none"> <li>• IEC 61010-1, EN 61010-1</li> <li>• UL 61010-1</li> <li>• CAN/CSA-C22.2 No. 61010-1</li> </ul>	For UL and other safety certifications, refer to the product label or visit <a href="http://ni.com/certification">ni.com/certification</a> .
Emissions	EN 55011 Class A at 10 m FCC Part 15A above 1 GHz	—
Immunity	EN 61326:1997 + A2:2001, Table 1	—
EMC/EMI	<p>CE, C-Tick, and FCC Part 15 (Class A) Compliant.</p> <p>For EMC compliance, operate this device with shielded cabling.</p>	—
<p>This product meets the essential requirements of applicable European Directives, as amended for CE marking, as follows:</p>		
Low-Voltage Directive (safety)	73/23/EEC	—
Electromagnetic Compatibility Directive (EMC)	89/336/EEC	—
<p>Refer to the Declaration of Conformity (DoC) for this product for any additional regulatory compliance information. To obtain the DoC for this product, visit <a href="http://ni.com/certification">ni.com/certification</a>, search by model number or product line, and click the appropriate link in the Certification column.</p>		

# Physical

**Table 16.**

Specification	Value		Comments
Dimensions	NI PXI-5122	NI PCI-5122	—
	Single 3U PXI Slot. CompactPCI compatible	35.5 × 11.3 × 2.0 cm (13.4 × 4.4 × 0.8 in.)	
Weight	3823 g (13.5 oz.)	455 g (16 oz.)	
<b>Front Panel Connectors</b>			
Label	Function	Connector Type	
CH 0	Analog Input	BNC female	
CH 1	Analog Input	BNC female	
TRIG	External Trigger	BNC female	
CLK IN	Sample Clock Input and Reference Clock Input	SMB jack	
CLK OUT	Sample Clock Output and Reference Clock Output	SMB jack	
AUX I/O	PFI 0, PFI 1	9-pin mini-circular DIN	
<b>NI PXI-5122 Front Panel Indicators</b>			
Label	Function	For more information, refer to the <i>NI High-Speed Digitizers Help</i> .	
ACCESS	The ACCESS LED indicates the status of the PCI bus and the interface from the NI PXI-5122 to the controller.		
ACTIVE	The ACTIVE LED indicates the status of the onboard acquisition hardware of the NI PXI-5122.		

