



**INDIAN INSTITUTE OF SCIENCE EDUCATION AND
RESEARCH THIRUVANANTHAPURAM (IISERTVM)
(Govt. of India, Ministry of H.R.D)**

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KERALA, INDIA.

Date: 10th August 2017

INVITATION TO TENDER

No: IISER/PUR/0563/MSS/SP/17-18

Due Date: 29th Aug 2017 [4PM]

Date of Opening: 30th Aug 2017 [3PM]

Dear Sirs,

SUB: Supply of Desktop

We invite Sealed Tenders for the following items:

Sl #:	Item/ Description	Qty
1.	Desktop Processor: Core i7; RAM: 16Gb (upgradable to 64Gb); Hard Disk: 1Tb; Graphic Card: 2Gb; DVD/RW; Warranty: >=2years; Branded (Assemble is not acceptable); Motherboard with PCI slots. Note Motherboard and cabinet are compatible to NI PCI 5114 card (35.5cm x 11.3cm) whose data sheet is attached as an Annexure	1

Please quote your lowest rate and shortest delivery period as per the following terms. Your offer in sealed cover **SUPERSCRIBING TENDER NUMBER AND DUE DATE** shall reach us on or before the due date and time.

- Payment** : Within 30 days after supply and installation/Net 30 days /LC.
No advance payment will be made by IISERTVM.
- Delivery** : To be delivered at our **site** (Free delivery). If import, mention Ex-works/FCA/CIP terms with clear breakup charges
- Taxes & Duties** : Indicate taxes and duties. We are exempted for customs duty under 51/96 notification and Excise duty under 10/97 notifications.
- Discount** : Indicate, if any.
- Delivery Schedule** : Required Immediately. Indicate your schedule
- Validity of quote** : 60 days


Thanking You,

Please see the rear side for other Terms & Conditions.

Please visit the following websites for more information

- www.iisertvm.ac.in
- <https://www.eprocure.gov.in/epublish>

Yours Faithfully


Asst. Registrar
Genl. Admn

P.S. CATALOGUE/LEAFLET FEATURING ALL TECHNICAL SPECS/INFORMATION OF THE PRODUCT QUOTED SHALL ACCOMPANY THE OFFER.

IISER-TVM

INSTRUCTION TO TENDERERS [IMPORTS]:

1. **PRICE:** The price quoted shall be firm. The terms of FOB/EXW/FCA/CIF/CIP etc shall be clearly mentioned.
2. **AGENT & AGENCY COMMISSION:** In case Tenderer is represented by any agent in India, their name and address shall be furnished. The amount of commission included in the price shall be clearly shown in the offer; which will be paid directly to the Indian Agents by purchaser in equivalent Indian Rupees. In case Indian agents existing and their agency commission is not shown in the Tender, reasons for the same shall be clearly mentioned in Tender. Details of Indian agent's statutory registration shall be stated. If Agency Commission is paid by Principals in foreign currency, the reasons for the same and exemption from Enforcement Directorate in India shall also be provided.
3. **LEAFLET/CATALOGUE:** Tenderer should furnish all necessary leaflet/catalogue etc., of the stores offered by him to enable the Purchaser to evaluate his offer correctly.
4. **MODE OF DESPATCH:** Tenderer shall indicate the mode of dispatch (*i.e.*, Sea/Air-freight/Parcel Post, etc.) depending upon the normal mode of dispatch adopted by him for the type of stores offered for consideration of the Purchaser.
5. **COUNTRY OF ORIGIN:** Tenderer shall indicate in his offer the country of origin of goods offered and the name and address of the manufacture.
6. **INSURANCE:** If insurance of the goods is felt necessary, the same shall be advised by the Tenderer in the offer.
7. **DELIVERY/SHIPMENT:** The time for and date of delivery quoted shall be reasonable/realistic and shall strictly be adhered to in case of placing order on the Tenderer.
8. **MODE AND TERMS OF PAYMENT:** Payment in full (excluding the amount of Agency Commission included in the price payable directly by the Purchaser to the Indian Agents in Indian Rupees) will be made immediately on presentation of the prescribed documents against SIGHT DRAFT or LETTER OF CREDIT or WIRE TRANSFER against shipping documents. **OURS BEING A GOVT OF INDIA EDUCATIONAL INSTITUTE WE ARE UNABLE TO MAKE ANY ADVANCE PAYMENT**
9. **WARRANTY:** Period of warranty and conditions shall be clearly mentioned in the Tender.
10. **GENERAL:** The Tenderer shall also be complied with the following:
 - a. Mention your Banker's name and address.
 - b. Show approximate net and gross weight and dimensions of packages/ cases. If dimensional details are available the same should also be indicated in your offer.
 - c. Furnish list of recommended spares for satisfactory operation for a minimum period of one year if the quote is for Plant & Machinery, Equipments etc.
 - d. Details of any technical service, if required for erection assembly, commissioning and demonstration.
 - e. Conform that the prices quoted are inclusive of all taxes, levies, duties arising in the tenderer's country.
 - f. Samples, if called for, will be sent free of all charges.
 - g. Late tenders and Delayed will not be considered.
 - h. Offers made by Indian Agents on behalf of their Principals, should be supported by the Proforma Invoice of their Principals.
 - i. The authority of person signing the tender, if called for, shall be produced.
 - j. The purchaser reserves the right to accept or reject the lowest or any other offer in whole or in part without assessing any reason.
11. **Tender Opening:** All tenders will be opened at **Pratheeksha Building**. Authorized representatives with **authorization letters** of the bidders may attend the Tender Opening.

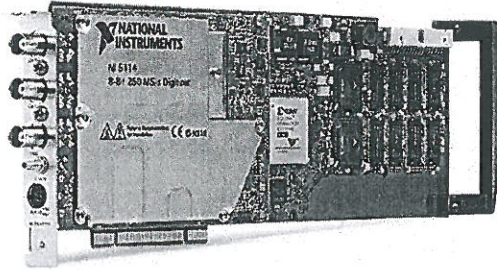
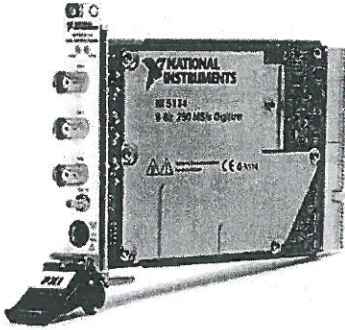
INSTRUCTION TO TENDERERS [INDIGENOUS]

1. Tenders should be sent in sealed envelopes superscribing the relevant tender no. and the due date of opening. Only one tender should be sent in each envelope.
2. Sales Tax and /or other duties/levies where legally levies and intended to be claimed should be distinctly shown separately in the tender.
3. (a). Your quotation should be valid for a minimum period of 90 days from the date of opening of the Tender. Quotation with firm prices will be preferred.
(b). Prices are required to be quoted according to the units indicated in the Invitation to Tender. When quotations are given in terms of units other than those specified in the tender form, relationship between the two sets of units must be furnished.
4. (a) **Preference will be given to those tenders offering supplies from ready stocks. The basis of delivery is at IISER site free of cost.**
(b) **Our payment terms are within 30 days of receipt and acceptance of the item at our site.**
5. (a) All available technical literature, catalogues and other data in support of the specifications and details of the items should be furnished along with the offer.
Specifications: Stores offered should strictly conform to our specifications. Deviations, if any should be clearly indicated by the tenderer in their quotation. The tenderer should also indicate the Make/Type number of the stores offered and provide catalogues, technical literature and samples, wherever necessary along with the quotations. Test Certificates wherever necessary should be forwarded along with supplies. Whenever specifically mentioned by us the tenderer could suggest changes to specifications with appropriate reasons for the same.
6. IISER shall be under no obligation to accept the lowest or any tender and reserves the right of acceptance of the whole or any part of the tender or portion of the quantity offered and the tenderers shall supply the same at the rates quoted.
7. Corrections, if any, in the Quotation must be attested. All amounts shall be indicated both in words as well as in figures. Where there is difference between amounts quoted in words and figures, amount quoted in words shall prevail. Quotation must have price for each line item and totaling of the price including taxes and duties should be clearly mentioned.
8. The tenderer should mention the name of his bankers, Sales Tax Registration, PAN number etc in the tender.
9. The authority of the person signing the tender, if called for, should be produced.
10. IISER being a Govt of India Educational and Research Institute, is exempted from payment of Excise Duty under Notification No. 10/97 and Customs Duty under Notification No. 51/96- Customs dated 23rd July 2009. Also, we can issue Form 16 as per VAT Rules.
11. The stores supplied should be covered with minimum of 1 year warranty from the date of supply, installation and commissioning.

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

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250 MS/s, 125 MHz, 8-Bit Digitizers NI PCI-5114, PXI-5114



- 250 MS/s real-time sampling
- 5 GS/s random-interleaved sampling
- 8-bit resolution
- 125 MHz bandwidth

- 40 mVpp to 40 Vpp input range
- 8, 64, or 256 MB memory per channel
- Edge, window, hysteresis, video, and digital triggering with 40 ps timestamping

Overview

NI PXI-5114 and PCI-5114 high-speed digitizers feature two 250 MS/s simultaneously sampled input channels with 8-bit resolution, 125 MHz bandwidth, and up to 256 MB of memory per channel in a compact, 3U PXI or PCI device. With the National Instruments Synchronization and Memory Core (SMC) architecture of an NI 5114, you can create mixed-signal systems using signal generators and digital waveform generator/analyzers or build a high-channel-count digitizer with subnanosecond synchronization between channels. An NI 5114 is ideal for a wide range of application areas including communications, scientific applications, military/aerospace, and consumer electronics.

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Application and Technology

Deep Onboard Memory

- 8, 64, or 256 MB of memory per channel
- Capture more than 1 million triggered waveforms in multiple record mode with hardware trigger rearming
- Stream data continuously from onboard memory to host memory or disk

Triggering, Clocking, and Synchronization

- Edge, window, hysteresis, and digital triggering with 40 ps timestamping
- Pretrigger and posttrigger acquisition in single- and multiple-record mode
- Internal 250 MHz clock or external clock from 50 to 250 MHz
- Phase lock to PXI 10 MHz reference or external reference from 1 to 20 MHz
- Timestamp-triggered events with 100 ps resolution

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Ordering Information

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

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Products	Part Number	Recommended Accessories	Part Number
NI PXI-5114/64MB			

NI PXI-5114/64MB Requires: 1 Cables ;	779466-02	Cables: Unshielded - SMB112, Double Shielded SMB to BNC Male Coax Cable, 50 Ohm, 1m **Also Available: [Shielded]	778827-01
NI PCI-5114_64			
NI PCI-5114 64MB/ch Requires: 1 Cables ;	779745-02	Cables: Unshielded - SMB112, Double Shielded SMB to BNC Male Coax Cable, 50 Ohm, 1m **Also Available: [Shielded]	778827-01

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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.

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Detailed Specifications


8-Bit 250 MS/s Digitizer

This document lists the specifications for the NI PXI/PCI-5114 (NI 5114) high-speed digitizer. Unless otherwise noted, these specifications are valid for the following conditions:

- All filter settings
- All impedance selections
- Sample clock set to 250 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 5114 specifications, visit ni.com/manuals.

To access the NI 5114 documentation, including the *NI High-Speed Digitizers Getting Started Guide*, which contains functional descriptions of the NI 5114 signals, navigate to **Start>All Programs>National Instruments>NI-SCOPE>Documentation**.

 **Note** If the NI 5114 has been in use, it may exceed safe handling temperatures and cause burns. Allow the NI 5114 to cool before removing it from the PXI chassis or PC. Refer to the *Environment* section for operating temperatures of this device.

Vertical

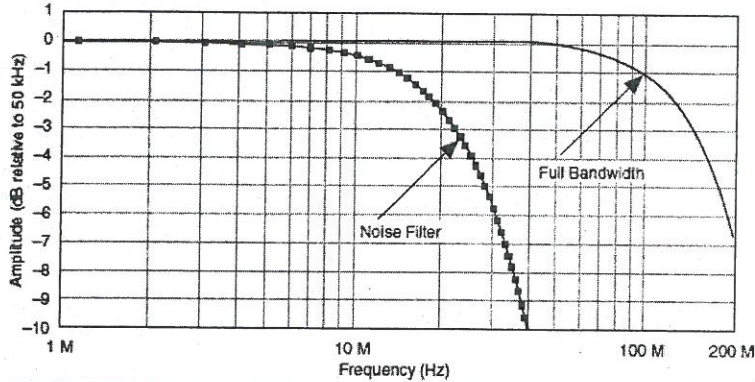
Analog Input (Channel 0 and Channel 1)

Specification	Value				Comments
Number of Channels	Two (simultaneously sampled)				—
Connector	BNC				—
Impedance and Coupling					
Input Impedance	50 Ω ±1.5% 1 MΩ ±1% in parallel with a typical capacitance of 26 pF				Software selectable
Input Coupling	AC, DC, GND				AC coupling available on 1 MΩ only
Voltage Levels					
Full Scale (FS) Input Range and Programmable Vertical Offset	50 Ω		1 MΩ		—
	Range (V _{pk-pk})	Vertical Offset Range (V)	Range (V _{pk-pk})	Vertical Offset Range (V)	
	0.04	±0.8	0.04	±0.8	
	0.1	±0.8	0.1	±0.8	
	0.2	±0.8	0.2	±0.8	
	0.4	±0.8	0.4	±0.8	
	1	±6.5	1.0	±8.0	
	2	±6.0	2.0	±8.0	
	4	±5.0	4.0	±8.0	
	10	±2.0	10	±30	
		20	±25		
		40	±15		
Maximum Input Overload	50 Ω		1 MΩ		—
	7 V _{rms} with Peaks ≤10 V		Peaks ≤35 V		
Accuracy					
Resolution	8 bits				—
DC Accuracy (Programmable Vertical Offset = 0 V)	NI PXI-5114: ±(1.5% of Input + 0.3% of FS + 200 μV) NI PCI-5114: ±(1.5% of Input + 0.3% of FS + 280 μV)				Within ±5 °C of self-calibration temperature
Programmable Vertical Offset Accuracy	±2% of offset setting				Within ±5 °C of self-calibration temperature
DC Drift	±(0.03% of Input + 0.06% of FS + 40 μV) per °C				—
Crosstalk, Typical	≤-60 dB at 10 MHz ≤-45 dB at 100 MHz				CH 0 to/from CH 1, External Trigger to CH 0 or CH 1
Bandwidth and Transient Response					
Bandwidth (-3 dB)	Range (V _{pk-pk})		Bandwidth	Rise/Fall Time, Typical	—
	All ranges except 0.04		125 MHz	2.8 ns	
	0.04		100 MHz	3.5 ns	
Bandwidth Limit Filter	20 MHz Noise Filter				—
AC Coupling* Cutoff (-3 dB), Typical	12 Hz				* AC coupling available on 1 MΩ only
Passband Flatness	±1 dB up to 50 MHz				Referenced to 50 kHz

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Specification	Value	Comments
		Bandwidth limit filter off

NI 5114 Frequency Response (Typical)



Specification	Value	Comments
Spectral Characteristics		
Spurious-Free Dynamic Range with Harmonics (SFDR), Typical	Range (V_{pk-pk})	10 MHz, -1 dBFS input signal
	All ranges except 0.04	0.04
	58 dBc	58 dBc
Total Harmonic Distortion (THD), Typical	-58 dBc	-58 dBc
Effective Number of Bits (ENOB), Calculated*	7.2	6.2
Signal to Noise and Distortion (SINAD), Typical	44 dB	38 dB
RMS Noise	Range (V_{pk-pk})	20 MHz Filter On 20 MHz Filter Off
	All ranges except 0.04	0.28% FS 0.28% FS
	0.04	0.28% FS 0.45% FS

* $ENOB = \log_2(\text{sinad}) - \frac{1}{2}\log_2(1.5) - \log_2(A/V)$

where

sinad = the linear representation of SINAD

A = amplitude of the supplied sine wave during the test

V = (peak) full-scale range of the waveform recorder input

Refer to 1057-1994 IEEE Standard for Digitizing Waveform Recorders for information on equation derivation.

Horizontal

Sample Clock

Specification	Value	Comments
Sources	Internal, Onboard Clock (internal VCXO)* External, CLK IN (front panel SMB connector)	*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)	† Divide by <i>n</i> decimation used for all rates less than 250 MS/s For more information about Sample Clock and decimation, refer to the <i>NI High-Speed Digitizers Help</i> .
	Random Interleaved Sampling (RIS)	
	3.815 kS/s to 250MS/s†	250 MS/s to 5 GS/s in increments of 250 MS/s
Timebase Frequency	250 MHz	When not using External Sample Clock
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	≤20 ps	—

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Specification	Value	Comments
External Sample Clock		
Sources	CLK IN (front panel SMB connector)	—
Frequency Range	50 MHz to 250 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%	—

Phase-Locked Loop (PLL) Reference Clock

Specification	Value	
Sources	NI PXI-5114	NI PCI-5114
	PXI_CLK10 (backplane connector)	RTSI 7
	CLK IN (front panel SMB connector)	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 must be accurate to ± 50 ppm	
Duty Cycle Tolerance	45% to 55%	
Exported Reference Clock Destinations	NI PXI-5114	NI PCI-5114
	PFI <0..1> (front panel 9-pin mini-circular DIN connector)	PFI <0..1> (front panel 9-pin mini-circular DIN connector)
	PXI_Trig <0..7> (backplane connector)	RTSI <0..7>

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

Specification	Value
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 Ω
Coupling	AC

Trigger

Reference (Stop) Trigger

Specification	Value		Comments
Trigger Types and Sources	Types	Sources	Refer to the following sections and to <i>NI High-Speed Digitizers Help</i> for more information.
	Edge, Window, Hysteresis, Video, Digital, Immediate, and Software	CH 0, CH 1, TRIG, PXI_Trig<0..6>, PFI <0..1>, PXI Star Trigger, RTSI<0..6>, and Software	
Time Resolution	TDC	Onboard Clock	TDC = Time to Digital Conversion Circuit
	On	40 ps	
	Off	4 ns	
Minimum Rearm Time	TDC	Rearm Time	Holdoff set to 0. Onboard sample clock at maximum rate.
	On	10 μs	
	Off	2 μs	
Holdoff	From Rearm Time up to $[(2^{35} - 1) \times (\text{Sample Clock Period})]$		—
Trigger Delay	From 0 up to $[(2^{35} - 1) - \text{posttrigger samples}] \times (1/\text{sample rate})$, in seconds		—

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)	—
Trigger Level Resolution	8 bits (1 in 256)	—
Trigger Level Range	CH 0, CH 1	TRIG (External Trigger)

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Specification	Value		Comments
	100% FS	±5 V	
Edge Trigger Sensitivity	5% FS up to 100 MHz	0.5 V _{pk-pk} up to 100 MHz	
Level Accuracy, Typical	±5% FS up to 10 MHz	±0.5 V up to 10 MHz	
Jitter	≤65 ps rms		—
Trigger Filters	Low Frequency (LF) Reject	High Frequency (HF) Reject	—
	50 kHz	50 kHz	
Digital Trigger (Digital Trigger Type)			
Sources	NI PXI-5114	NI PCI-5114	—
	PXI_Trig <0..6> (backplane connector)	RTSI <0..6> (front panel SMB connector)	
	PFI <0..1> (front panel SMB connector)	PFI <0..1> (front panel SMB connector)	
	PXI Star Trigger (backplane connector)		
Video Trigger (Video Trigger Type)			
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		
Standards	SDTV: M-NTSC, B/G-PAL, SECAM, M-PAL		fps = fields per second
	EDTV: 480i/59.94 fps, 480i/60 fps, 480p/59.94 Fps, 480p/60 Fps, 576i/50 fps, 576p/50 Fps		Fps = Frames per second
	HDTV: 720p/50 Fps, 720p/59.94 Fps, 720p/60 Fps, 1080i/50 fps, 1080i/59.94 fps, 1080i/60 fps, 1080p/24 Fps		

TRIG (External Trigger, Front Panel Connector)

Specification	Value
Connector	BNC
Impedance	1 MΩ in parallel with 22 pF
Coupling	AC, DC
AC-Coupling Cutoff (-3 dB)	12 Hz
Input Voltage Range	±5 V
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


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Specification	Value
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) Probe Compensation (1 kHz, 50% duty cycle square wave, PFI 1 only)
Output Impedance	50 Ω
Logic Type	3.3 V CMOS
Maximum Drive Current	±24 mA
Maximum Frequency	25 MHz

TCIk Specifications

National Instruments TCIk synchronization method and the NI-TCIk driver are used to align the sample clocks on any number of SMC-based modules in a chassis. For more information about TCIk synchronization, refer to the *NI-TCIk 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 250 MS/s and all filters are disabled.
- For other configurations, including multichassis systems, contact NI Technical Support at ni.com/support.

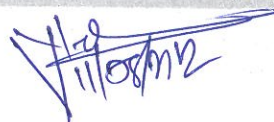
 **Note** Although you can use NI-TCIk to synchronize nonidentical modules, these specifications apply only to synchronizing identical modules.

Specification	Value	Comments
Intermodule SMC Synchronization Using NI-TCIk for Identical Modules (Typical)		
Skew	500 ps	Caused by clock and analog path delay differences No manual adjustment performed
Average Skew After Manual Adjustment	<20 ps	For information about manual adjustment, refer to the <i>Synchronization Repeatability Optimization</i> topic in the <i>NI-TCIk Synchronization Help</i> . For additional help with the adjustment process, contact NI Technical Support at ni.com/support .
Sample Clock Adjustment Resolution	<20 ps	—

Waveform Specifications

Specification	Value		Comments
Onboard Memory Size	8 MB per Channel Standard	8 megasamples per channel	—
	64 MB per Channel Option	64 megasamples per channel	
	256 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
Maximum Number of Records in Onboard Memory	8 MB/channel	32,768	* It is possible to exceed these numbers if you fetch records while acquiring data. For more information, refer to the <i>NI High-Speed Digitizers Help</i> .
	64 MB/channel	100,000*	
	256 MB/channel	100,000*	
Allocated Onboard Memory per Record	(Record Length × 1 byte/S) + 240 bytes, rounded up to next multiple of 128 bytes or 256 bytes, whichever is greater		—

Calibration



Specification	Value
Self-Calibration	Self-calibration is done on software command. The calibration corrects for gain, offset, compensated 1 M Ω attenuator, triggering, and timing adjustment errors for all input ranges.
External Calibration (Factory Calibration)	The external calibration calibrates the VCXO, gain, 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	
	NI PXI-5114	NI PCI-5114
+3.3 VDC	840 mA	1.6 A
+5 VDC	1.1 A	1.7 A
+12 VDC	250 mA	45 mA
-12 VDC	170 mA	—
Total Power	13.32 W	14.32 W

Software

Specification	Value
Driver Software	<p>NI PXI-5114: NI-SCOPE 2.9 or later</p> <p>NI PCI-5114: NI-SCOPE 3.1 or later</p> <p>NI-SCOPE is an IVI-compliant driver that allows you to configure, control, and calibrate the NI 5114. NI-SCOPE provides application programming interfaces for many development environments.</p>
Application Software	<p>NI-SCOPE provides programming interfaces, documentation, and examples for the following application development environments:</p> <ul style="list-style-type: none"> • LabVIEW • LabWindows™/CVI™ • Measurement Studio • Microsoft Visual C/C++ • Microsoft Visual Basic
Interactive Soft Front Panel and Configuration	<p>The Scope Soft Front Panel 2.3 or later supports interactive control of the NI 5114. The Scope Soft Front Panel is included on the NI-SCOPE CD.</p> <p>National Instruments Measurement & Automation Explorer (MAX) also provides interactive configuration and test tools for the NI 5114. MAX is included on the NI-SCOPE CD.</p>

Environment

NI PXI-5114

 **Note** To ensure that the NI PXI-5114 cools effectively, follow the guidelines in the *Maintain Forced-Air Cooling Note to Users* included in the NI PXI-5114 kit. The NI PXI-5114 is intended for indoor use only.

Specification	Value
Operating Temperature	<p>0 °C to +55 °C in all NI PXI chassis except the following:</p> <p>0 °C to +45 °C when installed in an NI PXI-1000/B or PXI-101x chassis</p> <p>Meets IEC-60068-2-1 and IEC-60068-2-2</p>
Storage Temperature	<p>-40 °C to +71 °C</p> <p>Meets IEC-60068-2-1 and IEC-60068-2-2</p>
Operating Relative Humidity	<p>10% to 90%, noncondensing</p> <p>Meets IEC-60068-2-56</p>
Storage Relative Humidity	<p>5% to 95%, noncondensing</p> <p>Meets IEC-60068-2-56</p>

Specification	Value
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-5114



Note To ensure that the NI PCI-5114 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-5114 kit for important cooling information. The NI PCI-5114 is intended for indoor use only.

Specification	Value
Operating Temperature	0 °C to +45 °C Meets IEC-60068-2-1 and IEC-60068-2-2
Storage Temperature	-40 °C to +71 °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 _{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

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

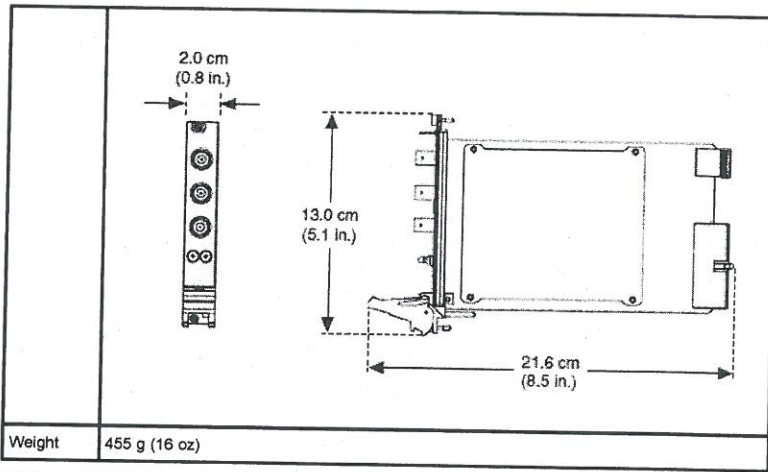
Label	Function	Connector Type	Comments
CH 0	Analog Input	BNC female	—
CH 1	Analog Input	BNC female	
TRIG	External Trigger	BNC female	
CLK IN	Sample Clock Input and Reference Clock Input	SMB jack	
AUX I/O	PFI 0, PFI 1	9-pin mini-circular DIN	

NI PXI-5114 Front Panel Indicators

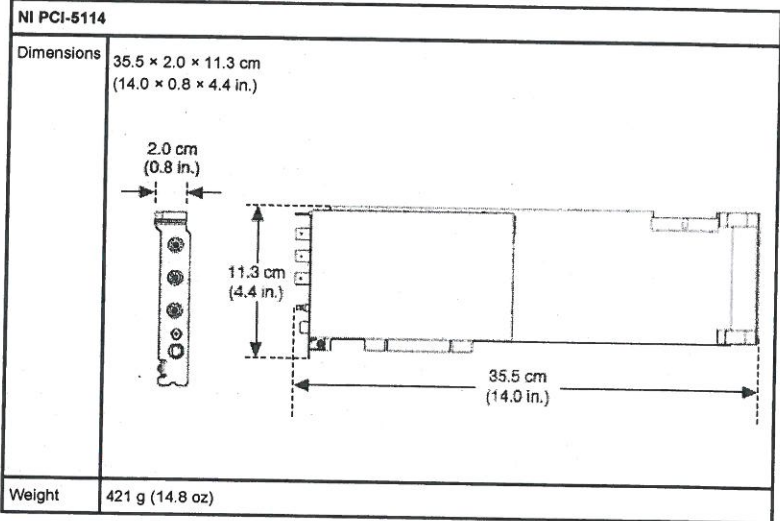
Label	Function	Comments
ACCESS	The ACCESS LED indicates the status of the PCI bus and the interface from the NI PXI-5114 to the controller.	For more information, refer to the <i>NI High-Speed Digitizers Help</i> .
ACTIVE	The ACTIVE LED indicates the status of the onboard acquisition hardware of the NI PXI-5114.	

Dimensions and Weight

NI PXI-5114	
Dimensions	3U, One slot, PXI/cPCI Module 21.6 × 2.0 × 13.0 cm (8.5 × 0.8 × 5.1 in.)



Weight 455 g (16 oz)



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