

41-320 Dual PXI Waveform Digitizer Module

DUAL PXI WAVEFORM DIGITIZER
41-320

- 14-Bit Dual Channel Digitizer
- Flexible Differential or Single Ended Input
- Internal, Selectable 50MHz and 70MHz Clocks
- Selectable Filters to Reduce Out Of Band Signals
- AC or DC Coupled Termination With Adjustable DC Pedestal
- PXI Trigger Support for Synchronizing Measurements
- 512K Word Signal Capture Memory
- Excellent Dynamic Range
- LabView and LabWindows Libraries



The 41-320 Dual PXI Waveform Digitizer Module is a high performance dual-channel 14-bit digitizer capable of operating at sample rates of 70MHz. It has been optimized for high performance and excellent SFDR. This makes it an ideal tool for capturing analog signals for digital analysis.

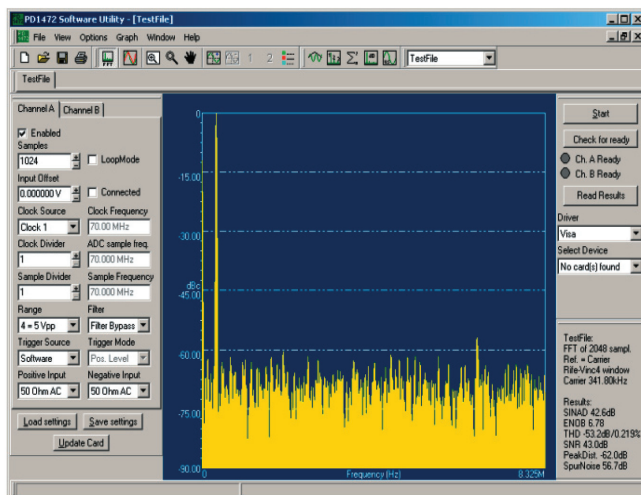
The digitizer has fully differential input terminals to reduce the effects of external noise and common mode signals found in typical test systems. The inputs can also be set to single ended mode for operation in more electrically quiet environments. The input impedance can be set to 10k Ω or 50 Ω with DC coupling. The 50 Ω setting can also be AC coupled to allow capture of signals on a DC pedestal without an excessive input current. Full scale input voltage can be switched in ranges between 1 Volt and 25 Volt peak to peak.

For applications requiring the capture of a DC coupled signal on a voltage pedestal the 41-320 can be adjusted to have a DC offset applied to the input. This ensures that the full resolution of the converter is maintained.

The input to each digitizer can be filtered with a 30MHz, 15MHz or 6MHz low pass filter. This is to restrict the impact of broad-band spurious signals when capturing input signals containing lower frequencies.

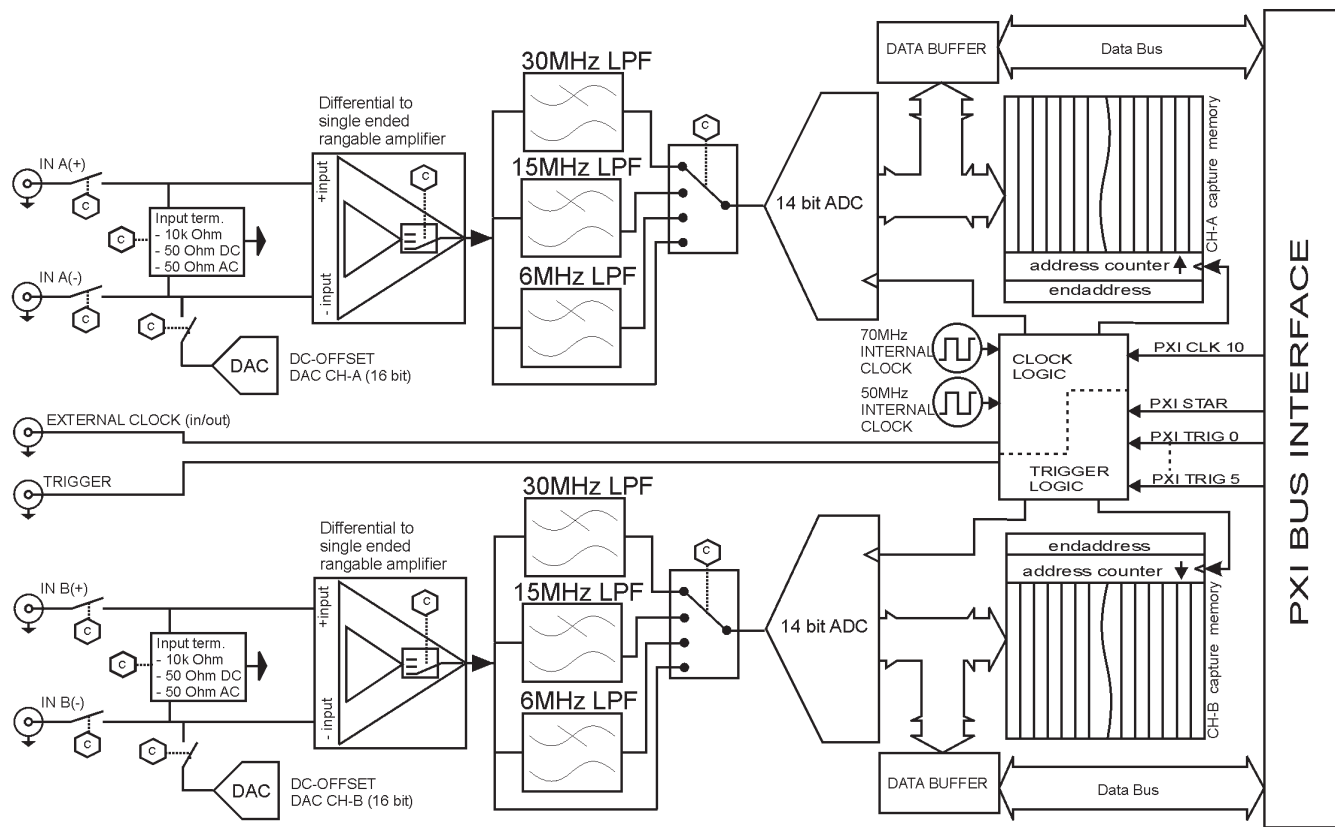
The module supports external trigger sources, star triggering and PXI triggering. This allows synchronized measurements to be performed in a PXI test system.

The 41-320 is supplied with easy to use soft front panels and VISA kernel drivers

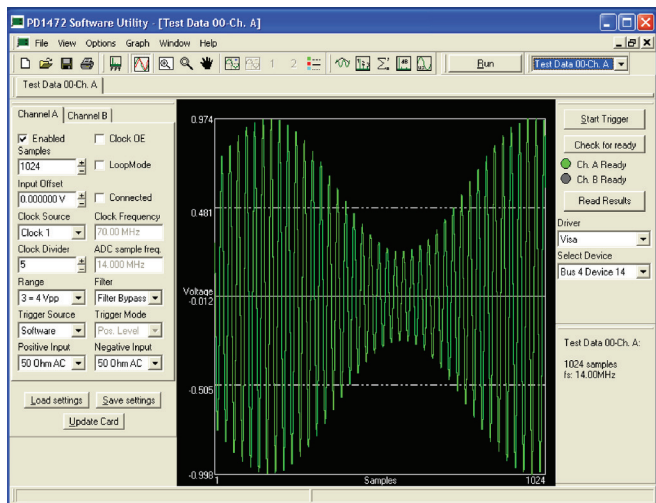


Supplied Soft Front Panel For the 41-320 PXI
Waveform Digitizer Module

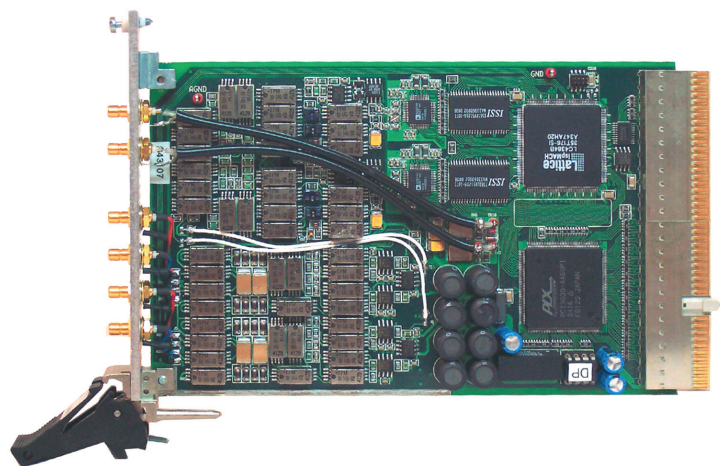
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Block Diagram for the 41-320 Waveform Digitizer Module

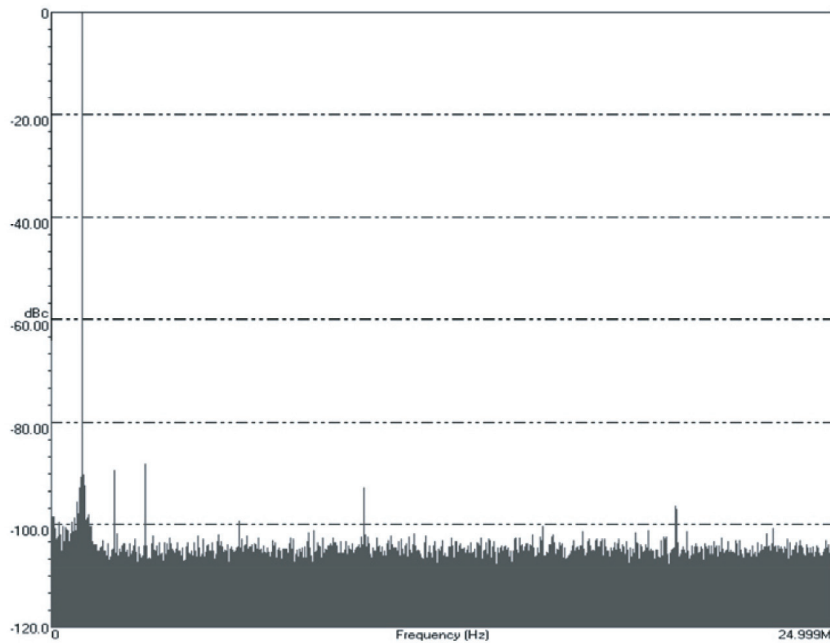


The Soft Front Panel For the 41-320 PXI Waveform Digitizer Module Shown Capturing an Amplitude Modulated Signal

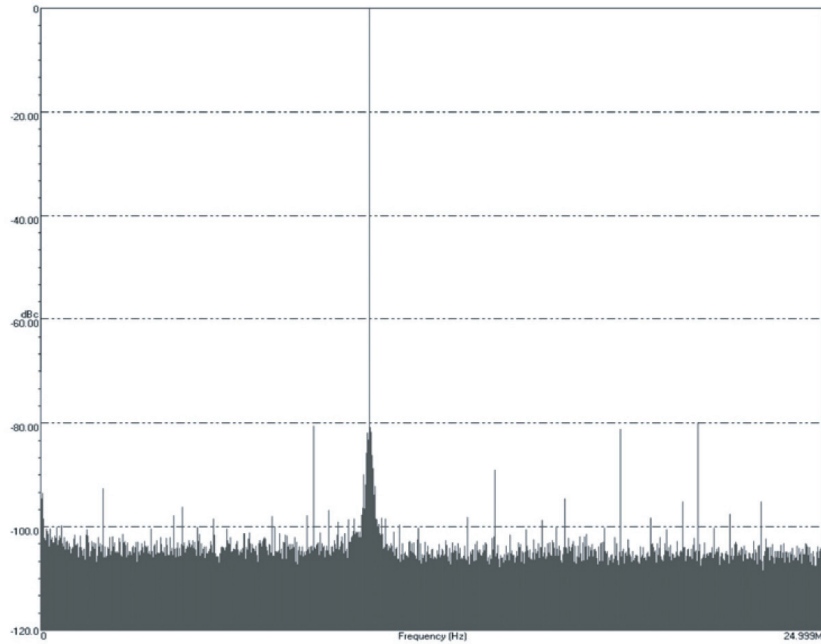


PCB Layout for the 41-320 Waveform Digitizer Module

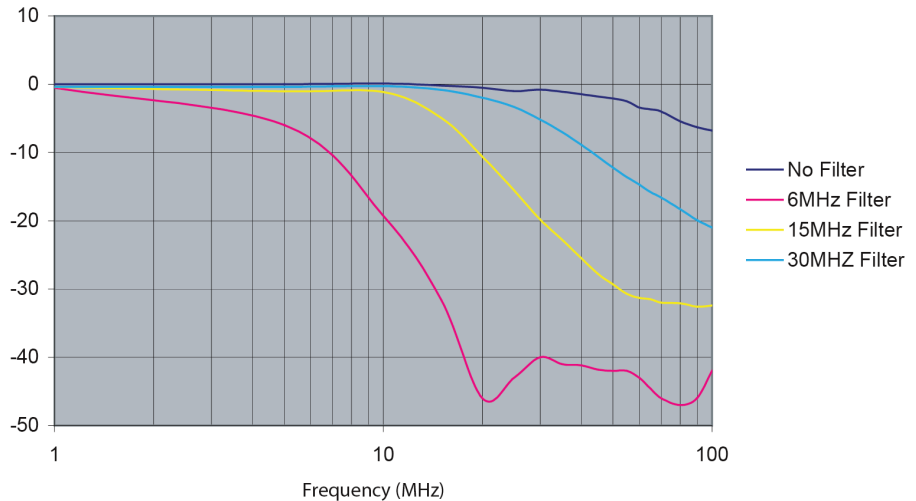
Dynamic Performance of the 41-320 Waveform Digitizer Module With a 1MHz 2Vp-p Input Signal (Input Set to 50Ω DC). The Horizontal Scale is 0 to 25MHz, The Vertical Scale is Zero to -120dB.



Dynamic Performance of the 41-320 Waveform Digitizer Module With a 10MHz 2Vp-p Input Signal (Input Set to 50Ω DC). The Horizontal Scale is 0 to 25MHz, The Vertical Scale is Zero to -120dB.



Typical Frequency Responses For The Three Selectable Low-Pass Filters. These Can be Switched Into The Input Circuit to Reject Out of Band Signals And Reduce Aliasing.



Digitizer Specification

Number of channels:	2
Resolution:	14-bits
Sampling Rate:	500ks/s to 70Ms/s
Clock Source:	External or Internal
Internal Clock Rate:	70Ms/s, 50Ms/s or 10Ms/s
Internal Clock Accuracy:	100ppm
External Clock Frequency:	500kHz to 70MHz
External Clock Input:	50Ω, TTL levels
Clock Division Ratio:	1 to 256
Memory:	512k samples per channel

Digitizer Input Specification

Input:	Differential or single-ended
Input Impedance:	10KΩ DC, 50Ω DC, or 50Ω AC
Input Range:	1Vp-p, 2Vp-p or 4Vp-p (normal) 5Vp-p 10Vp-p or 20Vp-p (with attenuator)
Maximum Input Range:	-5V to +5V (normal, with common mode voltage) -25 to +25 (with attenuator, with common mode voltage)
Input Filters:	None, 30MHz, 15MHz or 6MHz. (3-pole Butterworth low pass)
Frequency Response:	±0.5dB DC to 20MHz ±2dB 20MHz to 50MHz
DC Offset:	±5V normal, 16-bit resolution ±25V with attenuator on

Dynamic Performance

Absolute accuracy:	±500μV ±0.1% of range (normal) ±2.5mV ±0.2% of range (with attenuator)
Relative Accuracy:	±0.025% of range
SFDR (50Ms/s 2Vp-p):	80dB at 1MHz input 72dB at 10MHz input
SINAD (50Ms/s 2Vp-p):	68dB at 1MHz input 64dB at 10MHz input
Channel Crosstalk:	<70dB at 1MHz

Trigger Specification

Source:	Internal or external (channels are independent)
External Input:	10kΩ, TTL levels
Internal:	PXI STAR, PXI TRIG 0 to 5 or software trigger
Polarity:	Selectable positive or negative
Response:	Edge or Level

Programming

The 41-320 is supplied with soft front panels and a comprehensive set of VISA drivers.

Power Requirements

+3.3V	+5V	+12V	-12V
0.2A	0.7A	0.3A	0.3A

Width and Dimensions

Size:	Single width 3U PXI/CompactPCI instrument module
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Connectors

PXI bus:	32-bit P1/J1 backplane connector
Front panel connectors:	A+ input (SMB) A- input (SMB) B+ input (SMB) B- input (SMB) Clock input (SMB) Trigger input (SMB)

PXI & CompactPCI Compliance

All Pickering Interfaces PXI modules comply with the PXI Specification 2.2.

Safety & CE Compliance

All modules are fully CE compliant and meet applicable EU directives: Low-voltage safety EN61010-1:2001, EMC Immunity EN61000-6-1:2001, Emissions EN55011:1998.

Operating/Storage Conditions

Operating Conditions

Operating Temperature:	0°C to +55°C
Humidity:	Up to 90% non-condensing
Altitude:	5000m

Storage and Transport Conditions

Storage Temperature:	-20°C to +75°C
Humidity:	Up to 90% non-condensing
Altitude:	15000m

Product Order Codes

Dual PXI Waveform Digitizer Module	41-320-001
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Latest Details

Please refer to our Web Site for Latest Product Details.
www.pickeringtest.com

Mating Connectors & Cabling

For connection accessories for the 41-320 module please refer to the **90-011D** RF Connector Accessories data sheet where a complete list and documentation can be found for accessories.

Alternatively, refer to the Pickering Interfaces "**Connection Solutions**" catalog for the full list of connector/cabling options, including drawings, photos and specifications. This is available in either print or as a download. Alternatively our web site has dynamically linked connector/cabling options, including pricing, for all Pickering PXI modules.

