

PXI Digitizers

PXD Series

PXI Digitizers

Leading Features

- Complete family from 150 MHz to 1 GHz bandwidths
- Up to 2 GS/s sample rate
- Up to 8 million points of acquisition memory
- Up to 50 GS/s Random Interleaved Sampling (RIS) for repetitive applications
- Complete line of 3U PXI digitizers
- Fast PCI bus data-transfer rates
- IVI scope drivers and Getting Started software



The complete line of eight LeCroy PXD Digitizers from 150 MHz to 1 GHz Bandwidths

The PXD series features a complete line of PXI digitizers with bandwidths ranging from 150 MHz to 1 GHz. It also features high channel density with up to 8 channels in a single 3U eight-slot PXI chassis. The combination of these features allows for the capture of long complex signals, with excellent accuracy within the compact, rugged, modular architecture of PXI.

The PXD series digitizers are based on the desktop computer PCI standard and are fully PXI compliant. Fast data-transfer rates and improvements in test times are realized, compared to traditional GPIB instruments. The plug-and-play functionality of these PXI digitizers provides ease of setup and use.

The PXD series digitizers include several software tools to help you quickly get started and developing test software in LabView, CVI, Visual C++, or Visual Basic. The PXD series software includes an IVI-Scope-compliant instrument driver, ActiveX control, and a custom LeCroy PXD Getting Started application program for interactive control.

The LeCroy PXD series provides a cost efficient, space efficient, high performance digitizer solution for production test applications including:

- Analytical Instruments
- Disk Drive Testing
- Communications Test Systems
- Automotive
- Aerospace and Defense

LeCroy

Acquisition System

Model	PXD1022	PXD1021	PXD522	PXD514	PXD512	PXD214	PXD212	PXD114
Bandwidth	1 GHz	1 GHz	500 MHz	500 MHz	500 MHz	250 MHz	250 MHz	150 MHz
Maximum Single - Shot Sample Rate	2 GS/s	2 GS/s	2 GS/s	1 GS/s	1 GS/s	1 GS/s	1 GS/s	1 GS/s
Maximum Repetitive Sample Rate	50 GS/s	50 GS/s	50 GS/s	50 GS/s	50 GS/s	50 GS/s	50 GS/s	50 GS/s
Channels	2	1	2	4	2	4	2	4
3U PXI Slots	3	2	3	3	2	3	2	3
Acquisition Memory								
Standard	256 k	256 k	256 k	256 k	256 k	256 k	256 k	256 k
Acquisition Memory								
Option L	4M	4M	4M	4M	4M	4M	4M	4M
Acquisition Memory								
Option XL	8M	8M	8M	-	-	-	-	-
Single-Shot Capture								
Window	10 ns–10,000 s	10 ns–10,000 s	10 ns–10,000 s	10 ns–10,000 s	10 ns–10,000 s	10 ns–10,000 s	10 ns–10,000 s	10 ns–10,000 s
Repetitive Capture								
Window	2 ns–10 μs	2 ns–10 μs	2 ns–10 μs	5 ns–10 μs	5 ns–10 μs	5 ns–10 μs	5 ns–10 μs	5 ns–10 μs
Sequential Mode Max								
Segments	8192	8192	8192	4096	4096	4096	4096	4096
Power Consumption	58 W	36 W	58 W	70 W	41 W	70 W	41 W	70 W

Bandwidth Limiter: 20 MHz and 200 MHz

Sensitivity: 40 mV to 8 V full scale range

Scale Factors (calibrated):
0.04, 0.08, 0.16, 0.4, 0.8, 1.6, 4, 8 volts FSR

Full Scale Range: 8 major divisions

Offset Range:
±1 V (40 mV–792 mV FSR, 50 Ω only)

±10 V (800 mV–8 V FSR, 50 Ω only)

±1 V (40 mV–800 mV FSR, 1 MΩ only)

±20 V (816 mV–8 V FSR, 1 MΩ only)

Variable Gain Range: 0.1 to 1.0 of full scale

Variable Gain Resolution: 0.1% of full scale

Input Coupling:

$Z_{in} = 50 \Omega$ DC, GND

$Z_{in} = 1 M\Omega$ AC, DC, GND

AC Coupled Lower Cutoff:

< 10 Hz, frequency –3 dB

Input Impedance:

$Z_{in} = 50 \Omega$ 50 Ω ±1.5%

$Z_{in} = 1 M\Omega$ 1 MΩ ±1.5% || 16 ± 2 pF

DC Accuracy: ±(2% full scale + 1.6% offset setting + 1 mV) @ gain ≥ 80 mV FSR

Vertical Resolution: 8 bits

Maximum Input Voltage:

$Z_{in} = 50 \Omega$ 5 V (rms, including DC)

$Z_{in} = 1 M\Omega$ 100 V (DC + pk AC, frequency ≤ 5k Hz)

Input Connector(s): BNC (grounded)

ACQUISITION MODES

Single Shot: For transient and repetitive signals. Maximum 2 GS/s (PXD1022/1021/522) or 1 GS/s (PXD514/512/214/212/114)

Random Interleaved Sampling (RIS):

For repetitive signals up to 50 GS/s

Sequence: Stores multiple events, each of them time stamped (1 ns resolution) in segmented acquisition memory.

Minimum Segment Length: 256 samples

Maximum Segment Length: 1 million samples

TIMEBASE SYSTEM

Capture Window at Maximum Sample Rate:

Up to 4 ms

Clock Accuracy: 10 ppm

TRIGGER SYSTEM

Modes: Normal, Auto, Single, and Stop

Slope: Positive, Negative

Coupling: DC, AC, LFREJ, HFREJ

AC Cutoff (low freq.): 7.5 Hz (typical)

HFREJ, LFREJ Cutoff: 50 kHz typical (6 dB/octave)

Trigger Delay

Pre-Trigger Recording: 0 – 100% of horizontal full scale (adjustable in 1% increments)

Post-Trigger Delay: 0 – 10,000 divisions (adjustable in 0.1 division increments)

Sources: All data channels, EXT (Slope, level, and coupling are unique for each source. PXI triggering capabilities are described below.)

External Trigger

Range: ± 0.5 V (± 2.5 V with Ext/5 selected)

Input Impedance: $50\ \Omega \pm 1.5\%$, $1\ M\Omega$
(± 2.5 V for ext/5) $\pm 3\% \parallel 20\ pF \pm 10\%$

Maximum Input:

$Z_{in} = 50\ \Omega$	5 V (rms, including DC)
$Z_{in} = 1\ M\Omega$	100 V (DC + pk AC, $f \leq 5\ kHz$)

Input Connector: BNC

Extra

Trigger Outputs: PXI (see below)

MULTI-MODULE SYNCHRONIZATION

The PXD digitizers support PXI extensions to the PCI bus for the following backplane clock and trigger capabilities:

1. External clock input for module synchronization to the 10 MHz TTL clock provided by the PXI backplane (PXI_CLK10).
2. Trigger inputs to support an asynchronous low skew (1–5 ns) trigger source broadcast on the PXI star trigger bus.
3. Asynchronous trigger I/O to support a single-line broadcast on the PXI trigger bus. The trigger input may come from an external source, or from a digitizer module. Digitizer modules provide a tri-state output to support this mode, with high impedance guaranteed on power-up.

SOFTWARE COMPATIBILITY

The PXD hardware is compatible with the following software environments:

Operating Systems: Windows 2000/XP

Supported Drivers:

- IV-Scope Driver
- LeCroy PXD Getting Started Application Program
- ActiveX Control

UPDATE RATE

Supports PCI Bus transfer rates up to 100 MB/s peak data rates

GENERAL

Auto-Calibration: Ensures specified DC and timing accuracy

Auto-Calibration Time: < 500 ms

Recommended Factory Calibration Interval: One year

Temperature:

Operating: 0 to 40 °C (When installed in a PXI chassis with a minimum airflow of 5 cfm (PXD 212, 512, 1021), 15 cfm (114, 214, 514, 522, 1022))

Storage (Non-Op): –40 to +71 °C

Humidity:

Operating: 5 to 80% RH (non-condensing). Upper limit derates to 50% RH above 30 °C

Storage (Non-op): 5 to 95% RH (non-condensing). Upper limit derates to 75% RH above 30 °C and 45% RH above 40 °C

Altitude:

Operating: Up to 3,048 m (10,000 ft.) at or below 25 °C

Storage (Non-op): Up to 12,192 m (40,000 ft.)

Vibration:

Operating: Random vibration, $0.31\ g_{rms}$
5 to 500 Hz, 15 min. in each of 3 orthogonal axes

Non-operating: Random vibration, $2.4\ g_{rms}$
5 to 500 Hz, 15 min. in each of 3 orthogonal axes

Functional Shock:

30 g peak, half sine, 11 ms, 3 shocks (positive and negative) in each of 3 orthogonal axes, 18 shocks total

Electromagnetic Compatibility: Conforms to EN 61326-1:1998 (Emissions and Immunity)

Safety: Conforms to EN 61010-1:2001 (Installation Category I, Pollution Degree 2)

Certifications: CE Approved

Mechanical Dimensions:

PXD1021, PXD512 and PXD212 occupy 2 3U PXI slots.
PXD1022, PXD522, PXD514, PDX214 and PXD114 occupy 3 3U PXI slots.

Warranty: 1 year

SERVICE

LeCroy is committed to your success, whether you own one LeCroy instrument or hundreds. Call your local service representative to discuss your specific requirements.

We offer:

- Extended warranty packages
- Annual calibration maintenance
- Prompt, personalized warranty and nonwarranty repair at service offices

Ordering Information

Product	Product Code
1 GHz, 2 GS/s, 256k/ch, 2 Channel PXI Digitizer	PXD1022
1 GHz, 2 GS/s, 256k/ch, 1 Channel PXI Digitizer	PXD1021
500 MHz, 2 GS/s, 256k/ch, 2 Channel PXI Digitizer	PXD522
500 MHz, 1 GS/s, 256k/ch, 4 Channel PXI Digitizer	PXD514
500 MHz, 1 GS/s, 256k/ch, 2 Channel PXI Digitizer	PXD512
250 MHz, 1 GS/s, 256k/ch, 4 Channel PXI Digitizer	PXD214
250 MHz, 1 GS/s, 256k/ch, 2 Channel PXI Digitizer	PXD212
150 MHz, 1 GS/s, 256k/ch, 4 Channel PXI Digitizer	PXD114
Memory Options	
4 Mpts/Channel	PXD-L
8 Mpts/Channel	PXD-XL

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