Test & Measurement

➤ sales
➤ rentals
➤ calibration
➤ repair
➤ disposal

Complimentary Reference Material

This PDF has been made available as a complimentary service for you to assist in evaluating this model for your testing requirements.

TMG offers a wide range of test equipment solutions, from renting short to long term, buying refurbished and purchasing new. Financing options, such as Financial Rental, and Leasing are also available on application.

TMG will assist if you are unsure whether this model will suit your requirements.

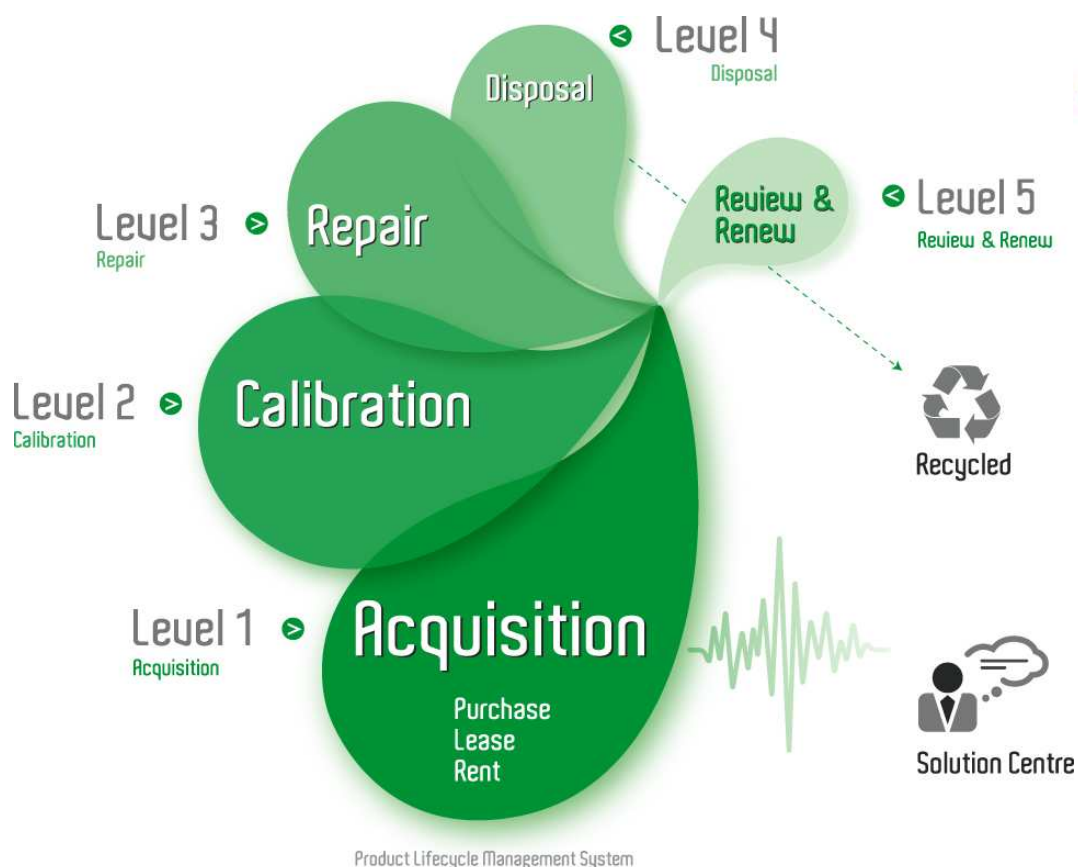Call TMG if you need to organise repair and/or calibrate your unit.

If you click on the "Click-to-Call" logo below, you can all us for FREE!

TMG Corporate Website   **TMG Products Website**

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Level 4
Disposal

Disposal

Level 5
Review & Renew

Level 3
Repair

Repair

Review & Renew

Level 2
Calibration

Calibration

Recycled

Level 1
Acquisition

Acquisition

Purchase
Lease
Rent

Solution Centre

Product Lifecycle Management System

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NATA   CERTIFIED MANAGEMENT SYSTEM   AIDN

WavePro 7000 Series

7300
7200
7100
7000

X-STREAM

LEADING FEATURES

- *Up to 24 Mpts/Ch (48 Mpts for 2 Ch)*
- *Up to 10 GS/s on 4 Channels (20 GS/s for 2 Ch)*
- *1, 2, and 3 GHz Bandwidths*
- *1 MΩ and 50 Ω Input Paths*
- *X- Stream Powered Technology*
- *Touch Screen and Front Panel User Interface*
- *10.4" SVGA Display*
- *Zoom and Multi-Zoom Display*
- *Automated Measurements with Histicons*
- *Connectivity to USB, GPIB and 802.3xx*
- *Customizable with XDEV Developer's Kit Option*
- *Expandable WaveShape Analysis with XMAP Option*
- *Jitter Analysis*

LeCroy's WavePro 7000 Series brings the ability to conduct next-generation wave-form measurements and analysis—not just "viewing" of signals—to 1 GHz, 2 GHz, and 3 GHz bandwidth applications. The WavePro 7300 oscilloscope is the first to offer high-speed integrated 1 MΩ and 50 Ω inputs. Connect any passive or active probe, and the WavePro DSO is ready to measure—conveniently and accurately.

LeCroy has integrated its groundbreaking X-Stream Technology into the WavePro family and combined it with the most intuitive User Interface (UI) available. Such ability gives you greater confidence in the measurements you make. Confidence you can only achieve through fast oversampling of 10 GS/s on all channels, acquisition memory of up to 48 million points to maintain fast sampling—even for long complex signals—and excellent jitter noise floor performance.

The WavePro 7000 series can conduct WaveShape Analysis 10–100 times faster than any other oscilloscope in its class. That makes them excellent tools for next-generation designs, such as datacom/telecom standards development, Gigabit Ethernet, USB 2.0, digital design and debugging, and advanced military

designs.

Greater Signal Understanding

The WavePro 7000 series provides multiple options so you can better understand the signals in design. Just press *Zoom* to see expanded detail of the waveform. See graphical views like *Histicons*, *Tracks,* and *Trends* of how a measurement changes throughout the signal. Use 3-D Analog Persistence to get better views of jitter and then measure directly from the trace.

The WavePro 7100, 7200, and 7300 units come with 1 M/channel memory, standard. And at 1 GHz, the entry-level WavePro 7000 unit provides accessibility to LeCroy's X-Stream Technology at an exceptional price.

Optional application packages focus the ability of the WavePro DSO to specific measurements in optical and electrical mask testing, magnetic and optical disk drive measurements, and clock and timing applications. Whether you're viewing signals or measuring timing and amplitude across multiple channels, the WavePro 7000 series has it all for less.

LeCroy

Specifications

Vertical System

Vertical System	WavePro 7000	WavePro 7100	WavePro 7200	WavePro 7300
Analog Bandwidth @ 50 Ω (-3 dB)	1 GHz	1 GHz	2 GHz	3 GHz
Rise Time (Typical)	400 ps	400 ps	225 ps	150 ps
Input Channels	4			
Bandwidth Limiters	25 MHz; 200 MHz			
Input Impedance	50 Ω; 1 MΩ//11pF typical (using PP005A probe)			
Input Coupling	1 MΩ: AC, DC, GND; 50 Ω: DC			
Maximum Input Voltage	50 Ω: 5 Vrms, 1 MΩ: 100 Vmax (peak AC: ≤ 5 KHz + DC)			
Channel-Channel Isolation	250:1 at same V/div setting, 40:1 at 3 GHz			
Vertical Resolution	8 bits; up to 11 bits with enhanced resolution (ERES)			
Sensitivity	50 Ω: 2 mV – 1 V/div fully variable; 1 MΩ: 2 mV – 2 V/div fully variable			
DC Gain Accuracy	±1.5% of full scale; ±1% (typical)			
Offset Range	50 Ω: ±700 mV @ 2–4.99 mV/div ±1.5 V @ 5–100 mV/div ±10 V @ .102–1 V/div			
	1 MΩ: ±700 mV @ 2–4.99 mV/div ±1.5 V @ 5–100 mV/div ±20 V @ 0.102–2 V/div			
Offset Accuracy	±(1.5% of full scale + 0.5% of offset value + 2 mV)			

Horizontal System

Horizontal System				
Timebases	Internal timebase common to 4 input channels; an external clock may be applied at the auxiliary input			
Time/Division Range	20 ps/div – 10 s/div (normal and single-shot mode)			
Math & Zoom Traces	4 independent zoom and 4 math/zoom traces standard; 8 math/zoom traces available with XMAP (Master Analysis package) or XMATH (Advanced Math package)			
Clock Accuracy	± ≤ 10 ppm @ 0–40 ℃			
Time Interval Accuracy	≤ 0.06 / SR + (10 ppm * Reading) (rms)			
Sample Rate & Delay Time Accuracy	± 10 ppm ≤ 10 s interval			
Jitter Noise Floor	2 ps rms @ 100 mV/div (typical)			
Trigger & Interpolator Jitter	≤ 2.5 ps (typical)			
Channel-Channel Deskew Range	±4.5 ns			
External Clock	30 MHz – 1 GHz; 50 Ω impedance; applied at the auxiliary input			

Acquisition System

Acquisition System				
Single-Shot Sample Rate/Ch	5 GS/s	10 GS/s	10 GS/s	10 GS/s
2 Channel Max	10 GS/s	20 GS/s	20 GS/s	20 GS/s
Random Interleaved Sampling (RIS)	200 GS/s for repetitive signals: 20 ps/div – 1 µs/div			
Maximum Trigger Rate	150,000 waveforms/second (in Sequence Mode, up to 4 channels)			
Intersegment Time	≤ 6 µs			
Maximum Acquisition Points/Ch	4 Ch / (2 Ch)	4 Ch / (2 Ch)		Sequence Mode
Standard	500k / 1M	1M / 2M		500 segments
M – Memory Option	4M / 8M	4M / 8M		1,000 segments
L – Memory Option	—	8M / 16M		5,000 segments
VL – Memory Option	—	16M / 32M		10,000 segments
XL – Memory Option	—	24M / 48M		20,000 segments

Acquisition Processing

Acquisition Processing				
Averaging	Summed averaging to 1 million sweeps; continuous averaging to 1 million sweeps			
Enhanced Resolution (ERES)	From 8.5 to 11 bits vertical resolution			
Envelope (Extrema)	Envelope, floor, roof for up to 1 million sweeps			
Interpolation	Linear, Sin x/x			

Triggering System

Triggering System				
Modes	Normal, Auto, Single, and Stop			
Sources	Any input channel, External, Ext X10, Ext/10, or line; slope and level unique to each source (except line trigger)			
Coupling mode	DC50 Ω, GND, DC1MΩ, AC1MΩ			
Pre-trigger delay	0–100% of horizontal time scale			
Post-trigger delay	0–10,000 divisions			
Hold-off by time or events	Up to 20 s or from 1 to 99,999,999 events			
Internal trigger range	±5 div from center			
Max trigger frequency	1 GHz w/Edge Trigger; 750 MHz w/SMART Trigger	1 GHz w/Edge Trigger; 750 MHz w/SMART Trigger	2 GHz w/Edge Trigger; 750 MHz w/SMART Trigger	3 GHz w/Edge Trigger; 750 MHz w/SMART Trigger

Basic Triggers

Basic Triggers				
Edge/Slope/Line	Triggers when signal meets slope and level condition			

SMART Triggers®

SMART Triggers®				
State or Edge Qualified	Triggers on any input source only if a defined state or edge occurred on another input source. Delay between sources is selectable by time or events.			
Dropout	Triggers if signal drops out for longer than selected time between 2 ns and 20 s.			
Pattern	Logic combination (AND, NAND, OR, NOR) of 5 inputs (4 channels and external trigger input). Each source can be high, low, or don't care. The high and low level can be selected independently. Triggers at start or end of the pattern.			

SMART Triggers with Exclusion Technology

SMART Triggers with Exclusion Technology				
Glitch	Triggers on positive or negative glitches with widths selectable from 600 ps to 20 s or on intermittent faults.			
Signal or Pattern Width	Triggers on positive or negative pulse widths selectable from 600 ps to 20 s or on intermittent faults.			
Signal or Pattern Interval	Triggers on intervals selectable between 2 ns and 20 s.			

Automatic Setup

Auto Setup	Automatically sets timebase, trigger, and sensitivity to display a wide range of repetitive signals.
Vertical Find Scale	Automatically sets the vertical sensitivity and offset for the selected channels to display a waveform with maximum dynamic range.

Probes

Probes	(2) PP005A standard; Optional passive and active probes available.
Probe System: Probus	Automatically detects and supports a variety of compatible probes.
Scale Factors	Automatically or manually selected depending on probe used.

Color Waveform Display

Type	Color 10.4" flat-panel TFT-LCD with high resolution touch screen
Resolution	SVGA; 800 x 600 pixels
Real time Clock	Dates, hours, minutes, seconds displayed with waveform. SNTP support to synchronize to precision internet clocks.
Number of Traces	Display a maximum of 8 traces. Simultaneously display channel, zoom, memory, and math traces.
Grid Styles	Auto, Single, Dual, Quad, Octal, XY, Single + XY, Dual + XY
Waveform Styles	Sample dots joined or dots only

Analog Persistence Display

Analog & Color-Graded Persistence	Variable saturation levels; stores each trace's persistence data in memory.
Persistence Selections	Select analog, color, or three-dimensional.
Trace Selection	Activate persistence on all or any combination of traces.
Persistence Aging Time	Select from 500 ms to infinity.
Sweeps Displayed	All accumulated, or all accumulated with last trace highlighted

Zoom Expansion Traces

	Display up to 4 Zoom and 4 Math/Zoom traces; 8 Math/Zoom traces available with XMAP (Master Analysis package) or XMATH (Advanced Math package).

CPU

Processor	Processor Intel Pentium 4 @ 2.53 GHz (or better) with MS Windows 2000 Platform
Processing Memory	Up to 2 Gbytes

Internal Waveform Memory

	M1, M2, M3, M4 Internal Waveform Memory (store full-length waveforms with 16 bits/data point) or store to any number of files limited only by data storage media

Setup Storage

Front Panel and Instrument Status	Store to the internal hard drive, floppy drive or to a USB-connected peripheral device.

Interface

Remote Control	Via Windows Automation, or via LeCroy Remote Command Set
GPIB Port (Optional)	Supports IEEE – 488.2
Ethernet Port	10/100Base-T Ethernet interface
Floppy Drive	Internal, DOS-format, 3.5" high-density
USB Ports	4 USB ports support Windows compatible devices
External Monitor Port Standard	15-pin D-Type SVGA-compatible
Parallel Port	1 standard

Auxiliary Output

Signal Types	Select from calibrator or control signals output on front panel
Calibrator Signal	5 Hz–5 MHz square wave or DC level; 0.0 to 5.0 V into 50 Ω (0–1 V into 1 MΩ) or TTL volts (selectable)
Control Signals	Trigger enabled, trigger out, pass/fail status

Auxiliary Input

Signal Types	Selected from External Trigger or External Clock input on front panel

General

Auto Calibration	Ensures specified DC and timing accuracy is maintained for 1 year minimum
Power Requirements	100–120 VAC at 50/60/400 Hz; 200–240 VAC at 50/60 Hz; Automatic AC Voltage selection Power consumption: < 800 VA

Environmental

Temperature (Operating)	+5 ℃ to +40 ℃ including floppy disk and CD-ROM drives
Temperature (Non-Operating)	-20 ℃ to +60 ℃
Humidity (Operating)	5% to 80% relative humidity (non-condensing) up to +30 ℃. Upper limit derates to 25% relative humidity (non-condensing) at +40 ℃
Humidity (Non-Operating)	5% to 95% relative humidity (non-condensing) as tested per MIL-PRF-28800F
Altitude (Operating)	up to 10,000 ft (3048 m) at or below +25 ℃
Altitude (Non-Operating)	up to 40,000 ft (12,192 m)
Random Vibration (Operating)	0.31 g rms 5 Hz to 500 Hz, 15 minutes in each of three orthogonal axes
Random Vibration (Non-Operating)	2.4 g rms 5 Hz to 500 Hz, 15 minutes in each of three orthogonal axes
Functional Shock	20 g peak, half sine, 11 ms pulse, 3 shocks (positive and negative) in each of three orthogonal axes, 18 shocks total

Physical Dimensions

Dimensions (HWD)	264 mm x 397 mm x 491 mm; 10.4" x 15.6" x 19.3" (height excludes feet)
Weight	18 kg; 39 lbs.
Shipping Weight	24 kg; 53 lbs.

Certifications

	CE Approved, UL and cUL listed; conforms to EN 61326-1, EN 61010-1, UL 3111-1, and CSA C22.2 No. 1010.1

Warranty and Service

	3-year warranty; calibration recommended annually. Optional service programs include extended warranty, upgrades, and calibration services

wavepro® Ordering Information

WavePro 4-Channel Digital Oscilloscopes	Product Code
4 Ch 3 GHz DSO; 10 GS/s; 1 Mpts/Ch; 2 Mpts/Ch 20 GS/s using 2 or 1 Ch; 50 Ω and 1 MΩ Input	WavePro 7300
4 Ch 2 GHz DSO; 10 GS/s; 1 Mpts/Ch; 2 Mpts/Ch 20 GS/s using 2 or 1 Ch; 50 Ω and 1 MΩ Input	WavePro 7200
4 Ch 1 GHz DSO; 10 GS/s; 1 Mpts/Ch; 2 Mpts/Ch 20 GS/s using 2 or 1 Ch; 50 Ω and 1 MΩ Input	WavePro 7100
4 Ch 1 GHz DSO; 5 GS/s; 500 kpts/Ch; 1 Mpts/Ch 10 GS/s using 2 or 1 Ch; 50 Ω and 1 MΩ Input	WavePro 7000

Included with Standard Configuration

10:1 10 MΩ Passive Probes (Qty 2)	PP005A
CD-ROM containing Operators Manual, Remote Command Manual, Utility Software, and Recovery Software	
Remote Control Manual	
Floppy Disk Drive	
CD-ROM Drive	
Optical 3 button Wheel Mouse- USB	
Standard Ports; 10/100Base-T Ethernet, Parallel, SVGA Video Output, USB	
Protective Front Cover	
Standard Commercial Calibration and Performance Certificate	
AntiVirus Software	AV
3-Year Warranty	

Memory Options

8 Mpts/2 Ch, 4 Mpts/Ch	-M
16 Mpts/2 Ch, 8 Mpts/Ch	-L
32 Mpts/2 Ch, 16 Mpts/Ch	-VL
48 Mpts/2 Ch, 24 Mpts/Ch	-XL

Note: WavePro 7000 unit's maximum memory is "M" option

Hardware Options

IEEE-488 Remote Control Interface	GPIB-1
Removable Hard Drive Option	WM-RHD
CD-RW Upgrade	WM-CDRW
WaveShape Analysis Packages	
CAN Bus Tigger and Decode Test Package	CANbus TD
Disk Drive Measurement Package	DDM2
Digital Filter Package	DFP2
Ethernet Test Software Package	ENET
Jitter and Timing Analysis Package	JTA2
Advanced M1 Software Package for Jitter and Timing Measurements (1 seat)	LECROYM1/ADV-1
Basic M1 Software Package for Jitter and Timing Measurements	LECROYM1/BASIC
Power Measure and Analysis Package	PMA2
Serial Mask Package	SDM
USB 2.0 Pre-Compliance Test Software Package	USB2
Advanced Customization Package	XDEV
Master Analysis Package (includes JTA2, XMATH, XDEV)	XMAP
Advanced Math Software Package	XMATH
Selected Accessories	
10:1 10 MΩ Passive Probes	PP005A
3.5 GHz Active Voltage Probe	HFP3500
2.5 GHz Active Voltage Probe	HFP2500
1.5 GHz Active Voltage Probe	HFP1500
WaveLink - 3 GHz Differential Probe and Adjustable Twin Tips	D300
Current Probe	CP and AP Series
O/E Converters 500–1630 nm	OE 425/455
Keyboard	KYBD-1
Graphic Printer Paper (10 Rolls)	GRP10
Oscilloscope Cart	OC1021
Oscilloscope Cart with additional shelf and drawer	OC1024
Rackmount - 25" Slide	RMA-25
Rackmount - 30" Slide	RMA-30