

LECROY (TELEDYNE LECROY)

HDO4034

The Teledyne LeCroy HDO4034 is a high-definition 4-channel digital oscilloscope featuring 12-bit vertical resolution, a 350 MHz bandwidth, a real-time sampling rate of 2.5 GS/s, and a 12.1-inch WXGA touch screen display. Designed for advanced debugging and analysis, the HDO4034 delivers precise signal measurements and low noise floor using HD4096 high definition technology.

SPECIFICATIONS

General

Interfaces	USB (host), USB (device), Ethernet port, External monitor port, GPIB port (optional)
Display	12.1" WXGA (1280 x 800) touch screen color TFT-LCD with YT and XY grid styles

Physical

Power Supply	100 - 240 VAC ($\pm 10\%$) at 50/60 Hz, 115 VAC ($\pm 10\%$) at 400 Hz; Max Power Consumption: 320 W
Operating Temperature	5 °C to +40 °C °C
Dimensions (W×H×D)	399 mm × 291 mm × 131 mm mm
Weight	5.86 kg

Vertical System

Analog Bandwidth (-3 dB)	350 MHz
Calculated Rise Time (10% to 90%)	1 ns (typical)
Number of Input Channels	4
Input Coupling	1 M Ω : AC, DC, GND; 50 Ω : DC, GND
Hardware Bandwidth Limits	20 MHz, 200 MHz
Maximum Input Voltage	1 M Ω : 400 V max (DC + Peak AC $\leq$ 10 kHz), 50 Ω : 5 V RMS
Vertical Resolution	12 bits (up to 15 bits with ERES)
DC Gain Accuracy	$\pm 0.5\%$ of full scale
Input Sensitivity Range (1 M Ω)	1 mV/div - 10 V/div
Input Sensitivity Range (50 Ω)	1 mV/div - 1 V/div
Probe Interface	Teledyne LeCroy ProBus
Channel-to-Channel Deskew Range	± 9 s
Enhanced Resolution (ERES)	0.5 to 3 bits in 0.5-bit steps (up to 15-bit effective resolution)
Vertical Offset Range	50 Ω : ± 1 V (1 mV - 4.95 mV/div), ± 5 V (5 mV - 99 mV/div), ± 10 V (100 mV - 1 V/div); 1 M Ω : ± 1 V (1 mV - 4.95 mV/div), ± 10 V (5 mV - 99 mV/div), ± 100 V (100 mV - 1 V/div), ± 400 V (1.01 V - 10 V/div)

Horizontal System

Maximum Real-Time Sampling Rate	2.5 GS/s
Standard Record Length	12.5 Mpts/Ch (all channels active), 25 Mpts/Ch (2 channels interleaved)
Optional Record Length	25 Mpts/Ch (all channels active), 50 Mpts/Ch (2 channels interleaved)
Time Base Range	20 ps/div - 1000 s/div
Time Base Accuracy	±2.5 ppm

Trigger System

Trigger Sources	Ch 1 - Ch 4, EXT, EXT/10, AC Line
Trigger Modes	Normal, Auto, Single, Stop
Trigger Coupling	AC, DC, LF Rej, HF Rej
Trigger Holdoff Range	2 ns to 20 s, or 1 to 1,000,000,000 events
Trigger Types	Edge, Glitch, Width, Logic (Pattern), TV (NTSC, PAL, SECAM, HDTV-720p, 1080i, 1080pi), Runt, Slew Rate, Interval (signal or pattern), Dropout, Qualified (State or Edge)
Optional Serial Data Triggers	I2C, SPI, UART/RS-232, CAN, LIN, FlexRay, SENT, MIL-STD-1553, ARINC 429, Audio (I2S, LJ, RJ, TDM), USB, USB-HSIC, MIPI D-PHY, DigRF3G
External Trigger Input Range	±400 V (DC + Peak AC ≤ 10 kHz) at 1 MΩ
Trigger Level Range	Internal: ±6 divisions from center; External: ±400 mV; External with /10 attenuation: ±4 V

Acquisition System

Maximum Waveform Capture Rate	Up to 125,000 waveforms/sec (WaveStream Fast Acquisition mode)
Acquisition Modes	Real-Time, Roll, Sequence (Segmented memory up to 10,000 segments)
Sequence Mode Max Segments	10,000 segments
Interpolation	Linear or Sin(x)/x
Optional Digital Channels	16 digital channels (with HDO4000-MS option)

Waveform Measurements

Automatic Voltage Measurements	Amplitude, Area, Base, Maximum, Mean, Minimum, Overshoot+, Overshoot-, Peak-Peak, RMS, Standard Deviation, Top
Automatic Time Measurements	Delay, Delta Period @ Level, Delta Time @ Level, Duty Cycle, Duty @ Level, Edge @ Level, Fall Time (90% - 10%), Fall Time (80% - 20%), Frequency, Frequency @ Level, Period, Period @ Level, Phase, Rise Time (10% - 90%), Rise Time (20% - 80%), Skew, Time @ Level, Width+, Width-

Math & Analysis

Basic Math Functions

Add, Subtract, Multiply, Divide, FFT, Absolute Value, Averaging (summed and continuous), Derivative, Envelope, Enhanced Resolution, Floor, Integral, Invert, Reciprocal, Rescale, Roof, Square, Square Root, Trend, Zoom

FFT Window Types

Von Hann (Hanning), Hamming, Flat Top, Blackman-Harris

Display & User Interface

Display Type

TFT LCD with resistive touch screen

Display Size

12.1 inch

Display Resolution

1280 x 800 (WXGA)

Waveform Display Formats

YT and XY grid styles

Connectivity & Ports

USB Host Ports

Multiple ports (front and rear) for storage, mouse, keyboard

USB Device Ports

1 port for remote control

LAN Port (Ethernet)

1 x RJ-45 (10/100/1000Base-T)

GPIO Interface

Optional (via external USB-GPIO adapter)

External Video Output

External monitor port (VGA and HDMI)

Probe Calibration Output

1 kHz, 1 V p-p square wave

Reference Clock Input

10 MHz

Reference Clock Output

10 MHz

Processor & Storage

Internal Operating System

Windows Embedded Standard 7

System Memory (RAM)

4 GB

Internal Storage

250 GB or larger HDD

Waveform Storage Capacity

4 memory waveforms plus internal HDD

Setup Storage Capacity

6 setups

Environmental Specifications

Storage Temperature Range

-20 °C to +60 °C

Operating Humidity Range

5% to 80% RH (non-condensing) at ≤ 30 °C, de-rating to 50% RH at 40 °C

Operating Altitude

Up to 3,000 m (9,843 ft) at ≤ 25 °C

Physical Characteristics

Form Factor

Benchtop

Compliance and Standards

Calibration Interval

1 year

Computer System

Processor

Intel Core i3-2330E Dual Core, 2.2 GHz (or equivalent)

Interfaces & Connectivity

LXI Compliance	LXI Class C compliant
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Accessories

Standard Probes	4 x PP018 (10:1, 10 MΩ, 350 MHz) Passive Probes
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Timebase

Timebase Aging	±1.0 ppm/year
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Compliance & Certifications

Safety Certifications	UL 61010-1, CAN/CSA-C22.2 No. 61010-1, EN 61010-1
EMC Certifications	EN 61326-1, EN 61326-2-1, FCC Class A, ICES-003

Display

Grid Styles	Auto, Single, Dual, Quad, Octal, XY, Single+XY, Dual+XY
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TECHNOLOGY

HD4096 High Definition Technology

APPLICATIONS

Electronic design, embedded systems, power analysis, automotive diagnostics, and high-precision testing

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