

TEKTRONIX

MDO34

The Tektronix MDO34 is a 4-channel Mixed Domain Oscilloscope belonging to the 3 Series MDO family. It combines the capabilities of a high-performance oscilloscope with optional built-in instruments including a spectrum analyzer, arbitrary/function generator, logic analyzer (16 digital channels), and protocol analyzer. It features a large 11.6-inch high-definition capacitive touchscreen interface and offers bandwidths from 100 MHz up to 1 GHz depending on the configuration.

SPECIFICATIONS

General

Interfaces	USB 2.0 Host (x3), USB 2.0 Device, 10/100 LAN, HDMI
Display	11.6 in (295 mm) HD (1920 x 1080) TFT LCD capacitive touchscreen
Included Passive Probes	4 x TPP0250, TPP0500B, or TPP1000 (bandwidth-option dependent)

Physical

Power Supply	100 to 240 VAC $\pm 10\%$, 50/60 Hz; 100 to 132 VAC $\pm 10\%$, 400 Hz; 130 W max
Dimensions (W×H×D)	370 × 252 × 149 mm
Security Features	Kensington lock slot
Cooling Clearance	50 mm (2 in) required on left, right, and rear

Vertical System - Analog Channels

Number of Analog Channels	4
Analog Bandwidth	100 MHz, 200 MHz, 350 MHz, 500 MHz, or 1 GHz (option dependent)
Vertical Resolution	8 bits (11 bits in High Resolution mode)
Input Coupling	AC, DC
Input Impedance	1 M Ω $\pm 1\%$ or 50 Ω $\pm 1\%$
Input Sensitivity Range	1 mV/div to 10 V/div (1 M Ω); 1 mV/div to 1 V/div (50 Ω)
Maximum Input Voltage	300 VRMS CAT II (1 M Ω); 5 VRMS (50 Ω)
Hardware Bandwidth Limits	20 MHz, 250 MHz (250 MHz limit on models $\geq$ 350 MHz)

Acquisition System

Acquisition Modes	Sample, Peak Detect, Averaging, Envelope, High Resolution, Roll
Maximum Sample Rate	2.5 GS/s per channel (up to 5 GS/s on 2 channels for 1 GHz model)
Maximum Record Length	10 Mpoints per channel

Trigger System

Trigger Modes	Auto, Normal, Single Sequence
Trigger Coupling	DC, AC, HF Reject, LF Reject, Noise Reject
Trigger Types	Edge, Sequence, Pulse Width, Timeout, Runt, Logic, Setup & Hold, Rise/Fall Time, Video, I2C, SPI, CAN, LIN, FlexRay, RS-232/422/485/UART, I2S/LJ/RJ/TDM, MIL-STD-1553, ARINC 429, USB 2.0
Trigger Holdoff Range	20 ns to 8 s

Spectrum Analyzer (RF Channel)

RF Frequency Range	9 kHz to 1 GHz or 3 GHz (hardware option dependent)
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Arbitrary/Function Generator

Sine Frequency Range	0.1 Hz to 50 MHz (AFG option)
Standard Waveforms	Sine, Square, Pulse, Ramp/Triangle, DC, Noise, Sin(x)/x, Gaussian, Lorentz, Exponential Rise/Fall, Haversine, Cardiac
Sample Rate	250 MS/s
Arbitrary Record Length	128 k points
AFG Output Amplitude (High-Z)	20 mVp-p to 5 Vp-p
AFG Output Amplitude (50 Ω)	10 mVp-p to 2.5 Vp-p
AFG Output Impedance	50 Ω

Digital Channels (Logic Analyzer)

Number of Digital Channels	16 (requires MSO option / P6316 probe)
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Digital Voltmeter and Counter

DVM Resolution	4 digits
DVM Functions	AC RMS, DC, AC+DC RMS

Measurement and Analysis

Cursor Types	Waveform, V Bars, H Bars, V&H Bars
Math Functions	Add, Subtract, Multiply, Divide, FFT, Advanced Math

Display System

Display Type	TFT LCD capacitive touchscreen
Display Resolution	1920 x 1080 pixels

Input/Output Ports

USB Host Ports	3 x USB 2.0 (2 front, 1 rear)
USB Device Port	1 x USB 2.0 (rear)
LAN/Ethernet Port	10/100 Mbps (RJ-45)
Video Output Port	HDMI

Environmental and Compliance

Operating Altitude	Up to 3,000 meters (9,843 ft)
Non-operating Altitude	Up to 12,000 meters (39,370 ft)

Inputs & Outputs

Probe Interface	TekVPI (supports active, differential, and current probes)
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Horizontal System

Timebase Range	1 ns/div to 1000 s/div
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Spectrum Analyzer

Spectrum Analyzer Resolution Bandwidth (RBW)	20 Hz to 150 MHz
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Power

Line Voltage	100 V to 240 V $\pm$ 10%
Line Frequency	50/60 Hz (100-240 V), 400 Hz (100-132 V)
Maximum Power Consumption	130 W

Display

Display Size	11.6 inch (295 mm)
Touchscreen	Capacitive multi-touch

Acquisition

Maximum Waveform Capture Rate	>280,000 wfms/s (FastAcq mode)
Waveform Interpolation	sin(x)/x, Linear

Serial Bus & Decoding

Supported Serial Buses (Optional)	I2C, SPI, RS-232/422/485/UART, CAN, CAN FD, LIN, FlexRay, MIL-STD-1553, ARINC 429, I2S, LJ, RJ, TDM, USB 2.0
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Digital Channels (Optional)

Digital Channel Input Capacitance	8 pF (typical, with P6316 probe)
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TECHNOLOGY

Mixed Domain Oscilloscope (MDO)

APPLICATIONS

Embedded system design, IoT troubleshooting, power supply design, education, and manufacturing test

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