

TEKTRONIX

MSO44

The Tektronix MSO44 is a 4 Series Mixed Signal Oscilloscope featuring 4 FlexChannel inputs, offering outstanding vertical resolution and high-definition visualization. It provides versatility with configurable analog and digital channels, standard 12-bit ADC performance, and a highly intuitive capacitive touch interface.

SPECIFICATIONS

General

Display	13.3-inch (338 mm) capacitive touch TFT, 1920 × 1080 (Full HD)
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Physical

Power Supply	100 to 240 V AC ±10% (50 to 60 Hz), 115 V AC ±10% (400 Hz), 400 W maximum
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Operating Temperature	0 °C to +50 °C °C
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Dimensions (W×H×D)	450 mm × 249 mm × 155 mm mm
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Vertical System - Analog Channels

Number of Analog Channels	4 FlexChannel inputs
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Analog Bandwidth (-3 dB)	200 MHz, 350 MHz, 500 MHz, 1 GHz, or 1.5 GHz (model-option dependent)
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Hardware Bandwidth Limits	20 MHz, 250 MHz (model-option dependent)
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Input Coupling	AC, DC
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Input Impedance	50 Ω ±1%, 1 MΩ ±1% with 13 pF ±1.5 pF
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Input Sensitivity Range (1 MΩ)	500 μV/div to 10 V/div in 1-2-5 sequence
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Input Sensitivity Range (50 Ω)	500 μV/div to 1 V/div in 1-2-5 sequence
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Vertical Resolution	12-bit ADC (up to 16-bit in High Res mode)
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Maximum Input Voltage (1 MΩ)	300 VRMS, Cat II
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Maximum Input Voltage (50 Ω)	5 VRMS, with peaks ≤ ±20 V
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Vertical System - Digital Channels

Number of Digital Channels	Up to 32 channels (with optional TLP058 probes)
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Threshold Range	-40 V to +40 V
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Threshold Accuracy	±(100 mV + 3% of threshold setting)
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Minimum Detectable Pulse Width	1 ns
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Maximum Toggle Rate	500 MHz
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Horizontal System (Timebase)

Real-Time Sample Rate	6.25 GS/s on all channels
Maximum Record Length	31.25 Mpoints standard (62.5 Mpoints optional)
Timebase Range	200 ps/div to 1,000 s/div
Channel-to-Channel Deskew Range	-125 ns to +125 ns with 1 ps resolution

Acquisition System

Acquisition Modes	Sample, Peak Detect, Envelope, Average, High Res, FastAcq
Waveform Capture Rate	> 500,000 wfm/s (in FastAcq mode)

Trigger System

Trigger Sources	Analog channels, digital channels, Aux input, Line
Trigger Modes	Auto, Normal, Single
Trigger Coupling	DC, AC, HF Reject, LF Reject, Noise Reject
Trigger Holdoff Range	0 ns to 20 s
Trigger Types	Edge, Pulse Width, Runt, Timeout, Slew Rate, Setup and Hold, Rise/Fall Time, Window, Logic, Bus/Protocol (option dependent)

Waveform Measurements & Analysis

Waveform Math Operators	Arithmetic (Add, Subtract, Multiply, Divide), FFT, Advanced Math equations
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Input / Output Ports & Connectivity

Probe Compensator Output	Front-panel 2.5 V, 1 kHz
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Environmental & Safety Compliance

Non-Operating Temperature Range	-30 °C to +70 °C
Operating Humidity Range	5% to 90% RH at up to +30 °C; 5% to 60% RH above +30 °C up to +50 °C
Operating Altitude	Up to 3,000 m (9,843 ft)
Non-Operating Altitude	Up to 12,000 m (39,370 ft)

Input Channels

FlexChannel Inputs	4 FlexChannel ports, each supporting 1 analog or 8 digital channels (using TLP058 logic probe)
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Connectivity

USB Host Ports	2x USB 2.0 on front panel, 1x USB 2.0 on rear panel, 1x USB 3.0 on rear panel
LAN Port	1x RJ-45, 10/100/1000 Mb/s Ethernet
External Display Output	1x HDMI (DVI compatible) on rear panel, up to 1920 x 1080 resolution at 60 Hz
Probe Interface	TekVPI Probe Interface (supports active, differential, and current probes with automatic scale and unit detection)

Signal Generator (Optional)

Arbitrary Function Generator	1 channel, up to 50 MHz (Option 4-AFG dependent)
AFG Waveform Types	Sine, Square, Pulse, Ramp, Triangle, DC, Noise, Sin(x)/x, Gaussian, Lorentz, Exponential Rise/Decay, Haversine, Cardiac, Arbitrary

Integrated Instruments

Digital Voltmeter (DVM)	4-digit AC RMS, DC, and DC+AC RMS voltage measurements (requires product registration)
Trigger Frequency Counter	8-digit frequency counter (requires product registration)

Power System

Power Consumption	400 W maximum
AC Input Voltage	100 V to 240 V AC $\pm 10\%$ at 50 Hz to 60 Hz; 115 V AC $\pm 10\%$ at 400 Hz

Environmental & Mechanical

Operating Vibration	0.31 g RMS, 5 Hz to 500 Hz, 10 minutes per axis, 3 axes
Non-Operating Vibration	2.46 g RMS, 5 Hz to 500 Hz, 10 minutes per axis, 3 axes
Operating Shock	50 g, 11 ms, half-sine shock pulse
Security Slot	Kensington-style lock slot on rear panel

Standards and Compliance

Safety Certifications	UL 61010-1, CAN/CSA-C22.2 No. 61010-1, EN 61010-1, IEC 61010-1
EMC Compliance	EU: EMC Directive 2014/30/EU, EN 61326-1, EN 61326-2-1; Australia/New Zealand: AS/NZS CISPR 11

Signal Generator (Optional AFG)

AFG Sine Wave Frequency Range	0.1 Hz to 50 MHz
AFG Square / Pulse Wave Frequency Range	0.1 Hz to 25 MHz
AFG Ramp / Triangle Wave Frequency Range	0.1 Hz to 500 kHz
AFG Real-Time Sample Rate	250 MS/s
AFG Amplitude Range (50 Ω)	10 mVp-p to 2.5 Vp-p
AFG Amplitude Range (1 M Ω)	20 mVp-p to 5.0 Vp-p

Digital Voltmeter (DVM)

DVM Voltage Resolution	4 digits
DVM Measurement Types	DC, AC RMS + DC, AC RMS

Trigger Frequency Counter

Trigger Frequency Counter Resolution	8 digits
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Search and Mark

Search and Mark Maximum Events	10,000 events
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Display

Touch Screen Type	Capacitive
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TECHNOLOGY

Digital Phosphor / Mixed Signal

APPLICATIONS

Embedded Systems Debug, Power Integrity, Automotive Ethernet, Jitter and Noise Analysis

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