

TEKTRONIX

MSO54

The Tektronix MSO54 is a 4-channel Mixed Signal Oscilloscope from the 5 Series MSO family. It features innovative FlexChannel™ technology, where each of the four inputs can serve as one analog channel or eight digital logic channels (up to 32 digital channels total). With a 15.6-inch high-definition capacitive touchscreen, 12-bit vertical resolution, and a 6.25 GS/s sample rate on all channels, it provides high-fidelity signal visibility for debugging complex embedded, automotive, and power electronic systems.

SPECIFICATIONS

General

Display	15.6-inch (396 mm) TFT Color HD (1920 x 1080) Capacitive Multi-touch
Operating System	Closed Embedded OS (default) or Windows 10 (with optional solid-state drive)
Instrument Architecture	TEK049 ASIC

Physical

Power Supply	100 to 240 V $\pm$ 10% at 50/60 Hz; 115 V $\pm$ 10% at 400 Hz; 400 W maximum
Operating Temperature	0 to +50 °C
Dimensions (W×H×D)	454 × 309 × 204 mm
Weight	11.4 kg
Rackmount Configuration	7U high (Option 5-RM)
Cooling Clearance	2 in (50.8 mm) required on right side and rear

Vertical System - Analog Channels

Number of Analog Channels	4 FlexChannel inputs (each provides 1 analog or 8 digital inputs)
Analog Bandwidth	350 MHz, 500 MHz, 1 GHz, or 2 GHz (option dependent)
Vertical Resolution	12-bit ADC (up to 16-bits in High Res mode)

Vertical System - Digital Channels

Number of Digital Channels	Up to 32 (8 per channel via optional TLP058 logic probes)
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Acquisition System

Maximum Sample Rate (Real-time)	6.25 GS/s (all analog/digital channels)
Maximum Sample Rate (Interpolated)	500 GS/s
Standard Record Length	62.5 Mpoints (all channels)
Waveform Capture Rate	>500,000 waveforms/s

Trigger System

Supported Trigger Types	Edge, Pulse Width, Runt, Timeout, Window, Logic, Setup & Hold, Rise/Fall Time, Parallel Bus, Sequence
Trigger Level Range	±5 divisions from center of screen
Trigger Holdoff Range	0 ns to 20 seconds

Waveform Measurements and Math

Cursors	Waveform, V Bars, H Bars, V&H Bars
Automatic Measurements	36
Math Functions	Basic waveform arithmetic, FFT, and advanced equation editor
Advanced Jitter Analysis	Advanced Jitter and Eye Diagram Analysis (optional)

Protocol and Analysis Options

Supported Serial Buses (Decoding/Triggering)	I2C, SPI, RS-232/422/485/UART, CAN, LIN, FlexRay, USB 2.0, Ethernet, I2S, LJ, RJ, TDM (optional)
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Built-in Arbitrary/Function Generator (AFG)

Sine Wave Frequency Range	Up to 50 MHz
Output Waveforms	Arbitrary, Sine, Square, Pulse, Ramp, Triangle, DC Level, Gaussian, Lorentz, Exponential Rise/Fall, Sin(x)/x, Random Noise, Haversine, Cardiac

Digital Voltmeter and Trigger Frequency Counter

DVM Resolution	4-digit
DVM Voltage Functions	AC RMS, DC, DC+AC RMS
Counter Resolution	8-digit

Display System

Display Size	15.6-inch (396 mm)
Display Type	TFT color
Display Resolution	1920 x 1080
Touch Interface	Capacitive (multi-touch)

Connectivity and Interfaces

USB Host Ports	7
USB Device Port	1
Ethernet Port	10/100/1000 Base-T (LXI Compliant)
Remote Viewing / Control	e*Scope® via standard web browser

Accessories

Standard Probes	Four 10 MΩ passive voltage probes (<4 pF capacitive loading)
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Analog Inputs

Input Coupling	AC, DC
Input Impedance	1 M Ω $\pm$ 1% or 50 Ω $\pm$ 1%
Maximum Input Voltage (1 M Ω)	300 VRMS
Maximum Input Voltage (50 Ω)	5 VRMS, with peaks $\leq$ $\pm$ 20 V

Vertical System

Vertical Sensitivity Range (1 M Ω)	500 μ V/div to 10 V/div
Vertical Sensitivity Range (50 Ω)	1 mV/div to 1 V/div

Environmental

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

Inputs

Input Channel Architecture	FlexChannel (each input configures as 1 analog or 8 digital channels with TLP058 probe)
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Spectrum View

Spectrum View Center Frequency Range	0 Hz to maximum analog bandwidth of oscilloscope
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Arbitrary/Function Generator (Option)

AFG Output Impedance	50 Ω (Option 5-AWG)
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Power

Power Consumption	400 W maximum
AC Line Frequency	50/60 Hz (100-240 V), 400 Hz (115 V)

Compliance

Safety Compliance	UL 61010-1, CSA C22.2 No. 61010-1, EN 61010-1, IEC 61010-1
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TECHNOLOGY

Mixed Signal Oscilloscope (MSO)

APPLICATIONS

Embedded Systems Debug, Automotive Electronics, Three-phase Power Electronics, Power Supply Design, DC-to-DC Power Converters

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