

TEKTRONIX

MSO4034

The Tektronix MSO4034 is a high-performance mixed signal oscilloscope from the MSO4000 Series, designed for debugging complex embedded designs. Offering 350 MHz bandwidth and 4 analog channels alongside 16 digital channels, it combines the functionality of an oscilloscope and a logic analyzer on a single instrument. Key features include the Wave Inspector® controls, a large 10.4-inch XGA display, and advanced digital waveform display modes.

SPECIFICATIONS

General

Interfaces	USB 2.0 Host (2 front, 2 rear), USB 2.0 Device (1 rear), LAN (10/100Base-T), VGA Out, Auxiliary Output, GPIB (optional via TEK-USB-488)
Display	10.4-inch (264 mm) liquid-crystal TFT color display, 1024 x 768 pixels (XGA)

Physical

Power Supply	100 to 240 V $\pm 10\%$ (50/60 Hz), 115 V $\pm 10\%$ (400 Hz), <250 W power consumption
Operating Temperature	0 °C to +50 °C °C
Dimensions (W×H×D)	439 mm x 229 mm x 137 mm mm
Weight	5 kg kg
Rackmount Height	5U

Vertical System - Analog Channels

Number of Analog Channels	4
Analog Bandwidth (-3 dB)	350 MHz
Calculated Rise Time (10% to 90%)	1 ns
Input Coupling	AC, DC
Input Impedance	1 M Ω $\pm 1\%$ in parallel with 13 pF ± 2 pF, 50 Ω $\pm 1\%$
Input Sensitivity Range (1 M Ω)	1 mV/div to 10 V/div
Input Sensitivity Range (50 Ω)	1 mV/div to 1 V/div
Vertical Resolution	8 bits
Maximum Input Voltage (1 M Ω)	250 Vrms CAT I, with peaks $\leq \pm 400$ V
Maximum Input Voltage (50 Ω)	5 Vrms with peaks $\leq \pm 20$ V
DC Gain Accuracy	$\pm 1.5\%$ for 5 mV/div to 10 V/div, $\pm 3.0\%$ for 1 mV/div to 2 mV/div
Channel-to-Channel Isolation	$\geq 100:1$ at ≤ 100 MHz, $\geq 30:1$ at > 100 MHz to 350 MHz

Vertical System - Digital Channels

Number of Digital Channels	16
Input Channels Threshold Groupings	Pod 1 (D7-D0) and Pod 2 (D15-D8) with individual threshold settings
Threshold Selections	TTL, CMOS, ECL, PECL, User Defined
Threshold Voltage Range	-15 V to +15 V
Threshold Accuracy	$\pm(100 \text{ mV} + 3\% \text{ of threshold setting})$
Maximum Input Voltage (Digital Probes)	$\pm 15 \text{ V}$
Input Impedance (Digital Probes)	20 k Ω in parallel with 3 pF
Minimum Voltage Swing	400 mV p-p
Digital Channel Resolution	1 bit

Horizontal System - Timebase

Maximum Sample Rate (Analog Channels)	2.5 GS/s on all channels
Maximum Sample Rate (Digital Channels)	500 MS/s (main), 16.5 GS/s (MagniVu)
Maximum Record Length (Analog Channels)	10 Mpoints
Maximum Record Length (Digital Channels)	10 Mpoints
Timebase Range	1 ns/div to 1000 s/div
Timebase Delay Range	-10 divisions to 1000 s
Channel-to-Channel Deskew Range	$\pm 75 \text{ ns}$
Timebase Accuracy	$\pm 5 \text{ ppm}$

Trigger System

Trigger Modes	Auto, Normal, Single
Trigger Coupling	DC, AC, HF Reject (>50 kHz), LF Reject (<50 kHz), Noise Reject
Trigger Holdoff Range	250 ns to 8 s
Trigger Sensitivity	0.4 div from DC to 50 MHz, increasing to 1 div at 350 MHz
Trigger Level Range	±8 divisions from screen center
Edge Triggering	Positive or negative slope on any channel
Pulse Width Triggering	Trigger on width of positive or negative pulses from 4 ns to 8 s
Runt Triggering	Trigger on a pulse that crosses one threshold but fails to cross a second threshold before crossing the first again
Timeout Triggering	Trigger on an event which remains high, low, or either, for a specified time period (4 ns to 8 s)
Logic Pattern Triggering	Trigger when pattern goes False or stays True for specified time (4 ns to 8 s)
Setup/Hold Violation Triggering	Trigger on violations of setup time and hold time between clock and data on any of the input channels
Rise/Fall Time Triggering	Trigger on pulse edge rates that are faster or slower than specified (4 ns to 8 s)
Video Triggering	Trigger on NTSC, PAL, SECAM, and custom bi-level or tri-level HDTV signals
Trigger Jitter (Typical)	< 15 ps RMS
Supported Video Standards	NTSC, PAL, SECAM, HDTV (480i, 480p, 576i, 576p, 720p, 1080i, 1080p)
Optional Serial Bus Triggering and Analysis	I2C, SPI, CAN, LIN, FlexRay, RS-232/422/485/UART, I2S/LJ/RJ/TDM

Acquisition Modes

Sample Mode	Acquire sampled values
Peak Detect Mode	Captures glitches as narrow as 400 ps at all sweep speeds
Averaging Mode	From 2 to 512 waveforms
Envelope Mode	Min/Max vertical values acquired over multiple acquisitions
High Resolution Mode	Real-time boxcar averaging reduces random noise and increases vertical resolution
Waveform Capture Rate	>50,000 wfm/s

Waveform Measurements and Analysis

Automatic Measurements	29 automatic measurements, up to 8 displayed on screen at one time
Measurement Statistics	Mean, Min, Max, Standard Deviation
Waveform Math Operations	Arithmetic operations (+, -, *, /) on waveforms
Advanced Math (FFT)	Spectral magnitude. FFT Windows: Rectangular, Hamming, Hanning, Blackman-Harris

Display System

Display Type	Liquid-crystal TFT color
Display Resolution	1024 x 768 pixels (XGA)
Display Size (Diagonal)	10.4 in (264 mm)
Graticules	Full, Grid, Crosshair, Frame

Environmental Specifications

Non-Operating Temperature Range	-20 °C to +60 °C
Operating Humidity Range	High: 40 °C to 50 °C, 10% to 60% RH / Low: 0 °C to 40 °C, 10% to 90% RH
Non-Operating Humidity Range	High: 40 °C to 60 °C, 5% to 55% RH / Low: 0 °C to 40 °C, 5% to 90% RH
Operating Altitude	3,000 m (approx. 10,000 ft)
Non-Operating Altitude	12,192 m (approx. 40,000 ft)

Physical Characteristics

Width	439 mm
Height	229 mm
Depth	137 mm
Weight (Shipping)	9.5 kg

Compliance and Standards

Safety Certifications	UL61010-1:2004, CAN/CSA-C22.2 No. 61010.1-04, EN61010-1:2001, IEC61010-1:2001
Electromagnetic Compatibility (EMC)	89/336/EEC, EN61326:1997 +A1:1998 +A2:2001 +A3:2003; FCC 47 CFR Part 15, Subpart B, Class A

Vertical System

Standard Analog Probe Model	P6139A (one per analog channel)
Standard Digital Probe Model	P6516 16-channel logic probe
Analog Bandwidth Limits	20 MHz, 250 MHz
Analog Position Range	±5 divisions

Interfaces & Connectivity

USB 2.0 Host Ports	4 ports (2 on front panel, 2 on rear panel)
USB 2.0 Device Ports	1 port (rear panel, supports USBTMC)
LAN Port	10/100Base-T Ethernet (RJ-45)
Video Output Port	D-Sub 15-pin (VGA) female connector
LXI Compliance	Version 1.1, Class C
GPIO Control Interface	Optional (via TEK-USB-488 adapter)

Power

Power Source Frequency Range	47 Hz to 63 Hz (90 V to 264 V), 360 Hz to 440 Hz (100 V to 132 V)
Maximum Power Consumption	250 W

Measurement System

Waveform Histograms	Vertical, Horizontal
---------------------	----------------------

Inputs & Outputs

Analog Probe Interface	TekVPI™ Probe Interface
Probe Compensator Output Voltage	2.5 V (typical)
Probe Compensator Output Frequency	1 kHz (typical)
Auxiliary Output Signal Types	Trigger Out, Trigger Ready
Front-panel CompactFlash Slot	Supports up to 2 GB CompactFlash card
Kensington Lock Slot	Yes

Digital Channels (P6516 Probe)

Digital Probe Input Capacitance	3 pF (typical)
Digital Probe Input Resistance	20 kΩ
Digital Probe Maximum Toggle Rate	250 MHz
Digital Probe Minimum Detectable Pulse Width	2 ns
Digital Probe Channel-to-Channel Skew	500 ps (typical)

Wave Inspector® Navigation and Search

Zoom/Pan Dedicated Controls	Yes (Wave Inspector®)
Play/Pause Dedicated Controls	Yes (Wave Inspector®)
Search/Mark Dedicated Controls	Yes (Wave Inspector®)

Power Specifications

Power Source Input Voltage	100 to 240 V ±10%
----------------------------	-------------------

Software & Connectivity

Included Software	OpenChoice® Desktop
Driver Support	IVI-COM, IVI-C

Automatic Measurements

Number of Automatic Measurements	29
----------------------------------	----

Waveform Math

Number of Math Waveforms	1
--------------------------	---

Accessories

Optional Rackmount Kit	RM4000
Optional GPIB Adapter	TEK-USB-488

Optional Application Modules

Embedded Serial Triggering and Analysis Module	DPO4EMBD (I2C, SPI)
Computer Serial Triggering and Analysis Module	DPO4COMP (RS-232/422/485/UART)
Automotive Serial Triggering and Analysis Module	DPO4AUTO (CAN, LIN)
Extended Automotive Serial Triggering and Analysis Module	DPO4AUTOMAX (CAN, LIN, FlexRay)
Audio Serial Triggering and Analysis Module	DPO4AUDIO (I2S, Left Justified, Right Justified, TDM)
Video Triggering Module	DPO4VID (HDTV and Custom Video triggering)

TECHNOLOGY

Mixed Signal Oscilloscope

APPLICATIONS

Embedded System Design, Debugging, Digital Design, Power Measurements, Spectral Analysis

Generated by SpecAtlasHub (specatlashub.com). Specifications are compiled from available sources and are subject to change — verify critical values against the manufacturer before purchase.