

## TEKTRONIX

# MSO4054

The Tektronix MSO4054 is a 500 MHz Mixed Signal Oscilloscope belonging to the MSO4000 Series, designed for debugging complex embedded systems. Combining 4 analog channels and 16 digital channels, it features a 10.4-inch XGA display, 2.5 GS/s real-time sample rate on all channels, and a 10 Mpoint record length, alongside the innovative Wave Inspector® controls for efficient waveform navigation.

## SPECIFICATIONS

### General

|            |                                                                                                                                          |
|------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Interfaces | USB 2.0 Host (2 front, 2 rear), USB 2.0 Device (1 rear), LAN (10/100 Base-T Ethernet), Video Out (DB-15), GPIB (via TEK-USB-488 adapter) |
| Display    | 10.4 in. (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), power consumption < 250 W |
| Operating Temperature | 0 to +50 °C °C                                                                           |
| Dimensions (W×H×D)    | 439 mm × 229 mm × 137 mm mm                                                              |
| Weight                | 5.0 kg kg                                                                                |
| Rackmount Height      | 5U                                                                                       |

### Vertical System - Analog Channels

|                                         |                              |
|-----------------------------------------|------------------------------|
| Analog Channels                         | 4                            |
| Analog Bandwidth (-3 dB)                | 500 MHz                      |
| Calculated Rise Time                    | 700 ps                       |
| Hardware Bandwidth Limits               | 20 MHz, 250 MHz              |
| Input Coupling                          | AC, DC, GND                  |
| Input Sensitivity Range (1 M $\Omega$ ) | 1 mV/div to 10 V/div         |
| Input Sensitivity Range (50 $\Omega$ )  | 1 mV/div to 1 V/div          |
| Vertical Resolution                     | 8 bits (11 bits with Hi Res) |

### Vertical System - Digital Channels

|                      |                                    |
|----------------------|------------------------------------|
| Digital Channels     | 16                                 |
| Threshold Selections | TTL, CMOS, ECL, PECL, User Defined |

## Horizontal System (Timebase)

|                           |                         |
|---------------------------|-------------------------|
| Timebase Delay Time Range | -10 divisions to 5000 s |
| Channel Deskew Range      | ±75 ns                  |
| Timebase Accuracy         | ±5 ppm                  |

## Acquisition System

|                                              |                                                      |
|----------------------------------------------|------------------------------------------------------|
| Max Real-Time Sample Rate (Analog)           | 2.5 GS/s on all channels                             |
| Max Real-Time Sample Rate (Digital, Main)    | 500 MS/s (2 ns resolution)                           |
| Max Real-Time Sample Rate (Digital, MagniVu) | 16.5 GS/s (60.6 ps resolution)                       |
| Max Record Length (Analog)                   | 10 Mpoints                                           |
| Max Record Length (Digital)                  | 10 Mpoints                                           |
| Acquisition Modes                            | Sample, Peak Detect, Hi Res, Envelope, Average, Roll |
| Waveform Capture Rate                        | >50,000 wfm/s                                        |

## Trigger System

|                       |                                                                |
|-----------------------|----------------------------------------------------------------|
| Trigger Modes         | Auto, Normal, Single                                           |
| Trigger Coupling      | DC, AC, HF Reject (>50 kHz), LF Reject (<50 kHz), Noise Reject |
| Trigger Holdoff Range | 20 ns to 8 s                                                   |

## Waveform Measurements

|                        |                                                  |
|------------------------|--------------------------------------------------|
| Automatic Measurements | 29 automatic measurements                        |
| Measurement Statistics | Mean, Min, Max, Standard Deviation               |
| Reference Levels       | User-definable reference levels (High, Mid, Low) |

## Waveform Math and Analysis

|     |                                                                                      |
|-----|--------------------------------------------------------------------------------------|
| FFT | Spectral magnitude, FFT window types: Rectangular, Hamming, Hanning, Blackman-Harris |
|-----|--------------------------------------------------------------------------------------|

## Display Characteristics

|                 |                                                           |
|-----------------|-----------------------------------------------------------|
| Interpolation   | Sin(x)/x                                                  |
| Waveform Styles | Vectors, Dots, Variable Persistence, Infinite Persistence |
| Graticules      | Full, Grid, Crosshair, Frame                              |

## Input/Output Ports

|                     |                                         |
|---------------------|-----------------------------------------|
| USB 2.0 Device Port | 1 rear (supports USBTMC)                |
| Video Out Port      | DB-15 female connector (XGA resolution) |

## Physical Characteristics

|                         |                                 |
|-------------------------|---------------------------------|
| Rackmount Compatibility | Optional (RM4000 kit available) |
|-------------------------|---------------------------------|

## Environmental and Safety

|                    |                          |
|--------------------|--------------------------|
| Operating Altitude | Up to 3,000 m (9,843 ft) |
|--------------------|--------------------------|

## Standard Accessories

|                        |                                         |
|------------------------|-----------------------------------------|
| Standard Analog Probes | Four P6139A 500 MHz, 10x passive probes |
| Standard Digital Probe | P6516 16-channel logic probe            |

## Digital Channels

|                                 |      |
|---------------------------------|------|
| Digital Probe Input Capacitance | 3 pF |
|---------------------------------|------|

## Vertical System

|                      |                        |
|----------------------|------------------------|
| Probe Interface Type | TekVPI Probe Interface |
|----------------------|------------------------|

## Interfaces

|                           |                                  |
|---------------------------|----------------------------------|
| GPIO Interface Capability | Optional via TEK-USB-488 adapter |
| LXI Compliance            | LXI Class C                      |

## Power

|                   |               |
|-------------------|---------------|
| Power Consumption | 250 W maximum |
|-------------------|---------------|

## Environmental

|                         |                                                   |
|-------------------------|---------------------------------------------------|
| Operating Vibration     | 0.31 g RMS from 5 Hz to 500 Hz                    |
| Non-Operating Vibration | 2.46 g RMS from 5 Hz to 500 Hz                    |
| Cooling Clearance       | 51 mm (2 in.) on left side and rear of instrument |
| Pollution Degree        | Pollution Degree 2                                |

## Auxiliary Output

|                            |             |
|----------------------------|-------------|
| Auxiliary Output Impedance | 50 $\Omega$ |
|----------------------------|-------------|

## Probe Compensator

|                                    |            |
|------------------------------------|------------|
| Probe Compensator Output Amplitude | 0 to 2.5 V |
| Probe Compensator Output Frequency | 1 kHz      |

## Storage

|                                     |             |
|-------------------------------------|-------------|
| Internal Reference Waveform Storage | 4 waveforms |
|-------------------------------------|-------------|

## Acquisition Modes

|                 |                                     |
|-----------------|-------------------------------------|
| Averaging Range | 2 to 512 waveforms                  |
| Envelope Range  | 1 to 2000 acquisitions, or infinite |

## Security

|               |                                    |
|---------------|------------------------------------|
| Security Slot | Kensington lock slot on rear panel |
|---------------|------------------------------------|

## Power System

|                        |                                                          |
|------------------------|----------------------------------------------------------|
| Power Source Voltage   | 100 to 240 V AC $\pm$ 10%                                |
| Power Source Frequency | 47 to 66 Hz (100 to 240 V), 360 to 440 Hz (100 to 132 V) |

Display

|                    |                                                |
|--------------------|------------------------------------------------|
| Display Size       | 10.4 in. (264 mm) diagonal                     |
| Display Resolution | 1024 × 768 pixels (XGA)                        |
| Display Type       | TFT active matrix color liquid crystal display |

TECHNOLOGY

Mixed Signal Oscilloscope (MSO)

APPLICATIONS

Embedded Design, Debugging, Serial and Parallel Bus 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.