

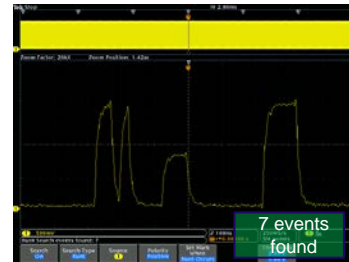
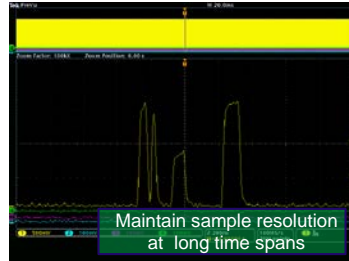
Tektronix MDO4000C Series vs. Keysight InfiniiVision 4000 X-Series

Competitive Fact Sheet

Importance of Reliable Measurements and Accurate Search

Tektronix MDO4000C

- ✓ **Selectable record length** maintains sample rate resolution and gives the engineer control
- ✓ 20 M record length on all channels and at all settings = 10 x more timespan at the same sample rate, allowing users to see more of the waveform and signal
- ✓ Wave Inspector® controls for easy scrolling through long records
- ✓ **Measurements and search based on signal data values**, reliably find specified events (see screen capture "7 events found")
- ✓ Automated search mark table allows user to see timing intervals between search events
- ✓ Ability to copy trigger settings to search reduces setup steps



Tektronix MDO4000C



Keysight DSO-X 4154A

Keysight 4000 X-Series

- ✗ User can **NOT select record length**, only horizontal scale, resulting in highly distorted waveform
- ✗ Record length drops from 4 M to 2 M when more than two channels are turned on or when continuous run mode is used; reduced again when digital channels are turned on
- ✗ Limited navigation buttons and multiplexed horizontal controls
- ✗ **Measurements and search based on displayed data points** resulting in values changing based on zoom settings, search not reporting all events captured (see screen capture ">=0 events found")
- ✗ Lack of search mark table and missing search events make finding root cause difficult
- ✗ No ability to copy trigger settings to search, increasing work needed to setup common search tasks

Probes to Match Your Scope's Performance

Tektronix MDO4000C Series Keysight 4000 X-Series

- | | |
|--|--|
| <ul style="list-style-type: none"> ✓ 3.9 pF passive probes ship standard, minimizing the effect of the probe on a circuit's operation ✓ 1 GHz models ship standard with 1 GHz probes ✓ 1 year warranty for passive probes | <ul style="list-style-type: none"> ✗ 9.5 pF passive probe ships standard ✗ Ships standard with 700MHz probe, active probes cost >\$1,000 per channel ✗ 90 days warranty for passive probes |
|--|--|



Key Specifications Comparison

	Tektronix MDO4000C	Keysight 4000 X-Series
Waveform Capture Rate	✓ >340 k wfms/s, with color- and intensity-graded display	✓ >1 M wfms/s, with limited intensity-graded display at a few settings
Max. Sample Rate (All channels on)	✓ Up to 5 GS/s	✗ 2.5 GS/s
Max. Record Length (All channels on)	✓ Up to 20 M	✗ 2 M
DC Gain Accuracy	✓ ±1.5%	✗ ±2%
Display	✓ 10.4 inch with 9.6 inch waveform viewing area	✓ 12.1 inch with 9.6 inch waveform viewing area

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Competitive Fact Sheet

The Only Scope with a Real Spectrum Analyzer

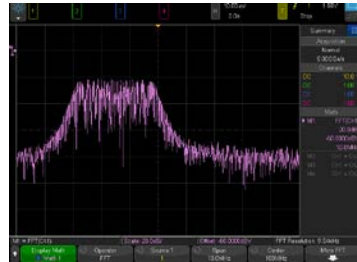
Tektronix MDO4000C Series

- ✓ Dedicated RF input, with frequency up to 6 GHz, amplitude accurate to 6 GHz
- ✓ Dedicated front panel controls make spectral analysis easy
- ✓ Specialized RF measurements, including Channel Power, Adjacent Channel Power Ratio, and Occupied BW
- ✓ Automatic markers identify spectral peaks (up to 11 peaks)
- ✓ Easy viewing / navigation of time-correlated analog, digital, buses, RF spectrum, and RF Ampl, Freq, and Phase vs. time signals



Keysight 4000 X-Series

- ✗ FFT limited to analog channel bandwidth, 30% amplitude error
- ✗ Multiplexed front panel and menu controls for FFT
- ✗ Measurements limited to XY cursors and basic amplitude measurements
- ✗ X@Max(Y) marks only one peak
- ✗ Limited viewing / navigation of analog, digital, buses, and FFT waveforms; no time-correlated FFT amplitude, frequency, and phase displays



Digital Channels

Tektronix MDO4000C Series

- ✓ Record lengths up to 20 M, even with analog channels on
- ✓ Channel-to-channel skew 500 ps typical
- ✓ MagniVu extends digital channel timing resolution down to 60.6 ps
- ✓ Bus waveforms can be moved within the display. Up to 3 buses
- ✓ Event table for parallel bus decode

Keysight 4000 X-Series

- ✗ Maximum record length 2 M, reduced with analog channels on
- ✗ Channel-to-channel skew 2 ns typical
- ✗ Digital channel sample rate of 1.25 GS/s gives 800 ps timing resolution
- ✗ Bus waveforms anchored to bottom of the display
- ✗ No event table for parallel bus decode

Instrument Integration and Upgradability

	Tektronix MDO4000C	Keysight 4000 X-Series
Oscilloscope Bandwidth	✓ 200 MHz, 350 MHz, 500 MHz, 1 GHz	✓ 200 MHz, 350 MHz, 500 MHz, 1 GHz, 1.5 GHz
Spectrum Analyzer (SA)	✓ Optional at 3 GHz or 6 GHz with synchronized RF. Vector signal analysis with <i>SignalVu-PC</i> (free software)	✗ FFT with inherent limitations
Arbitrary Function Generator (AFG)	✓ Optional at 50 MHz Field-upgradable	✓ Optional dual-channel at 20 MHz Field-upgradable
Digital Channels (MSO)	✓ 60.6 ps resolution Field-upgradable	✗ 800 ps timing resolution
DVM	✓ Free with instrument registration 4-digit voltmeter 5-digit frequency measurements	✓ Optional 3-digit voltmeter
Post-purchase Upgrades	✓ Bandwidth, AFG, MSO, SA Free DVM with registration Application software	✓ Bandwidth, MSO, AWG, DVM

Setting the Record Straight

Keysight Claims

1,000,000 wfms/s update rate

Tektronix Clarifies

- 1 M wfms/s only available at three horizontal scale settings
- FastAcq high speed waveform acquisition >340,000 wfms/s provides similar performance
- Color graded display makes infrequent events instantly visible

MegaZoom IV smart memory technology

- The MegaZoom architecture leads to trade-offs in measurement search and accuracy

Standard segmented memory

- 40x record length sufficient for typical applications
- Act-on-event enables data logging under some applications

Remote operation

- e*scope available from Tektronix since 2001 and implemented with PCs, iPads and tablets everywhere