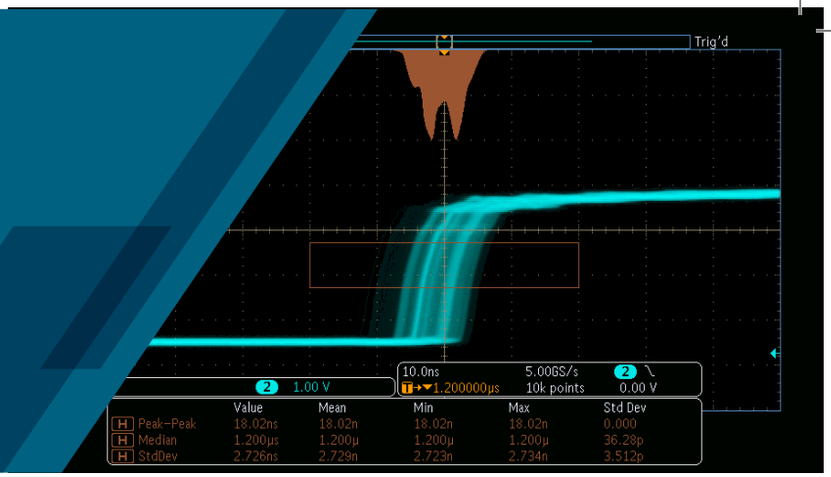
MEASUREMENTS MATTER

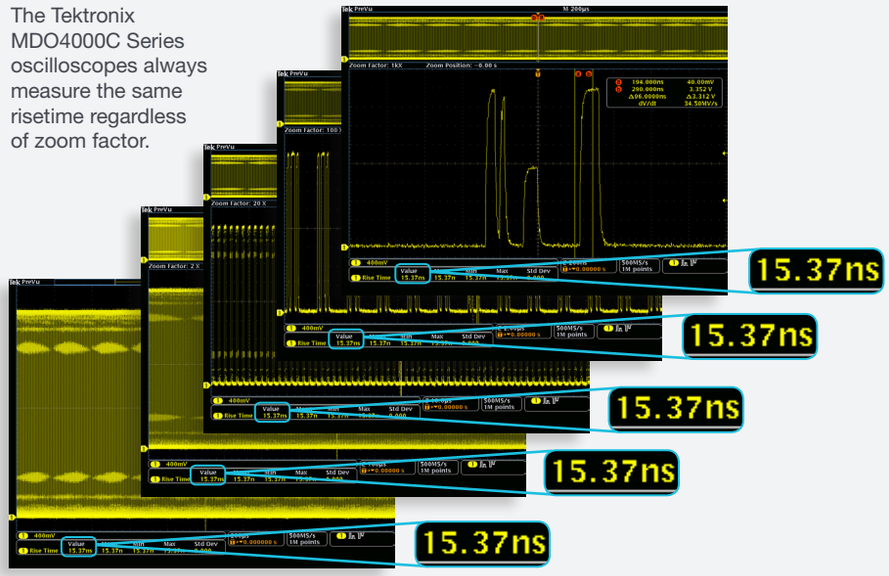
Be right, be sure with the MDO4000C



Enabling accurate measurements with our instruments are a priority for Tektronix. Engineers need to effectively create and optimize products, with reliable measurements at the core of this process. **We designed the MDO4000C Series Oscilloscopes with this simple, but important goal – to make the best measurements in the industry. The Keysight 4000 X-Series includes some compromises that impact measurements.**

Keysight 4000 X-Series performs measurement on display data and gives varying values for a simple risetime measurement.

The Tektronix MDO4000C Series oscilloscopes always measure the same risetime regardless of zoom factor.



Consistent, Meaningful Measurements

MDO4000C Series measurements are taken on actual acquisition data - providing as much data to the measurement algorithms as possible. The Keysight 4000 X-Series uses the lower resolution display data; which can produce measurements that are inaccurate and change with zoom settings. Misinterpreting the Keysight measurements could lead you to draw the wrong conclusion, putting your overall design quality and integrity at risk.

Example rise time measurement:

Zoom	Tektronix	Keysight
1x	15.37ns	No Signal
2x	15.37ns	<190ns
20x	15.37ns	<19ns
100x	15.37ns	14.7ns
1000x	15.37ns	15.4ns

SEE BACK FOR MORE DETAILS

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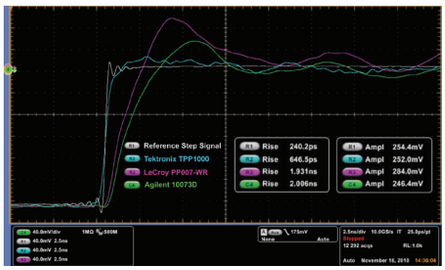

Comparison of a 0.2 ns edge observed with a Tektronix TPP1000 (blue), Keysight 10073D (green) and LeCroy PP007-WR (red)

Probe Loading Degrades Your Measurements

Our engineers have worked hard to minimize the impact. Tektronix TPP-Series probes have less than 4 pF of capacitive loading and they're included with every MDO4000C. The probes included with the Keysight 4000 X-Series have 11 to 12 pF of loading. Excessive loading can result in inaccurate measurements and even change circuit behavior.

And why buy a 1 GHz scope if you are going to filter the signal with a 700 MHz probe? Probes that match the bandwidth of the scope enable full utilization of the scope. All Tektronix MDO4000C Series oscilloscopes include probes that are at least the bandwidth of the oscilloscope. The Keysight 1GHz 4000 X-Series oscilloscope includes 700MHz probes.

18 Guaranteed Specs Mean Your Scope Meets these Specs

Maximizing predictability enables higher confidence in your product specifications and helps to deliver a more competitive product. Tektronix guarantees 18 specifications on the MDO4000C Series, but Keysight only guarantees 4 specifications on the 4000 X-Series; the rest are just stated as typical. How do you know if your Keysight scope is typical?

Specification	Tektronix MDO4104C	Keysight DSOX4104A
Bandwidth	Guaranteed ✓	Guaranteed ✓
Input Impedance, DC Coupled	Guaranteed ✓	Typical
DC Gain Accuracy	Guaranteed ✓	Typical
Offset Accuracy	Guaranteed ✓	Typical
DC Voltage Measurement Accuracy (Average mode)	Guaranteed ✓	Not Specified
DC Voltage Measurement Accuracy (Sample mode)	Guaranteed ✓	Guaranteed ✓
Digital Channel Timing Resolution	Guaranteed ✓	Typical
Logic Threshold Accuracy	Guaranteed ✓	Guaranteed ✓
Reference Frequency Error (cumulative)	Guaranteed ✓	Guaranteed ✓
Time Accuracy for Pulse Width or Timeout Triggering	Guaranteed ✓	Not Specified
Maximum Input Voltage	Guaranteed ✓	Typical
DC Balance	Guaranteed ✓	Typical
Random Noise	Guaranteed ✓	Not Specified
Number of Digitized Bits	Guaranteed ✓	Typical
Sensitivity Range (coarse)	Guaranteed ✓	Typical
Sensitivity Range (fine)	Guaranteed ✓	Not Specified
Deskew Range	Guaranteed ✓	Typical
Maximum Triggered Acquisition Rate	Guaranteed ✓	Typical

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