



# R&S®RTA4000 versus Tektronix MDO4000C



Designed with class-leading signal integrity and responsive ultra-deep memory, the R&S®RTA4000 brings the power of 10 to a new level. A Rohde & Schwarz 10-bit ADC with class-leading noise and memory depth gives you sharp waveforms, more accurate measurements and confidence when facing unexpected measurement challenges. The widely acclaimed user interface in a compact form factor with a high-resolution 10.1" capacitive touchscreen allows you to easily see and use these benefits.

Your benefit	Features
Sharp waveforms, more accurate measurements	10-bit ADC with class-leading noise performance gives you more accurate measurements and sharper waveforms. Measure your signal, not the noise on your scope.
Capture long periods at high sample rate	The R&S®RTA4000 oscilloscope's standard deep memory gives you extra insurance for those difficult measurements where other scopes run out of capacity, and the excellent timebase accuracy means your deep memory measurements are more accurate.
Multiple ways to interact with the oscilloscope	Different users prefer different ways to interact with the scope. The R&S®RTA4000 features a high-resolution, capacitive touchscreen and a designed-for-touch GUI. Knobs/buttons are also available, along with the ability to control the scope via a keyboard/mouse and even remotely via any common web browser.

Parameter	R&S®RTA4000	Tektronix MDO4000C
<b>Acquisition system</b>		
Bandwidth	200/350/500/1000 MHz (1 GHz) (upgradeable)	200/350/500/1000 MHz (1 GHz) (upgradeable)
ADC resolution	10-bit	8-bit
Max. resolution	16-bit with high resolution	11-bit with high resolution
Max. sampling rate	5 Gsample/s (all models)	2.5 Gsample/s on all models but 1 GHz (5 Gsample/s)
Standard memory depth	100 Msample per channel (all channels) 200 Msample (interleaved)	20 Msample per channel (all channels)
Segmented memory depth/history mode	500 Msample per channel (all channels) 1 Gsample (interleaved)	not available
Waveform update rate	64 000 waveforms/s standard 2 000 000 waveforms/s in fast segmented memory mode	270 000 to 340 000 waveforms/s standard
MSO sampling rate/memory	2.5 Gsample/s per channel (all channels) 5 Gsample/s (interleaved) / 100 Msample per channel (all channels) 200 Msample (interleaved)	500 Msample/s / 20 Msample
Hardware input sensitivity	500 µV/div to 10 V/div	1 mV/div to 10 V/div
Frequency domain analysis	yes, 4 inputs up to bandwidth of base unit	yes, 1 input up to 6 GHz
<b>Signal integrity</b>		
Noise 1 mV/div, 200 MHz, 50 Ω, % full scale	0.6 %	2.1 %
DC gain accuracy	1 % to 2.5 %	1.5 % to 3.0 %
Timebase accuracy	±0.5 ppm	±5 ppm
<b>Form factor</b>		
Display	10.1" WXGA (1280 × 800) pixel resolution	10.4" XGA (1024 × 768) pixel resolution
Touchscreen	yes – capacitive	–
Grid annotation	Yes	–
Boot time	~10 s	~50 s
Dimensions	390 mm × 220 mm × 152 mm	439 mm × 229 mm × 147 mm
Weight	3.3 kg	5 kg

## A 10-bit ADC provides 4 times the vertical resolution of an 8-bit ADC

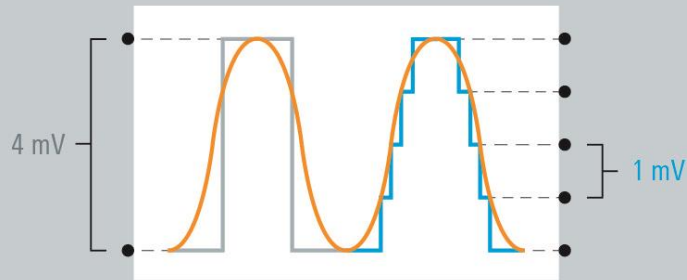
### Traditional scope

▶ 8-bit vertical resolution

### R&S®RTA4000

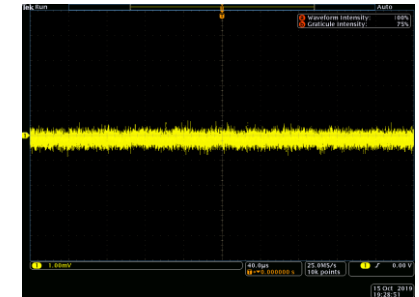
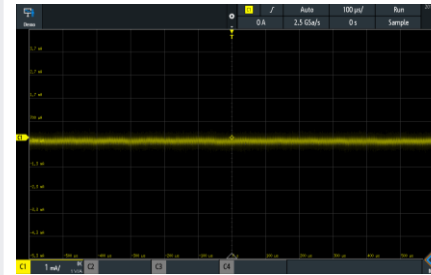
▶ 10-bit vertical resolution

Finest resolution for a 1 V signal



The R&S®RTA4000 features a customized Rohde & Schwarz 10-bit A/D converter that delivers a fourfold improvement over conventional 8-bit A/D converters.

## Noise performance



The R&S®RTA4000 utilizes a low-noise frontend designed to take advantage of the 10-bit ADC and allow you to see more signal detail.

## Noise comparison

One third of the noise ensures more accurate measurements and makes it easier to see events that might be hidden by the MDO4000C's noise.

R&S®RTA4000 0.6 %

Tektronix MDO4000C 2.1 %

## Advantages of R&S®RTA4000 over Tektronix MDO4000C



**4 x**  
More ADC resolution



**10 x**  
More standard memory



**10 x**  
Better timebase accuracy



**3.5 x**  
Less noise



Capacitive touch



**34 %**  
Less weight