



R&S®RTA4000 versus Keysight 4000 X-Series



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 give 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
Debug in the domain you're most comfortable with	Not only does the R&S®RTA4000 provide excellent time domain capabilities, it also offers advanced frequency domain analysis with simple RF setup, spectrogram and time-gated RF views

Memory depth comparison	
50 times more standard memory allows you to capture long periods of time with a high sample rate. Optional 1 Gsample of memory with segmented memory/history option gives you 250 times more memory.	
R&S®RTA4000 standard 200 Msample memory	R&S®RTA4000 standard 1 Gsample segmented memory
← 250 times standard 4 Msample memory	

Parameter	R&S®RTA4000	Keysight 4000 X-Series
Acquisition system		
Bandwidth	200/350/500/1000 MHz (1GHz) (upgradeable)	200/350/500/1000 MHz (1 GHz), 1500 MHz (1.5 GHz) (upgradeable)
ADC resolution	10-bit	8-bit
Max. resolution	16-bit in high resolution mode	12-bit in high resolution mode
Max. sampling rate	5 Gsample/s	5 Gsample/s
Standard memory depth	100 Msample per channel (all channels) 200 Msample (interleaved)	2 Msample per channel (all channels) 4 Msample (interleaved)
Segmented memory depth/history mode	500 Msample per channel (all channels) 1 Gsample (interleaved)	4 Msample – no option to add more, no history
Waveform update rate	64 000 waveforms/s standard 2 000 000 waveforms/s in fast segmented memory mode	1 000 000 waveforms/s standard
Hardware input sensitivity	500 μ V/div to 10 V/div	4 mV/div to 10 V/div
Zone triggering	–	yes
Frequency domain analysis	yes, optional spectrogram	yes (FFT), no spectrogram
Signal integrity		
Noise 1 mV/div, 200 MHz, 50 Ω , % full scale	0.6 %	2.0 %
DC gain accuracy	1 % to 2.5 %	2.0 % to 8.0 %
Timebase accuracy	\pm 0.5 ppm	\pm 10 ppm
Form factor		
Display	10.1" WXGA (1280 \times 800) pixel resolution	12.1" VGA (800 \times 600) pixel resolution
Boot time	~ 10 s	~ 50 s
Dimensions	390 mm \times 220 mm \times 152 mm	454 mm \times 275 mm \times 156 mm
Weight	3.3 kg	6.3 kg

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

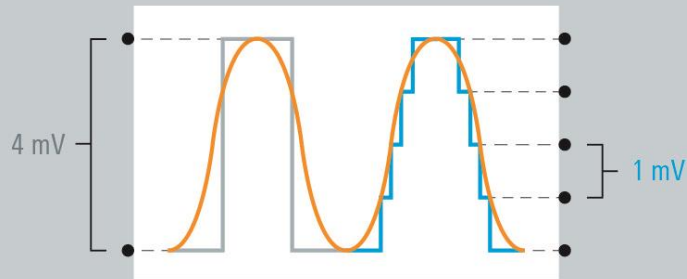
Traditional scope

▶ 8-bit vertical resolution

R&S®RTA4000

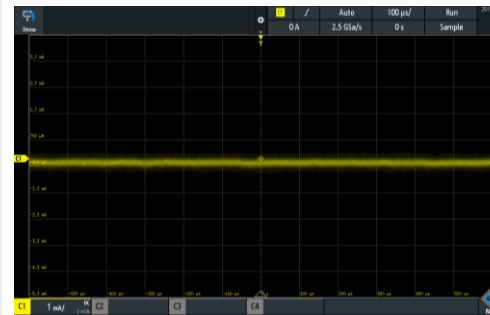
▶ 10-bit vertical resolution

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 features a low-noise frontend designed to take advantage of the 10-bit ADC and allow you to see more signal detail



The 4000 X-Series has three times the noise of the R&S®RTA4000. Higher noise lowers the accuracy of measurements and makes it more difficult to see small details.

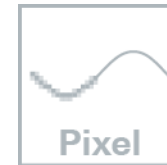
Advantages of R&S®RTA4000 over Keysight 4000 X-Series



4 x
More ADC resolution



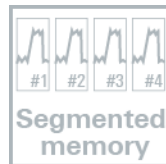
50 x
More memory



2.1 x
More pixels



3 x
Lower noise



250 x
More segmented memory



48 %
Less weight