

## WaveSurfer 4000HD

12 bits all the time.

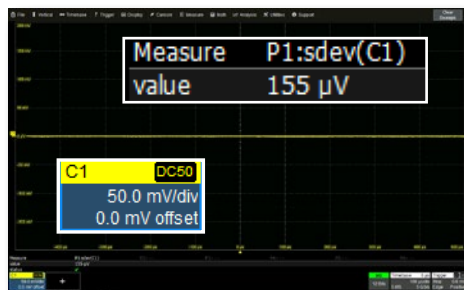
Unrivalled Performance,  
Unbeatable Value.



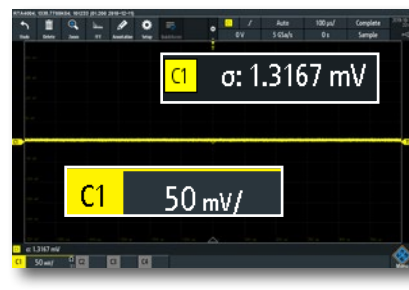
WaveSurfer 4000HD offers the industry's lowest noise, highest precision, and best accuracy.

Baseline Noise (200 MHz model)	WaveSurfer 4024HD	RTA4004
1 mV/div	✓ 65 $\mu$ V	✓ 60 $\mu$ V
10 mV/div	✓ 70 $\mu$ V	X 260 $\mu$ V
50 mV/div	✓ 160 $\mu$ V	X 1400 $\mu$ V
100 mV/div	✓ 270 $\mu$ V	X 2700 $\mu$ V
1000 mV/div	✓ 2.7 mV	X 22.7 mV

Datasheet version: 05.00, April 2019



WaveSurfer 4024HD  
200 MHz, 5 GS/s, 12 bits



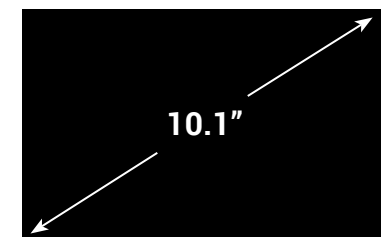
RTA4004  
200 MHz, 5 GS/s, 10-bit ADC  
8x more noise

	WaveSurfer 4000HD	R&S RTA4000
Analog Channels	4	4
Digital (MSO) Channels	16 (with MSO option)	16 (with MSO option)
Bandwidth	200 MHz - 1 GHz	200 MHz - 1 GHz
Resolution	12 bits	10-bit ADC
Noise at 50 mV/div	160 $\mu$ V	1400 $\mu$ V
Maximum Sample Rate	5 GS/s	5 GS/s
Standard Memory (per channel/interleaved)	12.5/25 Mpts	100/200 Mpts
Display Size (Resolution)	12.1" (1280 x 800)	10.1" (1280 x 800)
Waveform update rate	170,000 wfms/sec	64,000 wfms/sec
Gain Accuracy at 1 mV/div	$\pm$ 0.5% of full scale	$\pm$ 2.5% of full scale
Weight	5.3 kg / 11.7 lbs	3.3 kg / 7.3 lbs
H x W x D	273 mm x 380 mm x 160 mm	220 mm x 390 mm x 152 mm
Start up/Boot time	~35 seconds	~13 seconds

WaveSurfer 4000HD has a 12.1" display

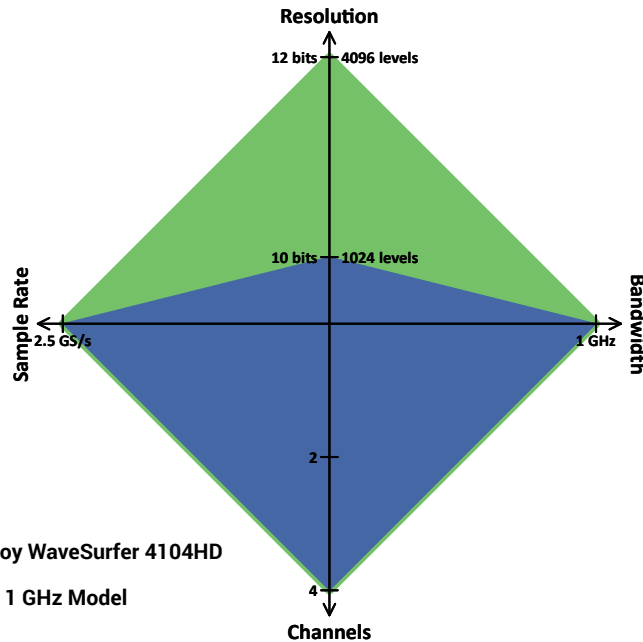


RTA4000 has a 10.1" display

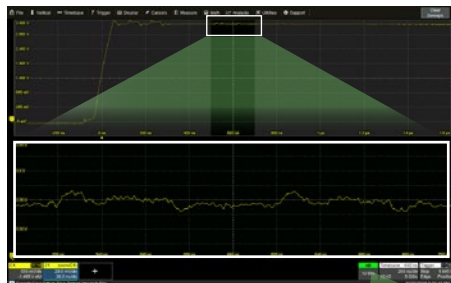


38% bigger

## Teledyne LeCroy WaveSurfer 4000HD vs. R&S RTA4000 Series

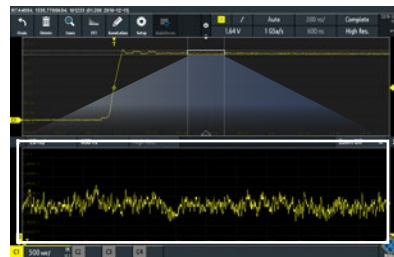


- Teledyne LeCroy WaveSurfer 4104HD
- R&S RTA4004 1 GHz Model



WaveSurfer 4024HD 200 MHz model

**HD**  
12 Bits



RTA4004 200 MHz model

The example above shows a 100x vertical zoom (bottom trace) of the top of a signal. Small variations in signals are not visible on an RTA4000 Series oscilloscope.

## Why does Rohde & Schwarz's RTA4004 with a 10-bit ADC have worse baseline noise compared to an 8-bit oscilloscope?

	12 bits	10-bit ADC	8 bits
Baseline Noise	WaveSurfer 4104HD	R&S RTA4004+B2410	8-bit oscilloscope*
1 mV/div	125 $\mu$ V	110 $\mu$ V	280 $\mu$ V
10 mV/div	130 $\mu$ V	410 $\mu$ V	320 $\mu$ V
50 mV/div	280 $\mu$ V	2400 $\mu$ V	1340 $\mu$ V
100 mV/div	465 $\mu$ V	4600 $\mu$ V	2180 $\mu$ V
1000 mV/div	4.7 mV	31.4 mV	21.1 mV

\* Measured on a Keysight MSOX4104A (not specified in Datasheet).

## WaveSurfer 4000HD has comprehensive probe support

Over 30 probes in 9 categories

