**WaveSurfer 4000HD**

12 bits all the time.

Unrivaled Performance, Unbeatable Value.

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

### Baseline Noise (1 GHz model) | WaveSurfer 4104HD | Tektronix MSO46
---|---|---
1 mV/div | ✓ | 125 μV | 260 μV
10 mV/div | ✓ | 130 μV | 335 μV
50 mV/div | ✓ | 280 μV | 800 μV
100 mV/div | ✓ | 465 μV | 1620 μV
1000 mV/div | ✓ | 4.7 mV | 13.0 mV

Datasheet version: 4W-61558-3 Oct 2019

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**WaveSurfer 4000HD**

### Analog Channels | WaveSurfer 4000HD | Tektronix 4 Series
---|---|---
4 | 4, 6 (without digital) †
16 (with MSO option) | 8 to 48 †
Low | High
200 MHz - 1 GHz | 200 MHz - 1.5 GHz
12 bits | 12-bit ADC † †
280 μV | 800 μV
8.3 (1 GHz model) | 7.6 (1 GHz model)
5 GS/s | 6.25 GS/s † †
12.5/25 Mpts | 31.25 Mpts
12.1” | 13.3”
170,000 wfms/sec | 100,000 wfms/sec
±0.5% of full scale | ±2.5% of full scale
3 kg / 6.6 lbs | 7.6 kg / 16.8 lbs
273 mm x 380 mm x 160 mm | 351 mm x 405 mm x 265 mm
~35 seconds | ~144 seconds

† Every 8 digital channels consumes 1 analog channel.

†† 8-bit resolution at 6.25 GS/s, 12-bit resolution is available at 3.125 GS/s or lower.

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**Teledyne LeCroy’s WaveSurfer 4000HD** is always 12-bit resolution

**The Tektronix 4 Series 12-bit ADC defaults to 8-bit resolution – why?**

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**Default Setup on WaveSurfer 4000HD**

**Firmware version: 8.9.0.2**

**Default Setup on Tektronix 4 Series**

**Firmware version: 1.20.14.7058**

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WaveSurfer 4104HD

1 GHz, 5 GS/s, 12 bits

2.5x more noise

Tektronix MSO46

1 GHz, 3.125 GS/s, 12 bits

HD

12 Bits
WaveSurfer 4000HD vs Tektronix 4 Series

**Teledyne LeCroy WaveSurfer 4000HD vs. Tektronix 4 Series**

- Resolution: 12 bits vs 8 bits
- Bandwidth: 1 GHz vs 2.5 GS/s vs 5 GS/s
- Channels: 4 CH vs 6 CH
  - + MSO = 4 + 16
  - + (TLP058 x 2) = 4 + 16

**Cost**
WaveSurfer 4000HD's dedicated digital logic port does not consume analog channels.

- WaveSurfer 4000HD
- Tektronix 4 Series

**Time**
WaveSurfer 4000HD boots up more than 4x faster than the Tektronix 4 Series.
- WaveSurfer 4000HD
  - ~35 seconds
- Tektronix 4 Series
  - ~144 seconds

**Weight**
WaveSurfer 4000HD is 43% lighter than the Tektronix 4 Series.
- WaveSurfer 4000HD
  - 5.3 kg
- Tektronix 4 Series
  - 7.6 kg

The example above shows a 100x vertical zoom (bottom trace) of the top of a signal. Small variations in signals are lost in quantization noise on the Tek 4 Series.