



R&S®MXO 4 OSCILLOSCOPE versus Tektronix 4 Series MSO



Rohde & Schwarz introduces the first of a new generation of oscilloscopes that excel in both performance and value. Designed with the latest technologies, including 12-bit ADC, 400 Mpoints segmented memory and an industry-leading > 4.5 million waveforms/second capture rate, the R&S®MXO 4 Series delivers a once-in-a-decade engineering breakthrough for accelerated insight.

Your benefit	Features
Find signal anomalies quickly	Unparalleled update rate with a trigger rearm time of < 21 ns makes the R&S®MXO 4 the fastest waveform capturing oscilloscope in the industry.
See your signals accurately	The R&S®MXO 4 has an enhanced 18-bit vertical system resolution with HD mode. Combined with low measurement noise and a digital trigger, you can see and trigger with maximum accuracy and sensitivity.
Capture more time	With ultra-deep memory, the R&S®MXO 4 can record very long durations of waveforms, giving you maximum assurance when monitoring long events while preserving maximum sample resolutions.

Acquisition speed comparison

← R&S®MXO 4, with a trigger rearm time of < 21 ns, allowing it to achieve > 4.5 million wfm/s

Other oscilloscopes with > 100 x trigger rearm time will miss many events

When rearming, the oscilloscope has to discard waveforms that cannot fit into its memory

Faster waveform update rates allow oscilloscopes to see more of your signal, giving them a better chance of capturing possible waveform issues. With over 4.5 million waveform per seconds, the R&S®MXO 4 has the world's fastest update rate, allowing it to capture events that other oscilloscopes would have missed.



For more information, visit
www.rohde-schwarz.com/product/MXO4

Parameter	R&S®MXO 4	Tektronix 4 Series MSO
Acquisition system		
Bandwidth (GHz)	0.2, 0.35, 0.5, 1, 1.5 (upgradable)	0.2, 0.35, 0.5, 1, 1.5 (upgradable)
Channels	4	4, 6
Maximum vertical resolution	18-bit HD mode	16 bit with high resolution
ADC resolution max. sample rate	12 bit	8 bit
Maximum sampling rate	5 Gsamples/s	6.25 Gsamples/s
Maximum memory depth	400 Mpoints/channel (max. 800 Mpoints on 2 channels with option)	31.25 Mpoints/channel 62.5 Mpoints/channel (option)
Segmented/history mode	> 2 Gpoints (1 million segments of 1 k RL)	> 7.5 Mpoints
Waveform update rate	> 4 500 000 waveforms/s	50 waveforms/s 500 000 waveforms/s (FastFrame™)
Spectrum analysis	Hardware accelerated with > 40 000 FFT/s Independent spectrum and time settings with 0.1 Hz resolution bandwidth. Dedicated diagram for spectrum.	FFT function as part of math < 10 FFT/s Up to 64 kpoints resolution with time and spectrum control closely tied. Math diagrams display one at a time.
Signal integrity		
Noise (1 mV/div, 500 MHz, 50 Ω)	54 µV	200 µV
Channel-to-channel isolation	≥ 60 dB (1:1000)	≥ 46 dB (1:200)
Trigger system	Digital	Analog
Trigger sensitivity	0.0001 div (all bandwidths and all scales)	0.7 div or greater (varies by bandwidth)
Timebase accuracy	< 0.2 ppm	±2.5 pp
Hardware options		
Arbitrary function generator	2 channels, 100 MHz, ARB length: 40 Mpoints	1 channel, 50 MHz, ARB memory: 128 kpoints
Mixed signal capabilities (MSO)	400 MHz, 16 channels, 5 Gsamples/s, 400 Mpoints/channel	300 MHz, 16 channels, 8 Gsamples/s, 250 Mpoints/channel
MSO logic channels	Standard 16 channels, does not take up analog channel	Optional – up to 48 channels, each 8-channel pair takes up an analog channel
Form factor		
Display	13.3" Full HD (1920 × 1080 pixel)	13.3" Full HD (1920 × 1080 pixel)
Dimensions (W × H × D)	414 mm × 279 mm × 162 mm	450 mm × 287 mm × 155 mm
Weight	6 kg	7.6 kg


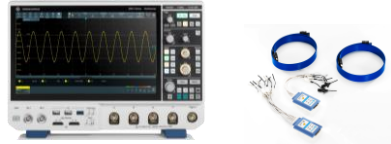


Memory depth comparison

R&S®MXO 4 standard 400 Mpoints memory 800 Mpoints memory and 1.6 Gpoints segmented memory (option)

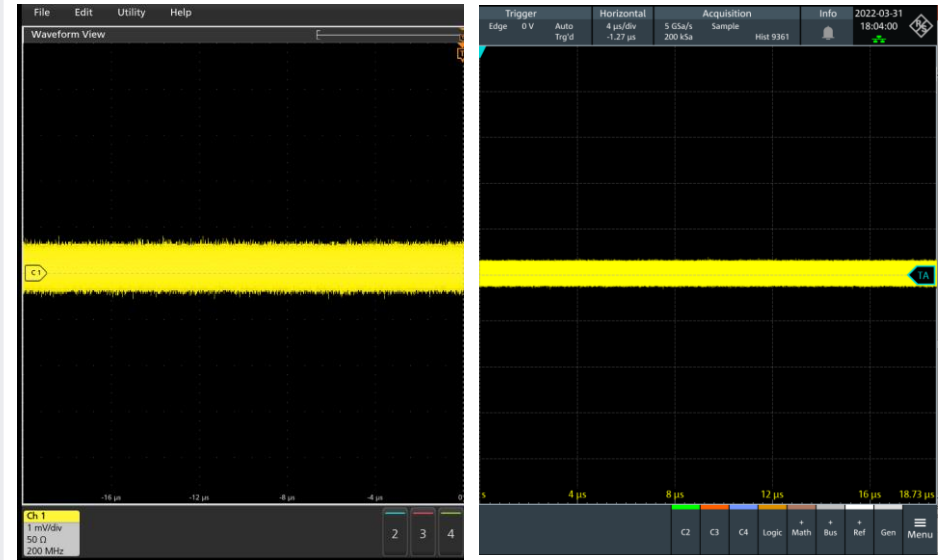
← Even with a memory extension, the Tektronix 4 Series MSO (62.5 Mpoints) falls far short of the R&S®MXO 4

12 times more standard memory means that the R&S®MXO 4 can capture longer periods of time with a high sample rate. The R&S®MXO 4 also excels by offering up to 1 million segmented acquisitions – something no other oscilloscope can.

Investment comparison

Tektronix 4 Series MSO	R&S®MXO 4
	
6 analog channels + 2 digital probes	4 analog channels + 2 digital probes
Cost: 	Cost: 
Digital channels take up expensive analog channels, making the setup more costly	Dedicated MSO channels (standard) – activated by simply connecting a probe

Noise performance



The Tektronix 4 Series MSO (left) has higher system noise even with no input signal. The equivalent for the R&S®MXO 4 is on the right. Both instruments are set at 200 MHz bandwidth and 1 mV/div with 50 ohm input coupling.

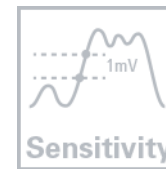
Advantages of the R&S®MXO 4 over the Tektronix 4 Series MSO



~30 %
More cost-efficient MSO setup



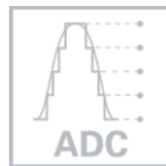
12 x
More memory



7,000 x
Better input sensitivity



90,000 x
Faster waveform update rate



4 x
More vertical resolution



4 x
Less noise

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