




Signal Hound®

VSG60A Vector Signal Generator



Signal Hound designs and builds powerful, affordable spectrum analyzers and signal generators for engineers, operators and RF professionals around the globe.

SIGNAL GENERATION UP TO 40 MHz OF BANDWIDTH WITH EASILY ADDED IMPAIRMENTS - COMPACT AND SIMPLE TO USE.

The VSG60A offers the performance and agility of a fully-featured vector signal generator and includes a powerful software suite. A low phase noise, agile local oscillator with 200 μ s switch time enables frequency hopping spread spectrum testing. A dual 14-bit DAC runs at 2x or 3x the I/Q symbol rate using digital oversampling to provide a flat, clean baseband. A digitally adjustable internal VCTCXO ensures frequency errors are kept to a minimum over temperature, or an external 10 MHz input may be used for zero ppm frequency error. A trigger output is available to synchronize your VSG60A with other test equipment.

APPLICATIONS

- General purpose RF test & measurement
- General purpose RF signal generation
- Arbitrary RF waveform generation
- Pulse / FM chirp generation
- Amplifier EVM testing
- CCDF
- Channel characterization
- WiFi / Bluetooth testing
- Manufacturing test
- Receiver testing with signal impairments
- Antenna pattern measurement

FEATURES

- RF Frequency Range: 50 MHz to 6 GHz
- 40 MHz of real-time streaming bandwidth
- Amplitude Range: -55 dBm to +7 dBm
- Arbitrary I/Q sample rates from 12.5 kSPS to 51.2 MSPS
- Agile, low phase noise LO with 200 μ s switching time
- External 10 MHz input and trigger output



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Production Specifications

Frequency Range	50 MHz to 6.0 GHz												
Streaming Modulation Bandwidth	• 40 MHz												
Arbitrary I/Q Sample Rates	• 12.5 kSPS to 51 MSPS • Includes 30.72 MSPS for LTE												
Frequency Switch Time	Queued Frequency Step Time: 200 μ s												
Timebase Accuracy	• ± 1 ppm per year												
Amplitude Accuracy	Range: +7 dBm to -55 dBm Accuracy: +/- 2 dB (0.5 dB typical) Baseband • Flatness (20 MHz), ± 0.25 dB typical Baseband • Flatness (40 MHz), ± 0.5 dB typical												
Error Vector Magnitude	0.3% typical (1 GHz carrier, 1 MSPS QAM 16, Alpha = 0.35, raised cosine)												
Phase Noise (1 GHz)	<table><thead><tr><th>Offset Frequency</th><th>dBc/Hz typical</th></tr></thead><tbody><tr><td>• 100 Hz</td><td>-89</td></tr><tr><td>• 1 kHz</td><td>-114</td></tr><tr><td>• 10 kHz</td><td>-125</td></tr><tr><td>• 100 kHz</td><td>-127</td></tr><tr><td>• 1 MHz</td><td>-135</td></tr></tbody></table>	Offset Frequency	dBc/Hz typical	• 100 Hz	-89	• 1 kHz	-114	• 10 kHz	-125	• 100 kHz	-127	• 1 MHz	-135
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• 100 Hz	-89												
• 1 kHz	-114												
• 10 kHz	-125												
• 100 kHz	-127												
• 1 MHz	-135												
Non-harmonic spurious	-50 dBc typical for most signals												
Harmonics	-35 dBc typical												
Operating Temperature	Standard 32°F to 122°F (0°C to +50°C)												
Size and Weight	• 8.63" x 3.19" x 1.19" (219mm x 81mm x 30mm) • 0.81 lb. (367 gm)												
Power Consumption	• 6 Watts (typ)												
Interface	USB 3.0												
System Requirements	Windows or Linux Operating System, x64_86 architecture												

Ordering Options

Standard, Temperature Range 32°F to 122°F (0°C to +50°C)

PREPROGRAMMED MODULATION TYPES

CW AM, FM, Pulse, Multitone, Sweep, AWGN, FSK, GFSK, OOK, ASK, MSK, GMSK, BPSK, DBPSK, QPSK, DQPSK, Pi/4DQPSK, OQPSK, 8-PSK, 16-PSK, 16-QAM, 64-QAM, 256-QAM, Custom OFDM, 802.11a/n/ac/ax, arbitrary

DIGITAL MODULATION IMPAIRMENTS

AWGN, I/Q imbalance, multi-path, phase noise, I/Q offset, Sample rate/frequency error, custom channel response

CUSTOM MODULATION

Use the API to continuously stream I/Q data to the VSG60A at an arbitrary sample rate up to 51.2 MSPS, or use the software to load a CSV, binary short int, or binary floating point I/Q file. Corrections are automatically applied as the data is streamed to the VSG60A.