Signal Hound®

VSG25A Vector Signal Generator

Signal Hound designs and builds premium accessible test and measurement equipment for engineers and RF professionals around the globe.

VECTOR SIGNAL GENERATION UP TO 100 MHz OF MODULATION BANDWIDTH, FORTIFYING UNIQUE VALUE AND PERFORMANCE.

The VSG25A is a 100 MHz to 2.5 GHz vector signal generator, featuring a 12-bit I/Q baseband arbitrary waveform generator which can be clocked at virtually any frequency from 54 kHz to 180 MHz, and includes a 4096×16 bit pattern buffer for built-in or custom modulation. With an output amplitude from -40 to +10 dBm and 100 MHz of modulation bandwidth, the VSG25A covers most telecom frequencies as well as two major ISM bands (902 to 928 MHz and 2.4 to 2.5 GHz). The low end operates down to 80 MHz with reduced amplitude accuracy, covering the FM broadcast bands.

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
- Manufacturing test
- Antenna pattern measurement

FEATURES

- RF Frequency Range: 100 MHz to 2.5 GHz
- Output Amplitude from -40 to +10 dBm
- 100 MHz of Modulation Bandwidth
- Frequency Resolution: <1 Hz
- Pulse: 6 ns to 25 ms width, 12 ns to 1 second period
- Multi-tone: Up to 1023 tones with optional center notch

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Production Specifications

Frequency Range	100 MHz to 2.5 GHz (useable down to 80 MHz)
Frequency Resolution	< 1 Hz
Timebase	• Accuracy (excluding temperature drift): ± 5 ppm / year • Temperature Drift: typically -0.2 ppm / °C. • Adjustable to ± 1 ppm
Amplitude	• CW Absolute Amplitude Accuracy: -40 to +10 dBm, ± 1.5 dB
Dac Clock/Sample Rate	• 53.333 kHz to 180 MHz
Typical SSB Phase Noise (1 GHz)	Offset Frequency — dBc/Hz typical • 100 Hz — -68 • 1 kHz — -88 • 10 kHz — -102 • 100 kHz — -105 • 1 MHz — -132
AM/FM	• Modulation Rate: 30 Hz to 40 MHz • AM THD: < 1% • FM THD: < 0.1% (0.01% typical)
Pulse	• Pulse width: 6 ns to 25 ms • Duty cycle minimum: 0.00025% (pulse period ≤1.0 s) • Duty cycle maximum 99.9% (“off” time > 6 ns) • On / off ratio > 45 dB (typically 60 dB)
Multi-Tone	• Tone count, 2 to 1023 with optional center notch • Tone spacing: 1 kHz to 10 MHz • Tone Phase Relationship: parabolic or random
Operating Temperature	Standard 32°F to 122°F (0°C to +50°C)
Size and Weight	• 5.5” x 2.25” x 1.0” (140mm x 57mm x 25mm) • 0.5 lb. (227 gm)
Power Consumption	• 2 Watts (typ)
Interface	USB 2.0
System Requirements	Windows Operating System, x64_86 architecture

PREPROGRAMMED MODULATION TYPES

• AM, FM, CW, FSK, GFSK, OOK, ASK, MSK, GMSK, BPSK, DBPSK, QPSK, DQPSK, Pi/4DQPSK, OQPSK, 8-PSK, 16-PSK, 16-QAM, 64-QAM, 256-QAM.

• Filters: Raised cosine, root raised cosine, gaussian, alpha 0.01 to 1.0

• Pattern: PN7, PN9, and custom

CUSTOM MODULATION

• Input I/Q data: User-generated csv file

• Pattern Length: 2 to 2048 samples

• Pattern Period: 2 to 65,535 samples

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