VSG25A Vector Signal Generator

100 MHz to 2.5 GHz

100 MHz Modulation Bandwidth

-40 dBm to +10 dBm output power

Easily generate analog, digital, and arbitrary waveforms

1000+ simultaneous tones

6 nanosecond pulses

USB-powered, Low-cost

Built in support for BPSK, DBPSK, QPSK, OQPSK, DQPSK, π/4 DQPSK, 8-PSK, D8PSK, 16-PSK, QAM16, QAM64, QAM256, ASK, FSK, GFSK, OOK, MSK, and GMSK modulation types

Symbol rates from 4k to 45M with RC, RRC, and Gaussian filters

Alpha of .01 to 1.0

www.SignalHound.com
VSG25A Vector Signal Generator
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The VSG25A hardware features 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 4096x16 bit pattern buffer for built-in or custom modulation.

**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

**TYPICAL SSB PHASE NOISE (1 GHZ)**

<table>
<thead>
<tr>
<th>OFFSET</th>
<th>dBC / Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 Hz</td>
<td>-68</td>
</tr>
<tr>
<td>1 kHz</td>
<td>-88</td>
</tr>
<tr>
<td>10 kHz</td>
<td>-102</td>
</tr>
<tr>
<td>100 kHz</td>
<td>-105</td>
</tr>
<tr>
<td>1 MHz</td>
<td>-132</td>
</tr>
</tbody>
</table>

**MODULATION MODES 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 TEST PATTERN**
- Tone count, 2 to 1023 with optional center notch
- Tone spacing: 1 kHz to 10 MHz
- Tone Phase Relationship: parabolic or random

**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

**DAC CLOCK/SAMPLE RATE** 53.333 kHz to 180 MHz

**MECHANICAL / ENVIRONMENTAL**
- RF output connector: SMA (f)
- Power Requirements: USB 2.0 port
- Operating temperature (calibrated): 18°C to 28°C
- Operating temperature (uncalibrated): 0°C to 50°C
- Size: 5.5” x 2.25” x 1”
- Weight: 5 oz.

**SYSTEM REQUIREMENTS**
Windows® 7, 8, or 10 operating system and one USB 2.0 port.