

# Product Description

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 4096×16 bit pattern buffer for built-in or custom modulation.

The included software automatically generates:

- CW: 100 MHz to 2.5 GHz, -40 dBm to +10 dBm
- Unspecified operation down to 80 MHz, or -70 dBm to +13 dBm
- AM / FM: 30 Hz to 40 MHz modulation rates, sine, triangle, square, ramp
- Pulse: 6 ns to 25 ms width, 12 ns to 1 second period
- Multi-tone: Up to 1023 tones with optional center notch
- Use random phase + notch for Noise Power Ratio testing
- Use parabolic phase for best signal / noise
- PSK: BPSK, DBPSK, QPSK, OQPSK, DQPSK,  $\pi/4$  DQPSK, 8-PSK, D8PSK, 16-PSK
- 4k to 45M symbols per second
- Optional raised cosine, root raised cosine filtering
- Up to 512 symbols, streamed continuously in a loop
- Binary symbol editor features 1-click insertion of PN7 / PN9 sequences
- QAM: QAM-16, QAM-64, QAM-256 (same features as PSK)
- ASK / FSK: 4k to 45M symbols per second
- Optional Gaussian filtering
- Up to 512 symbols, streamed continuously in a loop
- Sweep
- Arbitrary Custom Modulation
- Load a CSV file with I and Q values, specify center frequency, amplitude, pattern length (up to 2048), pattern period (up to 65535), and clock rate.

The VSG25A vector signal generator does have some limitations. The pattern buffer is small and cannot be upgraded. There is no reconstruction filter on the I/Q baseband, resulting in out-of-band spurious signals, and there is a single 2.7 GHz low pass filter on the RF output, so 3<sup>rd</sup> harmonics below 3.6 GHz may need to be filtered externally. If these are not show-stoppers for you, the VSG25A is an unbeatable value.