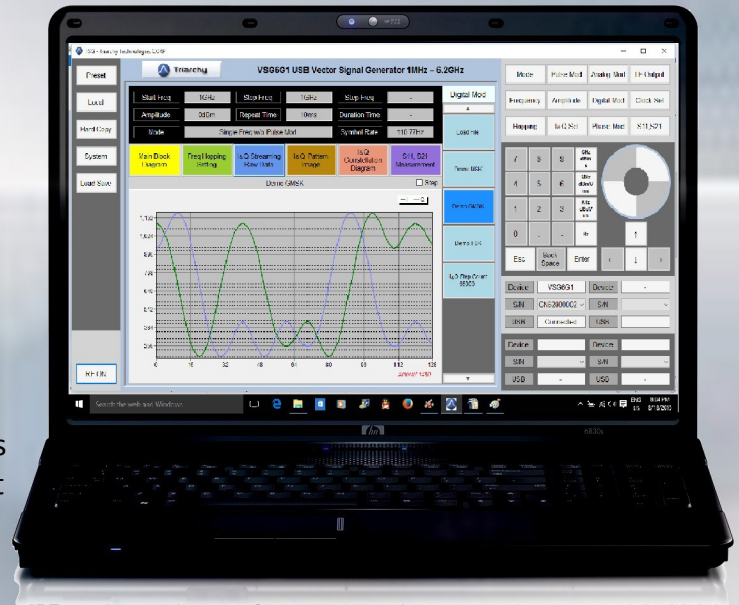




VSG2G1 USB Vector Signal Generator

VSG2G1 is a very cost effective USB vector signal generator. Its capabilities are comparable to the basic functions of a regular full size RF vector signal generator. VSG2G1 is miniature and portable equipment, but it has more features and functions than full size analog RF signal generators, with frequency range up to 2.2GHz, frequency sweep, and frequency hopping using I&Q modulation with arbitrary signal generator. It can generate most of all RF signal modulation so that many test functions can be customized to meet the needs of proprietary and other nonstandard wireless protocols. You can configure this device to meet a wide variety of test tasks.

VSG2G1 is very suitable for the field test, because it is very small and convenient to carry. It can also work at ATE system as module, being able to simulate a lot of RF system for test purpose.



Key features

- Frequency range up to 2.2GHz
- Output level up to 10dBm
- Frequency in CW, sweeping and hopping mode
- Built-in pulse generator and generate pulse modulation
- Built-in arbitrary function generator and generate I&Q modulation
- AM, PM, FM analog modulation and more analog modulation
- FSK, ASK, PSK, MSK, GMSK, SFSK and more digital modulation
- QPSK, 8PSK, QAM and more Phase modulation
- CDMA, TDMA, GSM and more system physical layer data frame
- Any kind modulation generated with built-in I&Q engine
- LF output with arbitrary function generator
- Pulse output with pulse generator
- Extra Low cost, extra low weight, best performance price rate
- Expandable architecture
- External I&Q input, up to 500MHz bandwidth
- Reference clock input and output
- USB power without extra battery pack
- Device dimension is 100x25x25mm, Weight is 90g.





Specification for Frequency

Frequency range :

Band 0: 1MHz ~30MHz

Band 1: 30MHz ~2200MHz

Frequency resolution:

1 KHz with PLL setting

Frequency offset:

+/-2Hz to +/-1KHz with I&Q Modulation setting

* frequency offset only can setup at single frequency mode any without modulation

Frequency stability

+/-2.5PPM over temperature -20~+60 degree

Frequency aging per year

+/-1PPM

Frequency reference output:

12MHz

Frequency reference input:

10MHz

Specification for amplitude

output level range :

Band 0: -21dBm~10dBm

Band 1: -21dBm~10dBm

output level resolution:

1dB

output level error:

<3dB

Phase noise:

-90dBc/Hz offset 10 KHz at 1GHz

-105dBc/Hz offset 100 KHz at 1GHz

-120dBc/Hz offset 1MHz at 1GHz



Specification for Pulse modulation

Pulse modulation repeat time
400uS to 20s
Pulse modulation duration time
10us to 5S
Multiple pulse number
2~250
Multiple pulse delay
100us~5s (last pulse cannot be overlay with first pulse)
On/off ratio
>90dB

Specification for

Frequency sweeping with/ without pulse modulation

Span range:
1 KHz to full span
Scan points range:
2 to 50000
Frequency step range:
1 KHz to 1GHz
Pulse period in sweeping mode :
Sweeping repeat time is from 400uS to 20s
Pulse width in sweeping mode
Pulse duration time is from 10us to 10s
* If it is in "sweeping w/o Pulse mod", this parameter is no function

Specification for

Frequency hopping with/ without pulse modulation

Frequency hopping range:
30MHz to 2.2GHz
Frequency hopping number:
2~4000
Pulse period in hopping mode :
Hopping repeat time is from 400uS to 20s
or 2500 hop/s to 0.05 hop/s
Pulse width in hopping mode:
Pulse duration time is from 10us to 10s
* If it is in "hopping w/o pulse mod", this parameter is no function



Specification for I&Q unit for analog modulation

FM modulation in Demo:

Modulation frequency range: 1.54Hz to 3.33KHz

Modulation index 20

FM modulation by defined the file, load different file:

Modulation frequency range: 1.54Hz to 33.3KHz

Modulation index 0.5 to 20

AM modulation in Demo:

Modulation frequency range: 30.77Hz to 66.7KHz

Modulation index 90%

AM modulation by defined the file, load different file:

Modulation frequency range: 1.54Hz to 66.7KHz

Modulation index 10% to 90%

PM modulation in Demo:

Modulation frequency range: 30.77Hz to 66.7 KHz

Modulation index 180 degrees

PM modulation by defined the file,load different file:

Modulation frequency range: 30.77Hz to 66.7KHz

Modulation index 36 degree to 288 degree

*Define the I&Q RAW data file, any kind of analog modulation can be achieved. Such as RF narrow band noise generator

Specification for I&Q unit for Digital modulation

MSK modulation in Demo:

Data rate rage: 110b/s to 240Kb/s

Data depth: 400 bit

GMSK modulation in Demo:

Data rate rage: 110b/s to 240Kb/s

Data depth: 400 bit

BT=0.3

FSK modulation in Demo:

Data rate rage: 27.7b/s to 60Kb/s

Data depth: 25 bit

* Define the I&Q data file, study different I&Q pattern, internal I&Q engine will generate most kinds of digital modulation; Such as SFSK.



Specification for I&Q unit for phase modulation

QPSK modulation in Demo:

Data rate range: 2.2kb/s to 4.8Mb/s
Symbol rate range: 1.1KHz to 2.4MHz
Data depth: 4000 bit

8PSK modulation in Demo:

Data rate range: 3.3kb/s to 7.2Mb/s
Symbol rate range: 1.1KHz to 2.4MHz
Data depth: 4000 bit

16QAM modulation in Demo:

Data rate range: 4.4kb/s to 9.6Mb/s
Symbol rate range: 1.1KHz to 2.4MHz
Data depth: 4000 bit

Define the I&Q data file, study different I&Q pattern, internal I&Q engine will generate most kinds of phase modulation; Such as 32QAM.

Specification for I&Q external modulation

Baseband signal bandwidth:

500MHz

I&Q signal level:

1Vpp

I&Q port impedance:

200 ohm

* any kind of modulation will be depend on the input of I&Q signal

Specification for LF output

SIN Waveform in Demo:

Waveform pattern length: 72 points
Frequency range: 15.4Hz to 33.3 KHz
Signal level: 1VPP

Triangle Waveform in Demo:

Waveform pattern length: 36 points
Frequency range: 30.8Hz to 66.6 KHz
Signal level: 1VPP



Spiral waveform in Demo :

Waveform pattern length: 720 point

Frequency range: 1.54Hz to 3.33 KHz

Signal level 1VPP

Total I&Q raw data length:

4Kb

I&Q points range

30 to 65000

*Define the I&Q data file, study different pattern, internal I&Q engine will generate most kinds of signal waveform .

Output port:

From 4 MMCX connectors (IP, IN, QP, QN) at side of body.

Specification for Pulse signal output

Pulse signal level:

High level 3.3V, low level 0V

Pulse repeat time

400uS to 20s

Pulse duration time

10us to 5S

Multiple pulse number

2~250

Multiple pulse delay

100us~5s (last pulse cannot be overlay with first pulse)

Output port:

From MMCX connector (Pulse) at rear panel