

YSG-H060

Handheld Vector Signal Generator

At a Glance

The YSG-H060 features a 10.1-inch multi-touch display and an intuitive interface. Weighing only 1.4 kg, it is ideal for both laboratory and field applications.



RF Performance Within Reach

The YSG-H060 delivers top-tier RF performance, including wide output power range, low harmonics, low phase noise, and excellent spur suppression. It features a high-performance 16-bit DAC for high-quality baseband signal output, built-in high-speed memory supporting up to 100 MHz playback and 50 MHz real-time IQ streaming, and an FPGA-based high-factor interpolator for fine sample rate adjustment. The YSG-H060 delivers excellent performance and portability while maintaining outstanding cost-effectiveness.

Standard Comprehensive Signal Output Functions

The YSG-H060 comes standard with a wide range of essential test signal generation functions, including single tone, multi-tone, frequency sweep, power sweep, digital ramp sweep, pulse modulation, and Gaussian white noise. Additionally, the series supports analog modulation schemes such as AM, FM, and PM, alongside robust IQ playback and real-time streaming capabilities.

Key Features

- **Frequency:**
9 kHz to 6 GHz
- **Modulation Bandwidth:**
100 MHz playback, 50 MHz real-time
- **Memory depth:**
128 MB (32 M samples)
- **1 GHz phase noise:**
-124 dBc/Hz@10 kHz
- **Maximum output power:**
7 dBm to 14 dBm, 25 dBm (opt.)
- **Minimum output power:**
≤-100 dBm across full frequency range
- **Harmonics:**
≤-50 dBc (0 dBm output, typical)
- **16-bit DAC**
for high-quality baseband waveform
- **FPGA-based**
high-performance interpolator
- **Fine sampling rate adjustment**
supported
- **Fine reference frequency adjustment**
supported
- **Built-in GNSS**
for timing, positioning, and frequency calibration
- **Supports**
remote control
- **Battery life:**
2.5 hours; supports power-bank operation
- **Portable design:**
1.4 kg with a 10.1-inch multi-touch display

RF Output

RF output N (F), output impedance 50 Ω

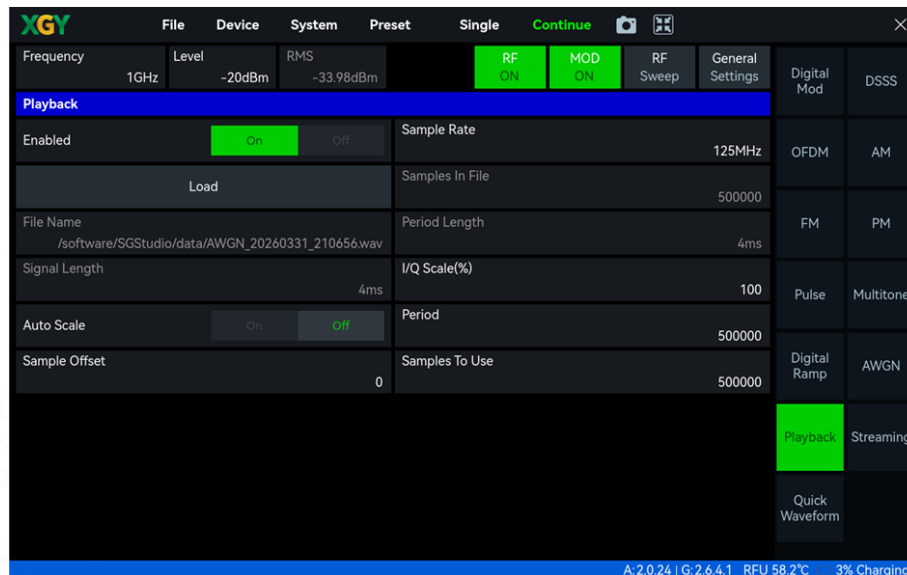
RF OUT 50 Ω

10 VDC MAX



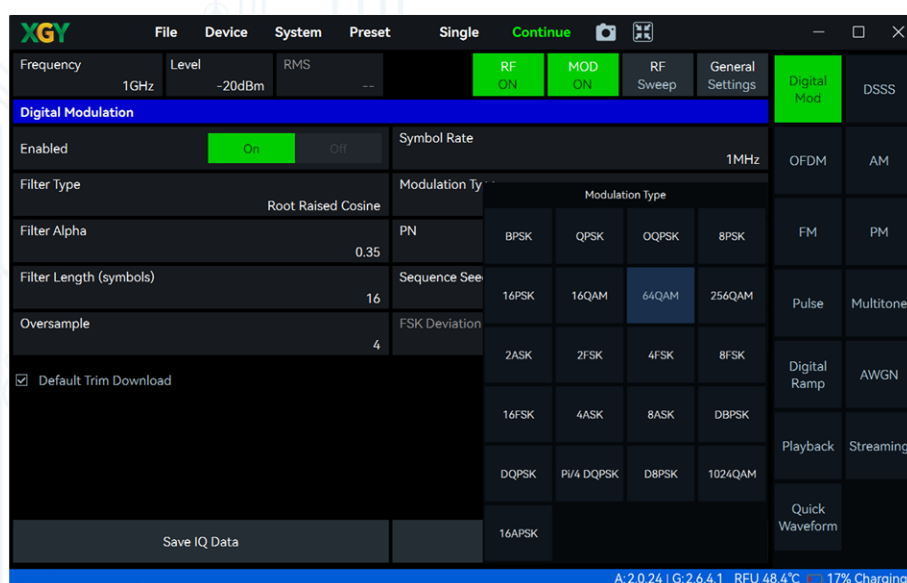
IQ Streaming and Playback

SGStudio supports continuous real-time waveform streaming from the host for playback, as well as waveform buffering in the device's internal memory for subsequent playback. Buffered playback supports wider signal bandwidth and requires no host intervention during playback, thereby fully freeing host processing resources. In buffered playback mode, the maximum waveform length is limited by the capacity of the device's internal memory.



Digital Modulation Signal Output

Engineered for versatility, the YSG-H060 supports an extensive library of modulation schemes, ranging from fundamental ASK, FSK, and PSK to high-order 1024QAM. The architecture is specifically optimized for modern wireless standards, with support for DSSS and OFDM to facilitate advanced signal generation for both field testing and R&D verification.



Supports analog modulation formats, including AM, FM, and PM. Each of the three modulation types supports a variety of modulation signal formats, with configurable parameters including modulation rate, modulation index, frequency deviation, phase deviation, and initial phase, accommodating routine analog modulation signal generation and RF testing requirements.

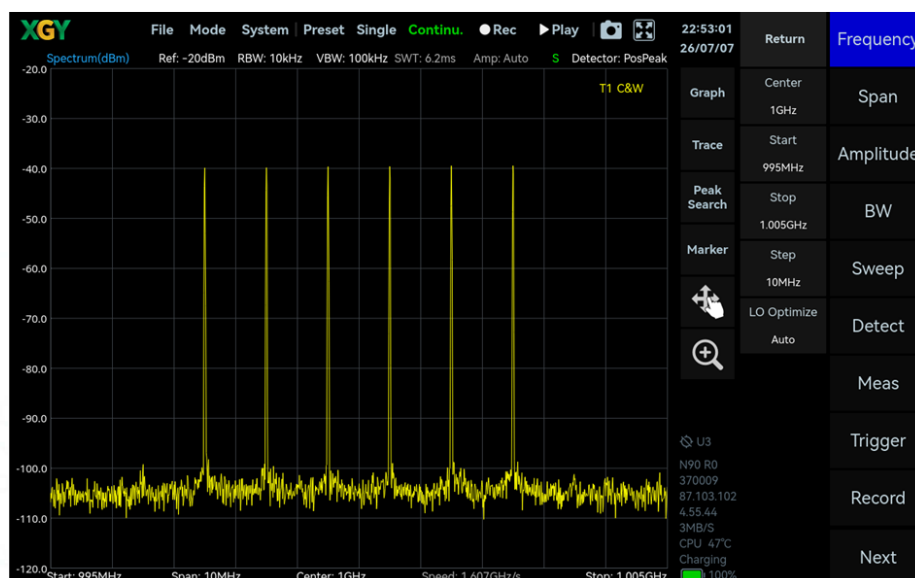


Supports basic pulse signal output with configurable pulse repetition period, duty cycle, and pulse width.



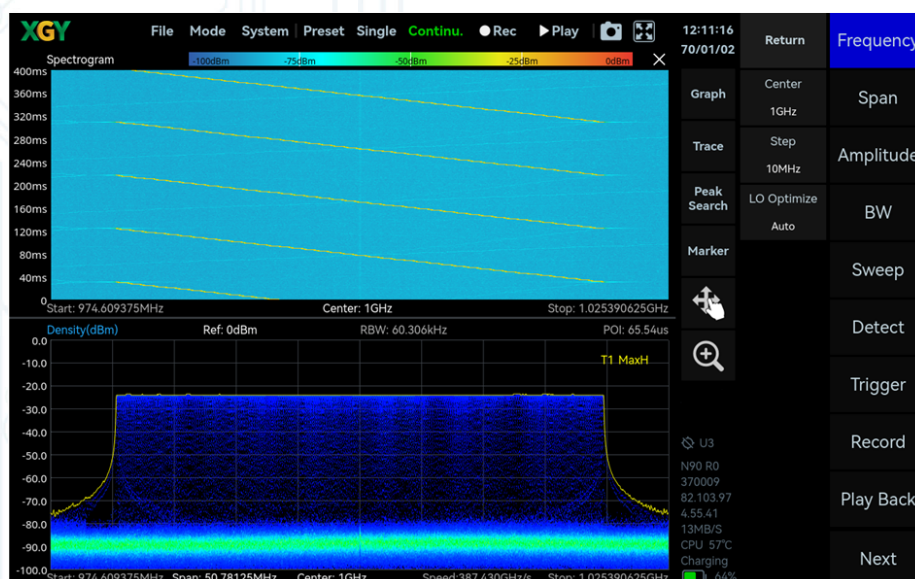
Multitone Signal Output

The YSG-H060 supports the generation of multi-tone RF signals composed of multiple discrete tones. Users can configure the number of tones, tone spacing, and phase mode. In-band notches can also be configured relative to the RF center frequency, making this function suitable for dynamic range, intermodulation distortion, and frequency-response flatness testing.



Digital Ramp Sweep

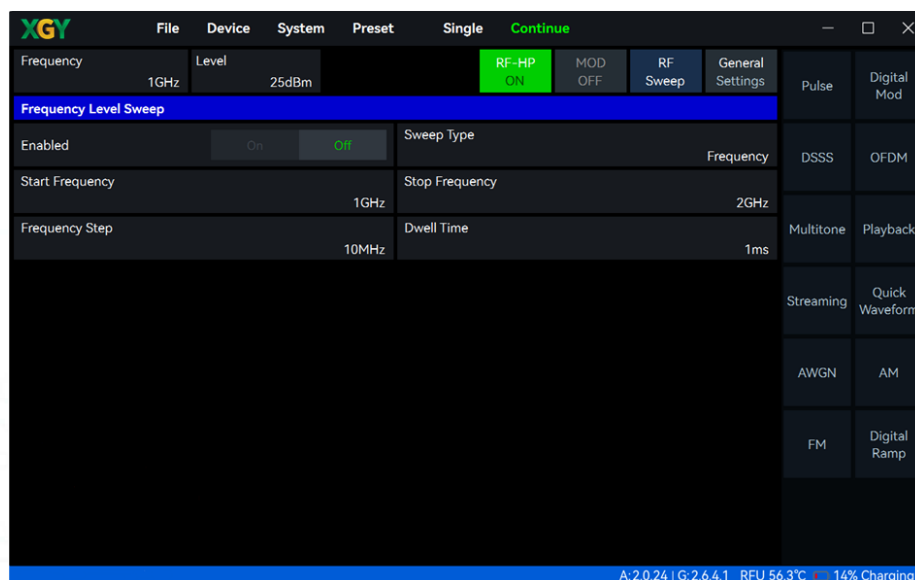
Supports linear digital ramp frequency sweeps with configurable sweep span, sweep time, and sweep period. This function is suitable for radar signal simulation, wideband excitation, and frequency-response testing.



Medium Power Output (opt.YSG-H060-10)

The YSG-H060 offers an optional medium-power RF output port, delivering up to 25 dBm of output power over the 10 MHz to 6 GHz frequency range. This option is ideal for applications requiring higher excitation levels, such as device testing and system integration.

*Some spectrum and waveform illustrations are shown using measurement screens from spectrum analyzer software.



*Specifications apply under the following conditions:

- (1) 10 min warm-up after power-on
- (2) Ambient temperature: 25 °C (instrument temperature: 50 °C)
- (3) With adequate cooling ensuring both ambient and core temperatures remain within the rated range

Frequency

Specification	Value
Frequency range	9 kHz to 6 GHz
Frequency resolution	Output frequency <500 MHz 1 Hz 500 MHz ≤ Output frequency ≤ 6 GHz 0.1 Hz
LO switching time	≤ 100 us pre-programmed ≤ 50 ms software controlled
Reference clock	Internal or external, manual correction or GNSS calibration is available
Frequency accuracy	≤ 0.25 ppm, supports GNSS correction
Aging and temperature stability	≤ 1 ppm/year, ≤ 0.25 ppm
Built-in GNSS 1PPS accuracy	± 100 ns

SSB phase noise (dBc/Hz)

Carrier frequency	1 GHz	3 GHz	6 GHz
1 kHz	-115	-105	-98
10 kHz	-124	-114	-108
100 kHz	-125	-116	-110
1 MHz	-138	-128	-122

Spectrum Purity

Specification	Value
Harmonics CW, 0 dBm	100 MHz $\leq$ -45 dBc 1 GHz $\leq$ -50 dBc 3 GHz $\leq$ -60 dBc 6 GHz $\leq$ -75 dBc
Non-harmonic spurious	9 kHz - 500 MHz Worst-case spurious $\leq$ -50 dBc 500 MHz - 6 GHz 1 MHz step size, 20 MHz observation bandwidth Spurious level $\leq$ -80 dBc at approximately 98% of frequency points, worst-case spurious $\leq$ -55 dBc
EVM (Typical)	1 GHz $\leq$ 0.3% 1 MSPS QAM 16, Alpha = 0.35 $\leq$ 0.5% 10 MSPS QAM 64, Alpha = 0.35 6 GHz $\leq$ 0.5% 1 MSPS QAM 16, Alpha = 0.35 $\leq$ 1.0% 10 MSPS QAM 64, Alpha = 0.35

Amplitude

Specification	9 kHz	100 MHz	1 GHz	3 GHz	6 GHz
Max. output power (dBm)	$\geq$ 0	$\geq$ 7	$\geq$ 14	$\geq$ 14	$\geq$ 7
Min. output power (dBm)	$\leq$ -100	$\leq$ -100	$\leq$ -100	$\leq$ -100	$\leq$ -100

Amplitude

Specification	Value
Power accuracy (Guaranteed/Typical)	Output power $\geq$ -45 dBm $\pm$ 1.2 dB / 0.7 dB Output power: -80 dBm to -45 dBm $\pm$ 1.5 dB / 1.2 dB Output power: -100 dBm to -80 dBm $\pm$ 2.0 dB / 1.8 dB
Power setting step size	0.1 dB

Signal Processing

Specification	Value
Standard function	Single tone, multitone, frequency sweep, power sweep AM, FM, PM, pulse modulation, digital ramp sweep Gaussian white noise, IQ playback, real-time IQ streaming
Modulation bandwidth	100 MHz RAM playback, 50 MHz continuous streaming
Built-in memory depth	128 MB (32 M samples)
IQ sampling rate	195.3125 kHz to 125 MHz, step size ≤ 10 Hz
Basic modulation signal generation	APSK: 16APSK ASK: 2ASK, 4ASK, 8ASK FSK: 2FSK, 4FSK, 8FSK, 16FSK QAM: 16QAM, 64QAM, 256QAM, 1024QAM PSK: BPSK, QPSK, 8PSK, 16PSK, DBPSK, DQPSK, D8PSK, Pi/4 DQPSK

Input and output

Specification	Value
Power	USB PD (65 W), supports power bank operation
RF output	N (F), output impedance 50 Ω
USB port	USB3.0 Type-C * 1, USB2.0 Type-C * 1, USB2.0 Type-A * 1
Ethernet port	RJ45, 1000 Mbps, supports LAN remote control
Video and audio interface	Micro HDMI * 1 (supports extended display), 3.5 mm headphone port * 1
External reference clock input	MMCX (F), 10 MHz, amplitude ≥ 1.5 Vpp, impedance 200 Ω
Reference clock output	MMCX (F), 100 MHz, 3.3V CMOS, programmable On/Off
External trigger input	MMCX (F), 3.3V CMOS, high impedance
Trigger output	MMCX (F), 3.3V CMOS
GNSS antenna input	MMCX (F)

General

Specification	Value
Display	IPS LCD 1280 $\times$ 800, 10.1-inch multi-touch screen
RAM / EMMC storage	4 GB/32 GB
Compute module	Raspberry Pi Compute Module 5
Processor	Broadcom BCM2712, Quad-core 64-bit Arm Cortex-A76, 2.4 GHz
Power consumption	35 W (typ.)
Battery life	2.5 hours (typ.)
Size (D $\times$ W $\times$ H)	260 $\times$ 185 $\times$ 46 mm
Weight	1.4 kg
Built-in GNSS 1PPS accuracy	± 100 ns, the built-in GNSS requires an external antenna
Operating temperature (ambient)	0 to 50 $^{\circ}\text{C}$
Storage temperature (ambient)	-20 to 70 $^{\circ}\text{C}$
Operating relative humidity	Ambient Temp.: 0 to 40 $^{\circ}\text{C}$ 5 to 75% Ambient Temp.: >40 $^{\circ}\text{C}$ 5 to 45%
Packaging accessories	Main unit * 1, power adapter * 1, power cable * 1

Medium Power Output(opt.YSG-H060-10)

Specification	Value
Frequency range	10 MHz to 6 GHz
Maximum output power	≥25 dBm (typ.)
Minimum output power	≤-80 dBm (typ.)
Power accuracy (Guaranteed / Typical)	Output power: ≥-20 dBm ±1.2 dB / 0.7 dB Output power: -60 dBm to -20 dBm ±1.5 dB / 0.7 dB Output power: -80 dBm to -60 dBm ±2.5 dB / 1.2 dB
Harmonics (CW, 0 dBm)	100 MHz ≤-55 dBc 1 GHz ≤-50 dBc 3 GHz ≤-42 dBc 6 GHz ≤-46 dBc

Options

Model / Option	Description
Code	
YSG-H060-05	Internal high precision GNSS built-in hardware
YSG-H060-10	Medium power output built-in hardware

XGY Pty Ltd

Sydney Engineering Centre

Email: info@xgytek.com | Web: www.xgytek.com

