Function/Arbitrary Waveform Generators

RIGOL's Function / Arbitrary Waveform generator adopts the latest Direct Digital Frequency Synthesis technology (DDS) to generate accurate and stable regular waveforms (such as sine waves and square waves) as well as the Analog or Digital modulated signals. What's more, the generator also provides arbitrary waveform function which allows engineers to generate any desired waveforms either using the UltraWave arbitrary waveform editing software or using the oscilloscope to capture the actual signal and then downloading it to the generator. The digital sampling technology and the Direct Digital Frequency Synthesis technology enable engineers to generate any desired waveform for circuit verification design.

RIGOL has introduced a complete range of Function / Arbitrary Waveform generators in the past years includes DG1000Z, DG2000, DG4000, DG5000, DG900 and DG800 series with up to 350MHz frequency, 1 GSa/s sample rate, 14 bits vertical resolution, 128M points arbitrary waveform memory. The rich features let RIGOL's generators to be the excellent circuit debug tools for engineers.

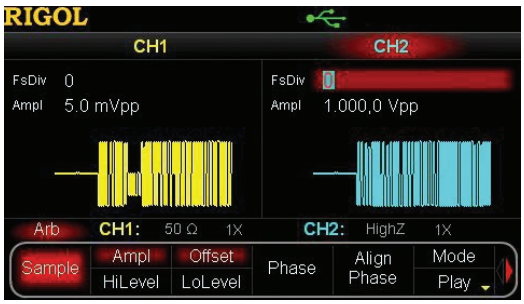
Max. Output Frequency(MHz)													Channels	Max. Sample rate	Max. Arb Memory Depth	waveform generation technology	Modulation Types
	10	25	30	35	50	60	70	100	160	200	250	350					
DG800	●	●		●									1/2	125MSa/s	2M (8M Opt.)	SiFi II	AM,FM,PM,ASK,FSK, PSK,PWM
DG900					●		●	●					2	250MSa/s	16M	SiFi II	AM,FM,PM,ASK,FSK, PSK,PWM
DG1000Z					●		●	●					2	250MSa/s	8M/2M (DG1022Z) (16M Opt.)	SiFi II	AM,FM,PM,ASK, FSK,PSK,PWM
DG2000					●		●	●					2	250MSa/s	16M	SiFi II	AM,FM,PM,ASK, FSK,PSK,PWM
DG4000						●		●	●	●			2	500MSa/s	16K	DDS	AM,FM,PM,ASK,FSK, PSK,BPSK,QPSK,3FSK, 4FSK,OSK,PWM
DG5000							●	●			●	●	1/2	1GSa/s	128M	DDS	AM,FM,PM,ASK,FSK, PSK,PWM,IQ

DG5000 Series Function/Arbitrary Waveform Generators

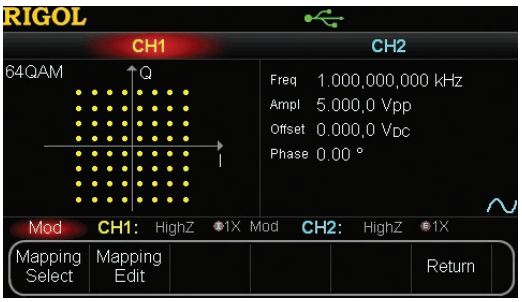
DG5000 is a multifunctional generator that combines many functions in one, including Function Generator, Arbitrary Waveform Generator, IQ Baseband Source/IQ IF Source, Frequency Hopping Source (optional) and Pattern Generator (optional). DG5000 can provide stable, precise, pure and low distortion signal by adopting the Direct Digital Synthesizer (DDS) technology. It provides single and dual-channel models. The dual-channel model, with two channels having complete equivalent functions and precisely adjustable phase deviation between the two channels, is a real dual-channel signal generator.

- Arb function with 1 GSa/s sample rate, 14 bits vertical resolution
- Support internal and external IQ modulation
- Whole range of Analog/Digital modulation functions (standard)
- Various Sweep Types (standard)
- Intuitive Constellation setup and display
- Support Frequency Hopping function (option)
- Complete connectivity, support Parallel Bus output (Option)

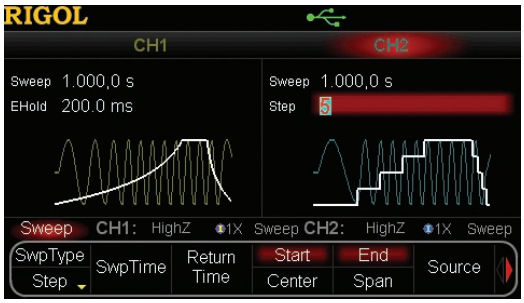
Arb function with 1 GSa/s sample rate, 14 bits vertical resolution



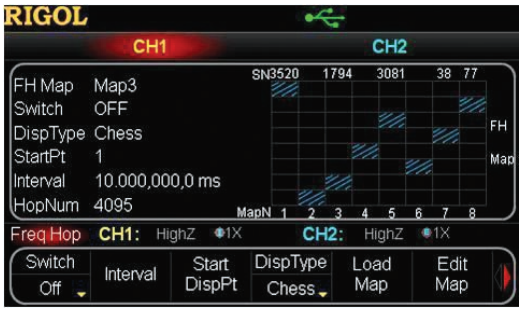
Intuitive Constellation setup and display



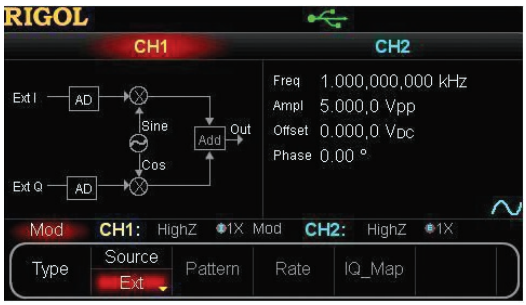
Various Sweep Types (standard)



Support Frequency Hopping function (option)



Support internal and external IQ modulation



Complete connectivity, support Parallel Bus output (Option)

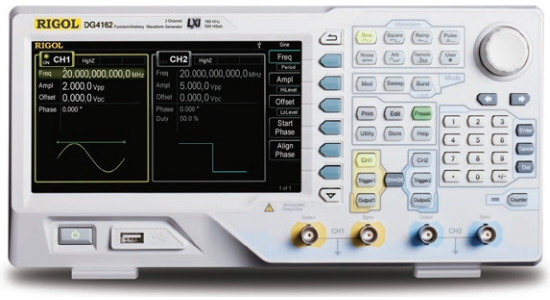
Key Specifications

Model	DG5351/2	DG5251/2	DG5101/2	DG5071/2
Channel	1/2	1/2	1/2	1/2
Maximum Frequency	350MHz	250MHz	100MHz	70MHz
Sample Rate	1GSa/s			
Waveforms	Standard Waveforms: Sine, Square, Ramp, Pulse, Noise Arbitrary Waveforms: Sinc, Exponential Rise, Exponential Fall, ECG, Gauss, HaverSine, Lorentz, Dual-Tone, DC, User defined			
Frequency Characteristics				
Sine	1uHz-350MHz	1uHz-250MHz	1uHz-100MHz	1uHz-70MHz
Square	1uHz-120MHz	1uHz-120MHz	1uHz-100MHz	1uHz-70MHz
Ramp	1uHz-5MHz	1uHz-5MHz	1uHz-3MHz	1uHz-3MHz
Pulse	1uHz-50MHz			
Noise	250MHz			
Arb	1uHz-50MHz			
Waveform Length	128M (std.)			
Sine Wave Spectrum Purity	Total Harmonic Distortion: <0.5%(10Hz-20KHz,0dBm); Phase Noise: <-110dBc@10MHz (0dBm,10KHz offset)			
Square Rise/Fall Time	<2.5ns	<2.5ns	<3ns	<4ns
Jitter (rms)	≤ 30MHz: 10ppm+500ps, >30MHz: 500ps			
Amplitude (into 50 Ω)	≤ 100MHz: 5mVpp-10Vpp; ≤ 300MHz:5mVpp-5Vpp; ≤ 350MHz:5mV-2Vpp			
IQ Modulation	4QAM,8QAm,16QAM,32QAM,64QAM,BPSK,QPSK,OQPSK,8PSK,16PSK,user; Symbol Rate: 1bps to 1Mbps; Carrier Waveform: Sine (max.200MHz)			
FH Characteristic	FH Bandwidth 1.5MHz-250MHz; FH Rate: 1 Hop/s to 12.5M Hop/s; Frequency Point Numbers:4096			
Burst Characteristics	Carrier Frequency 1uHz-120MHz, Burst Count: 1 to 1 000 000 or Infinite			

Ordering Information

	Description	Order Number
Models	DG5352 (350 MHz, dual-channel, 128Mpts)	DG5352
	DG5351 (350 MHz, single-channel, 128Mpts)	DG5351
	DG5252 (250 MHz, dual-channel, 128Mpts)	DG5252
	DG5251 (250 MHz, single-channel, 128Mpts)	DG5251
	DG5102 (100 MHz, dual-channel, 128Mpts)	DG5102
	DG5101 (100 MHz, single-channel, 128Mpts)	DG5101
	DG5072 (70MHz, dual-channel, 128Mpts)	DG5072
	DG5071 (70MHz, single-channel, 128Mpts)	DG5071
Standard Accessories	USB Cable	CB-USBA-USBB-FF-150
	BNC Cable (1 meter)	CB-BNC-BNC-MM-100
	SMB(F) to BNC(M) Cable (1 meter)	CB-SMB-BNC-FM-100
	Power Cord Conforming to the Standard of the Destination Country	-
	Quick Guide (Hard Copy)	-
Options	Frequency Hopping Module	FH-DG5000
	Advanced Function of Arbitrary Waveform Editing PC Software (advanced function)	Ultra Station-adv
	Power Amplifier	PA1011
	40 dB Attenuator	RA5040K
	Rack Mount Kit	RM-DG5000

DG4000 Series Function/Arbitrary Waveform Generators

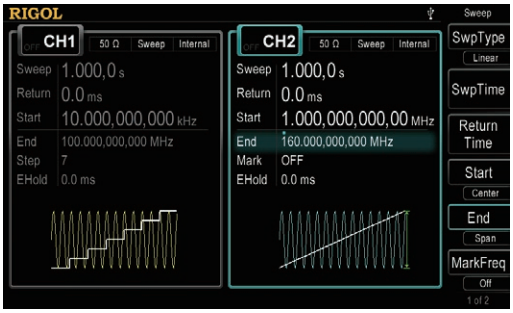


DG4000 series is a multifunctional generator that integrates many functions into one, including Function Generator, Arbitrary Waveform Generator, Pulse Generator, Harmonic Generator, Analog/Digital Modulator and Counter. DG4000 can provide stable, precise, pure and low distortion signal by adopting the Direct Digital Synthesizer (DDS) technology. All the models have two channels with complete equivalent functions and precisely phase adjustable, they are the real dual-channel signal generator.

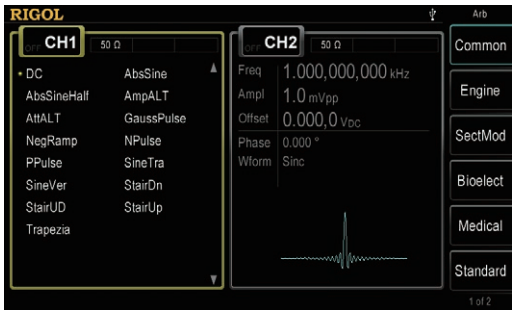
- 7 inch color LCD
- Arbitrary waveform function and built-in 150 waveform
- Abundant analog and digital modulation function
- Various Sweep modes
- Noise and Burst modes
- Up to 16 orders customized Harmonic generation function

Standard 2 identical channels with frequency and phase coupling

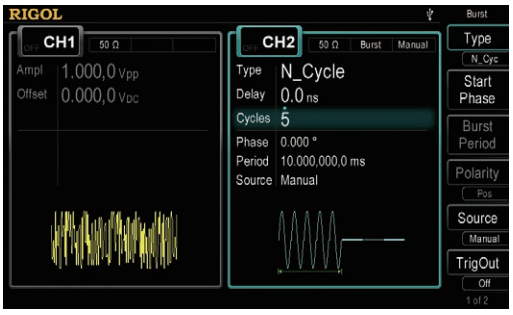
Various Sweep modes



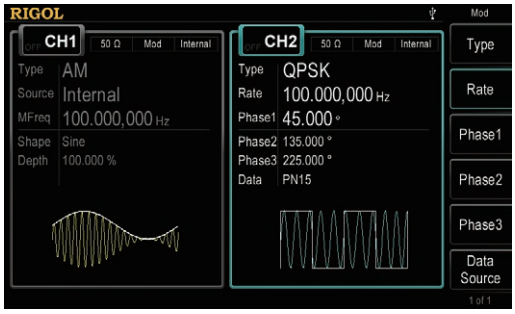
Arbitrary waveform function and built-in 150 waveform



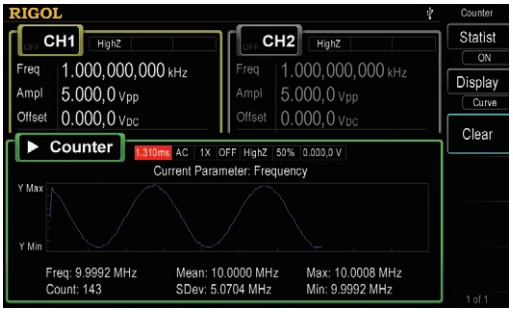
Noise and Burst modes



Abundant analog and digital modulation function



Standard 7digits/s counter with statistic analysis



Key Specifications

Model	DG4202	DG4162	DG4102	DG4062
Channel	2			
Maximum Frequency	200MHz	160MHz	100MHz	60MHz
Sample Rate	500Msa/s			
Waveforms	Standard Waveforms: Sine, Square, Ramp, Pulse, Noise, Harmonics (up to 16 orders) Arbitrary Waveforms: Sinc, Exponential Rise, Exponential Fall, ECG, Gauss, HaverSine, Lorentz, Dual-Tone, DC, etc. up to 150 waveforms			
Waveform Length	16K			
Vertical Resolution	14bits			
Sine	1uHz-200MHz	1uHz-160MHz	1uHz-100MHz	1uHz-60MHz
Square	1uHz-60MHz	1uHz-50MHz	1uHz-40MHz	1uHz-25MHz
Ramp	1uHz-5MHz	1uHz-4MHz	1uHz-3MHz	1uHz-1MHz
Pulse/arb	1uHz-50MHz	1uHz-40MHz	1uHz-25MHz	1uHz-15MHz
Noise（-3dB）	120MHz	120MHz	80MHz	60MHz
Sine Wave Spectrum Purity	Total Harmonic Distortion：<0.1%(10Hz-20KHz,0dBm); Phase Noise：≤ -115dBc@10MHz (0dBm,10KHz offset)			
Square Rise/Fall Time	<8ns	<8ns	<10ns	<12ns
Jitter (rms)	≤ 5MHz: 2ppm+500ps, >5MHz : 500ps			
Amplitude (into 50 Ω)	≤ 20MHz：1mVpp-10Vpp; ≤ 60MHz:1mVpp-5Vpp; ≤ 120MHz:1mV-2.5Vpp; ≤ 200MHz:1mV-1Vpp			
Modulation Type	AM, FM, PM, ASK, FSK, PSK, BPSK, QPSK, 3FSK, 4FSK, OSK, PWM			
Work Mode	Continue, Burst, Sweep, Modulation			
Burst Characteristics	Carrier Frequency 2mHz-100MHz, Burst Count：1 to 1 000 000 or Infinite; trigger source: internal, external, manual			

Ordering Information

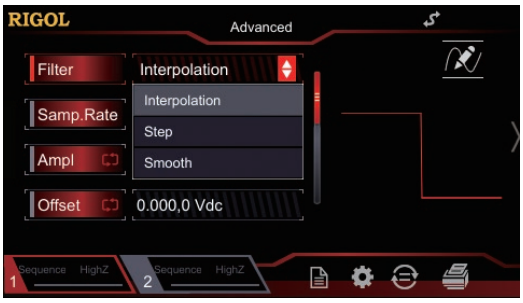
	Description	Order Number
Models	DG4202 (200 MHz, dual-channel)	DG4202
	DG4162 (160 MHz, dual-channel)	DG4162
	DG4102 (100 MHz, dual- channel)	DG4102
	DG4062 (60 MHz, dual-channel)	DG4062
Standard Accessories	USB Cable	CB-USBA-USBB-FF-150
	BNC Cable (1 meter)	CB-BNC-BNC-MM-100
	Power Cord Conforming to the Standard of the Destination Country	-
	Quick Guide (Hard Copy)	-
Optional Accessories	Arbitrary Waveform Editing PC Software (advanced function)	Ultra Station-adv
	40 dB Attenuator	RA5040K
	Rack Mount Kit	RM-DG4000
	USB-GPIB Module	USB-GPIB

DG2000 Series Function/Arbitrary Waveform Generators

As a multi-functional signal generator, DG2000 series function/arbitrary waveform generator integrates many instruments into 1, such as function generator, arbitrary waveform generator, noise generator, pulse generator, pattern generator, harmonic generator, analog/digital modulator, and frequency counter. The brand new appearance and user-friendly interface design bring you excellent user experience. DG2000 series function/arbitrary waveform generator is the upgrade version of DG900. With the newly added standard waveform key, users can switch the standard waveforms freely and conveniently. Besides, with 1UH in width and 2U in height, the DG2000 series function/arbitrary waveform generator is more suitable for the demand of integration test.

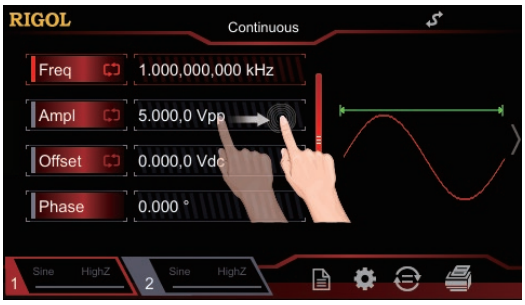
- SiFi II technology, generating the arbitrary waveforms points by points, outputting high-quality waveforms accurately
- Built-in 8 orders harmonics generator
- Up to 250 Msa/s sample rate and 16 M memory depth
- 4.3" TFT color touch screen and brand new UI design
- PRBS, RS232, and Sequence
- Fan-free mute design

Unique SiFi II Technology

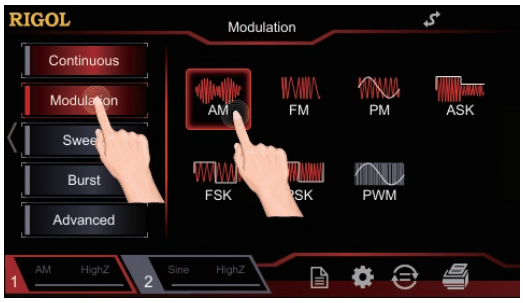


PRBS, RS232 Pattern, and Sequence

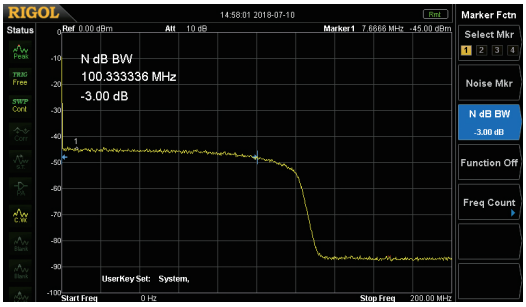
Touch-enabled UI Design (Drag)



Touch-enabled UI Design (Tap)



100 MHz Bandwidth White Gaussian Noise



Key Specifications

Model	DG2052	DG2072	DG2102
Channel	2		
Max. Output Frequency	50MHz	70MHz	100MHz
Sample Rate	250Msa/s		
Waveform Type	Standard Waveform: Sine, Square, Ramp, Pulse, Noise, Dual-tone, Harmonic (up to 8 orders) Arbitrary Waveform: 160 types of waveforms, including Sinc, Exponential Rise, Exponential Fall, ECG, Gauss, HaverSine, Lorentz, Dual-tone, and DC Advanced Waveform: PRBS, RS232, and Sequence		
Arbitrary Waveform Length	16Mpts		
Vertical Resolution	16bits		
Sine	1uHz-50MHz	1uHz-70MHz	1uHz-100MHz
Square	1uHz-15MHz	1uHz-20MHz	1uHz-25MHz
Ramp	1uHz-1.5MHz	1uHz-1.5MHz	1uHz-2MHz
Pulse	1uHz-15MHz	1uHz-20MHz	1uHz-25MHz
Arbitrary Waveform	1uHz-15MHz	1uHz-20MHz	1uHz-20MHz
Harmonic	1uHz-20MHz	1uHz-20MHz	1uHz-25MHz
Dual-tone	1uHz-20MHz	1uHz-20MHz	1uHz-20MHz
RS232	Baud rate range: 9600, 14400, 19200, 38400, 57600, 115200, 128000, 230400		
PRBS	2kbps-40Mbps	2kbps-50Mbps	2kbps-60Mbps
Sequence	2k-60MSa/s		
Noise (-3 dB)	100 MHz Bandwidth		
Sine Wave Spectrum Purity	Total harmonic distortion: <0.075% (10 Hz to 20 kHz, 0 dBm); phase noise: <-105 dBc/Hz@10 MHz (0 dBm, 10 kHz offset)		
Square Rise/Fall Time	Typical (1 Vpp) ≤ 9 ns		
Jitter	Typical (1 Vpp) ≤ 5 MHz: 2 ppm + 200 ps > 5 MHz: 200 ps		
Output Amplitude (into 50 Ω)	≤10 MHz: 1 mVpp-10 Vpp; ≤30 MHz: 1 mVpp-5 Vpp; ≤60 MHz: 1 mV-2.5 Vpp; >60 MHz: 1 mV-2.5 Vpp		
Modulation Type	AM, FM, PM, ASK, FSK, PSK, and PWM		
Working Mode	Continuous, Burst, Sweep, and Modulation		
Burst Characteristics	Carrier frequency 2 mHz-10 MHz/25 MHz/35 MHz/50 MHz/70 MHz/100 MHz; Pulse count: 1-1 M or Infinite; trigger source: external, internal, and manual		
Standard Interface	USB Device (on the rear panel) and USB Host		

Ordering Information

	Description	Order No.
	DG2052 (50 MHz, Dual-channel)	DG2052
	DG2072(70 MHz, Dual-channel)	DG2072
	DG2102 (100MHz, Dual-channel)	DG2102
Standard Accessories	Power Cord Conforming to the Standard of the Destination Country	-
	USB Cable	CB-USBA-USBB-FF-150
	BNC Cable	CB-BNC-BNC-MM-100
	Quick Guide	-
	Product Warranty Card	-
Optional Accessories	40 dB Attenuator	RA5040K
	Arbitrary Waveform Editing PC Software (advanced function)	Ultra Station-adv
	Rack Mount Kit (single instrument)	RM-1-DG1000Z
	Rack Mount Kit (two instruments)	RM-2-DG1000Z
	USB-GPIB Interface Converter	USB-GPIB-L

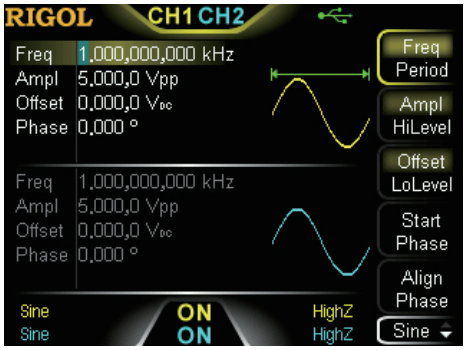
DG1000Z Series Function/Arbitrary Waveform Generators

DG1000Z series function/arbitrary waveform generator is a multi-functional generator that combines many functions in one, including Function Generator, Arbitrary Waveform Generator, Noise Generator, Pulse Generator, Harmonics Generator, Analog/Digital Modulator and Counter.

The maximum output frequency (Sine) of DG1000Z is 25MHz/30MHz/60MHz. It provides 2 full functional channels with precisely phase adjustable. The standard interfaces are USB and LAN.

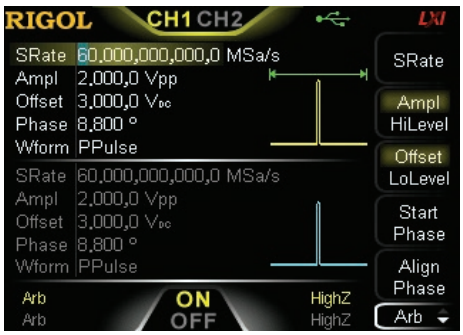
- Innovative SiFi technology
- Up to 160 built-in waveforms
- Multiple analog and digital modulations
- Standard harmonic generator
- Waveform summing function
- Standard 7 digits/s full function frequency counter

Standard 2 full functional channels

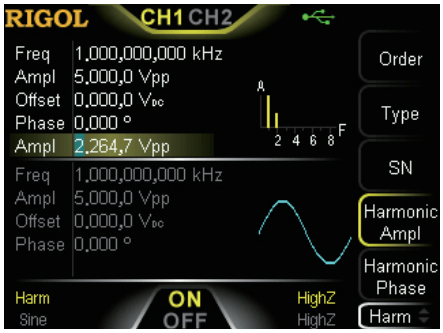


Multiple analog and digital modulations

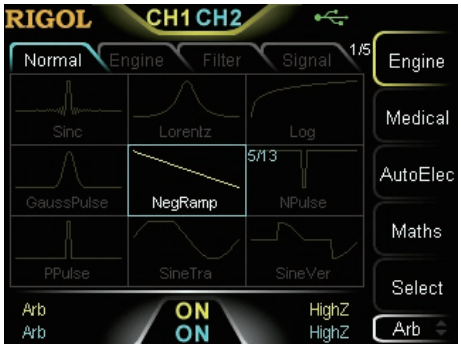
Arbitrary waveform function with innovative SiFi technology



Standard harmonic generator



Up to 160 built-in waveforms



Burst function

Key Specifications

Model	DG1062Z	DG1032Z	DG1022Z
Channel	2		
Maximum Frequency	60MHz	30MHz	25MHz
Sample Rate	200Msa/s		
Waveforms	Waveforms Standard Waveforms: Sine, Square, Ramp, Pulse, Noise, Harmonics (up to 8 orders) Arbitrary Waveforms: Sinc, Exponential Rise, Exponential Fall, ECG, Gauss, HaverSine, Lorentz, Dual-Tone, DC, etc. up to 160 waveforms		
Waveform Length	8pts to 8Mpts, optional 16Mpts		8pts to 2Mpts, optional 16Mpts
Vertical Resolution	14bits		
Sine	1uHz-60MHz	1uHz-30MHz	1uHz-25MHz
Square	1uHz-25MHz	1uHz-25MHz	1uHz-25MHz
Ramp	1uHz-1MHz	1uHz-500KHz	1uHz-500KHz
Pulse	1uHz-25MHz	1uHz-15MHz	1uHz-15MHz
Arb/Harmonics	1uHz-20MHz	1uHz-10MHz	1uHz-10MHz
Noise (-3dB)	60MHz BW	30MHz BW	25MHz BW
Sine Wave Spectrum Purity	Total Harmonic Distortion <0.075%(10Hz-20KHz,0dBm); Phase Noise <-125dBc@10MHz (0dBm,10KHz offset)		
Square Rise/Fall Time	Typ. (1Vpp) <10ns		
Jitter (rms)	Typ. (1Vpp) ≤ 5MHz: 2ppm+200ps, >5MHz : 200ps		
Amplitude (into 50 Ω)	≤10MHz, 1 mVpp-10Vpp; ≤30MHz:1 mVpp-5Vpp; ≤60MHz:1 mV-2.5Vpp		
Modulation Type	AM, FM, PM, ASK, FSK, PSK, PWM		
Work Mode	Continue, Burst, Sweep, Modulation		
Burst Characteristics	Carrier Frequency 2mHz-25MHz/30MHz/60MHz, Burst Count, 1 to 1 000 000 or Infinite; Trigger source: internal, external, manual		
Standard Interfaces	USB (Device), USB (Host), LAN (LXI-C), USB-GPIB (Opt).		

Ordering Information

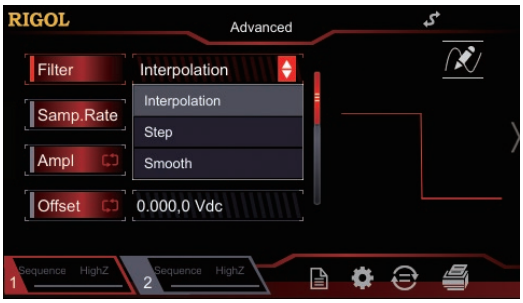
	Description	Order Number
Models	DG1022Z (25MHz, Dual-channel)	DG1022Z
	DG1032Z (30MHz, Dual-channel)	DG1032Z
	DG1062Z (60MHz, Dual-channel)	DG1062Z
Standard Accessories	USB Cable	CB-USBA-USBB-FF-150
	BNC Cable (1 meter)	CB-BNC-BNC-MM-100
	Power Cord Conforming to the Standard of the Destination Country	-
	Quick Guide	-
Optional Accessories	16Mpts Memory for Arb	ARB16M-DG1000Z
	Arbitrary Waveform Editing PC Software (advanced function)	Ultra Station-adv
	40dB Attenuator	RA5040K
	10W Power Amplifier	PA1011
	Rack Mount Kit (for single instrument)	RM-1-DG1000Z
	Rack Mount Kit (for dual instruments)	RM-2-DG1000Z
	USB-GPIB module	USB-GPIB

DG900/DG2000 Series Function/Arbitrary Waveform Generators

As a multi-functional signal generator, DG900 series function/arbitrary waveform generator integrates many instruments into 1, such as function generator, arbitrary waveform generator, noise generator, pulse generator, pattern generator, harmonic generator, analog/digital modulator, and frequency counter. The brand new appearance and user-friendly interface design bring you excellent user experience.

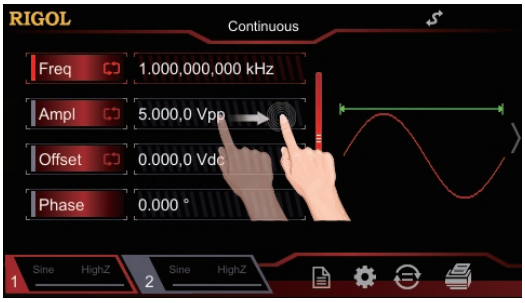
- SiFi II technology, generating the arbitrary waveforms points by points, outputting high-quality waveforms accurately
- Built-in 8 orders harmonics generator
- Up to 250 Msa/s sample rate and 16 M memory depth
- 4.3" TFT color touch screen and brand new UI design
- PRBS, RS232, and Sequence
- Fan-free mute design

Unique SiFi II Technology

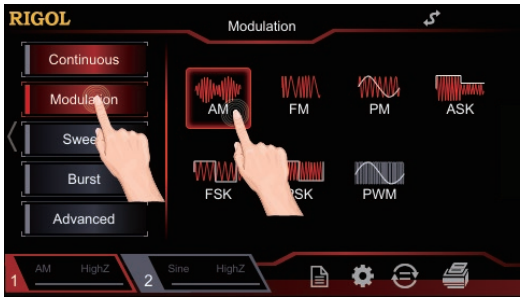


PRBS, RS232 Pattern, and Sequence

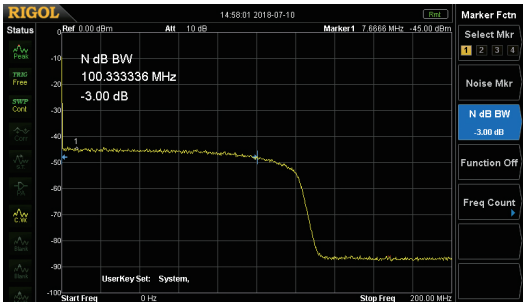
Touch-enabled UI Design (Drag)



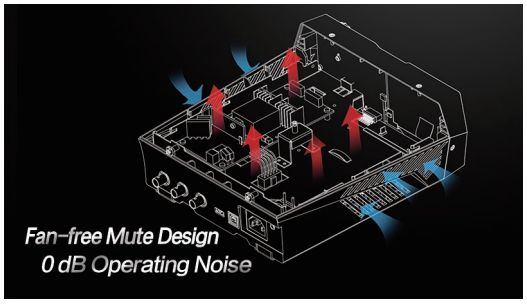
Touch-enabled UI Design (Tap)



100 MHz Bandwidth White Gaussian Noise



Fan-free Mute Design



Key Specifications

Model	DG952	DG972	DG992
Channel	2		
Max. Output Frequency	50MHz	70MHz	100MHz
Sample Rate	250Msa/s		
Waveform Type	Standard Waveform: Sine, Square, Ramp, Pulse, Noise, Dual-tone, Harmonic (up to 8 orders) Arbitrary Waveform: 160 types of waveforms, including Sinc, Exponential Rise, Exponential Fall, ECG, Gauss, HaverSine, Lorentz, Dual-tone, and DC Advanced Waveform: PRBS, RS232, and Sequence		
Arbitrary Waveform Length	16Mpts		
Vertical Resolution	16bits		
Sine	1uHz-50MHz	1uHz-70MHz	1uHz-100MHz
Square	1uHz-15MHz	1uHz-20MHz	1uHz-25MHz
Ramp	1uHz-1.5MHz	1uHz-1.5MHz	1uHz-2MHz
Pulse	1uHz-15MHz	1uHz-20MHz	1uHz-25MHz
Arbitrary Waveform	1uHz-15MHz	1uHz-20MHz	1uHz-20MHz
Harmonic	1uHz-20MHz	1uHz-20MHz	1uHz-25MHz
Dual-tone	1uHz-20MHz	1uHz-20MHz	1uHz-20MHz
RS232	Baud rate range: 9600, 14400, 19200, 38400, 57600, 115200, 128000, 230400		
PRBS	2kbps-40Mbps	2kbps-50Mbps	2kbps-60Mbps
Sequence	2k-60MSa/s		
Noise (-3 dB)	100 MHz Bandwidth		
Sine Wave Spectrum Purity	Total harmonic distortion: <0.075% (10 Hz to 20 kHz, 0 dBm); phase noise: <-105 dBc/Hz@10 MHz (0 dBm, 10 kHz offset)		
Square Rise/Fall Time	Typical (1 Vpp) ≤ 9 ns		
Jitter	Typical (1 Vpp) ≤ 5 MHz: 2 ppm + 200 ps > 5 MHz: 200 ps		
Output Amplitude (into 50 Ω)	≤10 MHz: 1 mVpp-10 Vpp; ≤30 MHz: 1 mVpp-5 Vpp; ≤60 MHz: 1 mV-2.5 Vpp; >60 MHz: 1 mV-2.5 Vpp		
Modulation Type	AM, FM, PM, ASK, FSK, PSK, and PWM		
Working Mode	Continuous, Burst, Sweep, and Modulation		
Burst Characteristics	Carrier frequency 2 mHz-10 MHz/25 MHz/35 MHz/50 MHz/70 MHz/100 MHz; Pulse count: 1-1 M or Infinite; trigger source: external, internal, and manual		
Standard Interface	USB Device (on the rear panel) and USB Host		

Ordering Information

	Description	Order No.
Models	DG952 (50 MHz, Dual-channel)	DG952
	DG972 (70 MHz, Dual-channel)	DG972
	DG992 (100 MHz, Dual-channel)	DG992
Standard Accessories	Power Cord Conforming to the Standard of the Destination Country	-
	USB Cable	CB-USBA-USBB-FF-150
	BNC Cable	CB-BNC-BNC-MM-100
	Quick Guide	-
	Product Warranty Card	-
Optional Accessories	40 dB Attenuator	RA5040K
	Arbitrary Waveform Editing PC Software (advanced function)	Ultra Station-adv
	USB-GPIB Interface Converter	USB-GPIB-L

DG800 Series Function/Arbitrary Waveform Generators

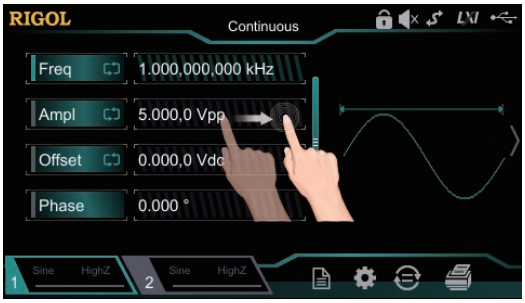
As a multi-functional signal generator, DG800 series function/arbitrary waveform generator integrates many instruments into 1, such as function generator, arbitrary waveform generator, noise generator, pulse generator, pattern generator, harmonic generator, analog/digital modulator, and frequency counter. The brand new appearance and user-friendly interface design bring you excellent user experience.

- SiFi II technology, generating arbitrary waveforms points by points, outputting high-quality waveforms accurately
- Built-in 8 orders harmonics generator
- Standard waveform combination and channel tracking function
- 4.3" TFT color touch screen and brand new UI design
- PRBS, RS232, and Sequence output
- Fan-free mute design

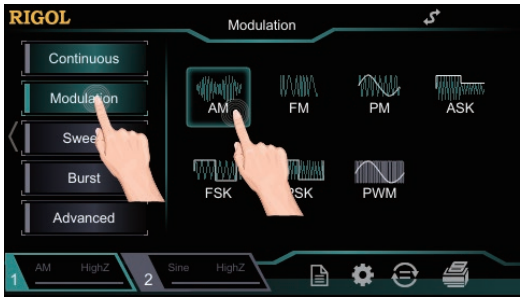
Unique SiFi II Technology

PRBS, RS232 Pattern, and Sequence

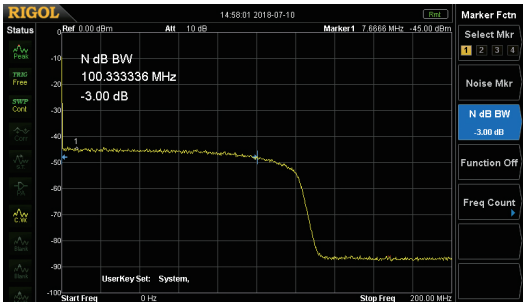
Touch-enabled UI Design (Drag)



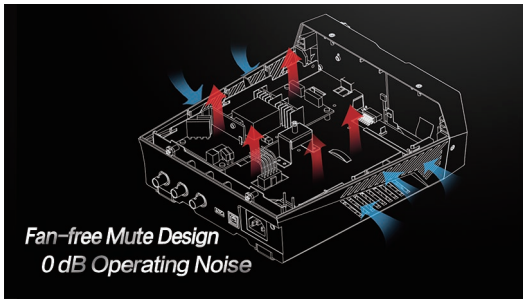
Touch-enabled UI Design (Tap)



100 MHz Bandwidth White Gaussian Noise



Fan-free Mute Design



Key Specifications

Model	DG811/2	DG821/2	DG831/2
Channel	1/2		
Max. Output Frequency	10MHz	25MHz	35MHz
Sample Rate	125MSa/s		
Waveform Type	Standard Waveform: Sine, Square, Ramp, Pulse, Noise, Dual-tone, Harmonic (up to 8 orders) Arbitrary Waveform: 160 types of waveforms, including Sinc, Exponential Rise, Exponential Fall, ECG, Gauss, HaverSine, Lorentz, Dual-tone, and DC Advanced Waveform: PRBS, RS232, and Sequence		
Arbitrary Waveform Length	2Mpts (opt.8Mpts)		
Vertical Resolution	16bits		
Sine	1uHz-10MHz	1uHz-25MHz	1uHz-35MHz
Square	1uHz-5MHz	1uHz-10MHz	1uHz-10MHz
Ramp	1uHz-200KHz	1uHz-500KHz	1uHz-1MHz
Pulse	1uHz-5MHz	1uHz-10MHz	1uHz-10MHz
Arbitrary Waveform	1uHz-5MHz	1uHz-10MHz	1uHz-10MHz
Harmonic	1uHz-5MHz	1uHz-10MHz	1uHz-15MHz
Dual-tone	1uHz-10MHz	1uHz-20MHz	1uHz-20MHz
RS232	Baud rate range: 9600, 14400, 19200, 38400, 57600, 115200, 128000, 230400		
PRBS	2kbps-10Mbps	2kbps-20Mbps	2kbps-30Mbps
Sequence	2k to 30 MSa/s		
Noise (-3 dB)	100 MHz Bandwidth		
Sine Wave Spectrum Purity	Total harmonic distortion: <0.075% (10 Hz to 20 kHz, 0 dBm); phase noise: <-105 dBc/Hz@10 MHz (0 dBm, 10 kHz offset)		
Square Rise/Fall Time	Typical (1 Vpp) ≤ 9 ns		
Jitter	Typical (1 Vpp) ≤ 5 MHz: 2 ppm + 200 ps > 5 MHz: 200 ps		
Output Amplitude (into 50 Ω)	≤10MHz: 1 mVpp-10 Vpp; ≤30 MHz: 1 mVpp-5 Vpp; ≤60 MHz: 1 mV-2.5 Vpp; > 60 MHz: 1 mV-2.5 Vpp		
Modulation Type	AM, FM, PM, ASK, FSK, PSK, and PWM		
Working Mode	Continuous, Burst, Sweep, and Modulation		
Burst Characteristics	Carrier frequency 2 mHz-10 MHz/25 MHz/35 MHz/50 MHz/70 MHz/100 MHz; Pulse count: 1-1 M or Infinite; trigger source: external, internal, and manual		
Standard Interface	USB Device (on the rear panel) and USB Host		

Ordering Information

	Description	Order No.
Models	DG812 (10 MHz, Dual-channel)	DG812
	DG822 (25 MHz, Dual-channel)	DG822
	DG832 (35 MHz, Dual-channel)	DG832
	DG811 (10 MHz, Single-channel)	DG811
	DG821 (25 MHz, Single-channel)	DG821
	DG831 (35 MHz, Single-channel)	DG831
Standard Accessories	Power Cord Conforming to the Standard of the Destination Country	-
	BNC Cable (only supplied by DG832/DG831/DG822/DG821)	CB-BNC-BNC-MM-100
	Quick Guide	-
	Product Warranty Card	-
Option	Dual-channel Option (only available for DG831/DG821/DG811)	DG800-DCH
	Arbitrary Waveform Editing PC Software (advanced function)	Ultra Station-adv
	2M-8M Arbitrary Waveform Memory Depth Upgrade Option	DG800-ARB8M
Optional Accessories	40 dB Attenuator	RA5040K
	USB-GPIB Interface Converter	USB-GPIB-L

RF Signal Generators

RIGOL RF signal generators adopt an innovative design, breaking through the cost bottleneck of traditional products, providing users with unprecedented cost-effective products. DSG series signal generators can provide highly pure RF signals, and the typical value of phase noise can be as low as -112 dBc/Hz. The application of digital ALC circuit enables accurate control of the amplitude of output RF signals, with power accuracy up to 0.5 dB. In addition to the conventional AM/FM/ΦM modulation, the RF signal source can also provide pulse modulation and pulse train functions to meet the demand of all kinds of communication and research. DSG3000-IQ/DSG800A model also offers a variety of I/Q modulations, supporting internal or external modulation and providing IF signal output. The convenient operation and abundant functions make DSG series RF signal generators become the ideal instrument for the development and design of wireless communication, Internet of things (IoT) and consumer electronic products, and provide a cost-effective test scheme for the production and testing of RF components. The economical DSG800 series sets a new benchmark for RF testing instruments, making it possible for each engineer of college teaching experiments and basic RF development to be equipped with one such instrument.

	Frequency Range					Level Range	Accuracy	Clock Stability	Phase Noise	Std. Modulations	Pulse Train Generator	I/Q
	1.5 GHz	2.1 GHz	3 GHz	3.6 GHz	6 GHz							
DSG815	●					-110dBm-+13dBm	≤ 0.5dB (Typ.)	<2ppm <5ppb (B08 Option)	-112dBcHz Typ.	AM/FM/ΦM	DSG800-PUM DSG800-PUG (Pulse Modulation + Pulse Train)	–
DSG830			●									
DSG821		●										–
DSG821A		●										Std.
DSG836				●								–
DSG836A				●								Std.
DSG3060					●	-130dBm-+13dBm	≤ 0.5dB (Typ.)	<0.5ppm <5ppb (B08 Option)	<-105dBc/Hz (<-110dBc/Hz Typ.)	AM/FM/ ΦM/ Pulse	PUG-DSG3000	–
DSG3060-IQ					●							Std.

DSG3000 Series RF Signal Generators

DSG3000 is a high performance RF signal generator which ranges from 9 kHz to 3 GHz/6 GHz. It is designed for the customers who works in the application filed of Wireless Communication, Radar test, Audio/Video Broadcasting, General Purpose, Education, Consumer Electronics etc. Digital IQ and pulse modulations with high quality signal and stable specifications. It is a desirable choice for replacing of import products.

- Plenty of output functions
- Support multiple types of modulations
- Output amplitude level ranges from -130dBm to +13dBm
- Excellent phase noise specification
- Support internal and external I/Q modulation
- Support pulse modulation with 80dB on/off ratio

Plenty of Output Functions

9kHz~3/6GHz

+25dBm~-140dBm

CW

LF — Sine, Square, Triangle, Ramp, Swp-Sine

Frequency sweep, Amplitude sweep, Frequency and amplitude sweep — **Sweep**

PMC — Power meter controller, Test system automatic calibration

Multiple types of Modulations

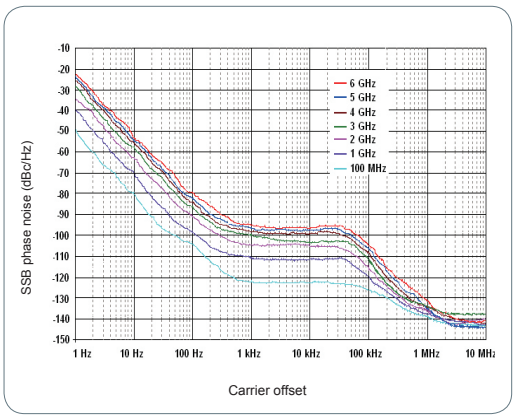
Internal modulation, External modulation — **AM**

FM / ΦM — Internal modulation, External modulation

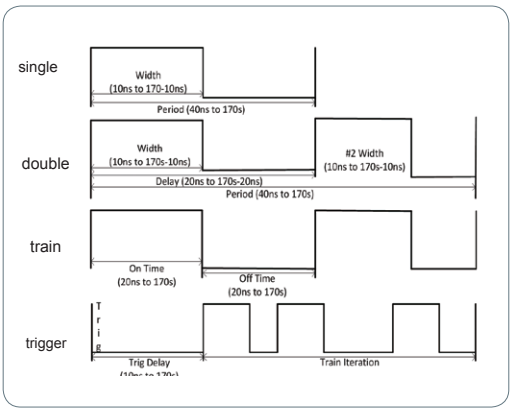
Internal modulation, External modulation, Pulse train generator, Pulse generator — **Pulse**

I/Q — Internal modulation, External modulation, I/Q baseband generator, Baseband output

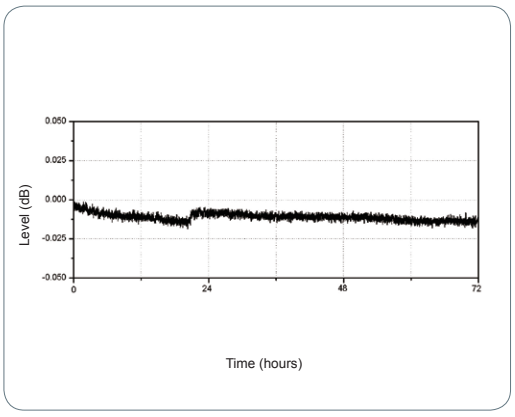
Excellent Phase Noise Specification



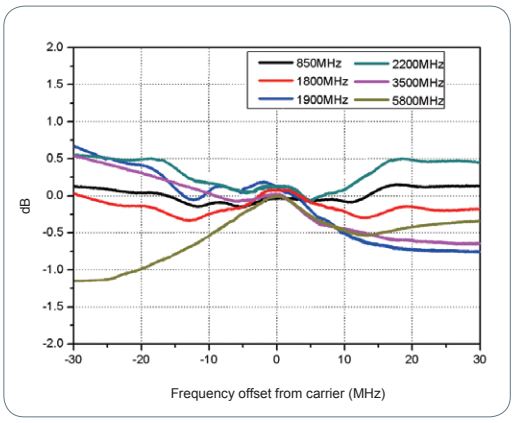
Pulse Modulation with 80dB on-off ratio



Excellent Amplitude Repeatability（6GHz，0dBm, ALC ON, 25℃）



Measured IQ modulation Bandwidth



Key Specifications

Models		DSG3060/DSG3060-IQ
Frequency range		9kHz-6GHz
Amplitude output level		-130dBm - +13dBm
Amplitude setting Level		-140dBm - +25dBm
Level uncertainty		< 0.5dB typ.
Clock stability		< 0.5ppm, <5ppb(With option OCXO-A08)
Spectral purity	SSB phase noise	Typ. <-110dBc/Hz@1GHz,20KHz offset
	Harmonic	<-30dBc; non-harmonic: typ. <-64dBc
Sweep	Sweep type	Linear sweep, Step/List sweep, Single/Continue sweep
	Sweep points	2 ~65535（Step sweep）;1-6001（List sweep）
Modulation type		AM, FM, PM, Pulse mod, I/Q mod
AM	modulation depth	0%-100%
	Uncertainty	< setting value x 4% + 1%
	Modulation frequency response	<3dB(10Hz ~ 50kHz m<80%)
FM	Max. deviation	N x 1MHz
	Uncertainty	< setting value x 2% + 20Hz
	Modulation frequency response	<3dB(10Hz ~ 100kHz)
PM	Max. deviation	3rad（f ≤ 23.4375MHz）, N x 5rad （f > 23.4375MHz）
	Uncertainty	< setting value x 1% + 0.1rad
	Modulation frequency response	<3dB(10Hz ~ 100kHz)
Pulse modulation	On/off ratio	>80dB(25MHz ≤ f <3GHz),>70dB(3GHz ≤ f ≤ 6GHz)
	Rise/fall time	10ns typ.
	Pulse mode	Single pulse, dual pulse, pulse train（option PUG-DSG3000）
I/Q modulation (Only for IQ model)	Bandwidth	External modulation: baseband (I or Q): up to 120MHz; RF(I+Q): up to 240MHz
		External modulation：baseband (I or Q): up to 30MHz; RF(I+Q): up to 60MHz
	EVM	≤ 0.7%rms(typ., 50MHz ≤ f ≤ 3GHz, output power≤ 4dBm)
		≤ 1.2%rms(typ., 3GHz < f ≤ 6GHz, output power≤ 4dBm)
General	Interfaces	Std.: USB,LAN, GPIB
		10MHz Ref In/Out, Trigger In
		I/Q In/Out(Only for IQ model), LF Out
		Ext Mod, Pulse In/Out
		Signal Valid, Sweep Out

Ordering Information

	Description	Order Number
	DSG3060 RF Signal Generator, 9kHz-6GHz	DSG3060
	DSG3060-IQ Vector Signal Generator, 9kHz-6GHz	DSG3060-IQ
Standard Accessories	Power Cable, Quick Guide (Hard Copy)	-
	DSG IQ function PC software	Ultra IQ Station
Options	Pulse Train Generator	PUG-DSG3000
	High Stable OCXO Reference Clock	OCXO-A08
	Power Meter Controller	PMC-DSG3000
	Rack Mount Kit	RM-DSG3000

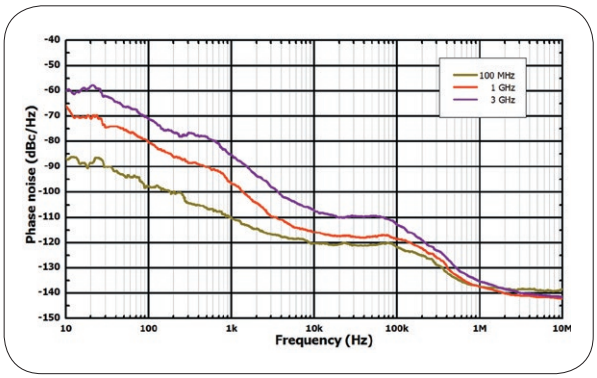
DSG800 Series RF Signal Generators

DSG800 establishes a new standard of economical RF signal generator by the unprecedented cost-effective advantage. Combining with DSA800 economical spectrum analyzer, the product pair provides a screaming solution for RF test and measurement application.

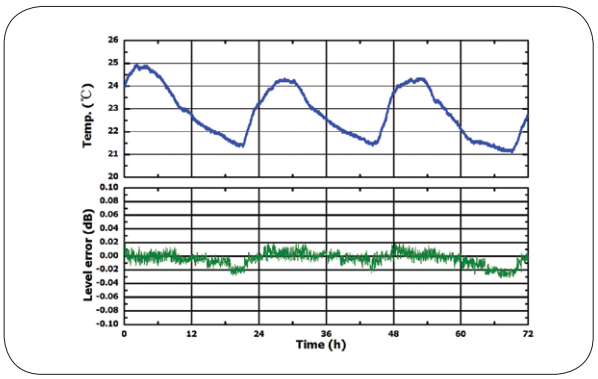
DSG800 series signal generator includes 6 models: DSG815, DSG830, DSG821, DSG836, DSG821A, and DSG836A. Its frequency ranges from 9 kHz to 1.5 GHz/2.1 GHz/3 GHz/3.6 GHz, with the typical phase noise -112 dBc/Hz, typical amplitude accuracy 0.5 dB. It provides the standard AM/FM/ØM analog modulation function. The pulse modulation and pulse train functions are also available as options. It's compact in size and easy to carry, suitable for outdoor use.

- Up to -112 dBc/Hz (typical) phase noise
- Up to +20 dBm (typical) maximum output power
- Special digital ALC circuit ensuring its stability and reliability
- Flexible frequency and amplitude sweep functions
- Open vector modulation function (for A type model)
- Powerful pulse modulation function
- Prominent portability; Simple and easy to operate

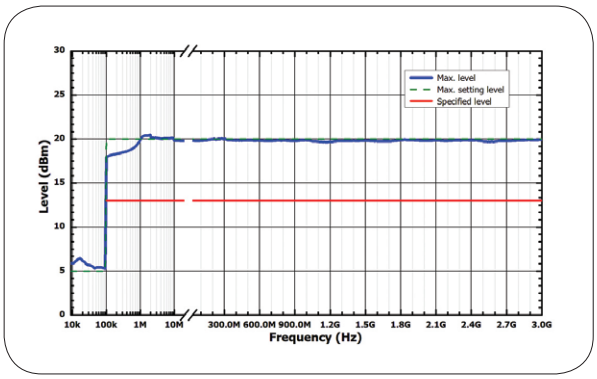
Measured SSB phase noise



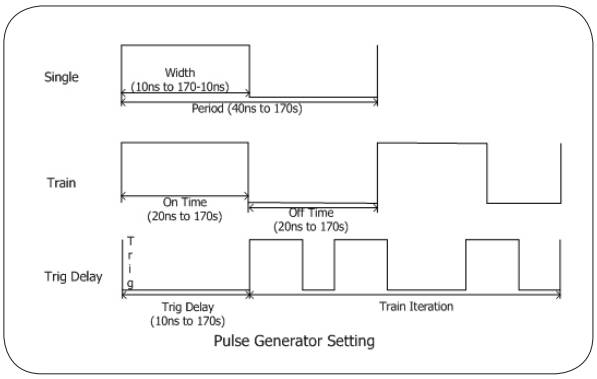
Measured level repeatability @ 1 GHz, 0 dBm



Measured maximum level vs. frequency



Powerful pulse modulation and pulse train generator



Simultaneous Modulation

	AM	FM	ØM	Pulse mod. (opt.)
AM	—	○	○	△
FM	○	—	×	○
ØM	○	×	—	○
Pulse mod. (opt.)	△	○	○	—

Note: ○: Compatible; ×: Not compatible; △ : Compatible, but the AM performance will decrease when pulse modulation is turned on.

Key Specifications

Models		DSG815	DSG830	DSG821	DSG821A	DSG836	DSG836A
Frequency range		9kHz-1.5GHz	9kHz-3GHz	9kHz- 2.1GHz	9kHz- 2.1GHz	9kHz- 3.6GHz	9kHz-3.6GHz
Amplitude Output Level		-110dBm - +13dBm					
Amplitude Setting Level		-110dBm - +20dBm					
Level uncertainty		<0.9dB (< 0.5dB typ.)					
Clock stability		< 2ppm, <5ppb(With option OCXO-B08)					
Spectral Purity	SSB phase noise	100 kHz ≤ f ≤ 1.5 GHz, <-105dBc/Hz(-112dBc/Hz typ.) 1.5 GHz < f ≤ 3.6 GHz, < -99 dBc/Hz(< -106 dBc/Hz typ.), CW mode, carrier offset = 20 kHz					
	Harmonic	<-30dBc CW mode 1MHz ≤ f ≤ 3GHz, Level≤ +13dBm					
	Non-harmonic	100KHz ≤ f ≤ 1.5GHz, <-60dBc (<-70dBc typ.); 1.5GHz ≤ f ≤ 3GHz, <-54dBc/Hz(<-64dBc/Hz typ.)					
Sweep	Sweep type	Linear sweep, Step/List sweep, Single/Continue sweep					
	Sweep points	2 ~65535(Step sweep); 1-6001 (List sweep)					
Modulation type		AM, FM, ØM, Pulse mod					
AM	modulation depth	0%-100%					
	Uncertainty	< setting value x 4% + 1%					
	Modulation frequency response	<3dB(10Hz ~ 100kHz m<80%)					
FM	Max. deviation	N x 1MHz					
	Uncertainty	< setting value x 2% + 20Hz					
	Modulation frequency response	<3dB(10Hz – 100KHz)					
PM	Max. deviation	N x 5rad					
	Uncertainty	< setting value x 1% + 0.1rad					
	Modulation frequency response	<3dB(10Hz – 100kHz)					
Pulse Modulation	On/off ratio	>70dB(100kHz ≤ f <3GHz)					
	Rise/fall time	<50ns, 10ns (typ.)					
	Pulse mode	Single pulse, pulse train (optionDSG800-PUG)					
I/Q modulation (only for A type model)	Bandwidth	Bandwidth: External modulation: baseband (I or Q): up to 60 MHz; RF(I+Q): up to 120 MHz External modulation: baseband (I or Q): up to 30MHz; RF(I+Q): up to 60MHz					
	EVM	≤ 2%rms (typ.)					
General	Interfaces	Std.: USB, LAN					
		Front Panel: RF output, Internal modulation generator (LF) output					
		Rear Panel: External trigger input, Signal valid output, Pulse input or output					
		External modulating signal input, 10MHz input/output					

Ordering Information

	Description	Order Number
Models	DSG830 RF Signal Generator, 9kHz-3GHz	DSG830
	DSG815 RF Signal Generator, 9kHz-1.5GHz	DSG815
	DGS821 RF Signal Generator, 9kHz-2.1GHz	DSG821
	DGS821A RF Signal Generator, 9kHz-2.1GHz, with I/Q modulation	DSG821A
	DGS836 RF Signal Generator, 9kHz-3.6GHz	DSG836
	DGS836 RF Signal Generator, 9kHz-3.6GHz, with I/Q modulation	DSG836A
Standard Accessories	Power Cable, Quick Guide (Hard Copy)	-
Options	Pulse Modulation, Pulse Generator	DSG800-PUM
	Pulse Train Generator (DSG800-PUM Included)	DSG800-PUG
	High Stable Reference Clock	OCXO-B08
	Rack Mount Kit (For one Instrument)	RM-1-DG1000Z
	Rack Mount Kit (For two Instrument)	RM-2-DG1000Z