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- Unique SiFi II (Signal Fidelity II) technology: generate the arbitrary waveforms point by point; recover the signal without distortion; sample rate accurate and adjustable; jitter of all the output waveforms (including Sine, Pulse, etc.) as low as 200 ps
- 16 Mpts memory depth per channel for arbitrary waveforms
- Standard dual-channel with the same performance, equivalent to two independent signal sources
- High frequency stability: ±1 ppm; low phase noise: -105 dBc/Hz
- Built-in high-order harmonic generator (at most 8-order harmonics)
- Built-in 7 digits/s, 240 MHz bandwidth full featured frequency counter
- Up to 160 built-in arbitrary waveforms, covering the common signals in engineering application, medical electronics, auto electronics, math processing, and other various fields
- Sample rate up to 250 MSa/s, vertical resolution 16 bits
- Arbitrary waveform sequence editing function available; arbitrary waveforms also can be generated through the PC software
- Various analog and digital modulation functions: AM, FM, PM, ASK, FSK, PSK, and PWM.
- Standard waveform combine function, capable of outputting specified waveforms combined with the basic waveforms
- Standard channel tracking function, when enabled, all the parameters of both channels are updated based on users' configurations
- Standard interface: USB Host&Device and LAN (LXI Core 2011 Device); USB-GPIB function supported
- 4.3" TFT color touch screen
- RS232, PRBS, and Dual-tone outputs supported

Design Features

Unique SiFi II Technology

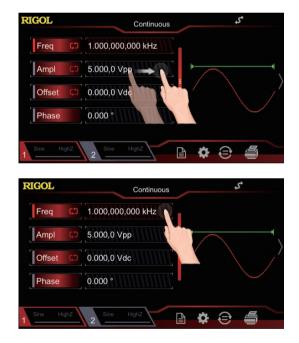
Generate the arbitrary waveforms points by points without distorting the signals. In comparison with the last generation of the SiFi technology, SiFi II has added multiple filters, supporting the dynamic adjustment of the edge time.





Touch-enabled UI Design

Provide brand new UI operation experience, supporting the tap and drag operation gestures. You can also use the onscreen keypad to complete the parameter settings.



Advanced Function Output

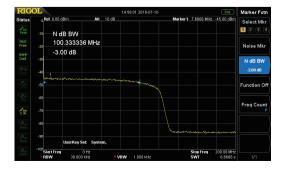
Support PRBS and RS232 pattern output and local Sequence editing.







100MHz Bandwidth White Gaussian Noise





DG2000 Series Function/Arbitrary Waveform Generator





Dimensions: W×H×D = 261.5 mm × 112 mm × 318.4 mm Weight: 3.2 kg (Package Excluded)



Function Interface

Dual-channel with the same performance





Arbitrary waveform function with the unique SiFi II technology



RIGOL	Continuous	\$ ⁴ LXI
Freq 🗘	1.000,000,000 kHz	
Ampl 🕻	5.000,0 Vpp	
Offset 🕻	0.000,0 Vdc	$\langle \rangle$
Phase	0.000 °	
1 Sine HighZ	2 Sine HighZ	🗅 🌣 😂 着 🛁

160 built-in arbitrary waveforms



Burst function



 RIGOL
 Burst
 CVI

 Delay
 0.0 ns
 Image: Sine

 Cycles
 1

 Period
 10.000,000,0 ms

 Idle Level
 1st Point

 1
 NCycle

 Highz
 2

 Arb
 Highz

Various analog and digital modulation functions







Function/Arbitrary Waveform Generator DG2000 Series

Sweep function



Standard harmonic generator function



PRBS function





Dual-tone function



RS232 function



Sequence function







Function/Arbitrary Waveform Generator DG2000 Series

Waveform combine function

IGOL	ChannelSet	\$ LXI
OutputSet	Combine	On Off
SyncSet	Waveform	Sine
CombineSet	Freq	1.000,000,000 kHz
CoupleSet	Ratio	10.0 %
Harm HighZ 2 Noi	se HighZ	

Standard 7 digits/s, 240 MHz bandwidth frequency counter

RIGOL		Counter	\$	
K Back	Status	Run 🔶	Single	
	Freq: (001.000,000,0 kHz		
	Period	999.999,9 us		\rangle
	Duty	50.088 %		
	+Width	500.881,5 us		
	-Width	499.118,4 us		

Channel and system setting



File management function	



RIGOL	Utility	\$* LXI
< Back		
System Setting	Language	English
Interface	Power-on	Default
بب	Clk Source	Internal
System Info	Beeper	On Off
Option	Decimal	



Specifications

Unless otherwise specified, all the specifications can be guaranteed when the following two conditions are met.

- The signal generator is within the calibration period.
- The signal generator has been running ceaselessly for over 30 minutes under the specified operating temperature (23°C ± 5°C).
- All the specifications are guaranteed except the parameters marked with "Typical".

DG2000 series specifications

Model	DG2052	DG2072	DG2102
Channel	2	2	2
Max. Frequency	50 MHz	70 MHz	100 MHz
Sample Rate	250 MSa/s		

Waveform	
Basic Waveforms	Sine, Square, Ramp, Pulse, Noise, DC, Dual-tone
Advanced Waveforms	PRBS, RS232, Sequence
Built-in Arbitrary Waveforms	160 types of waveforms, including Sinc, Exponential Rise, Exponential Fall, ECG, Gauss, HaverSine, Lorentz, etc.

Frequency Characteristics			
Sine	1 µHz to 50 MHz	1 µHz to 70 MHz	1 µHz to 100 MHz
Square	1 µHz to 15 MHz	1 µHz to 20 MHz	1 µHz to 25 MHz
Ramp	1 µHz to 1.5 MHz	1 µHz to 1.5 MHz	1 µHz to 2 MHz
Pulse	1 µHz to 15 MHz	1 µHz to 20 MHz	1 µHz to 25 MHz
Harmonic	1 µHz to 20 MHz	1 µHz to 20 MHz	1 µHz to 25 MHz
PRBS	2 kbps to 40 Mbps	2 kbps to 50 Mbps	2 kbps to 60 Mbps
Dual-tone	1 µHz to 20 MHz	1 µHz to 20 MHz	1 µHz to 20 MHz
RS232	baud rate range: 9600, 1440	00, 19200, 38400, 57600, 115200, 12	8000, 230400
Sequence	2 k to 60 MSa/s		
Noise (-3 dB)	100 MHz bandwidth		
Arbitrary Waveform	1 µHz to 15 MHz	1 µHz to 20 MHz	1 µHz to 20 MHz
Resolution	1 µHz		
Accuracy	±(1 ppm of the setting value	+ 10 pHz), 18°C to 28°C	

Sine Wave Spectrum Purity	
Harmonic Distortion	Typical ^[1] DC to 10 MHz (included): <-55 dBc 10 MHz to 20 MHz (included): <-50 dBc 20 MHz to 40 MHz (included): <-40 dBc >40 MHz: <-35 dBc
Total Harmonic Distortion ^[1]	<0.075% (10 Hz to 20 kHz)
Spurious (non-harmonic)	Typical ^[1] ≤10 MHz: <-60 dBc >10 MHz: <-60 dBc + 6 dB/octave
Phase Noise	Typical (0 dBm, 10 kHz offset) 10 MHz: <-105 dBc/Hz

Signal Characteristics	
Square	
Rise/Fall Time	Typical (1 Vpp, 1 kHz) ≤9 ns
Overshoot	Typical (100 kHz, 1 Vpp) ≤5%
Duty	0.01% to 99.99% (limited by the current frequency setting)
Non-symmetry	1% of the period + 4 ns
Jitter (rms)	Typical (1 Vpp) ≤5 MHz: 2 ppm of the period + 200 ps >5 MHz: 200 ps
Ramp	
Linearity	≤1% of peak output (typical, 1 kHz, 1 VPP, 100% symmetry)
Symmetry	0% to 100%

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Pulse	
Pulse	16 ns to 1000 ks (limited by the current frequency setting)
Duty	0.001% to 99.999% (limited by the current frequency setting)
Rising/Falling Edge	≥8 ns (limited by the current frequency setting and pulse width setting)
Overshoot	Typical (1 Vpp, 1 kHz) ≤5%
Jitter (rms)	Typical (1 Vpp) ≤5 MHz: 2 ppm of the period + 200 ps >5 MHz: 200 ps
Arbitrary Waveform Seque	nce
Naveform Length	16 Mpts
Vertical Resolution	16 bits
Sample Rate	Interpolation filter: 10 Sa/s to 60 MSa/s Step filter: 2k Sa/s to 50 MSa/s Smooth filter: 2k Sa/s to 50 MSa/s
Min Rise/Fall Time	Interpolation filter: ≥8 ns Step filter: 3.0/sample rate Smooth filter: 1.0/sample rate
Jitter (rms)	Typical (1 Vpp) Interpolation filter: 200 ps Step filter: <5 ps Smooth filter: <5 ps
Overshoot	Typical (1 Vpp) ≤5%
Harmonic Output	
Harmonic Order	<8 <8
Harmonic Type	Even Harmonic, Odd Harmonic, Order Harmonic, User
Harmonic Amplitude	The amplitude of each order of the harmonic can be set.
Harmonic Phase	The phase of each order of harmonic can be set.
Output Characteristics	
Amplitude (into 50 Ω)	
Range	≤10 MHz: 1.0 mVpp to 10 Vpp≤30 MHz: 1.0 mVpp to 5.0 Vpp≤60 MHz: 1.0 mVpp to 2.5 Vpp>60 MHz: 1.0 mVpp to 1 Vpp
Accuracy	Typical (1 kHz sine, 0 V offset, >10 mVpp, auto) ±(1% of the setting value) ± 5 mV
Flatness	Typical (Sine, 1 Vpp) <5 MHz: ±0.1 dB <15 MHz: ±0.2 dB <25 MHz: ±0.3 dB <40 MHz: ±0.5 dB >40 MHz: ±1 dB
Unit	Vpp, Vrms, dBm
Resolution	0.1 mVpp or 4 digits
Offset (into 50 Ω)	
Range(Peak ac+dc)	±5 Vpk ac+dc
Accuracy	\pm (1% of the setting value + 5 mV + 1% of the amplitude)
Naveform Output	
Output Impedance	50 Ω (typical)
Protection	Short-circuit protection, automatically disable the waveform output when overload occurs
Modulation Characteristics	
Modulation Type	AM, FM, PM, ASK, FSK, PSK, PWM
AM	
Carrier Waveform	Sine, Square, Ramp, Arb
Source	Internal/External
NA 1 1 12 1347 6	

Sine, Square, Ramp, Noise, Arb

0% to 120%

Modulating Waveform

Modulation Depth



Carrier Waveform Sine. Square, Ramp, Arb Source Internal/External Modulation Frequency 2, mHz to 1 MHz PM Carrier Waveform Sine. Square, Ramp, Noise, Arb Modulation Frequency 2, mHz to 1 MHz PM Carrier Waveform Sine. Square, Ramp, Arb Carrier Waveform Sine. Square, Ramp, Arb Carrier Waveform Sine. Square, Ramp, Arb Source Internal/External Modulating Waveform Sine. Square, Ramp, Arb Carrier Waveform Sine. Square, Ramp, Arb Carrier Waveform Sine. Square, Ramp, Arb Source Internal/External Modulating Waveform Sine. Square, Ramp, Arb Carrier Waveform Sine. Square, Ramp, Arb Source Internal/External Modulating Waveform Sine. Square, Ramp, Arb Source Internal/External Modulating Waveform Sine. Square, Ramp, Arb Carrier Waveform Sine. Square, Ramp, Arb Source Internal/External Modulating Waveform Sine. Square, Ramp, Arb Carrier Waveform Sine. Square, Ramp, Arb Source Internal/External Modulating Waveform Sine. Square, Ramp, Arb Carrier Waveform Sine. Square, Ramp, Arb Source Internal/External Modulating Waveform Sine. Square, Ramp, Arb Carrier Waveform Sine. Square, Ramp, Arb Source Internal/External Modulating Waveform Sine. Square, Ramp, Noise, Arb Modulating Maveform Sine. Square, Ramp, Nois	Source Internal@External Modulation Frequency 2 mitz to 1 MHz PM Carrier Waveform Sine, Square, Ramp, Note, Arb Source Internal@External Modulation Modulation Frequency 2 mitz to 1 MHz M Source Internal@External Modulation Modulation Frequency 2 mitz to 1 MHz M ASK Carrier Waveform Sine, Square, Ramp, Arb Carrier Waveform Source Internal@External Modulation Frequency Z mitz to 1 MHz ASK Carrier Waveform Sine, Square, Ramp, Arb Source Garrier Waveform Sine, Square, Ramp, Arb Source Internal@External Modulating Waveform Square wth 50% duty cycle Key Frequency Z mitz to 1 MHz PSK Carrier Waveform Sine, Square, Ramp, Arb Source Modulating Waveform Square wth 50% duty cycle Key Frequency Z mitz to 1 MHz PSK Carrier Waveform Sine, Square, Ramp, Arb Source Modulating Waveform Sine, Square, Ramp, Arb Source Internal@		
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	Measurement Function Frequency, Period, Positive/Negative Pulse Width, Duty Cycle	_	
	Frequency Resolution 7 digits/s (Gate Time = 1 s)		
Frequency Resolution 7 digits/s (Gate Time = 1 s)		Frequency Resolution	7 digits/s (Gate Time = 1 s)



Function/Arbitrary Waveform Generator DG2000 Series

Frequency Range	1 µHz to 240 MHz			
Period Measurement	Measurement Range	4 ns to 1,000 ks		
Voltage Range and Sensitivity	y (non-modulating signal)			
	DC Offset Range	±1.5 Vdc		
DC Coupling	1 µHz to 100 MHz	50 mVRMS to ±2.5 (Vac+dc)		
	100 MHz to 240 MHz	100 mVRMS to ±2.5 (Vac+dc)		
AC Coupling	1 µHz to 100 MHz	50 mVRMS to ±2.5 Vpp		
Ac coupling	100 MHz to 240 MHz	100 mVRMS to ±2.5 Vpp		
Pulse Width and Duty Cycle M	Measurement			
Frequency and Amplitude Ranges	1 µHz to 25 MHz	50 mVRMS to ±2.5 (Vac+dc)		
Pulse Width	Min. Pulse Width	≥20 ns	DC Coupling	
	Pulse Width Resolution	5 ns		
Duty	Measurement Range (display)	0% to 100%		
Input Characteristics				
Input Signal Range	Disruptive Discharge Voltage	±7 (Vac+dc)	Input Impedance = 1 MΩ	
	Coupling Mode	AC	DC	
Input Adjustment	High Frequency Rejection	On: Input Bandwidth = 150 kHz; Off: Input Bandwidth = 240 MHz		
Input Trigger	Trigger Level Range	-2.5 V to +2.5 V		
input mggei	Trigger Sensitivity Range	High, Low		
	1 ms	1.048 ms		
	10 ms	8.389 ms		
GateTime	100 ms	134.218 ms		
Gaterime	1 s	1.074 s		
	10 s	8.590 s		
	>10 s	>8.590 s		

Trigger Characteristics		
Trig Input		
Level	TTL-compatible	
Slope	Rising or falling (selectable)	
Pulse Width	>100 ns	
Latency	Sweep: <100 ns (typical) Burst: <350 ns (typical)	
Trigger Output		
Level	TTL-compatible	
Pulse Width	>60 ns (typical)	
Max. Frequency	1 MHz	

Two-channel Characteristics - Phase Offset			
Range	0° to 360°		
Waveform Phase Resolution	0.03°		

10 MHz ± 50 Hz
250 mVpp to 5 Vpp
<2 s
1 kΩ, AC coupling
10 MHz ± 50 Hz
3.3 Vpp
50 Ω, AC coupling

Synchronous Output		
Level	TTL-compatible	
Impedance	50 Ω, nominal value	



Overvoltage Protection

Occurred when:

The instrument amplitude setting is greater than 3.2 Vpp or the output AC+DC is greater than $|1.6V_{DC}|$ and the input voltage is greater than $\pm 12 \times (1 \pm 5\%)V$ (<10 kHz).Disruptive discharge voltage: $\pm 18(Vac + dc)$.

The instrument amplitude setting is smaller than or equal to 3.2 Vpp or the output AC+DC is smaller than $|1.6V_{DC}|$ and the input voltage is greater than $\pm 2.6 \times (1 \pm 5\%)V$ (<10 kHz).Disruptive discharge voltage: $\pm 5(Vac + dc)$.

Overcurrent Protection				
Occurred when: the current	is greater than ±240 mA.			
Programming Time				
Configuration Changes	USB			
Function Change	10 ms			
Amplitude Change	5 ms			
Frequency Change	5 ms			
General Specifications				
Power Supply				
Power Voltage	100 V to 127 V (45 Hz to 440 Hz) 100 V to 240 V (45 Hz to 65 Hz)			
Power Consumption	Lower than 30 W			
Display				
Туре	4.3-inch TFT LCD touch screen			
Resolution	480 horizontal × RGB × 272 vertical resolution	1		
Color	16 M	16 M		
Environment				
Temperature Range	Operating: 0°C to 45°C Non-operating: -40°C to 60°C			
Cooling Method	Natural air cooling			
Humidity Range	Below 30°C: ≤95%RH 30°C to 40°C: ≤75%RH 40°C to 50°C: ≤45%RH			
Altitude	Operating: below 3,000 meters Non-operating: below 15,000 meters			
Mechanical Characteristics				
Dimensions (W×H×D)	261.5 mm × 112 mm × 318.4 mm			
Weight	Package excluded: 3.2 kg Package included: 4.5 kg			
Interface	USB Host, USB Device, and USB-GPIB			
IP Protection	IP2X			
Calibration Interval	1 year (recommended)			
Certification Information				
	Compliant with EN61326-1:2006			
	IEC 61000-3-2:2000	±4.0 kV (Contact Discharge) ±4.0 kV (Air Discharge)		
	IEC 61000-4-3:2002	3 V/m (80 MHz to 1 GHz); 3 V/m (1.4 GHz to 2 GHz); 1 V/m (2.0 GHz to 2.7 GHz)		
	IEC 61000-4-4:2004	1kV power line		
EMC	IEC 61000-4-5:2001	0.5 kV (phase-to-neutral voltage); 0.5 kV (phase-to-earth voltage); 1 kV (neutral-to-earth voltage)		
	IEC 61000-4-6:2003	3 V, 0.15 MHz to 80 MHz		
	IEC 61000-4-11:2004	Voltage dip: 0% UT during half cycle 0% UT during 1 cycle 70% UT during 25 cycles Short interruption: 0% UT during 1 cycle		
Electrical Safety	complies with USA: UL 61010-1:2012, Canada: CAN/CSA-C22.2 No. 61010-1-2012 EN 61010-1:2010,			

Options and Accessories

	Description	Order No
Model	DG2052 (50 MHz, Dual-channel)	DG2052
	DG2072 (70 MHz, Dual-channel)	DG2072
	DG2102 (100 MHz, Dual-channel)	DG2102
Standard Accessories	1 Power Cord conforming to the standard of the destination country	-
	1 USB Cable	CB-USBA-USBB-FF-150
	1 BNC Cable	CB-BNC-BNC-MM-100
	1 Quick Guide	-
	1 Product Warranty Card	-
Optional Accessories	40 dB Attenuator	RA5040K
	USB-GPIB Interface Converter	USB-GPIB-L