



2010 No.2

RIGOL T&M Instruments Overview



DS6000 Series Digital Oscilloscope



► Features and Benefits

- Bandwidth 1GHz, 600 MHz
- Sample Rate Up to 5 GSa/s
- Channels 2 or 4
- Memory 140 Mpts(Standard)
- Acquisition rate Up to 120,000 waveforms per second, deep memory with fast response
- Waveform recording Up to 180,000 frames
- Innovative "UltraVision" technology
- A variety of Trigger functions and Automatic measurements with statistics
- Support serial bus trigger and decode
- Dedicated data search knob "WaveFinder"
- Complete Connectivity USB, LAN(LXI-C), WVGA, GPIB(Optional)...
- Built-in 1 GBytes Flash Memory
- Battery power option

► Key features of DS6000 series

1. Industry-leading specifications

- Up to 1 GHz BW with 5 GSa/s sample rate
- Standard 140Mpts deep memory
- Up to 120,000 waveforms per second acquisition rate
- Up to 180,000 frames for waveform record and replay

2. Innovative UltraVision technology

- Deeper memory, higher waveform acquisition rate
- Up to 256 levels intensity grading
- Real time waveform record and replay
- Customized real time hardware filters(LPF,HPF,BPF,BRF)

3. Broad applications

- A variety of Trigger functions and Automatic measurements with statistics
- Support serial bus trigger and decode such as I2C, SPI, RS232, CAN...
- Advanced math function
- Complete Connectivity
- A variety of Probes and accessories

4. Attractive profile

- Large display:10.1 inch WVGA (800x480), LED backlight
- Shallow depth: reduce the space occupied
- Light weight: easy for hand carry even with battery power option

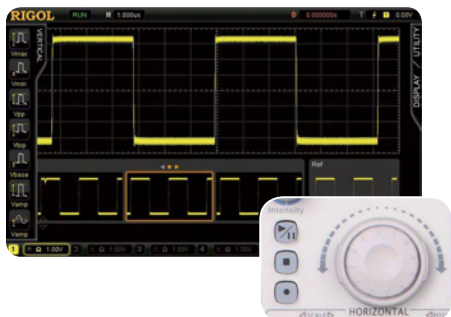
Model	DS6104	DS6102	DS6064	DS6062
Bandwidth	1 GHz	1 GHz	600 MHz	600 MHz
Max. Sample rate	5 GSa/s	5 GSa/s	5 GSa/s	5 GSa/s
Memory(Standard)	140 Mpts	140 Mpts	140 Mpts	140 Mpts
Channels	4	2	4	2
Acquisition rate	Up to 120,000 waveforms per second			
Frames recorded	Up to 180,000 frames			

► Recommended RIGOL probes

Model	Descriptions
RP5600	600 MHz Passive probe
RP7150	1.5 GHz differential/single ended active probe(Optional)

► Features and Benefits

UltraVision
Real time waveform record and replay



- Up to 180,000 frames recorded
- "WaveFinder"--Dedicated data search knob
- Replay and analyze the recorded waveforms

► Probes

RP5600 10:1 divider passive probe



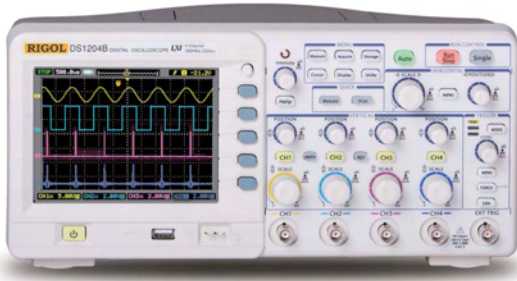
- 600 MHz Bandwidth
- 10:1 passive probe
- Shipped with probe positioner and its accessories
- Identified by DS6000 automatically

RP7150 1.5GHz BW active probe (optional)



- 1.5 GHz Bandwidth
- Active probe, support both differential and single-ended measurements
- Shipped with the browser probe head and its accessories
- Identified by DS6000 automatically

DS1000B Series LXI Class C Compliant Digital Oscilloscope



- Features and Benefits**
- 4 analog channels
 - 2 GSa/s Real-time Sample Rate and 50 GSa/s Equivalent-time Sample Rate
 - Compact design with small footprint to save bench space
 - 5.7" TFT QVGA (320x240) with 64K color LED backlight display with power save mode
 - Advanced trigger modes including Edge, Video, Pulse Width, Alternate and Pattern trigger across 4 analog channels
 - Built-in USB Host and USB Device to support USB flash drive, PictBridge printers and direct system upgrades
 - LXI Class C certified LAN Ethernet connectivity standard

► Specifications

Model	DS1204B	DS1104B	DS1064B
Bandwidth	200 MHz	100 MHz	60 MHz
Memory Depth	Up to 16 kpts (half channel), 8 kpts (each channel)		
Channels	4 channels + external trigger		
Real-time Sample Rate	2 GSa/s (half channel), 1 GSa/s (each channel)		
Equivalent-time Sample Rate	50 GSa/s	25 GSa/s	10 GSa/s
Rise Time	1.8 ns	3.5 ns	5.8 ns
Input Impedance	1 MΩ 18 pF		
Timebase Range	1 ns/div ~ 50 s/div	2 ns/div ~ 50 s/div	5 ns/div ~ 50 s/div
Trigger modes	Edge, Video, Pulse Width, Alternate, pattern trigger across 4 analog channels		
Vertical Sensitivity	2 mV/div ~ 10 V/div		
Vertical Resolution	8 bits		
Maximum Input voltage	All Inputs 1MΩ 18pF 300Vrms Max CAT I		

DS1000CA Series Digital Oscilloscope



- Features and Benefits**
- Up to 200 MHz Bandwidth
 - 2 GSa/s Real-time Sample Rate and 50 GSa/s Equivalent-time Sample Rate
 - Compact design with small footprint to save bench space
 - 5.6" 64K color TFT LCD Display
 - Up to 2000 wfms/s Waveform Update Rate
 - Advanced trigger modes including Edge, Video, Pulse Width, Slope and Alternate
 - Built-in USB Host and USB Device to support USB flash drive and direct system upgrades

► Specifications

Model	DS1302CA	DS1202CA	DS1102CA	DS1062CA
Bandwidth	300 MHz	200 MHz	100 MHz	60 MHz
Memory Depth	Up to 10 kpts (5 kpts on 2 channels)			
Channels	2 channels + external trigger			
Real-time Sample Rate	2 GSa/s (1 GSa/s on 2 channels)			
Equivalent-time Sample Rate	50 GSa/s	25 GSa/s		10 GSa/s
Rise Time	1.2 ns	1.8 ns	3.5 ns	5.8 ns
Input Impedance	1 MΩ 15 pF, 50 Ω			
Timebase Range	1 ns/div ~ 50 s/div	2 ns/div ~ 50 s/div		5 ns/div ~ 50 s/div
Trigger Modes	Edge, Video, Pulse Width, Slope, Alternate			
Vertical Sensitivity	1 mV/div ~ 10 V/div			
Vertical Resolution	8 bits			
Maximum Input voltage	All Inputs 1MΩ 15pF 300V CAT I or 50Ω 5Vrms Max			

DS1000E • DS1000D Series Digital Oscilloscope



- Features and Benefits**
- A true mixed signal oscilloscope with a 16 channel Logic Analyzer (DS1000D)
 - 1 GSa/s maximum Real-time Sample Rate and 1 Mpts Memory Depth
 - Bandwidth: 50MHz and 100MHz
 - Extensive set of trigger modes including: Edge, Video, Pulse Width, Slope, Alternate
 - 64 k TFT Color LCD, bright and vivid waveform display
 - Direct print to PictBridge compatible printers via USB Device interface
 - Compact design to save your desktop space

► Specifications

Model	DS1102E	DS1052E
	DS1102D	DS1052D
Bandwidth	100MHz	50MHz
Channels	2 Channels + External Trigger	
Real-time Sample Rate	1 GSa/s (Single Channel), 500 MSa/s (Dual Channels)	
Equivalent-time Sample Rate	25 GSa/s	10 GSa/s
Rise Time	3.5 ns	7 ns

Memory Depth	Mode	capture Rate	common	long memory
	one Channel	1 GSa/s 500 MSa/s or less	16 kpts 16 kpts	N/A 1 Mpts
	dual Channels	500 MSa/s or less 250 MSa/s or less	8 kpts 8 kpts	N.A. 512 kpts
	Timebase Range	2 ns/div ~ 50 s/div		
Trigger Modes	Edge, Video, Pulse Width, Slope, Alternate			
Vertical Resolution	8 bits			
Vertical Sensitivity	2 mV/div ~ 10 V/div			
Maximum Input Voltage	All inputs 1 MΩ II 15 pF 300 V RMS CAT I			

MSO Logic Analyzer	DS1102D	DS1052D
Channels	16 logic Channels	
Sample Rate	200 MSa/s (each channel)	
Record Length	512 kpts (each channel)	
Trigger Modes	Pattern, Duration	
Threshold Selections	TTL=1.4 V, CMOS=2.5 V, ECL=-1.3 V, USER=-8 V to + 8 V	

► DS1000D Logic Analyzer Module

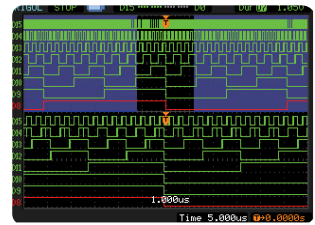
Mixed Signal Oscilloscope (MSO) with 16 channels Logic Analyzer (LA). LA is divided into two groups: D7-D0, D15-D8. Each works separately.



Logic Analyzer Module



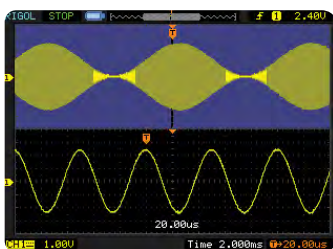
Pattern Trigger
The trigger condition is a combination of the level of the signal and the edge



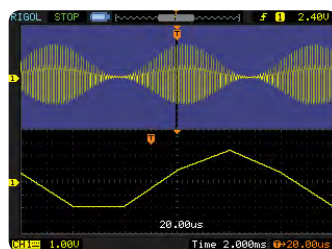
Duration Trigger
A combination of Pattern Trigger and Pulse Width Trigger capabilities make isolation of events easy

► Deep Memory

See both the envelop and the detail of the waveform



1Mpts Memory



2Kpts Memory

RIGOL Digital Scope Probes

► RIGOL Digital Scope Probes Selection guide

Model Number	RP2200	RP3300	RP5600	RP1300H	RP1050H	RP7150
Attenuation Ratio	1:1 or 10:1	1:1 or 10:1	10:1	100:1	1000:1	10:1
Bandwidth	1X:DC~7 MHz	1X: DC~8 MHz	DC~600 MHz	DC~300 MHz	DC~50 MHz	DC~1500MHz
Input R	10X:DC~150 MHz 1X:1MΩ ± 2%	10X:DC~350 MHz 1X: 1 MΩ ±2%	10 MΩ ± 2 %	100 MΩ	10 MΩ ± 0.5 %	Differential mode: 50kΩ±1% Single ended mode: 37kΩ±1% Cm is 0.2 pF
Input C	1X:100 pF ± 20 pF 10X:17 pF ± 5 pF	1X: 100 pF ± 20pF 10X: 17 pF ± 5 pF	12 pF ± 3 pF	5.5 pF	3 pF±0.5 pF	
Compensation Range	5 pF~29 pF	5pF~29 pF	6 pF~16 pF	10 pF~35 pF	5 pF ~ 50 pF	
Max.Input voltage	1X:CAT II 150 V AC 10X:CAT II 300 V AC	1X: CAT II 150 V AC 10X:CAT II 300 V AC	CAT II 300 VAC	CAT I 2000V(DC+AC), CAT II 1500 V(DC+AC)	DC: 0~15 KV DC AC: pulse <=30 KVp-p AC: sine wave <=10 KVrms	~30V(DC+AC)
RIGOL scope	1000B,1000CA,	1000B,1000CA,	1000B,1000CA,	1000B,1000CA,	1000B,1000CA,	6000
Compatibility	1000D,1000E,6000	1000D,1000E,6000	1000D,1000E,6000	1000D,1000E,6000	1000D,1000E,6000	
Recommended applications	Small signal test (1X) General purpose test	Small signal test (1X) General purpose test	General purpose test	High voltage test	High voltage test	Differential /Single ended high frequency signal test

► RIGOL Digital Scope Passive Probes



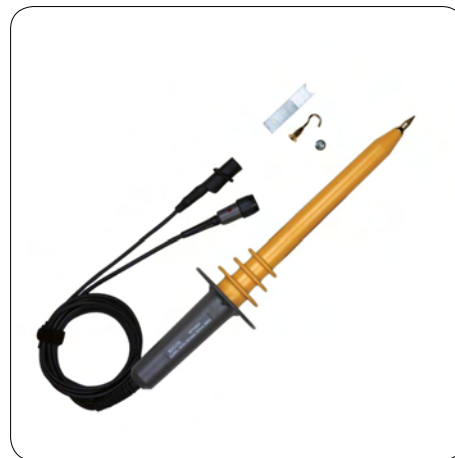
RP2200



RP3300



RP1300H



RP1050H

DSA1000A series Spectrum Analyzer



- **Features and Benefits**
- 9 kHz - 3 GHz Frequency Range
 - -148 dBm Displayed Average Noise Level (DANL)
 - -88 dBc/Hz@10 kHz Phase Noise (typ.)
 - Overall Amplitude accuracy <1.0 dB
 - 10 Hz Minimum Resolution Bandwidth (RBW)
 - Standard with Pre-amplifier
 - 3 GHz Tracking Generator (option)
 - Built-in lithium battery that can provide 3 hours continuous operation (option)
 - Breadth of measurement functions and automatic settings provide ultimate flexibility
 - 8.5 inch widescreen display with clear, vivid, and easy to use graphical interface
 - Various interface options such as LAN/USB host, USB device, VGA or GPIB (option)
 - Compact design with a weight of only 13.7 lbs (without battery)

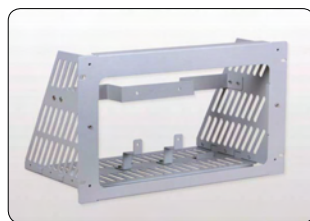
► **Specifications**

Frequency		
Frequency Range	DSA1030A	9 kHz to 3 GHz
Frequency Resolution		1 Hz
SSB phase noise		
Carrier Offset	10 kHz	<-88 dBc/Hz typ.
	100 kHz	<-100 dBc/Hz typ.
	1 MHz	<-110 dBc/Hz typ.
Note: typical $f_c = 500$ MHz, $RBW \leq 1$ kHz, sample detector, and trace average ≥ 50 .		
Bandwidths		
Resolution Bandwidth (-3 dB)		10 Hz to 1 MHz, in 1-3-10 sequence
RBW Uncertainty		< 5%, nominal
Resolution Filter Shape Factor (60 dB: 3 dB)		< 5, nominal
Video Bandwidth (-3 dB)		1 Hz to 3 MHz, in 1-3-10 sequence
Displayed Average Noise Level (DANL)		
0dB RF attenuation, $RBW=VBW=10$ Hz, sample detector, trace average ≥ 50		
DANL (Pre-amplifier Off)	100 kHz to 10 MHz	<-85 dBm-3 × (f/1 MHz)dB, typ. -125 dBm
	10 MHz to 2.5 GHz	<-127 dBm+3 × (f/1 GHz)dB, typ. -130 dBm
	2.5 GHz to 3 GHz	<-115 dBm
DANL (Pre-amplifier On)	100 kHz to 1 MHz	<-103 dBm
	1 MHz to 10 MHz	<-103 dBm-3 × (f/1 MHz)dB, typ. -143 dBm
	10 MHz to 2.5 GHz	<-145 dBm+3 × (f/1GHz)dB, typ. -148 dBm
	2.5 GHz to 3 GHz	<-133 dBm

► **Options and Accessories**



Tracking Generator



Rack Mount Kit (DSA1000-RMSA)



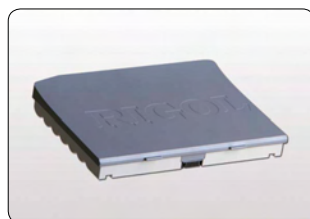
Front Panel Cover



Soft Carrying Bag (DSA1000-SCBA)



USB to GPIB Converter(USB-GPIB)



Battery option (BAT)



Desk Mount Instrument Arm (ARM)

DSA1000 Series Economic Spectrum Analyzer



► Features and Benefits

- 9 kHz to 2 GHz or 3 GHz Frequency Range
- -138 dBm Displayed Average Noise Level
- -80 dBc/Hz @ 10 kHz offset Phase Noise
- Total Amplitude Uncertainty <1.5 dB
- 100 Hz Minimum Resolution Bandwidth (RBW)
- 3 GHz Tracking Generator (DSA1030 optional)
- Built-in lithium battery that can provide 3 hours continuous operation (optional)
- Advanced measurement functions (DSA1030 optional) and automatic settings provide ultimate flexibility
- 8.5 inch widescreen display with clear, vivid, and easy to use graphical interface
- Various interface options such as LAN/USB Host, USB Device, VGA or GPIB (optional)
- Compact design with a weight of only 13.7 lbs (without battery)

► Specifications

Frequency		
Frequency Range	DSA1020	9 kHz to 2 GHz
	DSA1030	9 kHz to 3 GHz
Frequency Resolution		1 Hz
SSB phase noise		
Carrier Offset	10 kHz	<-80 dBc/Hz
Note: typical $f_c = 500$ MHz, $RBW \leq 1$ kHz, sample detector, and trace average ≥ 50 .		
Bandwidths		
Resolution Bandwidth (-3 dB)		100 Hz to 1 MHz, in 1-3-10 sequence
RBW Uncertainty		< 5%, nominal
Resolution Filter Shape Factor (60 dB: 3 dB)		< 5, nominal
Video Bandwidth (-3 dB)		1 Hz to 3 MHz, in 1-3-10 sequence
Displayed Average Noise Level (DSA1020)		
0dB RF attenuation, RBW=100Hz, VBW=10Hz, sample detector, trace average ≥ 50		
DANL	100 kHz to 10 MHz	<-75 dBm-3 × (f/1 MHz) dB, typ. -115 dBm
	10 MHz to 2 GHz	<-117 dBm+3 × (f/1 GHz) dB, typ. -120 dBm
Displayed Average Noise Level (DSA1030)		
0dB RF attenuation, RBW=100Hz, VBW=10Hz, sample detector, trace average ≥ 50		
DANL (Preamplifier Off)	100 kHz to 10 MHz	<-75 dBm-3 × (f/1 MHz) dB, typ. -115 dBm
	10 MHz to 2.5 GHz	<-117 dBm+3 × (f/1 GHz) dB, typ. -120 dBm
	2.5 GHz to 3 GHz	<-105 dBm
DANL (Preamplifier On)	100 kHz to 1 MHz	<-93 dBm
	1 MHz to 10 MHz	<-93 dBm-3 × (f/1 MHz) dB, typ. -133 dBm
	10 MHz to 2.5 GHz	<-135 dBm+3 × (f/1 GHz) dB, typ. -138 dBm
	2.5 GHz to 3 GHz	<-123 dBm

► Options and Accessories



Tracking Generator



Advanced Measurement Kit



Rack Mount Kit (DSA1000-RMSA)



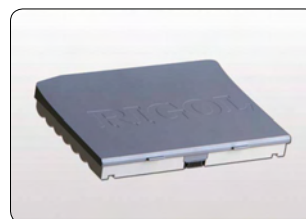
Front Panel Cover



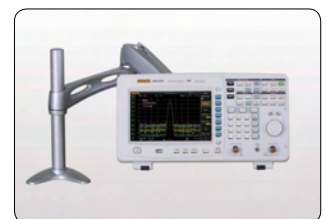
Soft Carrying Bag (DSA1000-SCBA)



USB to GPIB Converter (USB-GPIB)



Battery option (BAT)



Desk Mount Instrument Arm (ARM)

DG5000 Series Function/Arbitrary Waveform Generators

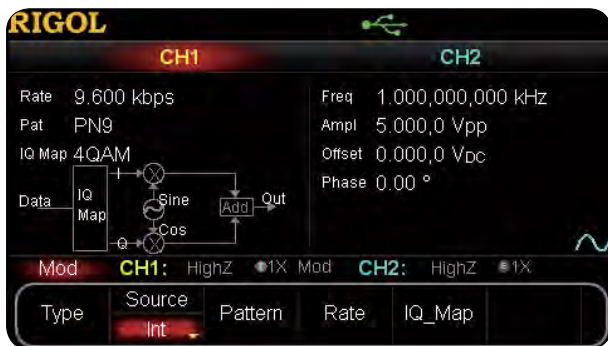


► Features and Benefits

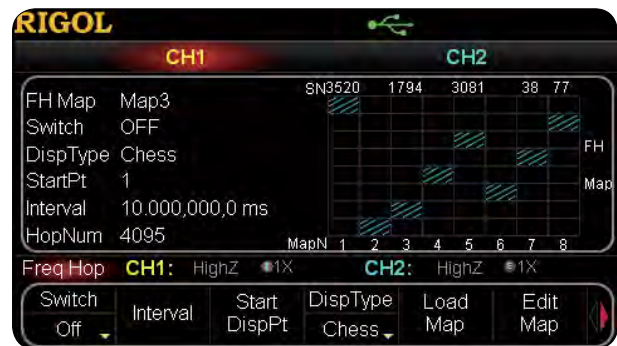
- Up to 350MHz BW, 1GSa/s, 14bits vertical resolution, 128Mpts waveform length per channel
- Direct Digital Synthesizer(DDS) Technology, High quality Output signals with lower distortion
- Versatile waveforms generation: Sine, Square, Ramp, Triangle, Pulse, White noise, DC, Index up, Index down, Sinc, Electrocardiogram
- Versatile modulation functions: AM, FM, PM, ASK,FSK,PSK,PWM, Sweep, Burst
- Built in IQ modulation: BPSK,QPSK,OQPSK, $\pi/4$ DQPSK,8PSK,D8PSK, 16PSK, 4QAM,8QAM,16QAM,32QAM,64QAM
- Frequency hopping option with user defined pattern, table and sequence
- USB Host, USB Device, LAN(LXI-Class C), GPIB
- 4.3 inch 16M true color TFT LCD
- Versatile signal inputs and outputs

Model	DG5352	DG5351	DG5252	DG5251	DG5102	DG5101
Channel	2	1	2	1	2	1
Maximum Output Frequency	350 MHz		250 MHz		100 MHz	
Connectivity	USB Host, USB Device, LAN, GPIB					
Option	Frequency Hopping, Logic Digital Output Module, PA1011					

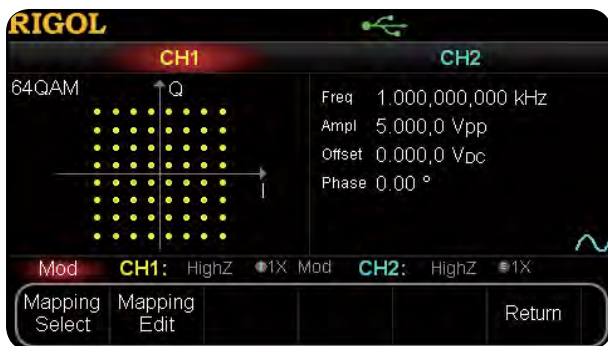
► Advanced functions



IQ Modulation



Frequency Hopping



IQ Mapping Selection



IQ Mapping Edit

DG3000 Series Function/Arbitrary Waveform Generators



► Features and Benefits

- The world's first Mixed Signal Generator (MSG) with 16 logic channels and 2 clock channels
- Advanced Direct Digital Synthesis (DDS) Technology, 300 MSa/s maximum sample rate and 120 MHz maximum output frequency, 14 bits vertical resolution, 512 kpts of Waveform Length
- Connectivity: USB Host, USB Device, LAN, GPIB and RS-232
- Connect to RIGOL DS1000 series digital oscilloscopes directly

Model	DG3121A	DG3101A	DG3061A
Maximum Output Frequency	120 MHz	100 MHz	60 MHz
Connectivity	USB Device, LAN, GPIB, RS-232, USB Host		
Option	Logic Signal Output Module		

► Specifications

Model	DG3121A	DG3101A	DG3061A
Standard Waveform	Sine, Square, Ramp, Triangle, Pulse, White noise, DC, Index up, Index down, Sinc, Electrocardiogram		
Frequency characteristics			
Sine	1 μ Hz ~ 120 MHz	1 μ Hz ~ 100 MHz	1 μ Hz ~ 60 MHz
Square	1 μ Hz ~ 60 MHz	1 μ Hz ~ 50 MHz	1 μ Hz ~ 30 MHz
Pulse	500 μ Hz ~ 30 MHz	500 μ Hz ~ 25 MHz	500 μ Hz ~ 20 MHz
Ramp	1 μ Hz ~ 1 MHz	1 μ Hz ~ 1 MHz	1 μ Hz ~ 1 MHz
White Noise	50 MHz bandwidth (-3dB)	40 MHz bandwidth (-3dB)	30 MHz bandwidth (-3dB)
Output Mode			
Burst	Count (1 to 65,536 periods), Infinite, gated		
Sweep	Linear or Logarithmic		
Amplitude Characteristics			
Amplitude	10 mVpp ~ 10 Vpp (into 50 Ω) 20 mVpp ~ 20 Vpp (into open circuit)		
Modulate Characteristics			
Mode	AM, FM, PM, FSK, PWM-internal or external		
Frequency of Modulation	2 mHz ~ 20 kHz (FSK 2 mHz to 100 kHz)		
Arbitrary Waveform Characteristics			
Frequency Range	1 μ Hz ~ 25 MHz		
Waveform Length	2 pts ~ 512 kpts		
Amplitude Resolution	14 bits		
Sample Rate	300 MSa/s		
Arbitrary Waveform Characteristics			
Connectivity	USB Host, USB Device, RS-232, LAN, GPIB		
Power Supply	AC, 100-240 V, 45-440 Hz, 50 VA Max		

► Options and Accessories

With the Logic Signal Output Module, RIGOL DG3000 series is the worldwide first Mixed Signal Generator (MSG) featuring 16 digital data channels and 2 clock channels.



Logic Signal Output Module



10W Power Amplifier PA1011



BNC Cable



RS-232 Cable

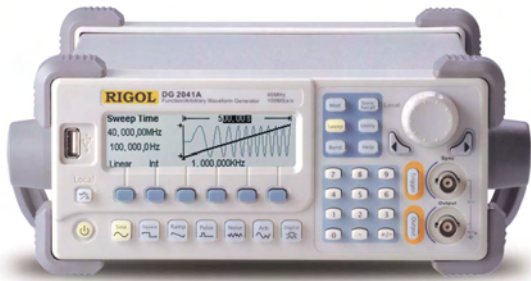


50 Ω Impedance Adaptor



40 dB Attenuator

DG2000 Series Function/Arbitrary Waveform Generators



► Features and Benefits

- Advanced Direct Digital Synthesis (DDS) Technology, 100 MSa/s maximum sample rate and 40 MHz maximum output frequency, 14 bits vertical resolution, 512 kpts Waveform Length
- Connectivity: USB Host, USB Device, LAN, GPIB and RS-232, seamless connectivity with DS series digital oscilloscope
- Integretes pulse width & setting function, PWM function.

► Specifications

Model	DG2041A
Standard Waveform	Sine, Square, Ramp, Triangle, Pulse, White noise, DC, Index up, Index down, Sinc, Electrocardiogram
Frequency characteristics	
Sine	1 μ Hz ~ 40 MHz
Square	1 μ Hz ~ 40 MHz
Pulse	500 μ Hz ~ 16 MHz
Ramp	1 μ Hz ~ 400 kHz
White Noise	20 MHz bandwidth (-3dB)
Arbitrary Waveform Characteristics	
Frequency Range	1 μ Hz ~ 12 MHz
Waveform Length	2 pts ~ 512 kpts
Amplitude Resolution	14 bits
Sample Rate	100 MSa/s
Amplitude Characteristics	
Amplitude	20 mVpp ~ 10 Vpp (into 50 Ω) 40 mVpp ~ 20 Vpp (into open circuit)
Modulation Characteristics	
Modulation Mode	AM, FM, PM, FSK, PWM-internal or external
Frequency of Modulation Waveform	2 mHz ~ 20 kHz (FSK 2 mHz to 100 kHz)
Output Mode	
Burst	Count (1 to 1,000,000 periods), Infinite, Gate
Sweep	Linear or Logarithmic
Other Parameters	
Connectivity	USB Host, USB Device, RS-232, LAN, GPIB
Power Supply	AC:100V-240V, 45Hz-440 Hz, 50VA Max

► Optional Accessories



BNC Cable



50 Ω Impedance Adaptor



40 dB Attenuator



Controlled by PC software through the USB cable

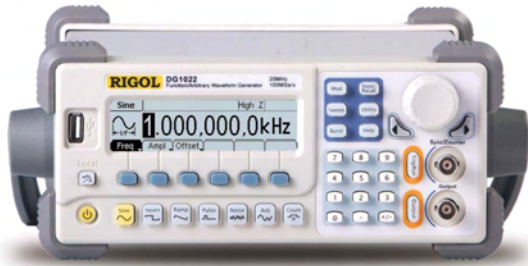


10W Power Amplifier PA1011



RS-232 Cable

DG1000 Series Function/Arbitrary Waveform Generators



- **Features and Benefits**
- Advanced Direct Digital Synthesis (DDS) Technology, 2 analog channels output, 20 MHz maximum output frequency
 - 100 MSA/s maximum sample rate, 14 bits vertical resolution, 4 kpts Waveform Length
 - Built-in high precise counter, the frequency is up to 200 MHz
 - Connectivity: USB Device and USB Host
 - Connect to RIGOL DS1000 series digital oscilloscopes directly

► **Specifications**

Model	DG1022	
Standard Waveform	Sine, Square, Ramp, Pulse, White Noise and 48 kinds of built-in arbitrary function waveforms	
Frequency characteristics		
Sine	1 μ Hz ~ 20 MHz	
Square	1 μ Hz ~ 5 MHz	
Pulse	500 μ Hz ~ 3 MHz	
Ramp	1 μ Hz ~ 150 kHz	
White Noise	5 MHz bandwidth (-3dB)	
Arbitrary Waveform	1 μ Hz ~ 5 MHz	
Channel	CH1	CH2
Arbitrary Waveform Characteristics		
Waveform Length	2 pts ~ 4 kpts	2 pts ~ 1 kpts
Amplitude Resolution	14 bits	10bits
Sample Rate	100 MSA/s	
Amplitude Characteristics		
Amplitude	2 mVpp ~ 10 Vpp (into 50 Ω) 4 mVpp ~ 20 Vpp (into open circuit)	2 mVpp ~ 3 Vpp (into 50 Ω) 4 mVpp ~ 6 Vpp (into open circuit)
Modulation characteristics (CH1)		
Modulation Mode	AM, FM, PM, FSK-internal or external	
Frequency of Modulation Waveform	2 mHz ~ 20 kHz (FSK 2mHz to 50kHz)	
Counter		
Range	100 mHz~200 MHz	
Output Mode		
Burst (CH1)	Count (1 to 50,000 periods) Infinite, Gate	
Sweep (CH1)	Linear or Logarithmic	
Other Parameters		
Connectivity	USB Host, USB Device	
Power Supply	AC: 100 V - 240 V, 45 Hz - 440 Hz, 40 VA Max	

► **Optional Accessories**



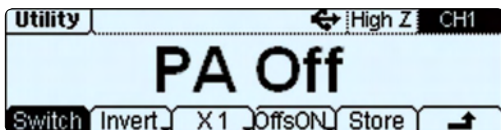
BNC Cable



50 Ω Impedance Adaptor



40 dB Attenuator



10W Power Amplifier PA1011

PA1011 Power Amplifier: 10W maximum power output, 1 MHz full power bandwidth, 50k Ω high input impedance. Adjustable amplifier gain ($\times 1$ or $\times 10$), adjustable output polarity (normal or revert), adjustable output offset (-12V ~ +12 V). It has Seamless connectivity with DG1000 through USB. Easy to operate, integrates output protection circuit (Output over-current protection, temperature over-heats protection) ensure a stable reliable, safe work condition.

DM306X Series Digital Multimeter



► Features and Benefits

- True 6½ digits resolution (2,400,000-count)
- Up to 50 K/s Sample Rate, 512 K of Non-volatile Memory, and 2 M of Volatile Memory
- Patented Any Sensor test capability
- Up to 16 Channels Multiplexer Module: Date acquisition, scanning and programmable automatic measurement
- 256x64 pixels LCD display, to support multi-display and screen menu
- Connectivity: RS-232, USB Host, USB Device, GPIB (optional), LAN (optional)

Model	DM3061	DM3062	DM3064
Reading resolution	6½ digits		
Connectivity	RS-232, USB Host, USB Device	Plus LAN and GPIB	Plus LAN, GPIB and Multiplexer Module

► Specifications

Measurement Function	Range	Frequency Range/ Test Current	Accuracy: 1 Year±(% of reading + % of range)
DC Voltage	200 mV~1000 V		0.0045+0.0005
AC Voltage (True RMS)	200 mV~750 V	3 Hz~300 kHz	0.08+0.06
DC Current	2 mA~10 A		0.065+0.008
AC Current (True RMS)	20 mA~10 A	3 Hz~10 kHz	0.18+0.06
Resistance(2-wire and 4-wire)	200 Ω~100 MΩ		0.014+0.001
Capacitance	2 nF~200 uF		1+0.5
Diode	2.4 V	1 mA	0.020+0.030
Continuity	2000 Ω	1 mA	0.020+0.020
Frequency,Period Accuracy ±(% of reading)	200 mV~750 V	3 Hz~300 kHz	0.02

► Other Parameters

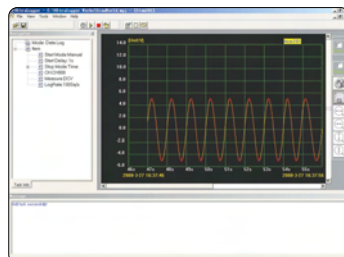
24 Measurement Functions Functions	DC voltage and current, AC voltage and current, 2-wire and 4-wire Resistance, Capacitance, Continuity Test, Diode Test, Frequency, Period, Ratio Test , Temperature and Any Sensor Test
	Math Functions: Max, Min, Avg, High Limit, Low Limit, dBm, dB, Null
	Data acquisition: data logging, scanning, auto test
Other Functions	Built-in memories: Store up to 10 Setups, 10 Data records and 10 Sensor descriptions
	True RMS AC voltage and current
	Input impedance >10 GΩ
	DC voltage range up to 48 V (± 24 V)
Application Software	UltraLogger: For scan measurement and data acquisition control UltraSensor: For any sensors measurement
Maximum Input	DC voltage 1,000 VDC, AC voltage 750 Vrms AC, DC and AC max external current 10 A, internal 12 A double fuses
Safety	Measurement of CAT II 300V, CAT I 1000V, Pollution level 1
Shock and Vibration	MIL-T-28800E, type III, class 5 (only sine)
Power Supply	AC 100V-120V / 200V-240V,45Hz - 65Hz, 20VA Max

► DM3064 Multiplexer Module

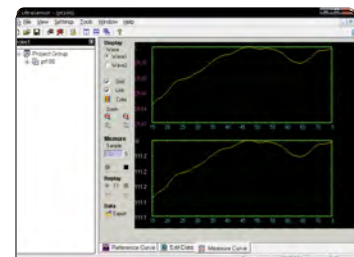
The module provides up to 16 channels of acquisition. The easy to use software allows the user to scan any or all of the 16 channels and save the data into the memory.



Multiplexer Module



UltraLogger Software Interface



Ultrasensor Software Interface

► UltraSensor Software for any types of electrical sensor measurements

DM305X Series 5½Digital Multimeter



- **Features and Benefits**
- True 5½ digits resolution (480,000-count)
 - Up to 50 K/s Sample Rate, 512 K of Non-volatile Memory and 2 M of Volatile Memory
 - Patented Any Sensor test capability
 - Up to 16 Channels Multiplexer Module: Data acquisition, scanning and programmable automatic measurements
 - 256x64 pixels LCD display, to support multi-display and screen menu
 - Connectivity: RS-232, USB Host, USB Device, GPIB (optional), LAN (optional)

Model	DM3051	DM3052	DM3054
Reading resolution	5½ digits		
Connectivity	RS-232, USB Host, USB Device	Plus LAN and GPIB	Plus LAN, GPIB and Multiplexer Module

► **Specifications**

Measurement Function	Range	Frequency Range/Test Current	Accuracy:
DC Voltage	400 mV~1000 V	10Hz~100 kHz	1 Year ±(% of reading + % range) 0.025+0.006
AC Voltage (True RMS)	200 mV~750 V		0.20 + 0.1
DC Current	2 mA~10 A	10Hz~10 kHz	0.050+0.008
AC Current (True RMS)	20 mA~10 A		0.5+0.1
Resistance (2-wire and 4-wire)	400 Ω~100 MΩ		0.015+0.006
Capacitor	4 nF~200 uF		1+0.5
Diode	2.4 V	1mA	0.05 + 0.010
Continuity	2000 Ω	1 mA	0.05 + 0.010
Frequency,Period Accuracy ±(% of reading)	200 mV ~ 750 V 20 mA ~10 A	3 Hz~300 kHz 3 Hz~10 kHz	0.02 0.02

Note: All the indicators are the typical value under standard test situation

► **Other Parameters**

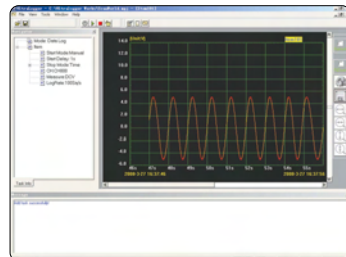
24 Measurement Functions	DC voltage and current, AC voltage and current, 2-wire and 4-wire Resistance, Capacitance, Continuity Test, Diode Test, Frequency, Period, Ratio Test and Any Sensor Test
	Math Functions: Max, Min, Avg, Histogram, High Limit, Low Limit, dBm, dB, Null
	Data acquisition: data logging, scanning
Other Functions	Built-in memories: Store up to 10 Setups, 10 Data records and 10 Sensor descriptions
	True RMS AC voltage and current
	Input impedance >10 GΩ
	DC voltage range up to 48 V (± 24 V)
Application Software	UltraLogger: For scan measurement and data acquisition control UltraSensor: For any sensors measurement
Maximum Input Safety	DC voltage 1,000 VDC, AC voltage 750 Vrms AC, DC and AC max external current 10 A, internal 12 A double fuses
Shock and Vibration	Measurement of CAT II 300V, CAT I 1000V, Pollution level 1
Power Supply	MIL-T-28800, type III, class 5 (only sine) AC: 100V-240V±10%, 45Hz-65Hz, 20VA Max

► **DM3054 Multiplexer Module**

The module provides up to 16 channels of acquisition. The easy to use software allows the user to scan any or all of the 16 channels and save the data into the memory.

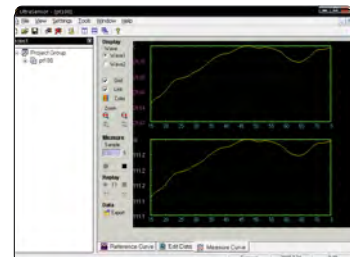


Multiplexer Module



UltraLogger Software Interface

► **UltraSensor Software for any types of electrical sensor measurements**



Ultrasensor Software Interface

DM3068 6½ Digital Multimeter



► Features and Benefits

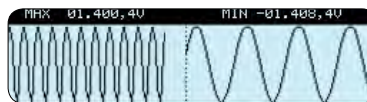
- Real 6 ½ digits readings resolution
- Minimum Integration Time is 0.006PLC
- True-RMS AC Voltage Current measuring
- Quickly Save or Recall the 10 groups of Preset Configuration
- Built-in comprehensive configurations for different kinds of temperature sensors
- Clone or backup all the configurations within instrument into other DM3068 via U-disc
- With easy, convenient and flexible random sensor measurement control software: UltraSensor
- Standard configuration interface: USB Device, USB Host, LAN, RS-232, GPIB, and support U-disc storage and Web remote control
- Support remote control via a command line and enable to compatible with commands from main stream multimeters

► Specifications

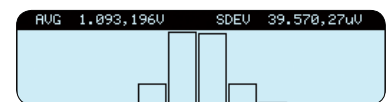
Measurement Function	Range	Frequency Range/Test Current	Accuracy: 1 Year ± (%of reading +%of range)
DC Voltage	200 mV ~ 1000 V		0.0035+0.0005
DC Current	200 μA ~ 10 A		0.050+0.005
AC Voltage (RMS)	200 mV ~ 750 V		0.06+0.03
AC Current (RMS)	200 μA ~ 10 A		0.10+0.04
Resistance (2-wire and 4-wire)	200 Ω ~ 100 MΩ		0.010+0.001
Capacitance	2 nF ~ 100 mF		1.0+0.5
Diode	Fixed at 2.0 V		
Frequency and Period		3 Hz ~ 1 MHz/1 μs ~ 0.33 s	0.007
Continuity	Fixed at 2 KΩ		

► Math Functions

- “Pass/Fail” Limit Test
- Trend
- Histogram
- REL
- Max/Min/Avg/TOTAL /SDEV/STDEV
- dBm
- dB



Trend

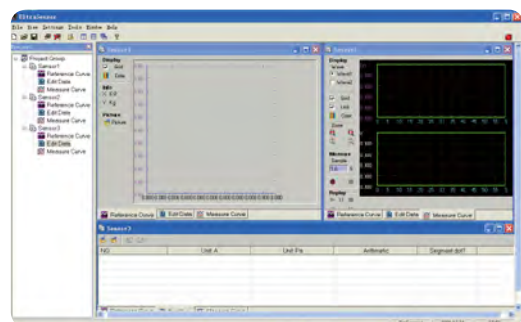


Histogram

► LXI Certificate and Web remote control



► UltraSensor Software for any types of electrical sensor measurements



DM3058 5½ Digital Multimeter



- Features and Benefits**
- True 5½ digits resolution(240,000-count)
 - 123 rdgs/s Maximum Reading Speed
 - 0.015% accuracy of DC Voltage
 - Command compatibility: Replace mainstream DMM randomly via the compatibility of their command
 - Patented Any Sensor test capability
 - 256x64 pixels LCD display, to support multi-display and screen menu
 - Connectivity: GPIB, LAN(LXI Class C), RS-232, USB Host and USB Device

► Specifications

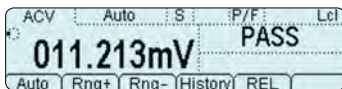
Measurement Function	Range	Frequency Range/Test Current	Accuracy: 1 Year ± (%of reading +%of range)
DC Voltage	200 mV ~ 1000 V		0.015 + 0.003
DC Current	200 µA ~ 10 A		0.055+0.005
AC Voltage (RMS)	200 mV ~ 750 V	20 Hz ~ 100 kHz	0.20 + 0.05
AC Current (RMS)	20 mA ~ 10 A	20 Hz ~ 10 kHz	0.30+0.10
Resistance (2-wire and 4-wire)	200 Ω ~ 100 MΩ		0.020 + 0.003
Capacitance	2 nF ~ 10000 uF		1 + 0.5
Diode	2.4 V	1 mA	0.05 + 0.01
Continuity	2 kΩ	1 mA	0.05 + 0.01
Frequency and Period	200 mV ~ 750 V	20 Hz ~ 1 MHz	0.01+0.003

Note: All the indicators are the typical value under standard test situation

► Other Parameters

Measurement Function	DC Voltage, DC Current, AC Voltage (RMS), AC Current (RMS), Resistance (2-wire and 4-wire), Capacitance, Diodes, Frequency and Period, Continuity, Short Current, Any Sensor
Math	“Pass/Fail” Limit Test, Standard Deviation, Histogram, Relatively, Null, Max/Min/Avg, dBm, dB
Other Functions	Built-in 10 groups of configuration storage, 10 groups of configuration storage of any sensor, 2048 historical reading data record and check, 10 groups of historical datum storage, Exterior trigger input and VMC output, Reading hold, Single trigger
Display Characteristic	Multi-display, Menu, Multi-language help and Waveform display
Safety	CAT I 1000 V/CAT II 600 V, Pollution level 2
Shock and Vibration	MIL-T-28800E, type III, class 5 (sine)
Power Supply	AC 100 V ~ 120 V 45 Hz ~ 440 Hz AC 200 V ~ 240 V 45 Hz ~ 66 Hz 20 VA peak value

► Other Features

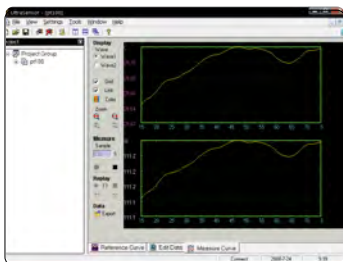


Pass / Fail



Multi-Display

► UltraSensor Software for any types of electrical sensor measurements



Ultrasensor Software Interface

DP116A/DP1308A Programmable DC Power Supply



► Features and Benefits

- 4.3 inch large True Color LCD Display with 480x272 high resolution: Displays multiple parameters and state graph simultaneously.
- DP1308A: Separate Control and Independent Triple Outputs: +6V/5A, +25V/1A, -25V/1A, total 80W power.
- The +6V channel output is electrically isolated from $\pm 25V$ channel output to minimize the interference between the circuits under test.
- DP116A: Single output, dual ranges, 160W power with the remote sense capability
- Clean power with Low ripple noise: < 350 μV_{rms} / 3 mVpp (DP116A); < 350 μV_{rms} / 2 mVpp (DP1308A)
- Excellent line regulation rate: < 0.01% + 2 mV (voltage), < 0.01% + 250 μA (current)
- Excellent load regulation rate: < 0.01% + 2 mV (voltage), < 0.005% + 250 μA (current) (DP116A) < 0.01% + 2 mV (voltage), < 0.010% + 250 μA (current) (DP1308A)
- Fast Transient Response Time: < 50 μs
- DP1308A $\pm 25V$ channels have output tracking functions
- The change of voltage value in one channel can be reflected in the other channel.
- Overvoltage and overcurrent protection function
- Two-level over-temperature protection
- Store and recall system setups
- DP116A supports up to 100 groups of timing settings
- Real time V/A/W waveform display with V/A/W values
- DP116A provides the classical display mode: dial plates with pointer and V/A/W values
- On-line help, Chinese & English interface and input
- Comprehensive Connectivity and Remote Control Interface
USB Device, USB Host, LAN, GPIB interfaces, support USB flash drive storage
- Remote control via Web or SCPI commands
- Conform to LXI-C Class instrument standard (version 1.2)

Model	Output Ranges/Channels
DP116A	16 V/10 A
	32 V/5 A
DP1308A	+6V/5A
	+/-25V/1A

RIGOL