

## Company Introduction

RIGOL TECHNOLOGIES, INC. is an emerging leader in the test and measurement field. Our current product line consists of Digital Oscilloscopes, Function/Arbitrary Waveform Generators, Digital Multimeters, Virtual Instruments and more.

Business Philosophy: We focus on our customers current and future needs to create innovative, high quality products that deliver outstanding value.

RIGOL currently has 500 employees and is continuing to grow. Most of our employees are at our Beijing Technology Campus. We invest heavily in R&D and today have over 50 R&D engineers working on future products. RIGOL has 10 sales offices in China along with a branch office in North America. Currently we sell our products in over 40 countries on six continents utilizing more than 150 distributors and representatives.

### RIGOL Milestones

- Jul 1998 RIGOL was founded.
- May 1999 Our first product the RVO 2100, a high performance virtual Digital Storage Oscilloscope (DSO) was introduced.
- May 2002 The DS 3000 series DSO, the first high performance DSO developed and manufactured in China was introduced.
- Feb 2004 The DS 5000 series DSO, the first, 1 GSa/s DSO from any Asian manufacturer was introduced.
- Jan 2005 Our new 30,000 Sq. Ft. Manufacturing Site was opened.
- May 2006 RIGOL received ISO 9001: 2000 Certification.
- Apr 2006 RIGOL had a successful Grand opening of its new 80,000 Sq. Ft. Technology Campus in Beijing.
- July 2006 The DS 1000 series Oscilloscope was introduced; the lowest priced Mixed Signal Oscilloscope (MSO) in the world.
- July 2006 The DG 3000 series Function/Arbitrary Waveform Generator was introduced; the First Mixed Signal Generator (MSG) in the world having 1 analog channel and an option for 16 digital channels.
- July 2006 The VS 5000 Virtual DSO with up to 400 MS/s sample rate, 100 MHz bandwidth and optional MSO was introduced.
- Aug 2006 The DM 3000 5 ½ & 6 ½ digit DVM were introduced along with the PC hosted versions, the VM 3000 series.
- Oct 2006 The prestigious EDN China Innovation Award for the DS 1000 series DSO was awarded to RIGOL, the first time it was ever awarded to a Chinese company.
- May 2007 The DS 1000A series oscilloscope was introduced. This is the first 2 GS/s DSO designed by a smaller Manufacturer with bandwidth options up to 300 MHz.



# DS1000A Series Digital Oscilloscopes



- Application**
- Design and Debug
  - Education & Training
  - Manufacturing
  - Service & Repair

Product Dimensions: Width×Height×Depth = 303mm×154mm×133mm Weight: 2.3 kg

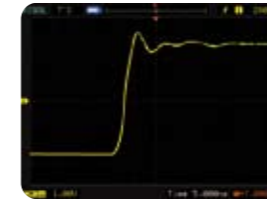
1. 2 GSa/s maximum real time sample rate and 50 GSa/s maximum equivalent time sample rate with bandwidth options up to 300 MHz
2. Up to 2000 wfms/s refresh rate provides the most responsive display in this class of product
3. Ultra compact design saves desktop space
4. 5.7" 64 K TFT Color Display with Vivid Display
5. Versatile trigger modes: Edge, Video, Pulse Width, Slope, Alternate
6. Built-in USB Host to support USB flash memory, USB printer and direct system upgrade

Model	DS1062CA	DS1102CA	DS1202CA	DS1302CA
Bandwidth	60 MHz	100 MHz	200 MHz	300 MHz
Pricing	\$ 995	\$ 1,295	\$ 1,595	\$ 1,995

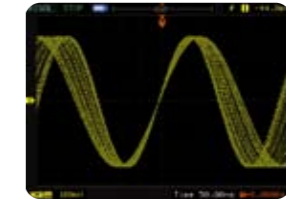
## Performance Characteristics

Model	DS1062CA	DS1102CA	DS1202CA	DS1302CA
Bandwidth	60 MHz	100 MHz	200 MHz	300 MHz
Memory Depth	10 kpts (Single Channel), 5 kpts (Dual Channels)			
Channels	Dual Channels + External Trigger			
Real-time Sample Rate	2 GSa/s (Single Channel), 1 GSa/s (Dual Channels)			
Equivalent Time Sample Rate	50 GSa/s			
Rise Time	5.8 ns	3.5 ns	1.7 ns	1.2 ns
Time Base Range	5 ns/div to 50 s/div	5 ns/div to 50 s/div	2 ns/div to 50 s/div	1 ns/div to 50 s/div
Input Impedance	1 MΩ    15 pF			
Trigger Modes	Edge, Video, Pulse Width, Slope, Alternate			
Trigger Sources	CH1, CH2, Ext, Ext/5, AC Line			
<b>Common Parameters</b>				
Vertical Sensitivity	2 mV/div to 10 V/div			
Vertical Resolution	8 bits			
Input Coupling	DC, AC, Ground			
Maximum Input Voltage	300 V (DC + AC peak)			
Roll Range	500 ms/div to 50 s/div			
Automatic Measurements	Vpp, Vamp, Vmax, Vmin, Vtop, Vbase, Vavg, Vrms, Preshoot, Overshoot, Frequency, Period, Rise Time, Fall time, Positive Width, Negative Width, Positive Duty Cycle, Negative Duty Cycle, Delay 1→2f, Delay 1→2t			
Cursor Measurements	Manual, Track and Auto Measure modes			
Math	Add, Subtract, Multiply, FFT, Invert			
Storage	Internal: 10 Waveforms and 10 Setups USB: BMP, CSV, Waveforms and Setups			
I/O	USB Device, USB Host, RS-232, P/F Out (Isolated)			
Display	TFT (64K, Color LCD), 320 x 234			
Power	Worldwide Use, 100 - 240 V / 50 VA Max			
Weight	2.3 kg			

## Advanced Performance

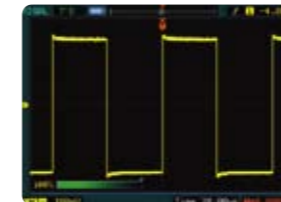


**Fast Sample Rate**  
DS1000A can capture fast signals with 2 GSa/s maximum real-time sample rate and 50 GSa/s maximum equivalent time sample rate.

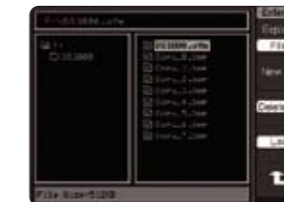


**Fast Refresh Rate**  
Up to 2000 wfms/s refresh rate provides for superior viewing of changing waveforms and sporadic events.

## Easy to Use Features



**Waveform Intensity**  
Adjustable waveform intensity provides a personalized waveform display.

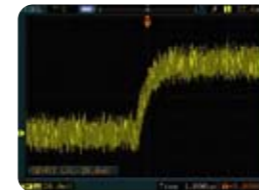


**File System**  
Easy-to-use file system allows for both USB disk and local file storage.



**Built-in Help System**  
Press current key for 3 seconds to enter help system.

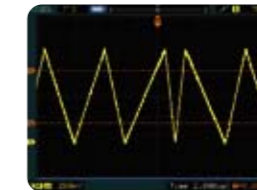
## Versatile Trigger Functions



**Adjustable Trigger Sensitivity**  
The ability to filter noise from the signal avoids false triggers.



**Alternate Trigger**  
Provides a true dual time base display that was common in analog oscilloscopes.



**Slope Trigger**  
Triggers on the signals rise time or fall time that is user defined.



**Rising and Falling Edge Triggering**  
Mainly used to view eye-diagrams formally only available in more advanced DSO's.

## Advanced Features

- The 2 GSa/s maximum real-time sample rate, the 50 GSa/s maximum equivalent time sample rate and up to 300 MHz of bandwidth ensures you capture and observe your entire signal.
- Up to 2000 wfms/s refresh rate
- Ultra Compact Design with small footprint save your bench space
- 64K TFT color LCD, bright and vivid waveform display
- Memory depth: 10 kpts (Single Channel), 5 kpts (Dual Channels)
- Versatile trigger modes: Edge, Video, Pulse Width, Slope, Alternate
- Adjustable trigger sensitivity: Effectively filter noise from trigger signal and avoid false trigger
- 20 automatic measurements
- Cursor measurements: Manual, Track and Auto Measure Modes
- 10 waveforms, 10 setups, BMP and CSV storage
- Math functions: Add, Subtract, Multiply, FFT, Invert
- Special digital filter and waveform recorder
- Built-in hardware frequency counters
- Dual channels plus external trigger. Bandwidth including 60 MHz, 100 MHz, 200 MHz, 300 MHz
- Standard interface: USB Device, RS-232; USB Host, to support USB disk and USB printer
- Standard configuration: Pass/Fail test, the signal out of the pass fail function is isolated to prevent unwanted interference
- Multi-language user interface, built-in help system



# DS1000 Series Digital Oscilloscopes



**Application**

- Design and Debug
- Education & Training
- Manufacturing
- Service & Repair

Product Dimensions: Width×Height×Depth=303 mm×154 mm×133 mm Weight: 2.3 kg

1. True Mixed Signal Oscilloscope with 16 channels of digital acquisition
2. Compact design with small footprint to save bench space
3. 1 Meg of memory (512 K on 2 channels)
4. 5.7" 64 K TFT Color Display with Vivid Display
5. Advanced Trigger modes including Edge, Video, Pulse Width, Slope, Alternate, Pattern and Duration
6. 400 MSa/s Real-Time Sample Rate and 25 GSa/s Equivalent Time Sample Rate
7. Built-in USB host to support USB Flash memory, USB printers and direct system upgrades

Model	DS1022C	DS1042C	DS1062C	DS1102C	DS1022CD	DS1042CD	DS1062CD	DS1102CD
Bandwidth	25 MHz	40 MHz	60 MHz	100 MHz	25 MHz	40 MHz	60 MHz	100 MHz
Pricing	\$ 499	\$ 699	\$ 799	\$ 999	\$ 699	\$ 999	\$ 1,199	\$ 1,499
Configuration	Scope only				Scope & Logic Analyzer			

## Performance Characteristics

Model	DS1022C	DS1042C	DS1062C	DS1102C
Bandwidth	25 MHz	40 MHz	60 MHz	100 MHz
Memory Depth	1M points (Single Channel), 512 K points (Dual Channels)			
Channels	Dual Channels + External Trigger			
Real-time Sample Rate	400 MSa/s			
Equivalent Time Sample Rate	25 GSa/s			
Rise Time	14 ns	8.7 ns	5.8 ns	3.5 ns
Time Base Range	20 ns/div to 50 s/div	10 ns/div to 50 s/div	5 ns/div to 50 s/div	
X-Y Bandwidth	25 MHz	40 MHz	60 MHz	100 MHz
Operation Phase Difference	± 3°			
Trigger Modes	Edge, Video, Pulse Width, Slope, Alternate			
Trigger Sources	CH1, CH2, Ext, Ext/5, AC Line			
Model	DS1022CD	DS1042CD	DS1062CD	DS1102CD
Bandwidth	25 MHz	40 MHz	60 MHz	100 MHz
Memory Depth	1M points (Single Channel), 512 K points (Dual Channels), 512 K points (Logic Analyzer)			
Channels	Dual Channels + External Trigger + Logic Analyzer			
Real-time Sample Rate	400 MSa/s, 200 MSa/s (Logic Analyzer)			
Equivalent Sample Rate	25 GSa/s			
Rise Time	14 ns	8.7 ns	5.8 ns	3.5 ns
Time Base Range	20 ns/div to 50 s/div	10 ns/div to 50 s/div	5 ns/div to 50 s/div	
Voltage Level Standards (Logic Analyzer)	TTL = 1.4 V, CMOS = 2.5 V, ECL = - 1.3 V, USER = - 8.0 V to + 8.0 V			
X-Y Bandwidth	25 MHz	40 MHz	60 MHz	100 MHz
Operation Phase Difference	± 3°			
Trigger Modes	Edge, Video, Pulse Width, Slope, Alternate, Pattern and Duration			
Trigger Sources	CH1, CH2, Ext, Ext/5, AC Line, D0 to D15			

## Common Parameters

Input Impedance	1 MΩ    15 pF
Vertical Sensitivity	2 mV/div to 5 V/div
Vertical Resolution	8 bits
Input Coupling	DC, AC, Ground
Maximum Input Voltage	400 V (DC + AC peak)
Scroll Range	500 ms/div to 50 s/div
Automatic Measurements	Vpp, Vamp, Vmax, Vmin, Vtop, Vbase, Vavg, Vrms, Preshoot, Overshoot, Frequency, Period, Rise Time, Fall time, Positive Width, Negative Width, Positive Duty Cycle, Negative Duty Cycle, Delay 1→2f, Delay 1→2r
Cursor Measurements	Manual, Track and Auto Measure modes
Math	Add, Subtract, Multiply, FFT, Invert
Storage	Internal: 10 Waveforms and 10 Setups USB: BMP, CSV, Waveforms and Setups
I/O	USB Device, USB Host, RS-232, P/F Out (Isolated)
Display	TFT (64K, Color LCD), 320 x 234
Power	Worldwide Use, 100 – 240 V / 50 VA Max
Weight	2.3 kg

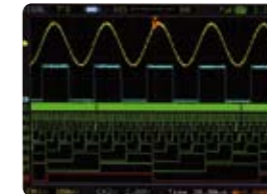
## Logic Analyzer Module

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

Connects to the front panel to become a true Mixed Signal Oscilloscope (MSO) with 16 Digital Channels. The Digital Channels are divided into two groups D0-D7 and D8-D15. Each work separately.



Pattern Trigger

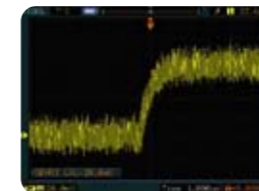
The trigger condition is a combination of the level of the signal and the edge.



Duration Trigger

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

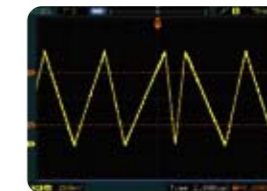
## Versatile Trigger Modes



Adjustable Trigger Sensitivity  
The ability to filter noise from the signal avoids false triggers.



Alternate Trigger  
Provides a true dual time base display that was common in analog oscilloscopes.



Slope Trigger  
Triggers on the signals rise time or fall time that is user defined.



Rising and Falling Edge Triggering  
Mainly used to view eye-diagrams formally only available in more advanced DSO's.

## Advanced Features

- A true Mixed Signal Oscilloscope with 2 analog and 16 digital channels
- Ultra compact design, small dimensions, to save your desktop space
- 5.7" 64K TFT color LCD, bright and vivid waveform display
- Memory depth: 1M points (Single Channel), 512K points (Dual Channels), 512K points (Logic Analyzer)
- Versatile trigger modes: Edge, Video, Pulse Width, Slope, Alternate, Pattern and Duration
- Adjustable Trigger Sensitivity: Filters noise from the trigger signal to avoid false triggers
- 400 MSa/s maximum real-time sample rate and 25 GSa/s maximum equivalent time sample rate
- 20 automatic measurements
- Cursor measurements: Manual, Track and Auto Measure Modes
- 10 waveforms, 10 setups, BMP and CSV storage
- Math functions: Add, Subtract, Multiply, FFT, Invert
- Automatic self calibration
- Special digital filter and waveform recorder
- Built-in hardware frequency counter
- Dual channels plus external trigger, Bandwidths up to 25 MHz, 40 MHz, 60 MHz, 100 MHz
- Standard interface: USB Device, RS-232; USB Host, to support USB flash memory and USB printer
- Standard Configuration includes Pass/Fail testing
- Multi-language user interface, built-in help system

# DG3000 Series Function/Arbitrary Waveform Generators



Product Dimensions: Width×Height×Depth=231mm×108mm×365mm Weight: 3.5 kg

- Application**
- Simulation of Sensors and Real Word Signals
  - In Circuit Functional Test
  - Serial Bus Test
  - IC Test

1. The world's first Mixed Signal Generator with digital logic output (16 data channels and 2 clock channels)
2. Advanced DDS technology, 300 MSa/s maximum sample rate and 120 MHz maximum output rate, 14 bits vertical resolution, 1M points of memory depth
3. Built-in pulse generator with adjustable width and edge
4. Built-in PWM generator
5. Versatile interface configuration: USB Device, LAN, GPIB, RS-232; USB Host to support USB flash memory, USB printer and seamless connectivity with DS series products

Model	DG3061A	DG3101A	DG3121A
Maximum Output Frequency	60 MHz	100 MHz	120 MHz
Pricing	\$ 1,895	\$ 2,795	\$ 3,995
I/O	USB Host, USB Device, RS-232, LAN/GPIB		
Optional Configuration	Digital Logic Output Module (Priced at \$ 800)		

## Performance Characteristics

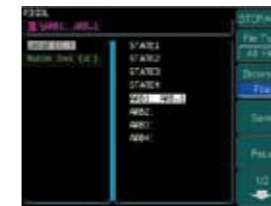
Frequency Characteristic	
Waveforms	Sine, Square, Ramp, Triangle, Pulse, Noise, DC, Arb
Sine	1 μHz to 120 MHz
Square	1 μHz to 120 MHz
Pulse	500 μHz to 36 MHz
Ramp	1 μHz to 1 MHz
White Noise	50 MHz bandwidth (-3 dB)
Square Wave Characteristic	
Rise/Fall Time	< 8 ns (10% to 90%)
Overshoot	< 2%
Duty Cycle	20% to 80% (to 10 MHz)
Asymmetry(below 50% Duty Cycle)	1% of period+ 5 ns
Jitter	300 ps + 100 ppm of period
Pulse Wave Characteristics	
Pulse Width	2000 s max period; 8ns min period; 1ns resolution
Variable Edge Time	5 ns to 1 ms
Overshoot	< 2%
Jitter	300 ps + 0.1 ppm of the period
Arb Wave Characteristics	
Frequency Range	1 μHz to 25 MHz
Waveform Length	2 to 512 K points
Amplitude Accuracy	14 bits (including sign)
Sample Rate	100 MSa/s
Minimum Edge Time	10 ns
Jitter (RMS)	2.5 ns + 30 ppm
Non-Volatile Storage	4 waveforms
Output Characteristics	
Amplitude	10 mVpp - 10 Vpp (50 Ω)
Amplitude Accuracy (100 kHz)	± 1% of setting ± 1 mVpp
Amplitude Flatness (sinewave relative to 100 kHz)	< 60 MHz 0.2 dB (± 1%) 60 MHz to 100 MHz 0.6 dB (± 1.5%) 100 MHz to 120 MHz 1.0 dB (± 4.0%)

AM Modulation	
Carrier Waveforms	Sine, Square, Ramp, Arb
Source	Internal/ External
Modulating Waveforms	Sine, Square, Ramp, Noise, Arb (2 mHz to 20 kHz)
Depth	0% - 120%
FM Modulation	
Carrier Waveforms	Sine, Square, Ramp, Arb
Source	Internal/ External
Modulating Waveforms	Sine, Square, Ramp, Noise, Arb (2 mHz to 20 kHz)
Frequency Deviation	DC to 5 MHz
PM Modulation	
Carrier Waveforms	Sine, Square, Ramp, Arb
Source	Internal/ External
Modulating Waveforms	Sine, Square, Ramp, Noise, Arb (2 mHz to 20 kHz)
Phase Deviation	0 to 360°
FSK Modulation	
Carrier Waveforms	Pulse
Source	Internal/ External
Modulating Waveforms	50% duty cycle square (2 mHz to 100 kHz)
PWM Modulation	
Carrier Waveforms	Pulse
Source	Internal/ External
Modulating Waveforms	Pulse width 0% to 100%
Sweep	
Carrier Waveforms	Sine, Square, Ramp, Arb
Type	Linear or Logarithmic
Direction	Up or Down
Sweep Time	1 ms to 500 s ± 0.1%
Source	Internal/External/Manual
Marker	Falling edge of Sync signal (Programmable Frequency)
Burst	
Waveforms	Sine, Square, Ramp, Pulse, Noise, Arb
Types	count (1 to 50,000 periods), infinite, gated
Start Phase	-360° to +360°
Internal Period	1 ms - 500 s ± 1%
Gate Source	External Trigger
Trigger Source	Internal/External/Manual

Other Parameters	
Clock Reference	10 MHz
I/O	USB Host, USB Device, RS-232, LAN/GPIB
Optional Configuration	Digital Logic Output Module
Built-in Help	Multiple Language

Other Parameters	
Power	100-240 VAC <sub>RMS</sub> , 45-440 Hz, 50 W
Weight	3.5 kg

## Easy to Use Features



**File System**  
Easy to Use file system, USB disk support and local file storage.



**Built-In Help**  
Easy access to the built in help system by pressing the key for 3 seconds.

## Typical Output



Sine



Pulse



Arbitrary Waveform



AM Modulation



Sweep

## Digital Logic Output Module

The 1<sup>st</sup> Mixed Signal Generator (MSG) with 16 digital data channels and 2 clock channels.



Digital Logic Output Module

## WEB Access Interface

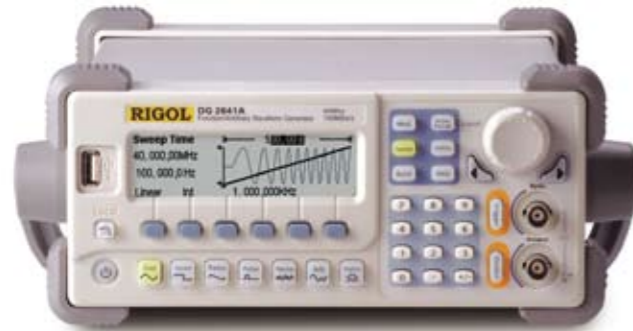


## Advanced Features

- Optional Digital Logic Module - Create true mixed signals with 1 analog and up to 16 digital channels of stimulus
- DDS Technology: Provides for a superior signal with low distortion and noise
- 300 MSa/s of sample rate, 14 bits of vertical resolution, 1M points of memory depth
- 4.0" QVGA color LCD
- 10 standard waveforms: Sine, Square, Ramp, Pulse, Noise, Exponential Rise, Exponential Fall, Sin(x)/x, Cardiac, DC
- Arbitrary Waveform generation as defined by the user.
- Versatile modulation and variety of waveforms: AM, FM, PM, FSK, PWM, Sweep, Burst
- Versatile input and output signals: Waveform Output, Digital synchronous signals Output, External Modulation Source, Clock Reference (10 MHz), External Trigger and Internal Clock Output (10 MHz)
- I/O: USB Device, RS-232, GPIB, LAN
- Remote access and control signal generators through 10/100M LAN interface
- USB Host to support USB flash memory, USB printer and direct system upgrade
- Seamless connectivity with DS series digital oscilloscopes: Ability to generate signals from stored waveforms from our DSO.
- Multi-language user interface, built-in help system



# DG2000 Series Function/Arbitrary Waveform Generators



**Application**

- Simulation of Sensors and Real World Signals
- In Circuit Functional Test
- Serial Bus Test
- IC Test

Product Dimensions: Width×Height×Depth=232mm×108mm×288mm Weight: 2.7 kg

1. Mixed Signal Generator with digital logic output (16 data channels and 2 clock channels)
2. Advanced DDS technology, 100 MSa/s maximum sample rate and 40 MHz maximum output rate, 14 bits vertical resolution, 512 K points of memory depth
3. Built-in pulse generator with adjustable width and edge
4. Built-in PWM generator
5. Versatile interface configuration: USB Device, LAN, GPIB, RS-232; USB Host to support USB flash memory, USB printer and seamless connectivity with DS series products

Model	DG2021A	DG2041A
Maximum Output Frequency	25 MHz	40 MHz
Pricing	\$ 995	\$ 1,495
I/O	USB Host, USB Device, RS-232, LAN/GPIB	
Optional Configuration	Digital Logic Output Module	

## Performance Characteristics

Frequency Characteristic	
Waveforms	Sine, Square, Ramp, Triangle, Pulse, Noise,
Sine	DC, Arb
Square	1 μHz to 40 MHz
Pulse	1 μHz to 40 MHz
Ramp	500 μHz to 16 MHz
White Noise	1 μHz to 500 kHz 10 MHz bandwidth (-3 dB)
Square Wave Characteristic	
Rise/Fall Time	< 8 ns (10% to 90%)
Overshoot	< 2%
Duty Cycle	20% to 80% (to 10 MHz)
Asymmetry (below 50% Duty Cycle)	1% of period+ 5 ns
Jitter	300 ps + 100 ppm of period
Pulse Wave Characteristics	
Pulse Width	2000 s max period; 8 ns min period; 1ns resolution
Variable Edge Time	5 ns to 1 ms
Overshoot	< 2%
Jitter	300 ps + 0.1 ppm of the period
Arb Wave Characteristics	
Frequency Range	1 μHz to 12 MHz
Waveform Length	2 to 512 K points
Amplitude Accuracy	14 bits (including sign)
Sample Rate	100 MSa/s
Minimum Edge Time	10 ns
Jitter (RMS)	2.5 ns + 30 ppm
Non-Volatile Storage	4 waveforms
Output Characteristics	
Amplitude	10 mVpp - 10 Vpp (50 Ω) 20 mVpp - 20 Vpp (High Z)
Amplitude Accuracy (100 kHz)	± 1% of setting ± 1 mVpp
Amplitude Flatness (sinewave relative to 100 kHz)	< 10 MHz 0.1 dB (± 1%) 10 MHz to 25 MHz 0.15 dB (± 1.5%) 25 MHz to 40 MHz 0.4 dB (± 4.0%)

AM Modulation	
Carrier Waveforms	Sine, Square, Ramp, Arb
Source	Internal/ External
Modulating Waveforms	Sine, Square, Ramp, Noise, Arb (2 mHz to 20 kHz)
Depth	0% - 120%
FM Modulation	
Carrier Waveforms	Sine, Square, Ramp, Arb
Source	Internal/ External
Modulating Waveforms	Sine, Square, Ramp, Noise, Arb (2 mHz to 20 kHz)
Frequency Deviation	DC to 5 MHz
PM Modulation	
Carrier Waveforms	Sine, Square, Ramp, Arb
Source	Internal/ External
Modulating Waveforms	Sine, Square, Ramp, Noise, Arb (2 mHz to 20 kHz)
Phase Deviation	0° to 360°
FSK Modulation	
Carrier Waveforms	Pulse
Source	Internal/ External
Modulating Waveforms	50% duty cycle square (2 mHz to 100 kHz)
PWM Modulation	
Carrier Waveforms	Pulse
Source	Internal/ External
Modulating Waveforms	The pulse width: 0% to 100%
Sweep	
Carrier Waveforms	Sine, Square, Ramp, Arb
Type	Linear or Logarithmic
Direction	Up or Down
Sweep Time	1 ms to 500 s ± 0.1%
Source	Internal/External/Manual
Marker	Falling edge of Sync signal (Frequency Programmable)
Burst	
Waveforms	Sine, Square, Ramp, Pulse, Noise, Arb
Types	count (1 to 50,000 periods), infinite, gated
Start Phase	-360° to +360°
Internal Period	1 ms - 500 s ± 1%
Gate Source	External Trigger
Trigger Source	Internal/ External/Manual

Other Parameters		Other Parameters	
Clock Reference	10 MHz	Power	100-240 VAC <sub>RMS</sub> , 45-440 Hz, 50 W
I/O	USB Host, USB Device, RS-232, LAN/GPIB	Weight	2.7 kg
Optional Configuration	Digital Logic Output Module		
Built-in Help	Multiple Language		

## Easy to Use Features

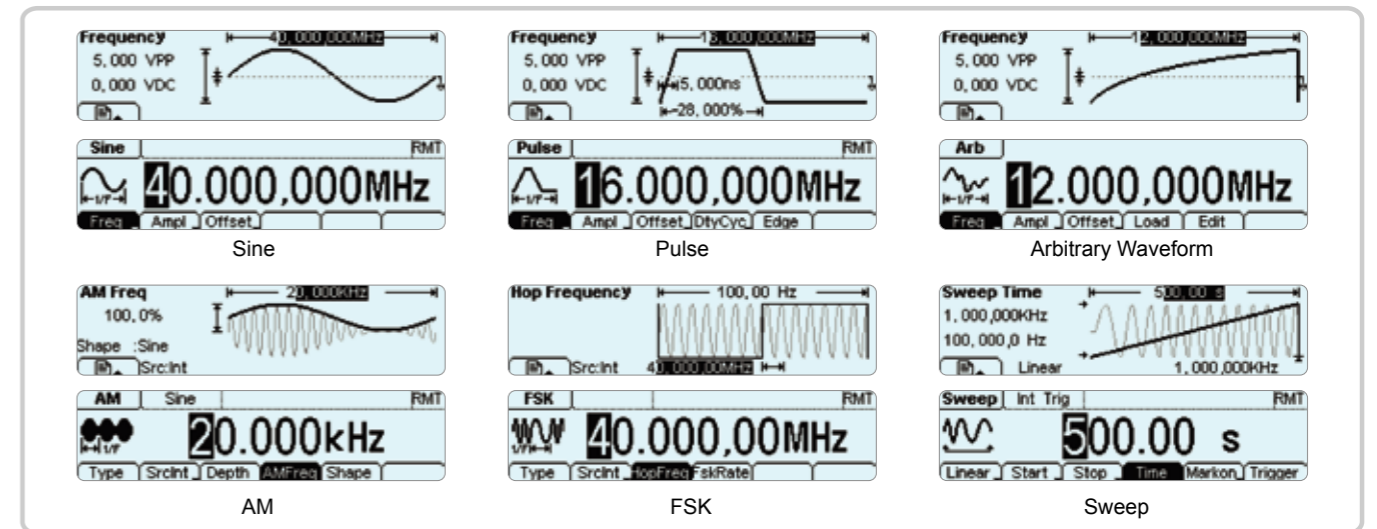
Create an arbitrary waveform  
1: Press [Arb] and then "Create New".  
2: Enter the desired period, voltage limits and number of points and then press "Edit Points". The

Press key to enter help system

Local	State	Direct
UDisk	Data	
	All	
Disk	Type	Recall   Store   Remove

File system (USB Disk)

## Typical Output



## Digital Logic Output Module

The 1<sup>st</sup> Mixed Signal Generator (MSG) with 16 digital data channels and 2 clock channels.



Digital Logic Output Module

## Advanced Features

- Optional Digital Logic Module - Create true mixed signals with 1 analog and up to 16 digital channels of stimulus
- DDS Technology: Provides for a superior signal with low distortion and noise
- 100 MSa/s of sample rate, 14 bits of vertical resolution, 1M points of memory depth
- 10 standard waveforms: Sine, Square, Ramp, Pulse, Noise, Exponential Rise, Exponential Fall, Sin(x)/x, Cardiac, DC
- Arbitrary waveform generation as defined by user
- Versatile modulation and variety of waveforms: AM, FM, PM, FSK, PWM, Sweep, Burst
- Versatile input and output signals: Waveform Output, Digital synchronous signals Output, External Modulation Source, Clock Reference (10 MHz), External Trigger and Internal Clock Output (10 MHz)
- I/O: USB Device, RS-232, GPIB, LAN
- USB Host to support USB disk, USB printer and direct system upgrade
- Seamless connectivity with DS series digital oscilloscopes: Ability to generate signals from stored waveforms from our DSO.
- Multi-language user interface, built-in help system

# DM3000 Series Digital Multimeters



- Application**
- Manufacturing Test
  - High Speed, High Resolution Data Acquisition
  - Signal Monitoring
  - User Defined Test
  - Aging Test

Product Dimensions: Widht×Height×Depth=232mm×107mm×291mm Weight: 2.5 kg

1. True 6½ digits resolution (2,400,000-count)
2. 50 K/s maximum sample rate, 2 M points of memory depth
3. Ability to use most sensors
4. 16-Channel Multiplexer Module: Data log, scanning and programmable automatic measurements
5. 256 × 64 pixels LCD display, to support multi-display and screen menu
6. I/O: GPIB, LAN, RS-232 and USB Device
7. Built-in USB Host to support USB flash memory and USB printer

Model	DM3051	DM3052	DM3054	DM3061	DM3062	DM3064
Resolution	5¾ digits			6½ digits		
Configuration	RS 232 / USB 2.0	LAN/GPIB	LAN/GPIB and Multiplexer Module	RS 232 / USB 2.0	LAN/GPIB	LAN/GPIB and Multiplexer Module
Pricing	\$ 495	\$ 695	\$ 1,195	\$ 795	\$ 995	\$ 1,595

## Performance Characteristics

Range:	Resolution, Or	Accuracy: 1 Year±	Input Current, Or	Range:	Resolution, Or	Accuracy: 1 Year± (% of	Input Current, Or
Or Performance	AC Voltage:	(% of reading +	Current Source:	Or Performance	AC Voltage:	reading + % of range)	Current Source:
Parameters	Frequency:	% of range)		Parameters	Frequency:		
<b>DC Voltage</b>			<b>Input Current</b>	<b>AC Current (RMS)</b>			<b>Input Resistance</b>
200.000,0 mV	100 nV	0.0050 + 0.0017	10 MΩ or >10 GΩ	20.000,0 mA	100 nA	0.01 + 0.02 (10-50 kHz)	50 Ω
2.000,000 V	1 μV	0.0040 + 0.0004	10 MΩ or >10 GΩ	200.000 mA	1 μA	0.05 + 0.03 (10-50 kHz)	1 Ω
20.000,00 V	10 μV	0.0035 + 0.0003	10 MΩ or >10 GΩ	1.000,00 A	10 μA	0.05 + 0.03 (10-50 kHz)	1 Ω
200.000,0 V	100 μV	0.0045 + 0.0003	10 MΩ	10.000,0 A	100 μA	0.10 + 0.10 (10-50 kHz)	0.02 Ω
1000.000 V	1 mV	0.0045 + 0.005	10 MΩ	<b>Resistance (2-wire and 4-wire)</b>			<b>Current Source</b>
<b>DC Current</b>			<b>Input Current</b>	200.000,0 Ω	100 μΩ	0.010 + 0.0020	1 mA
2.000,00 mA	10 nA	0.005 + 0.005	50 Ω	2.000,000 KΩ	1 mΩ	0.010 + 0.0005	1 mA
20.000,0 mA	100 nA	0.005 + 0.002	50 Ω	20.000,00 KΩ	10 mΩ	0.010 + 0.0005	100 μA
200.000 mA	1 μA	0.03 + 0.003	1 Ω	200.000,0 KΩ	100 mΩ	0.010 + 0.0005	10 μA
1.000,00 A	10 μA	0.03 + 0.006	1 Ω	2.000,000 MΩ	1 Ω	0.010 + 0.0005	1 μA
10.000,0 A	100 μA	0.05 + 0.01	0.01 Ω	10.000,00 MΩ	10 Ω	0.040 + 0.0005	200 nA
<b>AC Voltage (RMS)</b>				100.000,0 MΩ	100 Ω	0.080 + 0.0005	200 nA
200.000 mV	3-5 Hz	0.10 + 0.015	1 MΩ	<b>Capacitance</b>			<b>Current Source</b>
	5-10 Hz	0.06 + 0.015	1 MΩ	2.000,0 nF	0.1 pF	0.05 + 0.002	200 nA
	10-20 kHz	0.04 + 0.015	1 MΩ	20.000 nF	1 pF	0.05 + 0.005	1 μA
	20-50 kHz	0.10 + 0.025	1 MΩ	200.00 nF	10 pF	0.01 + 0.005	10 μA
	50-100 kHz	0.55 + 0.04	1 MΩ	2.000,0 μF	100 pF	0.01 + 0.005	100 μA
	100-300 kHz	1.20 + 0.25	1 MΩ	20.000 μF	1 nF	0.01 + 0.005	1 mA
Range from	3-5 Hz	1.00 + 0.01	1 MΩ	200.00 μF-10000 μF	10 nF	0.01 + 0.005	1 mA
2.000,00V	5-10 Hz	0.35 + 0.01	1 MΩ				
to 750.000	10-20 kHz	0.04 + 0.01	1 MΩ				
	20-50 kHz	0.10 + 0.02	1 MΩ				
	50-100 kHz	0.55 + 0.04	1 MΩ				
	100-300 kHz	1.20 + 0.25	1 MΩ				

Other Parameters	
Continuity	2 KΩ Range, Threshold Range 1 Ω-2 KΩ
Diodes test	2 V Range, 1mA test current, 2.4 V Max forward voltage drop
Arbitrary Sensor	Support multiple ANSI standard thermocouple and the sensor with voltage, current, and resistance output
Frequency and Period	3 Hz (0.333 s)-300 kHz (3.33 μs)
Math	Null, Max/Min/Avg, dBm, dB, and Limit Test.
Data Acquisition	Data Record, Inspection, Programmable Auto Measure.
Other Functions	Auto Reading Hold, Ratio Test, Built-in 10 setup storage, 1 M points of memory depth.
High-speed Data Logger	50 K/s (High-speed Data Logger)
Measurement Precision	2,400,000 Count, >6½
USB I/O Interface	USB Host to support USB disk and USB printer; USB Device
Other I/O Interfaces	RS232, GPIB (Optional), LAN (Option)
Display	256×64 pixels LCD to support multi-display, menu, multi-language help and waveform display
Data Acquisition and Virtual	Support Microsoft® Windows 98/Me, Windows 2000/XP
Max Input	1,000 VDC, 750 VAC <sub>RMS</sub> , DC&AC max external current 10 A, internal current 2 A double fuses
Shock and Vibration	MIL-T-28800, Type III, Class 5
Power	115/230 V, 45-65 Hz, 20 W Max
Weight	2.5 kg

## Multiplexer Module

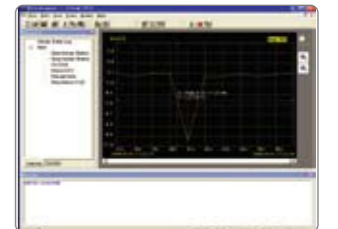
The module provides up to 16 Channels of acquisition. The easy to use software allows the user to scan any or all of the 16 channels and place into memory.



External View of Multiplexer Module



Internal View of Multiplexer Module



Ultralogger Data Acquisition Software Interface

## Advanced Features

- Test resolution: 6½ digits (2,400,000-count), 5¾ digits (400,000-count)
- 50 K/s maximum sample rate, 2M points of memory depth
- 256 × 64 pixels LCD display to support multi-display and screen menu
- 16-Channel Multiplexer Module and Ultralogger software
- 26 test 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, Any Sensor Test, High Limit, Low Limit and High/Low Limit
- Math: Max, Min, Avg, Null, dBm, dB
- Data Acquisition: Data Log, Scanning, Programmable Automatic Measurements
- Input resistance > 10 GΩ: DC voltage range up to 48 V (± 24 V)
- True RMS AC voltage and current test
- Built in Storage: Store up to 10 setup configurations, 10 data records and 10 sensor setups.
- I/O: GPIB, LAN, RS-232, USB Device
- Integrated USB Host to support USB flash memory and USB printer
- Control software that is both easy and flexible to use



# VS5000 Series Virtual Digital Oscilloscopes



Product Dimensions: Width×Height×Depth=141mm×45mm×217mm Weight: 0.7 kg

### Application

- Manufacturing
- High Speed Data Acq
- Education and Training
- Design and Debug

1. A true Mixed Signal Oscilloscope with 16 channels Logic Analyzer
2. 400 MSa/s maximum real-time sample rate and 25 GSa/s maximum equivalent time sample rate
3. 1 M points of memory depth
4. Ultra compact design, small dimensions, Horizontal/Vertical placement at will
5. High speed USB 2.0 and LAN interface standard

Model	VS5022	VS5042	VS5062	VS5102	VS5022D	VS5042D	VS5062D	VS5102D
Bandwidth	25 MHz	40 MHz	60 MHz	100 MHz	25 MHz	40 MHz	60 MHz	100 MHz
Configuration	Scope only				Logic Analyzer			

## Performance Characteristics

Model	VS5022	VS5042	VS5062	VS5102
Bandwidth	25 MHz	40 MHz	60 MHz	100 MHz
Memory Depth	1M points (Single Channel), 512K points (Dual Channels)			
Channels	Dual Channels + External Trigger			
Real-time	400 MSa/s			
Equivalent Sample Rate	25 GSa/s			
Rise Time	14 ns	8.7 ns	5.8 ns	3.5 ns
Time Base Range	20 ns/div to 50 s/div	10 ns/div to 50 s/div	5 ns/div to 50 s/div	
Trigger Modes	Edge, Video, Pulse Width, Slope, Alternate			
Trigger Sources	CH1, CH2, Ext, Ext/5, AC Line			
Accessories	Probe × 2, Power Adapter, User Manual			
Model	VS5022D	VS5042D	VS5062D	VS5102D
Bandwidth	25 MHz	40 MHz	60 MHz	100 MHz
Memory Depth	1M points (Single Channel), 512K points (Dual Channels), 512K points (Logic Analyzer)			
Channels	Dual Channels + External Trigger + Logic Analyzer			
Real-time Sample Rate	400 MSa/s, 200 MSa/s (Logic Analyzer)			
Equivalent Sample Rate	25 GSa/s			
Rise Time	14ns	8.7 ns	5.8 ns	3.5 ns
Time Base Range	20ns/div to 50 s/div	10ns/div to 50 s/div	5 ns/div to 50 s/div	
Voltage Level Standards (Logic Analyzer)	TTL = 1.4 V, CMOS = 2.5 V,ECL = - 1.3 V,USER = - 8.0 V to + 8.0 V			
Trigger Modes	Edge, Video, Pulse Width, Slope, Alternate, Pattern and Duration			
Trigger Sources	CH1, CH2, Ext, Ext/5, AC Line, D0-D15			
Accessories	2 Probes, Power Adapter, User manual and a set of digital probes with the MSO models			

### Common Parameters

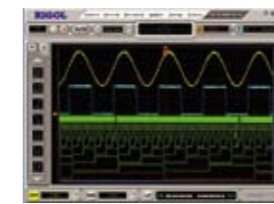
Input Impedance	1 MΩ    15 pF
Trigger Sensitivity	0.1 div to 1.0 div, User Adjustable
Vertical Sensitivity	2 mV/div to 5 V/div (BNC)
Input Coupling	DC, AC, Ground
Maximum Input Voltage	400 V (DC + AC peak)
Automatic Measurements	Vpp, Vamp, Vmax, Vmin, Vtop, Vbase, Vavg, Vrms, Preshoot, Overshoot, Frequency, Period, Rise Time, Fall time, Positive Width, Negative Width, Positive Duty Cycle, Negative Duty Cycle, Delay 1→2f, Delay 1→2f
Cursor Measurements	Manual, Track and Auto Measure modes
I/O	USB Device, LAN
Power	Power Module: (AC 100 V – 240 V, 50 Hz – 60 Hz) input, DC 5V/3A output
Weight	0.7 kg

## Logic Analyzer Module

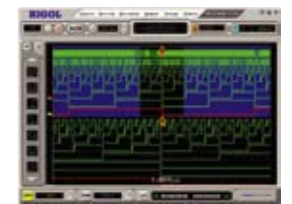


Logic Analyzer Module

Same MSO as with scope

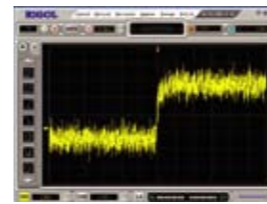


Pattern Trigger



Duration Trigger

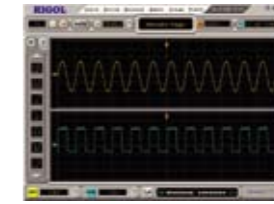
## Versatile Trigger Modes



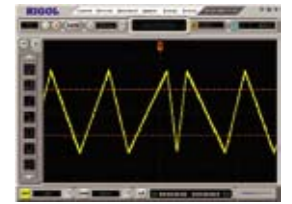
Adjustable Trigger Sensitivity



Edge Trigger



Alternate Trigger

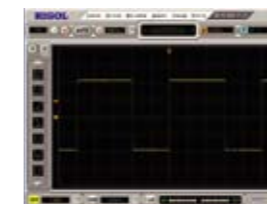


Slope Trigger

## Easy to Use Features



Waveform Intensity



Ultrazoom

## Advanced Features

- A true Mixed Signal Oscilloscope (MSO) with a 16 channel Logic Analyzer
- 400 MSa/s maximum real-time sample rate and 25 GSa/s maximum equivalent time sample rate
- Memory depth: 1M points (Single Channel), 512K points (Dual Channels), 512K points (Logic Analyzer)
- Ultra compact design
- Dual channels plus external trigger. Bandwidth including 100 MHz, 60 MHz, 40 MHz, 25 MHz
- Integrated high speed USB 2.0
- 20 automatic measurements
- Cursor measurements: Manual, Track and Auto Measure modes
- Built in FFT providing frequency domain representation
- Built-in hardware frequency counter
- Integrated LAN interface
- The same user interface with desktop digital oscilloscopes, easy to use

# VM3000 Series Virtual Digital Multimeters



Product Dimensions: Width×Height×Depth=142mm×48mm×205mm Weight: 0.8 kg

- Application**
- Manufacturing Test
  - High Speed, High Resolution Data Acquisition
  - Signal Monitoring
  - User Defined Test
  - Aging Test

1. True 6½ digits resolution (2,400,000-count)
2. 50 K/s maximum sample rate, 2 M points of memory depth
3. Ability to use most sensors
4. 16-Channel Multiplexer Module: Data log, scanning and programmable automatic measurements

Model	VM3051	VM3053	VM3061	VM3063
Resolution	5¼ digits		6½ digits	
Configuration	RS 232 / USB 2.0	Multiplexer Module	RS 232 / USB 2.0	Multiplexer Module

## Performance Characteristics

Range: Or Performance Parameters	Resolution, Or AC Voltage Frequency:	Accuracy: 1 Year± (% of reading+ % of range)	Input Current,Or Current Source:	Range: Or Performance Parameters	Resolution,Or AC Voltage Frequency:	Accuracy: 1 Year± (% of reading + % of range)	Input Current,Or Current Source:
DC Voltage			Input Current	AC Current (RMS)			Input Resistance
200.000,0 mV	100 nV	0.0050 + 0.0017	10 MΩ or>10 GΩ	20.000,0 mA	100 nA	0.01 + 0.02 (10-50 kHz)	50 Ω
2.000,000 V	1 μV	0.0040 + 0.0004	10 MΩ or>10 GΩ	200.000 mA	1 μA	0.05 + 0.03 (10-50 kHz)	1 Ω
20.000,00 V	10 μV	0.0035 + 0.0003	10 MΩ or>10 GΩ	1.000,00 A	10 μA	0.05 + 0.03 (10-50 kHz)	1 Ω
200.000,0 V	100 μV	0.0045 + 0.0003	10 MΩ	10.000,0 A	100 μA	0.10 + 0.10 (10-50 kHz)	0.02 Ω
1000.000 V	1 mV	0.0045 + 0.005	10 MΩ	Resistance (2-wire and 4-wire)			Current Source
DC Current			Input Current	200.000,0 Ω	100 μΩ	0.010 + 0.0020	1 mA
2.000,00 mA	10 nA	0.005 + 0.005	50 Ω	2.000,000 KΩ	1 mΩ	0.010 + 0.0005	1 mA
20.000,0 mA	100 nA	0.005 + 0.002	50 Ω	20.000,00 KΩ	10 mΩ	0.010 + 0.0005	100 μA
200.000 mA	1 μA	0.03 + 0.003	1 Ω	200.000,0 KΩ	100 mΩ	0.010 + 0.0005	10 μA
1.000,00 A	10 μA	0.03 + 0.006	1 Ω	2.000,000 MΩ	1 Ω	0.010 + 0.0005	1 μA
10.000,0 A	100 μA	0.05 + 0.01	0.01 Ω	10.000,00 MΩ	10 Ω	0.040 + 0.0005	200 nA
AC Voltage (RMS)				100.000,0 MΩ	100 Ω	0.080 + 0.0005	200 nA
200.000 mV	3-5 Hz	0.10 + 0.015	1 MΩ	Capacitance			Current Source
	5-10 Hz	0.06 + 0.015	1 MΩ	2.000,0 nF	0.1 pF	0.05 + 0.002	200 nA
	10-20 kHz	0.04 + 0.015	1 MΩ	20.000 nF	1 pF	0.05 + 0.005	1 μA
	20-50 kHz	0.10 + 0.025	1 MΩ	200.00 nF	10 pF	0.01 + 0.005	10 μA
	50-100 kHz	0.55 + 0.04	1 MΩ	2.000,0 μF	100 pF	0.01 + 0.005	100 μA
	100-300 kHz	1.20 + 0.25	1 MΩ	20.000 μF	1 nF	0.01 + 0.005	1 mA
Range from	3-5 Hz	1.00 + 0.01	1 MΩ	200.00 μF-10000 μF	10 nF	0.01 + 0.005	1 mA
2.000,00V	5-10 Hz	0.35 + 0.01	1 MΩ	Other Parameters			
to750.000	10-20 kHz	0.04 + 0.01	1 MΩ	Continuity	2 KΩ Range, Threshold Range1 Ω-2 KΩ		
	20-50 kHz	0.10 + 0.02	1 MΩ	Diodes test	2 V Range, 1 mA test current, 2.4 V Maximum forward voltage drop		
	50-100 kHz	0.55 + 0.04	1 MΩ	Thermocouple and Any Sensor	Support multiple ANSI standard thermocouple and the sensor with voltage, current, and resistance output		
	100-300 kHz	1.20 + 0.25	1 MΩ	Frequency and Period Math	3 Hz (0.333 s)-300 k Hz (3.33 μs)		
					Null, Max/Min/Avg, dBm, dB, and Limit Test		

Other Parameters	
Data Acquisition	Data Log, Scanning, Programmable Automatic Measurements
Other Functions	Automatic Reading Hold, Ratio Test, 2 M points of memory depth
Built in Memories	Store up to 10 Setups, 10 Data records and 10 Sensor descriptions
Maximum Sample Rate	50 K/s (High-speed Data Record)
USB Interface	USB Device
Other Interfaces	LAN
Display	LED state display on Panel
Data Acquisition and Virtual Machine Software	Support Microsoft®Windows 98/Me, Windows 2000/XP
Maximum Input	1,000 V DC, 750 VAC <sub>RMS</sub> , DC and AC maximum external current 10 A, internal current 12 A Double Fuses
Shock and Vibration	MIL-T-28800, Type III, Class 5
Power	Power Adapter : (AC 100 V-240 V, 50 Hz-60 Hz) input, DC 5 V/3 A output
Weight	0.8kg

## Typical Measurements



## Multiplexer Module

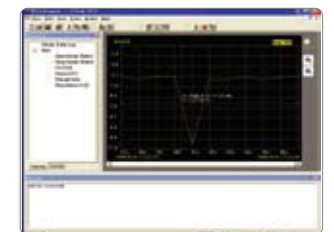
The module provides up to 16 Channels of acquisition. The easy to use software allows the user to scan any or all of the 16 channels and place into memory.



External View of Multiplexer Module



Internal View of Multiplexer Module



Ultralogger Data Acquisition Software Interface

## Advanced Features

- Test resolution: 6½ digits (2,400,000-count), 5¼ digits (400,000-count)
- 50 K/s maximum sample rate, 2 M points of memory depth
- 16 Channel Multiplexer Module with Ultralogger Software
- 26 test 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, any sensor test to support any sensor configuration
- High Limit, Low Limit and High/Low Limit Math: Max, Min, Avg, Null, dBm, dB
- Data Acquisition: Data Log, Scanning, Programmable Automatic Measurements
- Input resistance > 10 GΩ: DC voltage range up to 48 V (± 24 V)
- True RMS AC voltage and current test
- Built-in 10 setups storage, 10 data storage, 10 any sensor storage
- I/O: LAN, USB Device
- Easy to use and flexible control software



## The RIGOL Worldwide Network



The RIGOL Worldwide Headquarters is in Beijing where most of our 500+ employees work. RIGOL has 10 direct sales offices in China, a subsidiary company in North America and more than 150 distributors around the world. RIGOL's products and services are now offered in more than 42 countries and regions including the USA, Japan, UK, France, Germany, Australia, Canada, Korea and many more.

## Technical Support

RIGOL USA has full support capabilities at our Colorado Center. We can be reached via email at [Support@RIGOLNA.com](mailto:Support@RIGOLNA.com).



RIGOL TECHNOLOGIES USA  
P.O.Box 1227  
Monument Colorado 80132

Telephone (719) 488 8306  
Fax Number (719) 488 8374  
Email: [Support@RIGOLNA.COM](mailto:Support@RIGOLNA.COM)

[www.rigolna.com](http://www.rigolna.com)