# RIGOL

# **Data Sheet**

# **DS1000B Series Digital Oscilloscopes**

DS1062/4B, DS1102/4B, DS1202/4B

#### **Product Overview**

DS1000B series oscilloscopes are designed with dual/four analog channels and 1 external trigger channel, which can capture multi-channel signal simultaneously and meet industrial needs.

The powerful trigger and analyzer abilities make it easy to capture and analyze waves. Clear LCD displays and math operations enable users to view and analyze signal faster and more clearly.

# RIGOL DS1204B cornu cocuciocor LVV 1-0-average and a second and a seco

#### **Applications**

- Electronic Circuit Design and Test
- View Transient Signal
- Manufacturing Test and Quality Control
- Education & Scientific Research
- Industry Control
- Design & Analysis of Mechanical and Electrical Products

#### **Main Features**

- Four analog channels, 200MHz maximum bandwidth, 2GSa/s maximum real-time sample rate, 50GSa/s maximum equivalent sample rate
- 5.7 inch, QVGA (320×240), 64K colors TFT LCD and LED backlight source technology enable the wave displays more vivid with lower power dissipation and longer life
- Conform to LXI consortium instrument standard class C, which enable to create and reset testing system fast, economically and efficiently
- Abundant trigger types: Edge, Pulse Width, Video, Pattern and Alternative triggers
- Unique adjustable trigger sensitivity enables to meet different demands

#### **Easy to Use Design**

- Built-in help menu enables information getting more convenient
- Multiple Language menus, support Chinese & English input
- Support U disk and local files storage
- Waveform intensity can be adjusted
- To display a signal automatically by AUTO
- Pop-up menu makes it easy to read and use
- Provide a key measure, a key store/print shortcut keys
- Enable to measure 22 types of wave parameters and track measurements via cursor automatically
- Unique waveform record and replay function
- Fine delayed scan function
- Built-in FFT function, hold practical digital filters
- Pass/Fail detection function
- Math operations available to multiple waves
- Powerful PC application software UltraScope
- Standard configure interface: USB Device, Dual USB Host, LAN, support U disk storage and PictBridge print standard
- Support for remote command control

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#### 4 Analog Channels



#### 4 analog channels

Users can view multi-channel signal simultaneously via the 4 analog channels, which can be operated independently. Each channel button, corresponding channel mark on screen and waveform will be separated by specific colors.

#### PictBridge Standard



#### PictBridge print standard

DS1000B series offer standard configure interface and support PictBridge print standard, there are two modes are available: "PictBridge" and "Normal", you can select the mode and setup corresponding parameters to finish printing operation.

#### LXI Standard, Class C



#### LXI standard, class C

**RIGOL** DS1000B series digital oscilloscopes conform to LXI consortium instrument standard class C, which enable to create and reset testing system fast, economically and efficiently, in addition, the system integration function will be achieve more easily.

#### Automatically Measure 22 Wave Parameters



**Automatic measure** 

DS1000B series oscilloscopes provide 22 types of wave parameters for automatically measuring which contains 10 Voltage and 12 Time parameters.

In cursor mode, users can easily measure by moving cursor. Besides, 3 types of cursor measurement are optional: Manual, Track and Auto.

#### Cursor Measure



FFT cursor measure

## Multiple Trigger



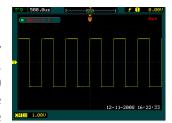
DS1000B contain abundant triggers: Edge, Pulse Width, Video, Pattern and Alternative triggers. Especially the pattern trigger achieves trigger operation according to the logic relationship among channels, which can capture special digital information.

Unique function of adjustable trigger sensitivity is good for filtering possible noise from signal in order to avoid false triggers.

Pattern trigger

## Waveform Recording

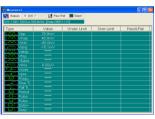
In virtue of waveform recording function from DS1000B series, not only the outputs from four channels could be recorded, but also the waves outputted by Pass/Fail test could be easily recorded. Totally, up to 1000 frames of waves are available to record. Besides, users can analyze waves according to recall or save transient waves so as to get more exact datum.



**Waveform recording** 

# > UltraScope Software

**RIGOL** provides powerful PC application software: UltraScope, which enables to: Capture and measure wave; Perform local or remote operation; Save waves as ".bmp" format; Save files as ".txt" or ".xls" format; Print waveforms.



**Measurement window** 

# **Specifications**

All specifications apply to the DS1000B Series Oscilloscopes unless noted otherwise. To meet these specifications, two conditions must first be met:

- The instrument must have been operating continuously for thirty minutes within the specified operating temperature.
- Must perform Self Calibration operation, accessible through the Utility menu, if the operating temperature changes by more than 5°C.

All specifications are guaranteed unless noted "typical".

#### **Specifications**

Sample Modes     Real-Time Sample     Equivalent Sample       Sample Rate     2 GSa/s (half channel <sup>[1]</sup> )     50 GSa/s <sup>[2]</sup> 1 GSa/s (each channel)     50 GSa/s <sup>[2]</sup> A waverages     A waveform will be displayed one time while all the channels finish N times sample, N could be selectable from 2, 4, 8, 16, 32, 64, 128 and 256       Inputs       Input Coupling     DC, AC, GND       Input Impedance     1MΩ±2.0%       Probe Attenuation     0.001X, 0.01X, 0.1X, 1X, 2X, 5X, 10X, 20X, 50X, 100X, 200X, 500X, 1000X       Maximum Input Voltage of the analog channel:     CAT II 300Vrms, 1000Vpk       CAT II 100Vrms, 1000Vpk     CAT II 100Vrms, 1000Vpk       RP2200 10:1, CAT II 300Vrms     RP3300 10:1, CAT II 300Vrms       RP3300 10:1, CAT II 300Vrms     S0ps       Horizontal       Sample Rate Range       Maxeform     3.65Sa/s-2GSa/s (Real-Time), 3.65Sa/s-50GSa/s (Equivalent-time)       Maveform     Sin(x)/x       Up to 16k samples for half channel <sup>[1]</sup> Record Length     Up to 16k samples for each channel       Scanning Speed     2ns/div~50s/div, DS1102/4B       Range     2ns/div~50s/div, DS1102/4B       Sns/div~50s/div, DS1062/4B     1-2-5 Sequence       ±50ppm (any time interval ≥ 1ms)       Delta Time       Measurement     Accuracy <th>Acquisition</th> <th></th> <th></th>	Acquisition					
Averages  A waveform will be displayed one time while all the channels finish N times sample, N could be selectable from 2, 4, 8, 16, 32, 64, 128 and 256  Input Coupling  Input Impedance  Probe Attenuation Factors  Maximum Input Coupling  Maximum Input Voltage of the analog channel: CAT I 300Vrms, 1000Vpk; transient overvoltage 1000Vpk CAT II 100Vrms, 1000Vpk RP2200 10:1, CAT II 300Vrms RP3300 10:1, CAT II 300Vrms RP300 10:1, CAT II 300Vrms  Imput Capable  Imput Capable  Somple Rate Range  Ins/div~50s/div, DS102/4B Ins/div~50s/div, DS102/4B Ins/div~50s/div, DS102/4B Ins/div~50s/div, DS102/4B Ins/div~50s/div, DS102/4B Ins/div~50s/div, DS1062/4B I-2-5 Sequence  ### Somple Rate and Delay Time Accuracy Delta Time Measurement  Measurement  Single: ±(1 sample interval + 50ppm × reading + 0.6 ns) > 16 averages: ±(1sample interval + 50ppm × reading + 0.4 ns)  Vertical A/D Converter  8-bit resolution, all channels sample simultaneously Volts/div Range	Sample Modes		Equivalent Sample			
Averages A waveform will be displayed one time while all the channels finish N times sample, N could be selectable from 2, 4, 8, 16, 32, 64, 128 and 256  Input S  Input Coupling DC, AC, GND  Input Impedance 1MQ±2.0% The input capacity is 18pF±3pF  Probe Attenuation Factors 0.001X, 0.01X, 0.1X, 1X, 2X, 5X, 10X, 20X, 50X, 100X, 200X, 500X, 1000X  Maximum Input Voltage of the analog channel: CAT I 300Vrms, 1000Vpk; transient overvoltage 1000Vpk CAT II 100Vrms, 1000Vpk RP2200 10:1, CAT II 300Vrms RP3200 10:1, CAT II 300Vrms RP3300 10:1, CAT II 300Vrms RP3200	Sample Date	2 GSa/s (half channel [1])	E0 CS2/c[2]			
InputsInput CouplingDC, AC, GNDInput Impedance1MΩ±2.0% The input capacity is 18pF±3pFProbe Attenuation Factors0.001X, 0.01X, 0.1X, 1X, 2X, 5X, 10X, 20X, 50X, 100X, 200X, 500X, 1000XMaximum Input VoltageMaximum Input Voltage of the analog channel: CAT II 300Vrms, 1000Vpk; transient overvoltage 1000VpkMaximum Input VoltageCAT II 300Vrms, 1000Vpk RP2200 10:1, CAT II 300Vrms RP3200 10:1, CAT II 300Vrms RP3300 10:1, CAT II 300VrmsTime Delay between Channel (typical)500psHorizontalSample Rate Range3.65Sa/s-2GSa/s (Real-Time), 3.65Sa/s-50GSa/s (Equivalent-time)Waveform InterpolationSin(x)/xRecord LengthUp to 16k samples for half channelScanning Speed Range (Sec/div)1ns/div~50s/div, DS1202/4B 2ns/div~50s/div, DS1102/4B 5ns/div~50s/div, DS1062/4B 1-2-5 SequenceSample Rate and Delay Time Measurement Accuracy (Full Bandwidth)±50ppm (any time interval + 50ppm × reading + 0.6 ns) >16 averages: ±(1 sample interval + 50ppm × reading + 0.4 ns)Vertical Volts/div Range8-bit resolution, all channels sample simultaneously 2mV/div-10v/div at input BNC						
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Input Impedance Probe Attenuation Factors  0.001X, 0.01X, 0.1X, 1X, 2X, 5X, 10X, 20X, 50X, 100X, 200X, 500X, 1000X  Maximum Input Voltage of the analog channel: CAT I 300Vrms, 1000Vpk; transient overvoltage 1000Vpk  CAT II 100Vrms, 1000Vpk RP2200 10:1, CAT II 300Vrms RP3200 10:1, CAT II 300Vrms RP3300 10:1, CAT II 300Vrms  Somple Rate Range Waveform Interpolation  Sin(x)/x  Record Length  Up to 16k samples for half channel <sup>[1]</sup> 8k samples for each channel  Scanning Speed Range (Sec/div)  Sin(x)/x  Sin(x)/x  Ins/div~50s/div, DS1202/4B 2ns/div~50s/div, DS1102/4B 5ns/div~50s/div, DS1102/4B 5ns/div~50s/div, DS1062/4B 1-2-5 Sequence  ±50ppm (any time interval ≥1ms)  Delta Time Measurement Accuracy (Full Bandwidth)  Vertical  A/D Converter  8-bit resolution, all channels sample simultaneously Volts/div Range  Valve/viii analog company to the properties of t	Inputs					
The input capacity is 18pF±3pF  Probe Attenuation Factors    Country	Input Coupling					
Probe Attenuation Factors  0.001X, 0.01X, 0.1X, 1X, 2X, 5X, 10X, 20X, 50X, 100X, 200X, 500X, 1000X  Maximum Input Voltage of the analog channel: CAT I 300Vrms, 1000Vpk; transient overvoltage 1000Vpk CAT II 100Vrms, 1000Vpk RP2200 10:1, CAT II 300Vrms RP3200 10:1, CAT II 300Vrms RP3200 10:1, CAT II 300Vrms RP3300 10:1, CAT II 300Vrms  Simple Rate Range Sin(x)/x  Sin(x)/x  Sin(x)/x  Up to 16k samples for half channel <sup>[1]</sup> 8k samples for each channel  Scanning Speed Range (Sec/div)  1ns/div~50s/div, DS1202/4B 2ns/div~50s/div, DS1202/4B 2ns/div~50s/div, DS1062/4B 1-2-5 Sequence  \$50ppm (any time interval ≥1ms)  Delta Time Measurement Accuracy (Full Bandwidth)  Vertical  A/D Converter  8-bit resolution, all channels sample simultaneously Volts/div Range  2mV/div-10V/div at input BNC	Innut Impedance					
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Maximum Input Voltage RP2200 10:1, CAT II 300Vrms RP3200 10:1, CAT II 300Vrms RP3300 10:1, CAT II 300Vrms  Soops  Horizontal  Sample Rate Range  Sample Rate Range  Waveform Interpolation  Sin(x)/x  Record Length  Up to 16k samples for half channel <sup>[1]</sup> 8k samples for each channel  1ns/div~50s/div, DS1202/4B 2ns/div~50s/div, DS1102/4B 2ns/div~50s/div, DS1062/4B 1-2-5 Sequence  Sample Rate and Delay Time Accuracy Delta Time Measurement Accuracy (Full Bandwidth)  Vertical  A/D Converter  8-bit resolution, all channels sample simultaneously Volts/div Range  2mV/div-10V/div at input BNC		Maximum Input Voltage of the analog channel	:			
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Horizontal  Sample Rate Range  Waveform Interpolation  Record Length  Sin(x)/x  Up to 16k samples for half channel <sup>[1]</sup> 8k samples for each channel  Scanning Speed Range (Sec/div)  Sample Rate and Delay Time Accuracy Delta Time Measurement Accuracy (Full Bandwidth)  Vertical  A/D Converter  A singe (Sac/Sos/Sos/Sos/Sos/Sos/Sos/Sos/Sos/Sos/Sos	•	500ps				
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Scanning Speed Range (Sec/div)  Sample Rate and Delay Time Accuracy Delta Time Measurement Accuracy (Full Bandwidth)  Vertical A/D Converter  Scanning Speed Ins/div~50s/div, DS1202/4B 2ns/div~50s/div, DS1102/4B 5ns/div~50s/div, DS1062/4B 1-2-5 Sequence  ±50ppm (any time interval ≥1ms)  ±50ppm (any time interval ≥1ms)  Single: ±(1 sample interval + 50ppm × reading + 0.6 ns) >16 averages: ±(1sample interval + 50ppm × reading + 0.4 ns)  Vertical A/D Converter  8-bit resolution, all channels sample simultaneously Volts/div Range  2mV/div-10V/div at input BNC		Sin(x)/x				
Scanning Speed Range (Sec/div)  Sample Rate and Delay Time Accuracy Delta Time Measurement Accuracy (Full Bandwidth)  Vertical A/D Converter Volts/div Range  1ns/div~50s/div, DS1202/4B 2ns/div~50s/div, DS1062/4B 1-2-5 Sequence  ±50ppm (any time interval ≥1ms)  ±50ppm (any time interval ≥1ms)  Single: ±(1 sample interval + 50ppm × reading + 0.6 ns) >16 averages: ±(1sample interval + 50ppm × reading + 0.4 ns)  Vertical A/D Converter  8-bit resolution, all channels sample simultaneously Volts/div Range  2mV/div-10V/div at input BNC	Docard Langth	Up to 16k samples for half channel <sup>[1]</sup>				
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Range (Sec/div)  2ns/div~50s/div, DS1102/4B 5ns/div~50s/div, DS1062/4B 1-2-5 Sequence  Sample Rate and Delay Time Accuracy  Delta Time Measurement Accuracy (Full Bandwidth)  Vertical  A/D Converter  Volts/div Range  2ns/div~50s/div, DS1102/4B 5ns/div~50s/div, DS1062/4B 1-2-5 Sequence  ±50ppm (any time interval ≥1ms)   ±50ppm (any time interval ≥1ms)  >interval + 50ppm × reading + 0.6 ns) >16 averages: ±(1sample interval + 50ppm × reading + 0.4 ns)    Vertical		1ns/div~50s/div. DS1202/4B				
Sample Rate and Delay Time Accuracy  Delta Time Measurement Single: ±(1 sample interval + 50ppm × reading + 0.6 ns)   Accuracy (Full Bandwidth)  Vertical  A/D Converter 8-bit resolution, all channels sample simultaneously Volts/div Range  5ns/div~50s/div, DS1062/4B 1-2-5 Sequence  ±50ppm (any time interval ≥1ms)  5ns/div~50s/div, DS1062/4B 1-2-5 Sequence  ±50ppm (any time interval ≥1ms)  ×50ppm × reading + 0.6 ns)   >16 averages: ±(1sample interval + 50ppm × reading + 0.4 ns)  Nertical  8-bit resolution, all channels sample simultaneously  Volts/div Range	<u> </u>					
Sample Rate and Delay Time Accuracy  Delta Time Measurement Accuracy  Accuracy  (Full Bandwidth)  Vertical  A/D Converter  Volts/div Range  1-2-5 Sequence  ±50ppm (any time interval ≥1ms)  ±50ppm (any time interval ≥1ms)  Single: ±(1 sample interval + 50ppm × reading + 0.6 ns) >16 averages: ±(1sample interval + 50ppm × reading + 0.4 ns)  Vertical  8-bit resolution, all channels sample simultaneously  2mV/div-10V/div at input BNC	_	nge   5ps/div~50s/div_DS1062/4B				
Delay Time Accuracy  Delta Time  Measurement  Accuracy  (Full Bandwidth)  Vertical  A/D Converter  Volts/div Range  ACCURACY  ACCURACY  ACCURACY  Single: ±(1 sample interval + 50ppm × reading + 0.6 ns)  >16 averages: ±(1sample interval + 50ppm × reading + 0.4 ns)    Vertical	(Sec/aiv)					
Delta Time Measurement Accuracy (Full Bandwidth)  Vertical  A/D Converter Volts/div Range  Single: ±(1 sample interval + 50ppm × reading + 0.6 ns) >16 averages: ±(1sample interval + 50ppm × reading + 0.4 ns)  **Top Post	•	±50ppm (any time interval ≥1ms)				
Measurement Accuracy (Full Bandwidth)  Vertical  A/D Converter Volts/div Range  Single: ±(1 sample interval + 50ppm × reading + 0.6 ns) >16 averages: ±(1sample interval + 50ppm × reading + 0.4 ns)  **Top Post						
Accuracy (Full Bandwidth)  Vertical  A/D Converter  Volts/div Range  >16 averages: ±(1sample interval + 50ppm × reading + 0.4 ns)    Vertical	Measurement	Single: $\pm (1 \text{ sample interval} + 50 \text{ppm} \times \text{readin})$	ng + 0.6 ns)			
Vertical         A/D Converter       8-bit resolution, all channels sample simultaneously         Volts/div Range       2mV/div-10V/div at input BNC	Accuracy					
A/D Converter 8-bit resolution, all channels sample simultaneously Volts/div Range 2mV/div-10V/div at input BNC	(Full Bandwidth)		,			
Volts/div Range 2mV/div-10V/div at input BNC						
Volts/div Range 2mV/div-10V/div at input BNC		8-bit resolution, all channels sample simultane	eously			
Offset Range ±40V(245mV/div~10V/div)	Volts/div Range	2mV/div-10V/div at input BNC				
	Offset Range	±40V(245mV/div~10V/div)				

	±2V(2mV/div	, ,			
	60MHz(DS1062/4B)				
Equivalent Bandwidth	100MHz(DS1102/4B)				
	200MHz(DS1202/4B)				
Single-shot	60MHz(DS1062/4B)				
Bandwidth	•	100MHz(DS1102/4B)			
Selectable Analog	200MHz(DS1202/4B)				
Bandwidth Limit (typical)	20MHz				
Lower Frequency Response (AC -3dB)	≤5Hz (at input BNC)				
Rise Time at BNC (typical)	<1.75ns, <3.5ns, <5.8ns, On 200MHz, 100MHz, 60MHz respectively				
DC Gain Accuracy	2mV/div~5mV/div: ±4% (Normal or Average acquisition mode) 10mV/div~10V/div: ±3% (Normal or Average acquisition mode)				
	When vertical displacement is zero, and N ≥16:				
	±(DC Gain Accuracy×reading+0.1div+1mV)				
DC Measurement	When vertical displacement is not zero, and N ≥16:				
Accuracy Average	±[DC Gain Accuracy×(reading+ vertical position)+(1% of vertical				
Acquisition Mode	position)+0.2	-			
	Add 2mV for settings from 1mV/div to 200 mV/div Add 50mV for settings from >200mV/div to 10V/div				
Delta Volts	7144 501117 101	56ccmg5 116m > 256m + 4 at 16 16 + 7 at 1			
Measurement	lladau asas a	atting and andition the value of difference ( , ) () hat were one			
Accuracy		etting and condition, the voltage difference ( $\triangle$ V) between any the waves coming from the average of more than 16 waves			
(Average Acquisition		quired: ±(DC Gain Accuracy×reading + 0.05 div)			
Mode)	nave been acc	quired: ±(DC dain Accuracy \reading \reading \reading)			
Trigger					
Trigger Sensitivity	0.1div-1.0div	(adjustable)			
	Internal	±6 divisions from center of screen			
Trigger Level Range	EXT	±1.2V			
	EXT/5	±6V			
Trigger Level Accuracy	Internal	$\pm$ (0.3div × V/div)( $\pm$ 4 divisions from center of screen)			
(typical) applicable for	EXT	$\pm$ (6% of setting + 40 mV)			
the signal of rising	EVT/E				
and falling time ≥20ns	I EXI/O	$\pm$ (6% of setting + 200 mV)			
	EXT/5	±(6% of setting + 200 mV)			
Trigger Offset		±(6% of setting + 200 mV) de: pre-trigger(storage depth/(2×sample) rate), delayed			
Trigger Offset	In Normal mo trigger 1s	,			
Trigger Offset  Trigger Holdoff Range	In Normal mo trigger 1s	de: pre-trigger(storage depth/(2×sample) rate), delayed			
	In Normal mo trigger 1s In Slow Scan	de: pre-trigger(storage depth/(2×sample) rate), delayed mode: pre-trigger 6div, delayed trigger 6div			
Trigger Holdoff Range	In Normal mo trigger 1s In Slow Scan 100ns~1.5s	de: pre-trigger(storage depth/(2×sample) rate), delayed mode: pre-trigger 6div, delayed trigger 6div			
Trigger Holdoff Range HF Rejection	In Normal motrigger 1s In Slow Scan 100ns~1.5s 100kHz ±20% 10kHz ±20%	de: pre-trigger(storage depth/(2×sample) rate), delayed mode: pre-trigger 6div, delayed trigger 6div			
Trigger Holdoff Range HF Rejection LF Rejection	In Normal motrigger 1s In Slow Scan 100ns~1.5s 100kHz ±20% 10kHz ±20%	de: pre-trigger(storage depth/(2×sample) rate), delayed mode: pre-trigger 6div, delayed trigger 6div			
Trigger Holdoff Range HF Rejection LF Rejection Set Level to 50% (typical) Edge Trigger	In Normal motrigger 1s In Slow Scan 100ns~1.5s 100kHz ±20% When input si	de: pre-trigger(storage depth/(2×sample) rate), delayed  mode: pre-trigger 6div, delayed trigger 6div  gnal frequency ≥50Hz			
Trigger Holdoff Range HF Rejection LF Rejection Set Level to 50% (typical) Edge Trigger Edge Trigger Slope	In Normal motrigger 1s In Slow Scan 100ns~1.5s 100kHz ±20% When input si	de: pre-trigger(storage depth/(2×sample) rate), delayed mode: pre-trigger 6div, delayed trigger 6div			
Trigger Holdoff Range HF Rejection LF Rejection Set Level to 50% (typical) Edge Trigger Edge Trigger Slope Pulse Width Trigger	In Normal motrigger 1s In Slow Scan 100ns~1.5s 100kHz ±20% When input si Risin	de: pre-trigger(storage depth/(2×sample) rate), delayed mode: pre-trigger 6div, delayed trigger 6div  gnal frequency ≥50Hz  g, Falling, Rising + Falling			
Trigger Holdoff Range HF Rejection LF Rejection Set Level to 50% (typical) Edge Trigger Edge Trigger Slope Pulse Width Trigger Trigger Condition	In Normal motrigger 1s In Slow Scan 100ns~1.5s 100kHz ±20% When input si Risin (>,	de: pre-trigger(storage depth/(2×sample) rate), delayed  mode: pre-trigger 6div, delayed trigger 6div  gnal frequency ≥50Hz  g, Falling, Rising + Falling  <, =) Positive pulse, (>, <, =) Negative pulse			
Trigger Holdoff Range HF Rejection LF Rejection Set Level to 50% (typical) Edge Trigger Edge Trigger Slope Pulse Width Trigger Trigger Condition Pulse Width Range	In Normal motrigger 1s In Slow Scan 100ns~1.5s 100kHz ±20% When input si Risin (>,	de: pre-trigger(storage depth/(2×sample) rate), delayed mode: pre-trigger 6div, delayed trigger 6div  gnal frequency ≥50Hz  g, Falling, Rising + Falling			
Trigger Holdoff Range HF Rejection LF Rejection Set Level to 50% (typical) Edge Trigger Edge Trigger Slope Pulse Width Trigger Trigger Condition Pulse Width Range Video Trigger	In Normal motrigger 1s In Slow Scan 100ns~1.5s 100kHz ±20% When input si Risin (>, 20ns	de: pre-trigger(storage depth/(2×sample) rate), delayed  mode: pre-trigger 6div, delayed trigger 6div  gnal frequency ≥50Hz  gg, Falling, Rising + Falling  <, =) Positive pulse, (>, <, =) Negative pulse  s ~10s			
Trigger Holdoff Range HF Rejection LF Rejection Set Level to 50% (typical) Edge Trigger Edge Trigger Slope Pulse Width Trigger Trigger Condition Pulse Width Range	In Normal motrigger 1s In Slow Scan 100ns~1.5s 100kHz ±20% When input si Risin (>, 20ns	de: pre-trigger(storage depth/(2×sample) rate), delayed  mode: pre-trigger 6div, delayed trigger 6div  gnal frequency ≥50Hz  g, Falling, Rising + Falling  <, =) Positive pulse, (>, <, =) Negative pulse			

Pattern Trigger	Pattern Trigger				
Pattern setup		H, L, X, <u>₹</u> , ₹			
<b>Alternate Trigger</b>					
Trigger on CH1, CH2, CH3, CH4		Edge, Pulse Width, Video			
Measurements	Measurements				
	Manual	Voltage difference between cursors ( $\Delta V$ ) Time difference between cursors ( $\Delta T$ ) Reciprocal of $\Delta T$ in Hertz ( $1/\Delta T$ )			
Cursor	Track	Voltage value for Y-axis waveform Time value for X-axis waveform			
	Auto	Cursors are visible for Automatic Measurement			
Auto Measure	Period, Ris	, Vmax, Vmin, Vtop, Vbase, Vavg, Vrms, Overshoot, Preshoot, Freq, e Time, Fall Time, +Width, -Width, +Duty, -Duty, Delay A→Bf, Phase A→Bf, Phase A→Bf, Phase A→Bf			

#### Remarks:

[1] Half channel indicates selecting one of the channels in CH1 and CH2, or in CH3 and CH4.
[2] This is the highest specification, the specific specifications are as follows:

DS1202/4B: 50GSa/s

DS1102/4B: 25GSa/s

DS1062/4B: 10GSa/s

# **General Specifications**

Display			
Display Type	5.7 inch. (145 mm) dia	gonal TFT Liquid Crystal Display	
Display Resolution	320 horizontal ×RGB×	• • • • • • • • • • • • • • • • • • • •	
Display Color	64k color		
Display Contrast (typical)	150:1		
Backlight Brightness (typical)	300 nit		
Probe Compensator Output			
Output Voltage (typical)	Amplitude, ~3Vpp	Amplitude, ~3Vpp	
Frequency (typical)	1kHz		
Power Supply			
Supply Voltage	AC, 100~240 V, 45~440Hz, CAT II		
Power Consumption	Less than 50VA		
Fuse	2A, T rating, 250 V		
Environmental			
Ambient Temperature	Operating 10°C ~ 40°C		
Ambient Temperature	Non-operating -20°C ~ +60°C		
Cooling Method	Fan force air flow		
11	+35°C or below: ≤90% relative humidity		
Humidity	+35°C~ +40°C: ≤60% relative humidity		
Altitudo	Operating 3,000 m or below		
Altitude	Non-operating 15,000 m or below		
Mechanical			
	Width	325mm	
Dimensions	Height	159mm	
	Depth	133 mm	
Weight	Without package	3kg	
	Packaged	4.3 kg	
IP Protection			
IP2X			
Calibration Interval			
The recommended calibration in	terval is one year		

# **Ordering Information**

#### **Name of Product**

RIGOL DS1000B series digital oscilloscopes

#### **Standard Accessories**

- Probe×4 or Probe×2, 1:1, (10:1) Passive Probes
- A Power Cord that fits the standard of destination country
- An USB Cable
- A CD-ROM (including *User's Guide* an application software)
- A Quick Guide

#### **Optional Accessories**

- BNC Cable
- RS232 Cable
- DS1000B special convenient soft bag

## **Warranty**

Thank you for choosing **RIGOL** products!

**RIGOL** Technologies, Inc. warrants that this product will be free from defects in materials and workmanship from the date of shipment. If a product proved defective within the respective period, **RIGOL** will provide repair or replacement as described in the complete warranty statement.

For the copy of complete warranty statement or maintenance, please contact with your nearest **RIGOL** sales and service office.

**RIGOL** do not provide any other warranty items except the one being provided by this summary and the warranty statement. The warranty items include but not being subjected to the hint guarantee items related to tradable characteristic and any particular purpose. **RIGOL** will not take any responsibility in cases regarding to indirect, particular and ensuing damage.

#### **Contact Us**

If you have any problem or requirement during using our products, please contact **RIGOL** Technologies, Inc. or the local distributors.

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