

ออสซิลโลสโคป OWON HDS1021M



Features:

- Record length of 6,000 points
- Cursor read-out
- 18 automatic measurement functions
- Autoscale function
- 3.5 inch Color (TFT) LCD with high contrast
- Ability to store and recall waveforms
- Automatic setting function
- Multiple waveform calculation function
- Can detect the average and peak values of a waveform
- Edge and video trigger function
- USB communication port
- Multiple language user interface
- Lithium battery (6 hours of operation time)

Multimeter

- 3 3/4 digits
- Volts, Amps, Ohms, Diode, Capacitance, Continuity measurements
- 20A maximum amplitude
- Isolated inputs between oscilloscope and multimeter
- OWON Handheld HDS1021M DSO Digital Oscilloscope Scopemeter
- 1 Channel 20 MHz Scopemeter 100 MSa/s

Main Features:

- Autoscale
- 20 Automatic Measurements
- 3 in 1(DSO+Multimeter+Cymometer)
- 20MHz Bandwidth
- Support USB for data transmission to PC
- TFT true 4096 color display (320x240)

Specifications:

Bandwidth	20MHz	
Sample rate(Real time)	100MS/s	
Horizontal Scale(S/div)	5ns/div~100s/div, step by 1~2.5~5	
Rise time (at input, typical)	≤17.5ns	
Channels	Single	
Display	3.5"color display with TFT panel(320×240 pixels)	
Input impedance	1MΩ±2%,in parallel with 18pF±5pF	
Probe attenuation factor	1X,10X,100X,1000X	
Max. input voltage	400V (PK-PK) (DC + AC PK-PK, 1MΩ input impedance, Probe attenuation 10:1)	
Record length	Max.6000 points on each channel	
Interpolation	(sin x)/x	
Input coupling	DC, AC, GND	
Acquisition modes	Sample, Peak Detect and Average	
Vertical resolution (A/D)	8 bit	
Vertical sensitivity	5mV/div~5V/div(at input)	
DC gain accuracy	±3%	
DC accuracy(Average)	Average>16:±(3% reading+0.05div) for V	
Trigger type	Edge, Video	
Trigger mode	Auto, Normal, Single	
Trigger level	±6 divisions from screen center	
Automatic measurement	Vpp,Vavg,RMS,Frequency,Period,Vmax,Vmin,Vtop,Vbase,Width,Overshoot,Pre-shoot,Rise time, Fall time, +Width, -Width, +Duty, -Duty, Delay A B ,Delay A B	
Waveform math	Unavailable	
Waveform storage	4 waveforms	
Lissajou's figure	Bandwidth	Unavailable
	Phase difference	Unavailable
Communication interface	USB	
Cymometer	Available	
Power supply	100V-240V AC, 50/60Hz	
Li-ion battery	7.4V, 6 hours operation	

Multimeter specifications:			
Full scale reading	3 3/4 digits (Max.4000-count)	Diode	0V-1.5V
Input Impedance	10 M Ω	On/Off measurement	<50(\pm 30) beeping
Capacitance	51.2nF-100uF: \pm (3% \pm 3 digit)		
Voltage	VDC:400mV,4V, 400V: \pm (1 \pm 1digit) Max.input:DC 1000V, VAC:4V,40V, 400V: \pm (1 \pm 3digit) Frequency:40Hz-400Hz, Max:input:AC 750V(virtual value)		
Current	DCA:40mA, 400mA: \pm (1.5% \pm 1 digit) 20A: \pm (3% \pm 3digit) DAA:40mA \pm (1.5% \pm 3digit) 400mA: \pm (2 \pm 1digit) 20A: \pm (3% \pm 3digit)		
Impedance	400 Ω : \pm (1% \pm 3digit), 40 Ω		

General specifications:	
Interface	USB Data Cable (Transfer waveform data to a PC)
Power	Supply:100V~240V AC,50/60Hz DC input: 8.5VDC, 1500mA. Battery: 6 hours
Dimension	180mm x 115mm x 40mm
Weight	455g

Digital Oscilloscope RIGOL DS1052E 50MHz



Description

Application :

1. Design and Debug
2. Manufacturing
3. Education & Training
4. Service & Maintenance

Technical Specifications:

Bandwidth		50 MHz
Memory Depth		Single Channel: 1M; Double Channels: 500K
Channels		2
Real-time sample rate		Single Channel: 1 GSa/s; Double Channels: 500MSa/s
equivalent sample rate		10 GSa/s
Rise Time		1.2 ns
Input Impedance		1 M Ω 15 pF, 50 Ω
Sec/div Range		2 ns/div - 50 s/div
Lissajous Figures	Bandwidth	50 MHz
	phase difference	$\pm 3^\circ$
Trigger Modes		Edge, Pulse, Video, Slope, Delay
Trigger Source		CH1,CH2,Ext,Ext/5,AC Line
Vertical Sensitivity		2 mV/div - 10 V/div
Vertical Resolution		8bit
Input coupling		DC, AC, GND
Input Max voltage		300 V (DC + AC Vpp)
Scroll Range		500 ms/div - 50 s/div
Cursor measure		Manual, Track, Auto
Math		+, -, \times , FFT
Storage		Built-in: 10 groups waveforms, 10 groups set up ; USB: bitmap memory, CSV storage, wave set up
Interface		USB Device, USB Host, RS-232, P/F Out (Isolated)
Display		64K TFT Color LCD (320 x 234)
Display Language		Multilingual User Interface
Power Source Voltage		100-240V AC/ 50W Max
Size		303mm \times 154mm \times 133mm(L \times H \times W)
Weight		Approximately 2.4 kg

Package Include:

- 1 x Digital oscilloscope
- 1 x Power Cord
- 2 x Probe
- 1 x Instruction CD and Manual

RIGOL DS1102E 100MHz Oscilloscope



Description

Features

1. A true mixed signal oscilloscope with 16channel Logic Analyzer (DS1000D)
2. 1 GSa/s maximum Real-time Sample Rate and 1Mpts of memory depth
3. Bandwidth options: 50MHz and 100MHz
4. Extensive set of trigger modes including: Edge, Video, Pulse Width, Slope, Alternate
5. 64 k TFT Color LCD, bright and vivid waveform display
6. Direct print to PictBridge compatible printers via USB Device interface
7. Compact design to save your desktop space

Application

1. Design and Debug
2. Manufacturing
3. Education & Training
4. Service & Maintenance

Specifications:

Model	DS1102E	
Bandwidth	100 MHz	
Channels	Dual Channels + External Trigger	
Real-time Sample Rate	1 GSa/s(Single Channel), 500 MSa/s(Dual Channels)	
Equivalent-time Sample Rate	25GSa/s	
Rise Time	3.5ns	
Memory Depth	Channel Mode	Sample Rate
	Single Channel	1GSa/s
	Single Channel	500MSa/s or lower
	Dual Channels	500MSa/s or lower
Timebase Range	2 ns/div ~50s/div	
Trigger Modes	Edge, Video, Pulse Width, Slope, Alternate	
Vertical Resolution	8 bits	
Vertical Sensitivity	2 mV/div ~10V/div	
Maximum Input Voltage	All Inputs 1M15pF 300V RMS CAT 1	
Input Coupling	DC,AC,GND	
Roll Range	500ms/div ~50s/div	
Cursor Measurements	Manual,Track and Auto Measure modes	
Math	+, -, ×, FFT	
Internal Storage	10 Waveforms and 10 Setups	
USB Storage	BMP, CSV, Waveforms and Setups	
Connectivity	USB Device, USB Host, RS-232, P/F Out	
Display	5.6" TFT (64 k, Color LCD), 320×234 resolution	
Power Supply	AC:100 ~ 240 VACRMS, 45 ~ 440 Hz, CAT II, 50 VA Max	