Data Sheet

Handheld Oscilloscope

Hantek®

DSO1202BT DSO1102BT
DSO1062BT

Features & Benefits

- 200/100/60MHz Bandwidth
- 1GSa/s Real Time Sample Rate
- 1M Memory Depth
- Trigger mode: Edge, Pulse Width, Video, Slop, Overtime, Alternative Trigger etc.
- 6000 Counts DMM with analog baragraph
- Provides software for PC real-time analysis
- Provides LAN and USB interface.

Applications

- Design and Debug
- Education and training
- Manufacturing Test and Quality Control
- Service and Repair
- Electronic Circuit Designing and Testing.

Ease-of-Use Feature

- Five math functions, +, -, *, /, and FFT function.
- 32 automatic measurements and track measurement via cursor automatically.
- Large (5.6-inch) 64K color LCD, 640x480 dots
- Support U disk and local files storage.
- Pass/Fail Function enables to output testing results
- Dimensions (mm):240x165x50, be carried easily
- USB Host/Device 2.0 full-speed interface, support removeable disk, LAN, Easy to control by PC or long-distance.
- Built-in FFT function, hold pratical digital filters.
- Built-in multiple language support, included Thai language.

Characteristics

Acquisition	
Sample Rate	Real-Time Sample: 1GS/s; Equivalent Sample: 25GS/s
Acquisition Modes	
Normal	Normal data only
Peak Detect	High-frequency and randon glith capture
Average	Wavefom Average, selectable 4, 8, 16, 32, 64, 128
Inputs	
Input Coupling	AC, DC, GND
Input Impendance	1MΩ±2% ‖ 20pF±3pF
Probe Attenuation	1X, 10X
Supported Probe Attenuation Factor	1X, 10X, 100X, 1000X
Max. Input Voltage	CAT I and CAT II: 300VRMS (10×); Installation Category III: 150VRMS (1×); Installation Category II: derate at 20dB/decade above 100kHz to 13V peak AC at 3MHz and above. For non-sinusoidal waveforms, peak value must be less than 450V. Excursion above 300V should be of less than 100ms duration. RMS signal level including all DC components removed through AC coupling must be limited to 300V. If these values are exceeded, damage to the oscilloscope may occur.

Horizontal System	
Sample Rate Range	500MS/s--1GS/s
Waveform Interpolation	(sin x)/x
Record Length	Maximum 1M samples per single-channel; maximum 512K samples per dual-channel (4K,16K,40K optional)
SEC/DIV Range	2ns/div to 40s/div, in a 2, 4, 8 sequence, DSO1202B(V) 4ns/div to 40s/div, in a 2, 4, 8 sequence, DSO1102B(V)/DSO1062B(V)
Sample Rate and Delay Time Accuracy	±50ppm（at over any ≥1ms time interval)
Position Range	DSO1202BT: 2ns/div to 10ns/div; (-4div x s/div) to 20ms; DSO1102BT/DSO1062BT: 20ns/div to 80us/div; (-8div x s/div) to 40ms; 200us/div to 40s/div; (-8div x s/div) to 400s;
Delta Time Measurement Accuracy (Full Bandwidth)	Single-shot, Normal mode:± (1 sample interval +100ppm × reading + 0.6ns); >16 averages:± (1 sample interval + 100ppm × reading + 0.4ns); Sample interval = s/div ÷ 200

Vertical System	
Vertical Resolution	8-bit resolution, all channel sampled simultaneously
Volts/Div Range	2mV/div~5V/div (1x), 20mV/div~50V/div (10x)
Position Range	2mV/div to 200mV/div; ±2V; 200mV/div to 5V/div; ±50V
Bandwidth	DSO1202BT: 200MHz; DSO1102BT: 100MHz; DSO1062BT: 60MHz;
Rise time at BNC(typical)	DSO1202BT: 1.8ns; DSO1102BT: 3.5ns; DSO1062BT: 5.8ns;
Analog Bandwidth in Normal and Average Modes at BNC or with probe, DC Coupled	2mV/div to 20mV/div, ±400mV; 50mV/div to 200mV/div, ±2V; 500mV/div to 2V/div, ±40V; 5V/div, ±50V
FFT	Windows: Hanning, Flatop, Rectamgular, Bartlett, Blackman; 1024 sample points;

Math	+, -, *, /, FFT
Bandwidth Limit Low Frequency Response (-3db)	20MHz ≤10Hz at BNC
DC Gain Accuracy	±3% for Normal or Average acquisition mode, 5V/div to 10mV/div; ±4% for Normal or Average acquisition mode, 5mV/div to 2mV/div.
DC Measurement Accuracy, Average Acquisition Mode	When vertical displacement is zero, and N ≥16:± (3% × reading + 0.1div + 1mV) only 10mV/div or greater is selected; When vertical displacement is not zero, and N≥16: ± [3% × (reading + vertical position) + 1% of vertical position + 0.2div]; Add 2mV for settings from 2mV/div to 200mV/div; add 50mV for settings from 200mV/div to 5V/div
Volts Measurement Repeatability, Average Acquisition Mode	Delta volts between any two averages of ≥16 waveforms acquired under same setup and ambient conditions

Trigger System	
Trigger Types	Edge, Video, Pulse Width, Slope, Over time, Alternative
Trigger Source	CH1, CH2
Trigger Modes	Auto, Normal, Single
Coupling Type	DC, AC, Noise Reject, HF Reject, LF Reject
Trigger Sensitivity *(Edge Trigger Type)*	**DC(CH1,CH2):** DSO1202BT: 1.5div from 10MHz to 100MHz; 2div from 100MHz to Full; DSO1102BT/DSO1062BT: 1div from DC to 10MHz;1.5div from 10MHz to Full; **AC:** Attenuates signals below 10Hz **HF Reject:** Attenuates signals above 80kHz **LF Reject:** Same as the DC-coupled limits for frequencies above 150kHz; attenuates signals below 150kHz
Trigger Level Range	CH1/CH2: ±8 divisions from center of screen;
Trigger Level Accuracy*(typical)* Accuracy is for signals having rise and fall times ≥20ns	CH1/CH2: 0.2div × volts/div within ±4 divisions from center of screen;
Set Level to 50%*(typical)*	Operates with input signals ≥50Hz
Trigger Holdoff range	100ns-10s
Video Trigger	
Video Trigger Type	CH1, CH2: Peak-to-peak amplitude of 2 divisions;
Signal Formats and Field Rate	Supports NTSC, PAL and SECAM broadcast systems for any field or any line Line range: 1-525(NTSC), 1-625(PAL/SECAM)
Holdoff Range	100ns ~ 10s
Pulse Width Trigger	
Pulse Width Trigger Mode	Trigger when (< , >, = , or ≠); Positive pulse or Negative pulse
Pulse Width Trigger Point	**Equal:** The oscilloscope triggers when the trailing edge of the pulse crosses the trigger level. **Not Equal:** If the pulse is narrower than the specified width, the trigger point is the trailing edge. Otherwise, the oscilloscope triggers when a pulse continues longer than the time specified as the Pulse Width. **Less than:** The trigger point is the trailing edge. **Greater than** (also called overtime trigger): The oscilloscope triggers when a pulse continues longer than the time specified as the Pulse Width
Pulse Width Range	20ns ~ 10s
Overtime Trigger	
Over Time Mode	Rising edge or Falling edge
Time Range	20ns ~ 10s
Slope Trigger	
Slope Trigger Mode	Trigger when (< , > , = , or ≠); Positive slope or Negative slope
Slope Trigger Point	**Equal**: The oscilloscope triggers when the waveform slope is equal to the set slope. **Not Equal**: The oscilloscope triggers when the waveform slope is not equal to the set slope. **Less than**: The oscilloscope triggers when the waveform slope is less than the set slope. **Greater than**: The oscilloscope triggers when the waveform slope is greater than the set slope.
Time Range	20ns ~ 10s

Alternative Trigger	
Trigger on CH1	Internal Trigger: Edge, Pulse Width, Video, Slope
Trigger on CH2	Internal Trigger: Edge, Pulse Width, Video, Slope
Trigger Frequency Counter	
Readout Resolution	6 digits
Accuracy *(typical)*	±30ppm (including all frequency reference errors and ±1 count errors)
Frequency Range	AC coupled, from 4Hz minimum to rated bandwidth
Signal Source	Pulse Width or Edge Trigger modes: all available trigger sources;
	The Frequency Counter measures trigger source at all times, including when the oscilloscope acquisition pauses due to changes in the run status, or acquisition of a single shot event has completed.
	Pulse Width Trigger mode: The oscilloscope counts pulses of significant magnitude inside the 1s measurement window that qualify as triggerable events, such as narrow pulses in a PWM pulse train if set to < mode and the width is set to a relatively small time.
	Edge Trigger mode: The oscilloscope counts all edges of sufficient magnitude and correct polarity.
	Video Trigger mode: The Frequency Counter does not work.

Measurement	
Cursor Measurement	**Manual:** Voltage difference between cursors: △V;
	Time difference between cursors: △T;
	Reciprocal of △T in Hertz (1/ΔT);
	Tracing: The voltage and time at a waveform point
Auto Measurement	Frequency, Period, Mean, Pk-Pk, Cycli RMS, Minimum, Maximum, Rise time, Fall Time, +Pulse Width, -Pulse Width, Delay1-2Rise, Delay1-2Fall, +Duty, -Duty, Vbase, Vtop, Vmid, Vamp, Overshoot, Preshoot, Preiod Mean, Preiod RMS

Display	
Display Type	5.6 inch 64K color TFT LCD
Display Resolution	640 horizontal by 480 vertical pixels
Display Contrast	Adjustable (16 gears) with the progress bar
Interface	USB host and USB slave, LAN optional

Probe Compensator Output	
Output Voltage *(typical)*	About 5Vpp into ≥1MΩ load
Frequency*(typical)*	1KHz

Power Supply	
Supply Voltage	AC Input:100-240VACRMS,0.6A MAX,50Hz~60Hz; DC Output:9V,2A
Power Consumption	<30W

Environmental	
Temperature	Operating: 32℉ to 122℉ (0℃ to 50℃); Nonoperating: -40℉ to 159.8℉ (-40℃ to +71℃)
Cooling Method	Convection
Humidity	+104℉ or below (+40℃ or below): ≤90% relative humidity; 106℉ to 122℉ (+41℃ to 50℃): ≤60% relative humidity
Altitude	Operating: Below 3,000m (10,000 feet); Nonoperaring: Below 15,000m(50,000 feet)

Mechanical	
Size	Length 245mm; Width 165mm; Height 50mm
Weight	2.8KG(with Packing)； 1.2KG(without Packing)

DMM Modes	
Max. Resolution	6000 Counts
DMM Testing Modes	Voltage, Current, Resistance, Capacitance, Diode & Continuity
Max. Input Voltage	AC:600V, DC: 800V
Max. Input Current	AC: 10A, DC:10A
Input Impendance	10MΩ

DMM Specifications

Range			Resolution
DC Voltage	60.00mV	±1%±1 digit	10uV
	600.0mV		100uV
	6.000V		1mV
	60.00V		10mV
	600.0V		100mV
	800V		1V
AC Voltage	60.00mV	±1%±3 digit	10uV
	600.0mV		100uV
	6.000V		1mV
	60.00V		10mV
	600.0V		100mV
DC Current	60.00mA	±1.5%±1 digit	10uA
	600.0mA	±1.5%±1 digit	100uA
	6.000A	±2%±3 digit	1mA
	10.00A		10mA
AC Current	60.00mA	±1.5%±3 digit	10uA
	600.0mA	±1%±1 digit	100uA
	6.000A	±1.5%±3 digit	1mA
	10.00A		10mA
Resistance	600	±1%±3 digit	0.1Ω
	6.000K	±1%±1 digit	1Ω
	60.00K		10Ω
	600.0K		1KΩ
	6.000M		10KΩ
	60.00M	±1.5%±3 digit	100KΩ
Range		**Accuracy**	**Resolution**
Capacitance	40.00nF	±1%±1 digit	10pF
	400.0nF		100pF
	4.000uF		1nF
	40.00uF		10nF
	400.0uF		100nF
	Attention: the smallest capacitance value that can be measured in 5nF		
Diode	0V~2.0V		

Standard Accessories

- Probex2, 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 Manual ans application software)
- A couple of mutimeter probes.
- A Handheld special convenient soft bag

Hantek®

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