Porównanie parametrów przenośnych oscyloskopów cyfrowych z multimetrem (skopometrów) z serii DSO1000E produkcji Hantek.

Model	DSO1072E	DSO1102E	DSO1152E	DSO1202E
Sample Modes	Real-Time Sample			
Normal	Normal data only			
Peak Detect	High-frequency and randon glith capture			
Average	Wavefom Average, selectable 4,8,16,32,64,128			
Inputs Coupling	AC, DC, GND			
Inputs Impendance	1MΩ±2% ‖20pF±3pF			
Probe Attenuation	1X, 10X			
Supported Probe Attenuation Factor	1X, 10X, 100X, 1000X			
Maximum Input Voltage	CAT I and CAT II: 300VRMS (10×), Installation Category; CAT III: 150VRMS (1×)			
Sample Rate Range	1GS/s			
Waveform Interpolation	(sin x)/x			
Record Length	2M			
SEC/DIV Range	4ns/div~2000s/div, in a 2, 4, 8 sequence		2ns/div~2000s/div, in a 2, 4, 8 sequence	
Sample Rate and Delay Time Accuracy	±50ppm over any ≥1ms time interval			
Scanning Speed Range	4ns/div to 8ns/div; (-8div x s/div) to 40ms; 20ns/div to 80μs/div;(-8div×s/div) to 40ms 200μs/div to 40s/div; (-8div×s/div) to 400s		2ns/div to10ns/div; (-4div×s/div) to 20ms;	
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 Resolution	8-bit resolution, all channel sampled simultaneously			
Volts Range	2mV/div to 100V/div at input BNC			
Bandwidth	70MHz	100MHz	150MHz	200MHz
Rise Time at BNC(typical)	5ns	3.5ns	2.3ns	1.8ns
Analog Bandwidth in Normal and Average modes at BNC or with probe, DC Coupled	±400V(100V/div-20V/div); ±50V(10V/div-5V/div) ±40V(2V/div-500mV/div); ±2V(200mV/div-50mV/div) ±400mV(20mV/div-2mV/div)			
Math	+, -, *, /, FFT			
FFT	Windows:Hanning, Flatop, Rectamgular, Bartlett, Blackman; 1024 sample point			
Bandwidth Limit	20MHz			
Low Frequency Response (-3db)	≤10Hz at BNC			
DC Gain Accuracy	±3% for Normal or Average acquisition mode, 100V/div to 10mV/div. ±4% for Normal or Average acquisition mode, 5mV/div to 2mV/div.			
DC Measurement Accuracy, Average Acquisition Mode	Measurement Type: Average of ≥16 waveforms with vertical position at zero Accuracy: ± (3% × reading + 0.1div + 1mV) when 10mV/div or greater is selected. Measurement Type: Average of ≥16 waveforms with vertical position not at zero Accuracy: ± [3% × (reading + vertical position) + 1% of vertical position + 0.2div].			
Volts Measurement Repeatability, Average Acquisition Mode	Delta volts between any two averages of ≥16 waveforms acquired under same setup and ambient conditions			
Trigger Types	Edge, Video, Pulse, Slope, Over time, Alternative			
Trigger Source	CH1, CH2, AC Line			
Trigger Modes	Auto, Normal, Single			

Coupling Type	DC, AC, HF Reject, LF Reject, Noise Reject
Trigger Sensitivity (Edge Trigger Type)	DC(CH1,CH2): 1div from DC to 10MHz; 1.5div from 10MHz to 100MHz; 2div from 100MHz 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
Video Trigger Type	CH1, CH2: Peak-to-peak amplitude of 2 divisions;
Signal Formats and Field Rates	Supports NTSC, PAL and SECAM broadcast systems for any field or any line
Holdoff Range	100ns ~ 10s
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
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
Over Time Modee	Rising edge or Falling edge
Time Range	20ns ~ 10s
Trigger on CH1	Internal Trigger: Edge, Pulse Width, Video, Slope
Trigger on CH2	Internal Trigger: Edge, Pulse Width, Video, Slope
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.
Cursor Measurement	Manual: Voltage difference between cursors: △V Time difference between cursors: △T Reciprocal of △T in Hertz (1/ΔT); Tracing: The valtage and time at a waveform point;

Auto Measuerment	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,		
Scope Trendplot	1.2M Point		
Display Resolution	640 horizontal by 480 vertical pixels		
Display Contrast	Adjustable (16 gears) with the progress bar		
Output Voltage(typical)	About 2Vpp into ≥1MΩ load		
Frequency(typical)	1kHz		
Supply Voltage	AC Input:100-240VACRMS,0.6A MAX,50Hz~60Hz; DC Output:9V,2A		
Power Consumption	<30W		
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)		
Size	260mmmm; 220mm; 75mm		
Weight	2.5KG(without Packing)		
DMM Mode			
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 Impedance	10MΩ		
DMM TrendPlot	1.2M Point		
DC Voltage	60.00mV	±1%±3 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 digit	10uA
	600.0mA	±1.5%±5 digit	100uA
	6.000A		1mA
	10.00A		10mA
AC Current	60.00mA	±1%±5 digit	10uA
	600.0mA	±1.5%±5 digit	100uA
	6.000A		1mA
	10.00A		10mA
Resistance	600Ω	±1%±3 digit	0.1Ω
	6.000KΩ		1Ω
	60.00KΩ		10Ω
	600.0KΩ		1KΩ
	6.000MΩ		10KΩ
	60.00MΩ	±1%±5 digit	100KΩ

Capacitance	40.00nF	±2%±5 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		
ON-OFF test	<10Ω		