

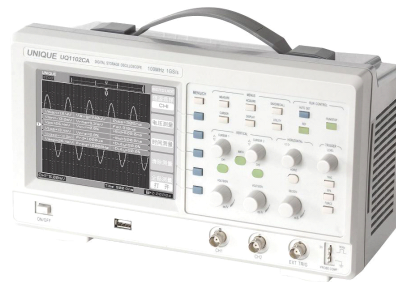
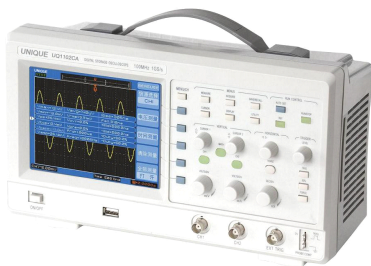


Unique Electronics Ltd.

PRODUCT CATALOGUE

Benchtop instruments

→ **UNIQUE** Digital Oscilloscopes



UQ1000 series numeral storage oscilloscope



彩色显示
Colour Display



黑白显示
Monochrome Display



Production/Specialty

▲Over-thin design,cabinet volume

- ▲Easy to read with color or monochrome (NST) LCD display.
- ▲Dual channel, Bandwith 25~200MHz.
- ▲Sample Rate (Real-time) 250MHz up to 1GSa/s , Equivalent Sampling 50GSa/s.
- ▲4K channel memory depth.
- ▲Advanced Triggering function from edge、 video、 pulse、 delay.
- ▲+、 -、 ×、 ÷ Mathematic Functions.
- ▲FFT spectrum analysis: Hanning、 Hamming、 Blacking、 Rectangle.
- ▲Automatic Parameter Measurements: Vpp, Vamp, Vrms, Vmax, Vmin, Vtop, Vbase, Vavg, Freq,
Period, Risetime, Falltime,+Width, -Width, Overshoot,Preshoot,+Duty,-Duty,etc.
- ▲10 Waveforms parameter Setups、 Save、 Reall.
- ▲Vertical scale: 2mV~5V/div
- ▲Sweep time: 1ns~50 s/div
- ▲Rise time:1.8ns~14ns.
- ▲Power supply: 100~240V, 45~65Hz,<30W.
- ▲Standard Configuration:USB Device
- ▲Option Configuration:USB Host, Support U-Rardware Storage, Timedisplay
- ▲Dimensions: 120(D)×285(W)×158(H)

© Specifications

Specifications		UQ1202CA	UQ1152CA UQ1152MA	UQ1102CA UQ1102MA	UQ1062CA UQ1062MA	UQ1042MA
Bandwidth		200MHz	150 MHz	100 MHz	60 MHz	40 MHz
Real time Sample Rate		1GS/S				
Equivalent Sample Rate		50GS/S				
Input Impedance		1M Ω /13pF 50 Ω				
Rise time		1.8ns	2.3 ns	3.5 ns	5.8 ns	8.8 ns
Time base Range		1ns/div- 50s/div	2ns/div-50s/div		5ns/div-50s/div	
X-Y Operation	Bandwidth	200MHz	150 MHz	100 MHz	60 MHz	40 MHz
	PhaseDHerence	± 3 degrees				
Display		Color LCD(C)/Mono LCD(M)320x240				

Specifications		UQ1152C UQ1152M	UQ1102C UQ1102M	UQ1062C UQ1062M	UQ1042M	UQ1022M
Bandwidth		150 MHz	100 MHz	60 MHz	40 MHz	25 MHz
Real time Sample Rate		250MS/S				
Equivalent Sample Rate		50GS/S				
Input Impedance		1M Ω /13pF 50 Ω				
Rise time		2.3 ns	3.5 ns	5.8 ns	8.8 ns	14ns
Time base Range		2ns/div-50s/div		5ns/div-50s/div		20ns/div-50ns
X-Y Operation	Bandwidth	150 MHz	100 MHz	60 MHz	40 MHz	25 MHz
	PhaseDHerence	± 3 degrees				
Display		Color LCD(C)/Mono LCD(M)320x240				

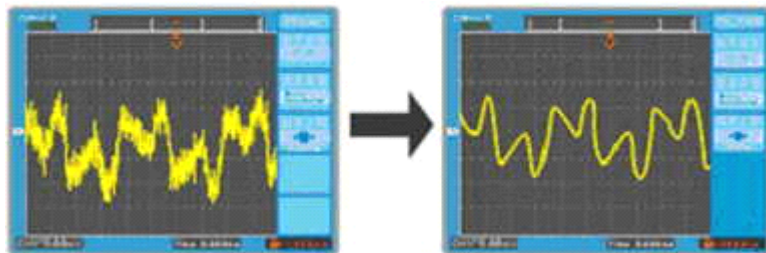
Common Specifications	
Number of Channel	s2CH;Ext.Trig
Memory	4K per channel
Vertical Sensitivity	2mv/div-5v/div
Vertical Resolution	8bits
Input Coupling	DC.AC.GND
Trigger Mode	Auto.Normal.Single
Trigger Type	Edge.TV.Pulse
Trigger Coupling	DC.AC.LF Rej.HF Rej
Horizontal Accuracy	$\pm 0.01\%$

Math	+、-、×、÷、FFT	
FFT	Window	Hanning.Hamming.Blackman.Rectangular
	Sample	1024Points
Auto Measurement	Vpp.Vmax.Vmin.Vtop.Vbase.Vamp.Vrms.Vavg.Vover.Vpre Freq.Period.Rise.Fall.+Width.-Width.+Duty.-Duty.DelayA.DelayB	
Cursor Measure	Manual. Trace. Auto Measure	
Storage	10Wave forms.10 setups	
I/O	USB device	
Power	100V-240V/50VA Max	
Net Weight	4kg	
Size	120(D)x285(W)x158(H)	
Accessories	Probe x 2(1x.10x)Power Cord. User manual	

powerful measurement functions

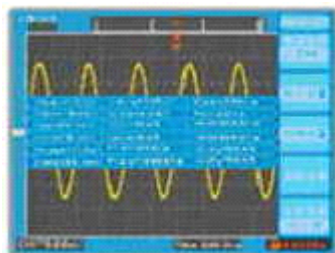
•Digital filter:

Applies the testing waveform via high pass, low pass, band pass or band-stop digital filter



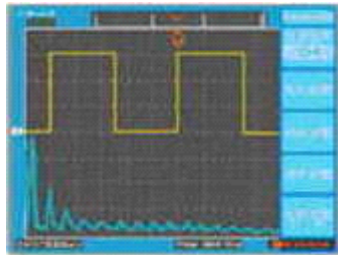
•Automatic test:

Automatic testes with 20 waveform parameters, 10 voltage parameters and 10 time parameters



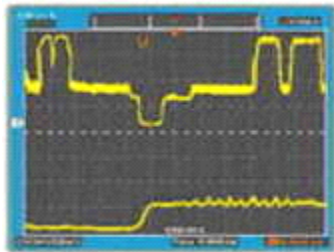
•Waveform math:

Includes sum,
difference, product,
inverse and FFT



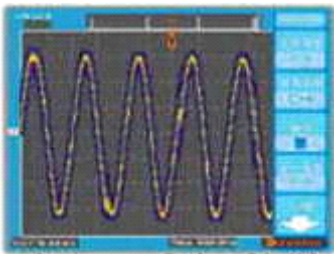
•Trigger and delay scanner:

Captures signals
triggered with edge,
pulse and video;
Analyzes
synchronized
signals with delay
scanner



•Define error signal:

Determines eligible
signals with user
sitting range



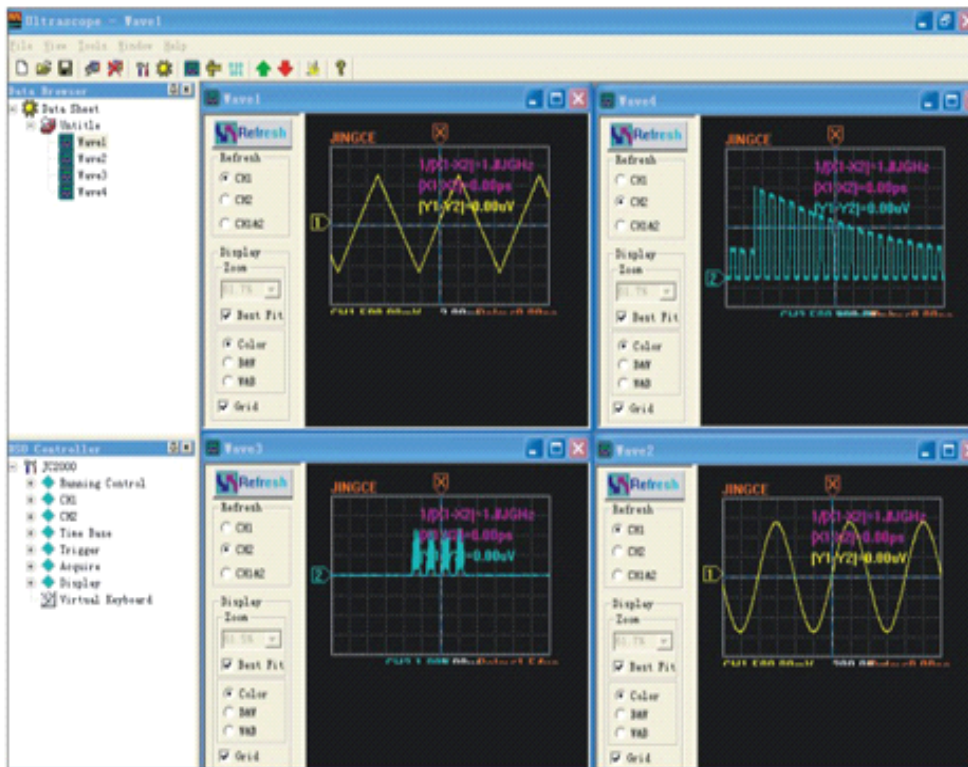
Humanness Functions

In order to protect the buttons and knobs on the instrument panel, avoid dust when storing. the instrument adds protection mask.



The instrument designs the storage container storing manual and accessories, more convenient to use

Test & Control Software:



→ **UQ2000 Seires digital storage oscilloscope**



Basic Function	UQ2025C/B	UQ2042C/B	UQ2062C/B	UQ2082C/B	UQ2102C/B
Channel	2				
Bandwidth	25MHz	40MHz	60MHz	80MHz	100MHz
Sampling Method					
Real Times Sample Rate	Combine(single)channel 500MS/s;2 channels both have 250MS/s(except UQ2025C/B)				
Equivalent Sample Rate	25GS/s				
Mean Value	When double channel,can use 2n to carry out mean value calculation,N=1~8,positive integral value,selectable.				
Input					
Input Coupling	DC, AC or Grounding(DC, AC, GND)				
Input Impedance	1±2%M Ω //18±3pF				
Probe attenuates coefficient setting	1X, 10X, 100X, 1000X				
Maximum input voltage	400V(DC+ACpeak、1M ω input impedance)(10:1probe attenuates)				
Channel interval	Better than 40: 1				
Channel time delay(typical)	150ps				
Horizontal					
Interpolation	sin(x)/x				
Records and Store	Storage Depth: 1M/every channel; storage length: 2x512K				
Scan range (S/div)	100MHz/80MHz/60MHz:5ns/div~50s/div, base on 1-2-5;40MHz:10ns/div, base on 1-2-5				
Sampling rang and delay timing accuracy	±100ppm(any≥1ms time interval)				
Time interval(ΔT)	Single time:±(1sampling time interval+100ppm×rdg+0.6ns) > 16				
Accuracy (full bandwidth)	mean value:±(1 sampling time interval +100ppm×rdg+0.4ns)				
Vertical					
A/D converter	8bits resolution,two channels sampling in the same time				
Deflection factor(V/div)	2mV/div ~5V/div(at the inputBNC)				
Position range	±10div				
Analogue Bandwidth	25MHz	40MHz	60MHz	80MHz	100 MHz
Selectable bandwidth limit(typical)	20MHz				

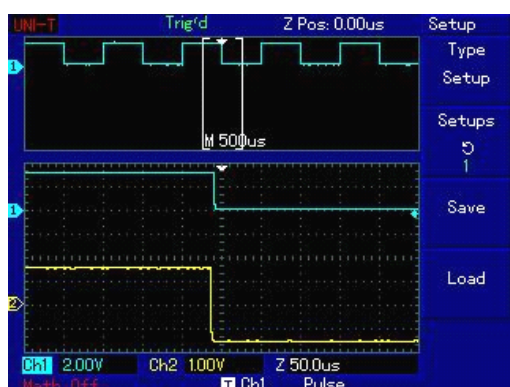
Low frequency response(AC coupling, -3dB)	$\leq 10\text{Hz}$ (atBNC)				
Rising time(at BNC typical)	$\leq 14\text{ns}$	$\leq 8.7\text{ns}$	$\leq 5.8\text{ns}$	$\leq 4.5\text{ns}$	$\leq 3.5\text{ns}$
DC gain accuracy	At2mv/div, 5mv/div: $\pm 4\%$ (sampling or mean value sampling method); At10mv/div~5v/div: $\pm 3\%$ (sampling or mean value sampling method)				
DC measurement accuracy(mean value sampling method)	Vertical position is zero, also $N \geq 16: \pm (4\% \times \text{rdg} + 0.1\text{div} + 1\text{mV})$; vertical deflection factor $\geq 5\text{mV/div}$; when $N \geq 16: \pm [3\% \times (\text{rdg} + \text{vertical position reading}) + (1\% \times \text{vertical position reading})] + 0.2\text{div}$ vertical deflection factor from 2mV/div to 200mV/div plus 2mV; vertical deflection factor 500mV/div to 5V/div plus 50mV.				
Voltage difference(ΔV)accuracy (mean value sampling method)	Under the same setting and environment, the obtained ≥ 16 waveforms after getting mean value, the voltage difference(ΔV) between any two points: $\pm (3\% \times \text{rdg} + 0.05\text{div})$				
Trigger					
Trigger sensitivity	DC~10MHz 0.5div 10MHz~maximum bandwidth: 1div				
trigger	Internal	Display center $\pm 10\text{div}$			
	EXT	$\pm 1.6\text{V}$			
	EXT/5	$\pm 8\text{V}$			
Trigger electric level accuracy(typical)accuracy is applicable to rising and falling $\geq 20\text{ns}$ signal	Internal	$\pm (0.3\text{div} \times \text{V/div})$ (within display center $\pm 4\text{div}$ range)			
	EXT	$\pm (6\% \text{setting value} + 40\text{mV})$			
	EXT/5	$\pm (6\% \text{setting value} + 200\text{mV})$			
Pre-Trigger capability	Normal mode/scan model、pre-trigger/delayed by time trigger、pre-trigger depth is adjustable				
Release range	100ns-1.5s				
Set electric level to 50%(typical)	Input frequency signal $\geq 50\text{Hz}$				
Edge Triggering					
Edge Type	Rising/Falling				
Glitch Trigger					
Trigger Mode	(Higher, lower or equal)forward pulse, (Higher, lower or equal)backward pulse				
Pulse Range	20ns-10s				
Video Triggering					
Trigger sensitivity(video trigger, typical)	Internal	2div peak value			
	EXT	400mV			
	EXT/5	2V			
Signal mode and line/field frequency(video trigger type)	Support NTSC and PAL broadcast standards, line range:1-525 (NTSC) and 1-625 (PAL)				
Changing trigger					
CH1trigger	Edge, Pulse, Video				

CH2trigger		Edge, Pulse, Video
Measurement		
Cursors	Manual mode	Cursor voltage difference (ΔV), Cursor time difference (ΔT), Δ reverse reading (Hz) ($1/\Delta T$)
	Chase mode	The voltage value and time value of waveform point
Automatic measurement		Peak to peak, amplitude, max, min, top, bottom, mean, RMS, overshoot pre-shoot, frequency, period, rising, falling, positive pulse, negative pulse, positive duty cycle, negative duty cycle, delay time1->2 (\uparrow)、delay time1->2 (\downarrow)
Mathematics		Add, Subtract, Multiply, Divide, Reverse
Storage Waveform		10 waveforms, 10 settings
FFT	Window	Hanning, Hamming, Blackman, Rectangular
	Sampling Point	1024 points
X-Y	Phase difference	± 3 degrees
Display		
Display Type		Diagonal is 145mm(5.7 inch)LCD
Display resolution		320level \times RGB \times 240vertical pixels
Display		Full colour (UT3###C), Monochrome (UT###B)
Contrast		Adjustable
Backlight(Typical)		300nit
Language		English, Simplified Chinese, Traditional Chinese
Probe offset output		
Output voltage (Typical)		Around 3V, peak to peak $\geq 1M\Omega$ Over load
Frequency(Typical)		1kHz
Interface		
Standard		1 USB ports (D) ; 1 USB ports (H) ; 1 RS-232C port
Optional		LAN
Power		
Power Voltage		100-240VACRMS 45Hz to 440Hz, CAT II
Power consumption		Less than 30VA
Fuse		2A, Class T, 250V
Environment		
Temperature		Operating: 0 $^{\circ}$ C \sim +40 $^{\circ}$ C
		Non-Operating: -20 $^{\circ}$ C \sim +60 $^{\circ}$ C
Cooling Method		Convection
Humidity		+10 $^{\circ}$ C \sim +30 $^{\circ}$ C: $\leq 95\% \pm 5\%$ RH,
		+30 $^{\circ}$ C \sim +40 $^{\circ}$ C: $\leq 75\% \pm 5\%$ RH
Altitude		Operating: 3,000 meter
		Non-Operating: 15,000 meter

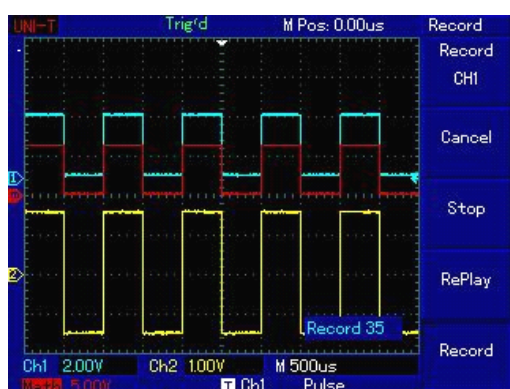
Mechanical Specification	
Dimension	320mm (width) × 150mm (height) × 130mm (depth)
Weight Excluding packaging	2.6kg
IPprotection	IP2X

Powerful measurement functions

Waveform and Storage function

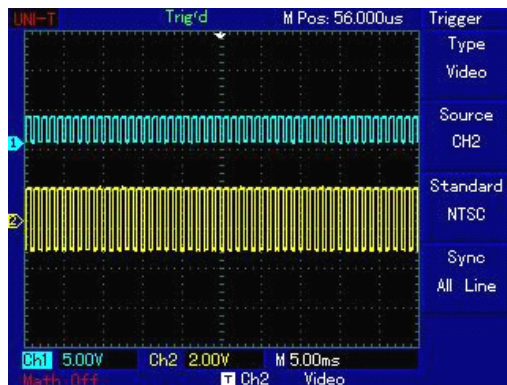


Waveform and REC function

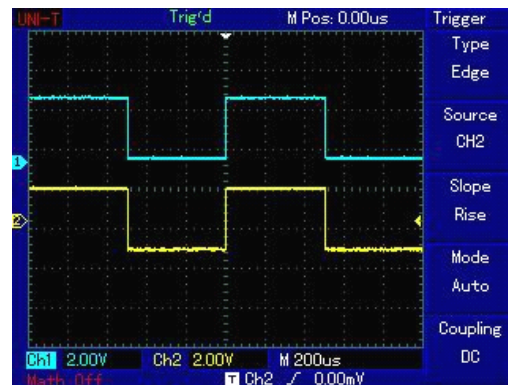


Trigger function

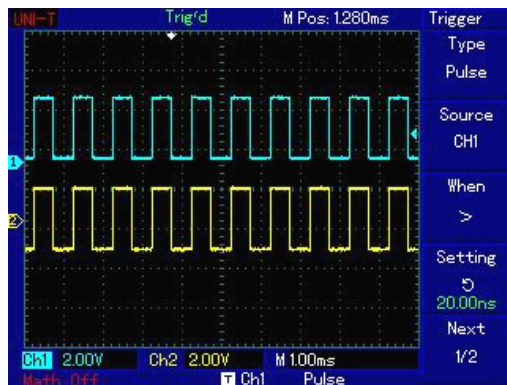
Video trigger



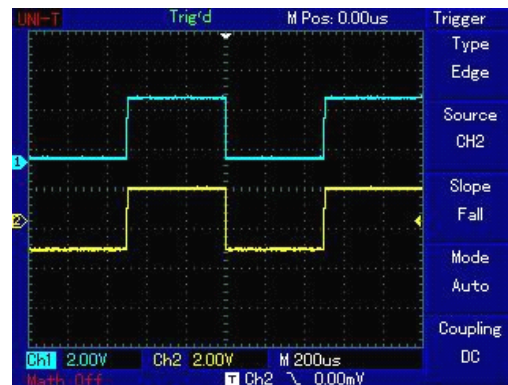
Ascend border trigger



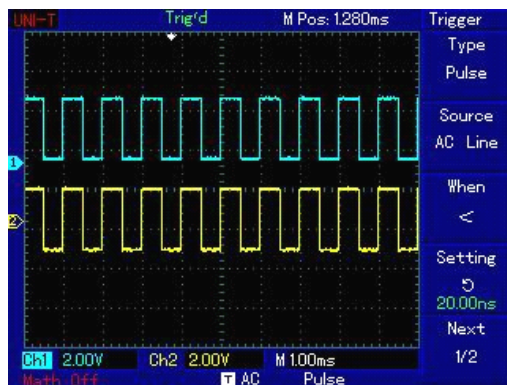
Pulse breadth trigger



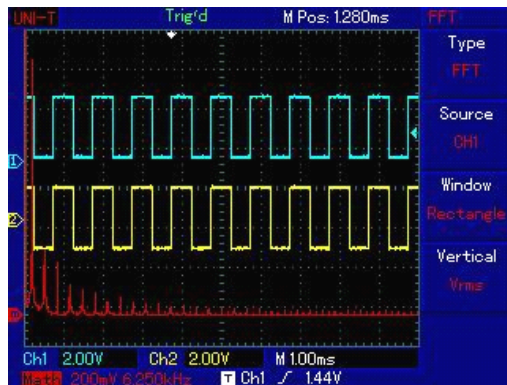
Descend border trigger



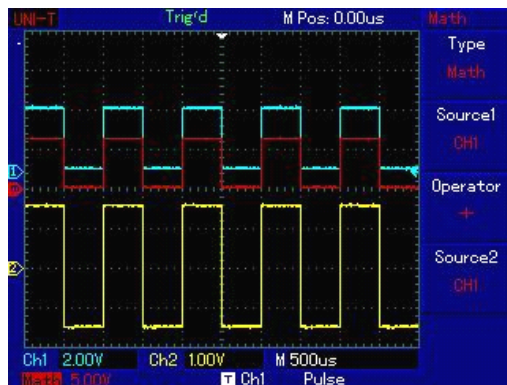
Alternate trigger



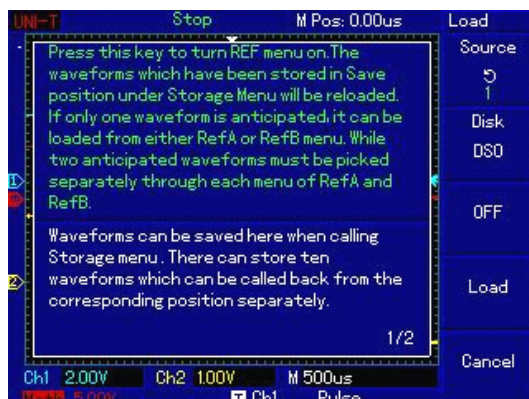
FFT Function



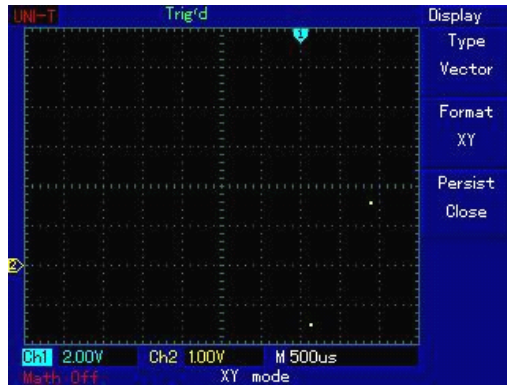
Math operation function (+ - × ÷)



Menu assistent function



X—Y Mode(11-02-16-22-37)



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