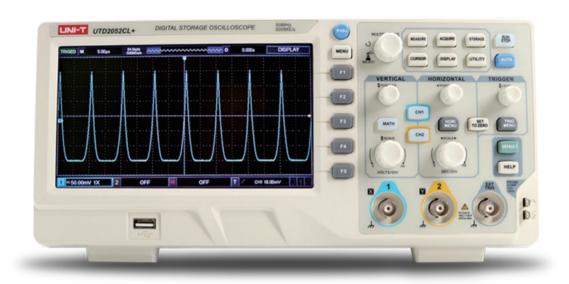


Data Sheet

UTD2000CL+ Series Digital Oscilloscope



Main Features

• Bandwidth: 150MHz/250MHz

• Measurement channel: 2/4 analog channel, 16 digital channel

• Real-time sampling rate: 2.5GS/s

• Storage depth: 70Mpts per channel

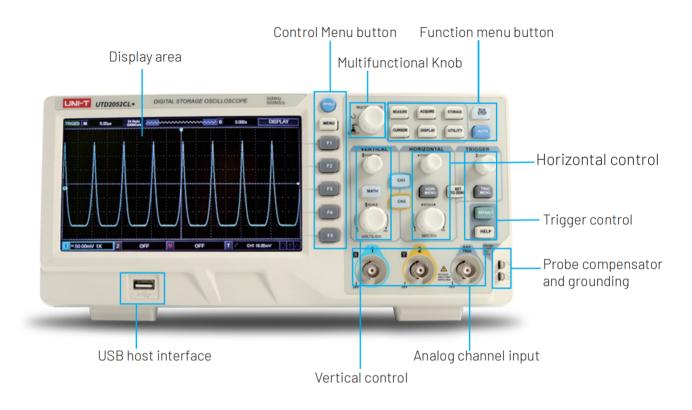
• Waveform capture rate: 200,000wfms/s

• Gray level: 256

• Auto measurement: 34 waveform types

- Waveform record: record original data 100,000 frame at the same time
- Abundant trigger: edge, pulse width, runt, exceed-amplitude, N-edge, delay, timeout, duration, setup hold, slope, video, code pattern
- Bus encoding: RS232, IIC, SPI, USB, CAN
- Independent time base: each channel can adjust independently
- Display: 8inch WVGA (800×480) TFT LCD, super-widescreen, vivid color, clean display
- Peripheral interface: USB Host, USB Device, LAN, EXT Trig, AUX OUT(Trig out, Pass/Fail) output, signal source output interface AWG, VGA and multimeter module UT-M12 (optional)
- Waveform generator: built-in double channel, maximum 50MHz arbitrary waveform generator

Oscilloscope Panel



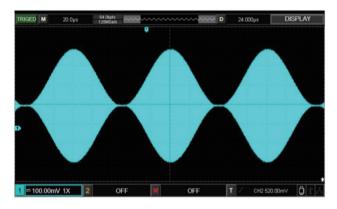


Product Introduction

UTD2000CL+ Series aims to provide schools with digital storage oscilloscopes that are very close to those used in industries, so as to narrow the equipment gap between teaching and industries, so that graduates can easily start immediately after employment. Besides, the specifications are upgraded on the basis of the original UTD2000CL series to give back to the majority of UNI-T loyal users.

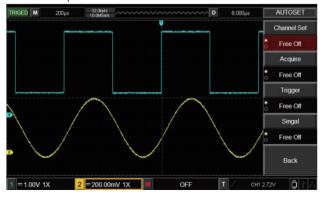
Wider display range

UTD2000CL+ Series oscilloscope has a wider display range 8div×16div, Display more periodic waveforms and better display details. Give you more specific waveform experience.



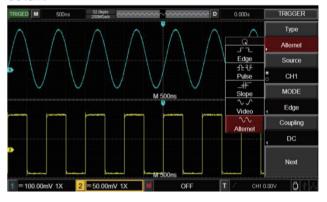
New auto strategy

UTD2000CL+ Series has a new AUTOSET function. You can customize the scope of one button auto function under the AUTOSET menu. After customization, it is more suitable for teaching and beginners to learn the operation of oscilloscope, so that you can understand the setting and use of oscilloscope in more detail.



Multi-mode Trigger

UTD2000CL+ Series has edge, pulse width, slope trigger, video trigger, alternating trigger and other trigger methods help you capture waveforms quickly and accurately. The alternative trigger method enables you to trigger two asynchronous waveform signals at the same time, allowing you to trigger two signals at the same time and analyze the details.



Auto Measurement

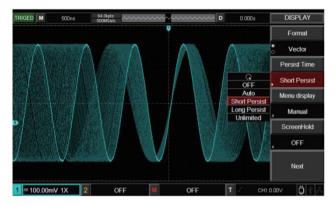
UTD2000CL+ Series has a complete set of analytical tools. Menu can open 34 auto measurement items to provide a large number of testing source, directly to display signal measurement. It is perfectly meet the requirements of signal quality measurement. It eliminates some basic and complicated calculations and saves time for experiments and testing.



Steady Persistence Display

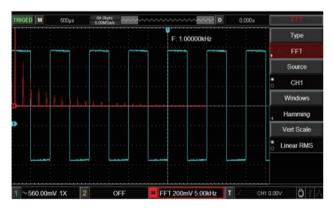
UTD2000CL+ Series has long afterglow display function, which can help you measure the long-term cumulative performance of waveforms,

observe the occurrence of abnormal signals, and help you measure the synchronization relationship between two signals. This function is divided into long afterglow, short afterglow and infinite afterglow. You can choose according to specific test conditions.



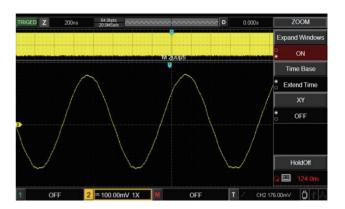
Mathematical Operation

UTD2000CL+ Series can execute multiple mathematical operation, such as Math, FFT, Digital Filter. Enter mathematical operation menu, select operation mode, result waveform will be lighted by red M mark after operation.



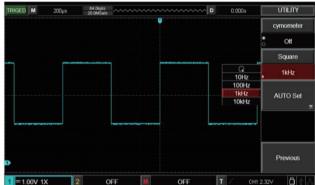
Area magnification

If you need to observe the waveform of the whole domain and want to take into account the details, UTD2000CL+ Series provides you with local amplification function. You just need to open it in the menu, and the detailed waveform will be presented in front of you.



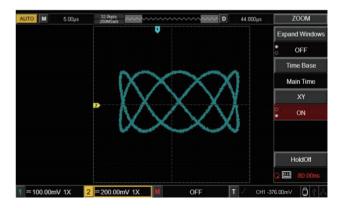
Multiple square waves

UTD2000CL+ Series provides standard square wave signals of multiple frequencies. You can calibrate the probe with the help of your own square wave before using the oscilloscope. It can also provide comparison reference for the tested waveform with the help of the standard square wave of the oscilloscope.



Lissajous waveform phase measurement

UTD2000CL+ Series supports Lissajous waveform phase measurement. Selects XY mode can perfectly present the waveform phase diagram, so that learners can more intuitively see the effect of phase change. It is easy to operate and makes the teaching effect more vivid.



Quick Model Selection

Model	UTD2052CL+	UTD2102CL+
Analog Bandwidth	50MHz	100MHz
Channels	2	2
Real-time	500MS/s	500MS/s
Equivalence	25GS/s	25GS/s
Storage depth	64 kpts	64 kpts
Capture rate	5000 wfms/s	5000 wfms/s
Rise Time (Typical)	≤7ns	≤3.5ns

Technical Specification

Horizontal System Specification		
Time-base scale	2ns/div-50s/div	
Waveform interpolation	Sin(x)/x	
Time-base accuracy	<(50+2×Service life)ppm	
Record length	2×512k sampling point	
Storage depth	Single channel: 64k; Double channel: 32k	
Sampling rate and	orngio oranion ora, bodolo oralinon oza	
delay time accuracy	±50ppm(any time interval ≥1ms)	
Measurementaccuracy	Single time: ±(1sampling time interval+50ppm×reading+0.6ns)	
of time interval		
(△T)(full bandwidth)	>16 average values: ±(sampling time interval+50ppm×reading+0.4ns)	
Vertical		
Analog-to-digital converter (A/D)	8bit	
Deflection factor range (V/div)	1mV/div-20 V/div(at 1-2-5 increment)	
Position range	≥±8div	
Selectable bandwidth	20MHZ	
limitation (Typical)	201102	
Low frequency response	≤5 Hz(above BNC)	
(AC Coupling, -3dB)	20115/dn04e D140)	
DC gain accuracy (sampling or	5mV ~20V/div: ≤±3%	
average sampling mode)	1mV ~2mV/div; ≤±4%	
	When vertical position is 0 and N≥16:	
	±(4%×reading+0.1div+1mV)and selects 1mV ~2mV/div;	
DC measurement accuracy	±(3%×reading+0.1div+1mV) and selects 10mV ~20V/div;	
(average sampling mode)	When vertical position is not 0 and N≥16:	
	$\pm (3\% \times (reading + vertical position reading) + (1\% \times vertical position reading)] + 0.2 div)$	
	The setting from 5mV/div to 200mV/div plus 2mV;	
	the setting value from 200 mV/div to 20V/div plus 50 mV	
Measurement accuracy of	Under the same setting and environment conditions and after averaging the	
voltage difference(△V)	captured waveforms with a quantity of $\geq\!16$, the voltage difference (ΔV) between	
(average sampling mode)	any two points on the waveform: ±(3%×reading+0.05div)	
Trigger System Specifications		
Trigger sensitivity	≤1div	
Range of trigger level	Interior: From the screen center ±10 div EXT: ±3V	
Trigger level accuracy	Interior: ±(0.3div×V/div)(within±4 divfrom the screen center)	
(Typical) applicable for the signal	EXT: ±(6% setting value+40mV)	
with rising and falling time ≥20ns		

Internating expending			
Set the level to 50% (Typical) Trigger mode AUTO, normal, single High-Trequency holdorf Loor-frequency holdorf Hold off signals below 80 kHz Trigger mode Figger Pulse width Pulse with the state of the signals below 80 kHz Trigger mode Figger Pulse width Pulse with the state of the state o	Pre-trigger capacity	Normal mode/scan mode, pre-trigger/delay trigger, the pre-trigger depth is adjustable.	
MITO, normal, single MITO, normal, single Hiddorf singlas bows 80MHz Hiddorf singlas bows 80MHz	Hold-offrange	80ns~1.5s	
High-frequency boldoff Low-frequency boldoff Low-frequency boldoff Hold off signals below 80341z Flager mode Pulse width ramp: 20m - 9 Pulse width rampe: 20m - 9 Pulse width rampe: 20m - 9 Slepe trigger Flager mode Pulse width rampe: 20m - 90 Slepe trigger Flager mode and inferfield frequency (video trigger type): Support standard NTSC and PAL, and the line number scope is respectively 1-526 INTSC) and 1-825 [PAL) Atternating trigger Atter: Edge, Pulse, Slope Flager mode and fine filed frequency (video trigger type): Support standard NTSC and PAL, and the line number scope is respectively 1-526 INTSC) and 1-825 [PAL) Atternating trigger Atter: Edge, Pulse, Slope Flager mode video frequency (video trigger type): Support standard NTSC and PAL, and the line number scope is respectively 1-526 INTSC) and 1-825 [PAL) Atternating trigger Atter: Edge, Pulse, Slope Flager mode video frequency (video trigger type): Support standard NTSC and PAL, and the line number scope is respectively 1-526 INTSC) and 1-825 [PAL) Atternating trigger Atter: Edge, Pulse, Slope Flager mode video frequency (video trigger type): Support standard NTSC and PAL, and the line number scope is respectively 1-526 INTSC) and 1-825 [PAL) Atternating trigger Atter: Edge, Pulse, Slope Flager mode video frequency (video trigger type): Support standard NTSC and PAL, and the line number scope is respectively 1-526 INTSC) and 1-825 [PAL) Atternating trigger Atter: Edge, Pulse, Slope Flager mode video frequency (video trigger type): Support standard NTSC and PAL, and the line number scope is respectively 1-526 INTSC) and 1-825 [PAL) Automatic measurement due to the number scope is respectively 1-526 INTSC) and 1-825 [PAL) Automatic measurement due to the number scope is respectively 1-526 INTSC) and 1-825 [PAL) Automatic measurement due to the number scope is respectively 1-526 INTSC) and 1-825 [PAL) Automatic measurement due to the number scope is respectively 1-526 INTSC) and 1-825 [PAL) Automatic measurement Automatic meas	Set the level to 50% (Typical)	Operate under the condition of input signal frequency of ≥50Hz	
Forestand Fo	Trigger mode	AUTO, normal, single	
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Rise, fall, arbitrary edge	Low-frequency holdoff	Hold off signals below 80 kHz	
Pulse width Pulse width term: >- < < = Pulse width Polarity; positive pulse width negative pulse width Polarity; positive pulse width negative pulse width Polarity; positive pulse width negative pulse width Polarity; positive slope(>, < within the scope) Time: 20ns-108 Time: 20ns-108 Time: 20ns-108 Time: 20ns-108 Tirger sensitivity(Typeal): 2div Vpp Signal model and line/field frequency (video trigger type): Support standard N INS and PAL. and the line number scope is respectively1-525 (NTSC) and 1-825 (PAL.) Alternating trigger Measurements ### Manual mode Voltage difference between cursors (ΔV),Time difference between cursors (ΔT),Reciprocal of ΔT (Hz)(IVΔT Tark mode: Voltage value and time value of point of vave form. Automatic measurement Automatic measurement and the same time. ### Work with the scope of the same time. ### Work with the scope of the same time. ### ### Work with the scope of the same time. ### ### ### Work with the scope of the same time. ### ### ### ### ### ### ### ### ### #	Trigger mode		
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Interface function Standard configuration Standard USB Host, USB Device, EXT Trig, Pass/Failt	Backlight intensity (Typical)	300nit	
Standard configuration Standard USB Host, USB Device, EXT Trig, Pass/Failt	Language	Multi-language	
Stalidard Collinguration	Interface function		
	Standard configuration	Standard USB Host, USB Device, EXT Trig, Pass/Failt	
	otalidard configuration	Option: Multimeter module (UT-M12), LAN	
	Standard configuration		

Trigger frequency meter	
Reading resolution	6bits
Triggersensitivity	
Accuracy(Typical)	±51ppm(+1character)
Probe compensator output	
Output voltage (Typical)	About 3Vpp, when the load≥1MΩ
Frequency(Typical)	10Hz,100Hz,1kHz(Default), 10kHz
Power Source	
Power voltage	100V-240V~(Fluctuations 10%), 50/60Hz
Power consumption	100VA max
Fuse	F1.6A 250V
Environment Specifications	
Intended use	Indooruse
Pollution degree	2
Operating temperature	Operating Temperature Range: 0 ℃~+40 ℃
Storage Temperature	Storage Temperature Range: -20℃~+60℃
Cooling	Build-in cooling fan
Operating Humidity Range	<35 C: ≤90%RH 35 C~40 C: ≤60%RH
	Operating 2000 meters below
Operating Altitude	Non-operating 15000 meters below
Mechanical specifications	
Size	306mm(W)×138(H)×124 mm(D)
Weight	Excluding package: 2.5kg Including package: 3kg
Recommended calibration Interv	ral
The recommended calibration in	terval is one year.







*The UTD2000CL_ series have been certified by CE, cETLus.

Standard accessories	
UT-P03(UTD2052CL+)	Passive probe x 2: 1x,10x switchable, 60MHz
UT-P04(UTD2102CL+)	Passive probe x 2: 1x,10x switchable, 100MHz
Powercable	Fits the standard of destination country
UT-D14 USB data cable	For UTD2052CL+,UTD2102CL+,UTD2072CL,UTD2152CL

Warranty

Three-years warranty, excluding probes and accessories.

Please visit https://instruments.uni-trend.com/list_190/65.html to learn more information.

To protect your investment, please purchase from UNI-T official authorized global distributors..

Contact UNI-T

E-mail: info@uni-trend.com

Test & Measurement Instruments Website: instruments.uni-trend.com

UNI-T Corporate Website: www.uni-trend.com

UNI-T group maintains a wide products category includes Digital Test & Measurement instruments, Field Testing Meter, Infrared thermal imaging products. As early as 2008, we continue to introduce self-developed Digital Test and Measurement instruments to the market and have made remarkable achievements. At present, we have formed a variety of product lines of Oscilloscope, AWG, Spectrum Analyzer, Bench Multi-meter, Power Supply, DC Load, Power Meter, LCR Meter, Micro Ohm Meter and Data logger. We have separated instruments sub-sites, instruments.uni-trend.com, on the basis of the original website www.uni-trend.com, in order to be more targeted to provide customers with better service and value.

UNITMKT-TMI-SCAL-2109-007 Instrument.uni-trend.com



Para mayor información puede consultar el manual de usuario dando clic en el siguiente enlace: http://unitrend.oss-cn-hongkong.aliyuncs.com/20220526/1653547231252084.pdf