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MSO6000HDP Series High-Resolution Oscilloscopes

Data Sheet

V1.0

June 2026

Product Overview

The MSO6000HDP series high-resolution oscilloscopes deliver advanced performance in a compact X-shaped chassis. Equipped with a 12-bit ADC, 2 GHz bandwidth, 10 GSa/s sampling rate, and 1 Gpts memory depth, the hardware ensures no signal is missed, with a maximum waveform capture rate of 2 million waveforms per second.

The instrument also integrates power analysis, timing analysis, and protocol decoding, as well as jitter analysis, eye diagram testing, and USB and Ethernet compliance testing, making it a one-stop debugging platform that significantly improves engineering efficiency throughout the entire workflow, from signal observation to standard compliance verification.

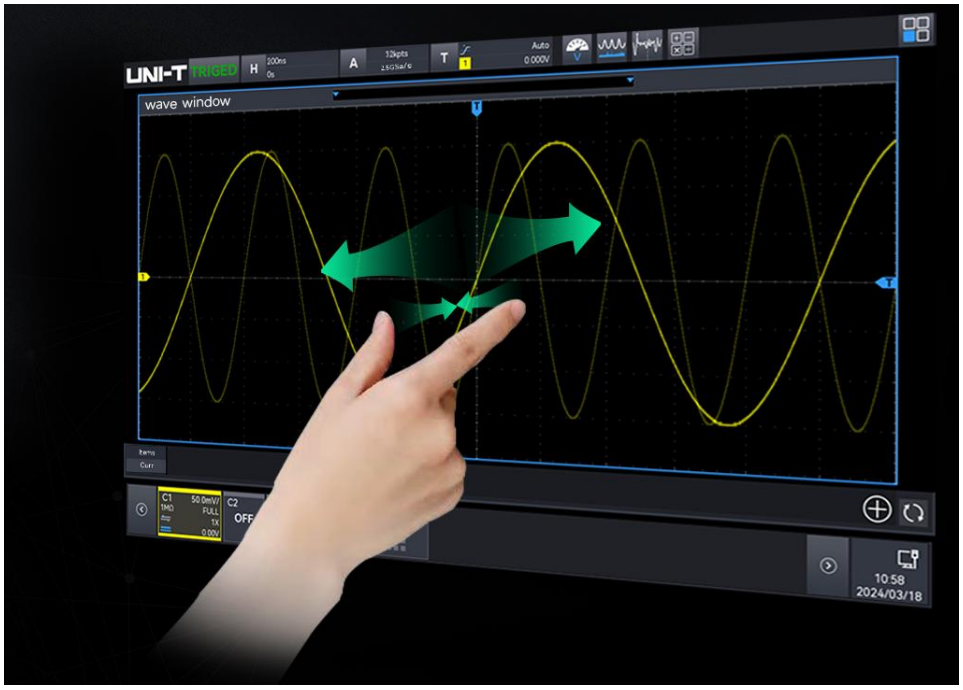




Mainstream touchscreen design for intuitive user experience

Equipped with a 12.1-inch HD capacitive multi-touch screen, it supports a variety of gesture operations such as touch, drag, zoom and rectangle drawing, enabling smooth and efficient operation and easy interface navigation.

It retains the traditional key and knob operation while also supporting mouse and keyboard, making instrument operation more versatile and greatly improving the interactive experience.



Features and Advantages

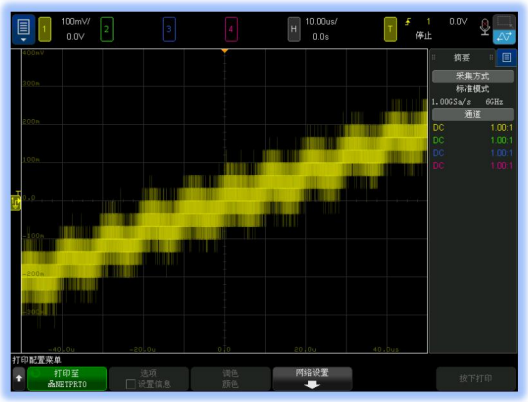
- Analog channel bandwidth: 2 GHz/1 GHz
- Maximum real-time sampling rate for analog channels: 10 GSa/s; maximum sampling rate for digital channels: 1.25 GSa/s
- 12-bit vertical resolution with 4096 points, providing clear visibility of waveform details
- 4 analog channels + 16 digital channels, with a maximum memory depth of 1 Gpts
- Waveform capture rate up to 800,000 wfms/s (Sequence mode: 2,000,000 wfms/s)
- All-in-one comprehensive signal measurement platform: Digital oscilloscope, logic analyzer, function/arbitrary waveform generator, spectrum analyzer, digital voltmeter, frequency counter, protocol analyzer, Bode plot analyzer, and power analyzer
- Built-in dual-channel function/arbitrary waveform generator with 50 MHz bandwidth, supporting real-time loading of oscilloscope screen data to the to the arbitrary waveform generator output, and featuring multiple built-in arbitrary waveforms
- Supports Bode plot analysis for loop testing to evaluate system stability
- Supports protocol signal timing analysis: I^2C, SPI, CAN, I^2S, Reset, Switch, UART, and LIN
- Adds histogram and line graph displays to measurement statistics
- Hardware-based real-time, uninterrupted waveform recording and analysis of up to 400,000 frames, with support for export to USB storage devices
- Enhanced FFT with up to 10 million points, supporting spectrum analysis functions including frequency settings, waterfall display, detection settings, and markers
- Supports ERES (enhanced resolution) of up to 4-bit
- Up to 56 parameter measurements
- Supports simultaneous multi-window analysis
- Multi-channel 7-digit hardware frequency counter supports frequency refresh time and adjustable effective digit settings.
- DVM multi-channel RMS measurement: DC, AC RMS, and DC+ACRMS
- Multiple trigger types: Edge, pulse width, video, slope, runt pulse, window, delay, timeout, duration, setup & hold, Nth edge, and pattern
- Protocol triggering and decoding: RS232/UART, I^2C, SPI, CAN, CAN-FD, LIN, FlexRay, Audio, MIL-STD-1553B, Manchester, SENT, ARINC429, 1-WIRE, CAN-XL, and I^3C
- Hardware-optimized jitter analysis and eye diagram kit, with faster eye diagram rendering and enhanced protocol compliance analysis capability
- Area trigger capability for capturing intermittent signals and analyzing complex waveforms

- Ultra Phosphor 3.0 display technology with up to 256 levels of gray scale
- 12.1-inch 1280x800 HD capacitive touchscreen supporting gestures including tap, pinch, and drag
- Multiple peripheral interfaces: USB Host, USB Type-C 3.0, LAN, EXT Trig, AUX Out (Trig Out, Pass/Fail, DVM), signal source output (Gen), and HDMI
- Supports SCPI (Serial Control Protocol for Instruments)
- Built-in web server enables browser-based remote control via PC and mobile devices for cross-platform access
- Supports online firmware updates

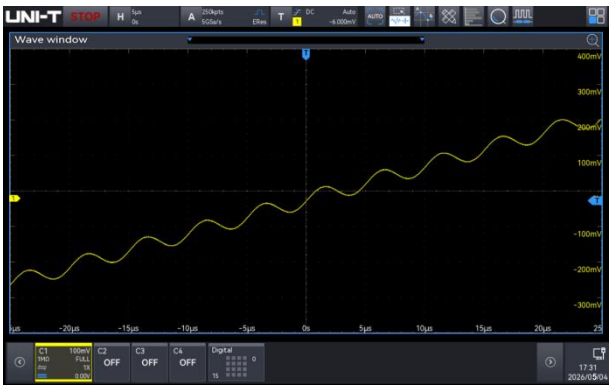
Design Features

High Resolution

12-bit high-resolution ADC sampling has a quantization level of up to 4096, which is 16 times that of a traditional 8-bit ADC, allowing for better restoration of waveform details.



8-bit

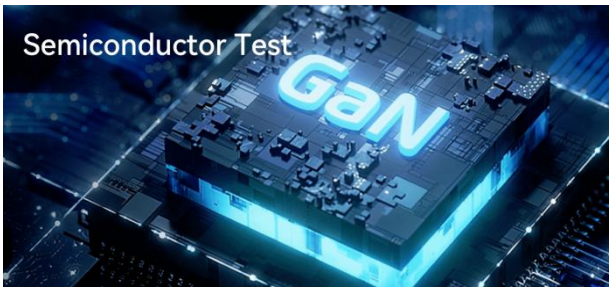


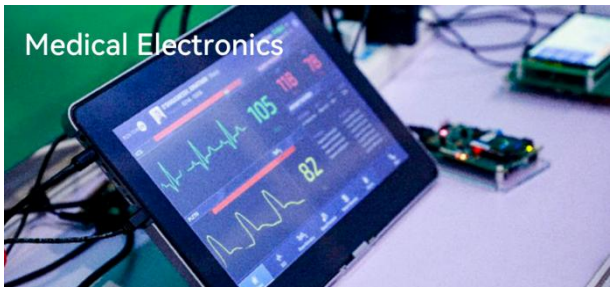
12-bit

Application Field



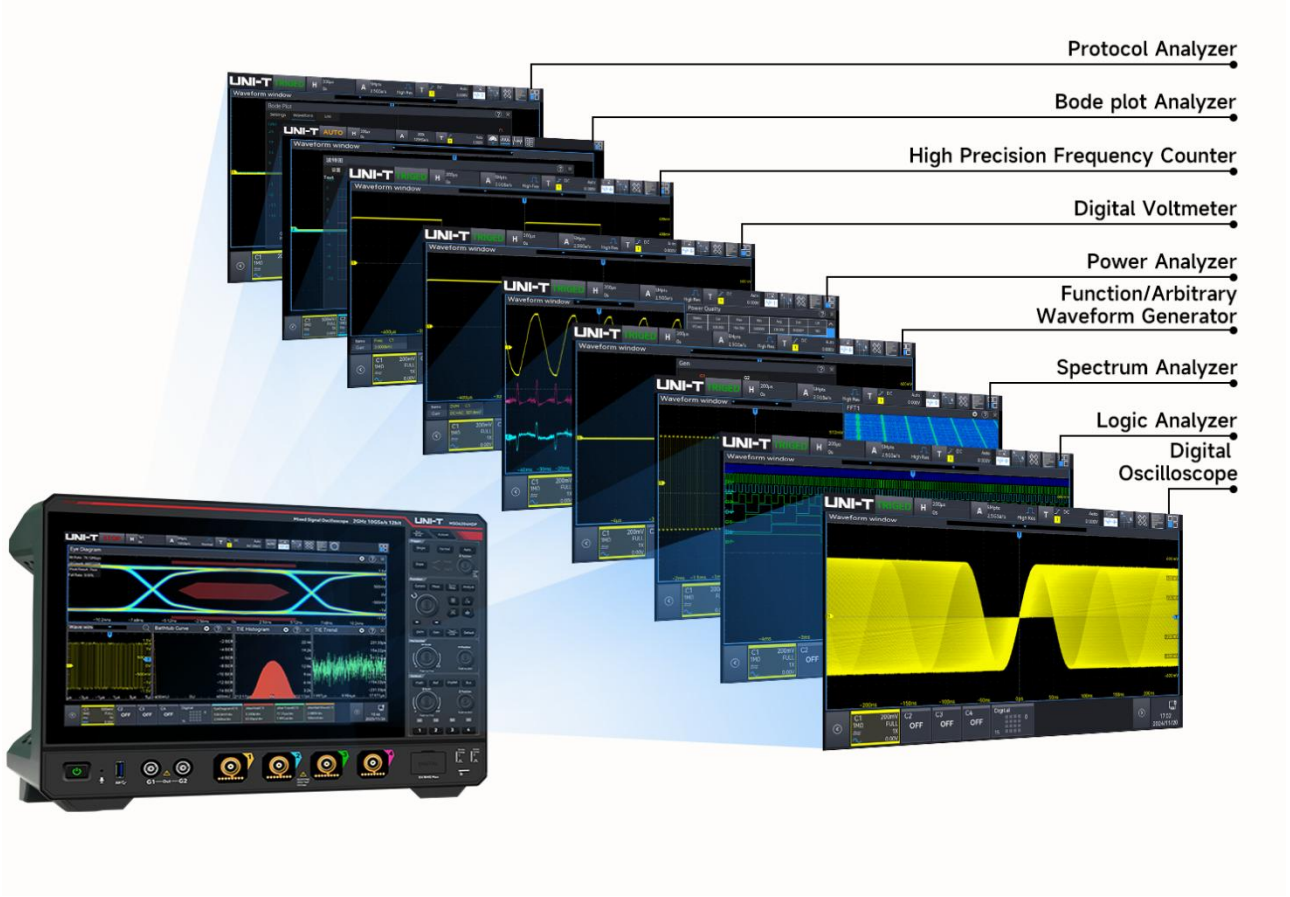




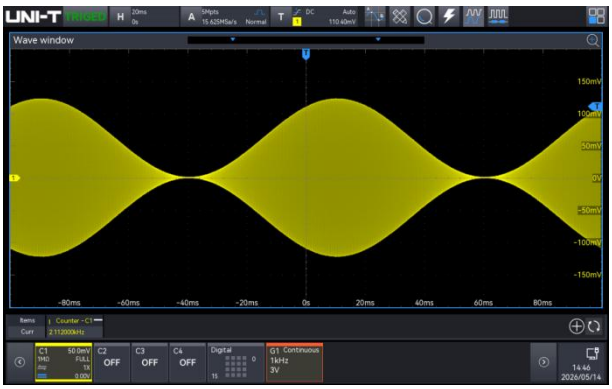


All-in-One Comprehensive Signal Measurement Platform

The MSO6000HDP series high-resolution oscilloscope integrates multiple independent instruments into one unit, including a digital oscilloscope, logic analyzer, function/arbitrary waveform generator, spectrum analyzer, digital voltmeter, high-precision frequency counter, protocol analyzer, Bode plot analyzer, and power analyzer. This offers users the most flexible and cost-effective solution to meet their specific needs.



Digital Oscilloscope



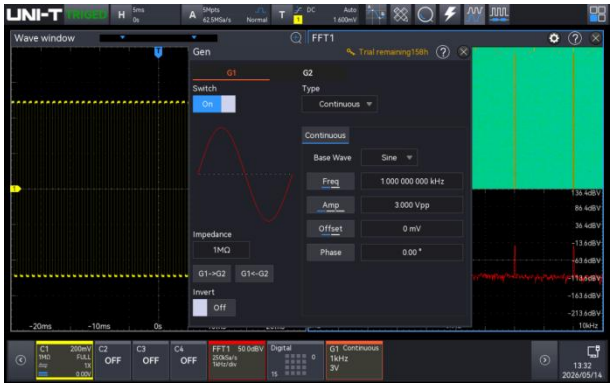
- Bandwidth: 2 GHz/1 GHz
- Maximum real-time sampling rate: up to 10 GSa/s
- Maximum memory depth: 1 Gpts
- 4 analog channels, 1 external trigger channel

Logic Analyzer (Option)



- The instrument is equipped with a standard 16-channel logic analyzer, enabled using the optional UT-M15 logic analyzer probe.
- Maximum sampling rate: 1.25 GSa/s
- Maximum memory depth: 500 Mpts
- Minimum detectable pulse width: 5 ns
- The digital probes provide separate signal inputs for the high and low 8-bit channels, simplifying connection to the device under test. When used with a square pin header, the UT-M15 can be directly connected to a 2.54 mm 2×8 pin header.
- The UT-M15 logic analyzer probe features excellent electrical characteristics, with an input impedance of 101 kΩ ± 1% and a capacitive load of 9.0 pF ± 1 pF.

Function/Arbitrary Waveform Generator (Option)



- Dual-channel output with 50 MHz bandwidth
- Sampling rate: 312.5 MSa/s
- Vertical resolution: 16-bit
- Built-in standard waveforms: sine wave, square wave, pulse wave, ramp, arbitrary waveform, noise, DC
- Supports AM, FM, ASK, FSK, and sweep output

Spectrum Analyzer

- Standard enhanced FFT, up to 10 Mpts × 4-channel signal analysis
- Waterfall curve
- 4 trace types + 4 detection modes
- Marker type: Auto, manual, and threshold
- Marker list display



Digital Voltmeter

- 4-digit voltmeter
- Measurement: DC, AC RMS, and AC + DC RMS
- Limit alarm function



High-Precision Frequency Counter

- 7-digit digital hardware frequency counter
- Frequency counter refresh time and effective digital adjustment
- Totalizer



Bode Plot Analyzer (Option)

- Built-in function/arbitrary waveform generator
- Frequency response analysis
- Loop stability analysis
- Filter analysis
- Amplifier analysis



Protocol Analyzer

- Supports 15 triggering and decoding protocols for computer systems, embedded serial buses, automotive, aerospace, and audio applications
- Supports decoding during pause, recording, and other operating states
- Supports event list display and search functions



Option Name	Protocol	Option Model	Standard/Option
Computer Serial Bus Trigger and Decode	RS232/422/485/UART	-	Standard
Embedded Serial Bus Trigger and Decode	I^2C, SPI	-	Standard
Automobile Serial Bus Trigger and Decode	CAN	MSO6000HDP-CAN	Option
Automobile Serial Bus Trigger and Decode	LIN	MSO6000HDP-LIN	Option
Automobile Serial Bus Trigger and Decode	CAN-FD	MSO6000HDP-CANFD	Option
Automobile Serial Bus Trigger and Decode	CAN-XL	MSO6000HDP-CANXL	Option
Automobile Serial Bus Trigger and Decode	FlexRay	MSO6000HDP-FLEX	Option
Automobile Serial Bus Trigger and Decode	SENT	MSO6000HDP-SENT	Option
Audio Serial Bus Trigger and Decode	Audio	MSO6000HDP-AUDIO	Option
Aerospace Serial Bus Trigger and Decode	MIL-STD-1553	MSO6000HDP-MIL1553	Option
Aerospace Serial Bus Trigger and Decode	ARINC 429	MSO6000HDP-ARINC 429	Option
Wireless Communication Serial Bus Trigger and Decode	Manchester	MSO6000HDP-MANCH	Option
Sensor Serial Bus Trigger and Decode	1-WIRE	MSO6000HDP-1WIRE	Option

Mobile Intelligent Serial Bus Trigger and Decode	I^3C	-	Standard

Power Analyzer (Option)

With the advancement of semiconductor technology, power supply systems face increasingly stringent requirements. Low-voltage, high-current power distribution networks have become a common design trend. In particular, for chips and systems built with precision components, it is critical to ensure stable power delivery, effective noise suppression across different circuit blocks, and signal integrity between chips. These factors introduce greater challenges for power supply testing.

Modern designers place greater emphasis on power efficiency and transient response to maintain stable and clean power delivery. As a result, power integrity testing has become increasingly important. Power integrity directly affects signal integrity, while signal quality also reflects the condition of the power supply. In addition, power quality issues can lead to electromagnetic interference (EMI), which is a key concern in system design. Therefore, an oscilloscope with dedicated power analysis capabilities is an essential tool for power integrity verification.

The MSO6000HDP series provides a comprehensive set of power analysis tools and evaluation results. To use these functions, select the appropriate analysis mode and connect the voltage probe and current probe to the power rail under test or a designated test fixture, as shown in the diagram. Then assign the signals to the corresponding channels for observation and make fine adjustments as needed to obtain the desired measurement results.

- Power Quality
- Harmonics
- Switching Loss
- Transient Rsponse
- Inrush Current
- RDS(ON)
- Slew Rate
- Eficiency
- SOA
- Modulation
- Ripple
- Turn On/Off Time



Timing Analyzer

Smart devices such as mobile phones, wearables, home appliances, multimedia systems, and automotive electronics impose strict requirements on internal bus timing consistency.

The MSO6000HDP provides advanced timing analysis capabilities, supporting measurement of pulse width, amplitude, edge timing, rise time, and hold time for protocols including I^2C, SPI, and CAN. It also supports the export of compliance test reports.

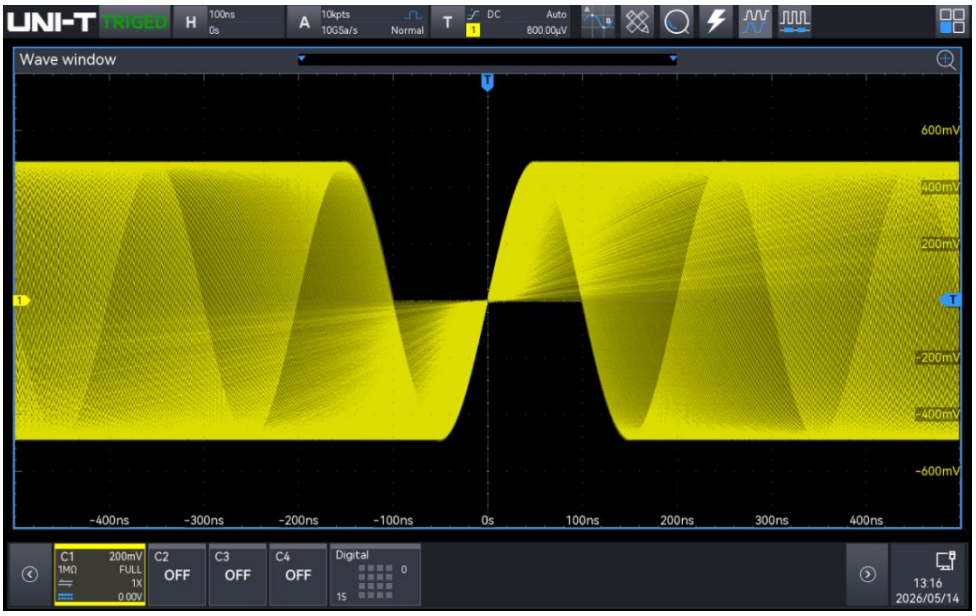


Ultra Phosphor 3.0 Technology

When identifying and debugging sporadic or intermittent signal anomalies, the oscilloscope's waveform capture rate is critical. It refers to the number of waveforms acquired per second and reflects the instrument's ability to capture transient events.

The MSO6000HDP series uses an advanced hardware and software architecture, delivering 5 to 10 times higher data processing performance than previous-generation products.

he upgraded Ultra Phosphor 3.0, powered by an ultra-parallel graphics mapping matrix, achieves 30 Gbps processing speed and 800,000 wfms/s waveform capture rate; in sequence mode, up to 2 million waveforms per second can be precisely captured, leaving no rare signal undetected.



New Fast Autoset Strategy

Fuzzy control is an intelligent control method based on fuzzy set theory, fuzzy linguistic variables, and fuzzy logic reasoning. This algorithm offers the advantages of fewer iterations, high speed, and strong anti-interference capability.

In conventional oscilloscopes, Autoset is used to find the appropriate signal amplitude and frequency for display. However, significant differences in response speed often exist among oscilloscope vendors due to different implementation schemes, which can degrade the user experience.

UNI-T has redefined the Autoset function by adopting a fast fuzzy algorithm based on analog signals, combined with multi-channel parallel processing technology and a high-precision 7-bit hardware frequency counter. This enables the oscilloscope to quickly determine, process, and display the amplitude and frequency of unknown signals during Autoset.

The execution time is within 1.5 seconds for all channels and within 1 second for a single channel. This greatly enhances work efficiency and reduces the risk of user error, particularly for users who frequently change test objects or require high-speed testing.

Comprehensive Measurement Parameters

Parameter measurement is critical for engineers using oscilloscopes. The MSO6000HDP series supports the display of up to 56 measurement parameters, with 27 parameters able to be displayed simultaneously. Measurement statistics show 9 parameters per page. Each parameter supports statistical representation in both histogram and trend chart formats. The histogram intuitively shows the probability distribution of the parameter, while the trend plot reflects its variation over time. The parameter snapshot function displays 39 measurement items for a single channel, including voltage-related and time-related parameters, with results continuously updated during operation. The MSO6000HDP series also introduces new functions, including amplitude calculation strategy, top value strategy, and base value strategy, making parameter measurements more flexible for engineers. Additionally, a burst setup function has been added to display burst-related parameters, providing timely and accurate insights into channel measurement data.



Area Histogram

The MSO6000HDP series provides a histogram function that is applicable to both jitter analysis and signal integrity analysis.

Jitter Analysis: Histograms are essential for jitter analysis, enabling statistical evaluation of large datasets to determine the range and distribution of measured values. This facilitates verification of

product performance and quality, as well as identification and diagnosis of intermittent issues. For analyzing random events such as noise and jitter, histograms serve as a practical and effective tool for quantitative jitter analysis and verification.

Signal Integrity Analysis: In signal integrity analysis, histograms are used to display the amplitude distribution of a signal. By examining the histogram, engineers can assess signal stability and quality, promptly detect outliers or fluctuations, and ensure signal integrity and reliability.

Observe Jitter on the Horizontal Axis



Observe Jitter on the Vertical Axis

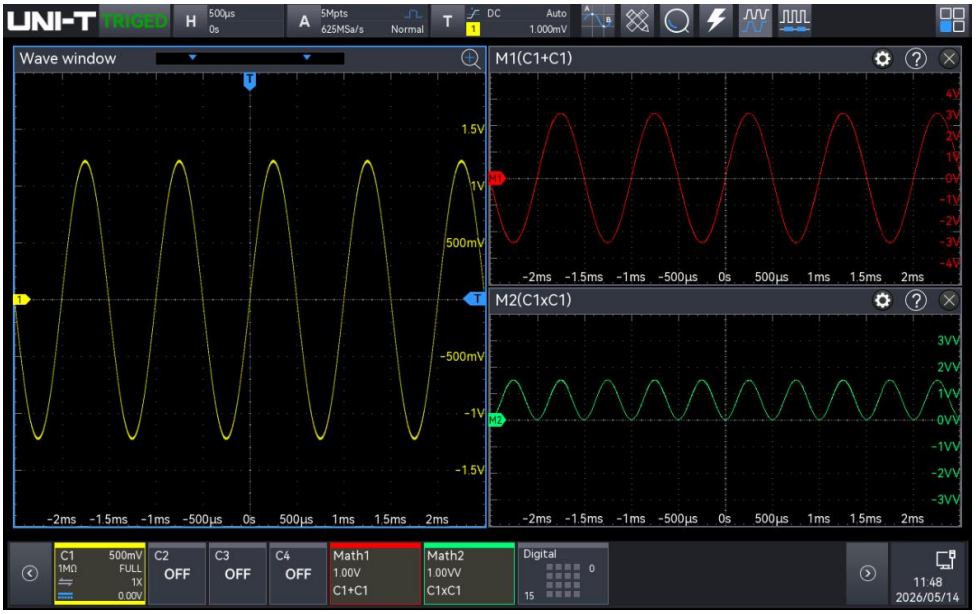


Mathematical Operations

The MSO6000HDP series provides a system of algorithms for complex waveform operations, allowing you to further process waveforms and display the results directly on the oscilloscope.

- Basic operations: +, -, *, ÷
- Digital filter: High-pass, low-pass, band-pass, and band-stop

■ Custom function operation: Analog channels and Math



Navigation and Search

The maximum memory depth of the MSO6000HDP is upgraded to 1 Gpts. An oscilloscope with high memory depth can capture tens of thousands of waveform cycles in a single acquisition. Manually locating a waveform of interest in such large datasets would be time-consuming. The oscilloscope's search function allows automatic detection of signals based on user-defined criteria, quickly identifying the waveform of interest with the assistance of navigation tools.

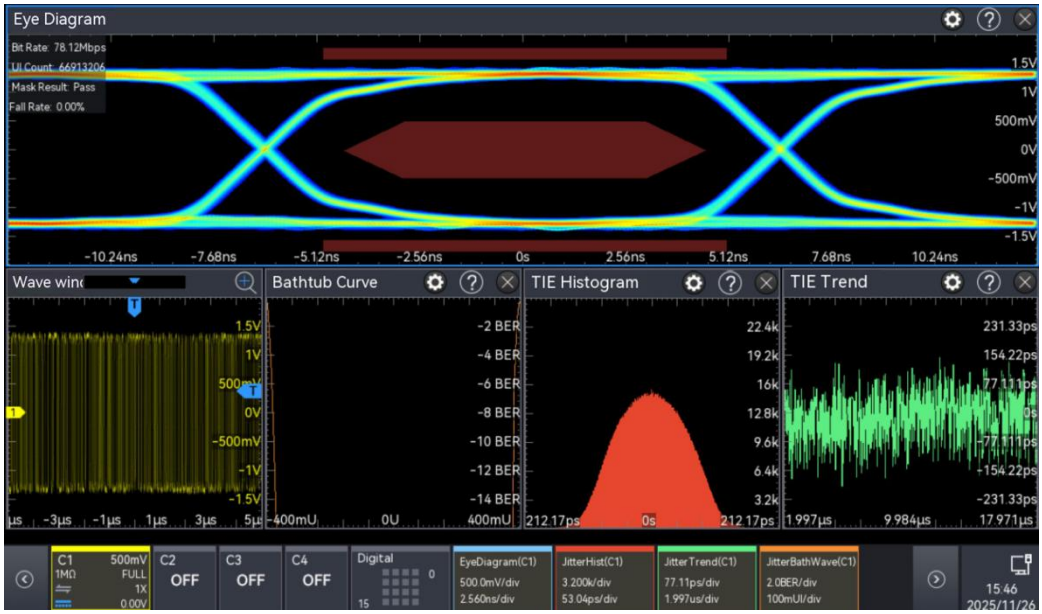
With the oscilloscope analysis function, detailed event analysis can be performed, eliminating the time and inconvenience of manual searching. Navigation allows users to easily navigate through search events, time, and markers.



Jitter Analysis and Eye Diagram

In electronic devices and communication systems, jitter analysis and eye diagram evaluation are essential and widely applied. The MSO6000HDP-JITTER option enables users to efficiently perform tasks such as:

- Evaluating clock jitter, data jitter, and eye width in serial data communication systems
- Testing signal integrity, clock synchronization, and interference immunity in high-speed digital transmission systems
- Assessing the performance of clock and data recovery systems, including clock extraction, data demodulation, and clock reconstruction
- Evaluating transmission performance, timing consistency, and signal integrity of high-speed interfaces
- Identifying clock jitter, signal distortion, and frequency-related interference



Compliance Analysis

High-speed serial interface compliance testing ensures that interfaces and protocols from different manufacturers are technically consistent, allowing interfaces of the same type to interoperate successfully when interconnected. Compliance test specifications, however, are defined by different associations or standards organizations. For example, USB interfaces follow USB-IF specifications, Ethernet adheres to IEEE 802.3.

Manual protocol compliance testing is time-consuming and may not provide sufficient fault tolerance. To address this, UNI-T has developed a high-speed protocol compliance testing solution based on oscilloscopes, active probes, and test fixtures, continuously updated to align with the

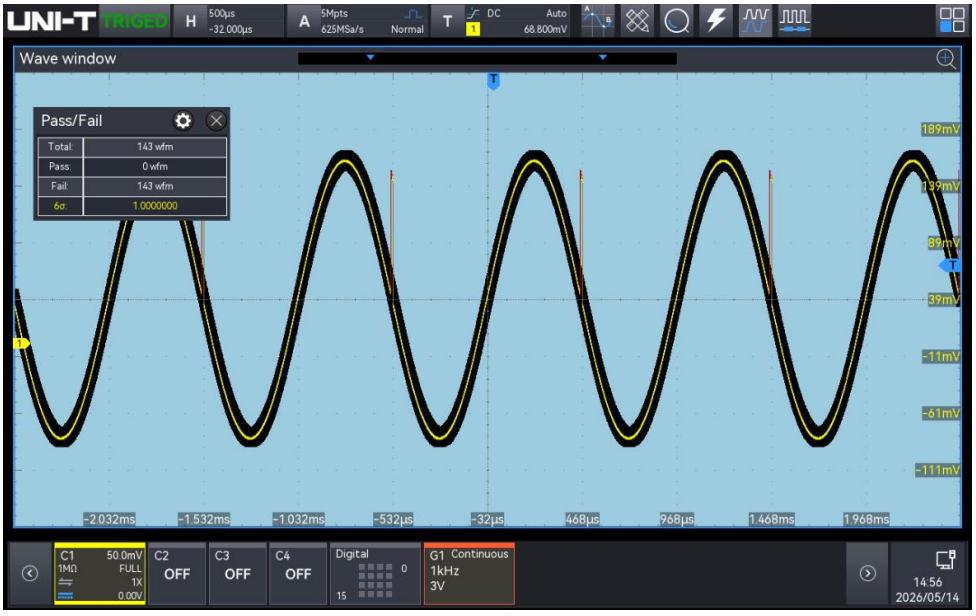
latest industry standards. Currently, the solution supports USB 2.0 and 10/100/1000 Ethernet. With continuously updated and iterated protocols, it will support Automotive Ethernet compliance testing in the future.

The compliance analysis software launched by UNI-T provides:

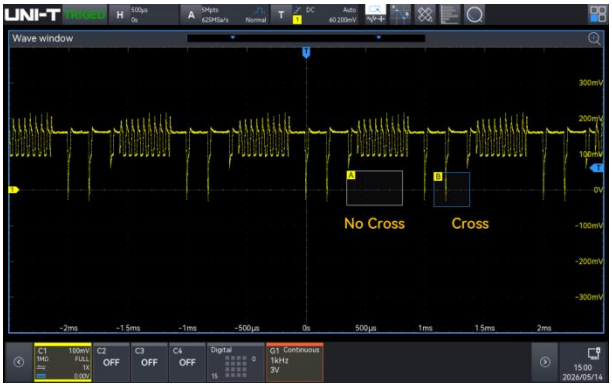
- Supports both single and multiple test items, allowing flexible test execution.
- Highly optimized and intuitive user interface, featuring a visualized connection flow between the oscilloscope and the Device Under Test (DUT), enabling fast test configuration and electrical performance verification.
- Preview of test waveforms for early evaluation of test accuracy and expected results.
- Fully automated oscilloscope test process, with automatic configuration of oscilloscope functions and parameters for each test item.
- Automatic generation of detailed test reports, including key information such as test details, results, pass/fail status, test margins, and test waveform images.
- Supports customized testing standards or consistency tests in accordance with association standards.
- Multiple rounds of testing to verify and analyze test results.

Hardware-accelerated Mask Test

Using the hardware acceleration template for testing allows waveform tests that meet specific standards to be completed in just a few seconds.



Area Trigger

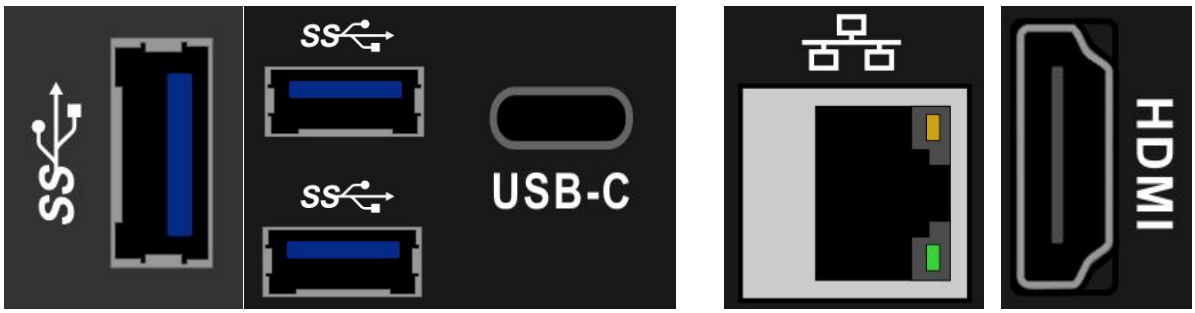


Area triggering serves two primary purposes: isolating intermittent anomalies and stabilizing waveform displays. Since a stable trigger is the foundation of a clear display, engineers can use this function to capture and lock complex, variable signals during debugging.

This feature simplifies the workflow by eliminating the learning curve associated with advanced trigger settings. By simply drawing a rectangular area on the screen via touch gestures, users can quickly isolate specific signals of interest. Even when a standard trigger fails to stabilize, area triggering successfully captures and stabilizes waveforms that meet the defined parameters.

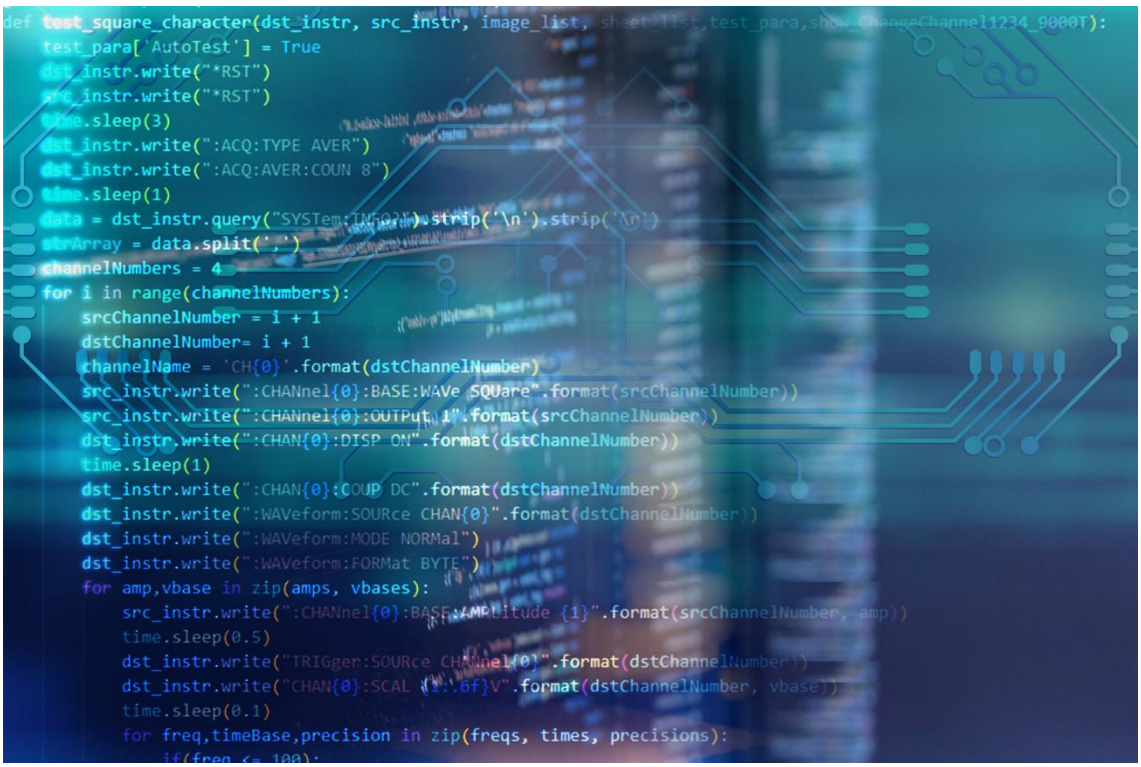
Various Interfaces

The MSO6000HDP series provides various interfaces for greater flexibility and convenience.



Multiple Control Methods

Control or Secondary Development via SCPI



Control via the free UNI-T Instrument Manager

Users can download the free instrument management software from the official website and install it on a PC, then connect to the instrument via LAN or USB for control.



Remote Control via WebServer

SCPI Remote Control: Supports remote viewing and operation.

Web Access: Export waveform files and view the user manual online.

Cross-Platform Access: Accessible from both PC and mobile devices.


UNI-T
Eye Diagram
Bathtub Curve
TIE Histogram
TIE Trend
192.168.20.210

Document Version Revision Notes

Document Version	V1.0
Document Revision Content	Initial Version
Software: V1.00.0066 FPGA: V0.00.0023 Hardware: V1.01.0000 Channel:V1.01.0001	

Technical Specifications

All specifications are guaranteed, except those marked Typical (Typ.).

Unless otherwise stated, all the performance characteristics are suitable for the probe attenuation ratio is set to 10x and MSO6000HDP series high-resolution oscilloscopes.

To meet these specifications, the oscilloscope should first meet the following conditions.

- The instrument must be operated continuously for at least thirty minutes at the specified operating temperature.
- The self-calibration must be performed when the operating temperature reaches or exceeds 5° C.

Model	MSO6204HDP	MSO6104HDP
Analog bandwidth (50 Ω, -3 dB)	2 GHz	1 GHz
Analog bandwidth (1 MΩ, -3 dB)	500 MHz	500 MHz
50 Ω Rise time (10 to 90%) (Typ.)	≤210 ps	≤350 ps
Input/Output channel	4 analog channels + 1 EXT channel input	
	16 digital channels	
	2-channel signal generator output	
Sampling mode	Real-time sampling	
Acquisition modes	Normal, Peak Detection, High Resolution, Average, Enhanced Resolution	
Enhanced resolution (ERES)	Enhanced bits: 1, 1.5, 2, 2.5, 3, 4 (12 to 16-bit)	
Maximum sample rate	Analog channels: 10 GSa/s (interweave mode), 5 GSa/s (non-interweave mode) Digital channels: 1.25 GSa/s	
Average	After all channels have completed N sampling times simultaneously, N can be selected from 2, 4, 8, 16, 32, 64, 128, 256, 512, 1024, 2048, 4096, or 8192	
Memory depth	Analog channels: Auto (limited to 5 Mpts), 25 kpts, 250 kpts, 500 kpts, 5 Mpts, 50 Mpts, 100 Mpts, MAX MAX: 500 Mpts per channel when all 4 channels are enabled; 1 Gpts per channel when using a single channel	
	Digital channels: Auto (limited to 5 Mpts), 25 kpts, 250 kpts, 500 kpts, 5 Mpts, 50 Mpts, 100 Mpts, 500 Mpts	
Maximum	800,000 wfms/s	

waveform capture rate	2,000,000 wfms/s (sequence mode)
Sequential sampling	Maximum 400,000 frames, minimum trigger interval < 500 ns
Hardware real-time waveform recording and playback	400,000 frames
Screen	12.1-inch 1280x800 HD capacitive touch screen (fully laminated)
Vertical System (Analog Channel)	
Input coupling	DC, AC, GND
Input impedance	Analog Channel: (1 MΩ ±1%) || (16 pF ± 2 pF); (50 Ω ±1%)
Probe attenuation factor	Voltage probe ratio: 0.001X, 0.01X, 0.1X, 1X, 10X, 100X, 1000X, Custom Current probe ratio: 5 mV/A, 10 mV/A, 50 mV/A, 100 mV/A, 200 mV/A, 500mV/A, 1 V/A, Custom
Maximum input voltage	1 MΩ: 400 V (DC + ACVpk) 135 V_{RMS} 50 Ω: 5 V RMS Max
Vertical resolution	12-bit (ERES is enabled with a maximum of 16-bit)
Vertical Scale	500 μV/div to 10 V/div (1 MΩ) 500 μV/div to 1 V/div (50 Ω)
Offset range	500 μV/div to 5 mV/div: ±2 V (50 Ω) 5.1 mV/div to 1 V/div: ±5 V (50 Ω) 500 μV/div to 5 mV/div: ±2 V (1 MΩ) 5.1 mV/div to 100 mV/div: ±16 V (1 MΩ) 102 mV/div to 1 V/div: ±120 V (1 MΩ) 1.02 V/div to 10 V/div: ±200 V (1 MΩ) Vertical offset reading: V
Band limit (Typ.)	50 Ω: 20 MHz, Full 1 MΩ: 20 MHz, Full
Low-frequency response	(AC coupling, -3 dB); ≤5 Hz (on BNC)
DC gain accuracy	<5 mV: ±2% of full scale, ≥5 mV: ±1.5% of full scale
DC offset accuracy	±(2% + 0.1 div + 2 mV)
Units	W, A, V, and U; default: V
Channel-to-channel isolation (Typ.)	DC to maximum bandwidth: >40 dB
Digital Channel (Option)	
Threshold	Adjustable thresholds for 8 channels in 1 group

Threshold selection	TTL (1.4 V) 5.0 V CMOS (+2.5 V), 3.3 V CMOS (+1.65 V) 2.5 V CMOS (+1.25 V), 1.8 V CMOS (+0.9 V) ECL (-1.3 V) PECL (+3.7 V) LVDS (+1.2 V) 0 V Custom
Threshold range	±20.0 V, in 10 mV step
Threshold accuracy	±(100 mV + 3% of the set threshold)
Dynamic range	±10 V + threshold
Input impedance	(101 kΩ ± 1%) ‖ (9 pF ± 1 pF)
Maximum input voltage	±20 V
Minimum voltage swing	500 mVpp
Minimum detectable pulse width (Typ.)	5 ns
Vertical resolution	1 bit
Channel-to-channel deskew range	±100 ns
Horizontal System (Analog Channel)	
Time base range	200 ps/div to 1 ks/div Supports time base fine-tuning (simultaneously display the current sampling rate and memory depth)
Time base accuracy	±1 ppm (initial accuracy); ±1 ppm (first-year aging rate); ±3.5 ppm (10-year aging rate)
Time base delay time range	Pre-trigger (negative delay): ≥1 screen width Post-trigger (positive delay): 1 s to 5 ks
Time base mode	Y-T (default)
	X-Y (C1-C2, C1-C3, C1-C4, C2-C3, C2-C4, C3-C4)
	Roll, Time base >20 ms/div; automatically enters or exits Roll mode using the horizontal time base knob
	Scan, time base >20 ms/div; select Either Roll or Scan mode
Inter-Channel Delay (Typ.)	<100 ps
Trigger System	

Trigger sensitivity	C1–C4: ⩽ 10 mV/div, whichever is greater: 1 div or 5 mVpp > 10 mV/div, 0.5 div EXT: 400 mVpp, DC–10 MHz 800 mVpp, 10 MHz to external trigger bandwidth (250 MHz)
	When noise suppression is enabled, trigger sensitivity is reduced by half
Trigger level range	Internal: ±4 div from screen center EXT: ±5 V
External trigger input voltage	1 MΩ: ⩽42 Vpk 50 Ω: ⩽5 Vrms
Trigger modes	Auto, Normal, Single
Trigger holdoff range	0.0 ps to 10 s
Trigger coupling (Typ.)	DC: Allows all signal components to pass
	AC: Blocks the DC component of the input signal
	HF reject: Attenuates high-frequency components above 40 kHz
	LF reject: Attenuates low-frequency components below 40 kHz
Noise reject	Suppresses high-frequency noise in the signal, reducing the probability of false triggering of the oscilloscope
Trigger jitter	Typical value: <100 ps RMS (peak <200 ps)
	Normal sampling mode, edge trigger, the trigger level is set near 50% of the EXT input signal
Zone Triggering	
Zone	2 zones; Source: C1-C4; Attributes: Cross, no Cross
Edge	
Slope	Rising, Falling, Either
Source	C1-C4, AC Line, EXT, D0-D15
Runt	
Trigger condition	>, <, ⩽ ⩾, None
Polarity	Positive, negative
Pulse width	3.2 ns to 10 s
Source	C1–C4
Window	
Polarity	Rising, Falling, Either
Trigger condition	Enter, exit, time
Time	3.2 ns to 10 s

Source	C1–C4
Nth Edge	
Slope	Rising, Falling
Idle time	3.2 ns to 10 s
Edge number	1 to 65535
Source	C1–C4, D0–D15
Delay	
Edge type	Rising, Falling
Trigger condition	>, <, ⩽ ⩾, > <
Delay time	3.2 ns to 10 s
Source	C1–C4, D0–D15
Timeout	
Slope	Rising, Falling, Either
Timeout	3.2 ns to 10 s
Source	C1–C4, D0–D15
Duration	
Code pattern	H, L, X
Trigger condition	>, <, ⩽ ⩾
Duration	3.2 ns to 10 s
Source	C1–C4, D0–D15
Setup and Hold	
Clock edge	Rising, Falling
Data type	H, L
Setup time	3.2 ns to 10 s
Hold time	3.2 ns to 10 s
Source	C1–C4, D0–D15
Pulse	
Polarity	Positive, Negative
Trigger condition	>, <, ⩽ ⩾
Pulse width	0.8 ns to 4 s
Source	C1–C4, AC lines, EXT, D0–D15
Slope	
Slope	Positive, Negative
Trigger condition	>, <, ⩽ ⩾
Time	3.2 ns to 1 s
Source	C1–C4

Video	
Standard	PAL, NTSC, SECAM, 525p/60, 625p/50, 720p/24, 720p/25, 720p/30, 720p/50, 720p/60, 1080i/25,1080i/30, 1080p/24, 1080p/25, 1080p/30, 1080pfs/24
Source	C1–C4
Pattern	
Code pattern	H, L, X, Rising, Falling
Source	C1–C4, D0–D15
Extreme	
Extreme Type	Maximum, minimum
Filter level	0-31
Source	C1–C4
RS232/UART	
Trigger condition	Start, StopBit, CheckErrr, Data
Bitrate	2400 bps, 4800 bps, 9600 bps, 19200 bps, 38400 bps, 57600 bps, 115200 bps, Custom
Data bit	5 bits, 6 bits, 7 bits, 8 bits
Source	C1–C4, D0–D15
I^2C	
Trigger condition	Start, Restart, Stop, Loss, Address, Data, Address Data
Addr Length	7-bit, 10-bit
Addr range	0 to 7F, 0 to 3FF
Byte length	1 to 5
Source	C1–C4, D0–D15
SPI	
Mode	Timeout, CS
Trigger condition	Start, Data
Timeout	100 ns to 1 s
Data bit	4 to 32 bits
Source	C1–C4, D0–D15
CAN	
Signal type	CAN_H, CAN_L
Trigger condition	Start, Data, Remote, Error, Overload, ID, Data, ID & Data, Frame End, Acknowledgment Loss, Stuff Error, CRC Error, All Errors
Bitrate	10 kbps, 19.2 kbps, 20 kbps, 33.3 kbps, 38.4 kbps, 50 kbps, 57.6 kbps, 62.5 kbps, 83.3 kbps,100 kbps, 115.2 kbps, 125 kbps, 230.4 kbps, 250 kbps, 490.8 kbps, 500 kbps, 800 kbps, 921.6 kbps, 1 Mbps, 2 Mbps, 3 Mbps, 4 Mbps, 5

	Mbps, Custom
Source	C1–C4, D0–D15
CAN-FD	
Signal type	CAN_H, CAN_L
Trigger condition	Start, Data Frame, Remote Frame, Error Frame, Overload, ID, Data, ID & Data, End of Frame, Missing Ack, Bit Error, CRC Error, ALL Errors
Bitrate	10 kbps, 19.2 kbps, 20 kbps, 33.3 kbps, 38.4 kbps, 50 kbps, 57.6 kbps, 62.5 kbps, 83.3 kbps,100 kbps, 115.2 kbps, 125 kbps, 230.4 kbps, 250 kbps, 490.8 kbps, 500 kbps, 800 kbps, 921.6 kbps, 1 Mbps, 2 Mbps, 3 Mbps, 4 Mbps, 5 Mbps, Custom
FD bitrate	250 kbps, 500 kbps, 800 kbps, 1 Mbps, 1.5 Mbps, 2 Mbps, 4 Mbps, 6 Mbps, 8 Mbps, Custom
Source	C1–C4, D0–D15
LIN	
Trigger condition	Sync, ID, Data, ID & Data, Wake Frame, Sleep Frame, Error
Version	V1, V2, Either
Bitrate	1.2 kbps, 2.4 kbps, 4.8 kbps, 9.6 kbps, 10.417 kbps, 19.2 kbps, 20 kbps, Custom
Data length	1–8
Source	C1–C4, D0–D15
FlexRay	
Trigger condition	Start, Indicators, ID, Cycle, Header, Data, ID& Data, End frame, Error
Polarity	BM, BDiff/ BP
Bitrate	2.5 Mbps, 5 Mbps, 10 Mbps, Custom
Source	C1–C4, D0–D15
Audio	
Trigger condition	Word, Left, Right, Any
Format	Standard, Left justifying, Right justifying, TDM
Source	C1–C4, D0–D15
MIL-STD-1553B	
Trigger condition	Sync, Command, Status, Data, Error
Polarity	Positive, negative
Source	C1–C4
SENT	
Trigger condition	Fast: Sync, Status, Data, CRC, STAT+Data, S&D +CRC, F_ CRC Error, CONT Pul Err Slow: Sync, Short ID, Short Data, Short CRC, Short ID & data, Enh ID, Enh

	Data, Enh CRC, Enh ID & data, SLO CH CRC error
Source	C1–C4, D0–D15
Manchester	
Trigger condition	Start, Head, Data, Trail, Error
Baud Rate	1.2 kbps, 2.4 kbps, 4.8 kbps, 9.6 kbps, 10.417 kbps, 19.2 kbps, 125 kbps, 250 kbps, 500 kbps, 1 Mbps, 2 Mbps, 5 Mbps, 10 Mbps, Custom
Source	C1–C4, D0–D15
ARINC 429	
Trigger condition	Start bit, End bit, Label, SDI, Data, SSM, Label & bits, Parity Error, Bit Error, Gap Error, All Error
Source	C1–C4
1-WIRE	
Trigger condition	Start, Command, Device Cmd, ID, Data, Custom
Source	C1–C4, D0–D15
I^3C	
Trigger condition	I^3C: SDR Start, SDR Restart, SDR Stop, SDR Global Broadcast Address, SDR General Command Code, SDR Address, SDR Data, SDR Address & Data, SDR Target End of Read, SDR Target Reset, SDR Acknowledgment Lost, SDR Check Error, HDR Enter Mode, HDR Restart Mode, HDR Exit Mode, HDR_DDR Global Broadcast Address, HDR_DDR General Command Code, HDR_DDR Command Word, HDR_DDR Data Word, HDR_DDR Command Word & Data Word, HDR_DDR Acknowledgment Lost | Interrupt, HDR_DDR Check Sum Error, HDR_DDR CRC Error I^2C: SDR Start, SDR Restart, SDR Stop, SDR Address, SDR Data, SDR Address & Data, SDR Acknowledgment Loss
Source	C1–C4, D0–D15
CAN-XL	
Trigger condition	Frame Start, Frame Format, ID, Data, ID & Data, SDT, VCID, AF, Frame End, Acknowledgment Loss, Stuff Error, Format Error, CRC Error, All Errors
Source	C1–C4, D0–D15
Decoding	
Number of decodes	4
Decoding type	Standard: RS232/UART, I^2C, SPI, I^3C
	Option: CAN, LIN, CAN-FD, FlexRay, Audio, MIL-5TD-1553B, SENT, ARINC 429, Manchester, 1-WIRE, CAN-XL
Parallel	Up to 18-bit parallel bus decoding,combining analog and digital channels, with customizable clock settings
Source	C1–C4, D0–D15

Search and Navigation	
Type	Edge, Pulse Width, Slope, Runt, Window, Delay, Timeout, Duration, Setup & Hold, Nth-Edge, Pattern
Source	C1–C4, D0–D15
Result Display	Event list or navigation; jump to a specific event via the event list
Navigation	Search events, time, marker
Measurement	
Cursor	Voltage difference between cursors (△Y) Time difference between cursors (△X) Reciprocal of △X (Hz) (1/△X)
	Voltage and time of waveform point
	Display the cursor in the automatic measurement
Automatic measurement	**Analog channel: 56 kinds of parameter** Maximum, Minimum, Top, Base, Amplitude, Middle, Peak-Peak, Average, Average-Cycles, RMS, RMS-Cycles, AC RMS, AC RMS-Cycles, Area, Area-Cycles, +Area, -Area, +Area-Cycles, -Area-Cycles, +Overshoot, -Overshoot, +Preshoot, -Preshoot, Period, Frequency, Rise time, Fall time, +Width, -Width, +Duty, -Duty, +Pulse count, -Pulse count, Rising count, Falling count, Burst width, Burst Interval, Burst Period, Burst Per count, Ratio, Period Ratio, Setup time, Hold time, Setup & Hold Ratio, FRFR, FRFF, FFFR, FFFF, FRLF, FRLR, FFLR, FFLF, Delay(r-r), Delay(f-f), Phase(r-r), Phase(f-f) **Digital channel**: Frequency, Period, +Width, -Width, +Duty, -Duty, +Pulse count, -Pulse count, FRFR, FRFF, FFFR, FFFF, FRLF, FRLR, FFLR, FFLF, Rising delay A→B, Falling delay A→B, Phase A→B, Phase B→ARisingFalling
Measurement mode	Standard measurement and precision measurement (full-memory hardware measurement)
Number of measurements	Simultaneous display of 27 measurements
Measurement range	Main time base, Zoom time base, Cursor area
Measurement statistics	Mean, Maximum, Minimum, Std Dev, Count, Tendency chart, Bar chart
XY measurements	Time, Cartesian, Polar, Product, Ratio
Measurement source	C1–C4, M1–M4, D0–D15
Analysis	Frequency Counter, DVM, Pass/Fail, Waveform Recording, Bode Plot,

	Power Analysis, Timing Analysis, compliance Analysis
Histogram	
Source	C1 - C4
Type	Vertical, Horizontal
Measurement	Sampling Point, Peak, Maximum, Minimum, Peak-to-Peak, Average, Median, Mode, Bin Width, Standard Deviation
Mode	Supports all modes except Roll mode
Math	
Waveform math	A+B, A-B, A×B, A÷B, Advanced, Filter
Filter	Low pass, High pass, Band pass, Band stop
Operation	0, 1, 2, 3, 4, 5, 6, 7, 8, 9, π, e, (, +, -, *, /, ^, >, <, &&, ||, ==, !=,)
Function	sin, cos, sinc, tan, sqrt, exp, lg, ln, floor, abs, acos, asin, atan, sinh, tanh, ceil, cosh, fabs, intg, diff, sign
FFT	
Channel number	4
Window types	Hanning, Hamming, Rectangular, Blackman, Flat-top
FFT count	Up to 10 Mpts
FFT vertical scale	Vrms, dBV, dBm
FFT	Waterfall: On, Off
	Spectrum range: Start frequency, Stop frequency, Center frequency, Bandwidth
	Four traces: Normal, Average, Max Hold, Min Hold
	Marker: Marker type, Marker Points, Marker list
Storage	
Settings	Set Status (.set)
Waveform	Waveform data (*.dat), comma-separated values (*.csv), arbitrary waveform (*.bsv)
Image	Image save formats (*.bmp), (*.png), (*.jpg)
Report	Decoded event list formats (*.csv), (*.html), (*.pdf)
Gen（Option)	
Number of channels	2
Sample rate	312.5 MSa/s
Vertical resolution	16-bit
Maximum frequency	50 MHz
Standard	Sine, Square, Ramp, Pulse, Noise, DC and Arbitrary wave

Built-in waveform	200 types including Sinc, ExpRise, ExpFall, Cardiac, Gauss, Lorentz, HaverSine, and other
Sine Wave	Frequency range: 1 μHz to 50 MHz
	Flatness: ±0.5 dB (relative to 1 kHz)
	Harmonic distortion: -40 dBc
	Non-harmonic spurious: -40 dBc
	Total harmonic distortion: 1% (DC to 20 kHz, 1 Vpp)
	SNR: 40 dB
Square/Pulse Wave	Frequency range Square wave: 1 μHz to 15 MHz; Pulse wave: 1 μHz to 15 MHz
	Rising/falling time: <20 ns (Typ. 1 kHz, 1 Vpp, 50 Ω)
	Overshoot: Typ. 2% (1 kHz, 1 Vpp, 50 Ω)
	Duty ratio Square Wave: 1% to 99%, adjustable; Pulse wave: 1% to 99%, adjustable
	Resolution of duty ratio: 1% or 10 ns (take the greater value of both)
	Minimum pulse width: 20 ns
	Pulse width resolution: 10 ns
	Jitter: 2 ns
Ramp Wave	Frequency range: 1 μHz to 400 kHz
	Linearity: 1%
	Symmetry: 0.1% to 99.9%
Noise	Bandwidth: 50 MHz (Typ.)
Arbitrary Wave	Frequency range: 1 μHz to 5 MHz
	Waveform length: 16 k
	Internal memory locations: 200
Frequency	Accuracy: ±1 ppm (initial accuracy); ±1 ppm (first-year aging rate); ±3.5 ppm (10-year aging rate)
	Resolution: 1 μHz
Amplitude	Output range: 20 mVpp to 6 Vpp (high impedance); 10 mVpp to 3 Vpp (50 Ω)
	Resolution: 1 mV
	Accuracy (Typ. 1 kHz sine wave, 0 V offset): ±(5% of set value + 2 mVpp)
DC Offset	Range: ±3 V (high impedance); ±1.5 V (50 Ω)
	Resolution: 1 mV
	Accuracy: ±3% of offset setting ±6% of amplitude setting ±2 mV
AM	

Carrier waveform	Sine, Square, Ramp, Arbitrary waveform
Modulation waveform	Sine, square, rising ramp, falling ramp, noise, arbitrary waveform
Modulation frequency	2 mHz to 50 kHz
Modulation depth	0% to 120%
FM	
Carrier waveform	Sine, Square, Ramp, Arbitrary waveform
Modulation Waveform	Sine, square, rising ramp, falling ramp, noise, arbitrary waveform
Modulation frequency	2 mHz to 50 kHz
Deviation	12.5 MHz (Maximum)
ASK	
Carrier waveform	Sine, Square, Ramp, Arbitrary waveform
Modulation waveform	50% duty cycle square wave
Modulation frequency	2 mHz to 50 kHz
FSK	
Carrier waveform	Sine, Square, Ramp, Arbitrary waveform
Modulation waveform	50% duty cycle square wave
Modulation frequency	2 mHz to 50 kHz
Hopping frequency	Frequency within the carrier waveform range
Sweep	
Mode	Linear, logarithmic
Sweep time	1 ms to 500 s
Start/Stop frequency	Frequency within the carrier waveform range
Waveform Recording	
Source	All analog channel
Analysis	Supports frame-by-frame or continuous playback, with calculations and measurements available on the played waveform
Pass/Fail Test	
Source	Analog channel
Pass/Fail action	Immediate stop, buzzer activation, screenshot capture

Bode Plot (Option)	
Mode	Loop Analysis, PSRR
Start frequency	50 Hz to 50 MHz
Stop frequency	60 Hz to 50 MHz
Number of points	1 to 1000
Output amplitude	High impedance: 20 mVpp to 6 Vpp 50 Ω: 10 mVpp to 3 Vpp
DVM (Digital Voltmeter) (All specifications are typical values)	
Source	All analog channels
Mode	DC, AC+DC RMS, and AC RMS
Resolution	4-digit
Limit alarm	Within or exceed the specified limit range
Measurement range	Vertical range
Measurement window	100 ms
High-Precision Frequency Counter	
Source	All analog channels, trigger source
Measurement	Frequency, period, and accumulate
Counter	Maximum resolution of 7 bits; refresh time and resolution are adjustable
Maximum measurement frequency	Maximum bandwidth of analog channels
Time reference	Internal reference: ±1 ppm (initial accuracy); ±1 ppm (first-year aging rate); ±3.5 ppm (10-year aging rate)
Power Analysis (Option)	
Type	Power Quality, Harmonics, Inrush Current, RDS (ON), Switching Loss, Slew Rate, SOA, Modulation, Ripple, Turn On/Off Time, Transient Response, Efficiency
Timing Analysis (Option)	
Type	I^2C, SPI, CAN, I^2S, Reset, Switch, UART, LIN
Jitter and Eye Diagram (Option)	
Source	Any analog channel, Math
Clock recovery	Fixed frequency: Auto/User-specified; PLL: First-order phase-locked loop; Second-order phase-locked loop;
View	TIE histogram, TIE trend plot, TIE spectrum, bathtub curve
Measurement	TIE, TJ@BER, RJ, DJ, PJ, DDJ, DCD, Cycle-to-Cycle, cycle jitter;

parameters	Eye amplitude, eye height, eye width, 1-level, 0-level, Q-factor, eye crossing ratio, extinction ratio
Compliance Analysis (Option)	
Type	USB 2.0, Ethernet (100Base-Tx, 1000Base-T), Automotive Ethernet (100Base-T1, 1000Base-T1)
Display	
Screen	12.1-inch HD multi-touch capacitive screen (fully laminated)
Display resolution	Resolution 1280×800
Display color	24-bit true color
Persistence	Auto, 50 ms, 100 ms, 200 ms, 500 ms, 1 s, 5 s, 10 s, 20 s, Infinite, Off
Display type	Point, Vector
Real-Time clock	Time and date (user-defined)
Waveform Intensity	1% to 100% (default 50%)
Grid Intensity	0% to 100% (default 50%)
Backlight Intensity	1% to 100% (default 50%)
Transparent	0% to 100% (default 50%)
Interface	
USB-Host 3.0	1 on the front panel, 2 on the rear panel
USB Type-C 3.0	1 on the rear panel
LAN	LAN (VXI11), 10/100/1000 Base-T, RJ-45
AUX Out	Trig Out, Pass/Fail, DVM
Gen Out	2 on the front panel
10 MHz reference input	50 Ω, amplitude 400 mVpp to 4.5 Vpp (-3.979 dBm, 17.044 dBm), frequency 10 MHz ± 10 ppm
10 MHz reference output	50 Ω, 1.65 Vpp square wave
HDMI[1]	1 port for connecting to an external monitor or projector
General technical specification	
Probe compensator output	
Output voltage	Approx. 3 Vp-p
Frequency	10 Hz, 100 Hz, 1 kHz (default), 10 kHz, 3 V-REF
Power Source	
Power voltage	100 V to 240 VAC (fluctuation: ±10%), 50 Hz/60 Hz 100 V to 120 VAC (fluctuation: ±10%), 400 Hz
Power	140W (200W) Max.
Fuse	3A, Class F, 250V
Environmental	

Temperature range	Operating: 0°C to +50°C		
	Non-operating: -40°C to +70°C		
Cooling method	Forced cooling by fan		
Humidity range	Any relative humidity below +10°C +10°C to +30°C: 5% to 95% RH +30°C to +40°C: 5% to 75% RH +40°C to +50°C: 5% to 45% RH		
Altitude	Operating: Below 4,600 meters; Non-operating: Below 15,000 meters		
Contamination level	2		
Operating environment	Indoor use		
Mechanical Specifications			
Dimensions (W×H×D)	365 mm × 264 mm × 115 mm		
Weight	6.0 kg		
Calibration Interval			
Calibration interval	1 year		
Safety Regulations			
Electromagnetic compatibility	Compliance with EMC directive (2014/30/EU), compliance with or superior to IEC 61326-1:2021/ EN61326-1:2021, IEC 61326-2-1:2021/ EN61326-2-1:2021		
	Conducted disturbance	CISPR 11/EN 55011	CLASS B group 1, 150 kHz–30 MHz
	Radiation disturbance	CISPR 11/EN 55011	CLASS B group 1, 30 MHz–1 GHz
	(ESD)	IEC 61000-4-2/EN 61000-4-2	±4.0 kV (contact), ±8.0 kV (air)
	Radio sensitivity	IEC 61000-4-3/EN 61000-4-3	3 V/m (80 MHz to 1 GHz) 3 V/m (1.4 GHz to 6 GHz)
	Electrical fast transient (EFT)	IEC 61000-4-4/EN 61000-4-4	±1 kV (AC input port)
	Surge	IEC 61000-4-5/EN 61000-4-5	±0.5 kV (live to zero) ±1 kV (live/zero to ground)
	RF continuous sensitivity	IEC 61000-4-6/EN 61000-4-6	3 V, 0.15–80 MHz

	Voltage dip and short-interruption	IEC 61000-4-11/EN 61000-4-11	Voltage dips: 0% UT during 0.5 cycles 0% UT during 1 cycle 70% UT during 25/30 cycles Short-term interruption: 0% UT during 250/300 cycles
Safety specification	EN 61010-1:2010+A1:2019 EN IEC 61010-2-030:2021+A11:2021 UL 61010-1:2012 Ed. 3+ R: July 19, 2019 UL 61010-2-030:2018 Ed. 2 CSA C22.2 No. 61010-1:2012 Ed. 3+U1:U2:A1 CSA C22.2 No. 61010-2-030:2018 Ed. 2		

Notes:

1: Supports standard HDMI connectors only; adapters are not supported.

Ordering Information and Warranty

Ordering Information

	Description	Order No.
Model	MSO6204HDP (2 GHz, 4 analog channels + 16 digital channels, Gen)	MSO6204HDP
	MSO6104HDP (1 GHz, 4 analog channels + 16 digital channels, Gen)	MSO6104HDP
Standard Accessories	National standard cable x 1	
	USB Type-C 3.0 cable x 1	
	BNC-BNC straight-through cable x 1	UT-L45
	BNC-Red/Black Alligator Clip Cable x 1	UT-L02A
	Passive probe (350M / 500 MHz) x 4	UT-P08A / UT-P07A
Optional Accessories	Isolation Transformer	UT-ISOT
	High-Voltage Probes	UT-V23/UT-P21/UT-P20
	High-Voltage Differential Probes	UT-P30/UT-P31/UT-P32/ UT-P33/UT-P35/UT-P36
	Active Probes	UT-PA2000, UT-PA1000, UT-PD2500, UT-PD1500
	Current Probes	UT-P40/UT-P41/UT-P42/ UT-P43/UT-P44/UT-P4030D /UT-P4150/UT-P4500/UT-P4 100 A/UT-P4100B
	16-Channel Logic Analyzer Probes	UT-M15
	Deskew Fixture	UT-DF01
Optional Software	1 GHz to 2 GHz Bandwidth Upgrade	MSO6000HDP-BW1GT2G
	All Serial Bus Trigger and Decode	MSO6000HDP-BND
	Automotive Serial Bus Trigger and Decode (CAN, CAN-FD, LIN, FlexRay, SENT)	MSO6000HDP-AUTO
	CAN-Automobile Serial Bus Trigger and Decode	MSO6000HDP-CAN
	CAN-FD-Automotive Serial Bus Trigger and Decode	MSO6000HDP-CANFD
	LIN-Automotive Serial Bus Trigger and Decode	MSO6000HDP-LIN
	FlexRay Trigger and Decode	MSO6000HDP-FLEX

	SENT-Automotive Serial Bus Trigger and Decode	MSO6000HDP-SENT
	Audio-Automotive Serial Bus Trigger and Decode	MSO6000HDP-AUDIO
	MIL-STD-1553-Aerospace Serial Bus Trigger and Decode	MSO6000HDP-MIL1553
	ARINC429-Aerospace Serial Bus Trigger and Decode	MSO6000HDP-ARINC429
	MANCHESTER-Wireless Communication Serial Bus Trigger and Decode	MSO6000HDP-MANCH
	1-WIRE Sensor Serial Bus Trigger and Decode	MSO6000HDP-1WIRE
	CAN-XL-Automobile Serial Bus Trigger and Decode	MSO6000HDP-CANXL
	Dual-Channel Function/Arbitrary Waveform Generator (Gen and Bode Plot)	MSO6000HDP-GEN
	Power Analyzer	MSO6000HDP-PWR
	Timing Analyzer	MSO6000HDP-TIMING
	Jitter and Eye Diagram Analysis	MSO6000HDP-JITTER
	USB 2.0 Compliance Analysis	MSO6000HDP-CTSUSB20
	100BASE-Tx Ethernet Compliance Analysis	MSO6000HDP-CTS100
	1000BASE-T Ethernet Compliance Analysis	MSO6000HDP-CTS1000

Note: Please order all main units, accessories, and options from your local UNI-T distributor.

Warranty Period

The instrument is covered by a 1-year warranty, excluding probes and accessories.

Oscilloscope Probes and Accessories

Passive Probes

Model	Type	
UT-P01 	High-impedance probe	1X: DC to 8 MHz 10X: DC to 25 MHz Oscilloscope compatibility: All UNI-T series
UT-P03 	High-impedance probe	1X: DC to 8 MHz 10X: DC to 60 MHz Oscilloscope compatibility: All UNI-T series
UT-P04 	High-impedance probe	1X: DC to 8 MHz 10X: DC to 100 MHz Oscilloscope compatibility: All UNI-T series
UT-P05 	High-impedance probe	1X: DC to 8 MHz 10X: DC to 200 MHz Oscilloscope compatibility: All UNI-T series
UT-P06 	High-impedance probe	1X: DC to 8 MHz 10X: DC to 300 MHz Oscilloscope compatibility: All UNI-T series
UT-P07A 	High-impedance probe	10X: DC to 500 MHz Input resistance: 10 MΩ Maximum safe operating voltage: <600 V pk Oscilloscope compatibility: All UNI-T series

UT-P08A 	High-impedance probe	10X: DC to 350 MHz Input resistance: 10 MΩ Maximum safe operating voltage: <600 V pk Oscilloscope compatibility: All UNI-T series
UT-P20 	High-impedance probe	DC to 100 MHz Probe coefficient: 100:1 Maximum operating voltage: 1500 Vrms Oscilloscope compatibility: All UNI-T series
UT-V23 	High-voltage probe	DC to 100 MHz Probe coefficient: 100:1 Input resistance: 100 MΩ ±2% Maximum operating voltage: 2000 Vpp Oscilloscope compatibility: All UNI-T series
UT-P21 	High-voltage probe	DC to 50 MHz Probe coefficient: 1000:1 Maximum operating voltage: DC 15 kVrms, AC 10 kV (sine wave) Oscilloscope compatibility: All UNI-T series

Current Probes

Model	Type	
UT-P40 	Current probe	DC to 100 kHz Range: 50 mV/A, 5 mV/A Current range: 0.4 A to 60 A Maximum operating voltage: 600 Vrms Oscilloscope compatibility: All UNI-T series
UT-P41 	Current probe	DC to 100 kHz Range: 100 mV/A, 10 mV/A Current range: 0.4 A to 100 A Maximum operating voltage: 600 Vrms Oscilloscope compatibility: All UNI-T series

UT-P42 	Current probe	DC to 150 kHz Range: 100 mV/A, 10 mV/A Current range: 0.4 A to 200 A Maximum operating voltage: 600 Vrms Oscilloscope compatibility: All UNI-T series
UT-P43 	Current probe	DC to 25 MHz Range: 100 mV/A Maximum test current: 20 A Rise time: 14 ns Oscilloscope compatibility: All UNI-T series
UT-P44 	Current probe	DC to 50 MHz Range: 50 mV/A Maximum test current: 40 A Rise time: 7 ns Oscilloscope compatibility: All UNI-T series
UT-P4030D 	High-frequency current probe	Bandwidth: DC to 100 MHz Rise time: ≤3.5 ns Range selection: 30 A/ 5A Maximum test current: 30 A Voltage of insulated line: 300V CAT I Oscilloscope compatibility: All UNI-T series
UT-P4150 	High-frequency current probe	Bandwidth: DC to 12 MHz Rise time: ≤29 ns Range selection: 150 A/30 A Maximum test current: 150 A Voltage of insulated line: 600 V CAT II, 300 V CAT III Oscilloscope compatibility: All UNI-T series
UT-P4500 	High-frequency current probe	Bandwidth: DC to 5 MHz Rise time: ≤70 ns Range selection: 500 A/75 A Maximum test current: 500 A Voltage of insulated line: 600 V CAT II, 300 V CAT III Oscilloscope compatibility: All UNI-T series

UT-P4100 A		Bandwidth: DC to 600 kHz Rise time: ≤583 ns
	Low-frequency AC/DC current probe	Maximum test current: 100 A Range selection: 100 A / 10 A Range sensitivity: 0.1 V/A, 0.01 V/A Common-mode voltage RMS: CAT I 600 V, CAT II 600 V, CAT III 300 V Oscilloscope compatibility: All UNI-T series
UT-P4100B		Bandwidth: DC to 2 MHz Rise time: ≤175 ns
	Low-frequency AC/DC current probe	Maximum test current: 100 A Range selection: 100 A/10 A Range sensitivity: 0.1 V/A, 0.01 V/A Common-mode voltage RMS: CAT I 600 V, CAT II 600 V, CAT III 300 V Oscilloscope compatibility: All UNI-T series

Active Probes

Model	Type	
UT-PA2000		
	Active single-ended probe	10X: DC to 2 GHz Input capacitance: ≤3.5 pF Dynamic range: ±4 V (DC or peak AC)
UT-PA1000		
	Active single-ended probe	10X: DC to 1 GHz Input capacitance: ≤3.5 pF Dynamic range: ±4 V (DC or peak AC)
UT-PD2500		
	Active differential probe	10X: DC to 2.5 GHz Input capacitance: ≤1 pF Dynamic range: ±4 V (DC or peak AC)
UT-PD1500	Active	10X: DC to 1.5 GHz

	differential probe	Input capacitance: ≤1 pF Dynamic range: ±4 V (DC or peak AC)
UT-P30		
	High-voltage differential probe	DC to 100 MHz Attenuation ratio: 100:1, 10:1 Input differential-mode voltage: ±800 Vpp Oscilloscope compatibility: All UNI-T series
UT-P31		
	High-voltage differential probe	DC to 100 MHz Attenuation ratio: 1000:1, 100:1 Input differential-mod e voltage: ±1.5 kVpp Oscilloscope compatibility: All UNI-T series
UT-P32		
	High-voltage differential probe	DC to 50 MHz Attenuation ratio: 1000:1, 100:1 Input differential-mode voltage: ±3 kVpp Oscilloscope compatibility: All UNI-T series
UT-P33		
	High-voltage differential probe	DC to 50 MHz, Probe attenuation ratio: 100:1 Input differential-mode voltage: ±1.4 kVpp DC to 70 MHz, Probe attenuation ratio: 1000:1 Input differential-mode voltage: ±14 kVpp Oscilloscope compatibility: All UNI-T series
UT-P35		
	High-voltage differential probe	DC to 50 MHz Attenuation ratio: 500:1, 50:1 Rise time: 7 ns Accuracy: 2% Input differential-mode voltage: 1/50:1 30 (DC + peak AC) 1/500:1 300 (DC + peak AC) Input common-mode voltage: 100 Vrms, CAT I 600 Vrms, CAT II Oscilloscope compatibility: All UNI-T series
UT-P36	High-voltage	DC to 50 MHz

	differential probe	Attenuation ratio: 2000:1, 200:1 Rise time: 3.5 ns Accuracy: 2% Input differential-mode voltage: 1/200:560 (DC + peak AC) 1/2000: 5600 (DC + peak AC) Input common-mode voltage: 2800 Vrms, CAT I 1400 Vrms, CAT II Oscilloscope compatibility: All UNI-T series

Options Ordering and Installation

1. **Purchase options:** Based on your requirements, please purchase the specified function options from UNI-T Sales Personnel and provide the serial number of the instrument that needs the option installed.
2. **Receive certificate:** You will receive the license certificate based on the address provided in the order.
3. **Register and obtain license:** Visit the UNI-T official website license activation session for registration. Use the license key and instrument serial number provided in the certificate to obtain the option license code and license file.
4. **Install the option:** Download the option license file to the root directory of a USB storage device, and connect the USB storage device to the instrument. Once the USB storage device is recognized, the Option Install menu will be activated. Press this menu key to begin installing the option.

Limited Warranty and Liability

UNI-T guarantees that the Instrument product is free from any defect in material and workmanship within three years from the purchase date. This warranty does not apply to damages caused by accident, negligence, misuse, modification, contamination, or improper handling. If you need a warranty service within the warranty period, please contact your seller directly. UNI-T will not be responsible for any special, indirect, incidental, or subsequent damage or loss caused by using this device. For the probes and accessories, the warranty period is one year. Visit instrument.uni-trend.com for full warranty information.

Learn more at: www.uni-trend.com

Register your product to confirm your ownership. You will also get product notifications, update alerts, exclusive offers and all the latest information you need to know.

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