

UNI-T

UT-PA2000/1000

Single-Ended Active Probe

2GHz | 175ps | 10:1 | $\pm 4V$ | 1.3pF

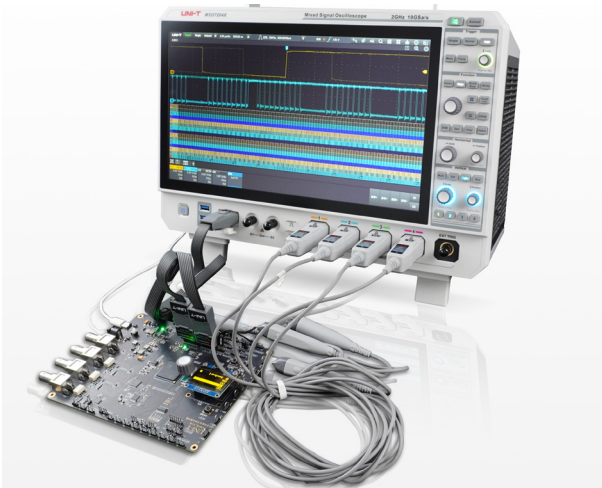


Data Sheet REV.2.0

April 2025

UT-PA2000 Overview

The UT-PA2000 and UT-PA1000 are active single-ended probes designed for high-frequency measurements, incorporating many of the features required for today's general-purpose high-speed probes, especially in digital system design and signal integrity testing, where their $1\text{M}\Omega$ input impedance and very low input capacitance ($\leq 1.3\text{pF}$) provide an ultra-low load on the DUT. The UT-PA2000 and UT-PA1000 have test bandwidths of 2GHz and 1GHz respectively, as well as rise times of less than 175ps and 350ps, $\pm 4\text{V}$ dynamic range, and take into account the ability to measure small signals. A variety of connection accessories are also available for flexible connection to the DUT, for connecting small DUTs. The probe interface is also specially designed to be directly connected to UNI-T mid-to-high-end oscilloscopes such as MSO7000X, MSO8000HD, UPO7000L, etc., without the need for an external power supply. Active single-ended probes are widely used in high-speed digital circuits, bus analysis, signal integrity analysis and many other high-speed fields, UT-PA2000 and UT-PA1000 can accurately and quickly obtain signal information in the circuit, which helps to improve the work efficiency and accuracy of engineers.



Features

Excellent Electrical Properties

- High bandwidth - Accurately measure high-speed serial signals
UT-PA2000 bandwidth: 2GHz
UT-PA1000 bandwidth: 1GHz
- Extremely high signal fidelity
UT-PA2000 rise time: 175ps
UT-PA1000 rise time: 350ps
- Low load: $1\text{M}\Omega$ input impedance, $\leq 1.3\text{pF}$ input capacitance
- Dynamic range: $\pm 4\text{V}$
- Offset range: $\pm 4\text{V}$
- Transmission delay: $\leq 7\text{ns}$
- Low power loss: 0.5W

Outstanding Machine Design

- A compact probe head used for testing small circuit components
- Various accessories for flexible connection to the DUT (Device Under Test)
- A special probe headlight design

Accessibility Probe Functions

- Probe front light on/off button
- Control the oscilloscope to run/stop
- Clear the currently displayed waveforms and measurement values on the oscilloscope
- Control the oscilloscope to perform a forced trigger
- Automatically sense the attenuation ratio
- Automatic impedance matching
- Identify the probe model and serial number

Compatibility UNI-T Oscilloscope series

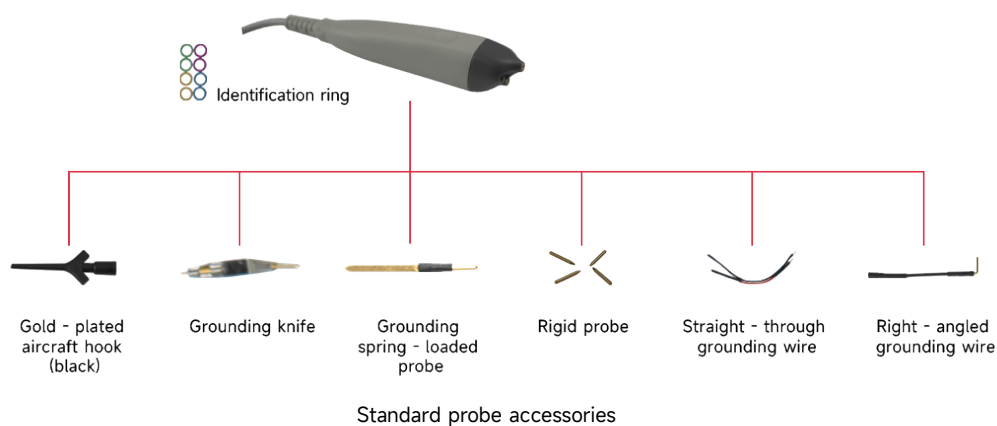
- The interface is specifically designed to connect directly to UNI-T oscilloscopes without requiring an external power supply
- MSO7000X, MSO8000HD, UPO7000L, MSO3000X, MSO5000HD and MSO3000HD series

Technical Specifications

All specifications are guaranteed unless marked as “Typical.” The instrument must operate continuously for at least 30 minutes within the specified operating temperature.

Technical Specifications	UT-PA2000	UT-PA1000
Bandwidth (-3dB)	2GHz	1GHz
Rise Time	≤175ps	≤350ps
DC Attenuation Ratio	10:1±5%	
Input Dynamic Range	±4V (DC or peak AC)	
Maximum Input Voltage	±12V (Non-working voltage)	
Input Offset Range	±4V	
DC Offset Error (Output is 0)	±2mV	
Input Capacitance	≤1.3pF	
Input Resistance	1MΩ ±1%	
Transmission Delay	≤7ns	
Flatness (25°C)	Typical 0.5dB(100kHz – 500MHz) Typical 1dB(500MHz – 1GHz)	
Probe Noise (Equivalent to input end)	<7mV ACrms	
Output Impedance	50Ω	
ESD (Electrostatic Discharge)	8kV HBM	
Power Loss	0.5W	
Probe specifications		
Weight	<100g	
Wire Length	1.2m	
Probe Dimension	front: 110mmx18.3mmx20mm back end: 106.6mmx24mmx27mm	
Compatible Oscilloscopes	MSO7000X、MSO8000HD、UPO7000L、MSO5000HD、MSO3000HD、MSO3000X	

Environmental Requirements	UT-PA2000/1000
Operating Temperature	0°C ~ 40°C
Non-operating temperature	-40°C ~ 70°C
Operating Humidity	95%RH@40°C
Non-operating Humidity	95%RH@65°C
Operating Altitude	4600m
Non-operating Altitude	15300m
Probe Recognition	
Auto Attenuation Multiple	✓
Auto Probe Mode Recognition	✓
Auto Probe's Serial Number Detection	✓
Accessory	
Gold-plated Aircraft Hook (Red)	Optional UT-PA-F01, ×2
Gold-plated Aircraft Hook (Black)	Standard UT-PA-F01, ×2
Offset Blade	Optional UT-PA-F02, ×1
Ground Blade	Standard UT-PA-F03, ×5
Ground Flexible Tip	Standard UT-PA-F04, ×2
Rigid Tip	Standard UT-PA-F05, ×20
Flexible Tip	Optional UT-PA-F06, ×2
Two-wire Socket Adapter (9cm)	Optional UT-PA-F07, ×1
Straight-through Grounding Wire (5cm)	Standard UT-PA-F08, ×2
Straight-through Grounding Wire (5cm)	Standard UT-PA-F09, ×2
Single-conductor Copper Foil Sheet (with adhesive backing), 2*2 cm	Optional UT-PA-F10, ×10
Tip Box	Standard UT-PF01, ×1
Accessory Box	Standard UT-PF02, ×1
Ceramic tweezers	Standard PT05-003, ×1
Identification Ring	Standard UT-PF03, ×8



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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