

## PINTECH N1070A

# PINTECH N1070A High Voltage Differential Probe Instruction Manual

Model: N1070A

## 1. INTRODUCTION

The PINTECH N1070A is a high-performance differential probe designed for safe and accurate measurement of high voltage signals with an oscilloscope. It features a bandwidth of up to 50MHz and can handle differential voltages up to 7kVp-p, making it suitable for various power electronics and industrial applications. This manual provides essential information for the proper setup, operation, and maintenance of your N1070A differential probe.

## 2. SAFETY INFORMATION

**WARNING:** This device measures high voltages. Failure to follow safety precautions can result in serious injury or death. Always adhere to the following safety guidelines:

- Always connect the probe's ground lead to the oscilloscope's ground terminal before connecting the input leads to the circuit under test.
- Ensure the probe is rated for the maximum voltage of the circuit being tested. The N1070A has a maximum differential test voltage of 7kVp-p.
- Do not exceed the maximum input voltage ratings specified in the technical specifications.
- Inspect the probe, leads, and accessories for any damage before each use. Do not use if any part is damaged.
- Operate the probe only in dry conditions. Avoid exposure to moisture or extreme temperatures.
- Use only the provided adapter or appropriate batteries for power.
- Refer to your oscilloscope's manual for proper connection and operation procedures.
- Servicing should only be performed by qualified personnel.

## 3. PACKAGE CONTENTS

Verify that all items are present in the package:

- N1070A Differential Probe x 1
- Power Adapter x 1
- Probe Hook (Red) x 1

- Probe Hook (Black) x 1
- Instruction Manual x 1



Figure 3.1: Contents of the N1070A package, including the differential probe unit, power adapter, and red and black probe hooks.

## 4. SETUP

1. **Power Supply:** The N1070A probe can be powered by either the included power adapter or internal batteries (not included).
  - To use the adapter, connect it to the probe's power input jack and then to a suitable power outlet.
  - To use batteries, open the battery compartment (refer to the diagram on the probe unit) and insert the required batteries, ensuring correct polarity.
2. **Connect to Oscilloscope:** Connect the BNC cable from the N1070A probe's output to an input channel on your oscilloscope. Ensure the connection is secure.
3. **Select Attenuation:** On the N1070A probe unit, select the desired attenuation ratio (100X or 1000X) using the switch. This setting determines the probe's voltage division ratio.

4. **Oscilloscope Settings:** Set your oscilloscope's input impedance to 1M $\Omega$ . Adjust the vertical scale (Volts/Div) on your oscilloscope according to the selected attenuation ratio. For example, if the probe is set to 100X, a 1V/Div setting on the oscilloscope will represent 100V/Div at the probe tips.

## 5. OPERATING INSTRUCTIONS

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1. **Power On:** Turn on the N1070A probe using the power switch. The power indicator light should illuminate.
2. **Zero Offset:** The probe features a built-in auto-zero function. Allow a few moments for the probe to stabilize after powering on.
3. **Connect to Circuit:** Carefully connect the red and black input leads of the differential probe to the two points in the circuit where you wish to measure the voltage difference. Use the provided probe hooks for secure connection.
4. **Observe Waveform:** Observe the waveform on your oscilloscope. Adjust the oscilloscope's time base and vertical scale as needed for a clear display.
5. **Overload Protection:** The probe includes overload protection. If the input voltage exceeds the probe's limits, the output may clip or distort. Disconnect immediately and verify the voltage range.
6. **Power Off:** After use, disconnect the probe from the circuit under test, then turn off the probe and the oscilloscope.

## 6. MAINTENANCE

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- **Cleaning:** Clean the probe's exterior with a soft, dry cloth. Do not use abrasive cleaners or solvents. Ensure the probe is powered off and disconnected before cleaning.
- **Storage:** Store the probe in a clean, dry environment, away from direct sunlight and extreme temperatures.
- **Battery Replacement:** If using batteries, replace them when the power indicator dims or the probe malfunctions. Ensure correct polarity during replacement.
- **Inspection:** Regularly inspect the probe body, cables, and connectors for any signs of wear or damage.

## 7. TROUBLESHOOTING

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- **No Power:**
  - Check if the power adapter is securely connected and functioning.
  - If using batteries, ensure they are correctly inserted and not depleted.
- **No Signal on Oscilloscope:**
  - Verify that the BNC cable is securely connected to both the probe and the oscilloscope.
  - Ensure the probe is powered on.
  - Check the oscilloscope's input channel settings (e.g., input impedance, vertical scale).
  - Confirm the probe leads are properly connected to the circuit under test.
- **Distorted or Clipped Waveform:**
  - The input voltage may exceed the probe's maximum rating for the selected attenuation. Switch to a higher attenuation ratio (e.g., 1000X) or reduce the input voltage.
  - Check the oscilloscope's vertical scale setting; it might be too sensitive.

## 8. SPECIFICATIONS

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Model	N1070A
Bandwidth(-3dB)	100X:DC-40MHz 1000X:DC-50MHz
Attenuation Ratio	100X,1000X
Accuracy	±1%
Rise Time	≥7ns
Input differential Vp-p	100X:700V 1000X:7000V
Input differential V AC RMS	2450V
Input differential V DC	100X:350V 1000X:3500V
Differential mode voltage(Vpeak)	100X:350V 1000X:3500V
Common mode voltage(rms)	2450V
Input Impedance	10MΩ//1pF(Single-ended) 20MΩ//0.5pF(Both ends)
Noise RMS	100X:<100mV 1000X:<500mV
Output Voltage	<7V
Oscilloscope input impedance	1MΩ
Power adaptor	6V Adapter
CMRR(Typical)	60Hz: >80dB 100kHz: >50dB
Length of BNC Cable	90cm
Length of Input Leads	30cm
Temperature	0~50°C
Humidity	20~75%RH
Weight	425g
Dimension(L*W*H)	187×83×41mm

Figure 8.1: Detailed technical specifications for the N1070A High Voltage Differential Probe.

Parameter	Value
Model	N1070A
Bandwidth (-3dB)	100X: DC-40MHz; 1000X: DC-50MHz
Attenuation Rate	1000X/100X
Accuracy	±1%
Rising Time	≥7ns
Testing Voltage (Vp-p)	100X: 700V; 1000X: 7kV
Input DC Voltage	100X: 350V; 1000X: 3.5kV
Differential-mode voltage (Vp-p)	100X: 350V; 1000X: 3.5kV

Parameter	Value
RMS Value	2450V
Common-mode voltage RMS	2450V
Output (into 50kΩ load)	<7V
Offset (typical)	<±5mV
Input Impedance (Between two ends)	20MΩ//0.5pF
Input Impedance (Single-ended to ground)	10MΩ//1pF
Oscilloscope Input Impedance	1MΩ
CMRR (60Hz)	>80dB
CMRR (100kHz)	>50dB
Noise RMS (100X)	<100mV
Noise RMS (1000X)	<500mV
Weight	425g / 0.94lb
Dimension (LxWxH)	187 x 73 x 41 mm
Operating Temperature	0-50°C
Operating Humidity	20-75% RH

9. WARRANTY AND SUPPORT

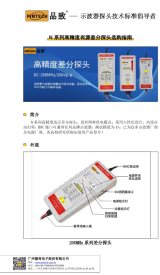
PINTECH offers a **1-year warranty** for the N1070A differential probe from the date of purchase. This warranty covers defects in materials and workmanship under normal use.

For technical support, warranty claims, or any questions regarding the product, please contact PINTECH customer service. Refer to the contact information provided with your purchase documentation or visit the official PINTECH website.

PINTECH is committed to providing professional advice and support to meet your measurement needs.



Related Documents - N1070A



[Pintech N Series High-Precision Active Differential Probes Buyer's Guide](#)

A comprehensive guide to Pintech's N Series high-precision active differential probes, detailing their features, specifications, and applications in various electronic testing scenarios.

<div data-bbox="118 109 309 344"><p>N 系列差分探头</p><p>■ N1140Apro</p><p>INSTRUCTION MANUAL 使用说明书</p></div>	<p><a href="#">PINTECH N1140Apro High Voltage Differential Probe Instruction Manual</a></p> <p>Instruction manual for the PINTECH N1140Apro High Voltage Differential Probe, detailing its features, specifications, operation, safety precautions, and maintenance.</p>
<div data-bbox="118 423 309 658"><p>N 系列差分探头</p><p>INSTRUCTION MANUAL 使用说明书</p></div>	<p><a href="#">PINTECH N Series Differential Probe - User Manual and Specifications</a></p> <p>Comprehensive user manual and technical specifications for the PINTECH N Series Differential Probes, covering models N1008A, N1008B, N1015A, N1000A, N1030A, N1030B, N1070A, N1070APro, N1070B, N1015B, N1100A, N1140A, N1140APro, N2008APro, N2015APro, N2040APro, N2060APro. Learn about features, operation, safety, and specifications.</p>
<div data-bbox="118 736 309 972"><p>N 系列差分探头</p><p>INSTRUCTION MANUAL 使用说明书</p></div>	<p><a href="#">PINTECH N Series Differential Probes - User Manual and Specifications</a></p> <p>Comprehensive user manual and technical specifications for PINTECH N Series Differential Probes, covering operation, safety, maintenance, and detailed model comparisons.</p>
<div data-bbox="118 1050 309 1285"><p>Differential Probe</p><p>■ N1280Apro</p><p>INSTRUCTION MANUAL 使用说明书</p></div>	<p><a href="#">PINTECH N1280Apro</a>   _____</p> <p>PINTECH N1280Apro</p>
<div data-bbox="118 1536 309 1771"><p>Differential Probe</p><p>■ N2060Apro</p><p>INSTRUCTION MANUAL 使用说明书</p></div>	<p><a href="#">PINTECH N2060Apro Differential Probe: Instruction Manual and Specifications</a></p> <p>Comprehensive instruction manual and technical specifications for the PINTECH N2060Apro High Voltage Differential Probe. Learn about its features, operating procedures, safety precautions, specifications, and maintenance.</p>