

*Agilent InfiniiMax II  
1168A/1169A Probes*

*Handling Guide*



*Agilent Technologies*

# Notices

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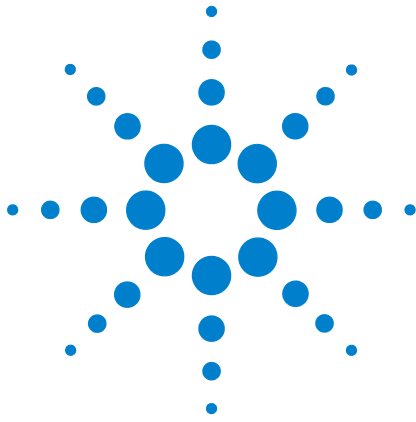
## Safety Notices

### CAUTION

A CAUTION notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a CAUTION notice until the indicated conditions are fully understood and met.

### WARNING

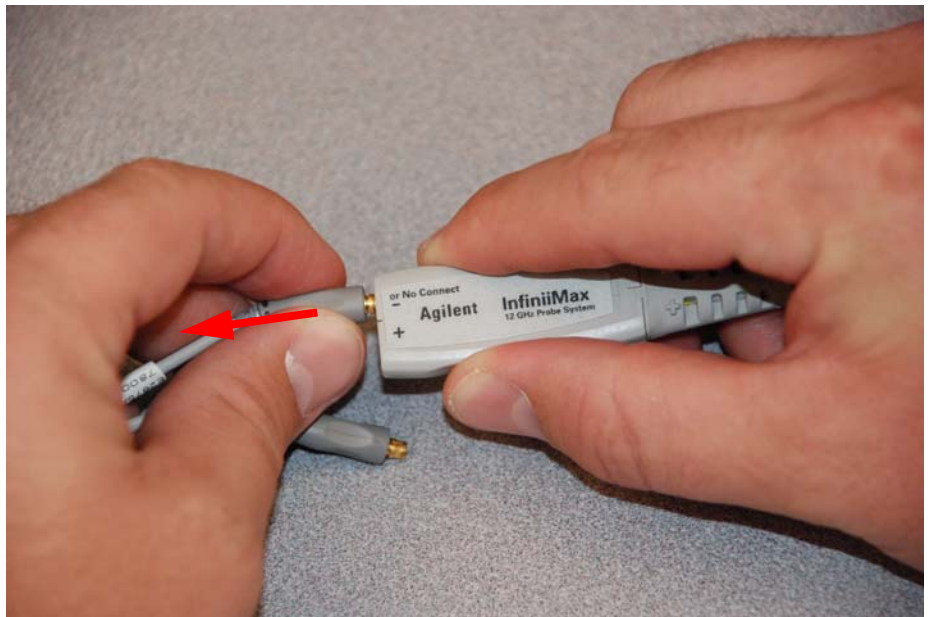
A WARNING notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a WARNING notice until the indicated conditions are fully understood and met.



*This manual will assist you in properly handling your InfiniiMax II 1168A/1169A probe amplifiers and probe heads to maximize their lifetime of operation and maintain their high performance.*

## *Connecting / Disconnecting Probe Heads*

Whenever you disconnect a probe head from an InfiniiMax II amplifier, pull the probe head connectors straight out of the sockets as shown in [Figure 1](#). When removing or connecting a probe head, hold the amplifier by grasping the indentations located on the sides of the amplifier (as shown in [Figure 1](#)). There are also indentations on many of the probe head sockets so you have a convenient place to grasp there as well.

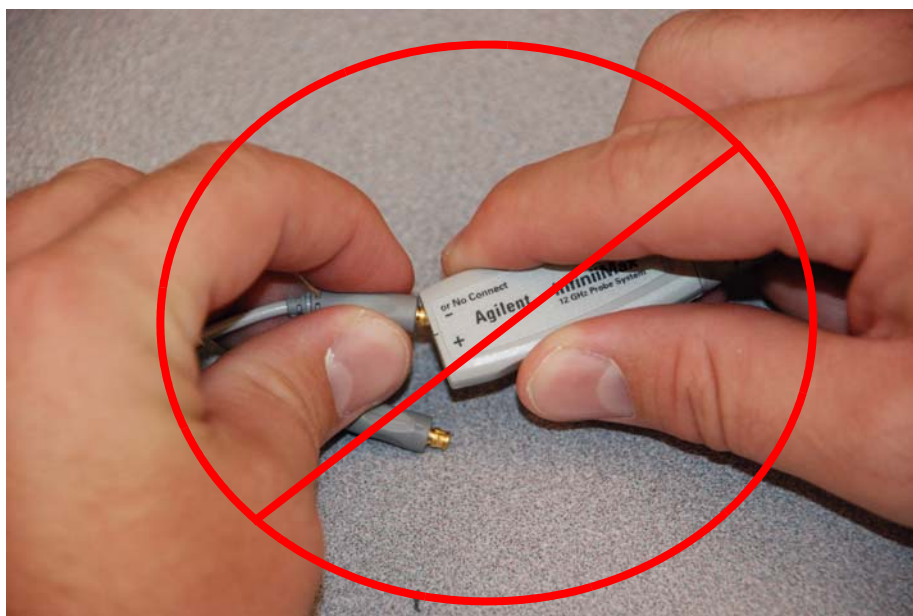


*Figure 1 Pull the probe head straight out to disconnect it from the amplifier.*

When connecting a probe head to an amplifier, push straight in also.

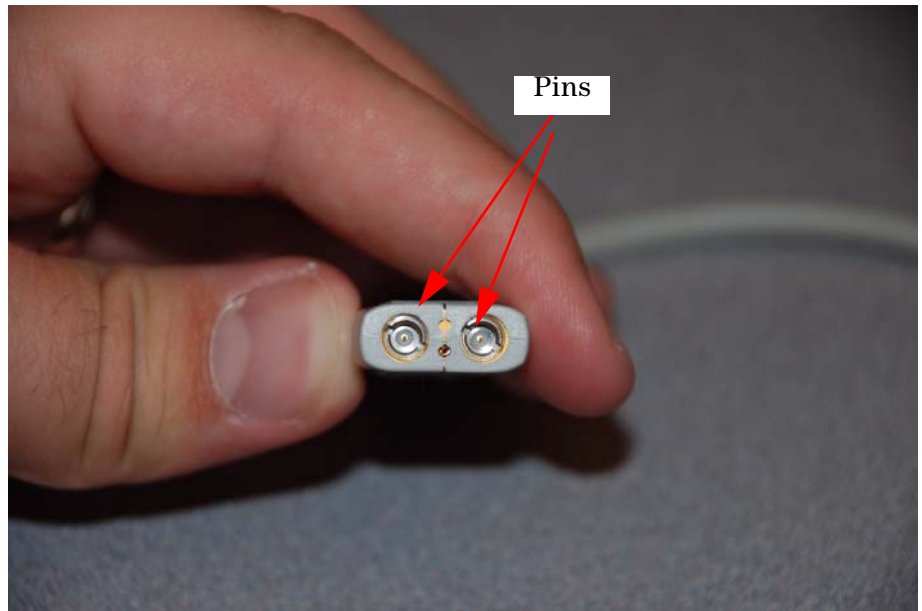


Never bend the probe head in order to “pop” it loose from the amplifier. Also, do not wiggle the probe head up and down or twist it to remove the connectors from the sockets. This can damage the pins in the amplifier or the probe head itself. [Figure 2](#) is an example of an improper way to disconnect the probe head.



*Figure 2 An improper way to disconnect a probe head from an amplifier*

To see if the pins in the probe amplifier are bent, visually inspect them by looking in the sockets on the amplifier. Notice in [Figure 3](#) that the pins are straight (as they should be).



*Figure 3    Straight pins in an amplifier*

If you connect and disconnect probe heads using the appropriate method, these pins should not bend. Always remember to apply enough force to pull the probe head straight out or push it straight in. Do not wiggle, twist, or bend it in any way.

## *Handling the Probe Cable*

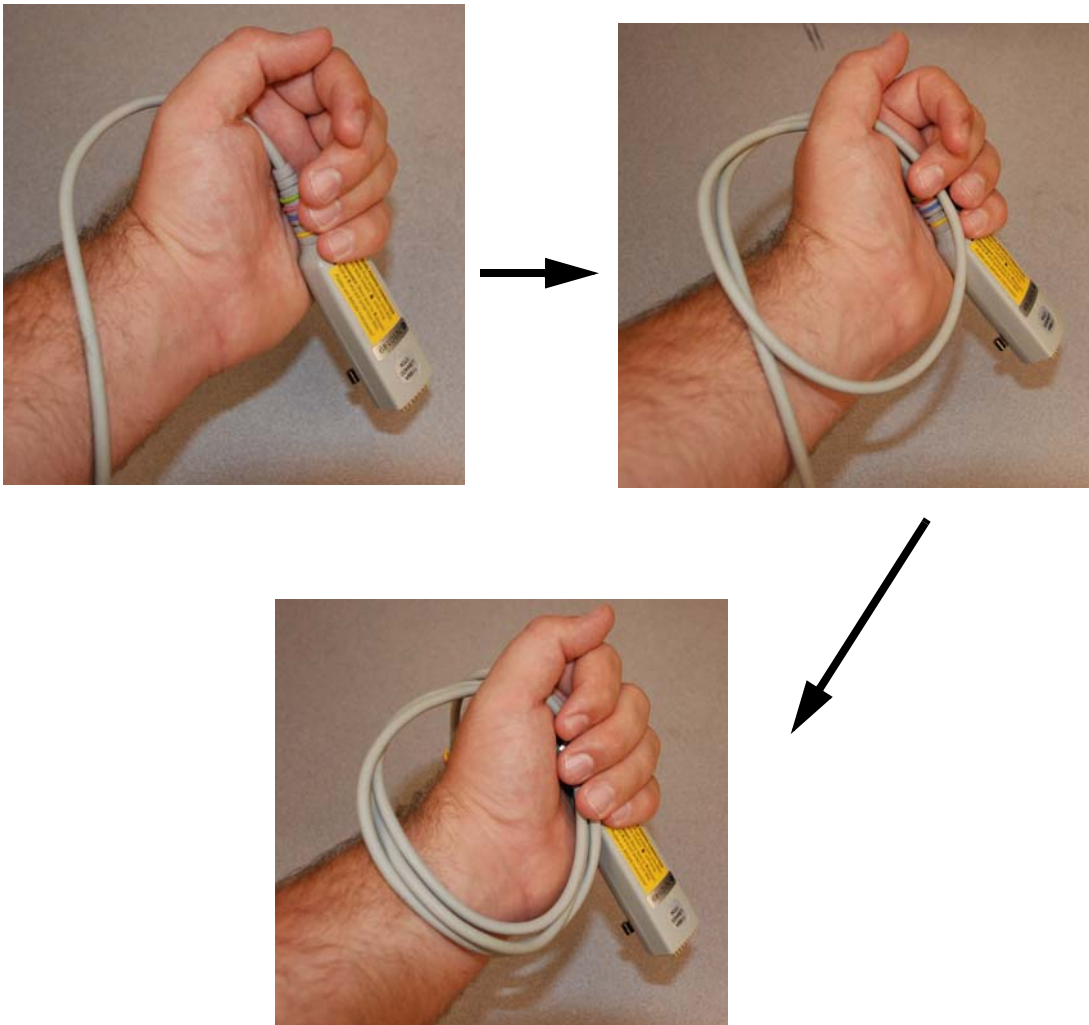
In general, you need to be careful not to kink the cable, twist it, or bend it too much.

For example, slamming a drawer or dropping a heavy item on a cable can kink it and significantly degrade the probe's performance.

Also, when a probe is attached to an oscilloscope, you need to be careful not to let a chair or other object crash into the face of the oscilloscope because it will hit the probe cable where it exits the probe amplifier and bend it well beyond its limit.

When storing the probe, it is best to coil the cable in a large radius and avoid a net twist in the cable during the process. This can be done in a similar manner to how garden hoses or extension cords are typically coiled.

You can start by wrapping the cable around your thumb (Figure 4 - first picture). Then continue to circle your thumb, but provide a slight twist with each rotation. This will allow the cable rotations to lie flat against each other and will eliminate the net twisting of the cable in the end.



*Figure 4 The recommended way to coil and store your probe*



Note that the radius of the coil must be fairly large so it does not induce kinking or bending.

## *Connecting an InfiniiMax II Probe to an Oscilloscope*

The InfiniiMax II probes are only meant to be plugged into gold plated BNCs (like those on Infiniium oscilloscopes). Simply push the probe into the BNC and then push the locking mechanism to the right to secure the probe to the oscilloscope (Figure 5). How far the locking mechanism can be pushed to the right varies and will not be the same for every user. Therefore, do not try to force it further to the right because you believe it is unlocked. Instead, gently push it until it is snug.

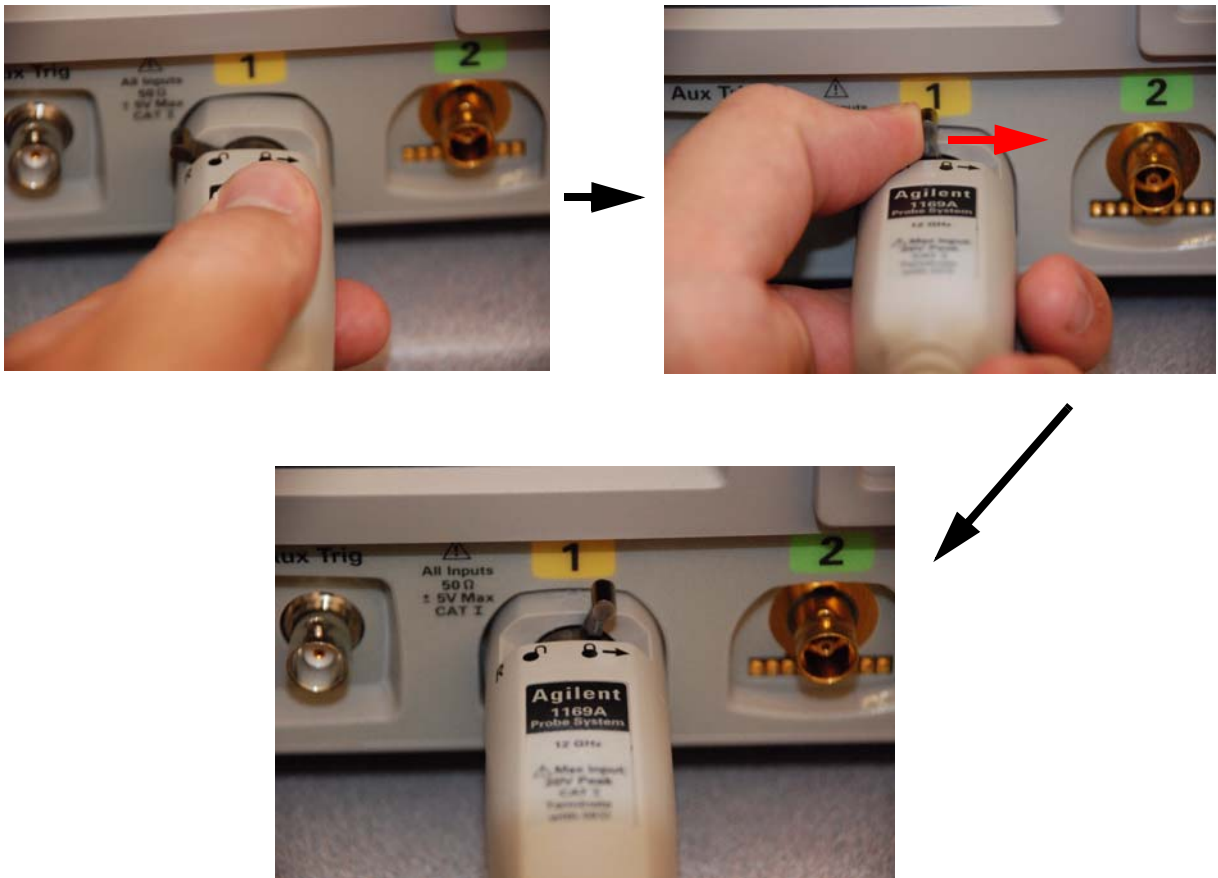


Figure 5 Properly connecting a probe to an oscilloscope

## *Handling the Probe Amplifier*

The probe amplifier contains a delicate circuit board. You, therefore, need to treat it carefully and take standard precautions (for example, not dropping it repeatedly or from large heights, not getting it wet, not smashing it with heavy objects, etc.).

Additionally, these probes are sensitive ESD devices so standard precautions need to be used to not ruin the probe from the build-up of static charges.

## *Common Issues with Probe Heads*

There are a variety of probe heads compatible with the InfiniiMax II amplifiers, but this section will cover some of the more commonly seen misuses.

### *Resistor Tips*

Many probe heads come equipped with replaceable resistor tips. If these resistor tips break, you can replace the tips without having to replace the entire probe head or having to send it back for repair. The *1168A and 11169A Differential and Single-ended Probes User's Guide* details the replacement procedures for the various resistor tips available. This manual can be downloaded from [www.agilent.com](http://www.agilent.com) and also walks you through the step-by-step processes of trimming and soldering resistor tips to DUTs (devices under test).

### *Differential Browser Probe Head*

Do not use the differential browser probe head as a tool to scrape solder mask or other things off of a circuit board.

When using this probe head, the blue tips can easily be broken off if the browser is not used properly. The proper way to use this probe head is such that the blue tips remain vertical during measurements ([Figure 6](#)).



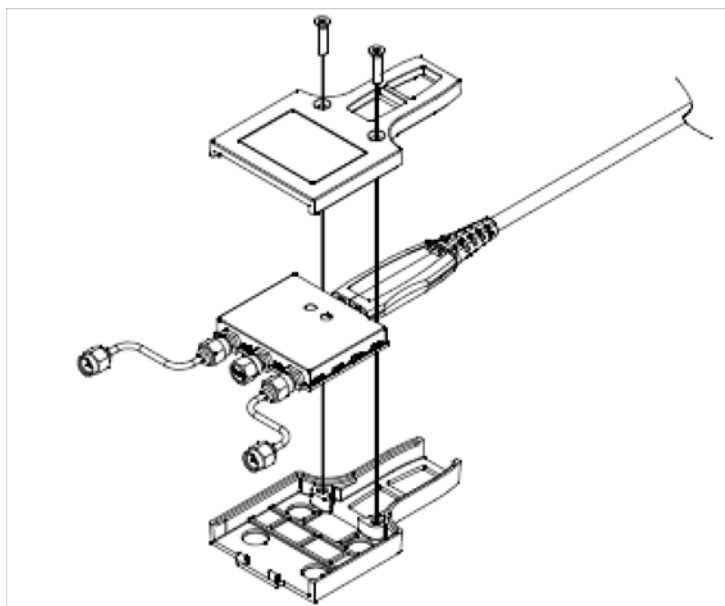


*Figure 6 The proper vertical orientation of the blue tips on the differential browser probe head*

### ***SMA Probe Heads***

The InfiniiMax II probe amplifier can become damaged when used with the N5380A or E2695A SMA probe heads. Use the Agilent N5380-64701 SMA Head Support to prevent damage. Make sure to plug the probe amplifier into the SMA head before installing the SMA Head Support and do not attempt to plug or unplug the SMA head from the probe amplifier while it is in the SMA Head Support housing.

Below is a picture showing how to attach the SMA Head Support using two provided screws.



*Figure 7 Attaching the SMA Head Support*

## *Temperature Rating*

The InfiniiMax probe amplifiers have a specified operating temperature range of 5 °C to 40 °C. However, the probe heads can be operated over a much larger range of temperatures. If you need to make measurements at temperatures outside the range of the amplifier, the N5450A Extreme Temperature Cable Extension Kit is your solution.

These cables can be used to physically separate the amplifier from the probe head to allow you to operate the probe head inside a temperature chamber while the probe amplifier remains outside the chamber.

For more information on this product, refer to the *1168A and 11169A Differential and Single-ended Probes User's Guide*.

## Securing Probe Heads and Amplifiers to Your DUTs

When soldering a probe head to a circuit, you should first provide some strain relief by using low temperature hot glue (use as little as possible) or non-conductive double-sided tape. Do not use super glue and do not get the low temperature hot glue on the actual probe head tip as this can damage the precision components of your probing system (only use the low temperature hot glue on the probe head cables). The provided velcro pads can be used to secure your probe amplifier casing to the board.



Figure 8 Correct securing methods

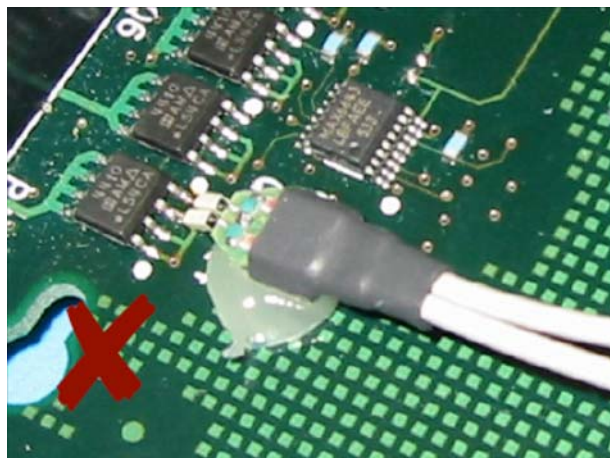


Figure 9 Incorrect securing method because glue is placed on the probe head tip

Once strain relief has been provided, solder the probe tip to the circuit board (refer to *1168A and 11169A Differential and Single-ended Probes User's Guide* for tips on soldering) and then plug the probe head into the probe amplifier.



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## *In This Book*

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