Agilent U1818A/B
Active Differential Probe

Handling Guides and Tips

Agilent Technologies

Notices

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Contents

1 Handling Guide

This section will assist you in properly handling your U1818A/B Active Differential probes to maximize their lifetime of operation and maintain their high performance.

Handling Guide

This probe has been designed to withstand a moderate amount of physical and electrical stress. However, with an active probe, the technologies necessary to achieve high performance, do not allow the probe to be unbreakable. You should treat the probe with care. It can be damaged if excessive force is applied to the probe tip. This damage is considered to be abuse and will void the warranty when verified by Agilent Technologies service professionals.

This section will assist you in properly handling your Active Differential probes to maximize their lifetime of operation and maintain their high performance.

Connecting/Disconnecting Probe Heads

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

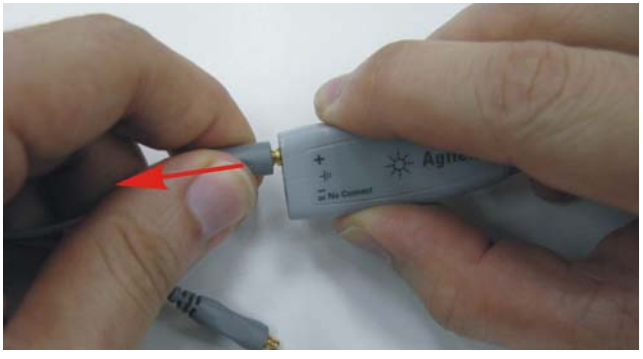

Figure 1-1 Pull the probe head straight out to disconnect it from the amplifier.

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 1- 2 is an example of an improper way to disconnect the probe head.

Figure 1-2 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 1- 3 that the pins are straight (as they should be).

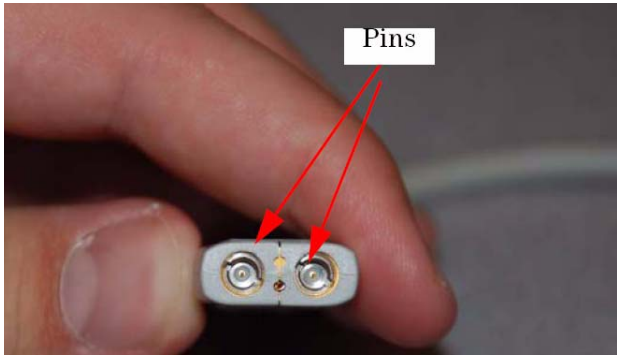

Figure 1-3 Straight pins in an amplifier

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 instrument, you need to be careful not to let a chair or other object crash into the face of the instrument because it will hit the probe cable where it exists 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 1-4 - 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.

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

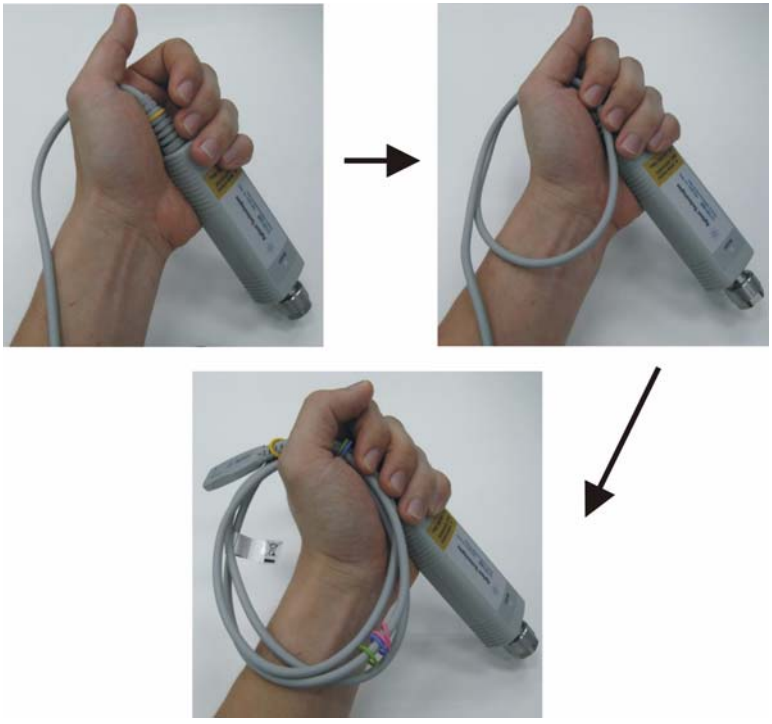

Figure 1-4 The recommended way to coil and store your probe

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.).

CAUTION 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.

Handling the Differential Browsers with Ergonomic Handle

Because of their small size, it can be difficult to hold the differential browsers for extended periods of time. The ergonomic handle can be used to more comfortably hold the browser. Figure 1-5 shows how to mount the browser in the ergonomic handle and Figure 1-6 shows how to remove the browser from the ergonomic handle.

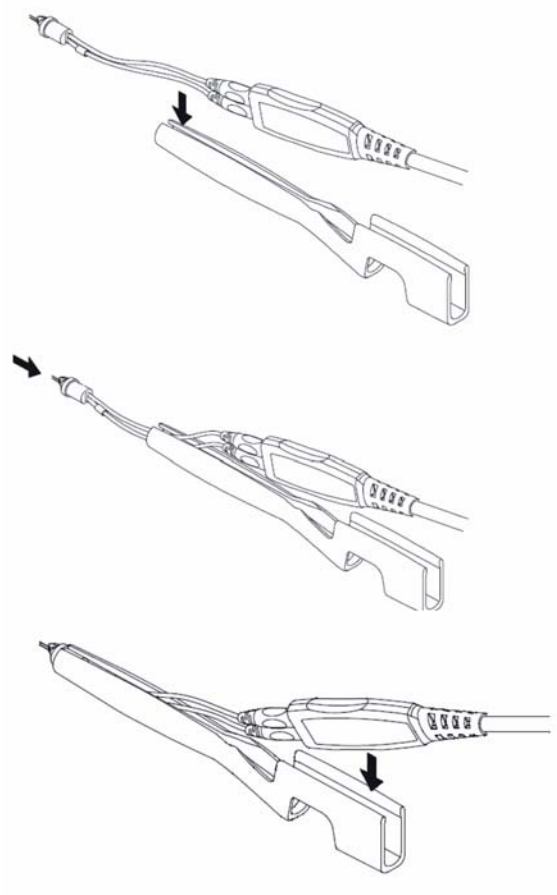

Figure 1-5 Steps to mount the browser in the ergonomic handle

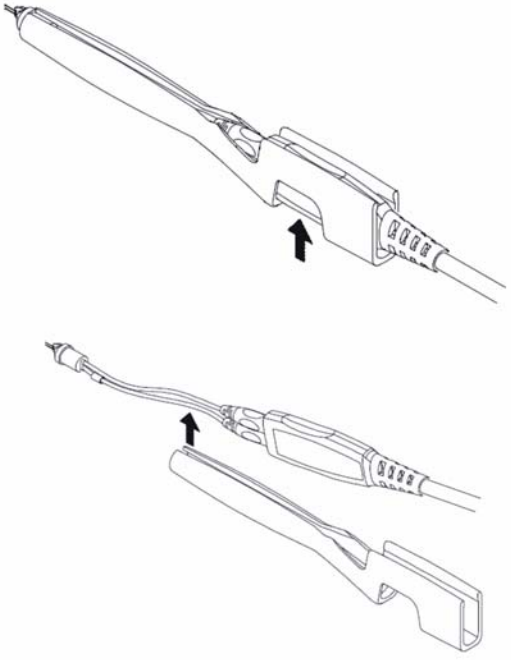

Figure 1-6 Steps to remove the browser from the ergonomic handle

Handling SMA Probe Heads

The U1818A/B 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. Figure 1- 7 shows how to attach the SMA Head Support using two provided screws.

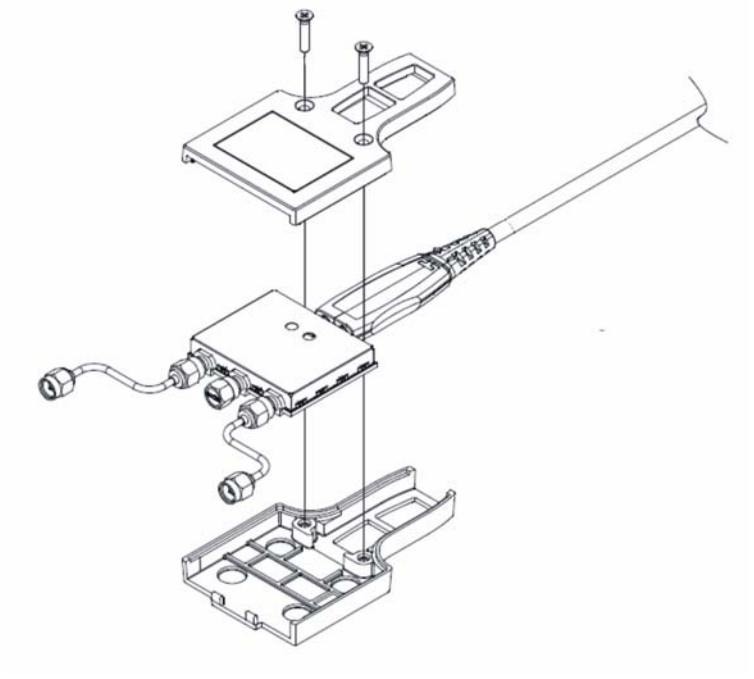

Figure 1-7 Attaching the SMA Head Support

Temperature Rating

U1818A/B probe amplifier have a specified operating temperature range of 0°C to +50°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 Temperatures Cable Extension Kit is your solution.

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

Securing Probe Heads and Amplifiers to Your DUTs

When soldering a probe 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.

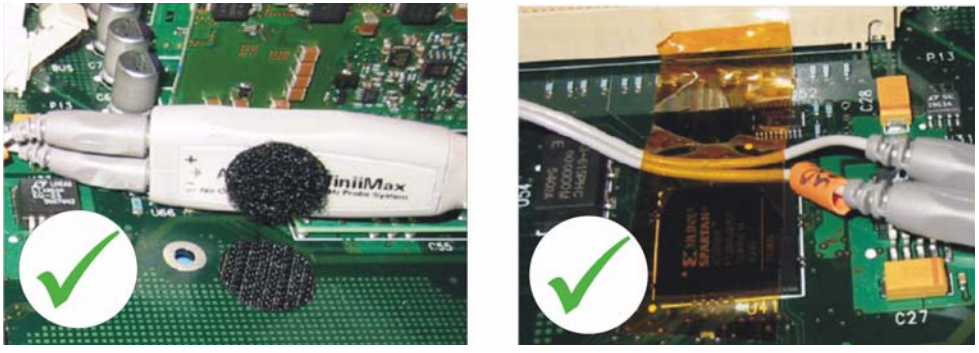

Figure 1-8 Correct securing methods

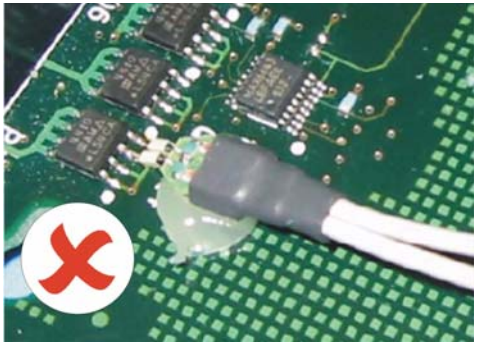

Figure 1-9 Incorrect securing method because glue is placed on the probe head tip