

Chapter 5 – Using NonProBus Probes

PMA1 Menu Overview

PMA1 menus give the user maximum flexibility by providing the correct units and scaling for power measurements. When LeCroy probes equipped with the ProBus interface are used, correct use of units and scaling is automatic. When nonProBus current or voltage probes are used, PMA1 software provides methods of entering the correct units and scaling for a variety of current and voltage probes.

Units

When a channel is selected as a **Current Input** in the PMA1 setup menus, its units are automatically changed to Amperes. After the assignment is made, data acquired through the channel is treated as current in any math function. Therefore, multiplying a current channel waveform by a voltage waveform results in watts, dividing a voltage waveform results in resistance, etc. This allows the proper units to be displayed even when a shunt resistor and a voltage probe are used to measure current.

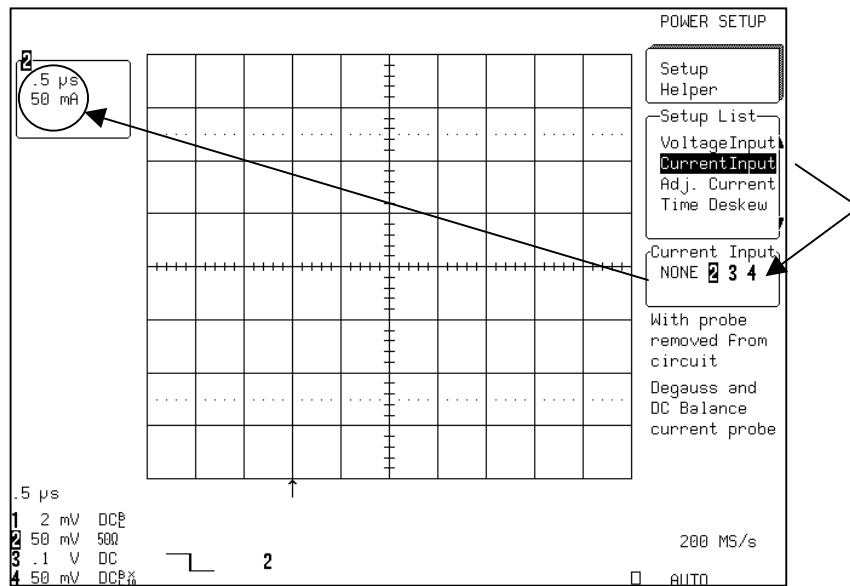


Figure 5.1: Ampere units are applied when Channel 2 is assigned as a current channel.

Scaling

When a channel is selected as a **Current Input** or **Voltage Input** in the PMA1 setup menus, its scale can be set to take into account the non-ProBus probe's overall effective gain. This includes gain as well as attenuation factors. For non-normalizing current and voltage probes, the attenuation or gain can be set between $\div 10,000$ attenuation to X1000 gain in a 1-2-5 sequence. For current or voltage probes with normalizing amplifiers, special factors can be applied so that the amplifier's readout can be entered directly into the menu system.

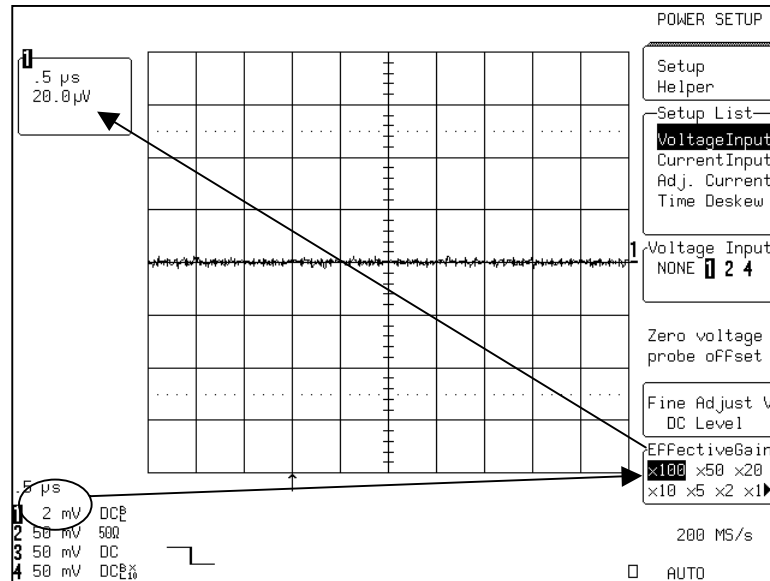
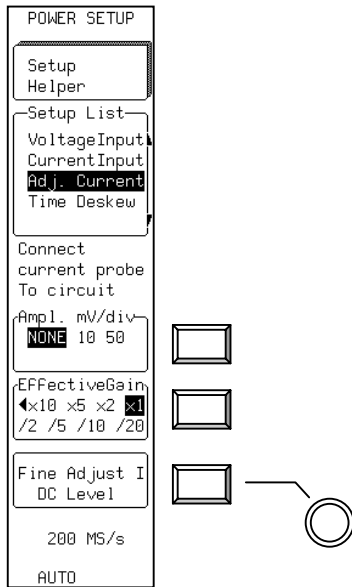



Figure 5.2: Effective gain of a voltage or current probe can be set from $\div 10,000$ attenuation to X1000 gain.



Current Input Setup Menus

Adj. Current menu with no amplifier normalization factor.

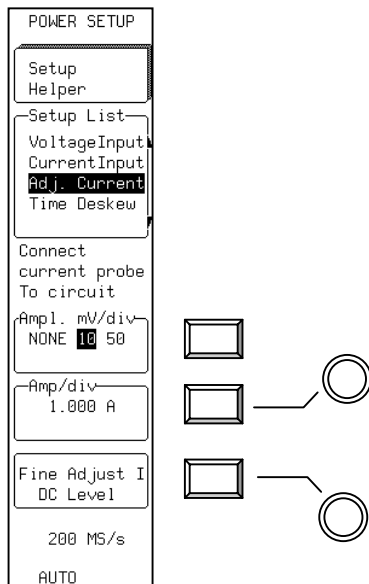



When an non-ProBus current probe is used that has no normalization factor, press the  to select **NONE** in the **Ampl. mV/div** menu.


Determine the probe's effective gain factor and press the  to enter that value in the **Effective Gain** menu.



If the current probe's DC offset cannot be adjusted to zero on the probe, use the **Fine Adjust I DC Level**  to correct the level. Press the  to reset the offset adjustment to its pre-adjusted value.

Adj. Current menu when the current probe has an amplifier with a 10 mV/div normalization factor. This menu is useful with the AM503 amplifier and its family of current probes.



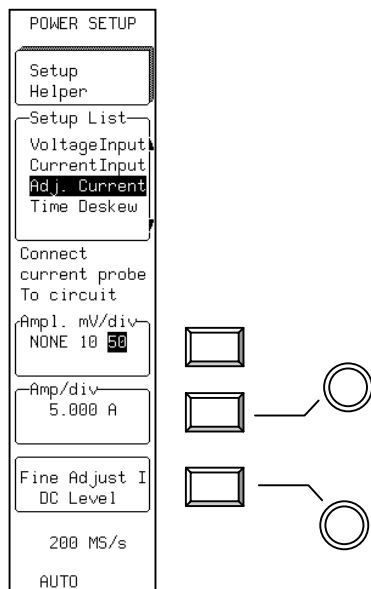
When a nonProBus current probe is used that has a 10 mV/div normalization factor, press the  to select **10** in the **Ampl. mV/div** menu. When this selection is made, the **Amp/div** menu will appear.


Set the probe amplifier to the desired amp/div setting and turn the  until the proper Amp/div factor appears in the **Amp/div** window.


If the current probe has DC offset that cannot be adjusted to zero on the probe, use the **Fine Adjust I DC Level**  to correct the level. Press the  to reset the offset adjustment to its pre-adjusted value.



Current Input Setup Menus – continued

Adj. Current menu when the current probe has an amplifier with a 50 mV/div normalization factor. This menu is useful when the DA1855 Differential Amplifier is used to measure the voltage across a resistor shunt.



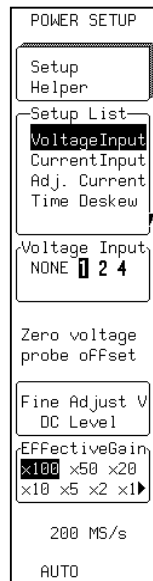
When a nonProBus differential voltage amplifier is used that has a 50 mV/div normalization factor, press the  to select **50** in the **Ampl. mV/div** menu. When this selection is made, the **Amp/div** menu will appear.



Set the differential amplifier to the desired effective gain setting and turn the  until the proper Amp/div factor appears in the **Amp/div** window.

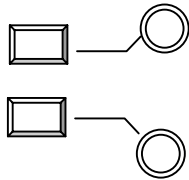
If the differential amplifier has a DC offset that cannot be adjusted to zero, use the **Fine Adjust I DC Level**  to correct the level. Press the  to reset the offset adjustment to its pre-adjusted value.


Voltage Input Setup Menus

Voltage Input menu when the nonProBus voltage probe is used on the voltage input channel. This menu is useful when a non-A LeCroy DA1855 or Preamble Instruments 1855 Differential Amplifier is used to measure the voltage. It also can be used for other voltage probes and amplifiers.





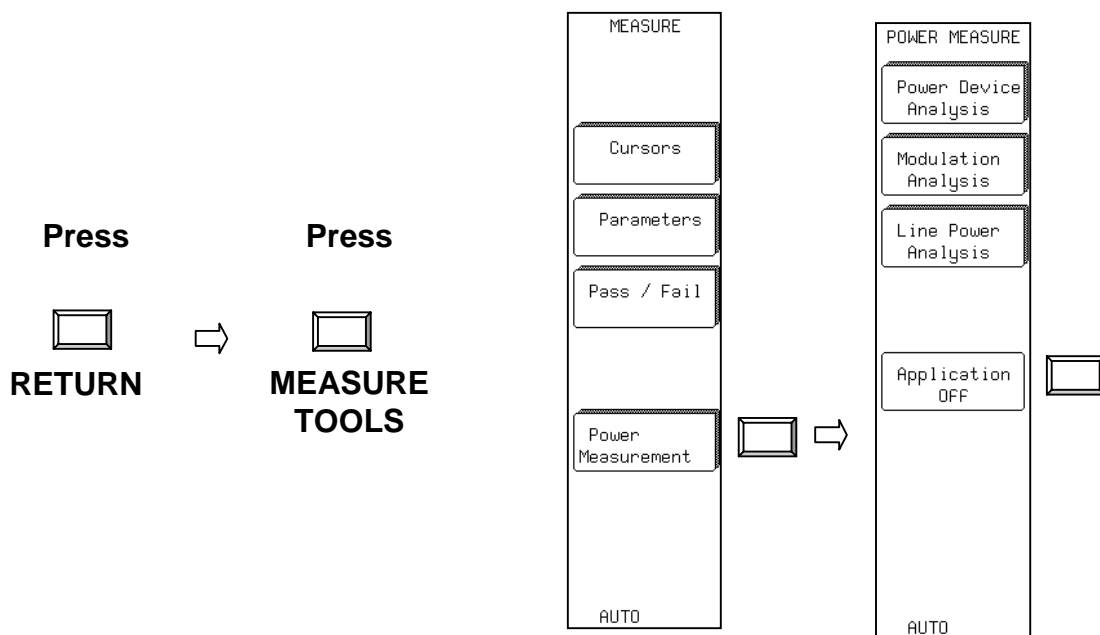
If the differential amplifier has a DC offset that cannot be adjusted to zero, use the **Fine Adjust V DC Level**  to correct the level. Press the  to reset the offset adjustment to its pre-adjusted value.



Set the differential amplifier to the desired effective gain setting and turn the  until the proper effective gain factor appears in the **Effective Gain** window.

Clearing the Channel Assignments and DC Offsets

After using any section of PMA1, it is important to clear the channel assignments and other alterations that were made while making measurements. Press the **RETURN**  until the on-screen menu is cleared. Then press the **MEASURE/TOOLS**  to bring up the **MEASURE** menu.



Selecting **Application OFF** in the Power Measure menu changes the **Voltage Input** and **Current Input** assignments to **NONE** and removes any DC offset adjustments made while using the **Fine Adjust V DC Level** and **Fine Adjust I DC Level** features. Any **Deskew Value** set while deskewing channel-to-channel delay remains unchanged. The assignment of Ampere units to the channel selected as the **Current Input** channel will be removed.