

## Software Questions

*How can I reduce the time the splash screen shows when I launch the pcSQUID software?*

If you are running a software version that is older than v2.0 and you are running the software on a PC with Windows 98 or higher, the splash screen may be displayed for an excessively long time. To get around this problem, download and install the most recent version of the pcSQUID software.

## PC Interface Questions

*Why do I get an error message that my PCI does not respond when I am running my system using the parallel port?*

This sometimes occurs if the PCI is powered up before the pcSQUID™ software is launched. If this happens, turn off the power to the PCI and then turn it back on again. Click on the "Retry" button in the error window. This should re-establish communications with the PCI.

## SQUID Operation

*Why doesn't the green DATA LED on my PFL-100 turn on when I try to use this channel?*

This is most likely caused by an improper address setting. Open the bottom cover of the PFL-100 (the one without the label) and confirm that the 8-pole address switch is properly configured for the channel you wish to use. Note that setting a pole in the "ON" position corresponds to digital "0".

*Why don't I see any output signal even though the DATA LED on my PFL-100 is on (green)?*

The SQUID may have failed, or, if you are using a PCI-1000 to operate your PFL-100, the PFL may be connected to a channel that is different from the hardware address configured inside the PFL. Confirm that the PFL cable is connected to the channel you wish to use. To check the PFL address setting, open the bottom cover of the PFL-100 (the one without the label) and confirm that the 8-pole address switch is properly configured for the channel you are using. Note that setting a pole in the "ON" position corresponds to digital "0".

*Why won't my PFL-100 lock on any of the available feedback ranges?*

This can happen if the feedback is summed with the modulation signal at the SQUID but these signals are decoupled inside the PFL-100. To confirm, open the bottom cover of the PFL-100 (the one without the label) and locate the 2-pole switch that is closest to the center of the board. Switch both poles in the "ON" position, which will sum the feedback and modulation signals inside the PFL-100 (using pins 9 and 10 of the 10-pin LEMO plug connector on the PFL-100).

*In TUNE mode, why do I see a V-  $\Phi$  output that is not centered at 0 Volts?*

If the V- $\Phi$  output in TUNE mode is not centered at 0 Volts, the PHASE is not properly set or the mixer offset trimpot needs to be adjusted. In TUNE mode, maximize the V- $\Phi$  output by adjusting the BIAS, MOD and PHASE. If the maximum V- $\Phi$  output is not centered at 0 Volts after adjusting the PHASE setting, open the top cover of the PFL-100 (the one with the label) and adjust the trimpot to center the V- $\Phi$  output. Note that the trimpot setting may change if the input transformer coupling mode is changed (e.g., from 1-transformer to 2-transformer).

*What is the best way to manually tune my HTS SQUID?*

Set the bias mode to AC and select the desired AC bias reversal frequency (128 kHz is standard, other frequencies are available as an optional upgrade), then set both the COMPENSATION and SKEW levels to zero. Increase the BIAS level to maximize the V- $\Phi$  output. The V-  $\Phi$  output should appear roughly sinusoidal but superposed with high-speed switching spikes (depending on the bias reversal frequency selected). Adjust the SKEW level to maximize the V- $\Phi$  output, then adjust the COMPENSATION level to cancel the switching spikes.

*What is the best way to tune my SQUID for optimal noise?*

Generally, the first step is to adjust the appropriate signal drive levels (BIAS, MOD, and PHASE for LTS SQUIDS, plus SKEW and COMPENSATION for HTS SQUIDS) to maximize the V- $\Phi$  output. Then, set your spectrum analyzer for exponential averaging over a small number of samples, say 32, and adjust the frequency range to extend to several kHz or a few tens of kHz. If your spectrum analyzer averages fast enough, you may then tweak each drive level to minimize the noise while observing the display on the spectrum analyzer. Note that some SQUIDS may exhibit several maxima of the V- $\Phi$  peak-to-peak output as the bias current is increased, and it may be necessary to check more than one of these maxima to find the optimal working point.