Soft Landing Instrument Control Panel

This graphical interface is design to allow control of all the RF and DC parameters used on Julia Laskin’s Soft Landing system. The interface requires connection to a MIPS system with the following modules:

2 – RF drivers

2 – 250V DC bias modules

1 – ESI module (+- 4000V)

1 – DAC module

The connection details for these modules are provided later in this help file.

To use this control panel you will first need to make a communications connection to your MIPS system. This is explained in the general help area. You can close the Soft Landing control panel and then select the system tab on the MIPS app, next select general help to read the connection details.

Opening and closing this control panel will not change any of the parameters in MIPS. When the control panel loads to reads all the settings from MIPS and updates the control panel. Changes you make through the control panel are sent to MIPS and saved there as long as power is on. You can use the save and load menu options to save all you setting to a file or restore previously saved settings.

To change a parameter, just click on the box and enter the value to desire. You must press enter to send this value to the MIPS system. You can also increase or decrease a value using the up and down arrow keys:

Up arrow increment by 0.1

Down arrow decrement by 0.1

Shift up arrow increment by 1

Shift down arrow decrement by 1

Alt up arrow increment by 10

Alt down arrow decrement by 10

The two offset parameters allow output range control for the DC bias output channels. The offset can be set from -250 to 250 volts. Below are examples of how offset defines the output range:

Offset = 0 range = -250 to 250 volt.

Offset = 250 range = 0 to 500 volt.

Offset = -250 range = -500 to 0 volt.

Offset = 150 range = -100 to 400 volt.

Each of the RF heads has an Auto Tune and Retune button. These buttons are used to reestablish the optimal operating frequency (resonance) for each RF head. Only one RF head can be tuned at a time.

Auto Tune

This function will set the RF head drive level to 10% and search from 500 KHz to 5 MHz for the resonate frequency. After the frequency is found the drive will remain at 10%. This operation can take up to 3 minutes to complete.

Retune

This function does not change the current drive level and re establishes the optimal frequency by make small changes relative to the current operating frequency. This operation is faster and will take up to 1 minute. It is important that the system is operating at or near the desired frequency and drive level.

Parameters can be saved and restored using the Save and Load function found under the File menu selection.

Parameters can be changed using the MIPS front panel and the changes will be read and displayed by this application. Please note that when you have a control box selected the application cannot update its contents so if you change a value on the MIPS box for a box that you have selected you will not see the change until you deselect the box.

When you select the Soft Landing control panel from the MIPS app menu the main MIPS app System tab will be selected automatically. With the control panel running you can change the main MIPS app tab selection but it is recommended that you leave it on the System tab, you will see strange behavior depending on the tab you select with the Soft Landing control panel running.

Configuration of system:

DCbias channel connections:

1 Capillary / FF

2 F1 DC IN

3 F1 DC OUT

4 F1# DC IN

5 F1# DC OUT

6 F2 DC IN

7 F2 DC OUT

8 CQ bias

9 CL

10 RQ entrance

11 Prefilter

12 Postfilter

13 EL 1/3

14 EL 1/2

15 EL 2/2

16 EL 3/2

RF driver channel assignment

1 Low power head, funnel 1

2 Low power head, funnel 2

3 High power head, collisional quad

4 Not used