Superconductivity Data Acquisition Hardware Boxes Setup

For superconductivity measurements:

see section 5-9, page 83 of the Keithley 622x manual at:
http://tesla.phys.columbia.edu:8080/eka/conductivity/Conductivity%20Experiment/Hardware%20Manuals/Keithley/622x.pdf

How it's worked so far:

1. The GPIB cable to the Keithley 2182 voltmeter box should be removed. Both the RS-232 and Trigger Link cables should be connected between both of the Keithley boxes:
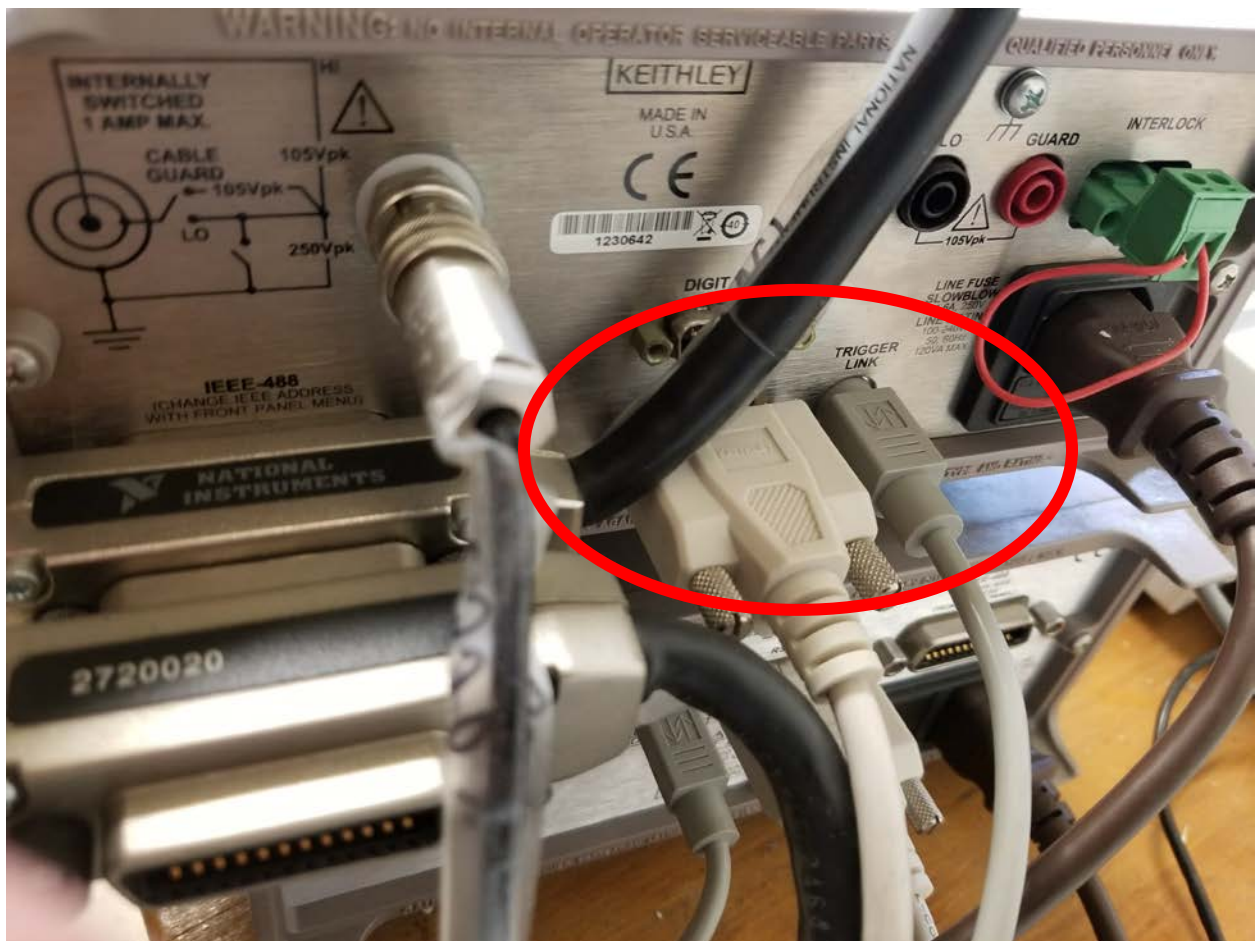

Back of the Keithley 622x current source box. RS232 cable on the left, Trigger Link cable on the right. The back GPIB cable is still connected, but the other side is disconnected from the voltmeter.

Back of the Keithley 2182 voltmeter box. RS232 cable on the right, Trigger Link cable on the left. The back GPIB cable is disconnected.

2. Turn on both the Keithley 622x current source and the 2182 voltmeter boxes. If the last measurement was not a superconductivity one (example: diode) in this configuration, you're going to need to set up both boxes. First look for the **SHIFT** key on the Keithley 2182 voltmeter box. Press **SHIFT**, then the **RS-232** button. Using the ◄/► and ▲/▼ arrow keys along with the **ENTER/EXIT** keys, set RS-232 to **ON**, the baud rate to 19.2K, and flow control to NONE.
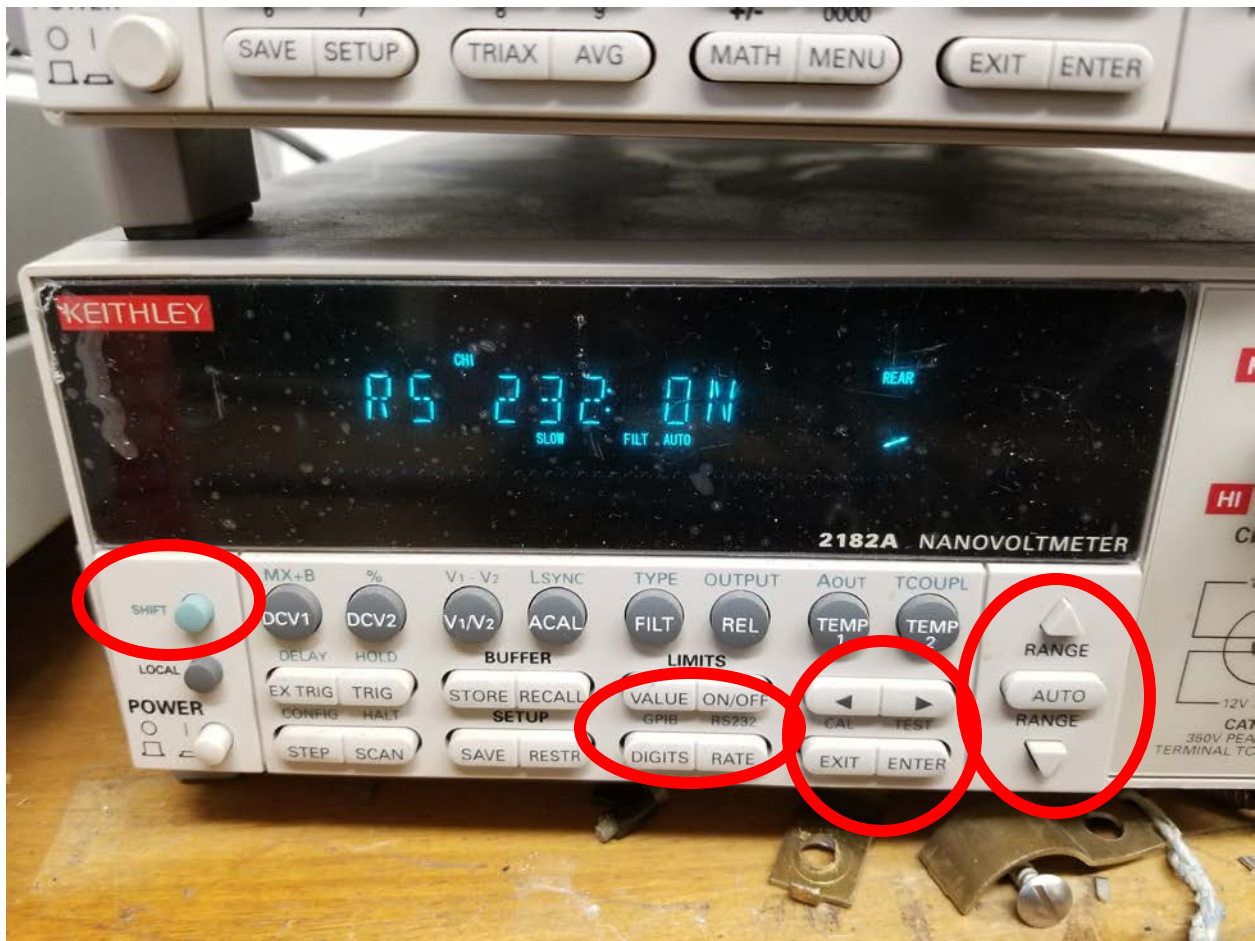
Front of the Keithley 2182 voltmeter box. **SHIFT** is on the top-left. **GPIB** and **RS-232** are above **DIGITS/RATE** after pressing **SHIFT**. ◄/► and ▲/▼ arrow keys along with the **ENTER/EXIT** keys are further right.

3. Next, look to the front of the 622x Keithley current source box. Press the **COMM** key and then select **RS-232**. You should be able to press enter through the rest of the menus, but the settings are 19.2K for the baud rate and NONE for flow control. The box may reboot if it wasn't set for RS-232 already. Next, press the **COMM** key and then select **GPIB**. You should be able to press enter a few times to get through the screens, at which point the box will reboot again. You're now ready to take data.
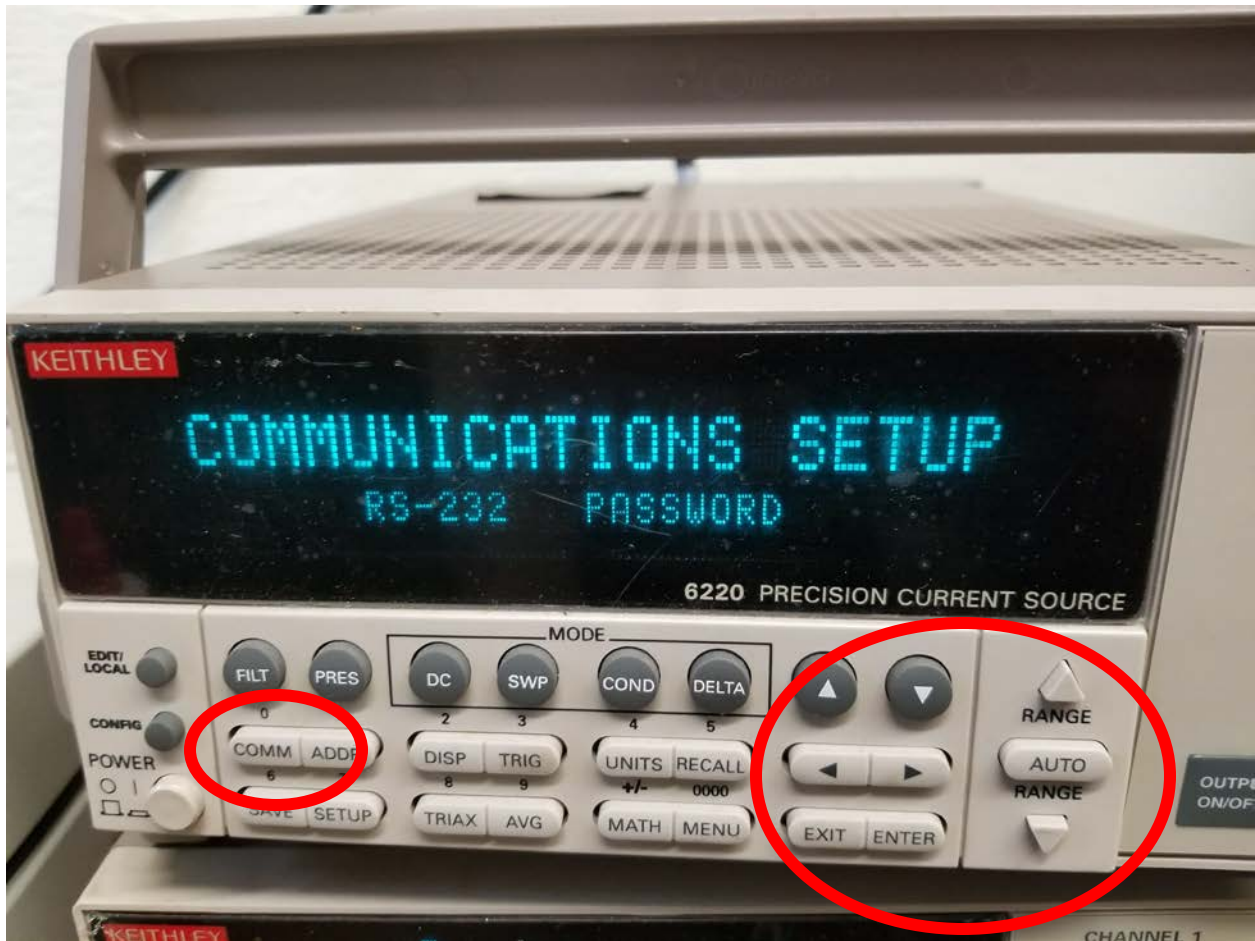
Front of the Keithley 622X current source box. **COMM** is on the left side. ◄/► and ▲/▼ arrow keys along with the **ENTER/EXIT** keys are further right.

For diode measurements:

Remove the RS-232 and Trigger Link cables from both Keithley boxes. Reconnect the GPIB cable going to the Keithley 2182 voltmeter box. Following the instructions above, make sure everything is set to GPIB mode instead of RS-232. I believe the GPIB addresses are currently set as:

Lakeshore: 12

Keithley Current Source: 13

Keithley Voltmeter: 14