Setting up the Acton monochromators with the integrated detector/HV and the SpectraHub:

(see bottom for SpectraPro275 setup)

USB cable goes from computer to the monochromator (USB)

USB cable goes from monochromator’s (USB HUB) connector to the SpectraHub (USB)

Turn on monochromator. Wait for the drivers to install.

Start SpectraSense

Under the Select tab, find Hardware. It should show both devices, the hub and the monochromator. You may need to set up the detector, which defaults to “none”. When given the choice, you are reading –PMT Current, the first choice. Select the detector, associate it with Monochromator 1, then put it in the correct position on the diagram, which will be either “left exit” or “front exit”—look at the physical arrangement of the monochromator.

Along with the detector is an HV tab, and this allows you to set the maximum HV (typically 1000V). It defaults to 1 V, which means that you will never be able to adjust the HV to anything sensible unless you change this value. Put 500 V as the default value.

The easiest way to scan a spectrum is to use Survey Mode from the Select tab. It defaults to scanning from 1 nm to 10 nm, so put something plausible in these boxes, say 655 to 657 for H alpha.

But you’re not out of the woods yet. Look for the Adjustments button (a red wrench) and then the “Det HV” tab will allow you to turn the HV on. Do this. Another tab will let you change the integration time, which we leave at 100 ms.

Now you can hit Go to do the survey scan.

At the end of the scan, assuming you’ve found a peak to optimize, you can hit the Optimize button, then adjust the slit width, the lens and lamp position, aiming to maximize the signal. If the signal goes above 1 million counts you’ll need to reduce the slit width and/or turn down the HV, which can be done on the fly from the Adjustments/Det HV tab.

If looking for highest resolution, a good strategy is to find the peak, then optimize by closing one slit to drop the signal in half, then close the other slit to drop it in half again. Rescan. Repeat.

The SpectraPro -275 is set up differently. Run a DE9 serial cable from the COM port on the computer to the monochromator. Connect a USB cable from the computer to the SpectraHub.

Turn on the monochromator. It’ll take a long time to boot up. When it is finished, press F1 on the keypad to get the RATE menu. Then press F2, then press RESET. This sequence will put the monochromator under computer control.

Now start SpectraSense and make sure the Hardware and Detectors are found. If they aren’t you may need to disconnect/reconnect the USB connection to the computer.