

To set up a scan:

1. Hit the Manual Stage Control button.
2. Move to where you want the scan to start and push the Get Start button.
3. Move to where you want the scan to stop and push the Get Stop button.
*** Note: the Start position must be to the upper left of the Stop ***
4. Hit Return button.
5. Push the Scan Parameters button. Do this even if all you want to change is the start/stop position.
6. Fill in the pixel sizes and dwell time on the first tab.
7. Check the I0 (dump and channel) parameters on the second tab.
8. Fill in the file parameters (filename, base directory, scan number as in the EXAFS code) on the third tab.
9. Push Return.
10. The Start button will now be enabled. Push it to start.

To navigate on the sample:

Relative to an existing map:

1. Use the cursor and other graph controls to put the cursor on a point of interest.
2. In Manual Stage Control, push Move to Position (bottom row).

Storing/recalling positions:

The Position Registers hold an array of positions. You can recall one by dialing the index to whichever one you want and pushing the Move to Position button under the Registers indicator. You can store one by pushing the Load Position button. There is a space in the register for writing a name for each position. This is just for your memory - no effect on program operation.

Stop/Start:

Get Start Position and Get Stop Position load the current position into Start or Stop. You have to do Scan Parameters to 'set' these for a scan.

To set an MCA:

Fill in the blanks on the Region of Interest Settings. Assumption: the energy scale is 10eV/channel. You can't do this when a scan is going.

To get an average MCA spectrum of the scan region:

1. Set up a scan and push the Stage Only button (white box in upper left).
2. Start the MCA utility with Clear? set to No.
3. Push Start on XY mapper. No data will appear on XY map, but MCA will accumulate.

Display controls:

On Region of Interest block:

Select Selects which ROI you're looking at.
color box What color it appears as.

Auto scale?:

Causes intensity scale to automatically fit the data.

Auto upper limit?:

If this is on and autoscale isn't, then if the data exceed the range of the graph, the upper end of the range is expanded accordingly.

Scale

Manual upper limit to intensity map scale.

The above 3 controls are remembered from ROI to ROI. The controls you see reflect and affect the values of an array of hidden controls, one element per ROI.

Gamma

Affects the display of lowlights vs. highlights. If $\text{gamma} < 1$, emphasizes the dimmer areas; $\text{gamma} > 1$ emphasizes highlights. Works like a videocamera or Photoshop Gamma control.

Common error conditions:

"Bad data" light keeps coming on and scan never gets past first line:

1. Check that a beam dump is not being indicated. Make sure I0 (as read on indicator just below the Scan Parameters button is $>$ the dump detect level you set in the Scan Parameters screen. If it isn't, you may need to increase the I0 gain, or the I0 offset may be incorrectly set. You can set this by turning off the beam and hitting the Measure Offset button.
2. Check that detector is OK using MCA utility.
3. If scanning very fast, may want to increase number of points clipped from each end of scan.
4. The MCA utility must not be running, or you will get bad data. Similarly, the MCA utility interacts badly with EXAFS scanning.

All controls seem dead:

1. You may not have Returned from Scan Parameters or Manual Stage Control. You have to hit the Return buttons, not just minimize the window.

Stage not moving:

1. The stage has probably hit a limit or a physical object. If stage stopped when you were moving it, you probably hit a limit. First, clear the mechanical problem. The Manual Stage program has a button which might clear the error condition. Scroll down to see it. It's labeled 'Enable' with a red background. Push it and see if the stage will move. Otherwise, you'll need to quit the Manual Stage program and restart it. If that doesn't work, quit all the programs including the Stage Wrapper and start them again, with the Manual Stage first.

Whenever the stage has been homed, it's in a position far from where you might want it. Pull up the manual stage control and hit Move to Start. This should move it to someplace reasonable. It sometimes happens that only one axis moves. In that case, hit it again and the other axis should go.

If it still doesn't run, check the circuit breaker on the Aerotech controller on the right side of the electronics rack, under the notation "BR1032-06". This affects the Z axis.

If the X-axis won't run and everything else seems OK, the problem may be the fuse inside the Aerotech

controller. If this happens, you will be able to move the stage horizontally by hand and there will be no holding torque. This fuse is in the leftmost of the three unpluggable modules in the Aerotech driver box, next to the fan. Pull out the module, inspect the fuse and if need be, replace it. If the Unidex program is still on, it will know where it is and not need to be homed, though it will need to be enabled. This happens only if the stage hit something during a move, so be sure to clear any obstructions before trying the stage again.
*** This is quite rare and only affects the X-axis - don't suspect unless nothing else is possible ***

Computer dies after ending Labview:

1. The driver for the stage seems to corrupt itself. You have to reboot, then reload the driver. Do the following:
 1. Reboot using the upper button on the UXASES CPU. Let it go through its file-system check.
 2. Click on Start->Settings->Control Panel->Add/Remove Hardware.
 3. Remove the U500 driver by selecting Remove and finding the U500 on the list.
 4. Finish the Wizard, then go back to Add/Remove Hardware, this time choosing Add/Install. The computer will detect the U500 as a Multimedia card. Let it go through its paces in installing the driver.

This procedure will keep it good for another few weeks.