

School of Molecular Biosciences Switch On Procedure for Invert ZEISS 880 Confocal Microscope.

Administrators Contact Details:

Any problems with instrument contact Dr Anthony Dornan (phone ext. 6811) or Dr John Pediani (phone ext. 8494).

Start Up Protocol:

Ensure that the instrument is chronologically switched on as instructed below.

1). Turn the MAIN SWITCH to the **ON POSITION**. Red arrow in the picture below shows the switch to press too ON:



Note: The HXP 120V Metal Halide lamp source will automatically start up, see green lit panel in picture below:



2). Turn the SYSTEMS/PC switch to the ON POSITION. Red arrow in the picture below shows the switch to press too ON:



3). Switch ON the HP Z840 computer and start the Windows 10 Operating System (OS) by pressing the power switch button. **White arrow in the picture below shows the button to press:**



Note: Do not turn ON the Components switch until the Win10 OS has fully booted up and is visible on the computer monitor as displayed in the screen shot below.



4). Once the Win 10 OS has completely loaded turn the COMPONENTS switch to the **ON POSITION**. Red arrow in the picture below shows the switch to press:



Note: The air dampening table may make a hissing noise, this is normal.

5). Using the mouse, double-click the desktop Zen Black shortcut icon. White arrow in the picture below shows the shortcut icon to double click:



Note: On start-up of the Zen Black software, you will hear various components of the confocal microscope moving into place.

6). The Zen Black Start Up Dialog Box will appear on the computer monitor as illustrated in the picture below:



7). Double click the Start System tab within the Zen Black Start Up Dialog Box. White arrow in the picture below shows the tab to click:



Note: The Image Processing icon is not for confocal image acquisition. Only use this icon for post-acquisition image analysis.

8). After activating the Start System tab the Boot Status Dialog Box will appear on the computer monitor as shown in the screen shot picture below:

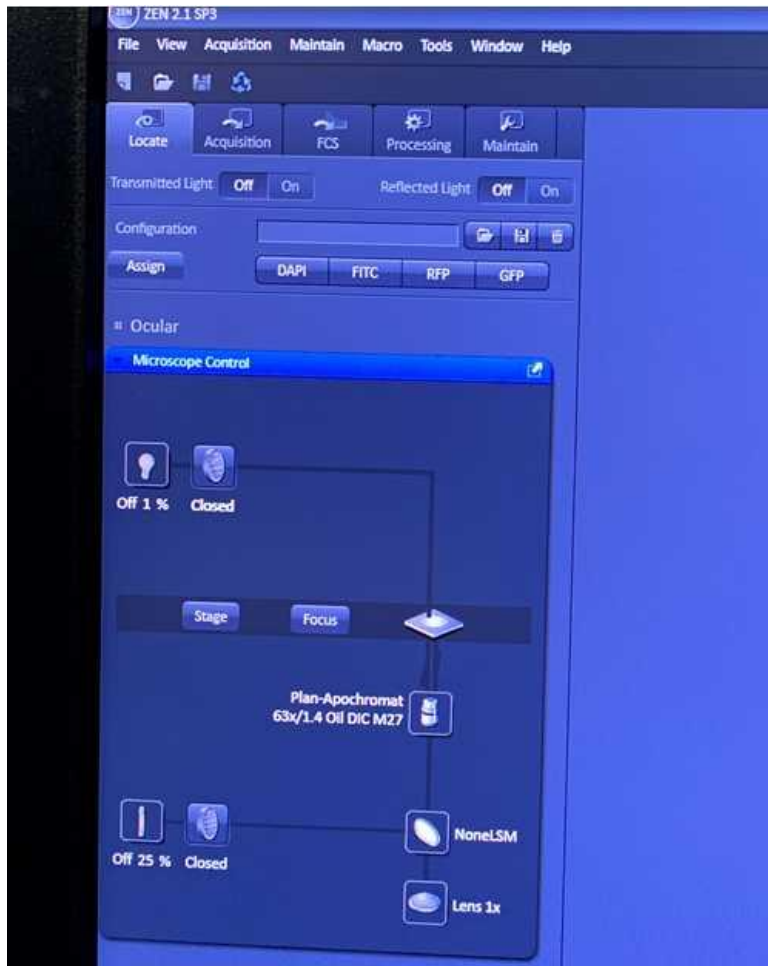


Boot Status indicator will progressively increase, see white arrow in the screenshot below:



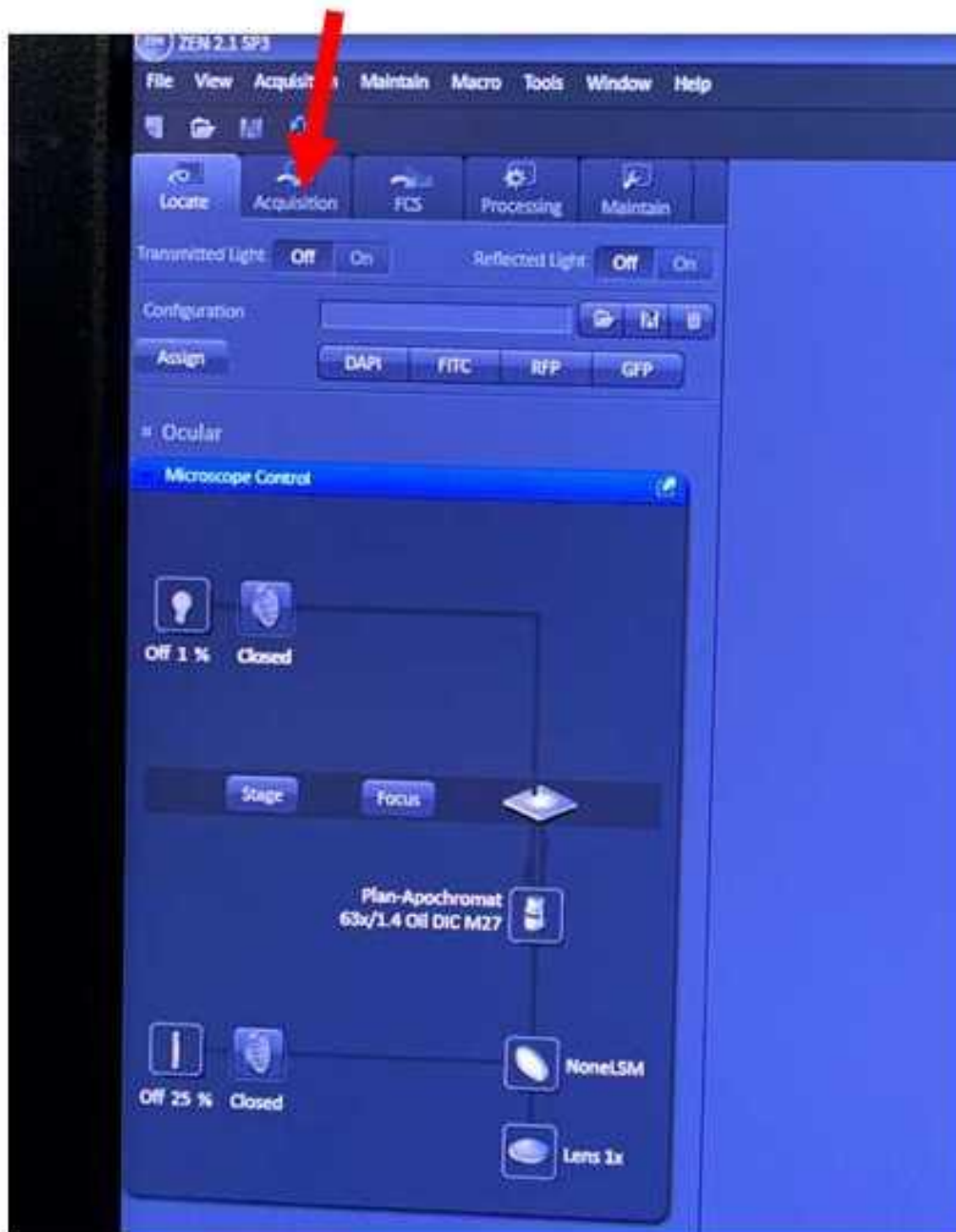
Note: During Boot Up audible engagement of various components of the confocal microscope and laser scanning unit will take place.

9). When the Boot Status level reaches 100% the Zen Black Locate/Acquisition Dialog Box will automatically appear on the computer monitor, see example picture below:

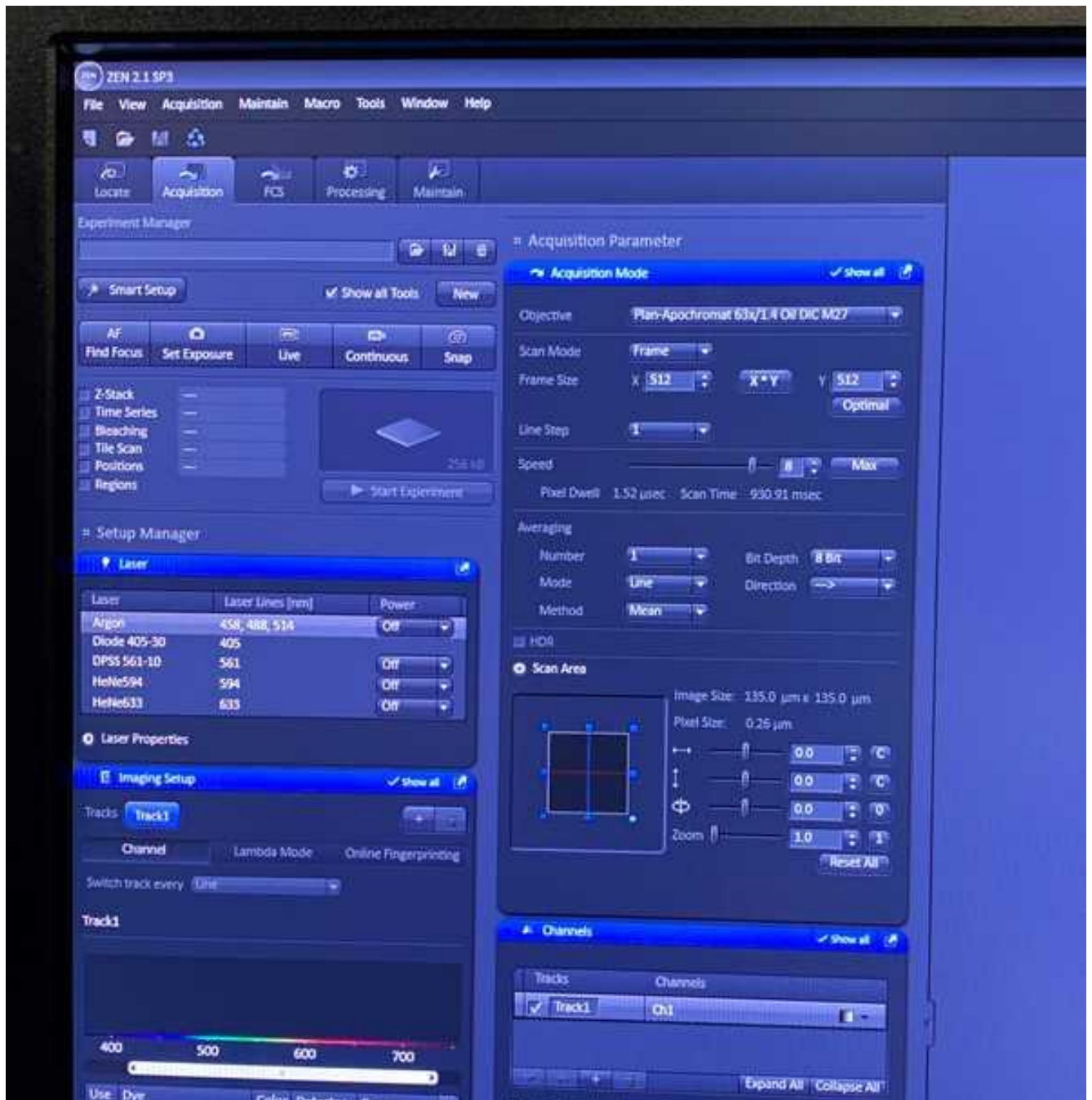


Note: The Locate function button is used for viewing bright field/fluorescence light using your eyes via the eyepieces. Acquisition is used for setting up multichannel confocal fluorescence imaging using the detectors.

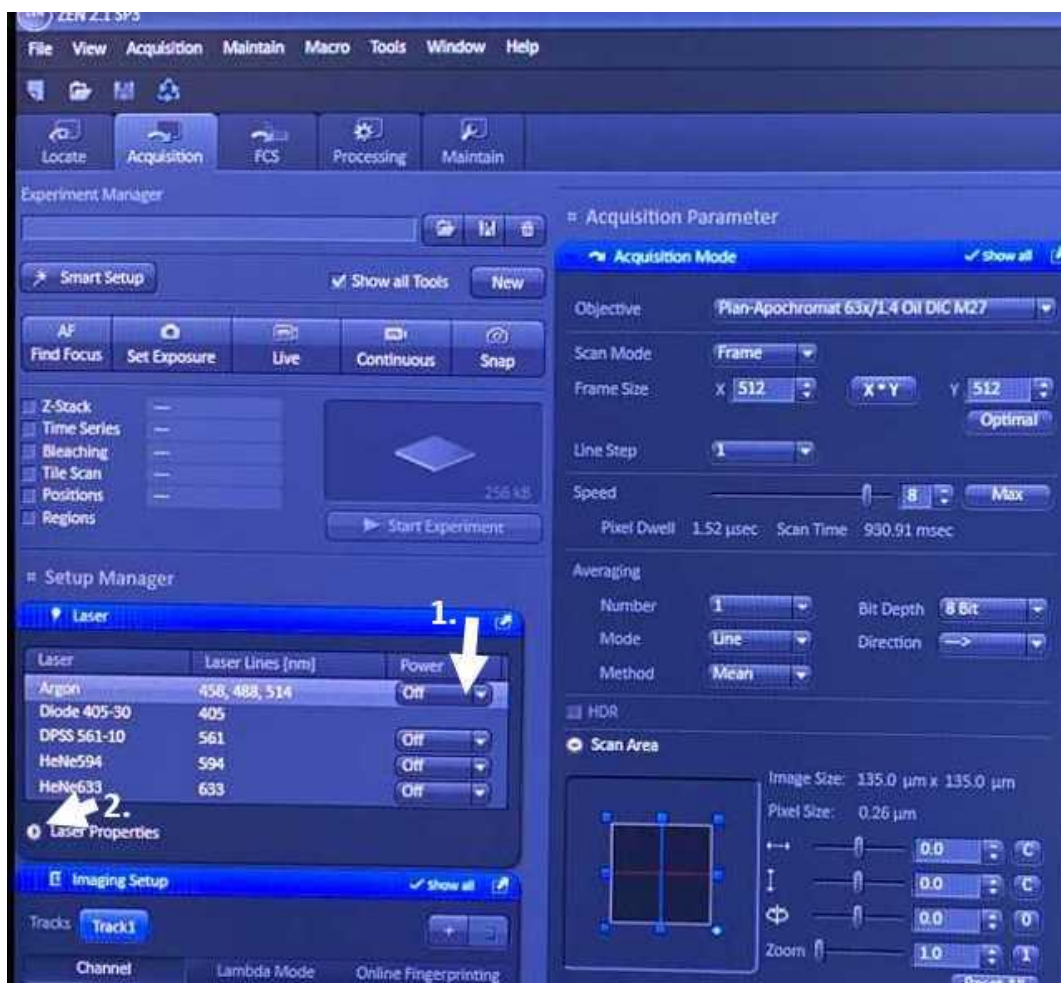
10). If you are using the Argon laser lines (458, 488 & 514 nm) then select the Acquisition tab as it takes 300 seconds for this laser to warm up and stabilise. Red arrow in the picture below shows the icon to click:



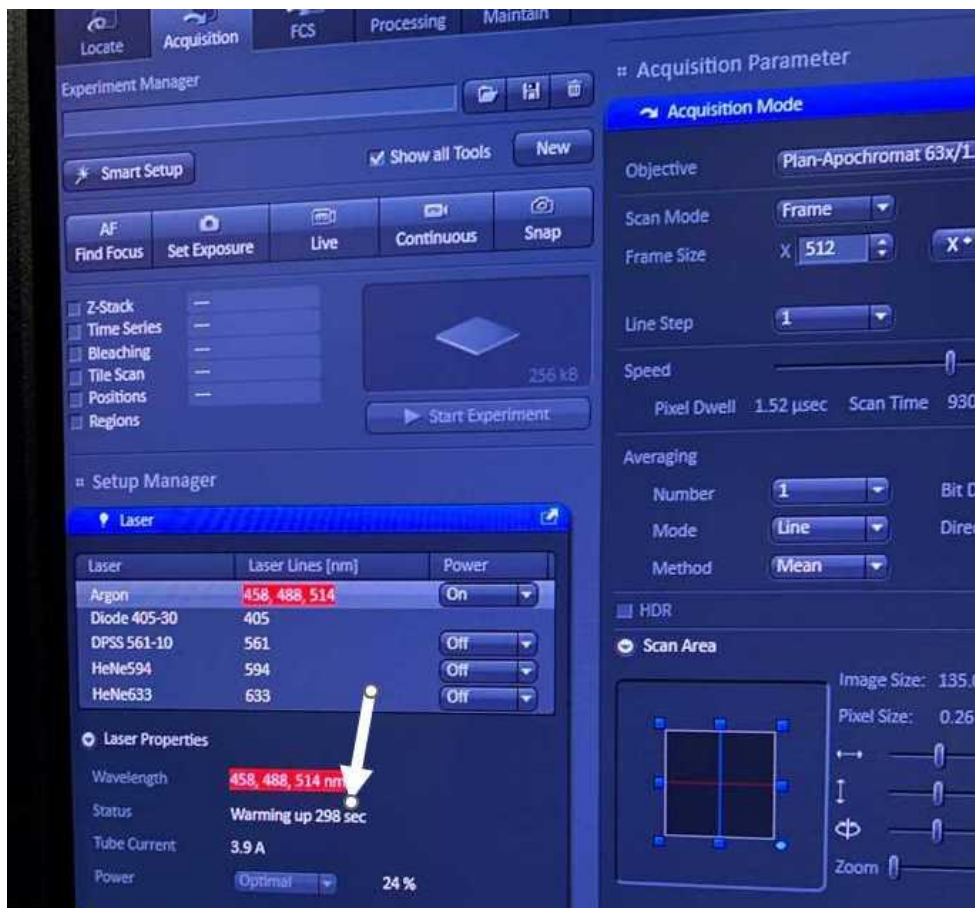
11). The following Dialog window will automatically appear, see screen shot picture displayed below:



12). Switch the Argon laser line on by selecting the Argon icon first and then select the On position. Next select laser properties. White arrows in the picture below shows the order the icons must be selected:



Note: On selecting the on position, the Argon laser will ignite. It will take 300 seconds to stabilise and reach optimal power. See example text next to white arrow in picture below:



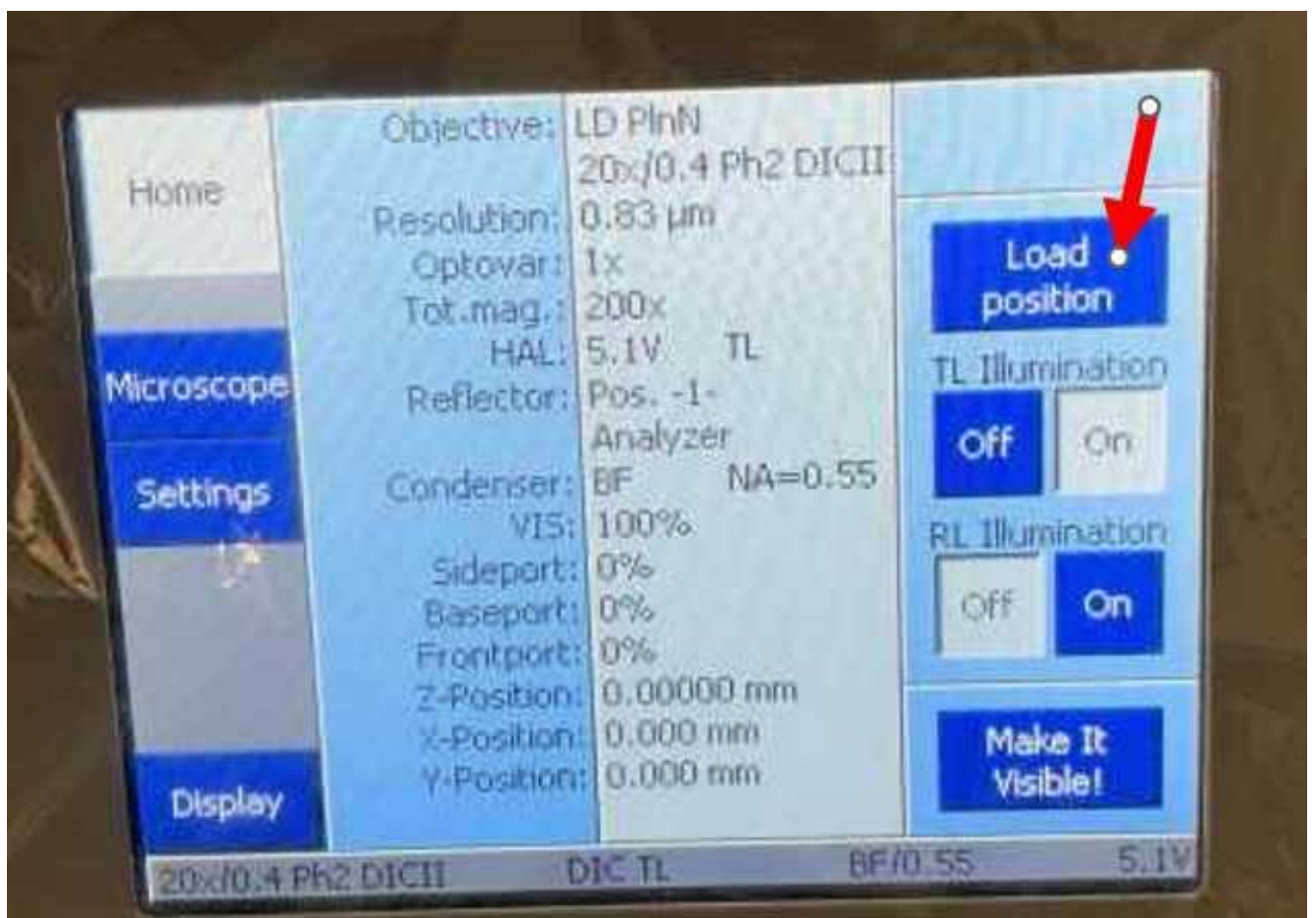
13). Once the 300 second warm up has completed the Argon laser is ready to use for imaging.

Note: All the other laser lines (561, 594, and 633 nm) can be switched on directly without having to wait 5 minutes. The 405 nm laser line switches on automatically during startup so cannot be manually switched off or on.

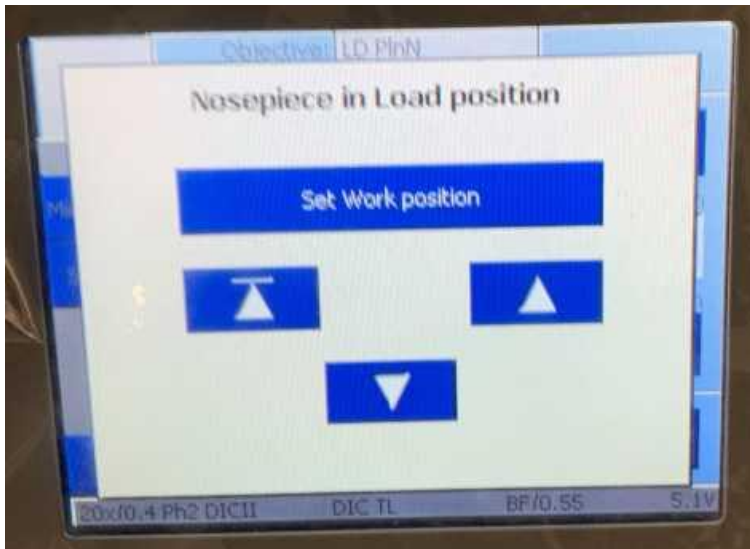
14). Switch on all the other laser lines that you need to excite your fluorescent dyes optimally.

15). Use the microscope touch screen or Zen Black software to select the microscope objective lens you want to work with. Remember to clean the lens with lens cleaner using lens tissue. If using an oil immersion lens remember to add immersion oil.

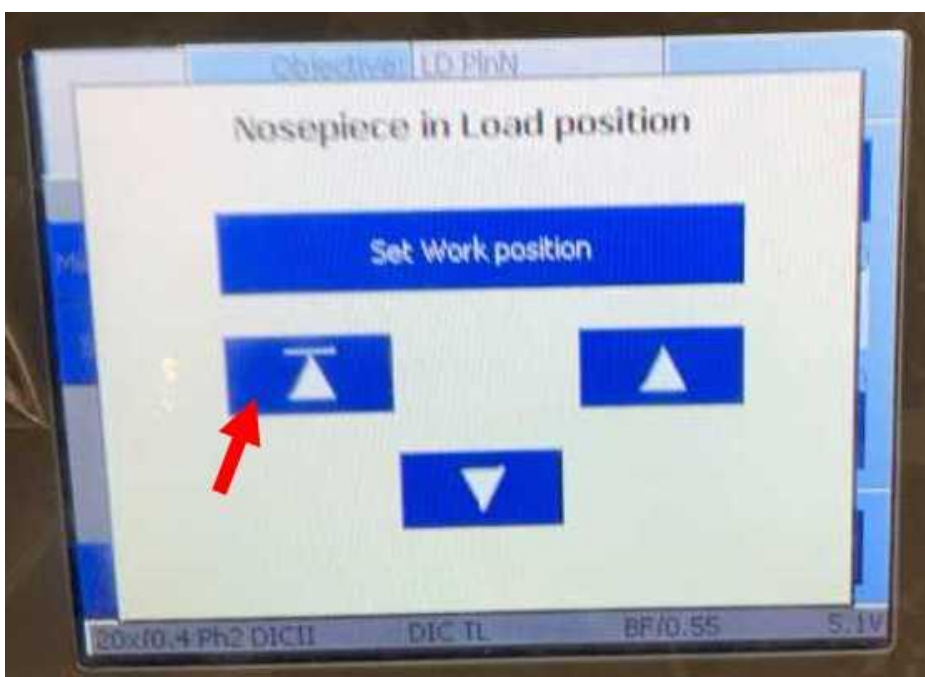
16). To prevent damaging the objective lens, use the Load position within the microscope touch screen to lower the objective lens before mounting your fluorescent samples on to the microscope stage adaptor. Red arrow in picture below shows the icon to touch select:



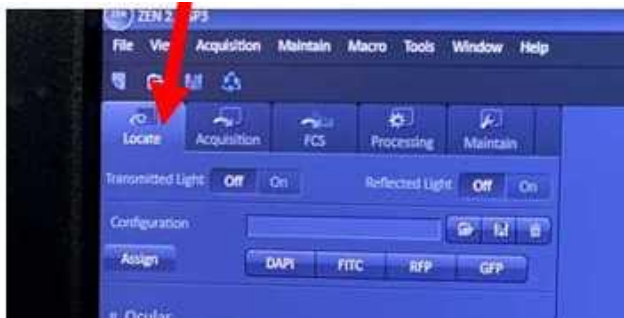
17). The following dialog window will automatically appear on the microscope touch screen, see picture below:



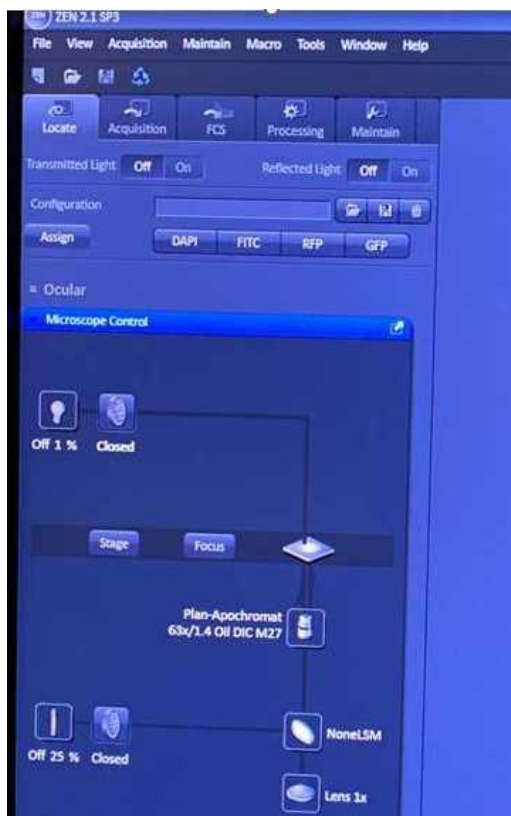
18). To raise the objective back up, touch select the icon with the line above the triangle. Red arrow in picture below shows the icon to touch select:



19). To view your sample through the microscope eyepieces using fluorescence or bright field light click back from Acquisition mode to Locate mode by selecting the Locate tab. The red arrow in picture below shows the tab to select:



20). The Ocular Microscope Control Dialog Box will automatically appear-see picture below:



Note: The icons within the Ocular Dialog box will allow you to view your sample via the eyepieces using fluorescence or brightfield light. This is achieved by opening the appropriate shutters and selecting the appropriate light intensity, filter set and objective lens.

Both the PC and microscope touchscreen can be used to select objectives/filters and the light path.

Shut Down Procedure.

1). Use the microscope touch screen to lower the objective lens before removing your sample from the microscope stage adaptor.

2). If you have used an immersion oil objective lens, ensure that ALL objectives and the stage are clean of oil.

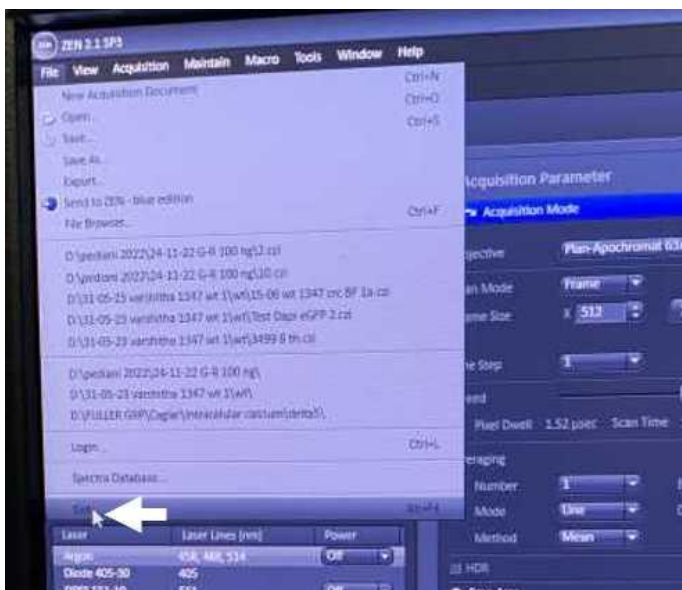
Important:

To prevent costly scratch damage, only use the dedicated Lens Cleaning Tissue (GE Healthcare Cat. No.2105-841) provided to clean the objective lens.

3). Ensure all lasers have been switched off prior to closing the Zen Black Software, see example picture below:



4). Shut down the Zen Black software by selecting the exit tab. White arrow in picture below shows the tab to select:



Note: A final laser switch-off dialog box will automatically appear to ensure all active lasers have been deactivated and switched off.

5). Shut down the PC, see example image below:



6). Turn the COMPONENTS switch to the **OFF POSITION**. Red arrow in the picture below shows the switch to press to the **OFF** position:



7). **Once the PC has fully turned off** turn the SYSTEMS/PC switch to the **OFF POSITION**. Red arrow in the picture below shows the switch to press to the **OFF** position:



8). If you have used the Argon laser, then you must wait until the cooling fan has completely shut down (you will hear an audible click followed by silence) before switching the MAIN SWITCH to the OFF POSITION. Red arrow in the picture below shows the switch to press to the OFF position:



Important Information:

Any issues/error messages etc should be recorded AND REPORTED to Dr Anthony Dornan:

Phone ext. 6811.

Email address: Anthony.Dornan@glasgow.ac.uk

or Dr John Pediani:

Phone ext. 8494.

Email address: John.Pediani@glasgow.ac.uk

No one should use the instrument without first undergoing an induction training session with either Anthony Dornan or John Pediani.

No one should install any external software on to the PC without prior approval from the system administrators.

If there is another user following on from your booked session, if agreed, the instrument may be left on. If there will be some time before the next user arrives, the lasers may be switched off/put in stand-by.

If you are scheduled to use the instrument following on from someone but are delayed or need to cancel inform the previous user or the system administrators so that the instrument can be properly shut down.