

# **LSM780 Live Cell Turn On/Turn Off Instructions**

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11/13/15

**It should take 45 minutes to 1 hour for conditions inside the live cell chamber to stabilize.**

**The microscope should be turned on 2 hours before starting your experiment in order to stabilize the system.**

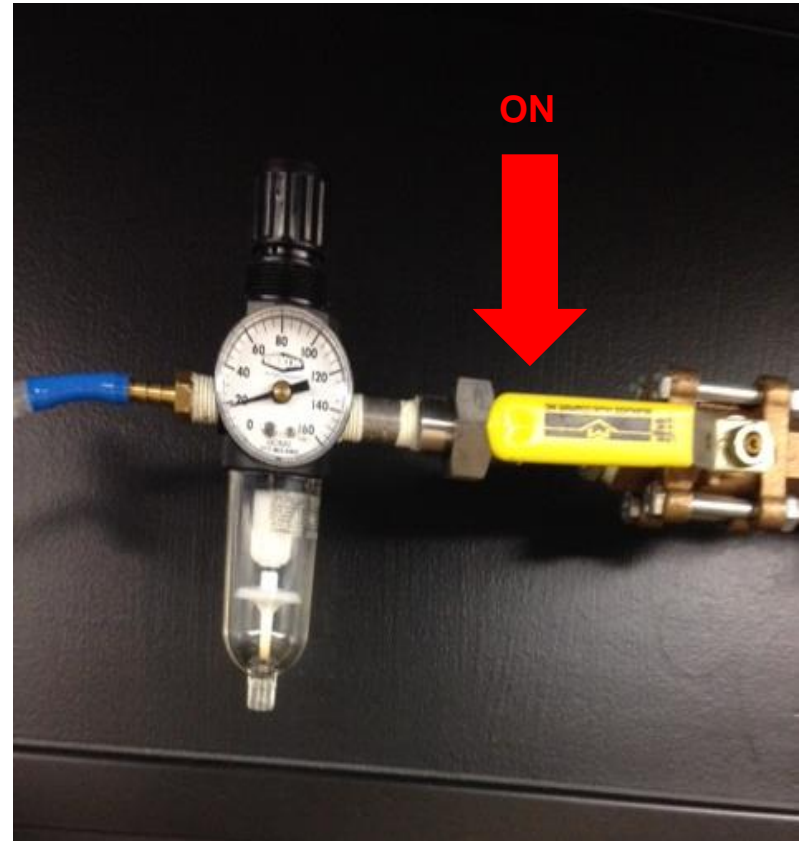
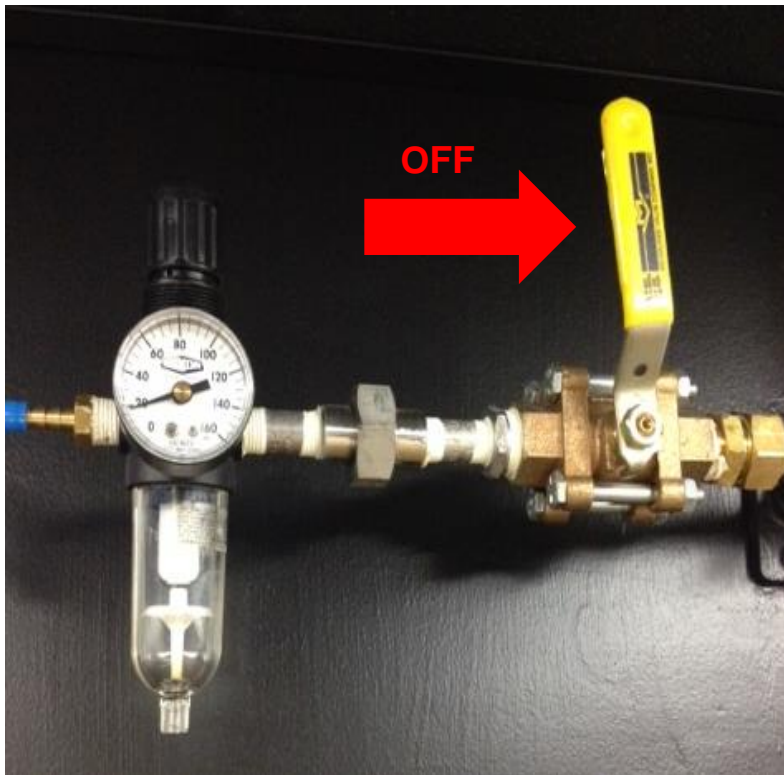
**This time plus set up time should be factored in to your scheduled time.**

**When you sign up for microscope time please add “live cell” next to your name. This way when someone checks the schedule they will not if the live cell elements need to be turned off or kept on.**

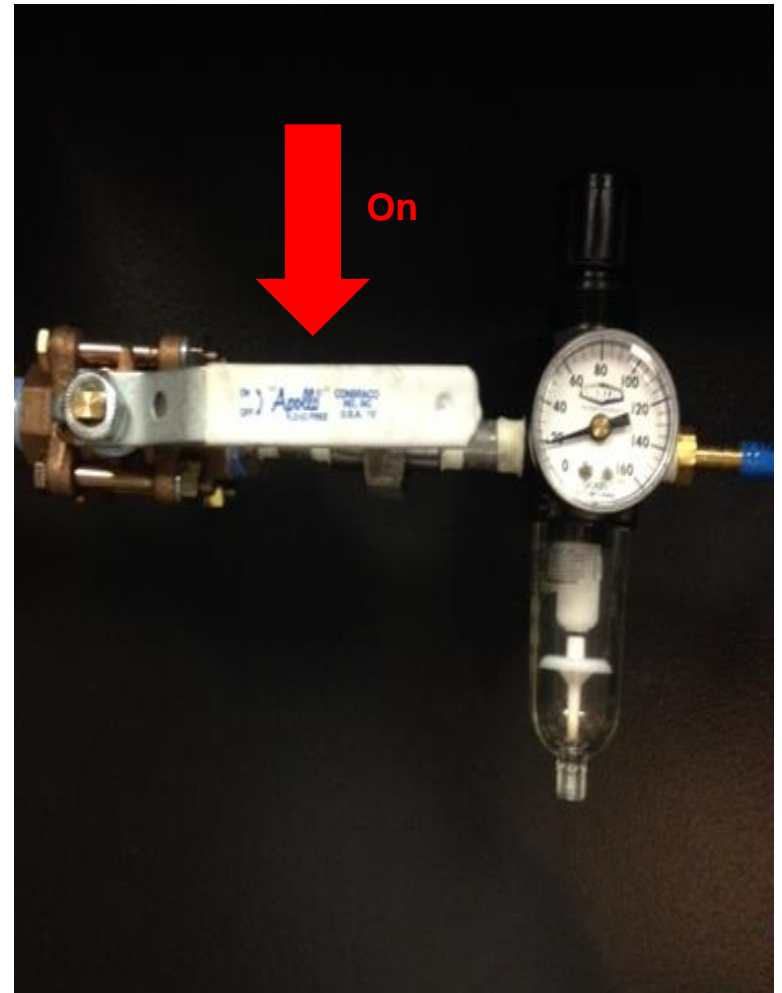
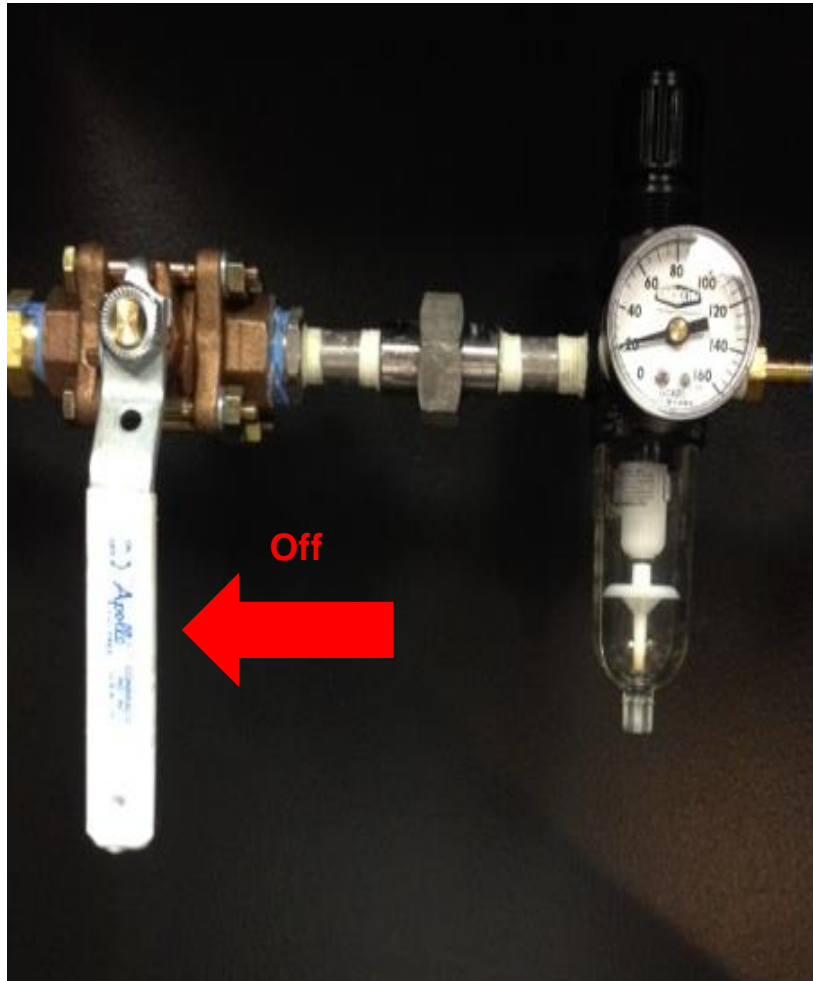
## Before turning on the microscope:

*Note: If microscope is already on it must be turned off except for main switch before starting this procedure. If this isn't done you will not see the Incubation tab on the touch screen.*

1. Check that the CO2 is turned on in both locations. Pictured below is the CO2 control that is above the top shelf. It should remain in the on position but check just in case.

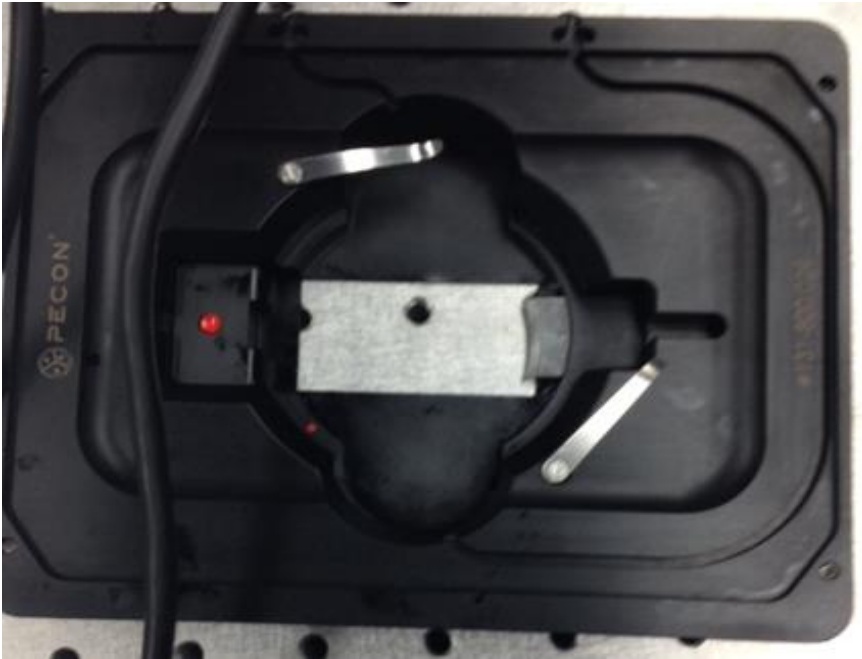


1. [Continued] This is the CO2 control lever below the shelf. This is the lever that should be turned on and off each session.



2. Determine which heated stage insert you will need.

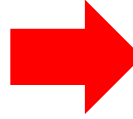
Chamber Slides



Dishes



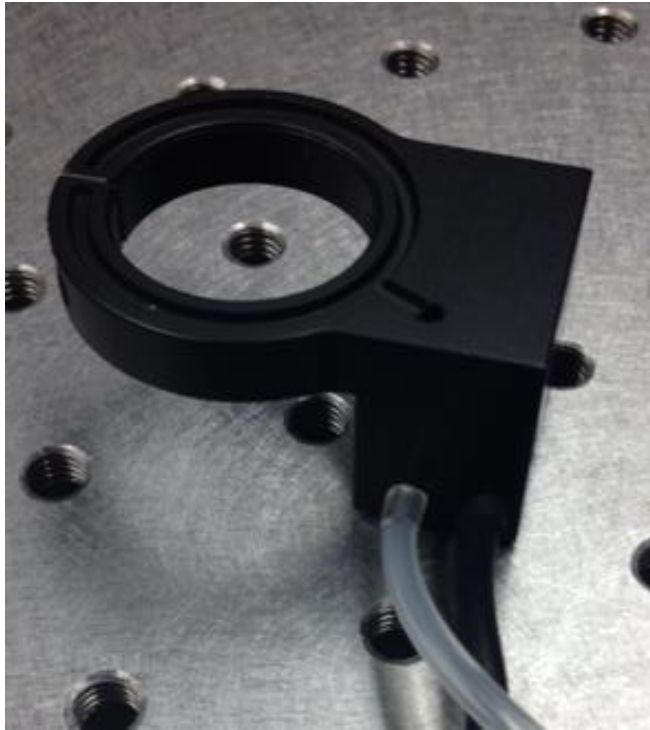
3. Plug the heated stage insert into Channel 1. Match up the yellow tape.



The end of the cable is also labeled to indicate if it is for chamber slides or dishes. Label is not shown in this picture.

4. Determine which objective heater you need to use.

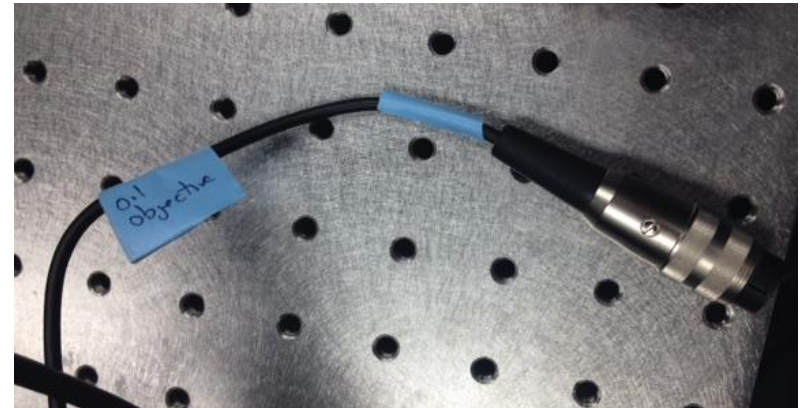
40x and 63x Oil Objective



40x Water Objective



5. Plug the objective heater in to Channel 4. Match up blue tape.



The end of the cable is also labeled to indicate if it is for oil or water objectives.



**For reference:**

**Channel 1: Heated stage insert.**

**Channel 2: Heated stage lid.**

**Channel 3: Bottle warmer.**

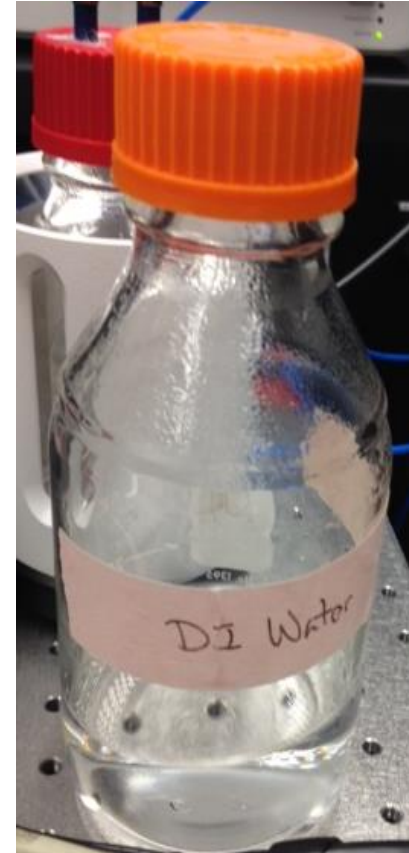
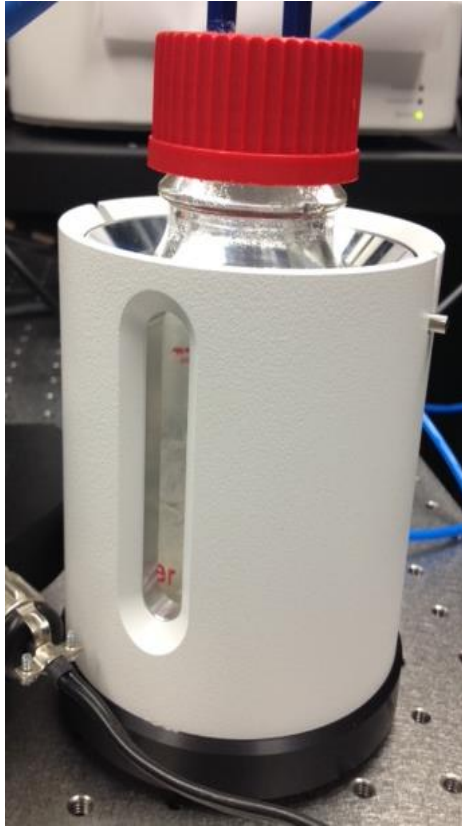
**Channel 4: Heated objective collar.**



6. Turn on Live Cell Unit.



7. Turn on Microscope using the regular Microscope Turn On procedure.
8. Check to make sure the water bottle has enough water in it. If not refill.



9. Put the objective collar on the objective.

Notice that you come up from under the stage to put the collar on.

Oil objective



Water Objective



10. You may need to tighten the collars using a flat head screw driver shown below. See arrows in above pictures for where the screw can be found.



The objectives do not have to be removed from the microscope to put on the objective collars. This is to show the proper or “full” on position of the collars on the objectives.

The oil objectives should have about 1mm of objective showing above the collar. The collar is tight so you need to press firmly but gently. **Do not force it!**



For the water objectives the collar should sit above the correction collar.



11. The oil objective collar has a tube attached for collecting immersion oil that spills over the side of the objective. Place the other end of the tubing into a bottle to collect the oil.

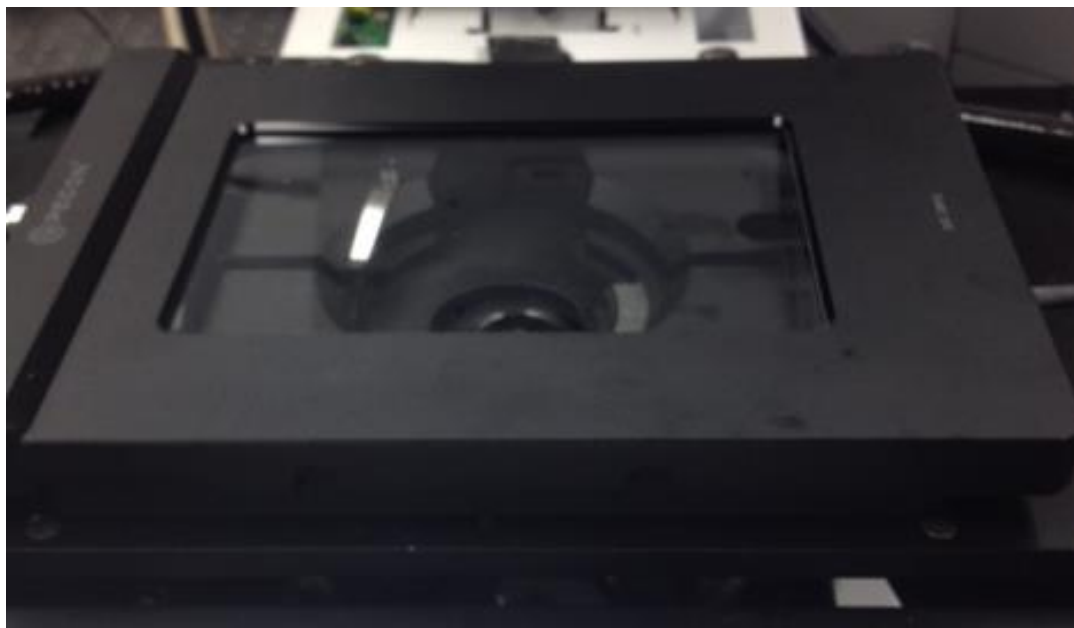


12. Place heated insert on stage. Make sure it is in securely. The heated insert for slides is placed the same way.

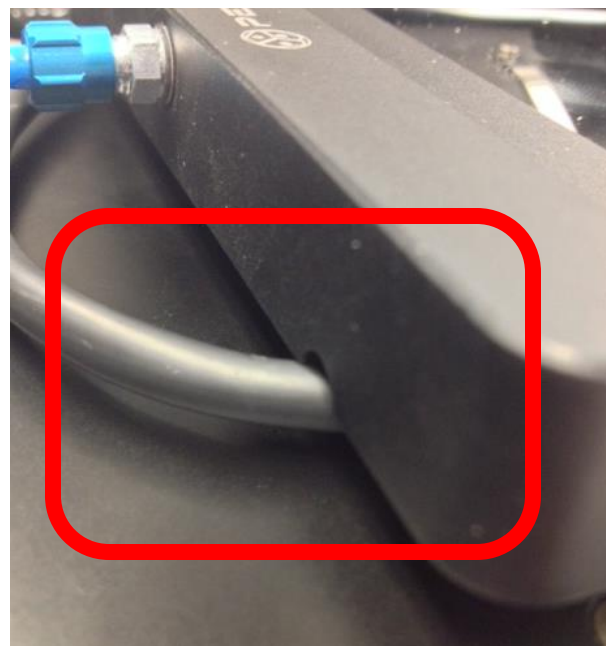


**13. Place the heated lid on the insert.**

**Note: The lid is tinted glass. You can do DIC but due to the tint you will need to increase the gain setting. You will need to remove the lid of your dish/chamber slide if you are planning on doing DIC.**

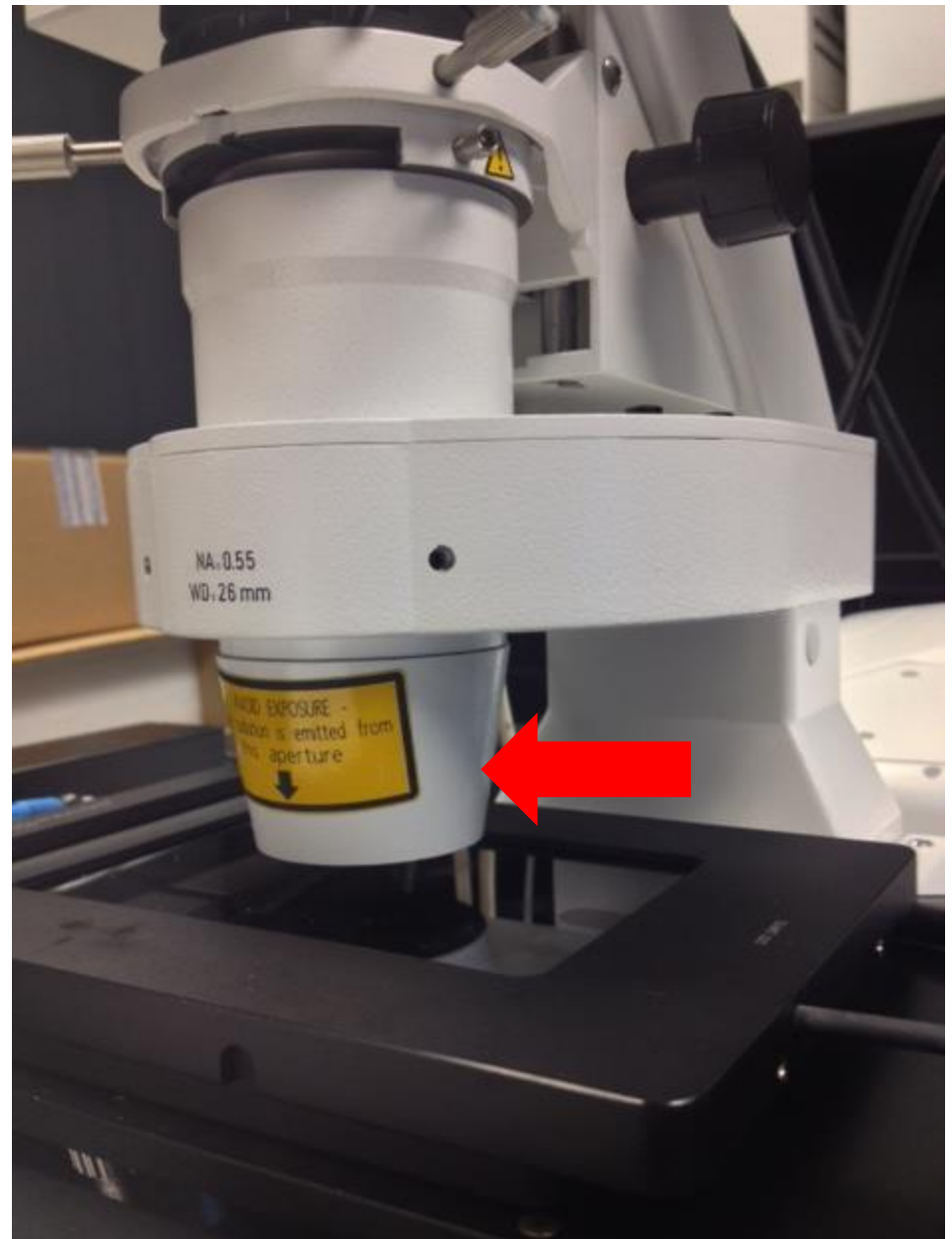


**Note: Check to make sure the heated insert cable fits into the notch of the heated lid or the lid will not be placed properly.**





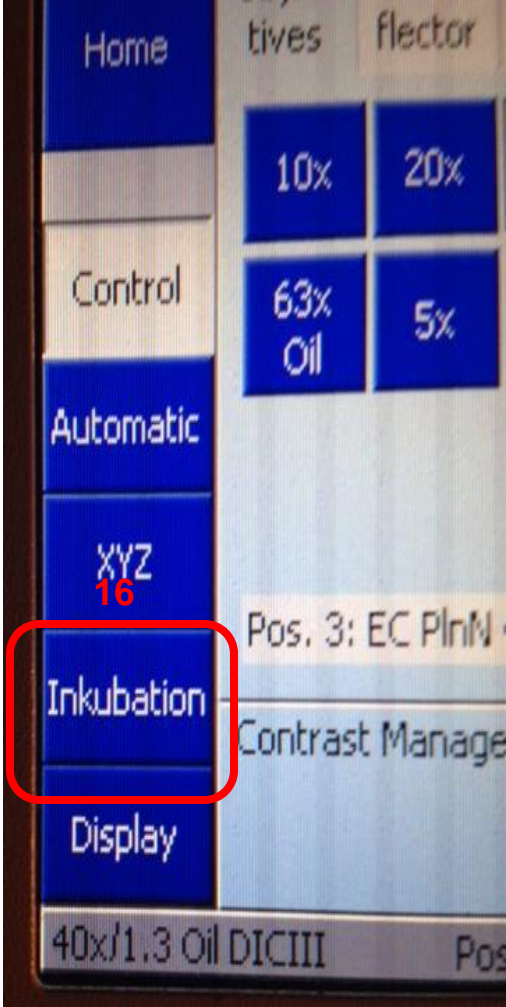
14. Carefully bring the microscope turret back in place so the condenser does not crack the glass. You may need to raise the condenser so it clears the glass.



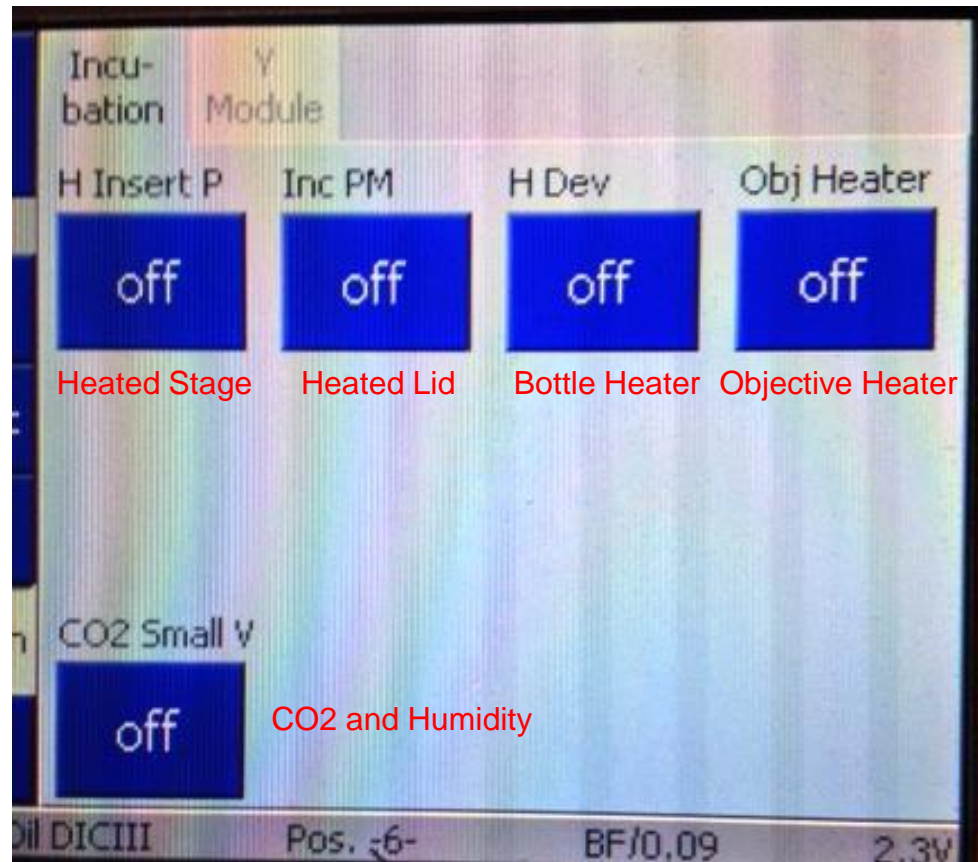
**Now Turn On the Microscope Following the Normal Turn On Procedure:**

**On the Touch Pad:**

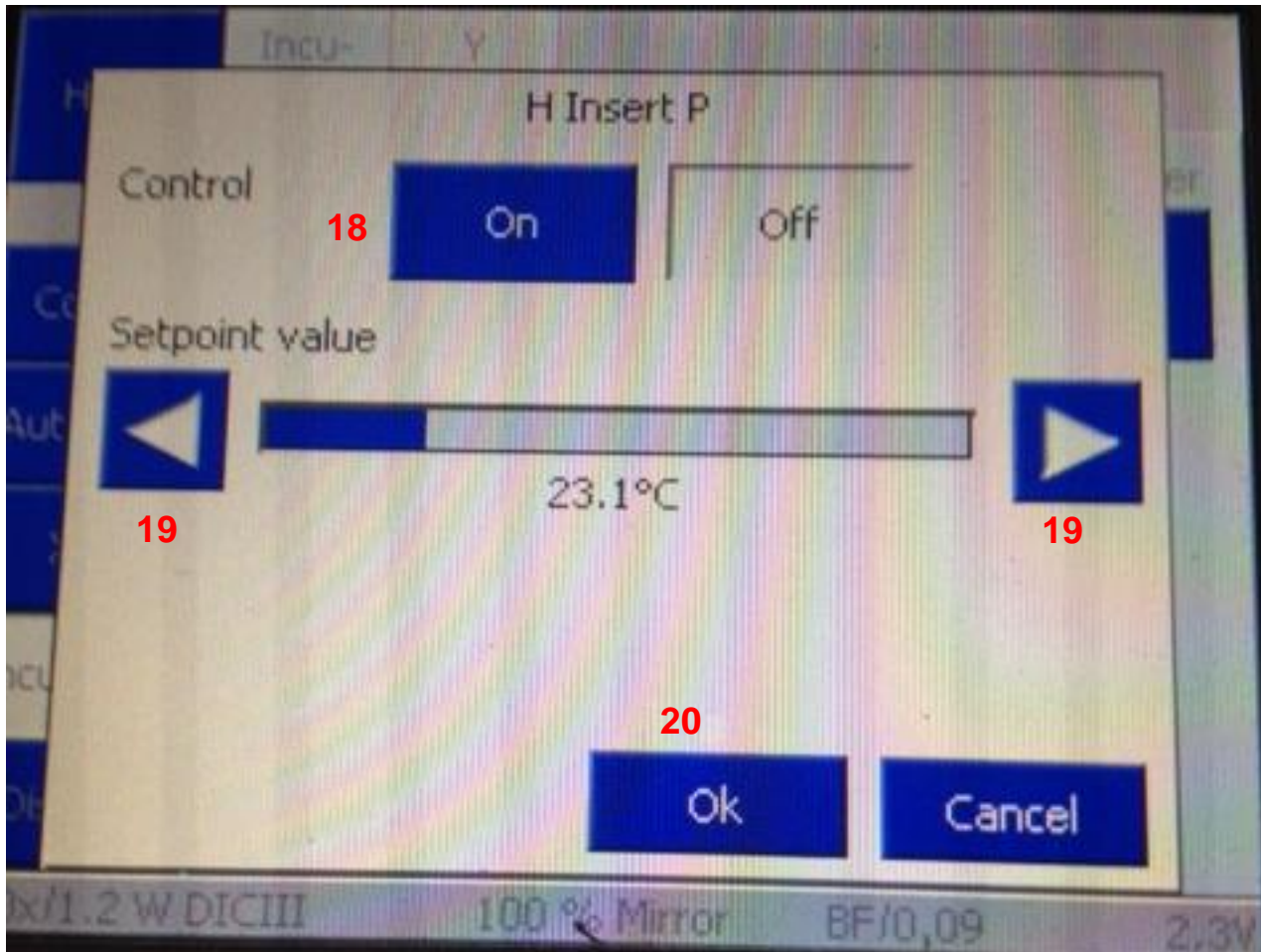
- 15. Tap Microscope.**
- 16. Tap Incubation.**



17. Currently all elements are turned off. Tap on each one to turn them on.

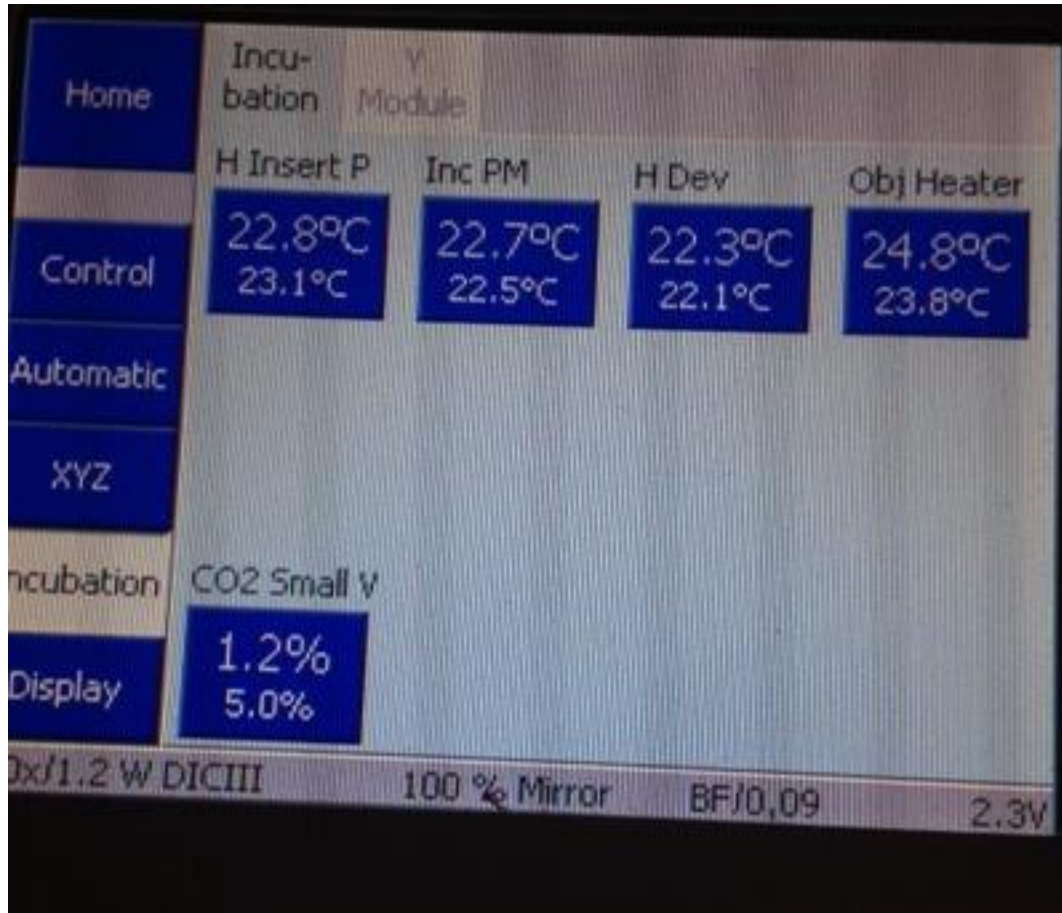


18. Tap on to turn it on.
19. Setpoint value can be controlled by the arrows.
20. Tap ok.



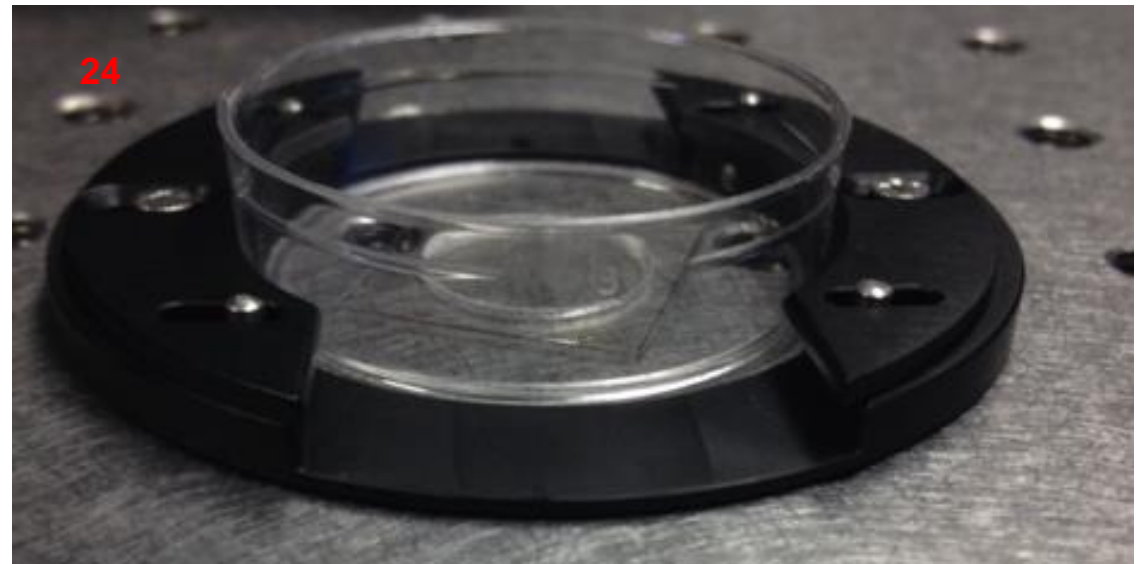
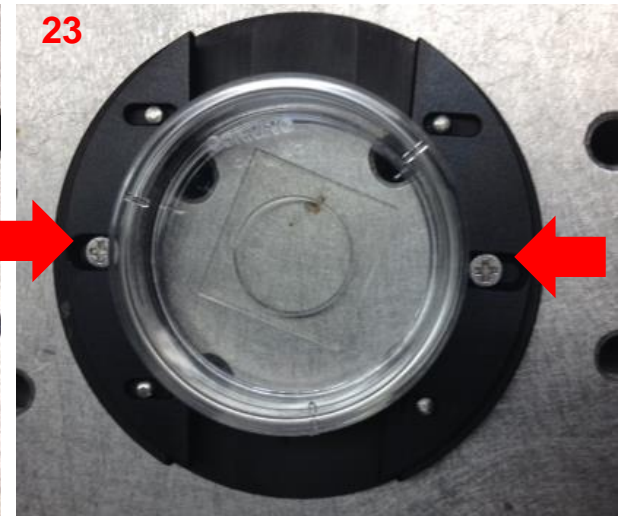
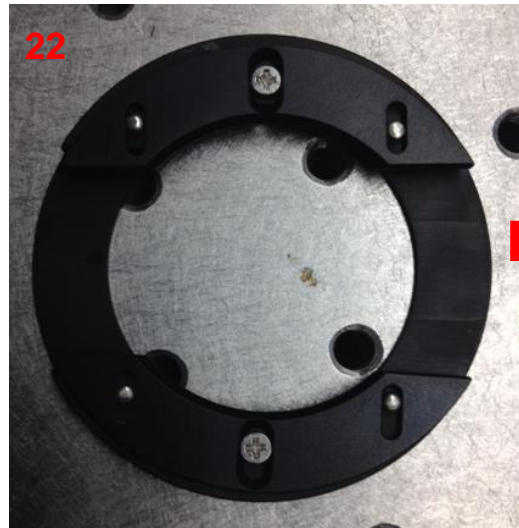
21. The touch screen now shows the status of each element.

The top number is the current reading.  
The bottom number is the set point.

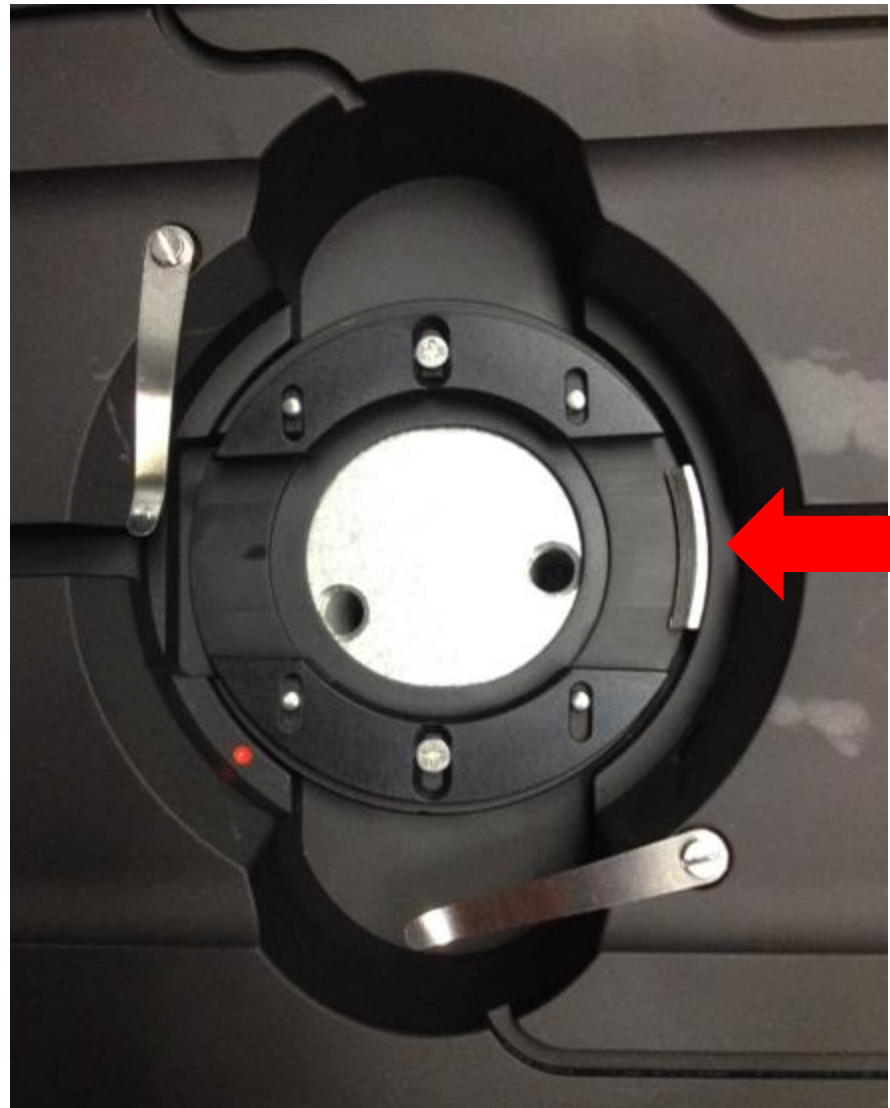


It should take 45 minutes to 1 hour for the chamber to stabilize.

22. If you are using a dish you must put it in a dish adaptor before putting it on the heated stage.
23. Place the dish in the ring and then tighten the screws on either side. See arrows.
24. Do not make it too tight or you could bend or break your dish. Make sure it is level with the bottom of the ring or you may have problems focusing.



**25. When placing the adaptor into the heated stage the groove slots need to be placed under the silver spring. See arrow.**



**When you are finished:**

- 1. Check Microscope schedule to see if the person behind you is doing live cell.**
- 2. Turn off live cell elements on the touch pad**
- 3. Remove live cell elements from microscope.**
- 4. Turn off Live Cell switch on back of live cell component box.**
- 5. Turn off CO2 at wall.**