

GENERAL PROCESS AND OPERATION SPECIFICATION

Leica Microscope & AmScope Digital Camera (REV A)

I. SCOPE

- a. The purpose of this document is to describe requirements and basic operating instructions for the AmScope camera software on the Leica Microscope in Bay 3. This microscope is intended for general use to inspect samples. The camera allows both live viewing, and the ability to take images and save them in standard file formats. These images should be stored on a personal flash drive after using the tool.

II. SAFETY

- a. Be sure to read through this operation document in order familiarize yourself with this equipment.
- b. If you are unsure about any procedure or indication while operating this equipment be sure to contact a staff member for assistance.

III. MATERIALS AND REQUIREMENTS

- a. This tool is intended to support the use of the Leica microscope for the visual inspection and electronic capture of images of various samples.
- b. Bring a portable USB storage device (flash drive/thumb drive) to save files of captured images. Portable storage devices are supplied by the user.
- c. Any wafer or sample that can be viewed under the microscope. Use normal microscope operation and protocol to view the sample.
- d. Microscope may be operated, as usual, without requiring use of the camera.
- e. PC for driving the AmScope Digital camera software, and storage of user image files.
- f. Under “Help” is the manual for the AmScope software, this is also located on the desktop
- g. Am Scope camera software. Loaded on the camera PC.

IV. OPERATION

- a. Start up the software
 - i. Turn on the lamp power supply, the PC, and its monitor
 - ii. Sign into the PC
 - iii. Open the “AmScope(x64)” app shortcut.
- b. Set up the image
 - i. Change the physical microscopes magnification lens to X5.
 - ii. At the top of the window, change the units to your desired units, and change the magnification to match your current magnification.
 - iii. On the left side of the screen under “Cameras” click the only option “MU900”
 1. A live video feed of your sample should appear on the monitor.
 - iv. Under “Capture & Resolution” change the “Live” number to the lowest resolution.
 1. Turning down the quality will make it easier to focus and move the microscope and it won’t affect picture quality.
 - v. Under “Frame Rate” set the slider bar all the way to high
 1. “High” should be the default setting.

2. This will also make it easier to focus and move the microscope.
- vi. Assure the image is oriented properly.
 1. Rotate the camera on the very top of the microscope so that its cord is faced left.
 2. Under “Flip” make sure the vertical box is checked.
 3. This will ensure the video is faced the current direction.
- vii. Focus the video feed by using the pair of knobs on the bottom sides of the microscope
 1. The rough focus knob (The big one) is very tight and will require more force than expected to move it.
- viii. If you wish to zoom further than 5X, change the magnification lens to the next higher magnification, focus the image, and repeat until your desired magnification is attained.
 1. Don’t forget to set the magnification in the AmScope program to ,match the current magnification.
- c. Adjust the picture (optional):
 - i. Under “Exposure & Gain”, “White Balance”, and “Color Adjustment” sidebar tabs, adjust values as you see fit for the photo.
 1. Recommended (Default) settings:
 - a. Exposure & Gain:
 - i. Check the auto exposure box and click the “Defaults” button
 - b. White Balance:
 - i. Click the white balance box, this should adjust the image for realistic colors
 - c. Color adjustment:
 - i. Click the “Defaults” button
- d. Create and save a picture:
 - i. When you’re ready to take a photo, click “SNAP” under the Capture and Resolution Sidebar
 1. This will bring you to a new tab that will show your picture
 - ii. Save the image by going to “File” then “Save As”
 1. Make sure your image fille type is correct for you.
 2. Be sure to bring a flash drive so that you can save your work to it.
 3. Choose a detailed and clear name so you won’t forget what it is
 - iii. After saving the image it will remain frozen on the last photo. To return to the “live” mode click the “Video [MU900]” tab. If needed, set up the sample for the next photo, and repeat the steps above. New tabs will appear in the toolbar as each new photo is saved.
- e. Make a measurement:
 - i. Make sure your picture if focused, adjusted, and that your zoom level matches the current zoom level.
 - ii. In the top toolbar, click “Measurements”
 - iii. Click on the type of measurement you would like to do
 1. For a line click the starting and ending points of your measurement and right click when done
 2. There are many other ways to measure, feel free to experiment!

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- f. Close the program and set it up for the next user:
 - i. Before closing everything, be sure that you have saved all of your photos. All files in will be lost once the program has been closed.
 - ii. Close the AmScope program, sign out of the PC, turn off the monitor, and turn off the lamp power supply.

Notes:

- g. At any time during the process above, the sample may be set up for normal viewing through the microscope binocular eyepieces. Use normal procedure to set stage location, focus, selection of objective lens, and lamp brightness. Set the microscope filter in the desired position - normal bright light for most photographs.
 - i. Keep in mind that the focal lengths for the eyepiece and the camera can be significantly different. They both can't be focused at the same time.
- h. Use a personal flash drive to store your photos. It is ok to save them on a personal folder on the PC, but this will not guarantee the safety of your work
- i. If you are interested in learning a few tips and tricks like video recording, the manual is available under "Help" in the top toolbar, and as a pdf file on the desktop.

V. QUALITY

- a. This microscope is intended for general purpose use and may be used to inspect a wide variety of samples, wafers, substrates, and other materials for AggieFab users. General precautions are expected to be used in the handling of samples to ensure that cleanliness is maintained, and cross contamination is minimized among users.

VI. SIGNATURES AND REVISION HISTORY

- b. Author of this document: Larry Rehn
- c. Author Title or Role: Technical Manager
- d. Date: 1/29/21
- e. Revision Notes:
 - Revised for general clarity
 - Updated info to match new bay 3 status
 - Added measurement procedures

Approvals:

Technical Manager Signature: _____

Date: _____

Revision History:

Revision	Author	Date
Original Issue	L. Rehn	1/8/14
Rev A	E. Colter	1/29/21
Rev B		
Rev C		