

Keyence Confocal Standard Operating Procedure

QUICK GUIDE



PROCEDURE OVERVIEW

1. Turn on tool and software
2. Find your region to measure
3. Perform scan
4. Analyze data
5. Return tool to original condition



CRITICAL PRECAUTIONS AND COMMON MISTAKES

- Always start and leave the tool at 5x objective
- Always be mindful of your sample height, do not get too close to objective lens


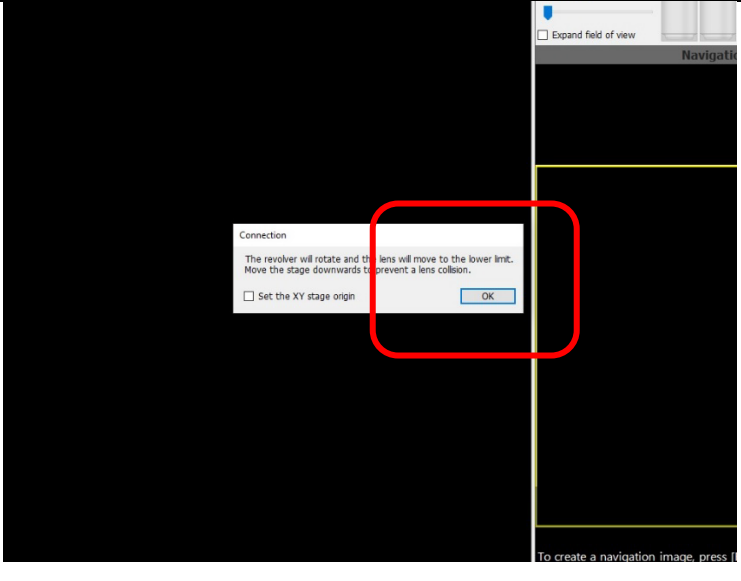
Before you start

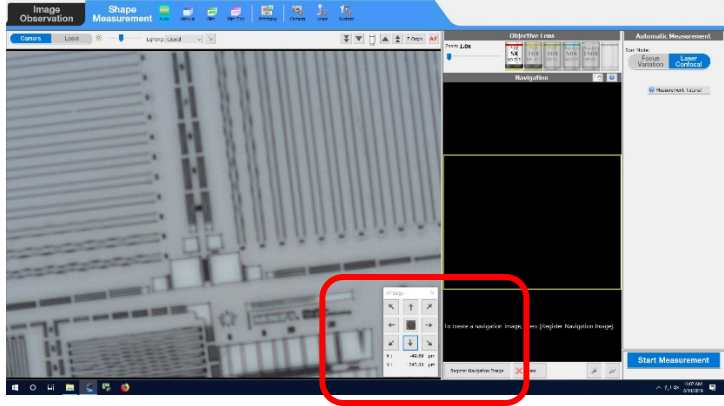
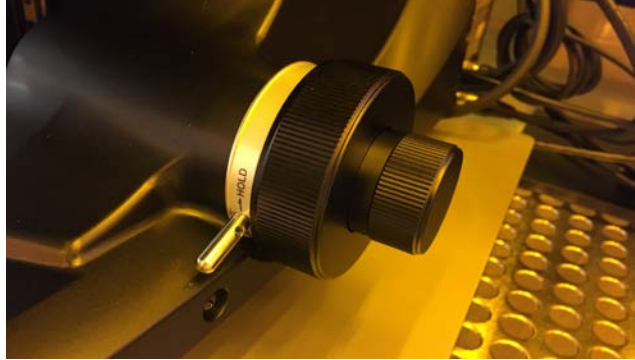
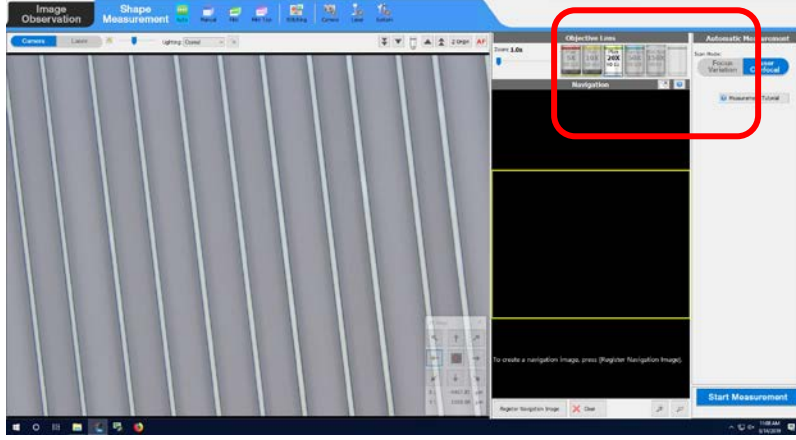
- Log in on NEMO
- Check that objective is 5x
- Check stage height to make sure you will not crash into the lens

Tool condition for the next user

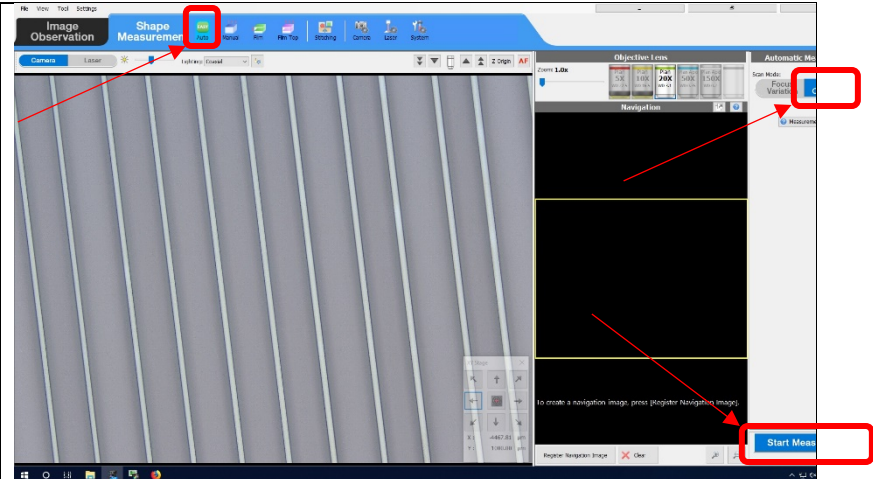
- Return to 5x objective
- Close software and shut off tool
- Lower the stage

Procedure for Simple measurements

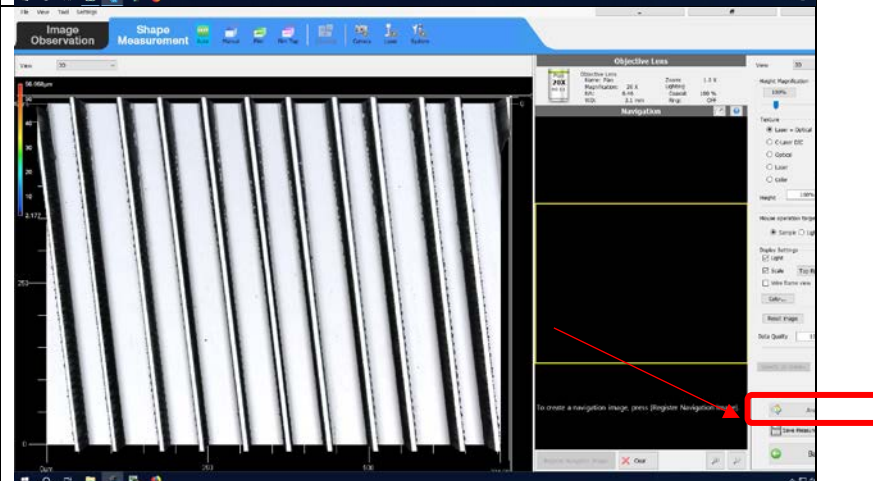
<p>1. Turn on the tool by pressing power button on the right side of the microscope</p>	 A photograph of a microscope. A red rounded rectangle highlights a power button on the right side of the microscope's body. The button is a small square with a white power symbol (a circle with a vertical line) on a dark background.
<p>2. Start the software on the desktop. Once loaded, it will ask you to initialize the revolver. Click OK. 3. Make sure 5x objective is the active one.</p>	 A screenshot of a software interface. A white dialog box is centered on a black background. The dialog box has the title "Connection" and contains the text: "The revolver will rotate and the lens will move to the lower limit. Move the stage downwards to prevent a lens collision." Below the text is a checkbox labeled "Set the XY stage origin" and an "OK" button. A red rounded rectangle highlights the "OK" button. In the background, parts of the software interface are visible, including a "Navigation" panel and a "To create a navigation image, press f" prompt.

<p>4. Place your sample on the stage and use navigate buttons/arrows to move your sample under the 5x objective.</p>	
<p>5. Once your sample is visible in the camera, use the manual focus knob on the Bottom Right of the tool to move the sample into focus. You can use the lever to hold the focus or release it if it is too tight.</p>	
<p>6. Once focused, step through the objectives to get to your desired objective, taking note of the working distance. Use the autofocus function or the mouse scroll wheel to focus on the sample at each objective. Do not use the manual focus knob on the microscope. The 5x and 10x objectives are for observation only, and will not produce accurate height data.</p>	
<p>7. Note: It is not possible to measure a step larger than the working distance of the objective. Attempting to do so will damage the objective.</p>	

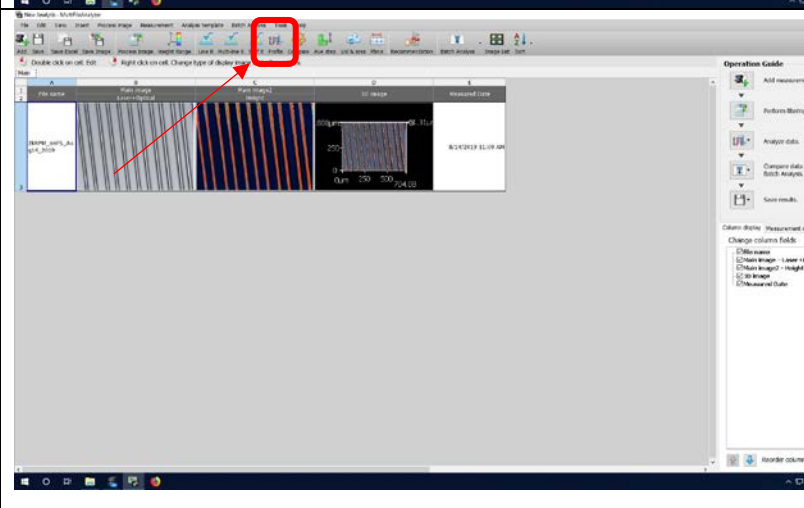
8. Then, make sure you are on Auto, Laser Confocal setting, and press Start Measurement.



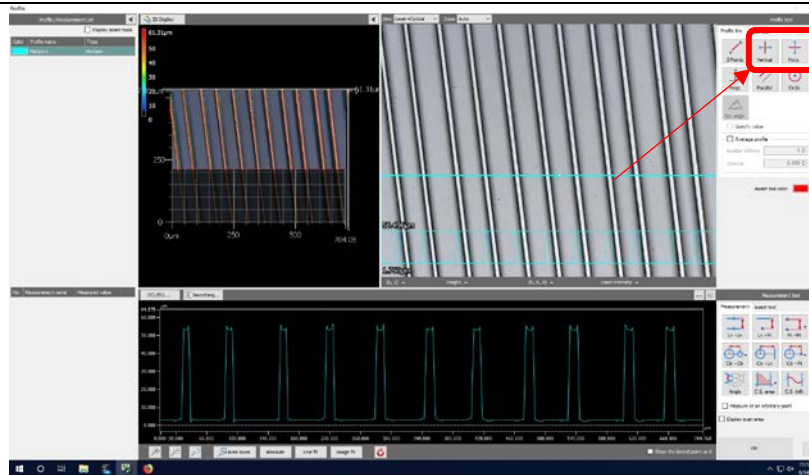
9. Once measurement is complete, press, press Analyze save the measurement and open the analyzer software



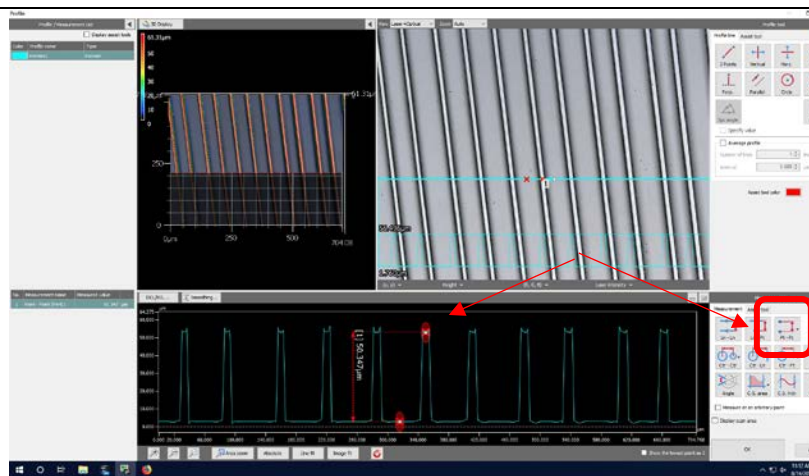
10. In the analysis software, follow the steps in the operation guide. Usually, the important steps are leveling the data (perform filtering) and measuring the profile (analyze data).



11. The analysis software can be used in many ways. A simple example of a profile measurement follows. Click analyze data, select profile, and under Profile Line, select the direction of your measurement. Press on the screen in the middle to place the line.

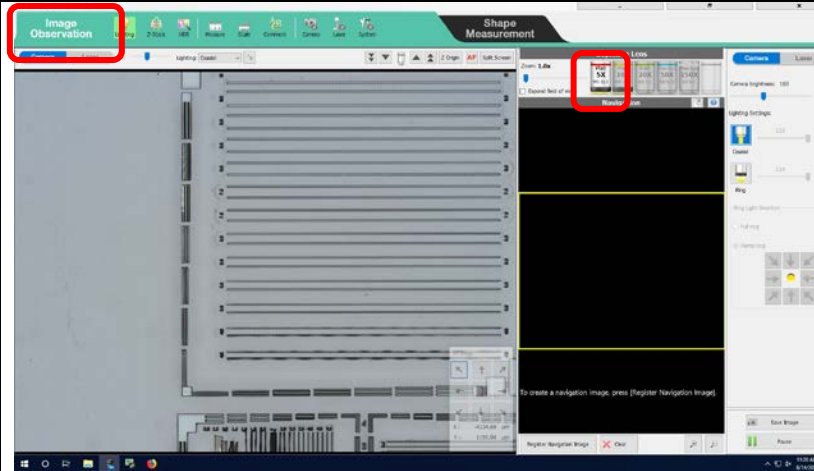


12. In the bottom panel, select Pt to Pt measurement drop down menu, and select vertical distance. Then, in the profile scan, select two points where you want the measurement to occur. Press again to place the measurement bar.



13. You can save the measurement image or take more measurements. When done, close the Analysis software.

14. Back in the Keyence software, click on 5x objective to return the revolver to original state. Lower the stage a few turns for safety using the manual focus knob



15. Use the navigation keys to bring the stage out, and unload your sample. Close the software. Turn off the tool by pressing power button on the side.

Version history

<i>Draft</i>	<i>Date</i>	<i>Author</i>	<i>Notes on changes</i>
v.0.1	August 15, 2019	Roman	Initial draft