

Zygo NewView 5000

Operating Procedure

Precautions: Be careful not to drive the objective into the stage or your sample as this will damage the tool (and your sample)! Be sure to set Z-stop appropriately for your sample. Do not trust the Z-stop value set by previous user. Do not allow anything to contact objective lenses. No solvents under lenses!

1. Use bubble level and tip/tilt knobs (front and left below the stage) to level the stage.
2. Load your sample, adjust illumination, and optically focus on top surface (left joystick on controller) using the video window. When optically focused, you should also see a fringing pattern on the surface.
 - a. Illumination adjustment: F5 (auto adjust), keypad numbers set percentage level i.e. 3=30%, and +/- keypad keys for fine adjustments.
 - b. If the previous user's Z-stop is higher than you need for your sample, you will need to defeat the Z-stop and reset it. Z-stop indicator: Green = above Z-stop, Red = at Z-stop, FLASHING RED = Z-stop defeated. When at Z-stop (red) press the Z-stop button once to defeat the Z-stop. Focus to desired Z and press the Z-stop button again to set Z-stop value to current Z (focus) value.
 - c. For the 50x objective, if fringes and optical focal plane do not coincide, adjust the equal-path ring on the objective to align fringes with optical focal plane.
 - d. Objective working distances are: 5x = 9.3mm, 10x = 7.4mm, 50x = 3.4mm
3. Select objective and zoom (dial on upper right side of instrument) appropriate for your feature size.
4. Adjust MetroPro software settings to match your selections (objective in upper left hand corner of window and image zoom value in Measure Controls window).
5. Typically, it is best to auto adjust light intensity (F5) at this point. If any detector saturation (red in video window) is observed in next step (nulling), auto adjust intensity again to eliminate it.
6. Null out fringes by adjusting the stage tip/tilt. Use one knob to align fringes horizontally or vertically, then use the second knob to spread out fringes as far as possible (ideally, no fringing visible).
7. Focus slightly below lowest/deepest feature to be measured and set your Z-stop.
8. Adjust Measure Controls (see manual for additional detail)
 - a. Select Scan Length appropriate for your sample. Scans greater than 100um require an Extended scan selection and entry of extended scan length up to 5000um.
 - b. Select FDA resolution. High provides highest resolution (0.1nm). For extended scans, FDA resolution must be set to Low (20nm resolution).
 - c. Note: Bipolar scans will focus down ½ of the scan length from current Z and then begin collecting data as the instrument scans upward. Extended scans begin collecting data from current Z and scan upward the full scan length. For a bipolar scan you may wish to move your Z/focus half way up to center your structure in the scan length region.
9. Press Measure button to collect data. Note: Z must be above Z-stop value for measurement to begin.
10. Adjust Analyze Controls if needed for data filtering/processing (see manual for additional detail). Pressing the Analyze button will re-analyze the current data set (data does not need to be re-measured).
11. Adjust "slice" location in Filled Plot window so it crosses feature(s) of interest. Data in the slice line location is displayed as the 2-D profile in the Profile Plot window.
12. Inspection cursors can be turned on by right clicking on the Profile Plot window and selecting "Show Controller". The "Inspect Off" button is toggled by left click to turn on one or two cursors. With two cursors positioned on the same surface in the 2-D profile, press "Level". Move one cursor to measure features relative to the other cursor.
13. A screen capture can be saved to a .bmp file by pressing Print Screen on the keyboard.
14. Set light level to 10% (keypad 1) to preserve bulb life when finished.