JSM6010A SEM Short Manual

(modified on Feb 10, 2016)

Start SEM instrument

1. Turn on the key-switch to START and hold for 10 seconds
2. Turn on the personal computer and Login PC with user name: NTNU and password: SEMUser
3. Double click the shortcut icon "In TounchScope (Navi)", which is full "dialogue version" with step-by-step guides; the more professional version with shortcut as "In TounchScope" (NB, see Step 4 below)
   (Laptop screen ratio is not compatible with SEM program ratio. Hold on the Mouse button to move the whole program up and down)
4. For using "In TounchScope", if the sample top is higher than the holder top level, it has to move down Specimen Height Handle correspondingly to protect BSE detector!!!
5. Click "Set specimen". After about 70s, the specimen chamber is vented to atmospheric pressure. The observation preparation window is displayed.

Sample Loading and Exchange for using In TounchScope (Navi)

1. Load a specimen according to the steps displayed on the window:
   a. Draw out the specimen stage to its end-stop position to load the specimens.
   b. Input the protruding specimen height into the dialog box if the specimen protrudes from the upper surface of the specimen holder.
   c. Selecting the specimen holder type. Click "Select" to select and click "Set"
   d. Adjust the stage Z-axis to 10 mm. Check the stage positions are R=0^o and T=0^o
   e. Close the specimen chamber
2. Click the "Observation Conditions" button and a few recipes are appeared. Click the appropriate button suiting for your sample.
3. Setting the observation conditions.
4. Click the "Start" button and the chamber starts evacuating and image automatically appears when the evacuation is completed. If the gun filament is not properly adjusted, the image may not appear. For details how to adjust the filament, refer to page 4-82 in the INSTRUCTIONS.

To exchange specimens immediately:

1. First click HT icon "on" to turn off the HT, and then click "VENT" button and click the "Yes" button in the dialog box.
2. Draw out the specimen stage to its end-stop position to load the specimens.
3. Input the protruding specimen height. Then, set the Z axis to the value in the message and click the "Close" button.
4. Closing the specimen chamber, click the "EVAC" button on the icon window 1.
5. Click the "YES" button in the dialog box.
6. Click HT icon "off" to turn on the HT.

Abbrev.	**AFS, Auto Filament Saturation**	**AF, Auto Focus**
	AGC, Auto Gun Control	**ACB, Auto Contrast&Brightness**
	AGA, Auto Gun Alignment	**AS, Auto Astigmatism correction**

Using IPad, Log-in Apple IPad with PIN 6010. Go to IPad Wi-Fi Setting, to click Router ZyXELDD6014 link; then back to Home Screen, to click SEMController icon to start SEM Controls, where to control AF, ACB and AS, together with corresponding manual controls.

Image observation after sample loading:

1. Select desired signals by click “Condition” icon in the icon window 1.

2. Setting the SpotSize (SS) display in the active data display by clicking one of the present button or select the desired Spotsize by dragging the slide button. For a normal image, set the spot size SS about 30. For high-resolution observation, set the spot size SS < 30. When perform analysis and other operations, set the spot size SS > 30.

3. Adjust the image by using automatic function icons “AF”, “AS” and “ACB” in the icon window 1. If click “AF”, the image focus is automatically adjusted. If click “ACB”, the image contrast and the image brightness are automatically adjusted.

4. Set the desired magnification. [Focus], [Stigma], [Contrast and Brightness] can be adjusted with the adjustment wheel in the icon window. When you want to switch [Focus], [Stigma], [Contrast and Brightness], click on the button of the upper part of the wheel. For details, please refer to the quick guide page 8. We can also adjust Focus, Stigma, Contrast and Brightness by using the keyboard.

5. Selecting the scan speed according to needs. “FAST” selects the scan rate in the fast mode and is suitable for observing an image. “SLOW” selects the scan rate in the slow mode and is suitable for observing the detail of the image. “Freeze” stops scanning and freeze an observing image. To cancel freeze, select any one of the scan icons. “STORE” selects the scan rate in the store mode, which is used to acquire a checked image and save the image automatically.