

STEP & SCAN

Before starting (Notice!!)

When the XEA program is opened, it will be started on "automation mode" as default, and the XEP will be converted to the "remote mode" which is not available to control the hardware, therefore you have to activate the "Manual mode" by clicking on the "To Manual" which is located on right and upper side of the XEA.

1. Create the "methods"

- 1) Click on the "Methods" icon to set up the parameter values for the measuring/scanning.
- 2) After finish the parameter setting, please do not forget to click on the "save" button.



2. Make the Recipes



In the XEA, the approaching step is divided by three parts to decrease the approaching time, but you must be careful not to crash the XE-Head on the sample by wrong number of Z-value in the XEA set up.

- 1) The first part of the approaching: the Z- stage moves depend on the set Z-value as very fast speed without concerning the set point value. You should check the number of Z-value carefully and it is explained in below.
- 2) The second part of the approaching(fast approaching): the z-stage moves as 1.6µm/sec (still fast) for 50µm with concerning the set point value, these numbers are already implanted in the software.
- 3) The final approaching (slow approaching): the scanner moves as 0.8µm/sec until

the cantilever approach on the sample surface with concerning the set point value.

The speeds of the "Fast" and "Slow" approaching can be set up in the "calibration mode".

To perform the automatic approaching procedure, setting up the Z-value is necessary in the recipes of XEA.

Caution!!

Wrong Z (μm) value cause severe Head Crash, therefore we highly recommend normal approaching (by XEP) before you input the Z-value and check the number of z-stage level.

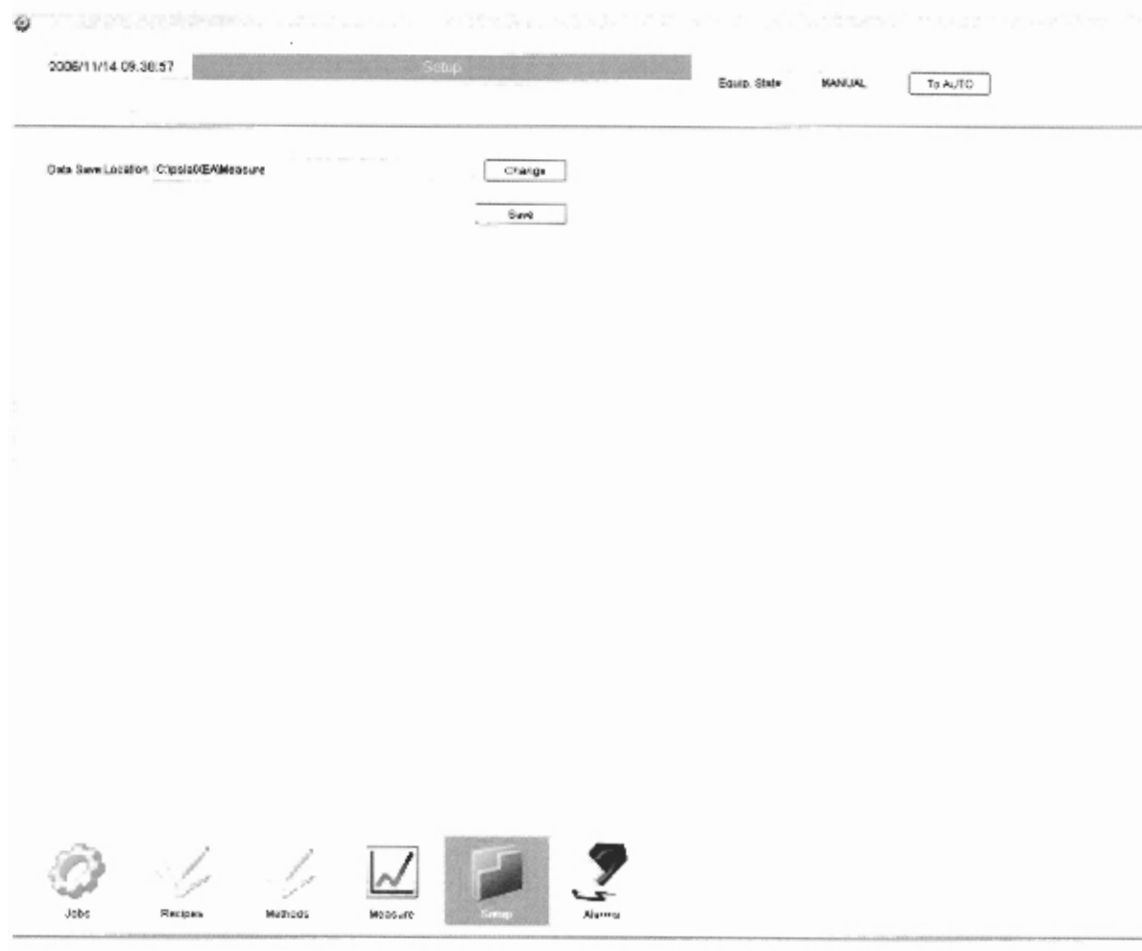
The input procedures of Z-value

- (1) Before you start the step and scan, press the "Z stage reset" in the XEP, then make the Z-stage coordination to zero. ----very important.
- (2) Find the location and put the cantilever on wherever you want to scan by moving the XY Stage.
- (3) Try to approach by manually (not using the XEA), then lift up the cantilever to 100 μm . If the sample is tilted you may have to lift the z-stage more than 100 μm .
- (4) Select the "Recipes" in the XEA, then choose and click on the recipes item then click on the "Get Z Coord", therefore the current z-stage coordinate number in the XEP will be loaded automatically.
- (5) Click on the "Get XY Coord", and then the current X and Y coordinate numbers will be recognized and loaded to the recipes automatically.
- (6) As click on the "insert", you can add more scanning points.
 - If the sample is not tilted too much you can just input the same Z-value as first one and different XY coordinate numbers by typing. In case of the wafer sample with vacuum holding, you do not have to care of the tilting problem.

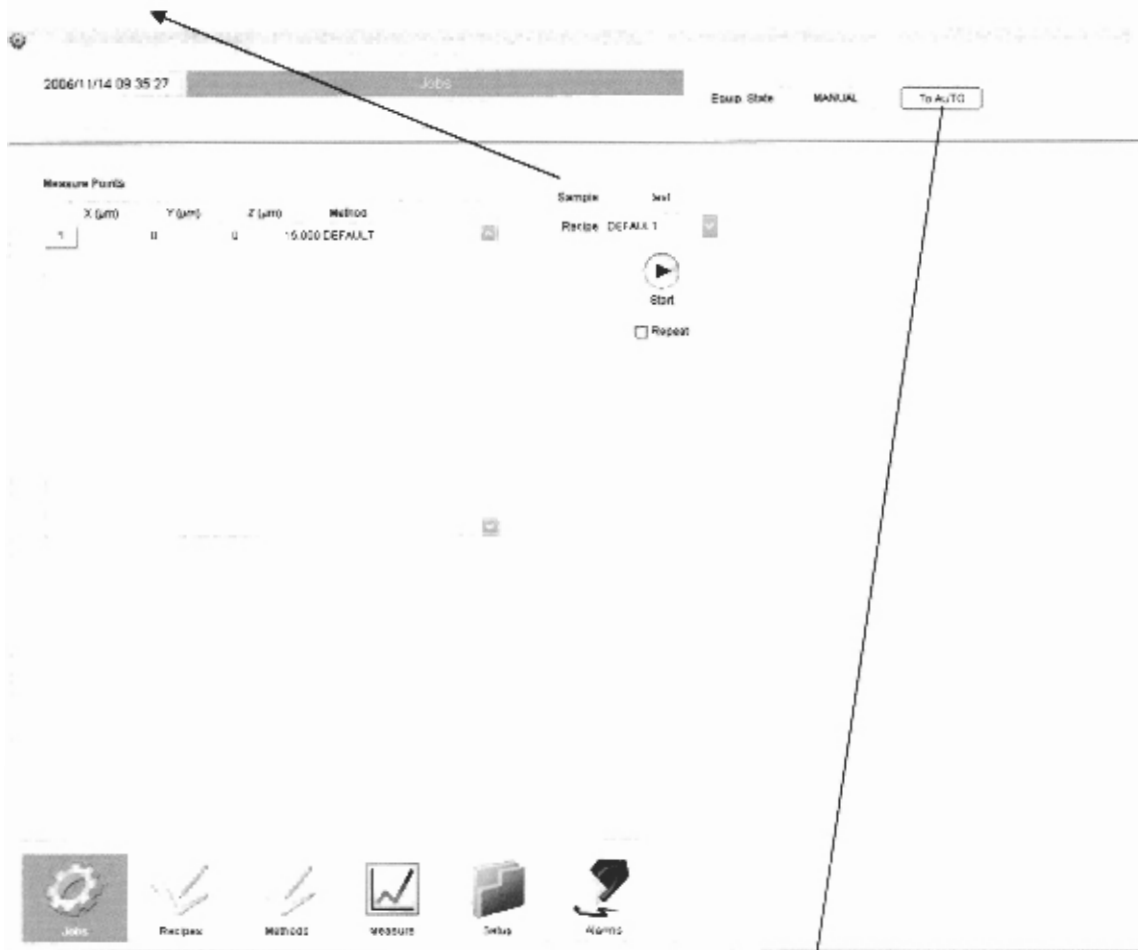
- If the sample is tilted, you have to repeat the step (4) and (5) for each point, and it will take long time.

(7) Please do not forget to press the "Save" button.

3. Setting the location to save the data.



4. Input the name of the Folder to save the data.



1) Select the Recipe.

2) Change the mode from the "Manual" to "Automation" to click the button.

3) Finally click the "Start" button.