OPERATION MANUAL

For Everbeing Chamber PLUS Probe Station

EVERBEING INT'L CORP.

Distribution in the UK & Ireland

Lambda

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Introduction Notes

We thank you for your support and purchasing a new probe station from Everbeing Int'l Corp. As your new station, please read through this manual for important information regarding installation, operation, warranty and good practice notes. By using the station, it is assumed that the user has read through this manual carefully, and to contact us immediately for any aspects made unclear.

Below you will find relevant contact information:

Contact Information

Please refer to the following depending on how your station was purchased:

For sales inquiries, please contact your local dealer, if the product was purchased from them, otherwise, send your inquiries to sales@probestation.tw if your station was purchased directly.

For technical support, you may contact your local dealer or Everbeing directly.

Everbeing Headquarters Contact Information

Address:	No. 1 Jinshan 2nd St.
	Hsinchu, 30080
	Taiwan
Tel:	+886-3-666-2000
Fax:	+886-3-666-2200
E-mail:	sales@probestation.tw

Warranty Note

One Year Limited Warranty:

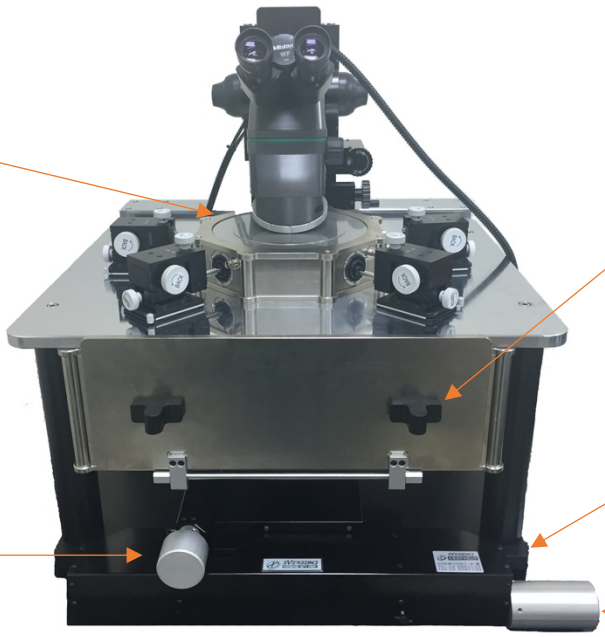
This EVERBEING product is warranted to be free from defects in both material and workmanship under proper use post one year starting from the date of delivery. Warranty replacements will only be offered if the product is assessed and deemed to be defective. This warranty does not include cases but is not limited to damage caused by physical accidents, neglectful operation, misuse, and any damage caused from tampering and/or modification by any individual or party that is not represented by EVERBEING or their authorized affiliates and partners. Repairs are to be sent to Taiwan at EVERBEING headquarters for processing. For full listing of proper user and misuse guidelines, please refer to section _____.

30 Day Policy:

Within the first 30 days, should you be dissatisfied upon receipt of this product, you may claim an RMA from EVERBEING. Upon inspection, EVERBEING will issue an exchange for the item

Operation Guide

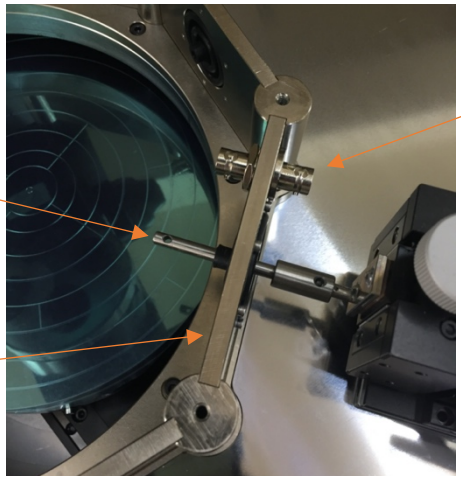
Station Breakdown



Station Setup

1. Please make sure the top hat is loosened and removed from the chamber top
2. If there are no probes, ensure the chuck vertical pneumatic switch is on, and the chuck is at the highest position.
3. If probes are present, refer to the steps in the following section where micropositioners are removed, then raise the chuck using the pneumatic switch

Setting Up Probes



1. These steps assume the steps from the previous section “Station Setup”, were followed.
2. Make sure the EB-005 micropositioner has the magnet disabled to the OFF positioner at the rear side
3. Carefully lift up the micropositioner with the tip holder feedthrough plate and place the micropositioner facing outwards to prepare the insertion of the probe. Turn the micropositioner magnet on.

4. Extract a tip from the probe tip box and insert into the probe holder while holding back the spring-loaded fixture. Insert until the tip is halfway through the slot
5. When placing the micropositioner back in place, carefully examine if the tip will crash onto the chuck. If there is this risk, readjust the probe higher or move the spring probe holder higher.
6. Once the micropositioner and feedthrough panels is in place, connect the triaxial connector on the inside of the chamber if not done already.
7. Connect the triaxial cable to the connector from the outside of the chamber and connect the other end to your instrument
8. Repeat this process for each micropositioner depending on the number of devices.

Setting up Samples

1. Check that the air pneumatic switch for chuck up/down is off, and chuck is at the lower position
2. At the front side of the chamber, open the front-loading door by pulling the right-side latch inward. The door will drop forward to open.
3. Below the chuck, and inside the chamber, there is a bar lever that holds the stacked stage together. Move the bar down and pull the chuck stage out to load your sample.
4. Place the sample and orient it to chuck
5. Turn on the vacuum switches at the side of the station base to secure the sample in place. Lightly touch the sample to check it is held securely.
6. When confirmed, push the chuck back into the chamber, and move the bar lever back.
7. Raise the chuck to probing height by turning on the air pneumatic switch

Using the Station

1. If using the probe station for cold temperature probing, make sure the top hat cover is on.
2. Turn on the light for the microscope and adjust the focus of the microscope until you can see the surface of your sample.

Chuck Temperature Operation

WARNING: If a cold temperature experiment is conducted, sufficient air circulation of the environment MUST be considered. Excess nitrogen that is released from the liquid nitrogen dewar and nitrogen air during chamber purging will push oxygen out of a closed environment. Purge of oxygen in a closed environment contains risk of asphyxiation.

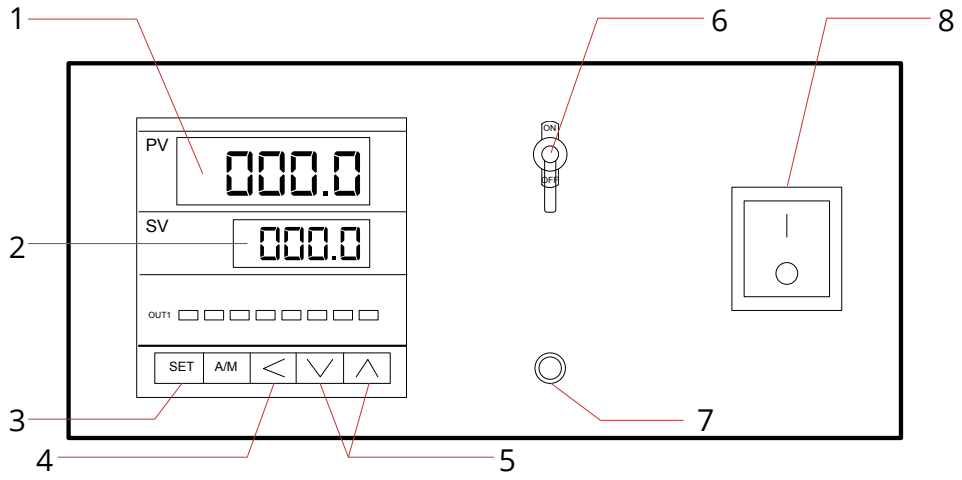
For temperatures below room temperature, please have liquid nitrogen prepared in the dewar. About 10 L will be enough for running experiment.

Preparation for Cold Measurements

1. Ensure the top hat of the chamber is covered.
2. Ensure that the air pneumatic switch for raising the chuck is on
3. Check the air hosetail at the rear side of the chamber is connected to Nitrogen air
4. At the bottom side of the chuck, check that all the shifting disks aligned on the chuck pillar are flush and without any leaks

Chuck Controller Operation

Panel Overview



1. PV: This is the temperature readout at the chuck side
2. SV: This is the desired set value for the controller
3. Set button
4. Digit Select Button
5. Numerical Select Button
6. Heater Power Switch
7. Heating Indicator Light
8. Controller Power Switch

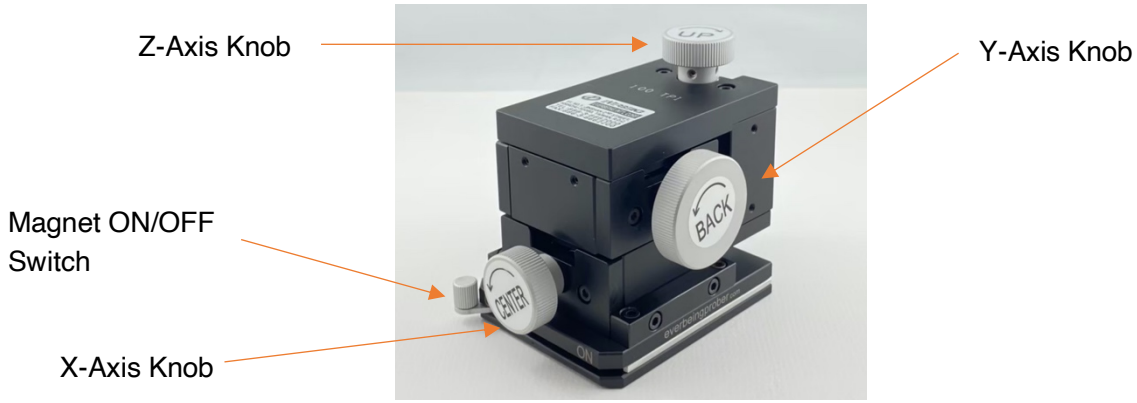
Controller Operation

1. Turn on the controller power **(8)**
2. Ensure that the Heating Power Switch **(6)** is OFF
3. Press the < button **(4)** (digit select button) to start the setting process
4. The right most digit on the SV panel **(2)** should start to flash. Press the < button until you reach the digit you want to change. When the left most digit is flashing, pressing < again, it will go back to the right most digit
5. At the desired digit, press the up or down buttons **(5)** to change the value of the digit.
6. When the desired value is set, press the set button **(3)**
7. If the desired SV value is below room temperature, observe the following sub-steps
    a. Ensure that nitrogen air is filled in the chamber for at least 10 minutes**!!**
    b. Slowly open the output valve of the dewar to about 10˚ open.
    c. Observe the reduction of temperature and open the valve larger if the rate stagnates.
    d. Be careful to not turn the valve fully open as the high flow of LN2 may drop below dew point and cause condensation.
    e. Let LN2 flow until it is below your SV value
8. At this point, toggle the heater power switch **(6)** to ON to start heating
9. The heating indicator light **(7)** will have a bold light showing that the chuck is being heated. When it is periodically flashing, the chuck is heating slowly. This usually occurs when the set temperature is reached.
10. Watch the PV value **(1)** for an indication when the desired value is reached.
11. When any experiment under 10˚C is being conducted, **DO NOT** open the chuck tray door or top hat until the chuck temperature rises to at least 10˚C.

Chuck Stage Movement

1. Use the X knob to pan the sample left and right
2. Use the Y knob to pan the sample up and down
3. Use the chuck stage X and Y movement to identify your probing position on the sample.

Micropositioner Movement



1. Using the micropositioners, move the probes to your probing points by using the X, Y, Z knobs
2. To move a probe towards your target, rotate the proper axis in X then Y.
3. To operate, rotate the X-Axis knob **counterclockwise** to move forward in X direction
4. Rotate the Y-Axis knob **counterclockwise** to move forward in the Y direction
5. Repeat steps 2 and 3 until your probing target is within view of your probe
6. From here, slowly rotate the Z-Axis knob **counterclockwise** to move downward in the Z direction.
7. Repeat these steps until all probes have been landed.
8. At this step, you can now run your experiments using the test measurement instrument connected
9. After probing, raise the Z-Axis knob by rotating clockwise. You can safely remove your device if necessary

Remarks

Trademark Notes

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Characterisation, Measurement & Analysis

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