PlasmaEtch PE-50 Standard Operating Procedure

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Figure 1: PlasmaEtch PE-50

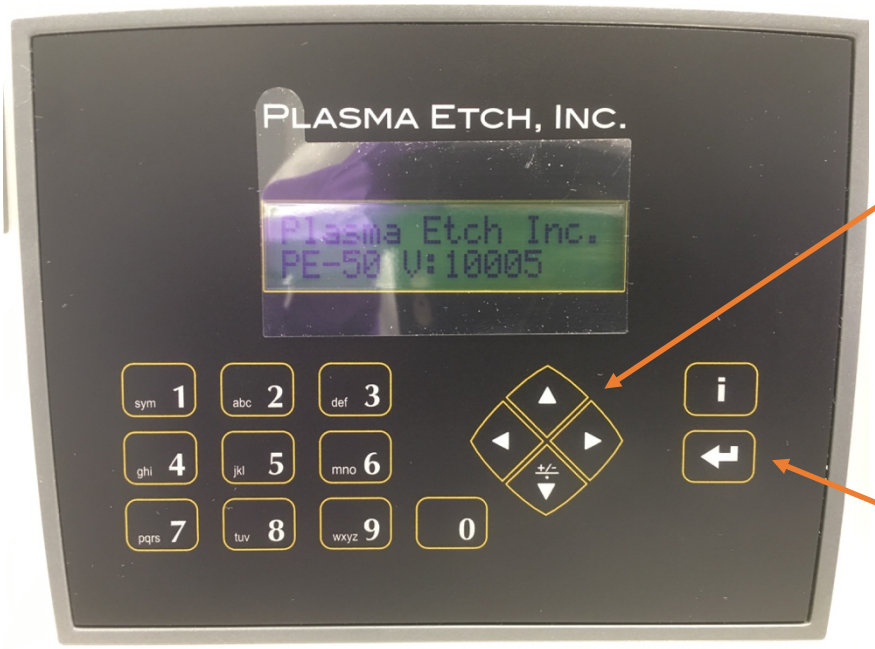

Figure 2: PlasmaEtch PE-50 Control Panel

1. **Startup**
   a. **Enable tool in Badger Software. Enabling tool will allow process gases to flow.**
2. **Command Entry (See Fig. 2)**
   a. **Press "Enter" key to initialize power**
   b. **Press "Enter" key again to go into the commands menu**
   c. **Pushing the "left" or "right" arrow key from the "Commands" menu will take you to the "set-up" menu. Press the "Enter" key to access the settings. System timers and other set-up parameters are entered in this area**
   d. **Use the "left" and "right" arrow keys to find a menu item within a menu area. Use the "up" arrow key to go to a previous menu area. Use the "enter" key to select a menu item.**
3. **Tool Operation Settings**
   a. **Plasma Time: 00:00 to 59:59; set time then press "enter"**
   b. **Vacuum Set Point: 1.0 to 1000.0 mTorr – Vacuum level set point required before gases are introduced into the chamber. Set the value then press "enter"**

   c. **Atmospheric Vent: 0-59.59 minutes – Time allowed for chamber to vent to atmosphere when "CYCLE STOP" is initiated. Set value then press "enter"**

   d. **Purge Vent: 0-59 seconds – Time allowed for purge air to be introduced in the chamber at the completion of a cycle. Set value then press "enter"**

e. **Gas Stability: 0-59 seconds – Delay before RF Power is applied after process gases are on. Set value then press "enter"**

f. **Vacuum Alarm: 0-59.59 minutes – Amount of time required to pump the system down to vacuum set point before initiating an alarm. Set value, then press "enter"**

4. **Tool Operation**
   a. **After the last operation setting has been input, press the "up" key to go to the setup menu**
   b. **Press the "left" or "right" key(s) to cycle through the different menus, until "commands" menu is reached**
   c. **Press the "Enter" key to access the "Commands" menu.**
   d. **Select the "Plasma" command.**
   e. **Load the material to be processed. Close the chamber door.**
   f. **Run a 15-minute warm up cycle to allow the system to stabilize before processing material.**
   g. **Actuate the "Enter" key to start the cycle. The vacuum pump will start, and the chamber vacuum reading will be displayed.**
   h. **The vacuum chamber will pump down to set point, process gases will enter the chamber.**
5. **Run process**
   a. **The vacuum chamber will pump down to set point, process gases will enter the chamber.**
   b. **The process gases entering the chamber will become stabilized**

c. **RF power will be applied to the process gases, creating a plasma. The plasma process timer will start. The plasma process indicator will light up to signal that the plasma process is occurring (See Fig. 1)**

6. **Process complete**
   a. **Process timer stops, plasma process indicator light turns off**
   b. **RF power is turned off**
   c. **Plasma glow is extinguished**
   d. **Process gas valves are turned off**
   e. **Vacuum pump is turned off**
   f. **Chamber vent valve is opened for time set in "Purge Timer".**
   g. **Chamber is pumped down to vacuum set point in "Vacuum Set" parameter**
   h. **After the vacuum set point is reached, the process is complete**
   i. **The "Plasma Cycle Complete" message will be displayed in the system status area**
   j. **The vacuum chamber will be vented according to the time programmed in the "Atmospheric Vent" timer setting in the set-up menu.**
   k. **Remove sample from tool and log off tool from Badger system.**