

## Sign On/Off Screen

All system users are required to sign on the system, to access the screens available for each individual level of privilege.

The Sign On/Off screen (Figure 1-1) allows the user to sign on and off the system at the assigned privilege level (see on page 1-12). In addition, the system supervisor can edit user names, ID numbers, designate privilege levels, and exit the program. Using this screen, a history of system use can also be displayed .



Figure 1-1

This screen's menu buttons and the functions they perform are described below.

### MAIN MENU

Returns the user to the Main Menu.



Figure 1-2. Main Menu

### SIGN ON

Signs the user onto the system at his/her privilege level.

To sign on to the system:

1. Click on the desired user shown in the User List (Figure 1-1).
2. Click on **Sign On**. The sign-on dialog appears.



Figure 1-3. Sign-On Dialog

3. Enter your ID (from one to six characters) and click on **OK**. The following message appears at bottom of screen:

89910 Welcome to Veeco's Microetch System  
or  
2002 Incorrect ID number

4. If you are signed on, click on **Main Menu**.
5. If you entered the wrong ID, you cannot access the Main Menu. Repeat steps 1 through 4. If you are still unable to sign on, contact the system supervisor.

**NOTE** When a new user signs on, the previous user is automatically signed off.

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### SIGN OFF

Signs the user off the system.

To sign off the system:

1. Click on **Sign Off**.
2. Click on **YES**, to sign off the system.

Privilege levels of Service Engineer or higher will be prompted to exit the program.

3. Click on **YES** again, to exit the application. Click on **NO** to allow another user to sign on.

## Chapter 2 Process Control Screen

### INTRODUCTION

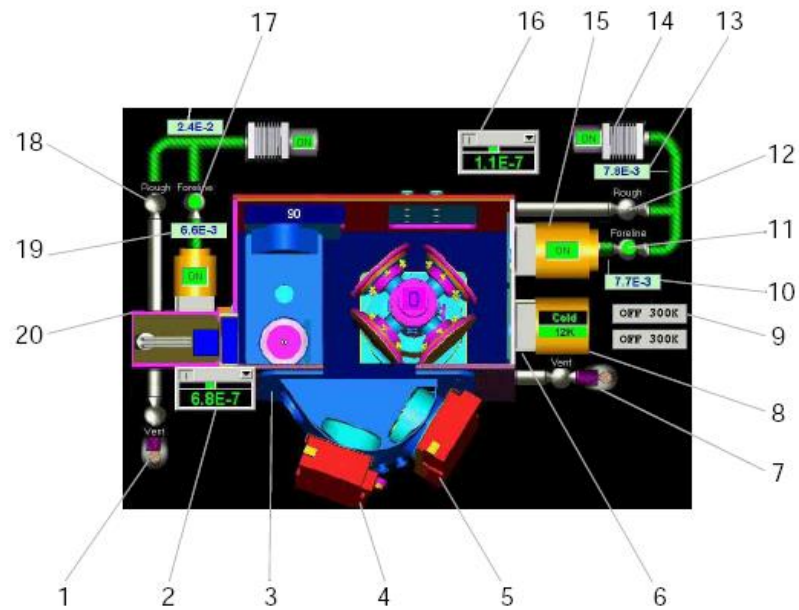
The Process Control screen (Figure 2-1) manages the operation of the mini loader and allows the user to select and run a process. Readbacks for the sources and wafer status are displayed. The data log can also be displayed by clicking on **View Data Log**.

The Process Control screen is displayed to all users. Access to sub-menus and operations depend on assigned privilege levels.



Figure 2-1. Process Control Screen

Process Control Screen



**Substrate Status**

- Blue = Unprocessed substrate in fixture
- Green = Processed substrate in fixture
- Yellow = Substrate partially processed or is currently being processed in fixture
- Red = Error

Figure 2-2. Process Control Screen—Detail

- |                                 |                                             |
|---------------------------------|---------------------------------------------|
| 1. Vent Valve                   | 11. Foreline Valve                          |
| 2. Mini Loader Pressure Gauge   | 12. Rough Valve                             |
| 3. Fixture                      | 13. Rough Pressure Indicator                |
| 4. Deposition Source            | 14. Rough Pump                              |
| 5. Assist Source                | 15. Turbo Pump                              |
| 6. Process Chamber              | 16. PM Pressure Gauge                       |
| 7. Vent Valve                   | 17. Foreline Valve                          |
| 8. Cryo Pump                    | 18. Rough Valve                             |
| 9. Water Pump temperatures      | 19. Mini Loader Foreline Pressure Indicator |
| 10. Foreline Pressure Indicator | 20. Mini Loader Chamber                     |

## Indicators

During system operation, the screen will display various operations, options, and processes. Their status is indicated when one of the colors is lit next to the operation or function. See table below.

Color	Status
Green	the operation is currently being performed and/or valve lines are open
Black	operation is not being performed
Red	an error has occurred
Yellow	a device is between two states or is busy. If the substrate displays yellow, it means the substrate is partially processed
Gray	an option is disabled or a valve line is closed

## Process Module Status Panel

The Process Module Status panel (Figure 2-3) indicates the status of the process module, current process being run, fixture position and status, and the target being used.

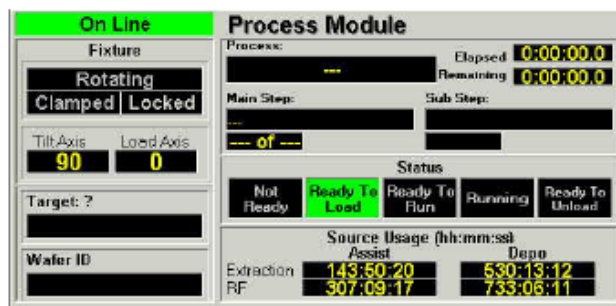


Figure 2-3. Process Module Status Panel

The following tables describe the functions of the Process Module Status panel.

Process Control Screen

PROCESS MODULE	
Fixture	<p><b>Rotating</b> - the fixture is clamped in position and in continual rotating motion.</p> <p><b>Clamped</b> - the clamps are down on the fixture.</p> <p><b>Locked</b> - the fixture can not move. When the isolation valve opens, the fixture locks.</p>
Tilt Axis	<p>Indicates the angle position of the fixture:</p> <ul style="list-style-type: none"> <li>- The range of the fixture is -90 to +90</li> <li>- The home angle position is +90</li> </ul>
Load Axis	not supported
Target	The number gives the target position; the text indicates the target material at this position.
Wafer ID	Displays the wafer ID number for the wafer currently being processed.
Process	Displays the name of the currently running process, or the name of the process that was just stopped.
Main Step	Displays the name of the currently running step, or the name of the step that was being run when the process was stopped.
Sub Step	Displays the name of the currently running sub step, or the name of the sub step that was being run when the process was stopped

STATUS	
Not Ready	A transfer cannot occur at this time.
Ready To Load	A wafer is ready to be loaded. Motion is initialized, and the vacuum levels are good.
<b>Ready To Run</b>	A wafer is loaded and a process is ready to run.
<b>Running</b>	A process is currently running.
Ready To Unload	The process is complete, and the robot arm is ready to retrieve the wafer.

SOURCE USAGE (hh:mm:ss)	
Assist	Time the assist source has been on.
Depo	Time the depo source has been on.
RF	Time the RF supply has been on.
Extraction	Time during deposition or etch.

### PM Status Panel

The PM Status panel (Figure 2-4) indicates the current condition of the process modules and the status of the sources.

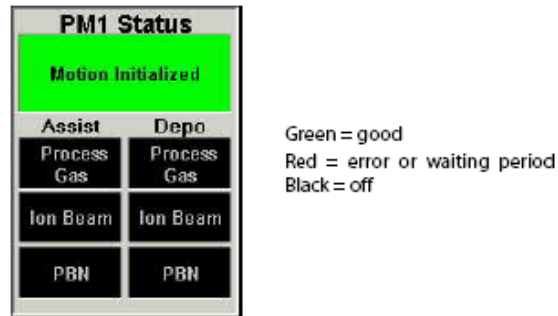


Figure 2-4. PM Status Panel

PM STATUS (when green, indicates that...)	
Motion Initialized	The fixture is in a state where it is safe for a substrate transfer to occur. When green, indicates that the motion has been initialized and the following conditions exist:  <ul style="list-style-type: none"> <li>- Fixture tilted to home position</li> <li>- Fixture rotated to home position</li> <li>- Fixture clamp is in unclamped position</li> </ul>
Depo Process Gas	Depo process gas is flowing within tolerance.
Assist Process Gas	Assist process gas is flowing within tolerance.
Depo Ion Beam	Depo ion beam is on and is operating within specified tolerances.

## Process Control Screen

PM STATUS (when green, indicates that...)	
Assist Ion Beam	Assist ion beam is on and is operating within specified tolerances.
Depo PBN	Depo PBN is on and is operating within specified tolerances.
Assist PBN	Assist PBN is on and is operating within specified tolerances.

## Process Control Panel



Figure 2-4. Process Control Panel

**Select** - Allows a previously written schedule to be selected and run.

**PM** - Displays process module status.

**Process Wafer** - Allows the deposition process to begin. All process status indicators must be enabled (green) or the process wafer button will not become enabled.

**Auto Unload** - Initiates an unload sequence. The load lock is vented.

**Stop** - Allows the user to immediately stop the selected process.

**Process Selected** - When green, a process has been selected and run.

**Unprocessed Wafer On Arm** - When green, an unprocessed wafer is in position to be moved into the process chamber.

**Door Closed** - The door to the single pallet transfer module has been closed. This interlock will be enabled automatically upon closing the door.



**Motion Initialized** - the fixture is in a state where it is safe for a substrate transfer to occur. When green, indicates that motion has been initialized and the following conditions exist:

- fixture is tilted to the home position
- fixture is rotated to the home position
- fixture clamp is in the undamped position

**PM Pumped Down** - When green, the pressure within the process module has been lowered to a sufficient level for running a process.

**PM Online** - When the process module is on line (green), a wafer can be loaded and unloaded, automatic transfers can occur, and processes can be run.

**Run No.** - Displays the run number currently being processed.

## Vacuum Pressure Levels

This panel (Figure 2-5) indicates pressure levels for the process module or mini loader. Either a rough vacuum gauge (measuring atmosphere to rough vacuum level  $1 \times 10^{-3}$  Torr) or an ion gauge measuring low ( $1 \times 10^{-4}$  Torr) to high vacuum ( $1 \times 10^{-8}$  Torr) levels.

TREND BAR



Figure 2-5. Vacuum Pressure Levels

The trend bars indicate the amount of pressure change over time. Green bars indicate that pressure is decreasing, while red bars indicate that pressure is increasing.

## Process Temperature

**Process Temperature**  
Thermocouple: **47.0**  
Minimum Temp: **0** Maximum Temp: **220**  
Warmup Required: **False** Cooldown Required: **False**  
Warmup Process File:  
 Auto Warmup

Figure 2-6. Process Temperature Screen

**Thermocouple** - displays deposition source grid temperature.  
**Minimum/Maximum Temp** - temperature range of deposition source grid  
**Warmup Required** - Either True or False. Set in Hardware Configuration Screen.  
**Cooldown Required** - Either True or False. Set in Hardware Configuration Screen  
**Auto Warmup** - When checked, initiates warmup if temperature is below minimum temperature.

**Warmup Process File** - Name of recipe.

## Mini Loader

This panel (Figure 2-7) allows the user to vent and/or pump down the mini loader chamber. Also displays the current position of the mini loader arm.

**NOTE** Mini loader status indicators will light automatically during a process, allowing the user to monitor the status of the mini loader arm.

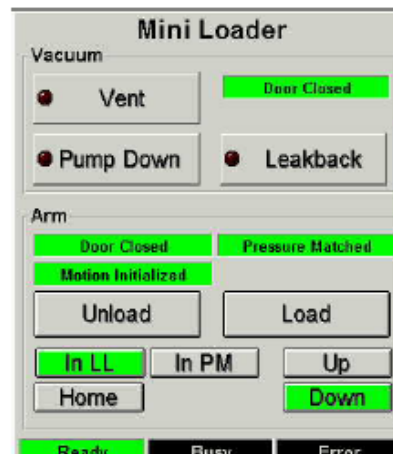


Figure 2-7. Mini Loader Control Panel

**Vent** - Allows the user to vent the mini loader chamber, bringing the pressure back to atmosphere.

**Pump Down** - Allows the user to pump down the mini loader chamber to a pressure level suitable for running a process and transfer.

**Door Closed** - Lights green when the door is closed.

**Leakback** - Initiates a chamber vacuum leakback test.

**Motion Initialized** - When green, the fixture is in a state where substrate transfer from the mini loader to the process chamber can occur.

**Pressure Matched** - When green, indicates that the mini loader chamber pressure and process chamber pressure are equal or nearly equal.

**Unload** - Click to manually unload a substrate from the process chamber.

**Load** - Click to manually move the substrate from the mini loader chamber into the process chamber.

**In LL** - When green, the mini loader arm is in the load lock position within the mini loader.

## Process Control Screen

**In PM** - When green, the arm is currently in the process module.

**Up** - Indicates that the mini loader arm has elevated.

**Home** - When green, indicates that the mini loader arm is in the home position.

**Down** - Indicates that the mini loader arm is down.

**Ready** - When green, indicates that the mini loader is on-line.

**Busy** - When yellow, indicates that the mini loader arm is in motion.

**Error** - Indicates an error, when transferring the substrate.

## View Data Log

This screen (Figure 2-8) displays the file location of data logs. Click on the desired log and it will appear. To close and return to the program, click on the close icon.

Each day a new sub-directory is created with the current date. In that sub-directory will be the RunNoXXX sub-directory of the day. Each time another pallet is run, the run number, RunNoXXX, is incremented.

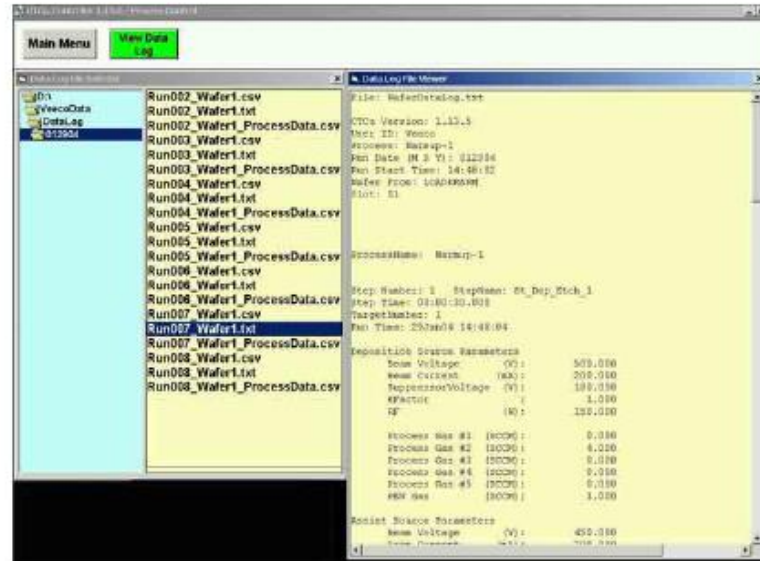


Figure 2-8. View Data Log

In each run number sub-directory will be the Waferxx file.

## View Data Log

This screen (Figure 2-8) displays the file location of data logs. Click on the desired log and it will appear. To close and return to the program, click on the close icon.

Each day a new sub-directory is created with the current date. In that sub-directory will be the RunNoXXX sub-directory of the day. Each time another pallet is run, the run number, RunNoXXX, is incremented.

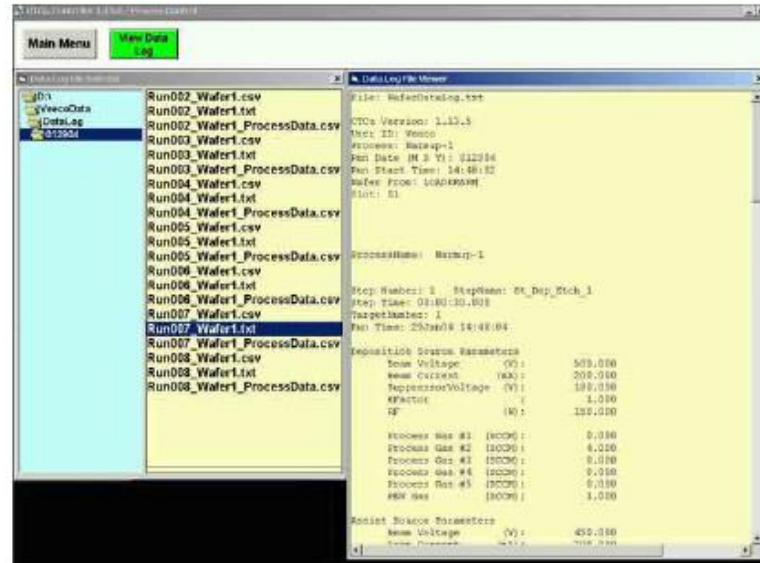


Figure 2-8. View Data Log

In each run number sub-directory will be the Waferxx file.

## Chapter 3 Process Module Screen

### INTRODUCTION

From the Process Module screen (Figure 3-1), the user can control major functions and view the real-time status of various areas in either module. If a process is running, the process parameters currently being applied can be viewed. Selection of either depo or etch source parameters can be displayed. This screen is also routinely used when performing preventive maintenance procedures.

**NOTE** Only users with a privilege level of Process Engineer or above can access this screen.



Figure 3-1. Process Module Screen with Assist Source Status Shown

## Button Bar

The button bar (Figure 3-2) provides access to the Main Menu and to the Depo Source, Assist Source, View Sources, Vacuum, Fixture, Target, and Process Control control panels.



Figure 3-2. Button Bar

## Indicators

During system operation, the screen, control panels, and buttons will display various operations, options, and processes. Their status is indicated when one of the colors is lit next to the operation or function. See table below.

Color	Status
Green	the operation is being performed and/or valve lines are open/on
Black	operation is not being performed. Also indicates that power supplies and pumps are off
Red	an error has occurred
Yellow	a device is between two states or is busy. If the substrate displays yellow, it means the substrate is partially processed
Gray	an option is disabled

Figure 3-3. Indicators and their Meaning



## Status Panels and Readouts

### INTERLOCKS

Each module is equipped with software and hardware interlocks for equipment and personnel safety. The interlock lights green when made, black when not made, as shown below for a typical Interlocks panel

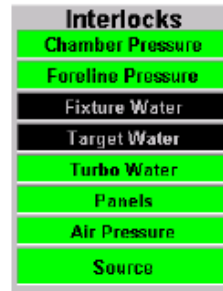


Figure 3-4. Interlocks Panel (typical)

During a process, before a beam will go on, all the interlocks must be made; that is, their conditions satisfied as defined in the following table.

INTERLOCKS PANEL	
Interlock	Condition for Making Interlock
Chamber Pressure	The process chamber is pumped to the vacuum pressure set point level as programmed into the chamber's Pirani controller and as defined in the Configuration screen.
Foreline Pressure	The pressure in the foreline (between the rough pump and the turbo) is at the pre programmed vacuum level.
Turbo Water	The turbo pump is on and house water is running through the turbo at the appropriate rate (30 gal/hr.)
Source/Target Water	When green indicates house water is flowing around the target and sources.
Assist Gas Box	When green, the assist gas box cover is on.
Depo Gas Box	When green, the deposition gas box cover is on.

Process Module Screen

INTERLOCKS PANEL	
Interlock	Condition for Making Interlock
Panels	All control rack panel doors, chamber doors, and PBN covers are closed.
Air Pressure	The air pressure at all valves must be 80-90 psi.
Source	The source power supply water flow must be at 1 gpm, and the source water must be at 0.67 gpm. The source RF shields must be closed. All other interlocks must be made for the source interlock to be made. When made, the source can then be turned on for testing or to run a process.

PROCESS            MODULE            STATUS            PANEL            PM1

The Process Module Status panel (Figure 3-5) indicates the status of the depo module's fixture, process gas, source beam, and PBN for both the assist and depo sources.

**NOTE**

During beam ignition, indicator lights may change from red to yellow to green. This is normal; no corrective action is necessary.

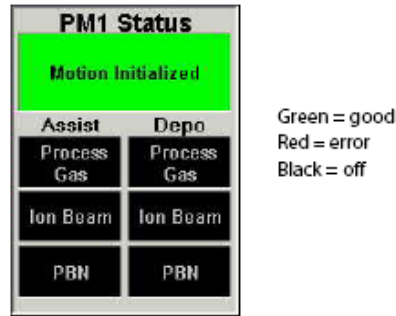


Figure 3-5. PM1 Status Panel

PM STATUS PANEL	
When Green	Indicates That...
Motion Initialized	The fixture is in a state where it is safe for a substrate transfer to occur. When green, indicates that the motion has been initialized and the following conditions exist: <ul style="list-style-type: none"> <li>- Fixture tilted to home position</li> <li>- Fixture rotated to home position</li> <li>- Fixture clamp is in unclamped position</li> </ul>
Process Gas	Process gas is flowing within tolerance.
Ion Beam	Beam is on and is operating within specified tolerances
PBN	PBN is on and is operating within specified tolerances

### FIXTURE MOTION STATUS PANEL

Allows the user to view fixture motion parameters.



Figure 3-6. Fixture Motion Status Panel

**Rotating** - the fixture is clamped in position and in continual rotation motion

**Clamped** - the clamps are down on the fixture.

**Locked** - the fixture can not move. When the isolation valve opens, the fixture locks.

**Tilt Axis** - Indicates the angle position of the fixture:

- The range of the fixture is -90 to +90
- The home angle position is +90

**Load Axis** - not supported

TARGET STATUS PANEL  
The Target Status panel allows the user to view target parameters.



Figure 3-7. Target Status Panel

**Material** - indicates the material being used

**Side** - indicates selected target side

**Angle** - not supported

## PROCESS STATUS

The Process Status is displayed on the Process Status panel.

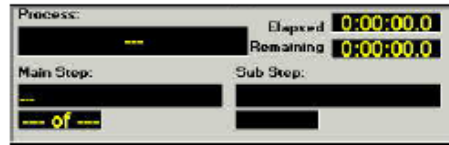


Figure 3-8. Process Status Panel

**Process** - Displays the name of the currently running process, or the name of the process that was just stopped

**Elapsed** - Displays the time elapsed since the start of the process

**Remaining** - Displays time remaining to complete the process

**Main Step** - Displays the name of the currently running step, or the name of the step that was being run when the process was stopped

**Sub Step** - Displays the name of the currently running sub step, or the name of the sub step that was being run when the process was stopped

CHAMBER VACUUM PRESSURE READOUTS

The ion gauge readout displays pressure from rough to high vacuum levels. The Pirani gauge readout displays pressure from atmosphere to rough vacuum.

PRESSURE MEASURED BY ION GAUGE. A PIRANI GAUGE IS INDICATED BY A 'P'



CLICK HERE TO ACCESS OTHER CHAMBER READOUTS

PIRANI GAUGE READOUT



TREND BAR

ION GAUGE READOUT

Figure 3-9. Chamber Pressure readouts

The trend bars indicate the amount of pressure change over time. Green bars indicate that pressure is decreasing, while red bars indicate that pressure is increasing.





## Control Panels

**SOURCE CONTROL**  
 This example illustrates how the Source Control panel (Figure 3-13) may look. In this panel, a user may view gas flow settings by channel, source-related readbacks, current values for AC power, RF, Grid, and PBN power. The user may change the values in this control panel. Manual beam control is also provided.

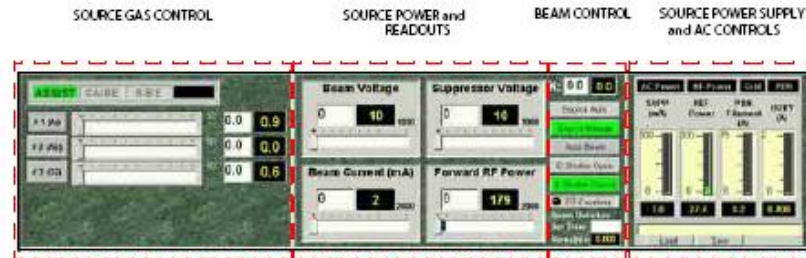


Figure 3-13. Source Control Panel

### Source Gas Control

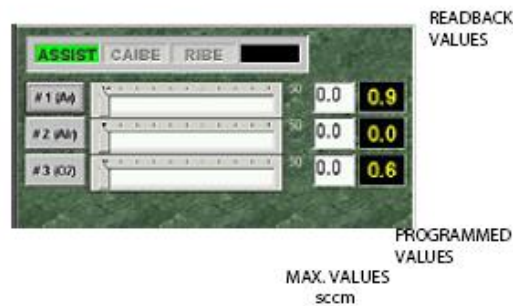


Figure 3-14. Source Gas Control Panel

**DEPO** - indicates gas status for the depo source  
**ASSIST** - indicates gas status for the assist source  
**RIBE** (Reactive Ion Beam Etching) - used only on etch modules (N/A for IBD/O)  
**CAIBE** (Chemically Assisted Ion Beam Etching) - used only on etch modules (N/A for IBD/O)

**Channels 1-3 Supply** - Displays the three gas channels, the gas used in each channel, and gas flow levels

Turning on the Gas Channels (manual operation)

The shutoff valve is turned on first, then the supply valve is turned on. The valve displayed on the screen turns green when opened.

Auto On turns on the valves automatically by performing the following:

- Turns on shutoff valve
- Initiates delay
- Turns on supply valve

Auto Off turns off the valves automatically by performing the following:

- Turns off supply valve
- Initiates delay
- Turns off shutoff valve
- Pumps out in-line gas



Figure 3-15. Gas Channel

## Source Power and Beam Controls

This example shows the source readouts and controls (Figure 3-16) for the assist source. Here the manual source mode is enabled and the electrostatic shutter is open.

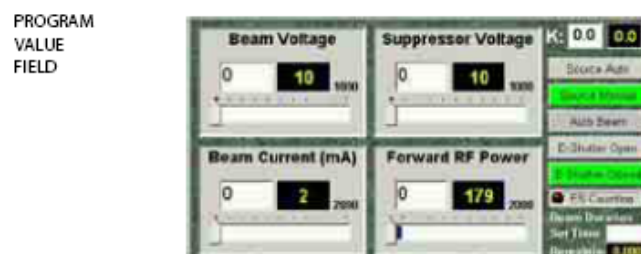


Figure 3-16. Assist Source Readouts and Controls

Assist Source Readouts and Controls	
Readouts/Controls	Function
Beam Voltage (V)	Real-time level of beam voltage applied to the grids. Enter the numeric values by positioning the cursor in the program value field and typing the number to set value.
Beam Current (mA)	Real-time level of beam grid current. Enter the numeric values by positioning the cursor in the program value field and typing the number to set value.
Suppressor Voltage (V)	Real-time level of suppressor grid voltage. Enter the numeric values by positioning the cursor in the program value field and typing the number to set value.
Forward RF Power	Current total power output of the RF power supply. Enter the numeric values by positioning the cursor in the program value field and typing the number to set value.
K	Ratio of PBN current to beam current; should be >1. $K = I_{PBN} / I_{BEAM}$
Source Auto	Indicates the selected source operates on values set by the computer and is under computer control.
Source Manual	Indicates the selected source operates under user control. The user sets the sources levels on values selected manually at the power supplies in the rack by the user.

Process Module Screen

Assist Source Readouts and Controls	
Readouts/Controls	Function
Auto Beam	All functions (grids, gas, RF power) are turned on by the computer when a process is run  These values can also be entered manually, using the screen shown in Figure 3-16. Once entered, select <b>Auto Beam</b> .
E-Shutter Open	The beam is on
E-Shutter Closed	The beam is off
ES Counting	Used only if electrostatic timer board is installed. When indicator is green, the timer board is in the process of a countdown
Beam Duration	Set Time - User-specified step time (in seconds)
	Remaining - Indicates how much step time is remaining

## Source Power Supply and AC Controls

SELECT A BUTTON TO APPLY  
POWER.

GREEN – POWER IS ON  
BLACK – POWER IS OFF

MAXIMUM  
VALUE

DISPLAYS  
REARBACK  
VALUES

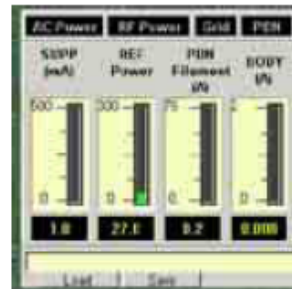


Figure 3-17. Source Power Supply and AC Controls

Source Power Supply and AC Controls	
AC Power	Turns on the power to the power supplies in both racks if chamber vacuum interlock switch is made.
RF Power	Turns on RF power generator.
Grid	Turn on power supplies for the grid (suppressor and beam supplies in the rack) and, if voltage values are present, applies these voltage values to the grids.
PBN	Applies power to the PBN.
SUPP (mA)	The amount of current, in mA, at the suppressor grid.
REF Power	Power reflected back from the source to the RF generator output due to an impedance mismatch. The automatic networking software automatically controls any mismatches.
PBN Discharge (A)	The amount of discharge current, in Amps, at the PBN.
Body (A)	Readback from the PBN body power supply. The amount of current, in amps, found at the PBN body.
Load	Allows the user to load a set of previously saved auto beam parameters
Save	Allows the user to name and save a set of auto beam parameters

## Process Module Screen

### View Sources Panel

This panel allows the user to simultaneously view both the assist and deposition source activity. All relevant values are displayed during a process. The indicators will turn green, when a particular function is performed.

**NOTE** Values on this screen can not be changed.

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Figure 3-18. View Sources Panel

VACUUM

CONTROL

Clicking on **Vacuum**, displays the Vacuum Control panel (Figure 3-19). The Vacuum Control panel controls the process chamber's pumps, valves, and the degas ion gauge and PolyCold unit (if installed). It also displays the power status of the pumps and the cryo temperature. Each pump, valve, or operation is implemented via a button with a LED indicator on it



Figure 3-19. Vacuum Control Panel

Chamber



Figure 3-20. Chamber Rough Pump and Valve Controls Panel

Rough Pump and Valve Controls	
Button	Button Function (when clicked)
Rough Pump Power	Toggles power to the rough pump on and off.
Auto Pump Down	The process chamber is automatically pumped down
Auto Vent	An auto-vent of the process chamber is performed
Chamber Heater	If chamber heaters are installed, this button toggles the power on and off. In this example, chamber heaters are not available.
DeGas Ion Gauge	If an ion gauge is installed on the chamber, clicking on this button will degas it.
Isolation Valve	Opens and closes the gate (isolation) valve between the selected process module and the arm chamber
Rough Valve	Opens and closes the process chamber's rough valve

Rough Pump and Valve Controls	
Button	Button Function (when clicked)
Vent Valve	Open and closes the process chamber's vent valve
Log Vacuum	A log vacuum test, which is used routinely after maintenance, is performed automatically, when this button is clicked
Leakback Test	A chamber vacuum test is performed

Turbo Pump Controls



Figure 3-20. Turbo Pump Controls

Turbo Pump Controls Description	
Button	Button Function (when clicked)
Turbo Power	Turns the turbo pump on and off. When the LED is green, the main turbo pump is on and up to speed. When the LED is yellow, the turbo is spinning up.
Foreline Valve	Opens and closes the foreline valve. When the LED is green, the foreline valve is open. When the LED is yellow, the foreline valve is closed.
Open Gate Valve	Opens the gate valve. When the LED is green, the turbo gate valve is open.
Close Gate Valve	Closes the gate valve. When the LED is green, the turbo gate valve is closed.



## Cryo Pump Controls

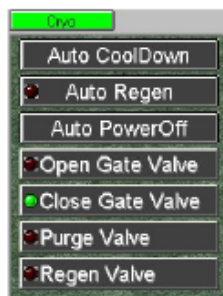


Figure 3-21. Cryo Pump Controls

Cryo Pump Controls Description	
Button	Button Function (when clicked)
Auto CoolDown	Turns the cryo head on and off.
Auto Regen	When selected, causes the cryo pump to perform an automatic regeneration (purge and cool down).
Auto PowerOff	Performs an automatic power down of the cryo pump. When the LED is green, the auto power down sequence is in process.
Open Gate Valve	Opens the cryo gate valve (if installed). A green LED indicates that the cryo gate valve is open.
Close Gate Valve	Closes the cryo gate valve (if installed). A green LED indicates that the cryo gate valve is closed.
Purge Valve	Opens and closes the cryo pump's purge valve. A green LED indicates that the purge valve is open, black indicates it is closed.
Regen Valve	Opens and closes the regen valve. A green LED indicates that the regen valve is open, black indicates it is closed.

### FIXTURE

### CONTROL

Clicking on **Fixture** displays the Fixture Control panel (Figure 3-22). The Fixture Control panel manages fixture clamping and the substrate shutter.



Figure 3-22. Fixture Control Panel

### Fixture Control

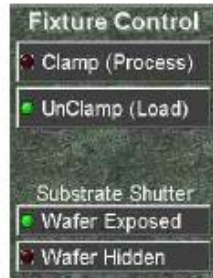


Figure 3-23. Fixture Control

**Clamp (Process)** - The clamp moves up to secure the substrate.

**Unclamp (Load)** - The clamp moves down to release the substrate.

**Wafer Exposed** - Substrate shutter is open.

**Wafer Hidden** - Substrate shutter is closed.

### Fixture Rotation

The Fixture Rotation Control panel allows the user to control the fixture's rotation.



Figure 3-24. Fixture Rotation Control Panel

**Rotate** - Turns rotation capability on and off. RPM display shows rotation speed in revolutions per minute. Rotation speed can also be entered manually. To do this, type in the RPM value in the RPM ENTRY field, and press Enter on your keyboard.

**Home** - Click to rotate the fixture home. The Fixture Home indicator lights green when the fixture is in the home position. If an error occurs, the Fixture Error indicator will light red.

**Initialize Motion** - Click to perform an automatic initialize motion sequence:

- Fixture is tilted to the home position
- Fixture is rotated to the home position
- Fixture clamp is in the unclamped position.

### Fixture Tilt Axis

The Fixture Tilt Axis control panel allows the user to manually control the fixture's tilt angle (if not locked).



TILT ANGLE FIELD

Figure 3-25. Fixture Tilt Axis Control Panel

**Home** - Sends the fixture home

**Tilt Angle** - Allows the user to enter a tilt angle (press the **Enter** key on your computer keyboard, after entering a tilt angle value)

**Home LED** - Lights green when fixture is in the home position

TARGET CONTROL PANEL

Clicking on **T a r g e t** displays the Target Control panel (Figure 3-26). These panels are used to control and display target operation, material, and cooling.



Figure 3-26. Target Control Panel

Target Position

This panel displays the current material used on the target as assigned through the Configuration screen. The first target position is preset at the factory as the Home position.



Figure 3-27. Target Position Control Panel

### Target Shutter

This panel controls the target shutter.



Figure 3-28. Target Shutter Control Panel

**Shutter Open** - LED is green, when the shutter is in the open position.

**Shutter Closed** - LED is black, when the shutter is in the closed position.

### PROCESS CONTROL and STATUS

Clicking on **Process Control** displays the Process Control panel (Figure 3-29). The Process Control panel provides quick access to process control functions without having to exit the Process Module screen.

**NOTE** For full process editing capabilities, access the Process Control screen.

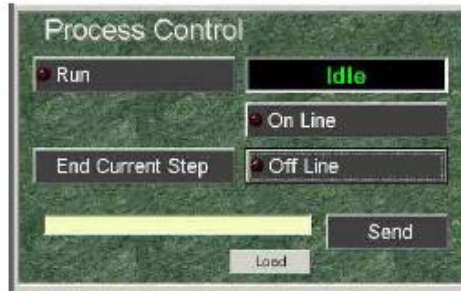


Figure 3-29. Process Control Panel

**Run** - Runs the currently selected process.  
**End Current Step** - Ends the currently running step and continues next step.  
**On Line** - Puts the system on line-the front end and the process module is communicating and are ready for commands.

**Off Line** - Halts the system. The indicator area below the Off Line control button provides a status of the currently selected process.

**Load** - Allows the user to select a process.  
**Send** - Sends currently loaded process to the PM.

### ELLIPSOMETER



Figure 3-30. Ellipsometer Control Panel

**Shutter** - Opens and closes the shutter. LED is green, when shutter is open; black, when closed.