

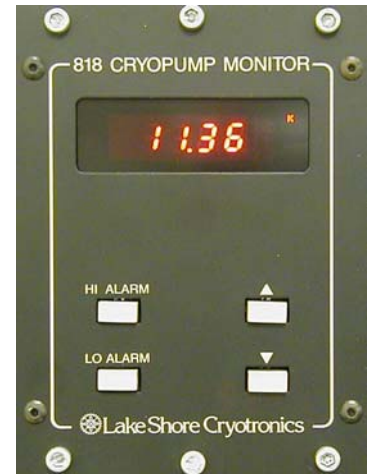
OPERATING PROCEDURE CVC 601 DC Sputter Deposition Targets 1 & 2 Operation

Rev. 12/5/2001

Complete the pre-run check and substrate loading procedure prior to using this procedure.

Pre-Run Check

1. Ensure that the following services are on: water, cryo pump, and mechanical pump.
2. Check the cryo pump monitor reads **< 20K**.
3. Check the station water temperature gauges read **< 25°C**.
4. Turn on power to: interlock control panel, automatic valve control, Ion-TC gauge control, DC target select.
5. Ensure that the **Gas Inlet Valve** on the vacuum chamber is **CLOSED**.
6. The Ar cylinder in the last chase should be **ON**.
7. Ensure that the **water recirculator** is **ON** (the interlock lights should be green not red). If the water is off, you must turn on the water recirculator under the table.
8. Check that the interlock has all green lights.
[Note: A switch may be red if staff has placed it in “by-pass” mode.]

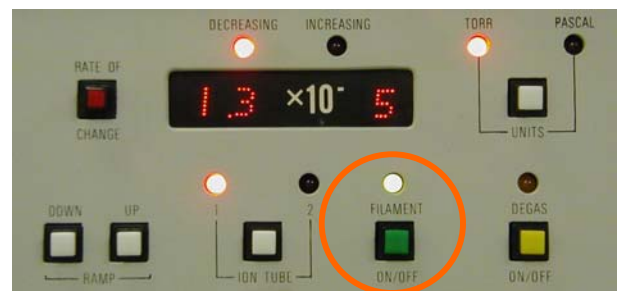


Emergency Power Off

If during operation an emergency occurs, the emergency power off button is located on the left control panel. This will turn off the power to the entire system.

Pressure Operating Point

(May have been completed during the heater step or per-etch step.)



1. Turn **OFF** the **Ion Gauge** by pressing and releasing the green **FILAMENT ON** switch on the **Ion Gauge Controller**.



2. Close the throttle valve by turning the switch to **AUTO** on the **Throttle Valve Controller**.
3. Place the **flow valve controller** on the **argon pressure control panel** in the **CLOSED** position (red LED will light in 1/2 min).
4. **OPEN** the **Gas Inlet Valve** on the vacuum chamber.
5. Ensure **Range** is at **.01**. Place **SET POINT** controller on **Baratron** panel to the desired deposition pressure.

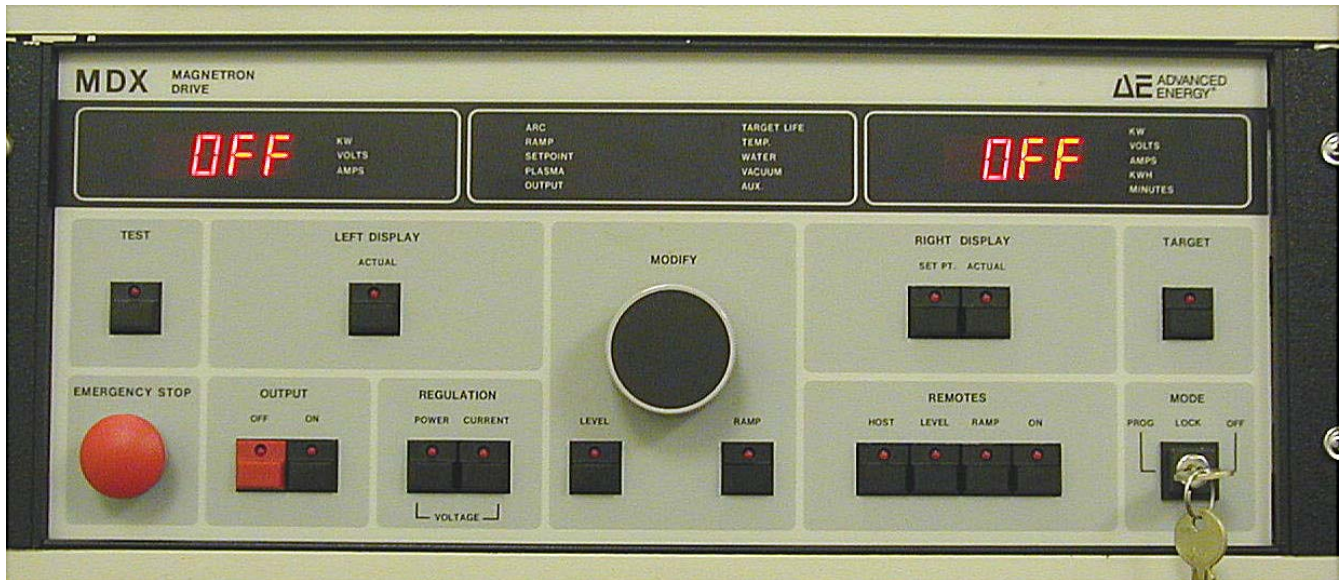


6. Put the **flow valve** on the **Baratron** panel in **AUTO** and wait for pressure to stabilize.

7. Turn **ON** the **rotostrate controller** to desired speed.
8. Select the proper target on the DC target selector — **1** or **2** for DC deposition.



Programming the MDX Power Supply



1. Turn on the power to the MDX DC Supply using the key switch. — (3 LED's will light: H2O, VAC, AUX)
2. Turn **MODE** key switch to **PROG**. To turn off alarm press Output OFF.

Out-Of-Set Point Time

- Press and hold the **CURRENT** switch —Current switch will light statically
- Momentarily press the **SETPT** switch — the setpt, amps and minutes will flash.
- Use **MODIFY** knob to specify set point.
- Release **CURRENT** switch.
- Select **POWER** regulation mode again.

Hold
CURRENT

Press SETPT

Turn MODIFY

Output Power Limit

- Press and hold the **LEVEL** (Modify) switch —level and setpt switch will light.
- Use **MODIFY** knob to specify set point.
- Release **LEVEL** switch.

Hold LEVEL

Turn MODIFY

Ramp Time

(Check the Ramp Sheet for suggested ramp time for your target size and material.)

- Press and hold the **RAMP** switch — ramp and setpt switch will light statically and the minutes LED will light.
- Use **MODIFY** knob to specify ramp time.
- Release **RAMP** switch.

Hold RAMP
Turn MODIFY

Deposition Time

- Press and hold the **RAMP** switch — ramp and setpt switch will light statically.
- Momentarily press the **SETPT** switch — ramp LED will extinguish and the setpt switch will flash, as will the minutes LED.
- Use **MODIFY** knob to specify deposition time
- Release **RAMP** switch.
- Turn the **MODE** key switch to **LOCK**.

Hold RAMP
Press SETPT
Turn MODIFY

Performing Deposition

1. Position the shutter over the target you are using.
2. Check the deposition pressure and rotation are correct.
3. Check the target selection for the correct target.
4. Press the MDX **OUTPUT ON**. If the **OUTPUT OFF** is flashing, press it first.
5. The power will now ramp the proper setpoint and the timer on the MDX will count down. (One alarm bell sounds at end of ramp time.)
6. At the one alarm bell, manually open the shutter. The timer will count up to set deposition time.

IF OUTPUT IS ON YOU CAN CHANGE THE LEVEL AFTER RAMP
The **LEVEL** LED switch will light
Press and hold the **LEVEL** switch.
Use **MODIFY** knob to specify set point.
The **SETPT** LED will light when the output is equal to the set point.

Completion of Deposition

1. At the end of a programmed run, the output will be turned off. The LED on the **OUTPUT OFF** switch will flash and an alarm will sound. To disable the alarm press **OUTPUT OFF**.

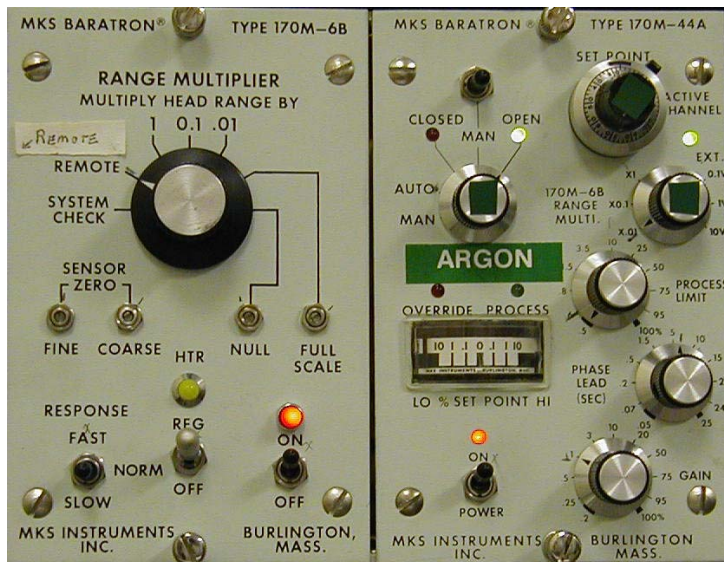
If processing is complete continue to Step #2.

For a subsequent deposition, return to the start of this section.

2. Turn off power to the MDX.
3. **CLOSE** the Gas Inlet Valve on the vacuum chamber.
4. **OPEN** the flow valve on the Baratron panel (green LED will light in 1/2 min).



5. **OPEN** the throttle valve.



6. Turn **OFF** the Rotostrate controller. Set speed to **0**.
7. Let the system cool for 20 minutes prior to venting.
8. Go to **Wafer Unloading Procedure**.