

Startup and Shutdown Procedures Xcalibur-2 system



Instrument scientist: Dr. Ross Angel

Startup Procedures

- 1) Boot the computer.
- 2) Turn on the main water lines (supply and return) on the wall. The taps are open when the handles are parallel to the pipes.
- 3) Power up the Xrays:
 - a) Open the 3 red valves on the KMW3000 chiller. The valves are open when they are parallel to the water lines.
 - b) Turn the KMW3000 chiller on by turning the key. The GREEN light on the chiller should be lit and all RED lights should be off. If any RED lights are lit, turn off the chiller and contact Jing Zhao or Ross Angel.

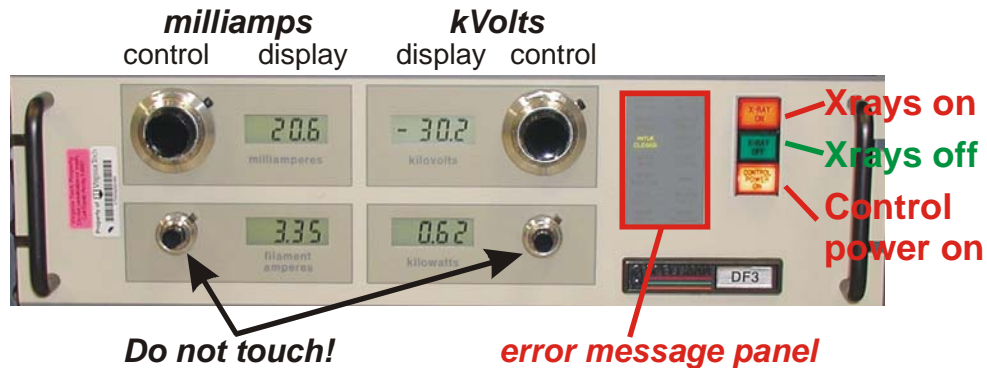


Figure 1: Spellman Generator Controls

- c) Turn on the MAINS switch in the lower left of the generator cabinet. At this point three things should happen: (1) Four small green lights and no red lights to the far right of the mains switch should be lit. (2) The green XRAY OFF button on the Spellman Generator should light (Fig 1), and (3) a green INTLK CLOSED message should illuminate in the error message panel (Fig 1). If INTLK OPEN is lit, then there is no cooling water, so check the KMW3000 chiller. If these three things don't happen exactly as described (for example, if additional messages appear), discontinue the startup procedure and contact Jing Zhao or Ross Angel.
- d) Press the orange CONTROL POWER ON button (Fig 1). You should see the mA, kV, filament amperes, and kW windows illuminate.
- e) While holding down the green XRAY OFF button, set the mA = 10 and the kV = 20 with the LARGE control potentiometers. NEVER adjust the small potentiometer labeled filament amperes or kilowatts.
- f) Press the red XRAY ON button. The generator will ramp up to 10 mA and 20 kV. If this doesn't happen, then the most likely problem is a dead light bulb in one of the safety interlock systems—contact Jing Zhao or Ross Angel.
- g) Adjust the voltage and current to the desired values (typically 50 kV and 40 mA).

Shutdown Procedures

ONLY PERFORM SHUTDOWN IF YOU ARE SPECIFICALLY INSTRUCTED TO DO SO OR IN CASE OF EMERGENCY. IF POSSIBLE, CONTACT JING ZHAO, ROSS ANGEL OR CARLA SLEBODNICK BEFORE PERFORMING AN EMERGENCY SHUTDOWN.

- 1) Power down the Xrays:
 - a) Reduce the current to 5 mA and voltage to 10 kV. Wait 5 minutes.
 - b) Press the green XRAY OFF button.
 - c) Press the orange CONTROL POWER ON button. The displays will go off. Wait 5 minutes.
 - d) Toggle the MAINS switch in the lower left to the off position.
 - e) Turn the KMW3000 chiller off by turning the key and turn all 3 red valves to the off position (perpendicular to the water lines).
- 2) Turn off the chilled water supply (two taps located on the end wall of the lab). The taps are OFF when the tap handle is perpendicular to the water line.
- 3) Shut Down the computer.