

Magnet Energization Procedure

Remote Magnet Controls

As of May 2nd, the magnet power supply will be controlled via an RDP desktop. There is a shortcut to "magnet" on the remmina icon at the upper right of the screen. Here's a quick list of the commands of this interface as it differs from PDP.

As of May 10th, we are leaving the magnet in driven mode, meaning the switch heater is always on and the leads are always connected to the magnet!!

- Any State Changes:
 - Watch the heartbeat to ensure connectivity and ensure any commands sent are reflected in the status box on the left.
- Change Ramp State:
 - A Drop Down list replaces the "Hold", "Goto Set" and "Goto Zero" buttons. Select the desired state from the list and click "Set" to set that state. Ensure the state changes in the status boxes on the left.
- Change Ramp Setpoint or Rate:
 - The Setpoint and Rate input boxes are on the right. Enter new values and press enter, then click "Set" to send the commands to change the point. Ensure the state changes in the status boxes on the left.
- Heater Switch:
 - An Up/Down Switch controls the switch heater. Move to the switch to Up and click "Set" to send the heater on command. Ensure the heater light comes on or off after the command is sent.
 - BE SURE TO WAIT 30 SECONDS AFTER SENDING A HEATER COMMAND! THERE IS NO COUNTDOWN IN THIS VI!!!!
- General Hints:
 - The state must be in "Hold" for the heater to change state.
 - The "Persistent Current" indicator only reads when the heater is OFF!!!!
 - The "Leads Current" gives the current when the heater is on.
- To recover from a spontaneous ramp down:
 1. Ensure lead and persistent current are the same.
 2. Turn on Heater
 3. Ramp back to previous set current

Ramp Up Procedure

Restrictions:

- DO NOT exceed rate limits listed below magnet can quench
- DO NOT allow persons with medical implants near magnet death can occur
- AVOID the need for a fill during ramping - warm gas can cause quench
- Ensure safety prerequisites for magnet ramping are met.

Procedure: Instructions from Counting House which assumes: The magnet power supply is on and a sweep for magnetic objects from an area within 4m of the magnet has already been done

1. Put PDP in "Monitor," if necessary, to allow updates from users
2. Press "Unlock Magnet Controls" button in the Polarization Display Panel, **PDP**
 - **Verify** that there is no current in the leads (Power supply icon, far left)
3. Press "Hold" button

4. Hit "Heater On" button and confirm this action in the dialog box that presents itself
 - Wait until timer counts down to zero (maybe a little more)
5. The magnet must be ramped up in steps with the correct current rates, PDP should not allow you to exceed these rates, but be mindful. For 2.5T Set the Setpoint to 60.9135A and Setrate to 3.0A/min. There is only one step in this case. For 5.0T there are four steps (seen below). At each step enter the Setpoint and corresponding Setrate then press To SETPOINT

when the current has been reached press HOLD and change value to the Setpoint and Setrate for the next step and press SETPOINT. After each change of Setpoint and Setrate check the Magnet Control display in PDP to make sure Labview is reading in correctly

1.
 - A.) Setpoint: 80A Setrate: 3.0A/min
 - B.) Setpoint: 100A Setrate: 2.0A/min
 - C.) Setpoint: 115A Setrate: 1.0A/min
 - D.) Setpoint: 121.825A Setrate: 0.5A/min
2. Press "Hold"
 - If persistent mode is not desired, stop here
3. Wait for a few seconds
4. Press the "Heater Off" button
 - Wait until timer counts down to zero (maybe a little more)
5. To ramp down leads, press "To Zero" button
6. Press "Lock Magnet Controls" button

Ramp Down Procedure

1. Press "Unlock Magnet Controls" button in the Polarization Display Panel, **PDP**
2. If necessary, Ramp the Power Supply to the Magnet Current
 - Type the value of the magnet current (this is in Amps) into the "Setpoint" box
 - Press "To Setpoint"
 - Wait for the PS current to reach the Magnet current
3. Press "Heater On" button and confirm this action in the dialog box that presents itself
 - Wait until timer counts down to zero (maybe a little more)
4. Set the first Setpoint and Setrate values. PDP should not allow you to exceed these rates, but be mindful. With 2.5T you can just press TO ZERO. With 5.0T the magnet must be ramped down in steps. At each step enter the Setpoint and corresponding Setrate then press To SETPOINT when the current has been reached press HOLD and change value to the Setpoint and Setrate for the next step and press SETPOINT. After each change of Setpoint and Setrate check the Magnet Control display in PDP to make sure Labview is reading in correctly
 - A.) Setpoint: 115A Setrate: 0.5A/min
 - B.) Setpoint: 100A Setrate: 1.0A/min
 - C.) Setpoint: 80A Setrate: 2.0A/min
 - D.) Setpoint: 0A Setrate: 3.0A/min
5. Press the "Hold" button
6. Press the "Heater Off" button
7. Press "Lock Magnet Controls" button