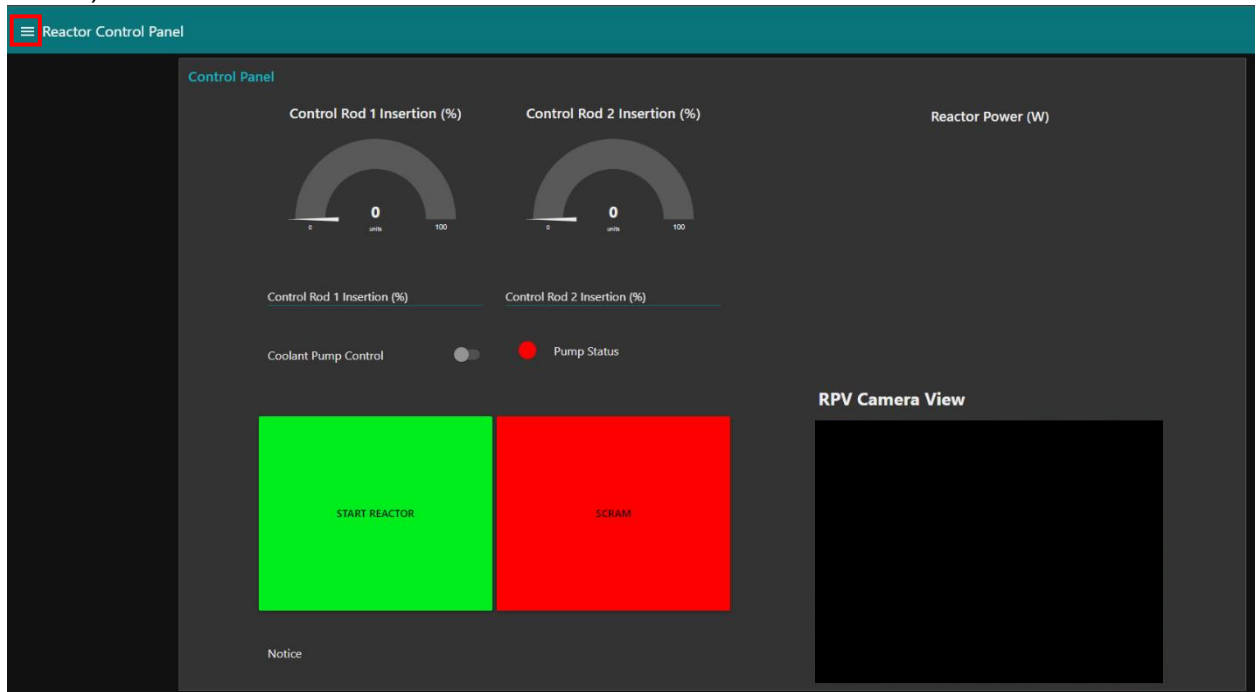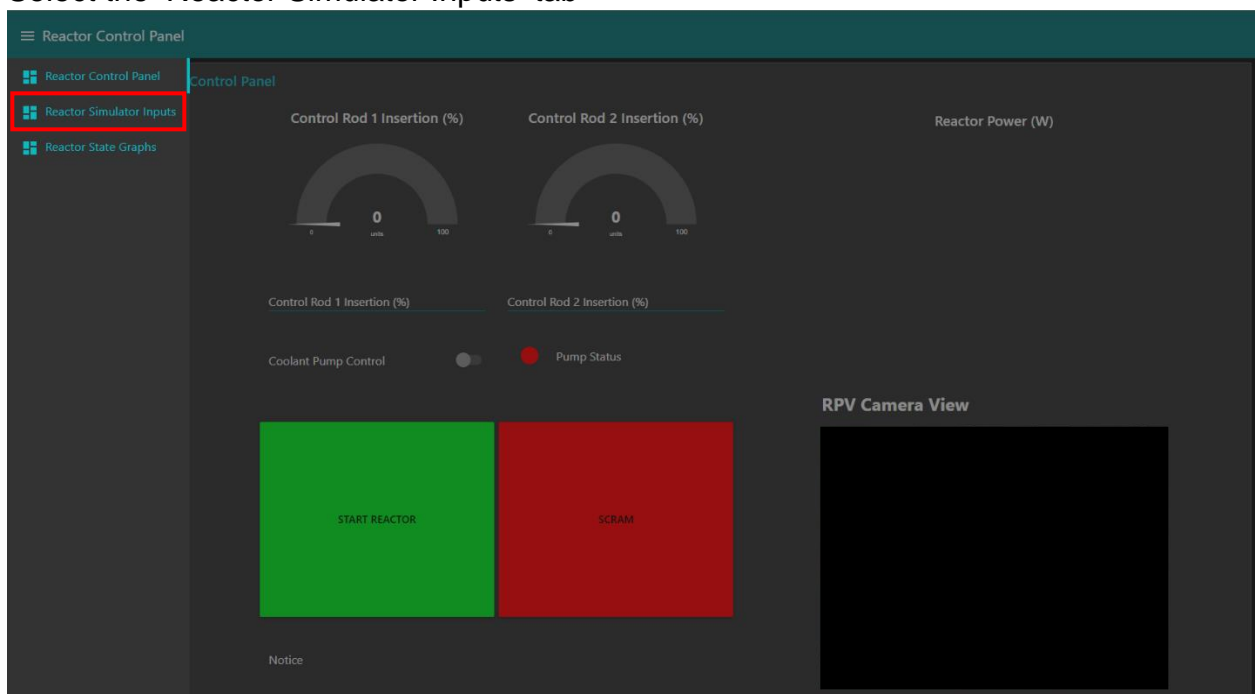1.) Open the Node Red Dashboard (127.0.0.1:1880/ui/#/1 in any internet browser on the Raspberry Pi)

2.) Open the tabs menu by clicking the triple bar icon in the top left. (outlined in red below)

3.) Select the 'Reactor Simulator Inputs' tab

4.) In the Reactor Simulator Inputs tab click the 'VALUE RESET' button.

NOTE: If the system has just been started it should not have any populated values as above. If the system has already been started, then there may be values but it is still important to click the value reset before beginning. Wait until the values are populated and approximately 10 seconds have passed to be sure all values have properly reset.
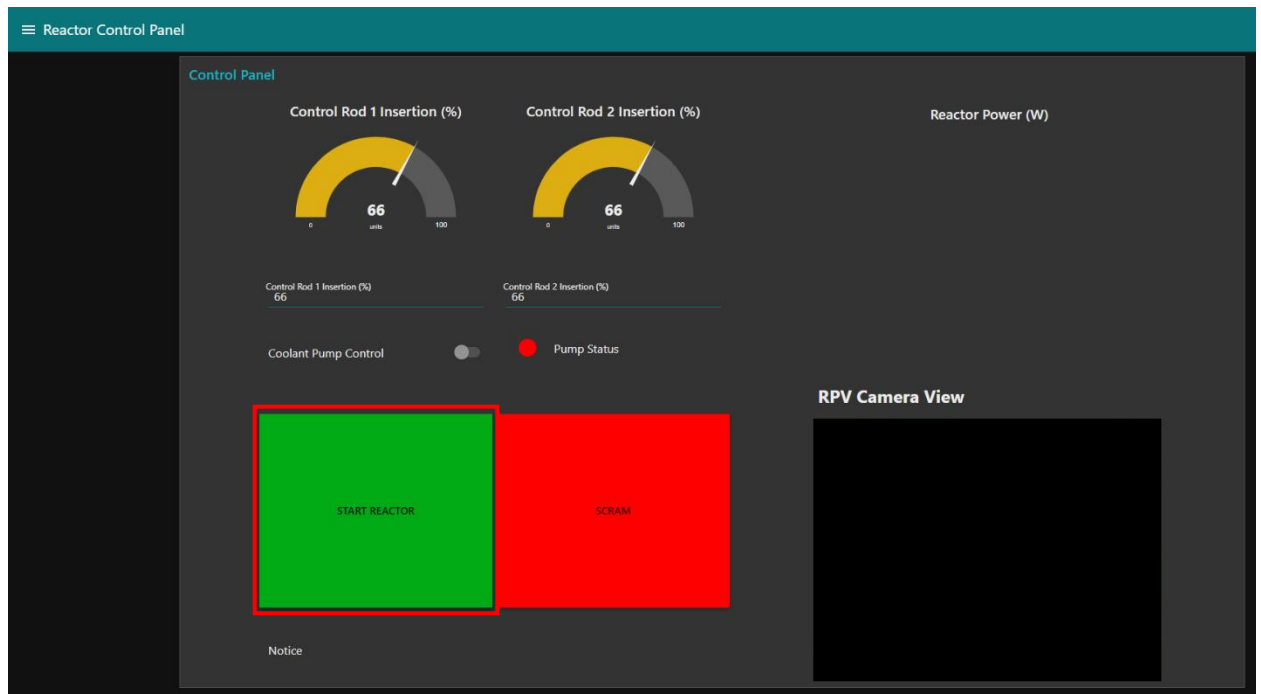

Here we can see an example of properly populated starting values.

5.) Return to the Reactor Control Panel via the triple bar menu in the top left.
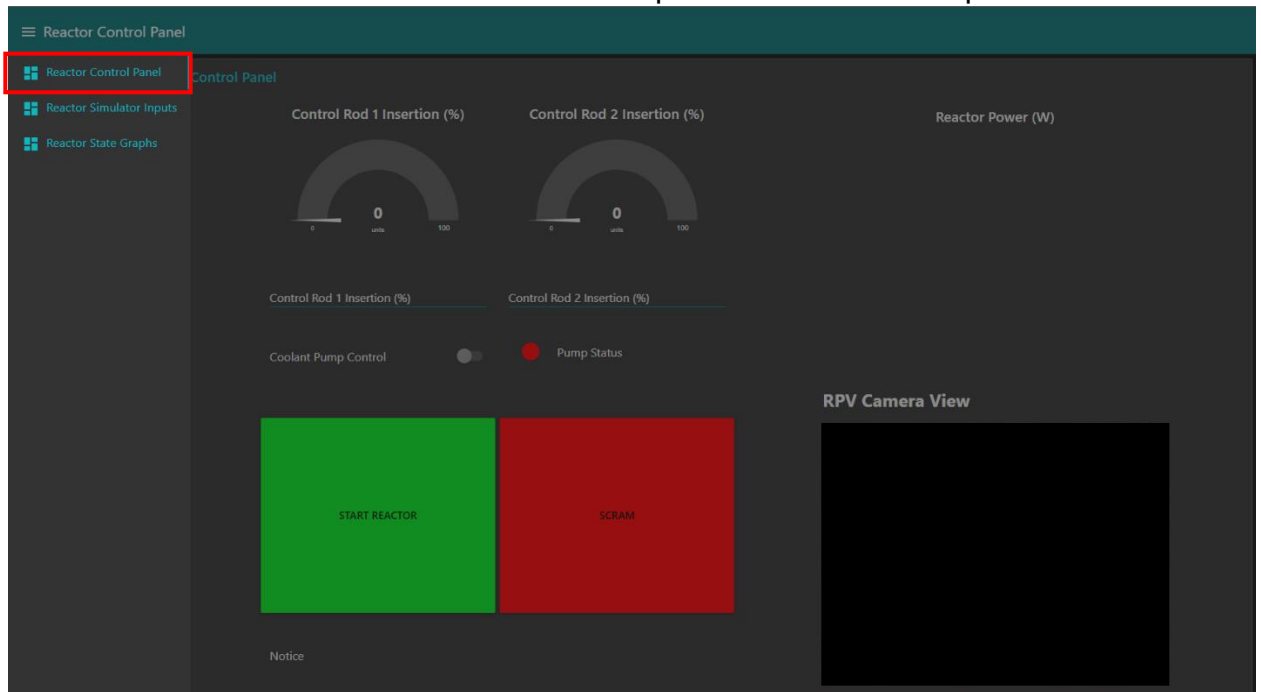
6.) Click "START REACTOR"

Once the reactor is running, the user has direct control of the heights of the control rods and the SCRAM button. The coolant pump control switch is for the activation of the pump lights in the hardware model and is not taken into account by the simulation. This is due to the fact that, in reality, if a reactor is running, so are its pumps.

Tips:

If too much reactivity is introduced into the system, the user will be given a warning. Eventually, if this is allowed to continue, the simulation will halt as the real world reactor would have broken and need to be repaired and restarted.

To restart the system, click the value reset button and then start the reactor again. If this fails, redeploy Node Red. If that should fail, restarting the Raspberry Pi has been found to correct any remaining errors.

For redeploying without making any actual changes to the simulation, move one of the nodes one click over from its current position in the editor. The editor will accept this as a change and allow redeployment.

Note the difference in alignment of the two nodes above.

IMPORTANT:

When the reactor SCRAM is activated, the reactor must be restarted to run again (the REACTOR START button must be clicked).