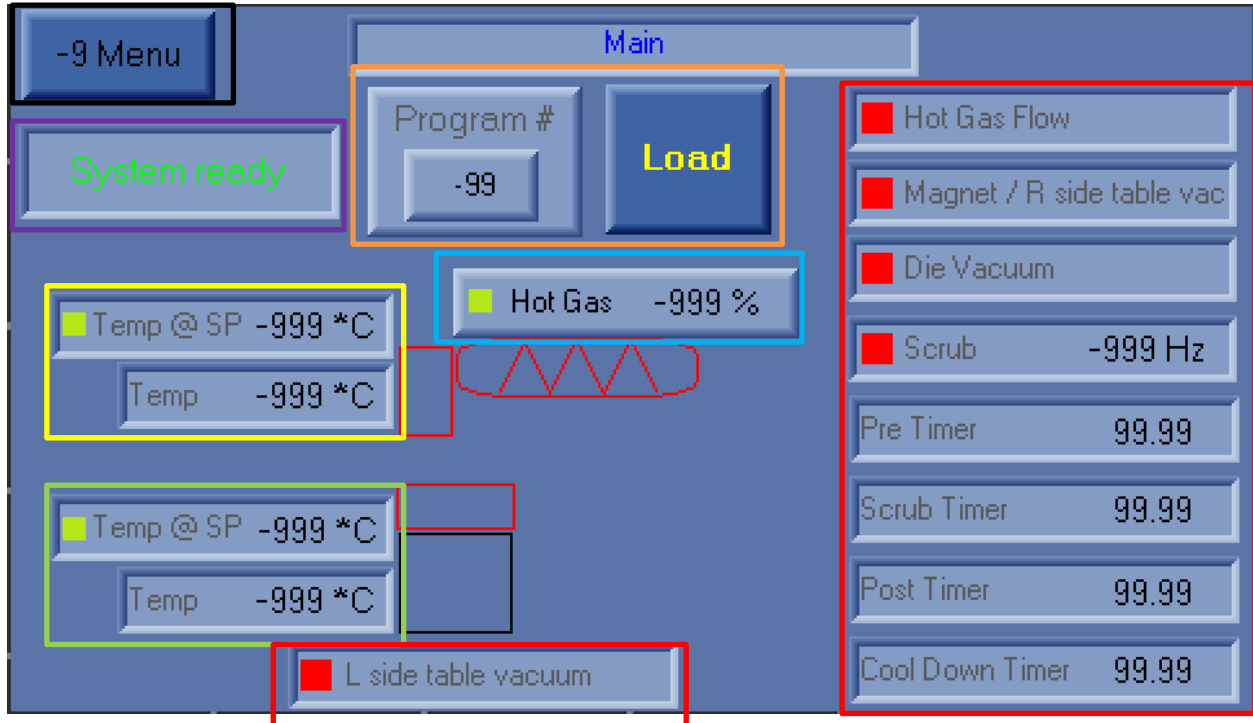# Main Screen:

Outputs and timers (red square)

- Indicates the status of the listed output with either a red LED to signify off or a green LED to signify on
- User selectable timers for the 4 modes
- Once the table is in the left most position and the Z down arm is trigged the cycle will begin in the following order with corresponding outputs:
  1. Pre Hot Gas Hold timer

     Magnet and Hot Gas outputs are on
  2. Scrub Hold timer

     Magnet, Scrub and Hot Gas outputs are on
  3. Post Hot Gas Hold timer

     Magnet and Hot Gas outputs are on
  4. Cool down Hold timer

     Magnet output is on
- The left side vacuum is on unless the table is in the right most position

Tip heater (Yellow Square)

- Indicates the set point for which the program is calling for and the actual temperature. The indicator will illuminate green once the temp is + /- a user defined range under the tip heater page

Work holder heater (Green Square)

- Indicates the set point for which the program is calling for and the actual temperature. The indicator will illuminate green once the temp is + /- a user defined range under the work holder heater page

Hot Gas power (Blue Square)

- Turns on/off the hot gas (power setting is determined in the program number)

System ready/not ready indicator (Purple Square)

- If the "Use system ready" option is enabled on the menu screen, the magnet, hot gas flow and scrub functions are suspended until the tip and work holder heaters are within their specified ranges
- If the "Use system ready" option is disabled on the menu screen, the machine will operate regardless of tip or work holder temperature

Load programs (Black Square)

- Password protected area for adjusting all functions of the machine
    - Setting parameters for each program
    - Pre/Scrub/Post/Cool down timers
    - Tip set point
    - Work holder set point
    - Maximum hot gas power
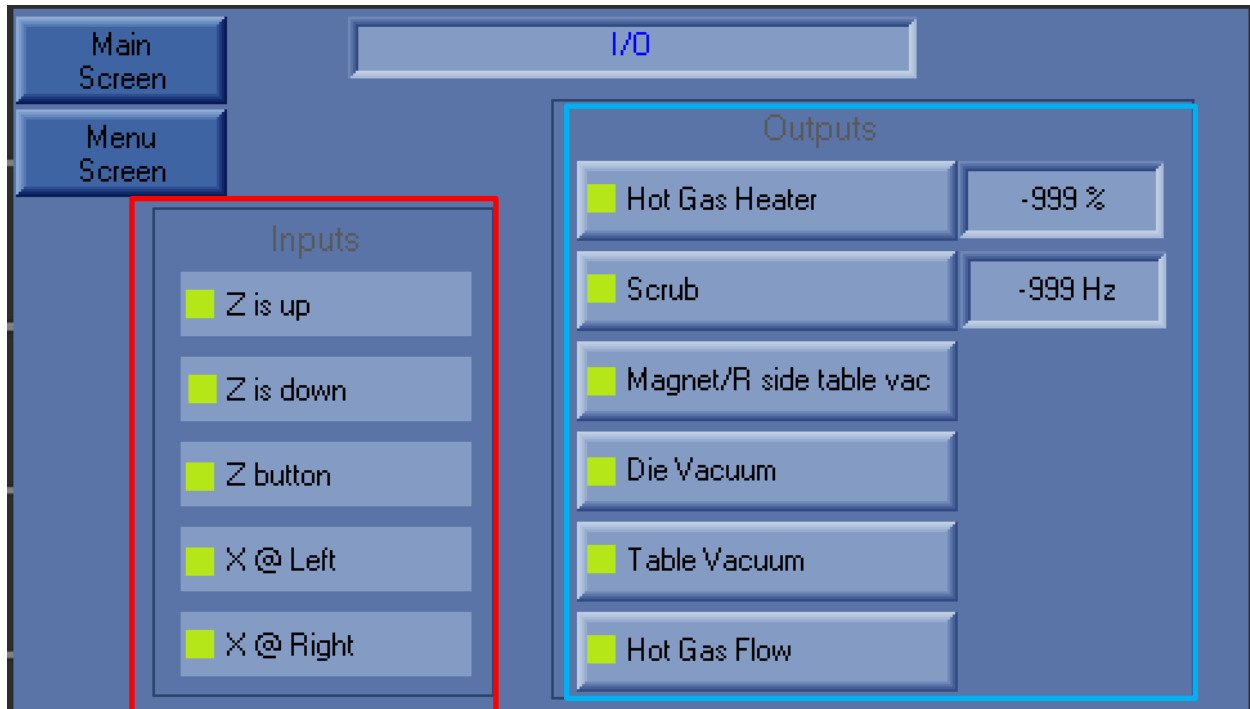   - P.I.&D. functions for heaters

Menu screen:
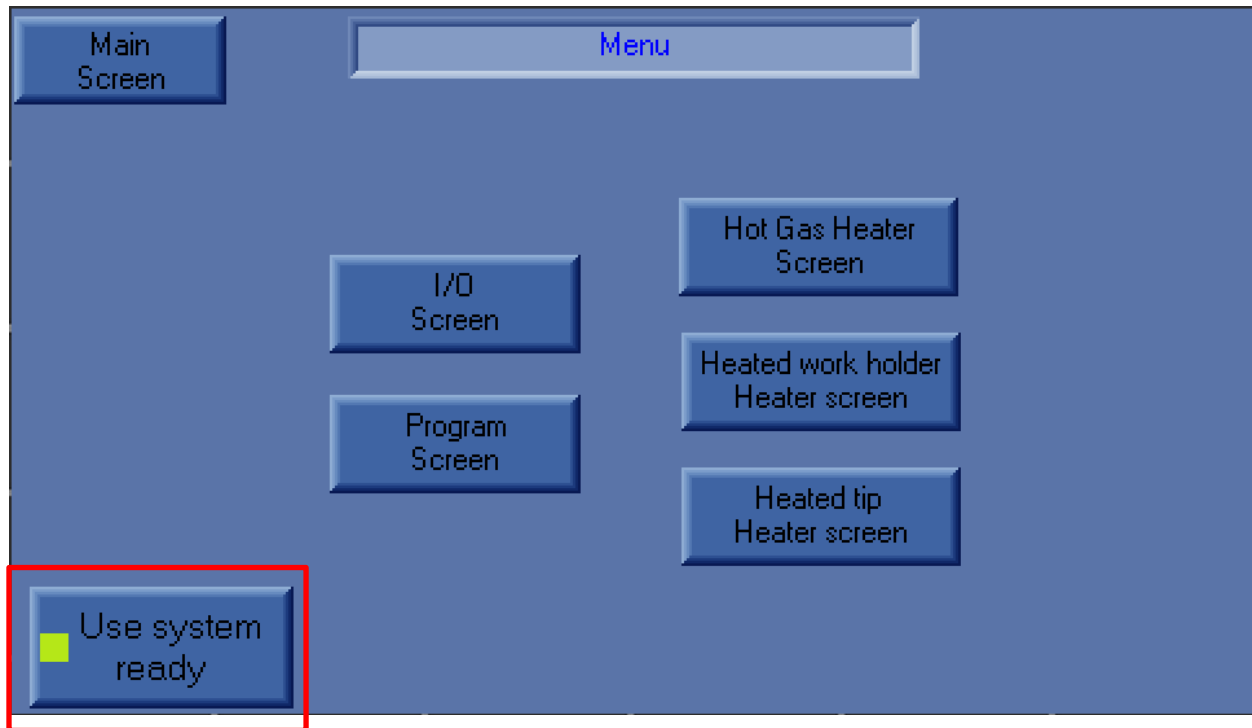
Use system ready button (Red square)

- Enabling this means that both the tip and work holder must be within their specified ranges from the set point set in the "Heated work holder screen" and "Heated tip screen"

I/O screen:

System inputs (Red square)

- Indicates the status of the listed input with either a red LED to signify off or green LED to signify on

System outputs (blue square)

- You may manually turn on the listed output by pressing the desired button
- Hot gas heater button is a switch, push to turn on then push to turn off, change percentage of power from 0-100%
- Scrub button is a switch, push to turn on then push to turn off, change frequency from 20-500Hz
- Magnet/Die Vacuum/Table Vacuum/Hot Gas flow are momentary

Program screen:
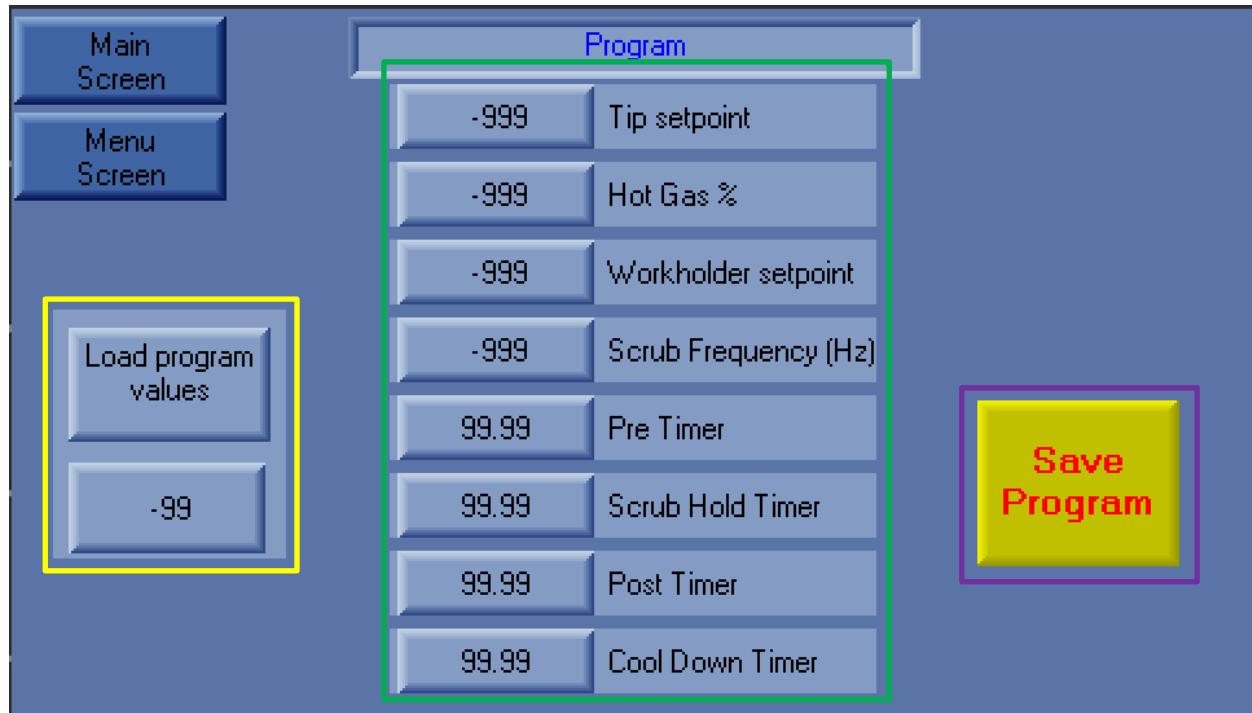
Load program (Yellow Square)

- Selected desired program number then push load program values

Program setting (Green Square)

- The following settings may be set
    - Tip set point (0-500 C)
    - Hot gas percentage of power (0-100)
    - Work holder set point (0-500)
    - Scrub frequency (10-500 hz)
    - Pre timer (0-99.99 sec)
    - Scrub hold timer (0-99.99 sec)
    - Post timer (0-99.99 sec)

- o Cool down timer (0-99.99 sec)

Save Program (Purple Square)

- Once you have your desired values, push the save program button

Hot Gas screen:
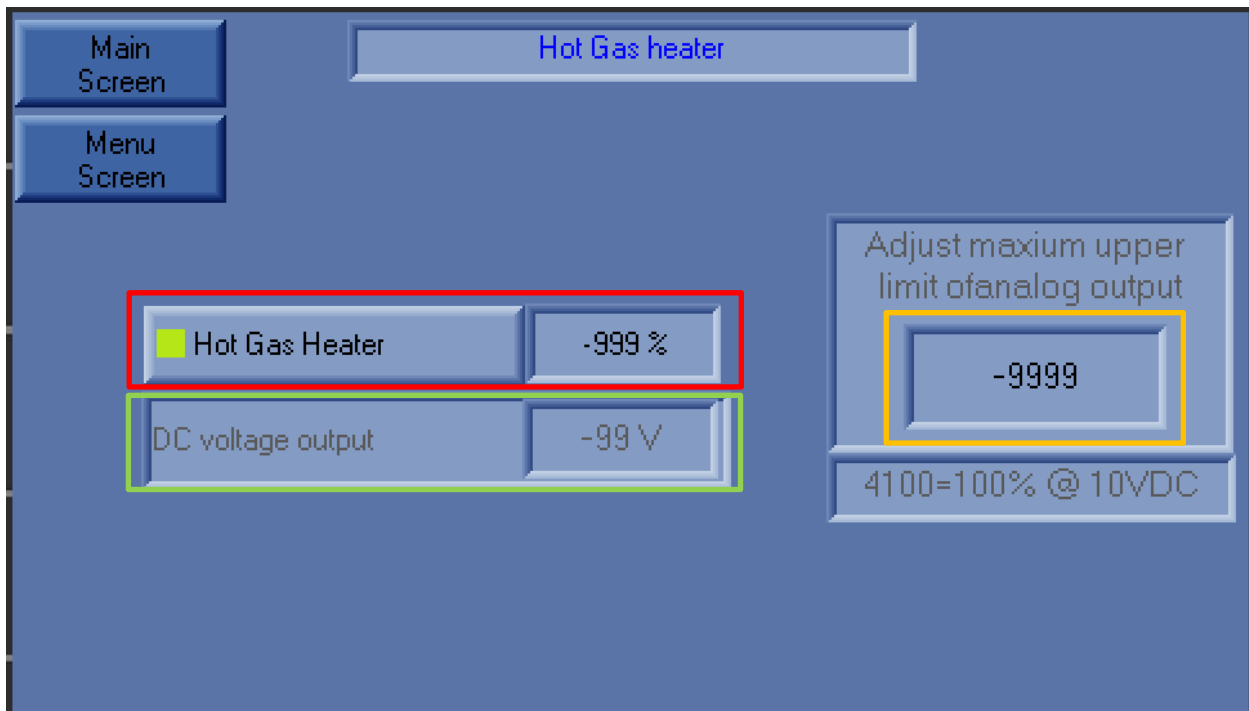
Hot Gas Heater (Red square)

- You may manually turn on the hot as heater by pressing the button and adjust the % of power

Adjustment of "100%" hot gas element (Orange square)

- The quartz hot gas heater is controlled via an analog output from the PLC with 0-10VDC
- A value of 0 in this box represents 0 VDC out, a value of 4100 in this box represents the maximum 10 VDC out (0-4100 are allowable values)
- You may opt to select a value lower than 4100 to recalibrate 100% to mean a lower value (example; setting this value to 2000 will cut maximum output by half, setting the heater to 100% will result in 5 VDC out resulting in a new lower maximum)

DC voltage (green square)

- This displays the live DC voltage output going to the solid state relay

Heated work holder screen:
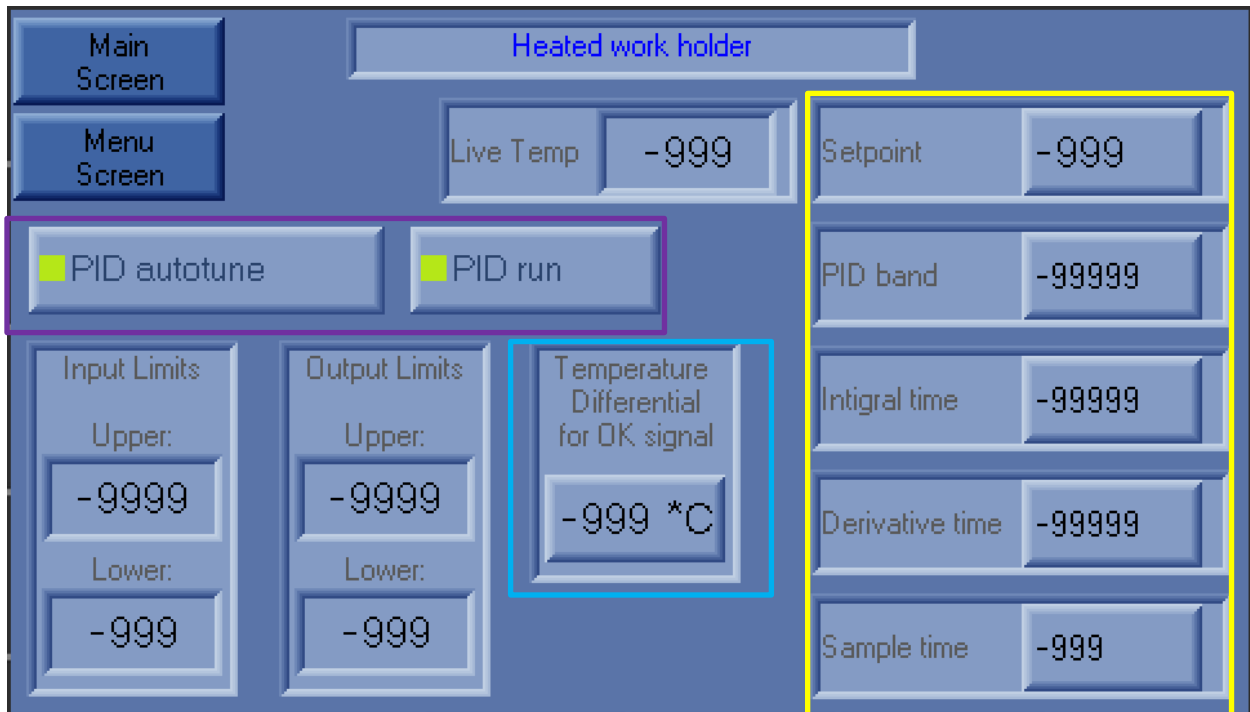
PID auto-tune & PID run (Purple Square)

- The heated work holder has two modes of operation, auto-tune & run
    - If auto-tune is selected the heater will automatically ramp the heater up and down around the desired set point and attempt to find optimal P.I.&D. values for a given work holder. Once that cycle is complete it will automatically switch into PID run mode with values the PLC determined.
    - If in PID run is selected the heater should control around a give set point within a few degrees

Temperature differential (Blue Square)

- If the "Use system ready" option is enabled on the menu screen, you may enter in a value in which the actual temperature must +/- of the set point

Settings (Yellow Square)

- You may enter in your own values and overwrite the PLC's auto-tune values

Heated tip screen:

PID auto-tune & PID run (Purple Square)

- The heated tip has two modes of operation, auto-tune & run
  - If auto-tune is selected the heater will automatically ramp the heater up and down around the desired set point and attempt to find optimal P.I.&D. values. Once that cycle

is complete it will automatically switch into PID run mode with values the PLC determined.

- o If in PID run is selected the heater should control around a give set point within a few degrees

Temperature differential (Blue Square)

- If the "Use system ready" option is enabled on the menu screen, you may enter in a value in which the actual temperature must +/- of the set point

Settings (Yellow Square)

- You may enter in your own values and overwrite the PLC's auto-tune values