Laurell WS-650 Operating Instructions

Keypad Layout:

1. Select Process: Lists all programs stored on the controller. **If you need a special process loaded onto the controller, see an MNFC Staff member and they can load one for you.** You can create a recipe from the controller for immediate use, but it will eventually be deleted, as recipe management is maintained from a special software program, and programs which are not created through this program are **purged regularly.**

In Select Process mode, the user can select “Run Mode” (2), “Edit Mode” (3), “Info Mode” (4) and the “Up” and “Down” keys (5).

Twenty (20), 51 step programs can be stored in the 650 controller. Many more can be stored in Spin 3000. The last line of the display shows the total number of resident programs within the 650 controller.

2 – RUN MODE – press this key to enter a selected program from the “Select Process” screen into the “run mode”. This key is active when the green LED is illuminated. The start key (11) is active; pressing this key will begin processing. The Figure above shows the “Run Mode” screen. When the “run mode” is selected a number of keys become active as indicated by illuminated green LEDs. From the “Run
Mode” the user can enter the “Select Process Mode”, Edit Mode” or “Info Mode”. The “Up Arrow (↑)” and “Down Arrow (↓)” keys can be used to move between “Valv”, “Sens” and “Type” line. The F1 key (9) becomes active when the “Valv” or “Sens” line is highlighted. The F1 key will send the user to the valve or sensor submenu. Vacuum (8) can be turned on or off.

Displayed fields are the operation mode/program name, step-of-steps, vacuum status, set point time, agitation rate, actual wafer RPM, set point RPM and spin rotation direction, valve, sensor and type status for each step of a program. The last line of the display will show the processor status and error messages.

3 – EDIT MODE – press this key to create a new program or to select an existing program for modification. This key is active when the green LED is illuminated. From the “Edit Mode” the user can enter the “Select Process Mode”, Run Mode” or “Info Mode”. The “Up Arrow (↑)” and “Down Arrow (↓)” keys can be used to move from line-to-line. The “Tab <” (6) or “Tab >” (7) keys can be used to switch the highlighted field into an “editable” field. The “FWD” (15) or “REV” (14) keys are used to move from step-to-step with in a program. Vacuum can be turned on or off.

4 – INFO – press this key to view “Statistical”, “Configuration” and “About” information. This key is active when the green LED is illuminated. Highlight the desired field and press the F1 key to enter each submenu. From the info mode the user can enter the “Select Process Mode”, “Run Mode” or “Edit Mode”. The “Up Arrow (↑)” and “Down Arrow (↓)” keys can be used to move from line-to-line. The F1 key when pressed shows the information associated with each line.

5 – NAVIGATION KEYS - ←(Left) & →(Right) and ↑(Up) & ↓(Down) – these directional keys have multiple functions within each menu. The “Up Arrow (↑)” and “Down Arrow (↓)” keys can be used to scroll up or down a list of items such as the program list in the “Select Process” menu. They can be used in the “Run” or “Edit” mode to move from line to line within a menu. The ↑(Up) & ↓(Down) keys are used to change values when editing a field within a program. The ←(Left) & →(Right) keys are used to scroll left or right when there is addition information off to the left or right of the display. They are used in the edit mode to move within a field. These keys are active when the green LED is illuminated.

6 – TAB< / PG UP – this is a dual function key. The “Tab<” key is used to move from field to field in the “Edit Mode”. When pressed this key changes a highlighted field to an editable blinking field. The “Pg Up” key is used to scroll up a list of items when there are 4 lines or more of information. This key is active when the green LED is illuminated.

7 – TAB> / PG DN – this is a dual function key. The “Tab>” key is used to move from field to field in the “Edit Mode”. When pressed this key changes a highlighted field to an editable blinking field. The “Pg Dn” key is used to scroll down a list of items when there are 4 lines or more of information. This key is active when the green LED is illuminated.

8 – VACUUM – VACUUM IS INTERLOCKED AND CAN ONLY BE ACTIVATED BY CREATING AN ACTIVE SESSION IN iLAB - this key toggles the vacuum valve on and off. This key is interlocked such that the vacuum cannot be turned off while a program is running or the chuck is in motion. The value is displayed in inches of Hg when the vacuum valve is turned on. The normal requirement to operate safely is ≥15” of Hg. This requirement can be modified in Spin 3000. The vacuum requirement of
“vacuum required” or “vacuum not required” is programmable within a program. This key is active when the green LED is illuminated.

9 - F1 - this key is used to enter a submenu when available. Submenus can be accessed in the “Run” and “Edit Mode” when the valve or sensor line is highlighted. This key is active when the green LED is illuminated.

10 – F2 - this key is used to exit the submenu. When in a submenu pressing the F2 key will exit the user back to the “Run”, “Edit” or “Info” mode. This key is active when the green LED is illuminated.

11 - START - this key is used to initiate a programmed sequence. While a program is running the mode display will indicate “RUNNING”. “DONE” indicate that a program has run and will persist until the lid is opened or another program selection is made. This key is disabled until the vacuum, seal purge, exhaust and lid interlocks are satisfied. This key is active when the green LED is illuminated.

12 - STOP – this key will “Stop” the current program from completing the process program. When running a program in “run” or “edit” mode, the stop key will, when pressed, stop the process from completing the step, the motor will stop spinning and any active valves will close. The step and time is retained and if start is pressed again, the processing will resume where the process stopped. This key is active when the green LED is illuminated.

13 - PAUSE – this key will “Pause” the current program from completing the process program. When running a program in the run mode, the “pause” key will, when pressed, pause the process program time from proceeding. The motor will continue to spin and any active valve will remain on but the remaining time is ignored. The step and time is retained and if “pause” is pressed again, the processing will resume. This key is active when the green LED is illuminated.

14 - REV – Reverse back to the previous step in a program. This key is active in the “edit mode” to help while programming. Each time the key is pressed the user will go back to the previous step within a program. This function allows the wrapping of the first step to the last within a program. This function can be enabled to operate in the “run mode” by modifying the configuration in Spin 3000. This function in the “run mode” is disabled at the factory. This key is active when the green LED is illuminated.

15 - FWD – Advance forward to the next step in a program. This key is active in the “edit mode” to help while programming. Each time the key is pressed the user will go to the next step within a program. This function allows the wrapping of the last step to the first within a program. This function can be enabled to operate in the “run mode” by modifying the configuration in Spin 3000. This function in the run mode is disabled at the factory. This key is active when the green LED is illuminated.

OPERATION:
OPERATING PROCEDURE

IMPORTANT: ** CLEAN THE SPINNER AFTER USE**

** The spinner is interlocked. ** You must create a session in iLab in order to operate the spinner. If you try to operate the spinner without first creating a session, you will likely break your wafer. There is NO chuck vacuum unless you are running an active session in iLab.

1. Obtain your supplies:
   a. Photoresist
   b. adhesion promotor (if being used)
   c. wafer
2. Lift the lid and place your wafer on the chuck, as centered as possible. There is currently no wafer alignment tool.
3. Select “SELECT PROCESS”.
4. Scroll to the recipe you wish to run and select “RUN MODE”. This selects the recipe to be run
5. Begin by selecting the “Centering” recipe.
6. Toggle the “VACUUM” button on (light is illuminated).
7. The status line at the bottom of the screen should indicate “Ready”.
8. Press “START” and observe how well centered the wafer is. The status line should say “Running” at this point. The “Centering” recipe runs at a very slow RPM.
9. After the recipe has finished, toggle the “VACUUM” bottom OFF if necessary and re-center the wafer.
10. Repeat Steps 2 & 9 as needed until wafer is centered.
11. Once you are satisfied with the wafer centering, return to the “SELECT PROCESS” screen.
12. Scroll to your recipe and select “RUN MODE”.
13. Depress the “VACUUM” button and ensure that light is illuminated.
14. Add your photoresist to the wafer surface through the opening in the lid.
15. Press “START” to begin your recipe
16. When your recipe is finished, ensure “VACUUM” is off.
17. Lift lid and remove your wafer.
18. CLEAN THE SPINNER with acetone
19. CLEAN THE SPINNER with IPA
20. Log off of your iLab session.