

## *Getting to know the LSA*

1. Connect your circuit to the LSA by connecting the colored wires from the LSA pod to the various parts in your circuit. Please note that the GREY wires on the LSA pod are GROUND wires only. Also, unlike other LSAs you may have used, there is no specific wire on the pod that is the clock. You may use any wire you wish, but it is customary to use bit 0 on the pod for the clock.
2. Power on the LSA. The LSA will go through a power-up procedure and eventually the CONFIG menu will appear. This screen is used to select which analyzer will be used, etc. and does not need to be modified.
3. Press the FORMAT button. The FORMAT screen appears. This is where you “tell” the LSA which pin will be used as the clock and assign labels to the various bits you want to view. You should see the first label named CLK1. Using either the scroll knob or arrow keys, highlight the bits 7 through 0 field. Next, press the SELECT button. An underscore will appear under bit 7. Using the scroll knob, move the cursor under bit 0 and press SELECT. A dialog box will appear and inform you that a channel assignment already exists for this pin. Highlight YES and press SELECT. An up arrow should appear in the bit 0 position. You should notice that the assignment for the label “a” has disappeared because it used the same channel assignment. You may delete this label by highlighting the label and pressing the DELETE key.
4. Once the clock has been set, now make your other pin assignments. The LSA has already setup default labels for you (letters b through p should be visible) and bit assignments have already been made. You may rename the labels by highlighting the label name and typing in a new one by using the keypad. Give each signal connected to the LSA (from your circuit) a distinct name so that it can be viewed in the state listing or timing waveform.
5. If you need to change the bit assignments for a label, use the same procedure described in step 3 for setting which bit the clock is connected to. To remove the bit assignment already present, place the cursor under the line and press SELECT. Now make your new assignment.
6. If extra labels are present that are not needed, highlight the label name and press the DELETE key. If at any point you need to add a new label, press the INSERT key at the desired position.
7. Now press the TRACE button. The TRACE configuration screen appears. At the top of the screen, you should see the sentence “If TimeWord 1 times Stop trigger BNC.” Highlight the shaded box TIMEWORD in the sentence and press the SELECT key. The IF menu should appear. Scroll up the top the menu and highlight the first occurrence of STATE WORD and press SELECT twice. Now the sentence should read “If sw1 1 times Stop trigger BNC.”
8. At the bottom of the TRACE screen is a section labeled WORDS AND FILTERS. Highlight the TIMEWORD label and press DELETE (we are no longer using the TimeWord option). Now only the label SW1 should remain. If you want the LSA to trigger (start capturing data) when a specific event occurs (i.e. all the data bits of a counter are 0), change the Xs under the pod label assignments to the desired value to trigger on.

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9. Power up your circuit and press the RUN button on the LSA. The DISPLAY screen automatically appears and a state listing appears. Pressing the DISPLAY button on the LSA will switch to a waveform view and pressing again will bring you back to the state listing.
  
10. Now that we have captured data, we may want to save it to disk to include in a lab report. When viewing a state listing, you can capture data between two points R and S. You can change the values of R and S by highlighting the box of whatever value you would like to change. Then either use the scroll knob or enter a value from the keypad. Next, remove the boot floppy from the LSA and enter a DOS formatted disk. Press the PRINT button on the LSA. Check the LIST R-S check box and the DISK check box. The default name is S.LIST .001. Please remember to give every listing a distinct name (the LSA always comes up with S.LIST .001 as default so you may write over your old files if you are not careful)!!!! Finally, highlight the checkbox near the upper lefthand corner of the window. The file should be writing to the disk. **DO NOT DISTURB THE LSA WHILE DOING THIS!!!** Note: the file that is produced for a state listing is a textfile.
  
11. To capture a picture of a timing waveform, again press the PRINT button. A dialog box will appear. Unlike the state listing, you can't capture data between two specific points. Instead, a screen capture will be saved of the current LSA screen. After renaming the filename, highlight the check box in the upper lefthand corner of the dialog box to confirm your choice. The floppy drive will now activate saving the image to disk. Note: the saved image must be converted to a PC viewable format by using the RASTOGIF utility on the PCs in lab.