



**TIPS ON CARE AND USE OF THE PIN TOOL ROBOT
VP 903A**

WARNING: Keep hands and clothing clear of any moving parts when in operation.

Program Setup:

1. Plug in power cord and turn on main power switch.
2. The Homing Screen will be displayed. Press HOME Z. To index the turntable press the INDEX TABLE button till position 1 is under the Pin Tool Arm.
3. Insert the pin tool onto the arm of the Pin Tool Robot. The top mounting plate of the pin tool will rest on top of the arm of the robot.
4. Press the HOME COMPLETE button. This will take you to the Main Menu screen.
5. Press the SETUP button to begin the programming sequence.
6. Press the TEACH button and choose the type of plate you wish to program. (PLATE = mother and daughter plate, BLOT = pin blotting station, Wash = pin wash reservoir)
7. Insert one of the plates to be used in the program into position 1. Up to 3 different plate protocols can be programmed.
8. Press and hold the JOG DOWN button till the Pin Tool is in the proper down position. We usually recommend touching the bottom of the plate or well for mother and daughter plates. This will help ensure that differences in well volume do not influence volume transferred.
9. Press D_SET. This sets the down position.
10. Press JOG UP and hold until the pins in the desired up position. Press U_SET. The up position is usually used to ensure the pins are completely out of the liquid before they are dipped back in again.
11. Once the Up and Down positions have been programmed press NEXT. The screen will then give you more plate protocol options. Beside each function (CYCLES, PECK DELAY, AND UP SPEED) there is a number. If you press that number a number pad will be displayed for you to enter a desired number into that position. After the number is entered press the enter key on the number pad (lower right corner).
12. CYCLES are the number of times the pins will go from the down position to the up position (the number of times the pins dip into the liquid). Three times is recommended for liquid transfers and washes.
13. PECK DELAY is the amount of time in milliseconds the pins will pause in the down position. This function is most commonly used to allow all the liquid to be absorbed off of

the pins in the blot step. This function may also be used as a programmable pause if the Pin Tool Robot is integrated with a robotic arm.

14. UP SPEED is the % of the maximum speed of the Z motor. **Do not exceed 100%**. This speed controls the rate the pins are removed from the liquid on the final cycle. (Slower = less volume transferred, Faster = more volume)
15. The process for teaching the Pin Tool Robot one plate protocol to is now complete. Repeat steps 2-14 for each type of plate (up to three). Settings are automatically saved as they are entered, so there no need to save at the end. The Z axis must be homed before each plate programming step is performed. Use the BACK button to return to the Main Menu once the plate protocol is finished.
16. Once all plate/plate protocols are programmed the order should be set. Press SETUP then CONFIG and the deck configuration layout will be displayed. Simply press the buttons to cycle through the three choices. For each of the seven positions, pick the type of plate protocol to be used. (P = PLATE, W = WASH, B = BLOT). Press BACK when complete.
17. Press CYCLES and use the number pad to enter the number of times you wish to have the program repeat (program cycles / plate replications). The programming phase is now complete. Return to the Main Menu.
18. If the pins are centered in the wells it is time to test the program. **Remove the Pin Tool before the first test of any program.** If no manual adjusting is required skip to step 1 under Operation.

Home Deck Position (This should only be done after shipping or if alignment problems are a suspected issue)

19. Follow steps 2-8 in the program set up procedure to lower the pins into the wells of an empty 96/384 well plate and check that the pins are centered inside the wells. Ensure that you index the deck position before checking the pin position in the wells.
20. If the deck position seems to be over or under rotated loosen (**Do Not Remove**) the four screws located in the center of the deck. Then carefully rotate the deck manually until the pins are centered in the wells of the plate.
21. If the pins are too far to one side of the well the Arm that holds the Pin Tool will need to be adjusted. Loosen (**Do Not Remove**) the two screws located on the top of the Arm. Then move the arm until the pins are centered. Ensure the Pin Tool maintains a 90 degree angle to the plate. This can be done by ensuring that all the pins at both ends of the plate are centered when adjusting.
22. After manual adjustments home the Z axis and advance the deck to position 1.

Use:

Recommended Deck Setup for Mother to Daughter Plate Transfers:

1. Deck position 1 Mother plate (plate liquid is being transferred from)
2. Deck position 2 Daughter plate (plate liquid is being transferred to)

3. Deck position 3 VP 540DB (Omni Tray with pad and Lint-Free Blotting Paper)
4. Deck position 4 VP 540L Reservoir with VP 540LF Baffles (Wash Station 1)
5. Deck position 5 VP 540DB (Omni Tray with pad and Lint-Free Blotting Paper)
6. Deck position 6 VP 540L Reservoir with VP 540LF Baffles (Wash Station 2 - Alcohol). The level of alcohol should be above the level of the wash solution in the Wash Station 1 to ensure proper pin cleaning.
7. Deck position 7 VP 540DB (Omni Tray with pad and Lint-Free Blotting Paper)

Operation

8. Set up the deck according programmed plate order.
9. Insert the Pin Tool onto the robotic arm. If this is the first time testing a new program do not insert Pin Tool.
10. Turn Power switch to the ON position. Press HOME Z button. Press INDEX TABLE button if necessary to get deck to position 1. To end home sequence press HOME COMPLETE and the Main Menu screen will display.
11. Press RUN. The operation screen will be displayed. Press RUN to start the program. Once the second RUN button is pressed it will change to PAUSE. Hit this button to pause the program and hit it again to start the program where it left off. The robot will not pause until it has completed the protocol for the current plate. If an emergency stop is required turn the power off. If the power is turned off in the middle of the program the robot will reset the program to the beginning.
12. To recover from an emergency stop turn the power back on, HOME Z axis, INDEX TABLE till at position 1 and restart the program from the beginning.
13. To shut the Pin Tool Robot down simply turn the power switch to the off position at any time.
14. Use mild detergent and a damp cloth to clean the surface of the Pin Tool Robot.