APRICOT DESIGNS

OPERATING INSTRUCTIONS V 2.09

i-PIPETTE SERIES™

Thank you!

Thank you for purchasing an i-Pipette. Designed and manufactured by Apricot Designs, Inc. – this instrument is precision-engineered to the highest industrial standards.

Our ongoing commitment is to help you get the best results, so we designed and manufactured this instrument with you in mind.

This manual is your ready reference to the care, maintenance, and operation of the instrument and should be stored in a convenient place.

With proper handling and maintenance as detailed in this instruction manual, the instrument should provide years of efficient and reliable service. Please read through this instruction manual thoroughly before operating the instrument. Failure to comply with these instructions may lead to poor experimental results, reduced equipment life and the possibility of personal injuries.

We truly appreciate your business and the trust you have placed in us.

Should you have any questions, comments or suggestions regarding this instrument, please feel free to contact us.

Sincerely,

Felix H. Yiu,
Founder and CEO
Apricot Designs Inc.

NOTICES

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1 SPECIFICATIONS

The following is a list of the ideal operating parameters for the i-Pipette. This instrument will perform optimally and safely under standard laboratory settings. The use of this instrument in other environments is not recommended, and results may prove unsatisfactory.

Model	iPP
Dispensing Precision	(96-1000) <3% CV at 10µL (96-500) <3% CV at 5µL (96/384 -125) <3% CV at 1µL
Dispensing Accuracy	(96.-1000) +/– 2% error at 10µL (96 -500) +/– 2% error at 5µL (96/384 -125) +/– 2% error at 1µL
Resolution	(96 -500/1000) 1µL (96/384 -125) 0.1µL
Volume	Max channel capacity (96) 500µL, 1000µL (96/384) 125µL Dispense range (96 -1000) 5–1000µL (96 -500) 1–500µL (96 -125) 0.5–125µL (384 -125) 0.5–125µL
Particle Size	< 0.032" diameter to prevent tip blockage
Current	1 Amp
Power (Input)	100 – 240VAC, 50 – 60Hz
Power Consumption (MAX)	180W
Power Consumption Idle	35W
Operating Temperature	40 –104°F, 5 – 40°C
Relative Humidity (MAX)	80% (non-condensing)
Equipment Ratings	Indoor use only, temperature regulated, non-dusty
Altitude	Up to 2000m
Pollution degree	2
Power supply voltage	Fluctuations not exceeding ± 10% of the nominal voltage
Transient overvoltage	According to Category II (Installation Category)
Dimensions	9"W x 14"D x 20"H 229mmW x 356mmD x 508mmH
Weight	Approx. 48lbs (22kg)

1.1 – Safety Precautions:

The i-Pipette is designed and engineered with your safety in mind. However, failure to adhere to proper care, maintenance, and operation of the instrument may lead to poor experimental results, reduced equipment life, and the possibility of injury to the operator.

Please adhere to the following safety guidelines when working with the i-Pipette:

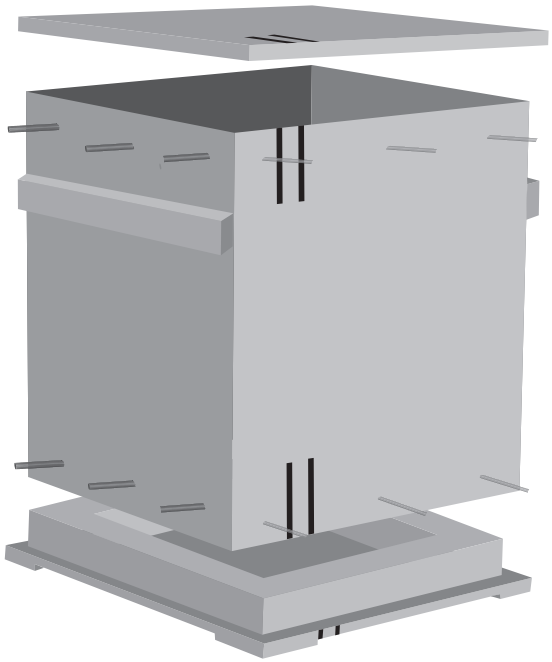
- Do not attempt to make an adjustment or try to repair something that is not working correctly – this could result in injury and will void the warranty. If you encounter a problem with the instrument, please contact Apricot Designs, Inc. or your distributor.
- Operate the instrument in an indoor environment only!
- Avoid exposure to direct sunlight and excessive humidity. Also, for safe operation, do not operate the instrument with wet hands.
- Always connect the instrument via a grounded power outlet.
- Use only Apricot Designs optional tools, equipment, and peripherals!
- Our optional tools, equipment, and peripherals will enhance the performance of the manufactured instrument to help you get the best results.
- It is highly recommended that you use disposable tips manufactured by Apricot Designs because they are designed to perform optimally with our instruments.
- Using add-on products or modifications not supplied by Apricot will void the warranty and likely affect the performance of the instrument as well as lead to poor experimental results, reduced equipment life, and the possibility of injury to the operator.
- Under no circumstances should any part of the operator's body or any foreign object(s), except the labware in use, enter the area directly under the pipetting tips and above the elevator. In case of emergency, turn the power off immediately.
- Place the instrument on a sturdy and level surface. Use appropriate caution when operating this instrument.
- Wear protective clothing/goggles when dealing with dangerous, corrosive, or radioactive substances.
- This instrument is designed to fit inside a suitably-sized fume hood when working with volatile organic solvents.

For full instructions regarding the handling of pathogens or biological hazards in Risk Group 2 or higher, please refer to the current edition of the *Laboratory Biosafety Manual,* published by the World Health Organization.

1.2 – Inspection and Set-Up

Care should be exercised when unpacking the crate.

Inspect the instrument for any visible damage that may have occurred during shipping.



STOP

IF THE INSTRUMENT IS DAMAGED

DO NOT PLUG IN OR TURN ON THE SYSTEM

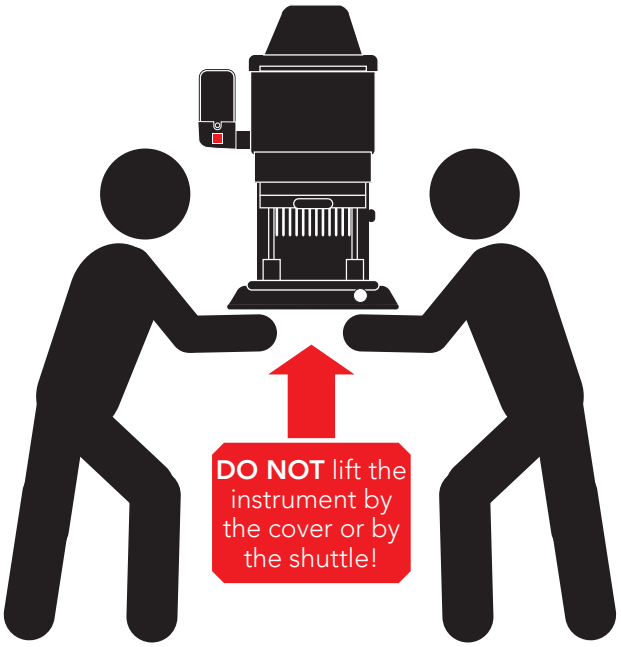
Contact Apricot Designs immediately – take a picture of the damage and send it to info@apricotdesigns.com
Contact the freight carrier.

No Damage to the Instrument

- After confirming that there is no damage you can start the installation of the i-Pipette.
- Re-assemble and save the shipping crate for future use.
- We recommend that you read through the Operating Instructions Manual before you start the install process.
- Place the instrument on a sturdy and level surface.
- Use appropriate caution when operating this instrument.
- Verify that the ON/OFF switch is in the OFF position.
- Using the power cord provided connect the instrument entry connector and connect the opposite end to a power outlet with a ground connection.
- The instrument is ready to turn on. Press the ON/OFF switch to the ON position.

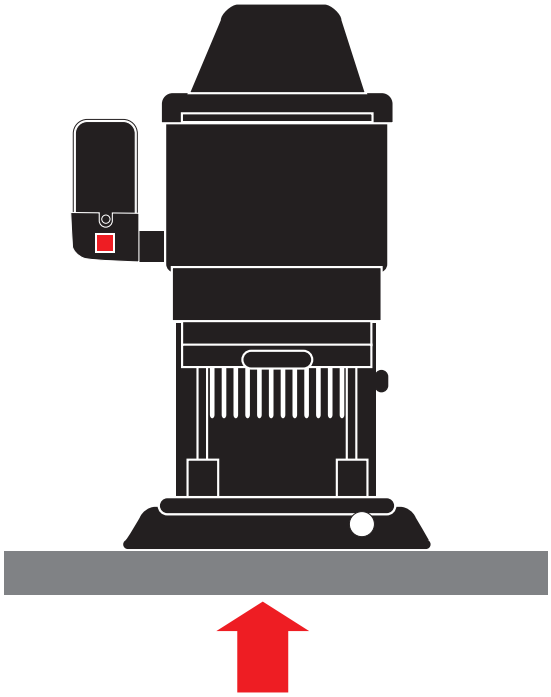
1.3 – Moving the i-Pipette

Lift the i-Pipette unit by the base plate of the instrument.



Keep your back straight and lift with your legs to avoid possible injury.

The instrument is quite heavy so several people are required to move it.



Place the instrument on a steady, sturdy, flat and level surface.

1.4 – Warning Symbols

Warning used on the equipment:

This symbol indicates that important information regarding the proper use of the equipment is contained in the operating instructions manual. Furthermore, there is a pinch point hazard located in the front of the instrument indicated by the warning label below. Additionally, it should be noted that the instrument contains electrical hazards.

This symbol indicates that a possible pinch point exists and that caution should be exercised when operating the instrument and to avoid contact with the instrument during operation.

1.5 – Software Specs and Requirements

The i-Pipette works on a Windows 7/8/10 64-bit computer.

i-Pipette System Requirements

- Microsoft Surface Pro
- i5 CPU Processor, 4gb RAM, 1gb HD

  Apricot representative will assist in developing your requirements/specifications list.
- USB cable, type B to type A
- Power cord

Software Requirement:

Microsoft Office 2010, AccessDatabaseEngine_64.exe

Note: *AccessDatabaseEngine_64.exe is included in the Apricot Software folder after installation.*

Display Requirement

- Screen resolution needs to be 1920 x 1080
- Change Display size to 100% ratio

Note: *Both of these requirements can be found in Control Panel->Display.*

2 FEATURES

i-PIPETTEPRO™

Automated High-Performance Multichannel Pipetting

Innovative, Accurate, Precise

A high-performance multi-channel liquid handling system – easily configured for a variety of applications

Intuitive Operation

Easy to use interface and intuitive pipettor operation via Apple iPod® or Apple iPad mini® controller

Greater flexibility – use the removable controller to operate the instrument from outside the fume hood

Automated Plate Loading

Motorized elevator raises and lowers plate or reservoir to the desired pre-set height

Optional Configurations

Automated X & Z positioning

2, or 3-position shuttle

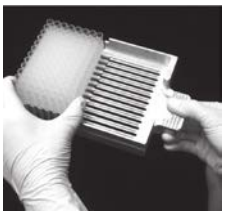
Trusted Brand

Apricot Designs specializes in high quality multi-channel pipettors designed to help you get the best results

EZ-Load Tip Technology

Load tips quickly and easily, without tools!

1



2

3 LOAD!

Small footprint, high-performance automated liquid handling —

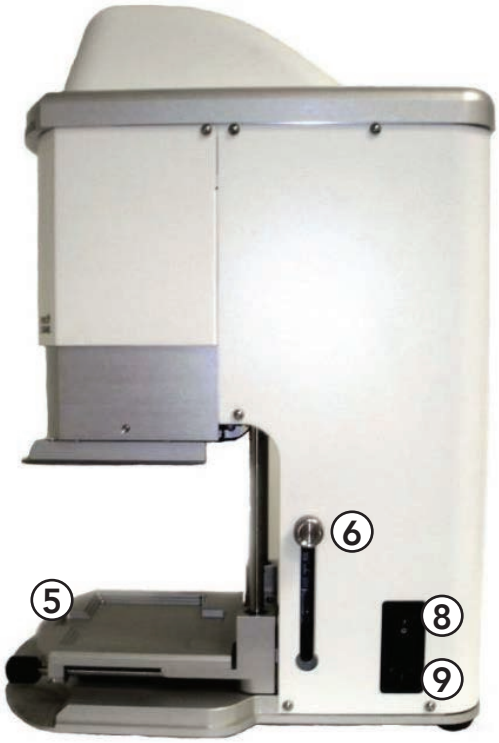
8,12,16, 24, 96, 384 channel pipetting.

2.1 – Applications

- Plate replication
- Reagent addition
- Compound addition
- Serial dilution by column
- PCR Prep
- Automated change head function

2.2 – Quick Reference Diagrams

i-Pipette Pro



1 iPod controller

2 Tips

3 Pipetting head

4 Elevator Handle

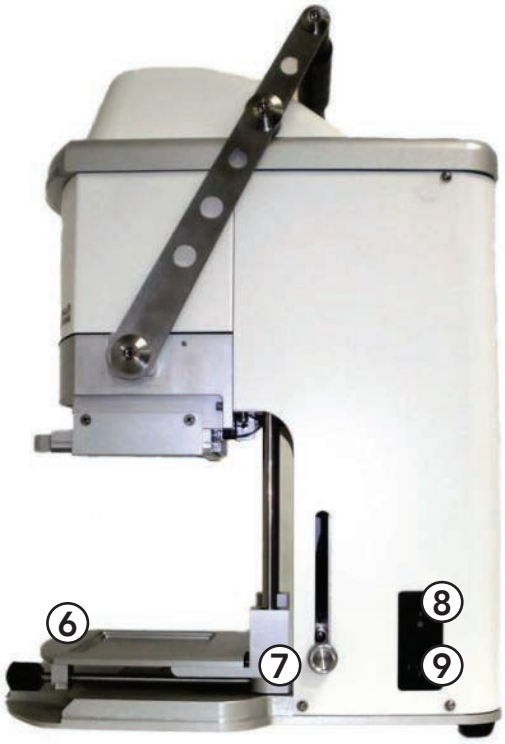
5 Tray seat

6 Elevator height lock

7 Power connector

8 ON/OFF switch

i-Pipette Basic



1 iPod controller

2 Tips

3 Pipetting head

4 Pipetting head locking lever

5 Elevator Handle

6 Tray seat

7 Elevator height lock

8 Power connector

9 ON/OFF switch

2.3 – Core, Tip, and Head Compatibility

The i-Pipette base unit is compatible with five different pipetting cores (96/1250, 96/1000, 96/500, 96/125, and 384/125). Each Core is designed to work optimally within its volume range and requires a specific Head and Tip combination.

The system is also capable of Serial Dilution. Specific Heads or Inserts and Tips are required.

Tips are available in Non-Sterile (NS), Sterile (S), and Filter Sterile (FS).

Please see the matrix below for complete Core/Head/Tip compatibility. The part numbers listed are for your convenience in ordering.

**Please contact your Apricot Sales or Service representative for assistance.*

384/125	Volume Range	Heads	Tips (096/384 channel)	Serial Dilution Heads/Inserts by Column	Serial Dilution Tips (Strip Tips)
	.5-125µL	384-A-01-EZL-SL	125-384-EZ-NS/S/FS	384-A-01-EZL-SC	125-016-EZ-NS/S/FS
		(M513-401-0700B)	050-384-EZ-NS/S/FS	(M513-403-07CM)	050-016-EZ-NS/S/FS
			015-384-EZ-NS/S	384-A-01-EZL-SC-12	
				(M513-403-07DC-1/12)	
		384-A-01-EZL-SL-096	125-096-EZ-NS/S/FS	384-A-01-EZL-SC-13	
		(M513-501-0700B)	050-096-EZ-NS/S/FS	(M513-403-07DC-1/13)	
		(96 ch offset)	015-096-EZ-NS/S		
				384-A-01-EZL-096-SC	125-008-EZ-NS/S/FS
				(M513-203-07CM)	050-008-EZ-NS/S/FS
				(8 ch offset)	

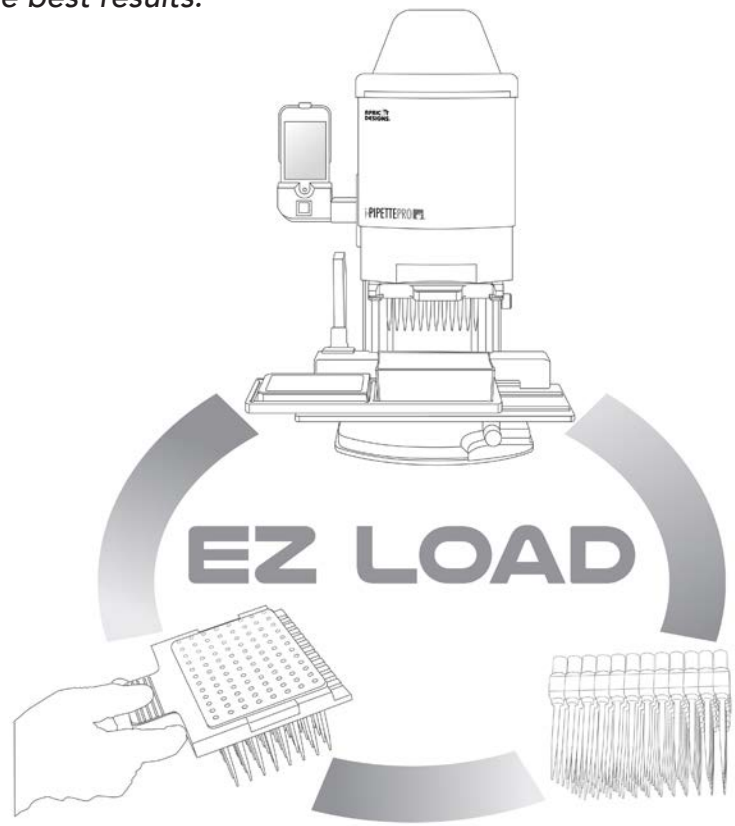
96/125	Volume Range	Heads	Tips (096/024 channel)	Serial Dilution Heads/Inserts by Column	Serial Dilution Tips (Strip Tips)
	.5-125µL	096-A-01-EZL-SL	125-096-EZ-NS/S/FS	096-A-01-EZL-SC	125-008-EZ-NS/S/FS
		(M519-401-0700B)	050-096-EZ-NS/S/FS	(M519-103-07CM)	050-008-EZ-NS/S/FS
			015-096-EZ-NS/S		

96/550	Volume Range	Heads	Tips (096/024 channel)	Serial Dilution Heads/Inserts by Column	Serial Dilution Tips (Strip Tips)
	1-500µL	096-A-01-EZL-SL-550	550-096-EZ-NS/S/FS	096-A-01-EZL-550-SC	550-008-EZ-NS/S/FS
		(M519-455-1000B)	250-096-EZ-NS/S/FS	(w/096-A-01-EZL-SL-550)	250-008-EZ-NS/S/FS
			550-024(OS)-EZ-NS/S/FS		
	1-125µL	096-A-01-EZL-SL	125-096-EZ-NS/S/FS	096-A-01-EZL-SC	125-008-EZ-NS/S/FS
		(M519-401-0700B)	050-096-EZ-NS/S/FS	(M519-103-07CM)	050-008-EZ-NS/S/FS
			015-096-EZ-NS/S		

96/1000	Volume Range	Heads	Tips (096/024 channel)	Serial Dilution Heads/Inserts by Column	Serial Dilution Tips (Strip Tips)
	5-1000µL	096-A-01-EZL-SL-1000	1000-096-EZ-NS/S/FS	096-A-01-EZL-1000-SC	1000-008-EZ-NS/S/FS
		(M519-410-1400B)		(w/096-A-01-EZL-SL-1000)	
	5-500µL	096-A-01-EZL-SL-550	550-096-EZ-NS/S/FS	096-A-01-EZL-0500-SC	550-008-EZ-NS/S/FS
		(M519-455-1000B)	250-096-EZ-NS/S/FS	(w/096-A-01-EZL-SL-550)	250-008-EZ-NS/S/FS
			550-024(OS)-EZ-NS/S/FS		
	5-125µL	096-A-01-EZL-SL	125-096-EZ-NS/S/FS	096-A-01-EZL-SC	125-008-EZ-NS/S/FS
		(M519-401-0700B)	050-096-EZ-NS/S/FS	(M519-103-07CM)	050-008-EZ-NS/S/FS
			015-096-EZ-NS/S		

2.4 – Pipettor + Head + Tips = Repeatable Results

The i-Pipette, pipetting head, and tips in a variety of volumes is a triad that works together *to help you get the best results.*



EZ-Load = EZ-Change

The "pipette head" is separate from the pipetting mechanism, allowing easy and economical reconfiguration in the lab. Changing heads only takes a few seconds – easily reconfigure as needed! For best pipetting results – consider pipette tip selection along with the "pipette head" that will be used.

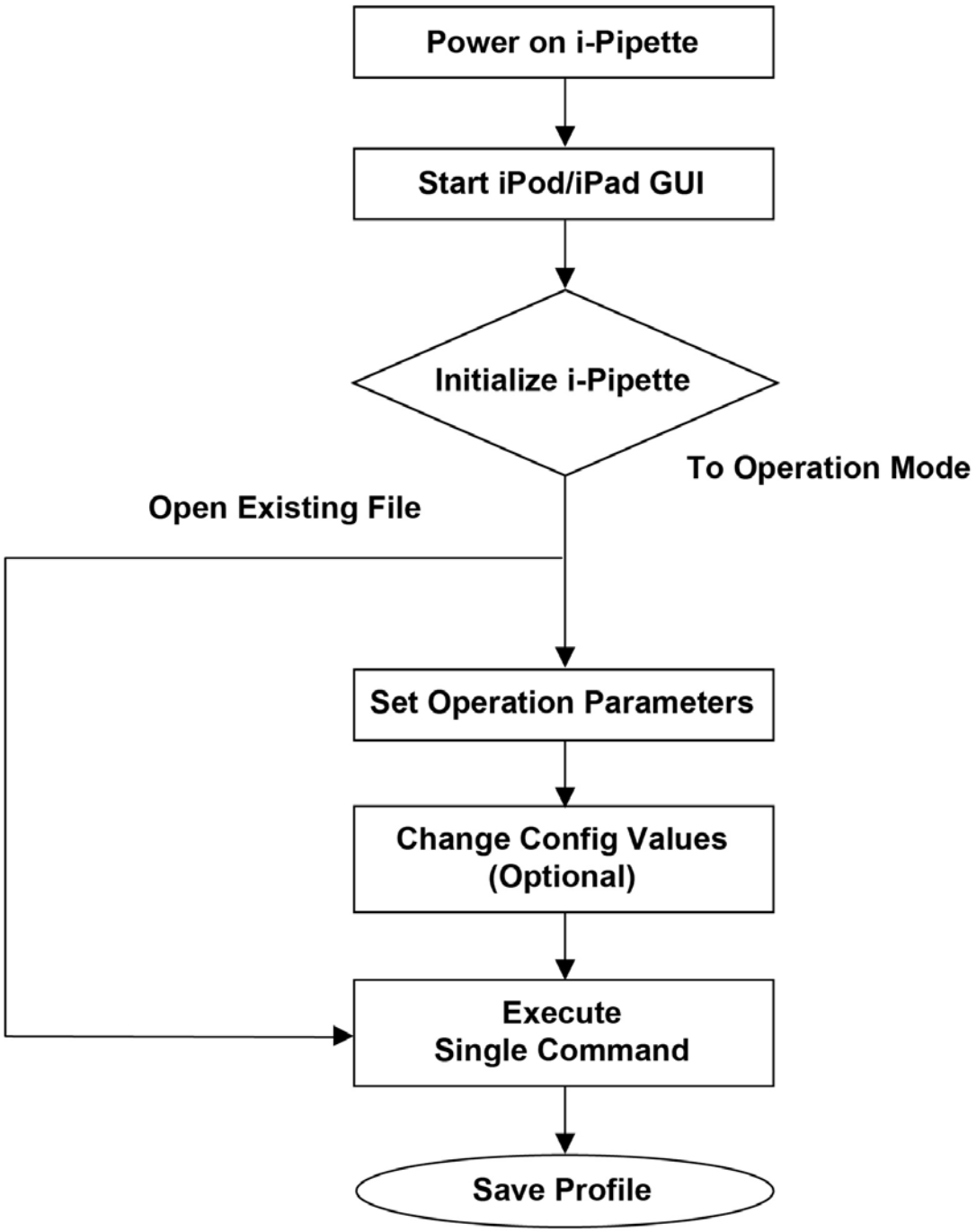
2.5 – EZ-Load Tip Technology

The i-Pipette uses the exclusive EZ-Load tips to simplify pipettor operation with disposable tips. This patented technology from Apricot Design is the only system using disposable tips that do not need to be "pressed on" with excessive downward force in order to create a reliable seal.

Load disposable tips into the head quickly and easily. No tools required for a consistent seal!

3 OPERATION OVERVIEW

i-Pipette Operation Flow Chart



4 GUI OVERVIEW

4.1 – Run or Update Software

The iPod/iPad GUI software is loaded into the iPod by the manufacturer before shipment. When the i-Pipette is turned on with the iPod in its holder, the iPod will turn on momentarily. Slide the arrow to unlock it and the software will be ready to use. To run the software, press the power button on the top right of the iPod and slide the arrow to unlock it. Find the **i-Pipette** application with an apricot icon and tap it to run the iPod program.

Note: The iPod and i-Pipette come configured for immediate use. However, if it has been necessary to change software or for other reasons the iPod needs to be configured to the i-Pipette.

Periodically, users may need to update the software. The latest software can be downloaded from the Internet: turn on the iPod and slide the arrow to unlock it. Tap **Settings** and make sure Wi-Fi is **ON** and use the iPod to search the local Wi-Fi network. Connect it to the Internet and then return to the iPod main interface. Find the **App Store** and tap it. In the search text box input 'Apricot' then tap the **Search** button. The **i-Pipette** under 'Apricot Designs Inc.' with an apricot icon will display. Tap it and tap **INSTALL** and the latest software will be downloaded into the iPod. When using the iPod to control the i-Pipette, change the iPod IP address back to connect to the Wi-Fi network of the i-Pipette.

4.2 – Program Initialization

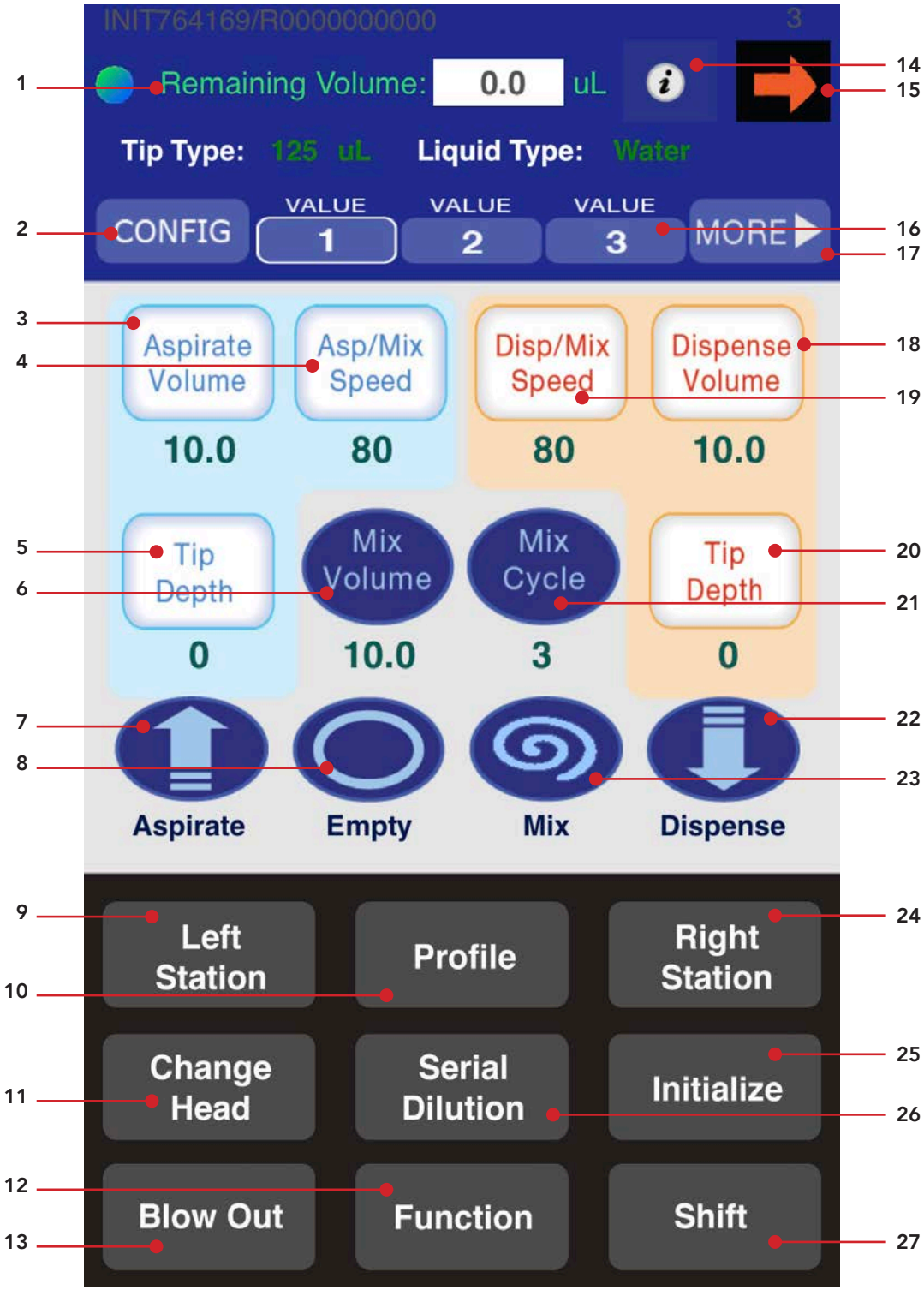
When the iPod program is running, it automatically detects the i-Pipette model, connects and enters the corresponding main interface. When the i-Pipette is turned on and connected successfully, initialization of the i-Pipette will take place. A wireless connection between the i-Pipette and iPod is required for one iPod to control one i-Pipette machine.

Notes:

- If the connection between the i-Pipette and the iPod is successful, tap **Initialize** to perform the initialization and have access to the software.
- If the tips have liquid inside of them, use **Connect w/o Init** instead of **Initialize** to keep the liquid from being dispensed during initialization.
- When the i-Pipette is not connected or the connection between the i-Pipette and iPod has failed, the message "Connection error" with "Check IP address/port" will display. Exit the Apricot software and tap **Settings** in the iPod and select the correct Wi-Fi network. The network name needs to match the machine ID on the label on the back of the i-Pipette, such as 216001001. Password is the last 5 digits of the SSID, for example SSID 216001001, the password is 01001. Press the button on the bottom of the iPod to exit the settings menu.
- If **Auto-Join** is **ON**, the iPod will automatically connect to the i-Pipette. If there are other Wi-Fi networks shown on the iPod, tap **Forget this Network** to ignore the other networks. The GUI must be exited before other iPods can access the i-Pipette.

4.3 – Main Screen Overview

Main Screen



1 **Remaining volume –** Displays the current remaining volume in the tips

2 **Configuration File Button –** Tap it to open the configuration parameter list.

3 **Aspirate Volume Input Button –** Display and change the aspirate volume value.

4 **Aspirate Speed Input Button –** Display and change the aspirate speed value.

5 **Aspirate Depth Input Button –** Display and change the aspirate depth value.

6 **Mix Volume Input Button –** Display and change the mix volume value.

7 **Aspirate Execution Button –** Tap it to execute the aspirate operation.

8 **Empty Execution Button –** Tap it to execute the empty operation.

9 **Left Station Button –** Tap it to move to left station

10 **Profile Button –** Tap it to set user profiles.

11 **Change Head Button –** Tap it to change the head.

12 **Auto Function Button –** Tap it to open the auto function setting window.

13 **Blow Out Button –** Tap it to execute the blow out operation after the empty operation.

14 **Information Button –** Tap it to open information window and update firmware.

15 **Exit Button –** Tap it to exit the GUI.

16 **Value Group Button –** Switch among the three groups of parameter values.

17 **Value Group Switch Button –** Switch the other three groups of parameter values.

18 **Dispense Volume Input Button –** Display and change the dispense volume value.

19 **Dispense Speed Input Button –** Display and change the dispense speed value.

20 **Dispense Depth Input Button –** Display and change the dispense depth value.

21 **Mix Cycle Input Button –** Display and change the mix cycle value.

22 **Dispense Execution Button –** Tap it to execute the dispense operation.

23 **Mix Execution Button –** Tap it to execute the mix operation.

24 **Right Station Button –** Tap it to move to right station

25 **Initialize Button –** Tap it to initialize the machine.

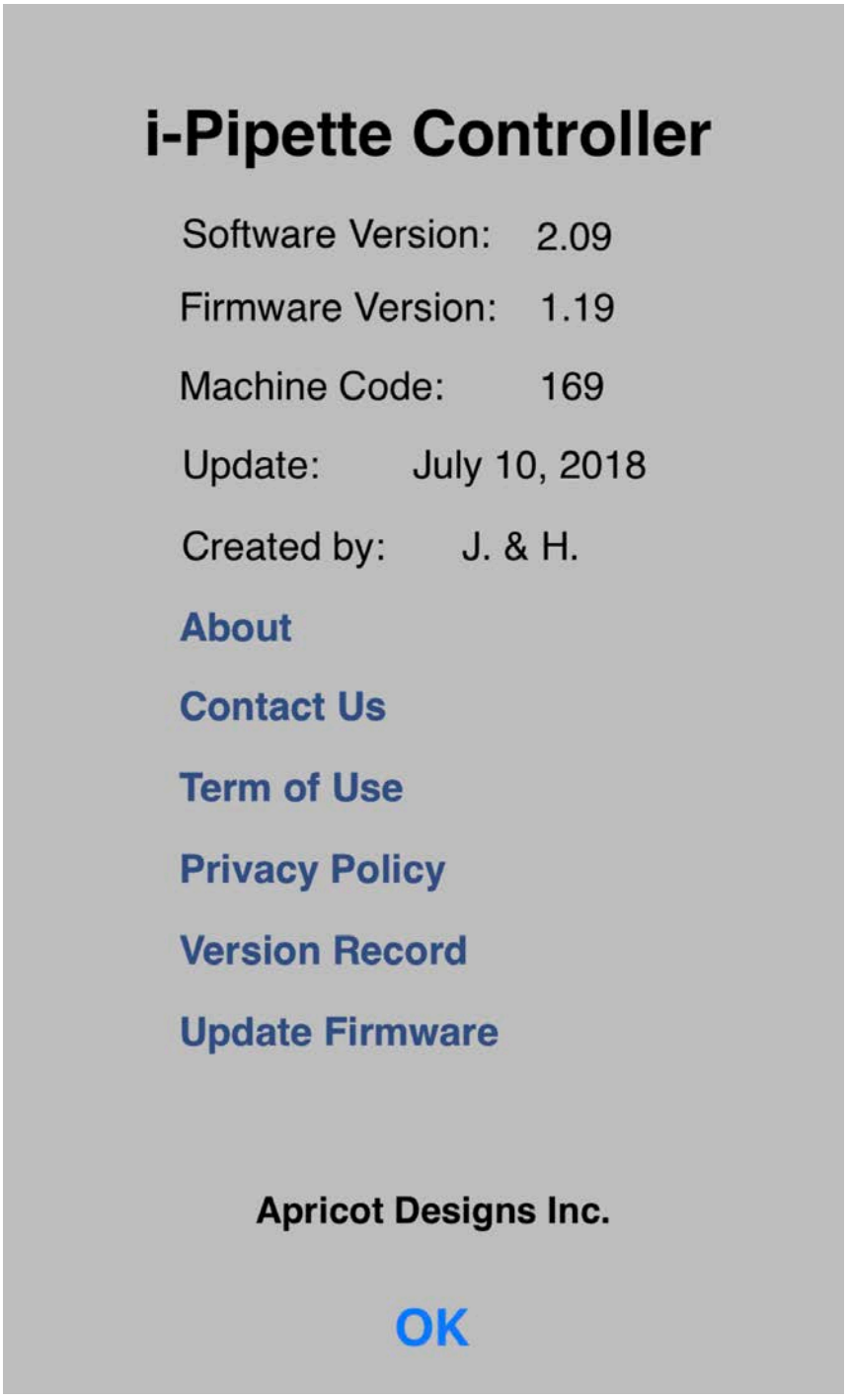
26 **Serial Dilution Execution Button –** Tap it to execute the serial dilution operation.

27 **Shift Button –** The first time entering the iPod AIP GUI, the button shows "Connect w/o Initialize." Tap it to connect the machine without initialization, then the button changes into "Shift." Tap it to switch to another group of function buttons. Detail explanations in section 5-6.

4.4 – Using the Software

4.4.1 – Confirm Machine Model

The iPod retrieves the i-Pipette information, i.e., model, machine ID and the original position. The i-Pipette model name and machine ID will be shown in the Information Page.



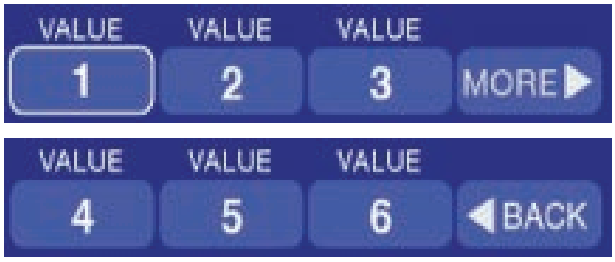
4.4.2 – Set Pipetting Head

It is necessary to set an appropriate pipetting head volume for the i-Pipette.

For i-Pipette models IP96B-500 and IP96P-500, the default maximum volume is 500μL; for i-Pipette models IP96B-125 and IP96P-125, the default maximum volume is 125μL; for i-Pipette models IP384B-125 and IP384P-125, the default maximum volume is 125μL. In i-Pipette models following 96 or 384, 'B' means the basic model that has no Z elevator movement and the head clamp is opened manually. 'P' means the professional model that has motorized elevator movement and an open head feature controlled by the software.

4.5 – Set Operation Parameters

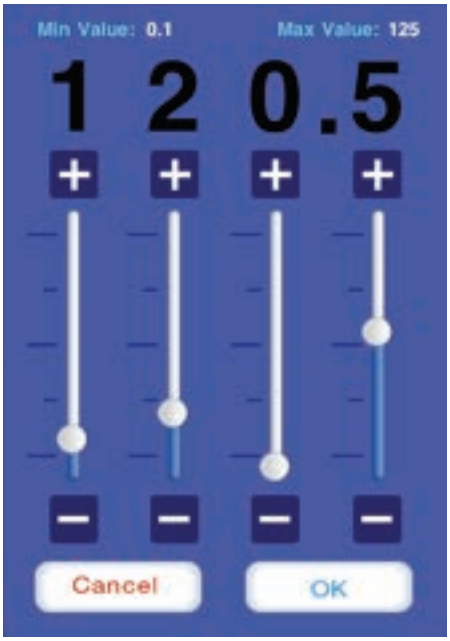
Before running single execution commands it is necessary to set parameters of volume, speed and number of cycles in the parameter setting panel. Only for machines with an elevator movement motor (models IP96P-500, IP96P-125, IP384P-125), are the **Tip Depth** buttons enabled.



Six groups of values can be set for aspirate, dispense and mix before using run commands. Tap button 1 under VALUE to select the first group. Set the first group of volume, speed, depth and cycle values. Then tap button 2 under VALUE to set the second group of these values. Tap button 3 under VALUE to set the third group of these values. Then tap the More button and another three groups will be shown. Use the same method to set the values for groups 4, 5 and 6. It is convenient to do this to run different commands without changing values every time. For example, set Aspirate in VALUE 1 to 10 and Aspirate in VALUE 2 to 30. Then select VALUE 2 to Aspirate 30 and select VALUE 1 to Aspirate 10. All six groups of parameters can be saved to a user profile.

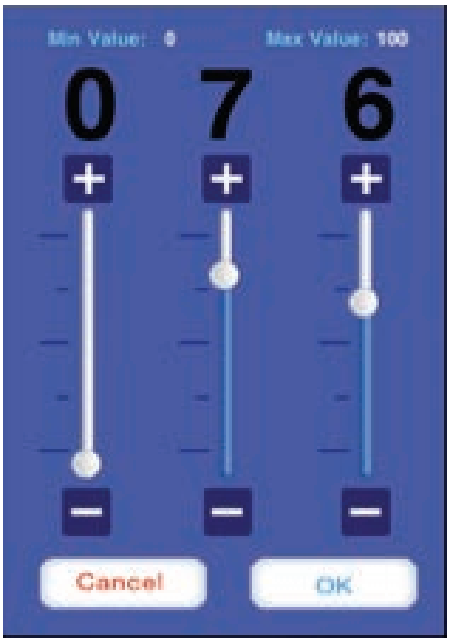
4.5.1 – Aspirate

Tap the **Aspirate Volume** button and the Input Panel window is displayed.



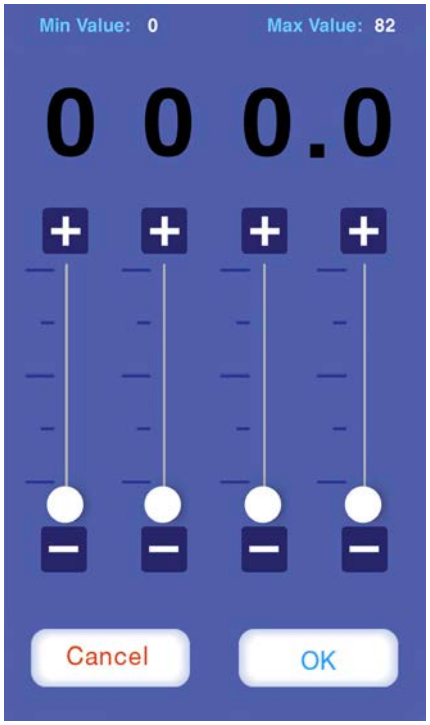
Tap the + or - button or move the slider bar for each digit to the desired number, and tap OK to exit the Input Panel. The new number will replace the old value and display it on the volume value button.

Tap the **Asp/Mix Speed** button and the Integer Input Panel window is displayed.



Tap the + or - button or move the slider bar for each digit to the desired number, and tap OK to exit the Input Panel. The new number will replace the old value and display it on the speed value button. The range for speed is from 0 to 100.

Tap the **Tip Depth** button and the Integer Input Panel window is displayed.



Tap the + or - button or move the slider bar for each digit to the desired number, and tap OK to exit the Input Panel. The new number will replace the old value and display it on the depth value button. The range for depth is from 0 to 82. If the depth is set to 0, the base point, the elevator will not move upward.

4.5.2 – Dispense

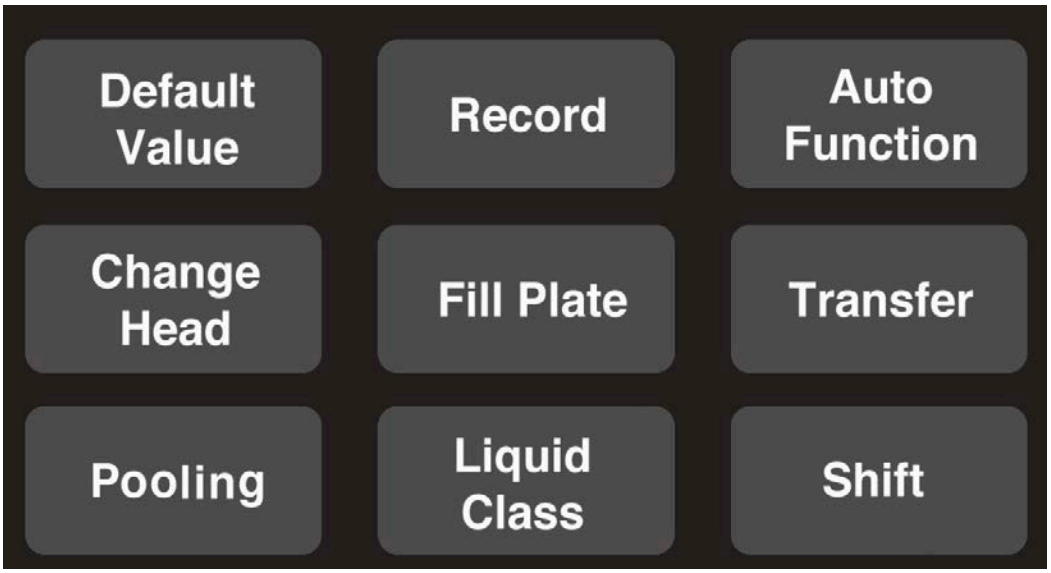
Tap the **Dispense Volume** button, tap the **Disp/Mix Speed** button and then tap the **Tip Depth** button to display the Input Panel. Then use the same method as above to change Volume, Speed and Depth values for the Dispense operation.

4.5.3 – Mix

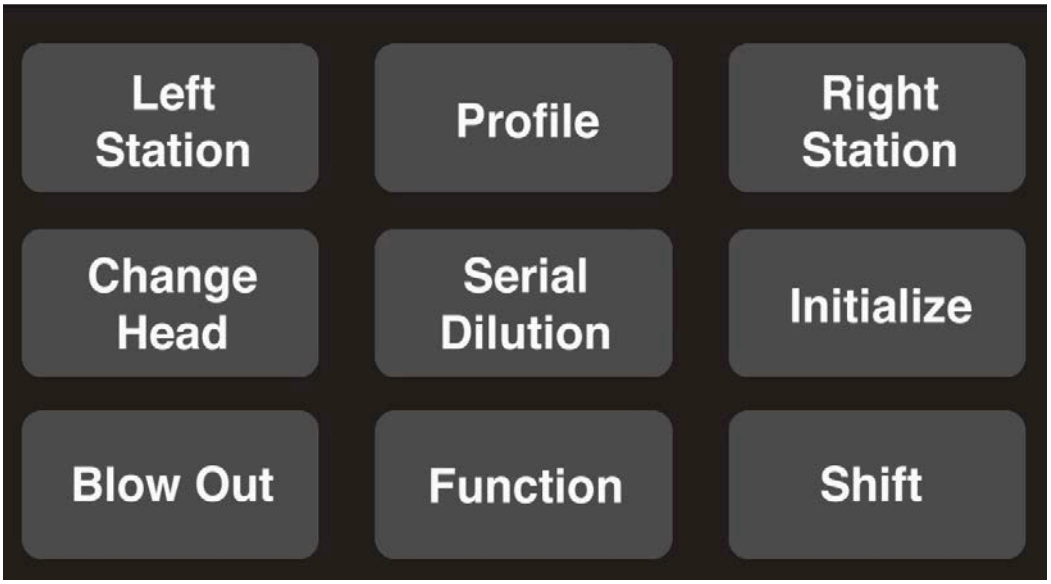
Tap the **Mix Volume** button and then tap the **Mix Cycle** button to display the Input Panel. Use the same method as above to change the volume and cycle values for the mix operation. The aspirate speed and depth for the mix function are based on the speed and depth setting values for aspirate parameters, and the dispense speed and depth for the mix function are based on the speed and depth setting values for dispense parameters.

4.6 – Execute Command

After setting operation parameters, tap any execution button in the Command Execution Panel to execute the single command.



Tap the **Shift** button to switch to another group of command buttons.



4.6.1 – Aspirate

Put a plate with liquid on the elevator and manually adjust the elevator to set the aspirate depth. Read the number on the scale and input the value into the Tip Depth button for the aspirate parameters on the left side.

For automatic mode: Set the Tip depth value without locking the elevator. Tapping the **Aspirate** button will cause the elevator to rise to the pre-set depth and execute the function with the pre-set parameters.

For manual mode: Manually adjust the aspirate depth and lock the elevator in position. Tapping the **Aspirate** button will execute the function with the pre-set parameters. If aspirating an air gap, let the elevator move away from the tips or set the Tip Depth value to 0 in automatic mode.

4.6.2 – Dispense

Put a plate on the elevator and manually adjust the elevator to set the Dispense depth. Read the number on the scale and input the value into the Tip Depth button for the aspirate parameters on the right side.

For automatic mode: Set the Tip depth value without locking the elevator. Tapping the **Dispense** button will cause the elevator to rise to the pre-set depth and execute the function with the pre-set parameters.

For manual mode: Manually adjust the aspirate depth and lock the elevator in position. Tapping the **Dispense** button will execute the function with the pre-set parameters.

4.6.3 – Mix

Put a plate on the elevator and manually adjust the elevator to set the aspirate depth and dispense depth for mix. Read the numbers on the scale and input the values into the Tip Depth buttons for aspirate and dispense parameters.

For automatic mode: Set the Mix depth value without locking the elevator. Tapping the **Mix** button will cause the elevator to rise to the pre-set depth and execute the function with the pre-set parameters.

For manual mode: Manually adjust the Mix depth and lock the elevator in position. Tapping the **Mix** button will execute the function with the pre-set parameters.

4.6.4 – Empty

Put a plate on the elevator and manually adjust the elevator to set the Empty depth. Read the number on the scale and input the value into the Tip Depth button for the dispense parameter on the right side.

For automatic mode: Set the Empty depth value without locking the elevator. Tapping the **Empty** button will cause the elevator to rise to the pre-set depth and execute the function with the pre-set parameters.

For manual mode: Manually adjust the Empty depth and lock the elevator in position. Tapping the Mix button will execute the function with the pre-set parameters.

4.6.5 – Blow Out

After finishing the Empty execution, tap the **Blow Out** button and the i-Pipette will execute the Blow Out function to blow out any remaining liquid in the tips. If the remaining volume is not greater than 1µL, the Blow Out command can be executed directly to empty and blow out all the liquid. The Blow Volume can be set in the Configuration window.

4.6.6 – Auto Function

Tap the Auto Function button to open a window for automatic execution of a single command. **Select a command:** Aspirate, Dispense, Aspirate/Multiple Dispense or Mix. When the elevator is raised to touch the sensor at the pre-set position, the i-Pipette will automatically execute the selected command using the values previously defined.

For the Aspirate/Multiple Dispense auto function, the first time the sensor is touched a message window opens asking the user to confirm the setup by tapping OK or by touching the sensor one more time. Either action will prompt the system to automatically execute Aspirate function using the defined Aspirate parameters. The next time the sensor is touched the system will automatically execute the Dispense function using the defined Dispense parameters.

For all auto functions, there is a 3 second Auto Delay time between touching the sensor and the execution of the command.

The Auto Delay setting can be changed in the Configuration tab.

4.6.7 – Serial Dilution Function

This section is for machines equipped with a manual or motorized two station platform.

Manual Serial Dilution

For the IPB machine without motorized elevator functionality (models IP96B-500, IP96B-125, IP384B-125), when the Serial Dilution button is tapped, the manual **Serial Dilution** window will appear.

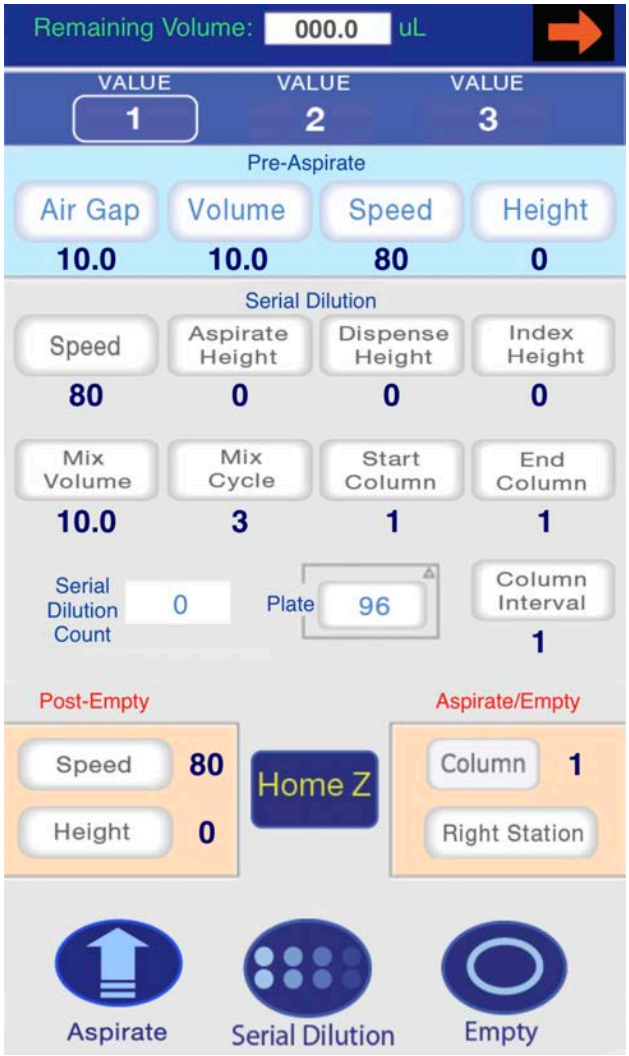
It is necessary to combine the Aspirate, Mix and Empty functions together for a complete serial dilution function. Input all necessary variables for each individual function, volumes, speeds etc.

If an Air Gap is required, tap the **Air Gap** button to aspirate air. After the Air Gap has been aspirated raise the plate and adjust it to touch the tips at the first column and tap **Aspirate**. Next, move the plate down and use index instrument to align the plate at the next column or row (for example, for column serial dilution, rotate the spindle bolt clockwise one index for a 384 channel plate and two indexes for a 96 channel plate on the index instrument to move the plate to the right for one column). Then raise the plate to touch the tips and tap 29 the **Empty** button to empty the liquid in the column or row. Then tap the **Mix** button to mix for the number of defined cycles (the **Empty Mix** button can be tapped instead to finish both Empty and Mix functions). Repeat this procedure, starting the next Aspirate step at the previous Dispense/Empty position, until the serial dilution is complete.

Serial dilution parameters can be saved into three sets: VALUE 1, VALUE 2 and VALUE 3. After exiting the window, enter the serial dilution window and it shows the set of parameters used previously.

Automatic Serial Dilution

For the machine with the elevator movement motor (model IP96P-500, IP96P-125, IP384P-125), when the Serial Dilution button is tapped the following automatic Serial Dilution window will be shown.



The Serial Dilution function combines the aspirate, mix and empty functions. Input all necessary variables for each individual function, volumes, speeds, etc.

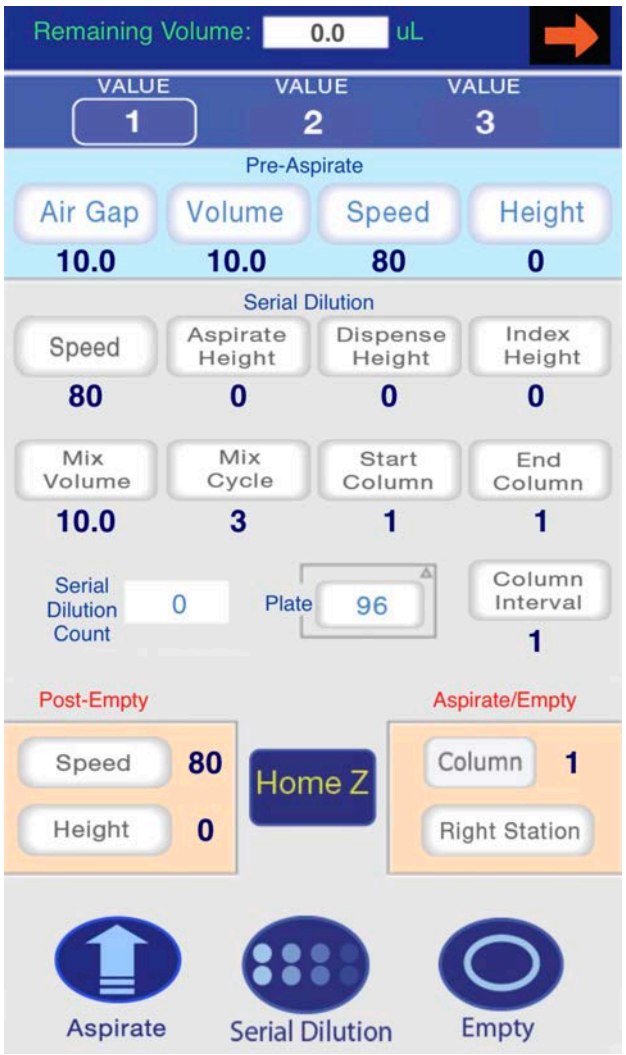
When executing the automatic serial dilution function, adjust the tips at the first column of the plate. Then tap the **Aspirate** button. The elevator will move to the defined aspirate height to aspirate the defined volume. Then use index instrument help to move the plate to the second column. Then tap the **Serial Dilution** button and the elevator will move to the defined dispense height. Then execute the mix function for the number of defined cycles in serial dilution. The aspirate height in mix is the height defined under Aspirate Height and

the dispense height in mix is the height defined under Dispense Height. After finishing the mix cycle, the elevator will move to the defined aspirate height to aspirate the volume that is defined in Pre-Aspirate. After serial dilution is finished in one column or row, the Serial Dilution Count number will be increased to 1 and the elevator will move back to the index height defined under Index Height. A message window will pop up and after tapping OK use the index instrument help to move the plate to the next column or row. Tap the **Serial Dilution** button for continuing to finish serial dilution by column or row step-by-step. The Serial Dilution Count number will record the total serial dilution cycles.

After the Serial Dilution function is finished, tap the **Empty** button to finish the serial dilution function. To change a source plate for emptying, tap the button **Home** and let the elevator go down to the home position. Then tap the **Empty** button.

Motorized Two Station Automatic Serial Dilution

If there is a motorized two station mechanism installed on the professional model machine, the following automatic Serial Dilution window will be shown when the **Serial Dilution** button is tapped.



With the motorized two station mechanism, the column serial dilution function could be executed automatically column-by-column without adjusting index instrument to move the plate by columns manually.

In addition to the buttons just described (Automatic Serial Dilution), other buttons are enabled. Tap the **Right Station** button and the shuttle will move to the right side station as the source station ready to aspirate or empty. Tap Column in Source to choose the column source. The target station for serial dilution is fixed as the left side station. If a 384 channel plate is used as the target plate, the button will show '384.' Otherwise, tap the **384** button to let the text change into '96' and use a 96 channel plate to perform serial dilution. Input the start column number in Start Column and input the end column number in End Column for automatic serial dilution. The default column increment is 1. The column interval can be changed for serial dilution in Column Interval.

Before executing the automatic serial dilution function, adjust the tips at the centers of first column on the left side if a 96 channel plate is being used. Or adjust the tips at the centers of either the front well or the back well on the first column if a 384 channel plate is being used. After all the parameters have been set, select the source station and tap **Aspirate**. Then tap Serial Dilution. The serial dilution will automatically execute from the defined start column to the end column. The **Serial Dilution** Count number will record the total serial dilution cycles. After serial dilution is finished a message window will pop up. Tap **Serial Dilution** to do another serial dilution (the Serial Dilution Count will add the total counts of the new Serial Dilution), or select the source station and tap **Empty** to finish the serial dilution process.

4.6.8 – Initialize

The Initialize function establishes communication between the iPOD and the iPipette and resets all motors to the home position.

4.6.9 – Connect w/o Init

Connect without Initialization allows the user to establish communication between the iPOD and iPipette without resetting (initializing) the motors. After communication between the iPod and i-Pipette has been established, the **Connect w/o Init** button changes into a **Shift** button. This function can be utilized to recover from a communication break during an operation.

4.6.10 – Default Value

Sets Default Values for the current selected command (i.e, Aspirate/Dispense). This value will be also be applied to the corresponding command within a Serial Dilution or Transfer function.

4.6.11 – Change Head

The Change Head function is only for models with automated head changing (model IP96P-500, IP96P-125, and IP384P-125). Tap the **Change Head** button, and the head will unlock and be ready for changing. After changing the head, tap OK to lock the new head in place.

4.6.12 – Left Station

If there is a motorized two station mechanism installed on the professional model machine, when the **Shift** button is tapped the Change Head button will change to the Left Station button. Tap the **Left Station** to designate it as the station for executing a command.

4.6.13 – Right Station

If there is a motorized two station mechanism installed on the professional model machine, when the **Shift** button is tapped, the Blow Out button will change to the Right Station button. Tap the **Right Station** to designate it as the station for executing a command.

4.6.14 – Transfer Function

If the i-Pipette has motorized elevator functionality (models IP96P-500, IP96P-125, IP384P-125), the **Transfer** button will appear in the main window. When tapped, the transfer window will appear. If there is a motorized two station mechanism installed on the professional model machine, the Left and Right Station buttons can be enabled or disabled.

The transfer function combines Aspirate, Dispense and Empty functions together in one window to perform a transfer function. Input Air Gap, Volume, Speed and Height for aspirate in the Aspirate section. Input the Passing Height, Volume, Speed and Height for dispense or empty in the Dispense section. When the Passing Height is set, the elevator will move to the height set by Passing Height after use, instead of back to home before executing other functions in order to reduce elevator travel time.

When all parameters are set, tap **Aspirate** to aspirate liquid from one plate. After changing to the target plate, tap **Dispense** or **Empty** to finish a transfer function. If there is a motorized two station mechanism installed on the professional model machine, it is more convenient to perform the transfer function by tapping the **Left Station** or **Right Station** button and letting the shuttle move to the defined station as the source station. Then tap **Aspirate** and designate another station as the target station. Then tap **Dispense** or **Empty** to finish the transfer function.

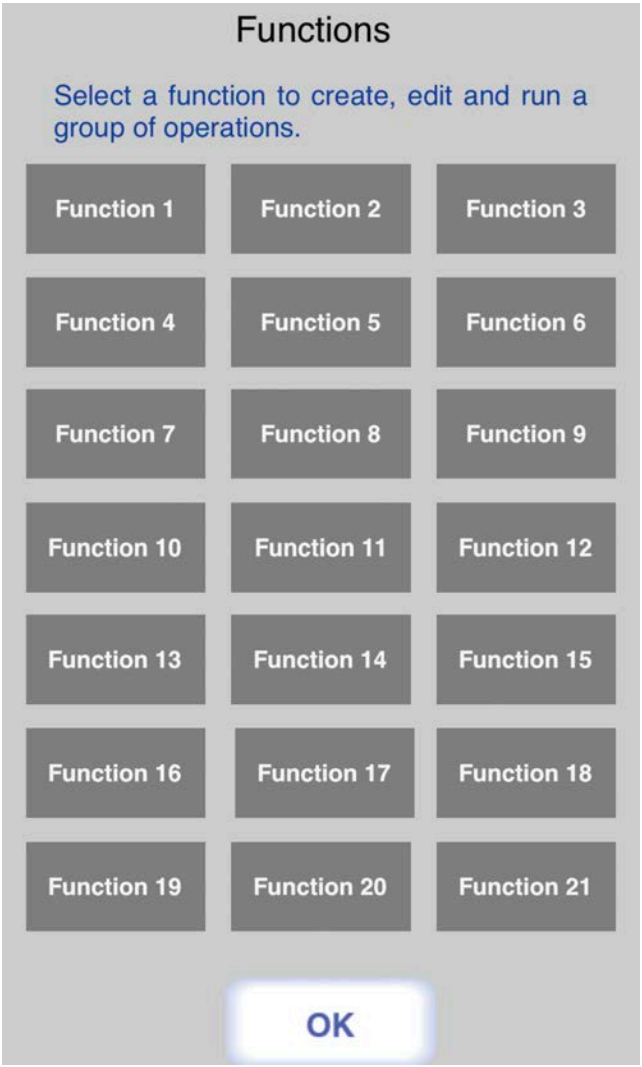
Similar to the parameters in the main window, the transfer parameters can also be saved into the sets VALUE 1, VALUE 2 and VALUE 3. Tap **EXIT** to exit the transfer window. When the transfer window is reentered, the values previously used will be shown on the screen.

4.6.15 – Home Z

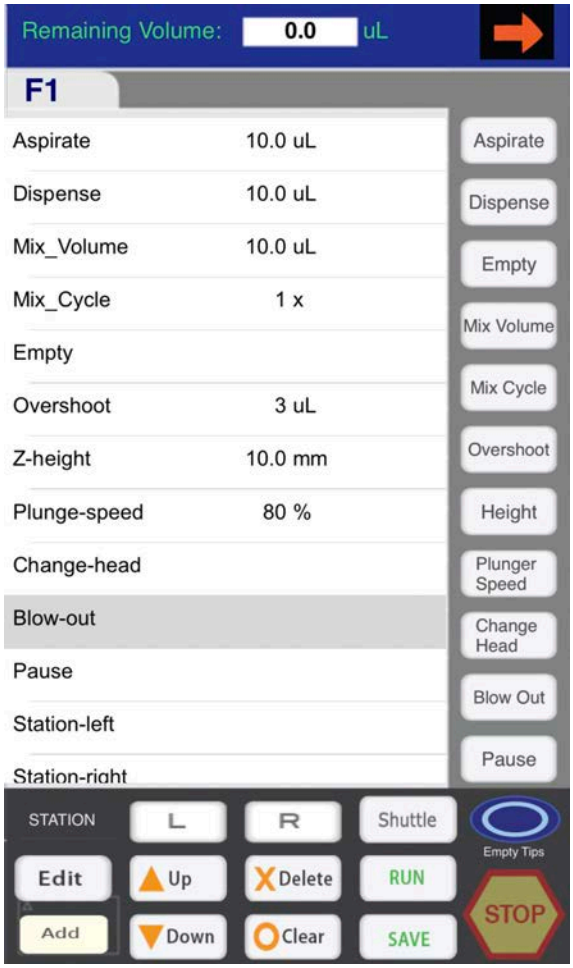
The Home Z function will drive the stage (Z axis) down to the home position. The Home Z function can be utilized to recover from a crash.

4.6.16 – Function

If the i-Pipette has motorized elevator functionality (models IP96P-500, IP96P-125, IP384P-125), after tapping the **Shift** button, the Function button will be available. The Function command allows a user to write and save up to 10 multi-step protocols.



The protocols are written using the command buttons on the right side of the screen. Each command appears as a line item on the Edit Function template.



If **Left** or **Right** under STATION is enabled, the station needs to be defined beforehand in the protocol before making other execution commands.

To move a command line within a protocol highlight the line by touching it and tap the **Up** button once to move the selected command up one line. Tap the **Down** button once to move the selected command down one line. Tap the **Delete** button to remove the selected command from the protocol. Tap the **Clear** button to remove all the commands from the protocol. Tap the **Edit** button to edit the value of the selected command. An alternative method to edit the protocol is to double tap one command line, and the function window will be changed to editing status.

For moving one command position: hold the command line and move it to any target line and release. The command will be moved to the new line. For removing one command tap the icon '-' with a red circle in front of it to delete the command. After editing, tap the Edit button to return to the function window.

The lower left button can be set to **Add**, **Insert** or **Replace**. When set to **Add**, the command to be added will be added to the end of the protocol. If the **Add** button is tapped, it will change to **Insert**. If **Insert** is used, the new command will be added in the line before the highlighted command. If the **Insert** button is tapped, it will change to **Replace**. If **Replace** is used, the new

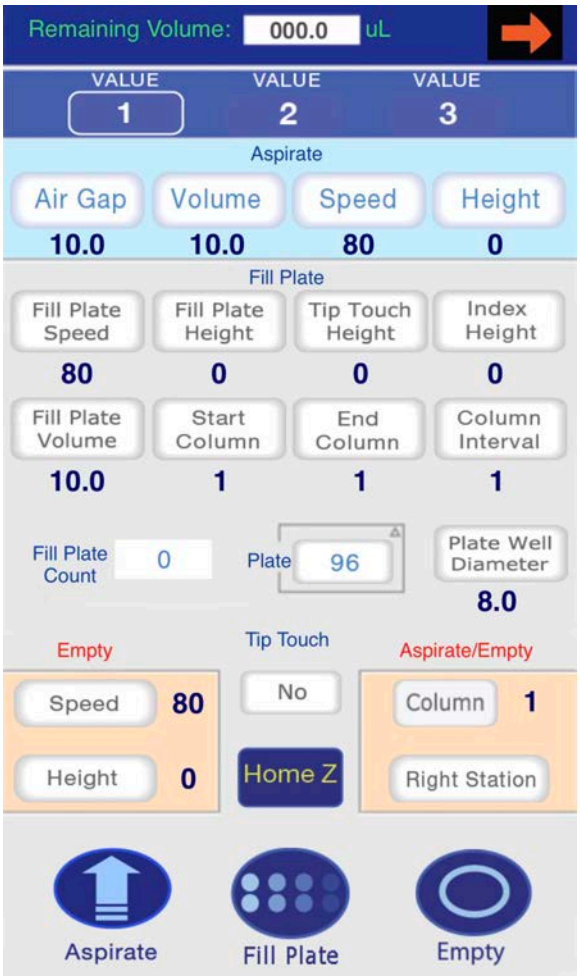
command will replace the highlighted command. If the **Replace** button is tapped, the button text will change back to **Add**.

After the protocol has been completed, tap the **RUN** button to execute the commands in the protocol. During the running period, tap the **STOP** button to terminate the execution of the protocol. When the **RUN** button is tapped again, the protocol will run from the first command.

To save the protocol tap the **SAVE** button. It will be saved in the user-defined file under the function file opened, such as Function 1. Subsequently, tap the function button to use the function file to execute or edit directly.

4.6.17 – Fill Plate

If the i-Pipette has motorized elevator functionality (models IP96P-500, IP96P-125, IP384P-125), the **Fill Plate** button will appear in the main window. When tapped, the Fill Plate window will appear. The fill plate functionality is designed with the right station as the designated source station, and the left station as the fill plate station. If there is a motorized two station mechanism installed on the professional model machine, the Source station and Columns will be enabled. If there isn't a motorized two station, then the user will have to manually move the station with the index instrument column-by-column.

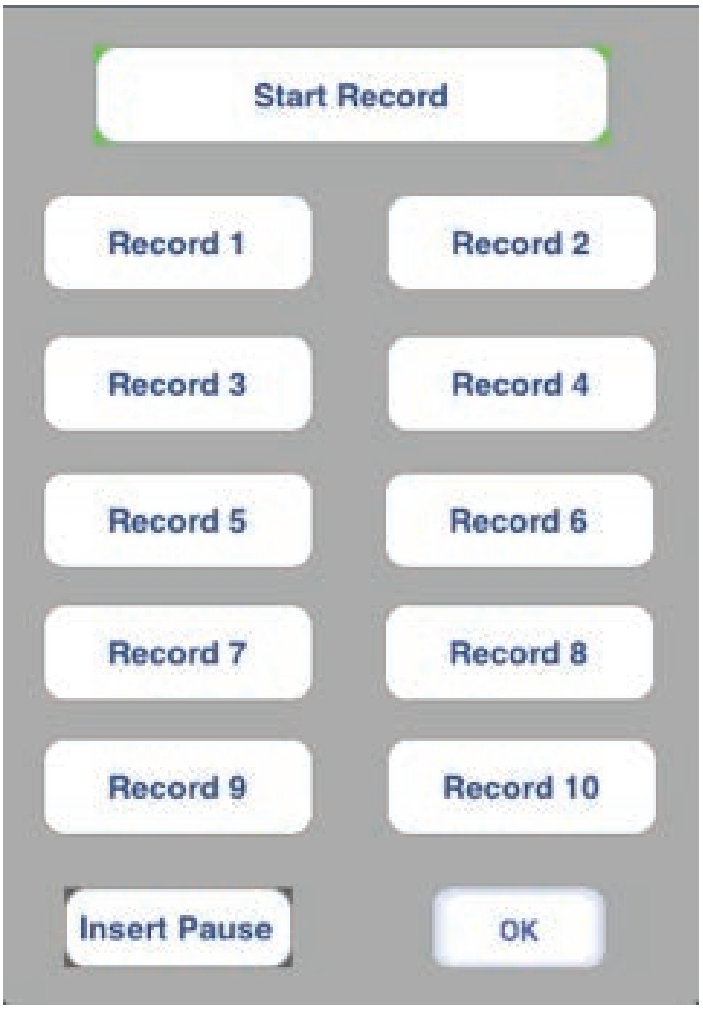


The target station for serial dilution is fixed as the left side station. If a 384 channel plate is used as the target plate, the button will show '384.' Otherwise, tap the **384** button to let the text change into '96' and use a 96 channel plate to perform serial dilution. Input the start column number in Start Column and input the end column number in End Column for automatic serial dilution. The default column increment is 1. The column interval can be changed for serial dilution in Column Interval.

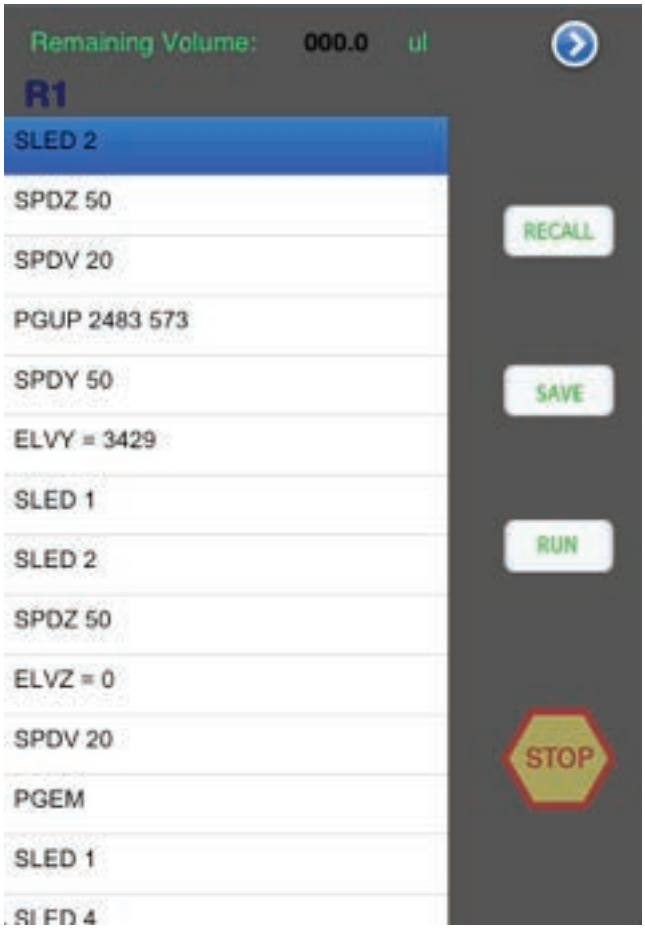
Move the elevator manually for the desired pipetting height. Use the scale on the right side and input in Fill plate Height. Then manually move the elevator so the tips are out side of the plate and input the scale number in Index Height. After all the parameters have been set, select the source station and tap **Aspirate**. Then tap **Fill In**. The fill in will automatically execute from the defined start column to the end column. The Fill Plate Count number will record the total columns of fill in.

4.5.18 – Record

If the i-Pipette has motorized elevator functionality (models IP96P-500, IP96P-125, IP384P-125), the **Record** button will appear in the main window.

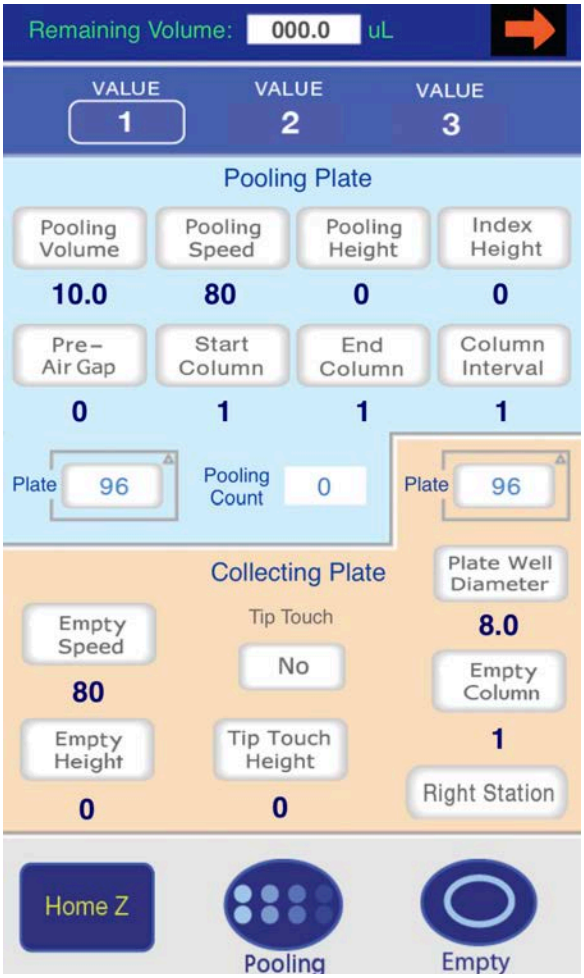


Record is a new way of creating new protocols by recording the commands the user sent to the i-Pipette. These commands can be stored for later use. The user can press **Start Record** and the green color around it will turn red, indicating that it's recording commands. Then tap **OK** and the main window will appear. In the main window the user can Aspirate, Dispense, Mix, switch station, etc., or combine with other commands like **Fill In** or **Serial Dilution**. Once the desired protocols are complete, tap **Record** in the main menu and tap **Stop Record**. Select Record 1 – 10 to recall and save the protocols.



Tap **RECALL** to bring back all the commands that were recorded, and tap **SAVE**. The user can tap **RUN** to execute the protocols.

4.5.19 – Pooling



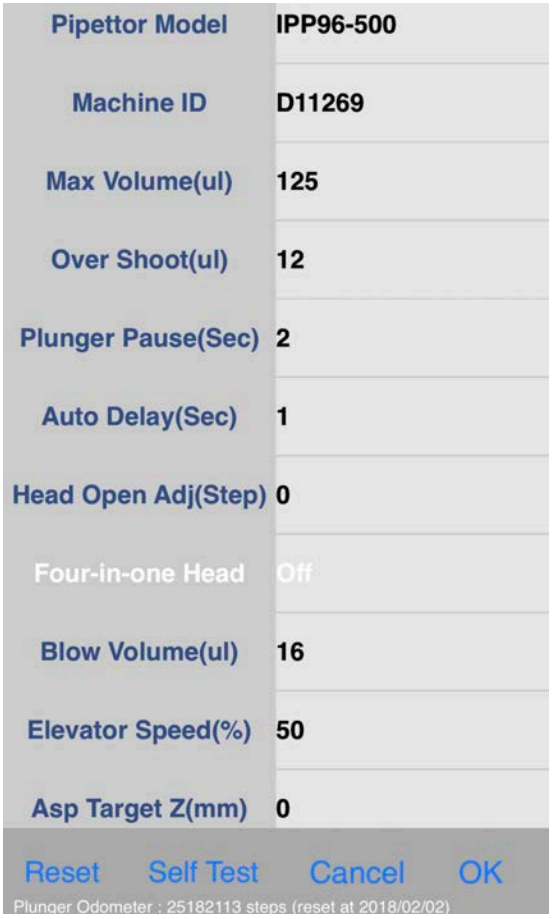
The **Pooling** command is used to aspirate liquid from multiple source columns and empty to a single destination column. The Left station is the default position for the pooling (source) plate, the Right station is the default position for the Collecting (destination) plate. Set the appropriate plate formats, volumes and speeds by toggling the buttons on the menu. Set the start and end columns for the source plate, and designate the Empty Column on the Collecting Plate. Lift the stage manually and enter the corresponding scale heights for the desired Pooling, Index, Empty and Tip Touch heights (an accurate well diameter definition is required for an effective Tip Touch function). Toggle the **Pooling** button to execute the Pooling Command.

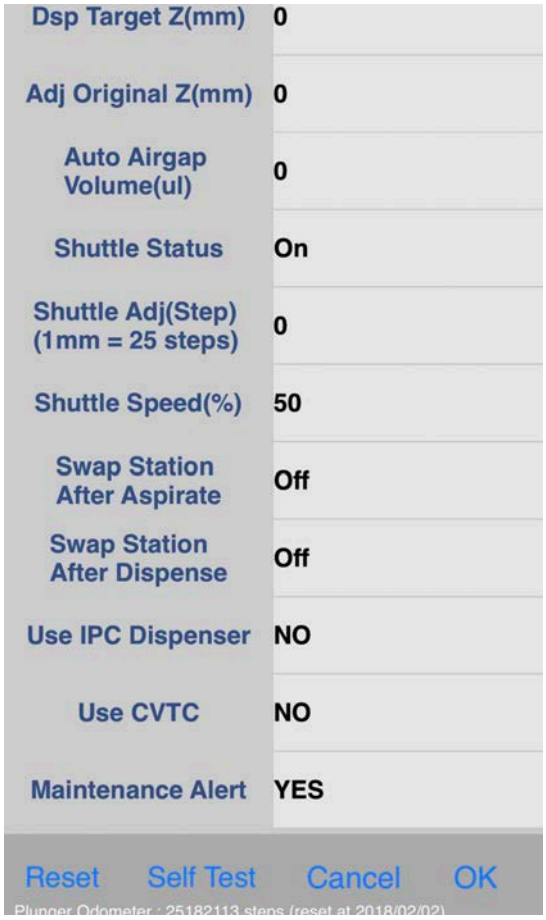
4.7 – Set Configuration Parameters

Tap the **CONFIG** button on the main screen to show the configuration widow. Tap the values on the right side to change the configuration parameters. Tap the name of the parameter on the left side of the screen to restore the default values.

Self Test is for the i-Pipette life test. The i-Pipette will continuously execute aspirate and dispense functions according to the parameters set in the GUI until the user stops the execution.

Scroll the iPod screen to show more configuration parameters, or to exit.





4.7.1 – Pipettor Model

Displays the current i-Pipette model and it cannot be changed.

4.7.2 – Machine ID

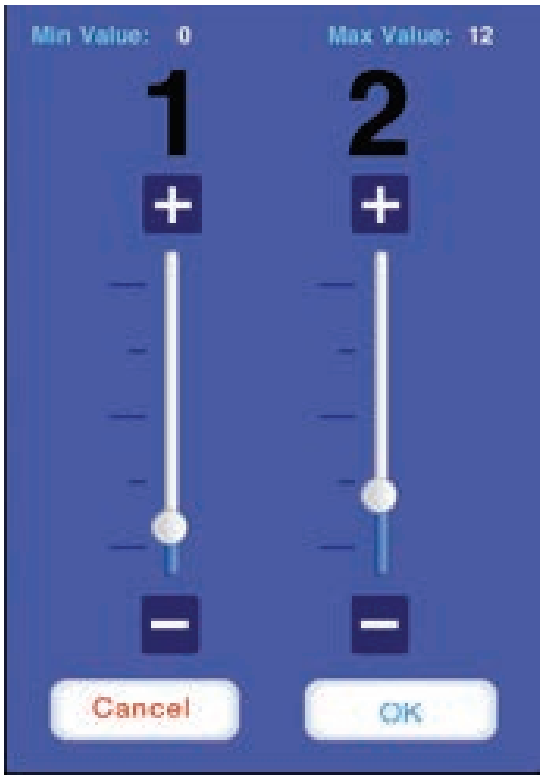
Displays the i-Pipette machine ID that is retrieved from firmware automatically.

4.7.3 – Max Volume (μL)

Sets the maximum volume that can be aspirated by the Pipettor. If low volume tips are being used, changing this setting to match the tip volume can help avoid aspirating liquid into the dispensing block.

4.7.4 – Over Shoot (μL)

The default over shoot value is 12μL and the maximum value is 48μL for the IP96B(P)-500 model. The default over shoot value is 3μL and the maximum value is 12μL for the IP96B(P)-125 and IP384B(P)-125 models. Tap the value button to set the over shoot value.

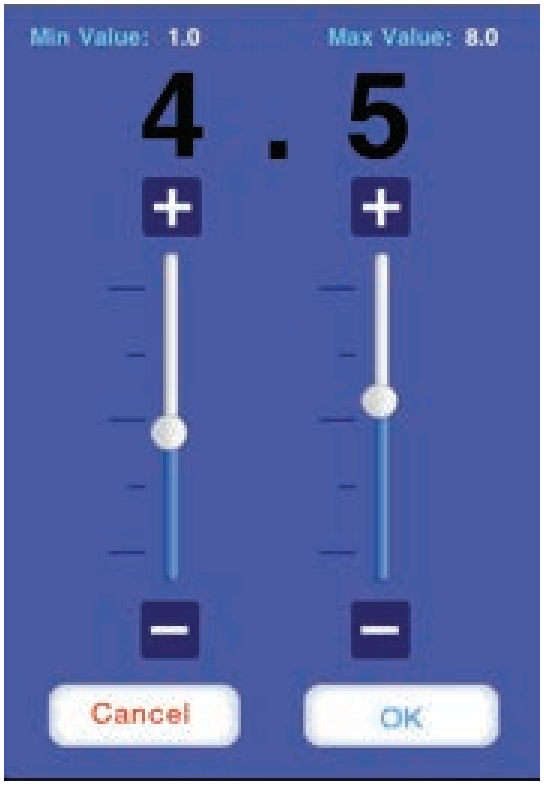


4.7.5 – Plunger Pause (Sec)

Adjusts the plunger-waiting interval time (in seconds) according the user's requirements. The default value is 2 seconds. The plunger pause adjustment range is from 1 second to 5 seconds.

4.7.6 – Auto Delay (Sec)

Auto Delay sets the delay time (in seconds) for the auto functions. After the elevator sensor is touched, the i-Pipette will wait for the defined delay time and then begin to execute the auto function. The auto delay adjustment range is from 1 to 8 seconds.



4.7.7 – Head Open Adj (Step)

Head Open Adj (Step) parameter is used to adjust the gap in the clamp for loading or removing the head. The default setting should accommodate easy installation and removal, however, adjustments may be necessary

4.7.8 – Four-in-one Head

When using a four-in-one head, tap the value to **On**; otherwise the default is **Off**.

4.7.9 – Head Sensor Status

When the Head Sensor Status is **On**, before each run time the iPod AIP program will check whether there is a head on the i-Pipette. If there is no head, a message will appear to tell user there is no head and no command can be executed. When the Head Sensor Status is **Off**, commands will still be executed with or without a head on the i-Pipette.

4.7.10 – Blow Volume (μL)

Blow Volume sets the volume for the blow out function. The range is 16μL~80μL for 500μL plungers and 4μL-20μL for 125μL plungers. Any changes in the setting are effective only after initialization. It sets a larger value for the blow out volume and while it is easier to kick out the remaining volume in the tips by using the blow out function, it may affect the accuracy of any remaining liquid in the tips.

4.7.11 – Elevator Speed (%)

Elevator Speed (%) sets the speed level for the elevator. The range is 0~100. The larger the Elevator Speed percentage, the faster the elevator speed. The parameter works for all the executions for elevator movement.

4.7.12 – Asp Target Z (mm)

Asp Target Z (mm) sets the distance for the elevator to reduce speed when approaching or departing the target position when aspirating. This is so the tips enter and leave liquid slowly. The setting range is 0~25mm.

4.7.13 – Dsp Target Z (mm)

Dsp Target Z (mm) sets the distance for the elevator to reduce speed when approaching or departing the target position when dispensing. This is so the tips enter and leave liquid slowly. The setting range is 0~25mm.

4.7.14 – Adj Original Z (mm)

Adjust Z (mm) adjusts the accuracy for the elevator movement position. For example, if the target Z position is set to 50mm by the scale but the elevator actually moves to 48mm, use the parameter to adjust the difference by inputting "+2.0." The setting range is 0~ +5.0 mm.

4.7.15 – Auto Airgap Volume (μL)

Auto Airgap Volume sets air gap volume for executing aspirate in the main window. If the value is greater than zero, it will aspirate an air gap defined by Auto Airgap Volume before aspirating liquid. The setting does not affect the Air Gap in the Transfer and Serial Dilution functions.

4.7.16 – Shuttle Status

The parameter is only for the professional model machine with a motorized two station mechanism installed. This switches the status between automatic and manual movement of the shuttle in the Y-Axis. When the Shuttle Status is set to **On**, the shuttle will automatically move between the two stations. When the Shuttle Status is set to **Off**, the shuttle can be moved manually to the left or right station.

4.7.17 – Shuttle Adj (Step)

The parameter is only for the professional model machine with a motorized two station mechanism installed. Shuttle Adjustment adjusts the distance slightly between the two stations. The range is 0-50 steps.

4.7.18 – Shuttle Speed (%)

The parameter is only for the professional model machine with a motorized two station mechanism installed. Shuttle Speed is for adjusting the shuttle movement speed. The range is 0-100. The larger the Shuttle Speed percentage, the faster the shuttle movement speed.

4.7.19 – Swap Station after Aspirate

The parameter is only for the professional model machine with a motorized two station mechanism installed. When Swap Station after Aspirate is **On**, after executing aspirate, the shuttle will move to another station automatically ready for the execution of the next command. Users do not need to tap Left Station or Right Station for changing stations before executing other commands. To disable the function, set Swap Station after Aspirate to **Off**.

4.7.20 – Swap Station after Dispense

The parameter is only for the professional model machine with a motorized two station mechanism installed. When Swap Station after Dispense is **On**, after finishing a dispense, the shuttle will move to another station automatically ready for the execution of the next command. Users do not need to tap Left Station or Right Station for changing stations before executing other commands. To disable the function, set Swap Station after Dispense to **Off**.

4.7.21 – IPC Dispenser

Ipp can pair up with a 1-16 channel peristaltic pump for fast and bulk dispense. Please contact Apricot Designs for details.

4.7.22 – CVTC

Detail information is explained in section 6.

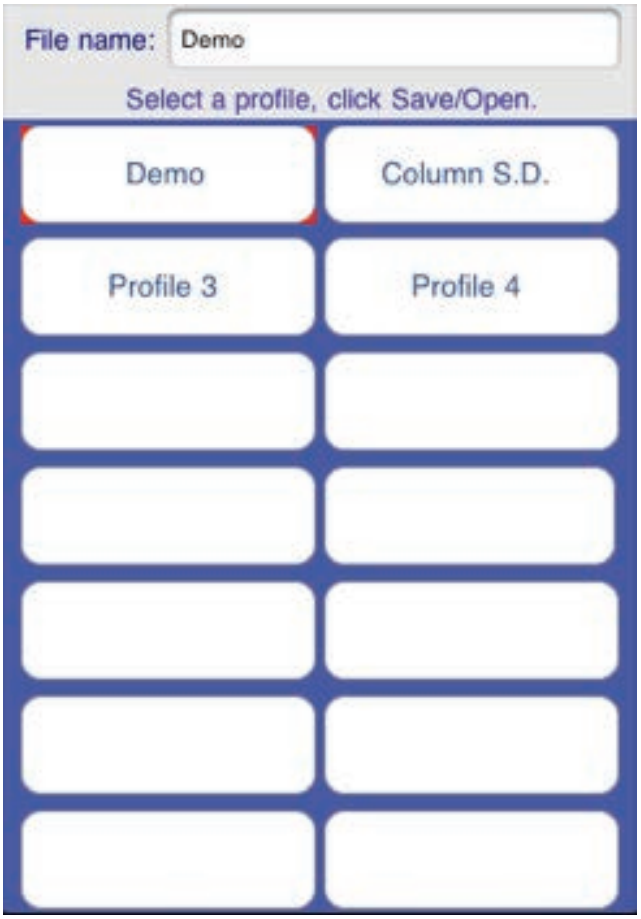
4.7.23 – Maintenance Alert

User can manually turn off the Maintenance reminder. It is to remind the user to schedule a preventive maintenance with Apricot Designs or authorized dealer to ensure the operation of the instrument.

4.8 – Make User Profile

The User Profile is for users to save all the basic operation parameter settings on the main window (six groups), serial dilution and transfer parameter settings (three groups) and configuration parameter settings. It provides 16 profiles for users to save parameters.

When entering the main interface, all the operation and configuration parameters shown in the settings are the same as when the GUI was last exited. Users execute commands directly or change the parameter settings. If users want to save the current settings into a profile or open an existing profile to operate, tap the button **Profile** in the command execution panel. The Select Profile window will display.



4.8.1 – File Name

The File Name text box is for the user to input a profile name. Tap a profile button and then tap the File name text box. When the keyboard pops up, input text to give the profile a name. After saving the profile, the input text as a profile name will be shown on the defined profile button. When the profile button is tapped, the button will add red color to show the selected profile.

4.8.2 – Save Profile

Tap a profile button and tap the **Save** button. The current settings for all the basic operations, serial dilution, transfer and configuration parameters are saved in a user profile. If there is no text input and the profile is saved, the profile name is defined as "Profile" followed by the profile sequence number that will be shown on the profile button.

4.8.3 – Open Existing Profile

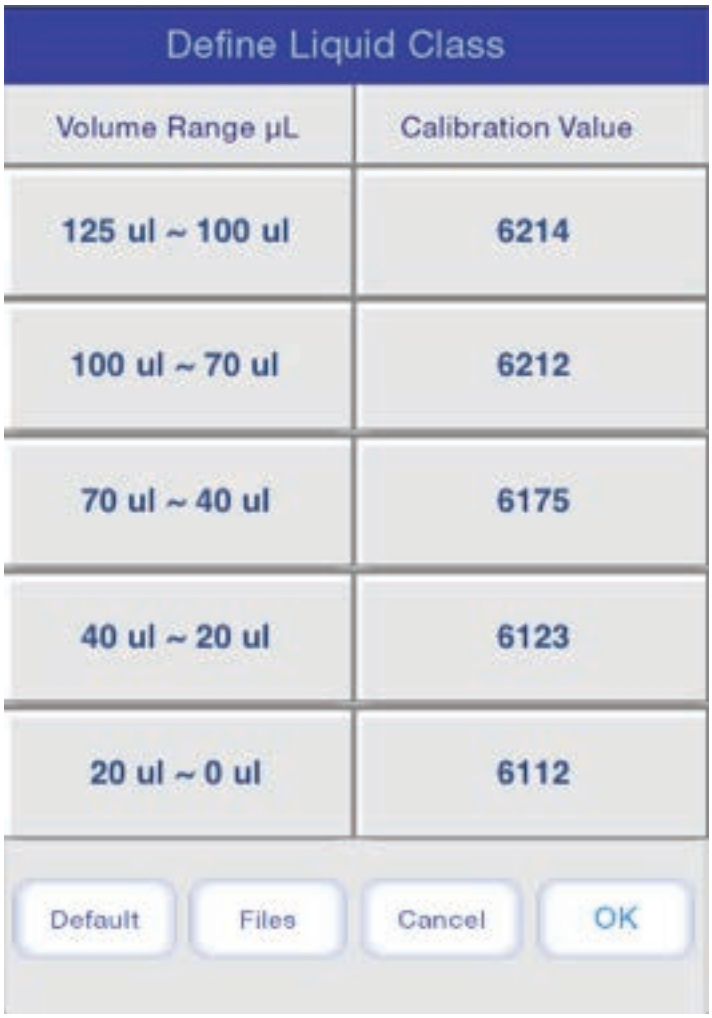
Tap a profile button and tap the **Open** button. The profile window will close and the selected profile will be opened. All the parameter values for the basic operations, serial dilution and transfer, and configuration settings are retrieved from the profile.

4.8.4 – Exit

Exit the profile window by tapping the **OK** button without making any changes.

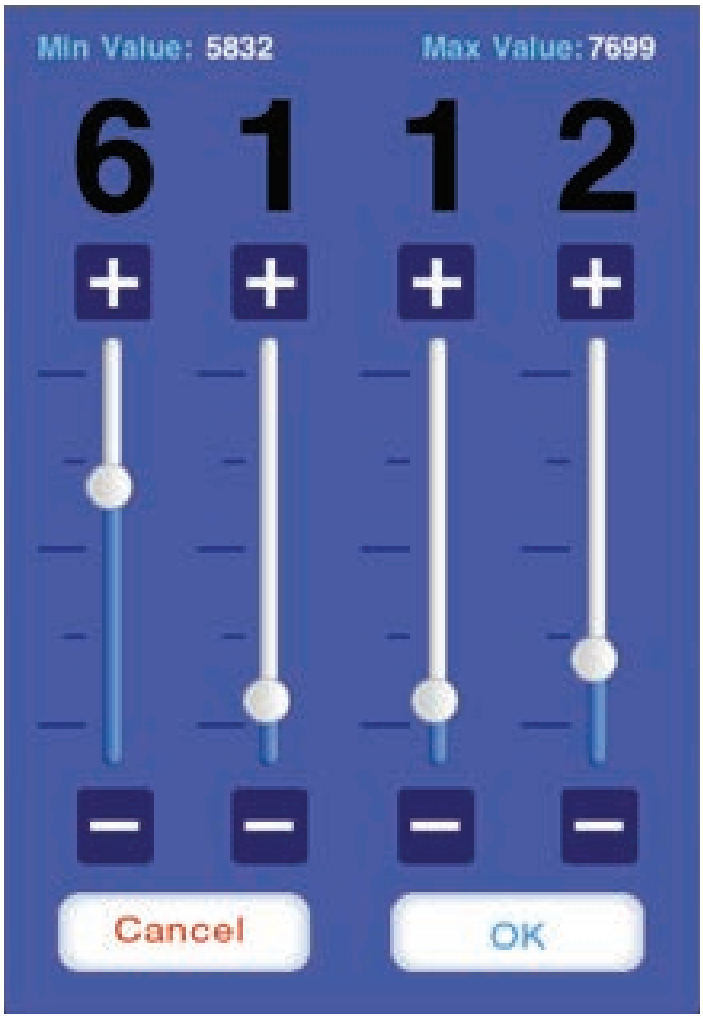
4.9 – Define Liquid Class

Tap the **Liquid Class** button in the command execution panel to show the Define Liquid Class window. From zero to the maximum volume of the pipettor, the user can divide it into several volume ranges and set a different calibration value for each range.



The sequence for setup is from the top to the bottom. Tap the top left-side volume button to show a volume setting panel and use the + or - button or the slider bar to set the volume value. The lower limit for the current volume range will become the upper limit for the next volume range. Similarly, set up values for the other volume ranges.

Tap the top right-side calibration value button and a four digit Input Panel will display. Use the + or - button to set the calibration value.

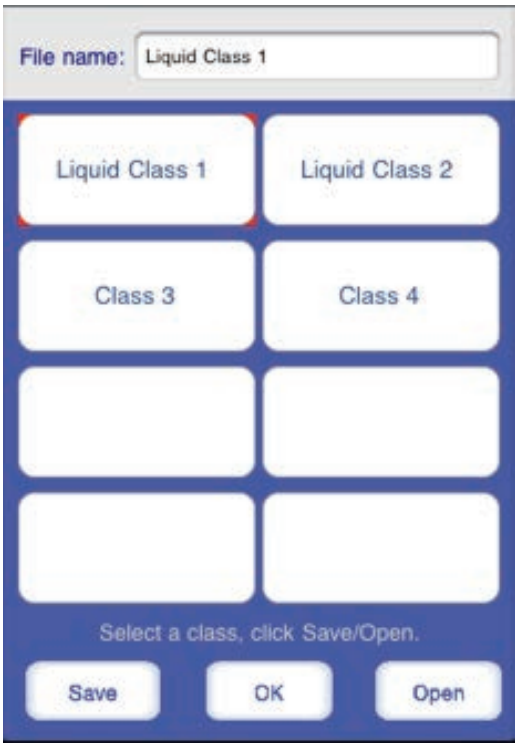


Use the same method to set up different calibration values for each volume range. If the **Default** button is tapped, all the settings will be changed to the default values.

Model	Default Calibration	Calibration Range
IPB96-125	6416	5832 – 7699
IPB96-500	1604	1458 – 1924
IPB384-125	6416	5832 – 7699
IPP96-125	6112	5556 – 7334
IPP96-500	1528	1389 – 1833
IPP384-125	6112	5556 - 7334

4.9.1 – File

Users can save up to 8 different Liquid Class settings using the Files function.



4.9.2 – File Name

The File Name text box is for the user to input a liquid class file name. Tap a liquid class file button and then tap the File Name text box. When the keyboard appears, input text to give the file a name. After saving the file, the text input as a liquid class file name will be shown on the defined liquid class file button. When the liquid class file button is tapped, the button will add red color to show the selected liquid class file.

4.9.3 – Save Liquid Class File

Tap a liquid class file button and input text in File Name to give the class a name and tap the **Save** button. The current class setting will be saved in a class file. If there is no text input in the File Name and the class file is saved, the class file name is defined as "Class" followed by the class sequence number that will be shown on the class button.

4.9.4 – Open Existing Liquid Class File

Tap a liquid class file button and tap the **Open** button. The save liquid class window will close and the selected class file will be opened. The class setup is retrieved from the class file and will be shown in the Define Liquid Class window when the user opens it.

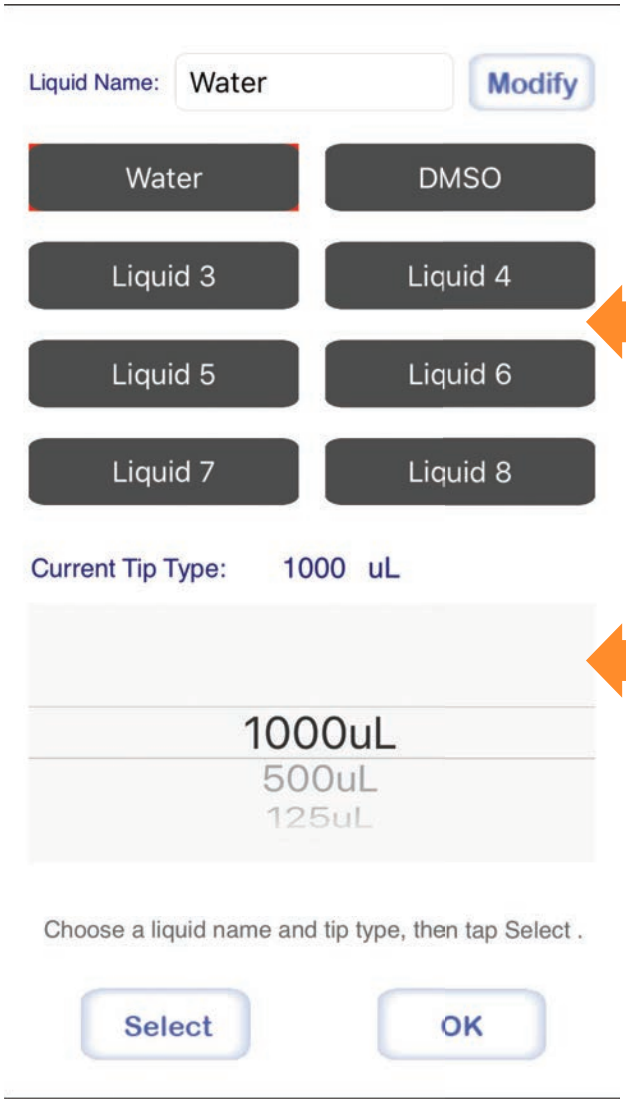
4.9.5 – Exit

Exit the liquid class window by tapping **OK** button without making any changes.

5 CVTC (Continuous Variable Target Correction)

CVTC can adjust the plunger motor steps according to the liquid level in the tips. This is very useful for accurate multiple dispense like Fill plate with a column head.

- Click **CONFIG** and choose Yes or No to Use CVTC.
- Tap "125μL" to make changes to CVTC.



There are 8 editable liquid parameters. Water's CVTC parameter is tested and provided with the software.

Choose appropriate Tip Type.

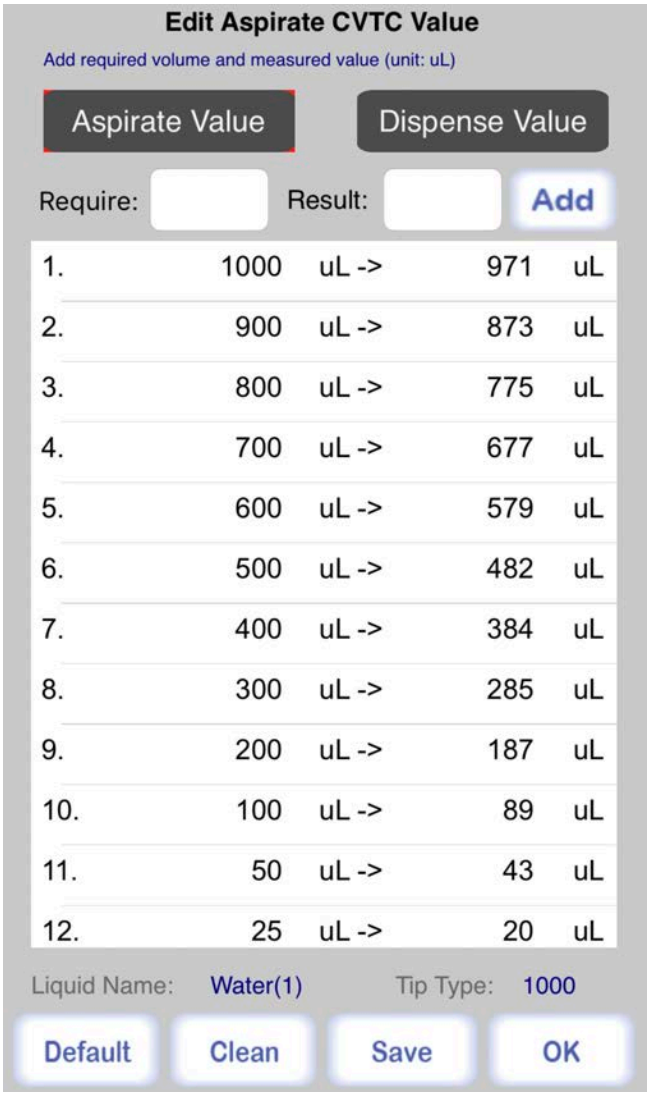
5.1 – How to Change CVTC

CVTC is composed two part of values, Aspirate and Dispense. Aspirate value corrects the motor steps to aspirate the desired volume, and Dispense value corrects the motor steps to dispense at different region of the tip.

Note: Turn off CVTC in config when obtaining new value.

5.1.1 – Aspirate Value

Exit the liquid class window by tapping **OK** button without making any changes.



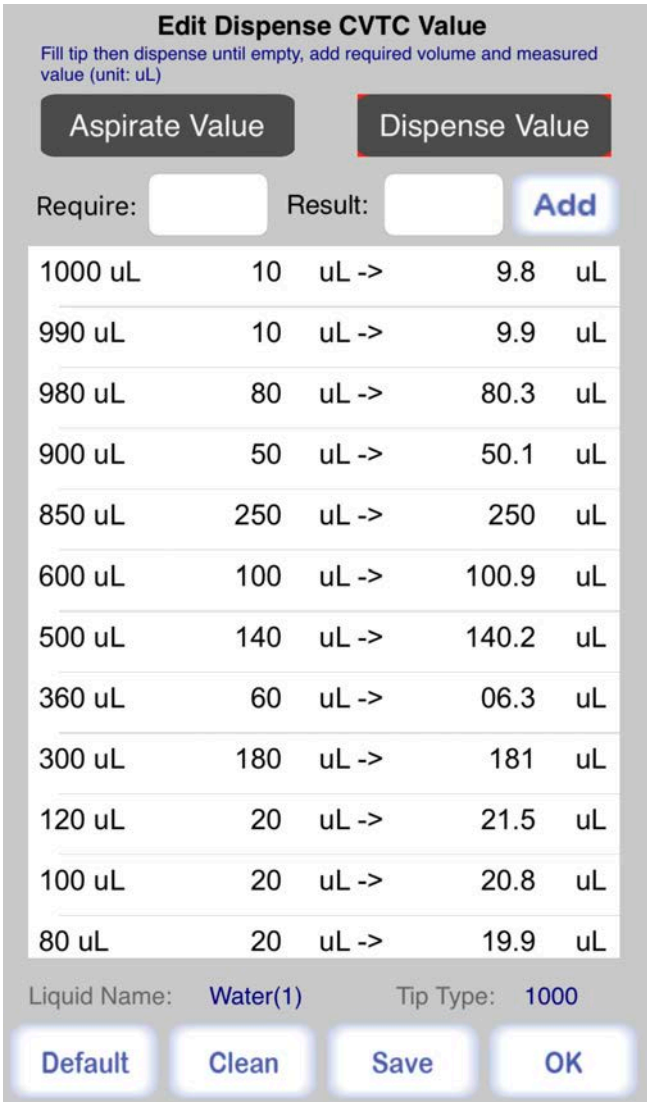
Aspirate the max volume of the tip then dispense and weight the volume.

For example: for 125μL tips, aspirate 125μL then empty and weight it.

Enter the Require: "125" then enter the Result and click Add.

If there is specific volume that's needed for example to fill a 384 plate with 2μL per well and need an accurate 48μL. Then Aspirate 48μL then empty and weight it.

5.1.2 – Dispense Value



The most efficient way to collect the values is to weigh smaller volume for the top and bottom region of the tip and weight larger volume for the middle region of the tip.

For example: for 1000μL tips, aspirate 1000μL then weight every 20μL first then increase to 100 or 200μL, then change back to 20μL for the last 200μL region of the tip.

Small volume data isn't always the best, it depends on the range of pipetting volume.

For example: protocol requires 50μL dispense, then its best to collect data for the 50μL dispense.

Tip Type	Smallest Resolution (μL)	Recommend Resolution (μL)
1000μL	10	20
500μL	5	10
125μL	1	2
50μL	0.5	1

6 BACKUP AND RESTORE PROTOCOL

The updated App allows users to save protocols, settings and Values to the Apricot Cloud. The stored information is then available for download if recovery is needed. The Backup function also facilitates ready sharing of database information amongst multiple users using separate iPOD/iPAD mini devices.

Each individual i-Pipette system has a unique Machine ID. When the Backup function is utilized, the database information for that system is stored in the Apricot Cloud based on the Machine ID. Using the Restore function will download the database information onto an iPOD/iPAD device which has been connected to that specific system.

6.1 – Procedure to Backup and Restore Protocol and Plate Database in iPP

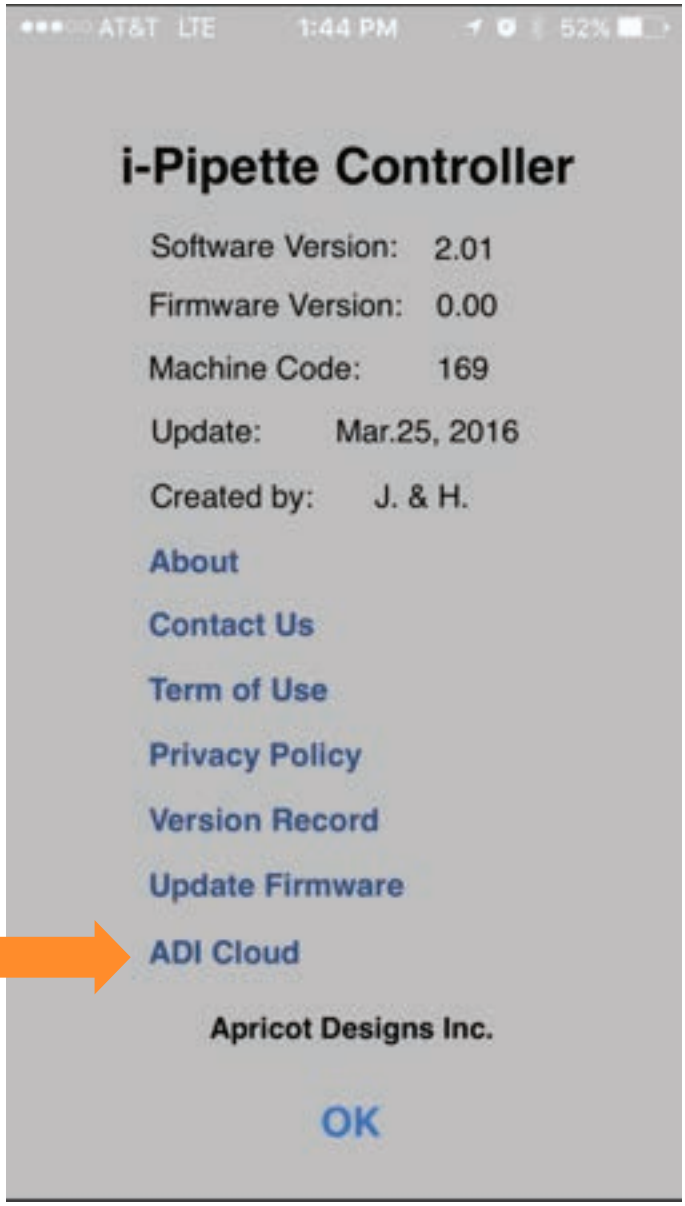
- If the iPod/iPad Mini device has not been initialized with the machine, connect to the machine's WiFi and open the App to initialize. The initialization process allows the iPod app to identify the Machine ID.

- After initialization is complete, exit the software and connect the iPod/iPad Mini to an external WiFi with Internet connection.

  Notice: The WiFi on the machine does not have internet access.

  Reopen the IPP software and select 

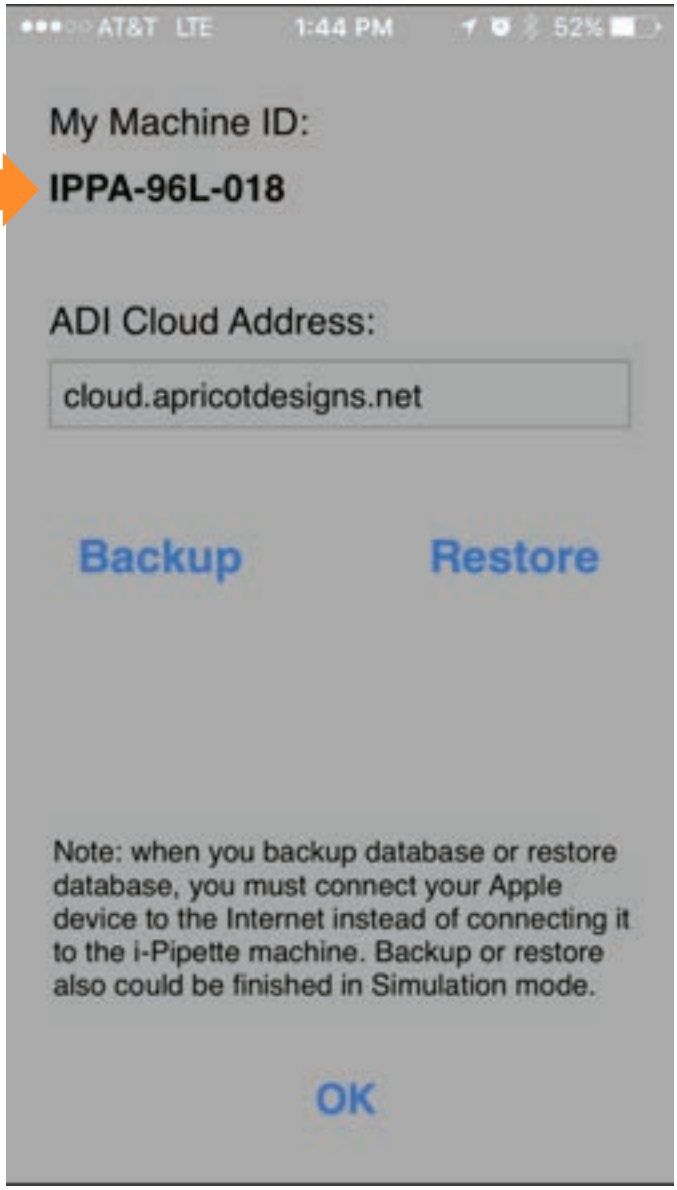
- Click the information icon (i) to enter the Help Information Page



Click on ADI Cloud for Backup/Restore menu

- Click **Backup** to save your protocols, settings and head/plate database to **ADI** cloud. Once the database has been backed up the **Restore** function can be used to retrieve the information.

Match the ID with the Operating Machine



- Wait for "**Backup/Restore** successful" message to appear then click OK. All protocol and Value are ready to use.

7 OPERATING INSTRUCTIONS

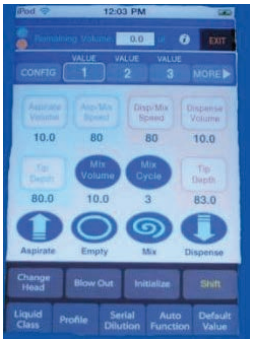
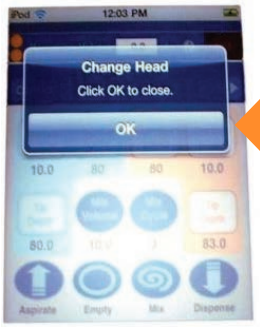
7.1 – Installing/Removing the Pipetting Head

7.1.1 – Installation

Important Note: Before installing the pipetting head, please check the following;

- The Max Volume setting in the Config tab is not greater than the volume of the Head and Tips to be installed.
- For fixed tips: The pipetting head was cleaned after the last use and there is no residual liquid left no the tips.
- For disposable tips usage: A new set of disposable tips has been loaded onto the pipetting head correctly and there is no residual liquid inside tips (see Section 4 Disposable Pipetting Tips Usage for details).
- Check that there are no foreign objects between the plunger block and the pipetting head.

i-Pipette PRO

			
On iPod controller, press the 'Chg. Head' button.	Slide head into channels	Gently press the head all the way into the pipettor	On iPod controller, push 'OK' button

i-Pipette BASIC

			
Move locking lever all the way forward	Slide head into channels	Gently press the head all the way into the pipettor	Push the locking lever all the way to the back

7.1.2 – Removal

For head removal, please follow the Installation procedures for each system. The user can replace the tips and head for further assays or "park" the system.

- When the pipetting head is removed from the pipettor, the user must re-define the maximum volume of the pipettor during head reinstallation.
- I Apricot does not recommend parking the system with tips loaded. This may cause unnecessary wear to the silicone sealing pad. It is OK to park the system with the head installed without tips.

7.2 – Plate Height

The user can perform all liquid handling functions by manually raising and lowering the elevator. The elevator can be locked at any height by tightening the Elevator Handle knob.

The user can also set and limit the travel height of the tray seat to by tightening the Elevator Height Lock screw (located on the right side of the housing); its locking mechanism will stop the tray seat from traveling beyond set height position.

Note: Properly setting the plate height will ensure minimal adhesion of liquid to the tips, which will increase pipetting accuracy.

7.3 – Using the IP-Indexer 384 and IP-Indexer 96 Plates

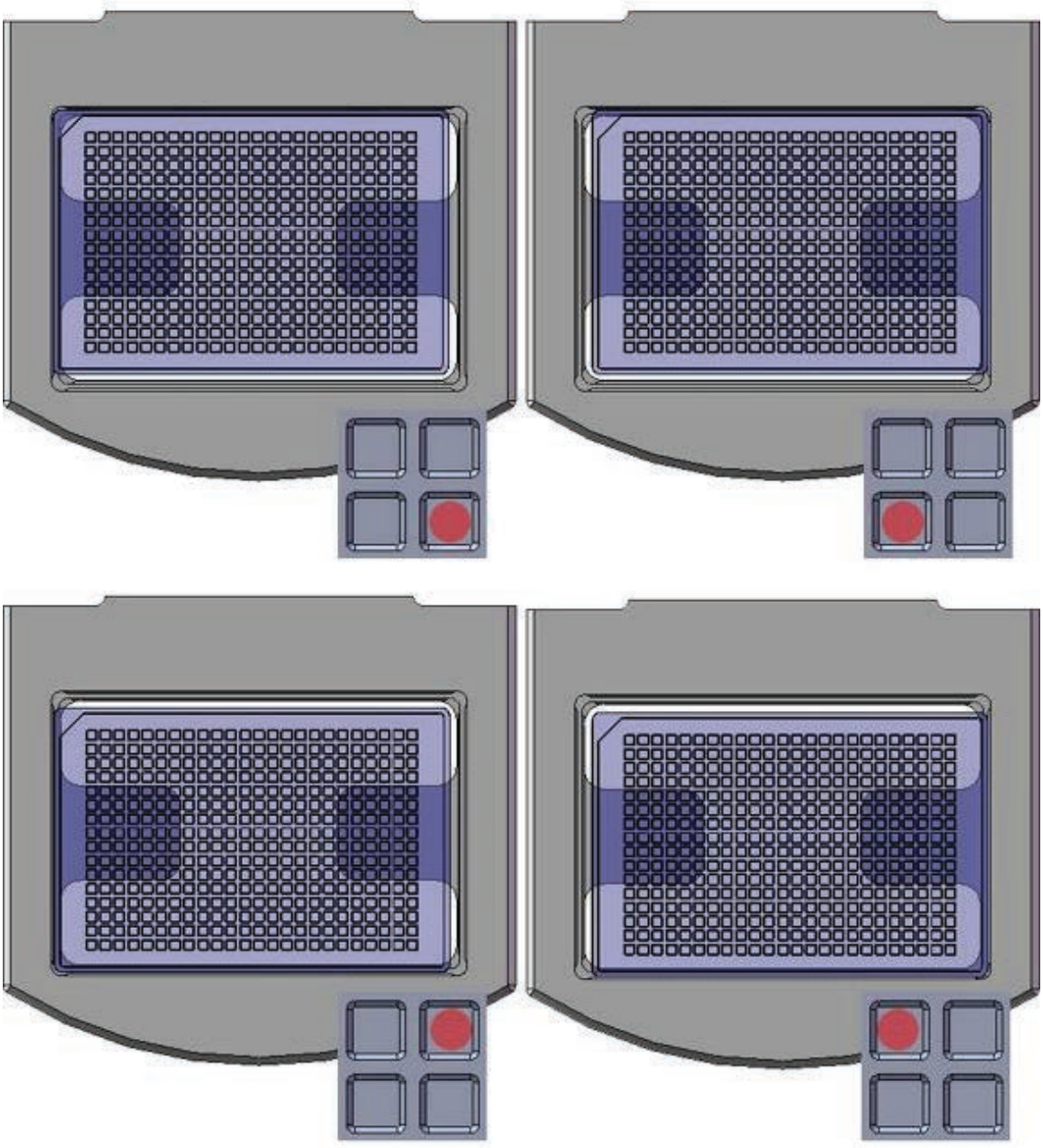
7.3.1 – IP-Indexer 384

In order to index from a 96 channel i-Pipette to a 384-well plate, the IP-Indexer 384 accessory is needed. The elevator plate on the i-Pipette 96 has two cutouts in the bottom. The center cutout is used for the standard 96-well plate. The upper cutout allows a 384-well plate to be used with the help of the IP-Indexer 384.

1. Place the IP-Indexer 384 into the center cutout on the elevator plate.

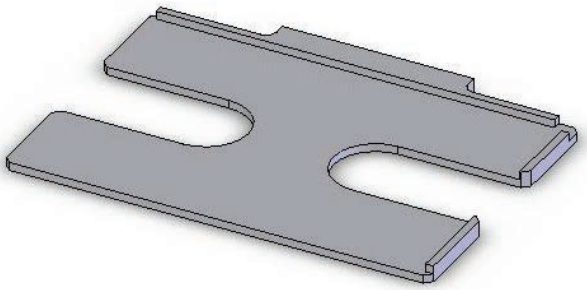
2. Place the 384-well plate on top of the IP-Indexer 384. The upper cutout on the elevator plate allows the 384-well plate to access all four quadrants.

3. The diagram below shows the 4 indexed corners that the 384-well plate is positioned to, as well as which well the positions will correspond to.



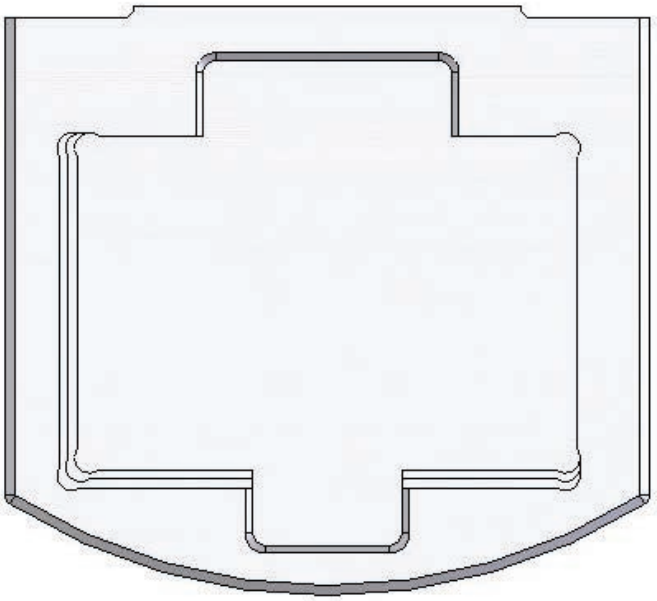
7.3.2 – IP-Indexer 96 Plate

384 i-Pipettes will come with a slightly different elevator tray than the 96 i-Pipettes. For the 384 i-Pipette units, an additional accessory piece, the IP-Indexer 96 will be included. The IP-Indexer 96 is used only on the 384 i-Pipettes. The function of the IP-Indexer 96 is to use a 384 i-Pipette unit to dispense into a 96-well plate.



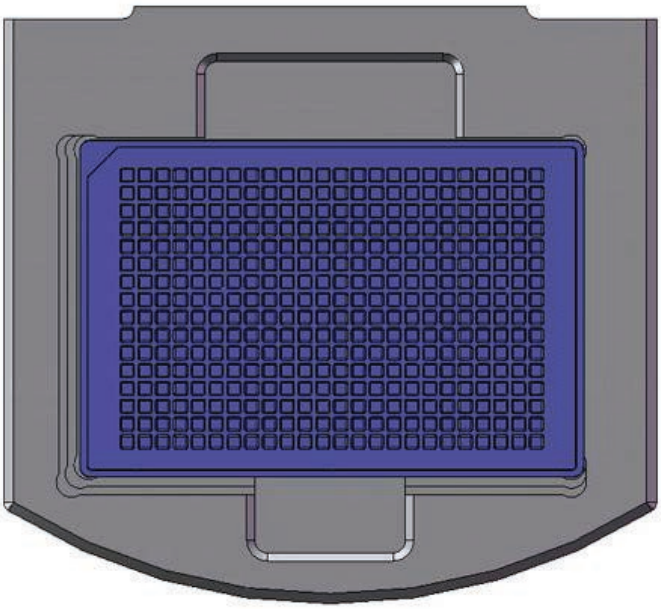
Note: *A 96 Offset head will need to be used in order to accomplish this feature.*

The 384 Elevator tray utilizes a 3 layer cutout. This elevator tray, combined with the IP-Indexer 96 can make the 384 i-Pipette dispense into a 96-well plate while using a 96 offset head. In addition, the IP-Indexer 96 can be combined with the IP-Indexer 384 so that the user can use the 96 offset head to re-index back into a 384-well plate.



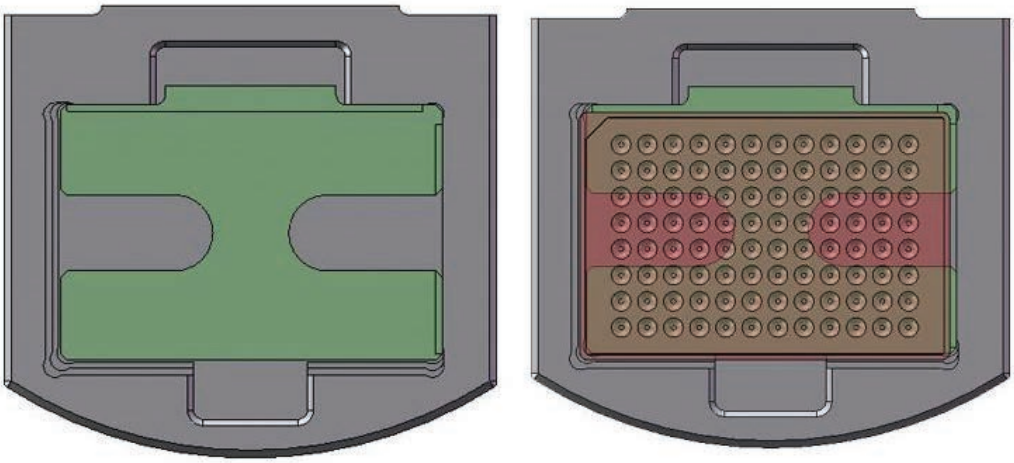
Using the 384 i-Pipette to dispense into a 384-well plate.

Fit the 384-well plate into the center of the elevator plate.



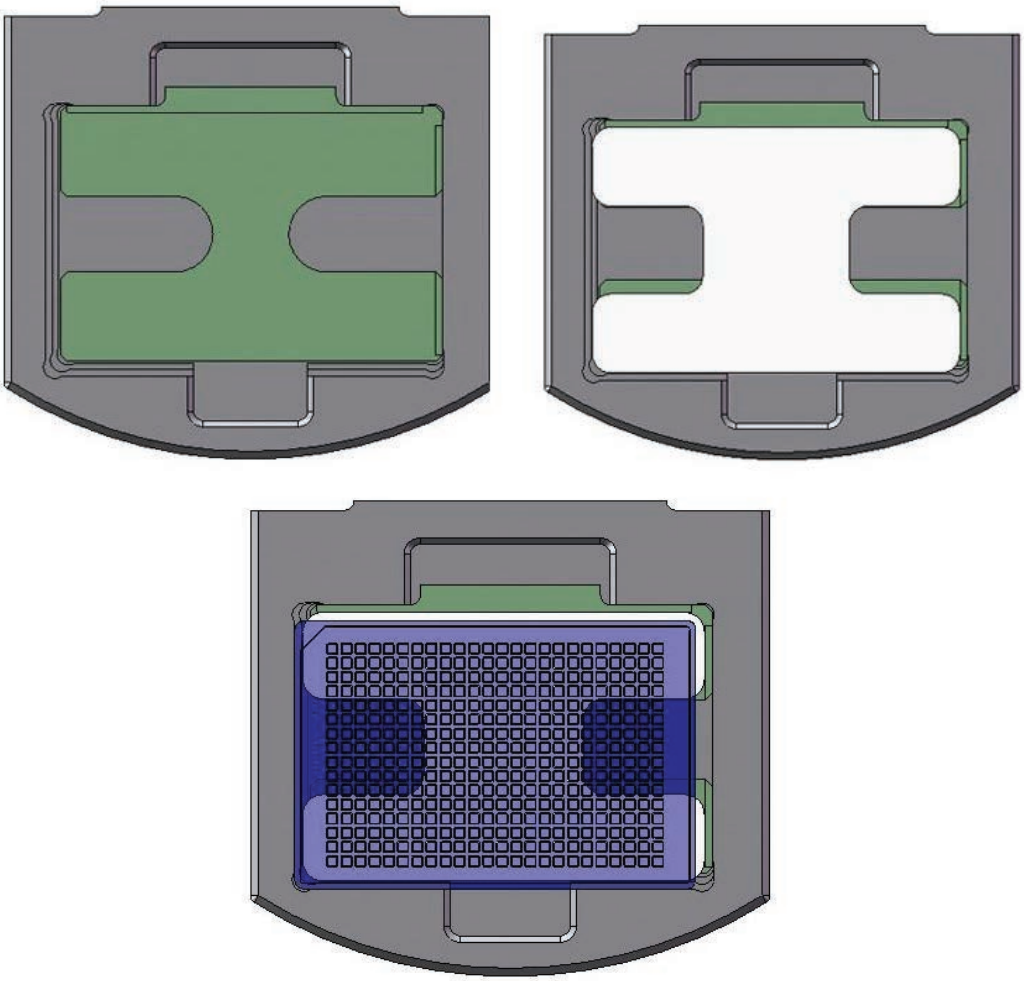
Using the 384 i-Pipette to dispense into a 96-well plate.

Place the IP-Indexer 96 into the center of the elevator tray. Fit the 96-well plate into the IP-Indexer 96. This will line up the 96-well plate with the 96 offset head used.

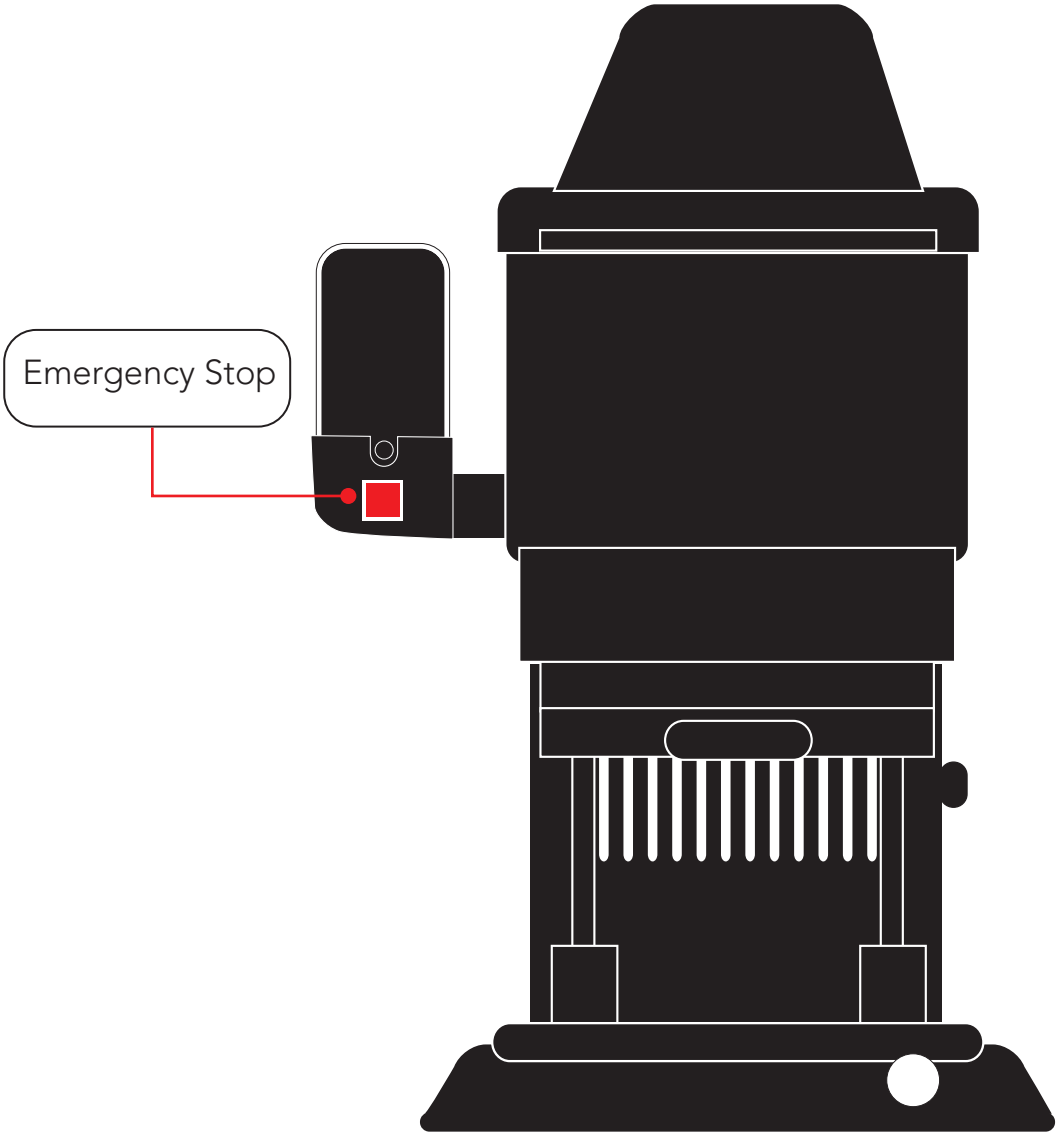


Using the 384 i-Pipette to index into a 384-well plate with a 96 offset heat.

Place the IP-Indexer 96 into the center of the elevator tray. Place the IP-Indexer 384 into the IP-Indexer 96. This allows the 384-well plate to move and index just like the diagram on page 20.



8 EMERGENCY STOP



For **emergency stop** at any time, press the **STOP** button on the iPod controller..

9 CARE AND MAINTENANCE

Proper care and maintenance can ensure the efficiency, safety and durability of the instrument. It is imperative that an appropriate daily cleaning procedure be devised so that the pipetting head assembly does not become contaminated or damaged by harsh solvents.

Recommended daily maintenance program for the i-Pipette.

For fixed stainless steel tips usage:

- Always perform the "thorough cleaning" procedure outlined under section 5.2.2 at the end of each pipetting session.
- For the highest level of protection against sample carry-over, sonicating the tips is recommended. If this is the preferred method of cleaning tips and it will be done often, it may warrant having a second pipetting head available. This way experiments can be run utilizing one head while the other head is being cleaned to optimize the use of the instrument.
- Always put the tip protection and alignment plate onto the tips before removing the pipetting head from the main unit for cleaning, treatment procedures or storage.

For disposable tips usage:

- Always eject the tips from the pipetting head after use. Never leave tips on the pipetting head overnight.

General maintenance:

- Periodically apply a thin layer of mineral oil to the bottom of the plunger block in order to promote proper vacuum seal. Caution: use mineral oil ONLY; over lubrication may produce an adverse effect.
- Regularly inspect the silicon pad on the underside of the plunger block, as well as the top of the pipetting head for debris and foreign objects. Failure to do so may severely jeopardize the performance of the instrument.
- Inspect all moving parts regularly. Carefully remove any dirt or foreign objects. Lubricate with high-quality instrument-grade lubricant that contains silicone or molybdenum when necessary.
- Visually inspect the stainless steel tips or disposable tips every time before a pipetting session. Replace any bent stainless steel tips or damaged disposable tips before proceeding.
- Regularly inspect the instrument for worn components and replace them immediately.
- Clean the unit regularly with a clean cloth moistened with a mild solvent or cleanser. Avoid cleaning the iPod screen area with solvent or cleanser. These can dull the surface and damage the screen.
- Maintain the cleanliness of the work area.

9.1 – Tip Cleaning (Fixed Tips)

Fixed stainless steel tips should be cleaned immediately after pipettor usage.

NEVER LEAVE LIQUID IN the TIPS FOR AN EXTENDED PERIOD OF TIME!

- Certain types of liquid may cause damage or clogging of the tips when left inside the tips.
- Moreover, what is inside the tips may have been forgotten or one could incorrectly believe that the tips are empty. When the instrument is turned off and then turned on again, it will go through the usual initialization procedure and the remaining liquid would be unexpectedly ejected out of the tips.

9.2 – Light-Duty Cleaning

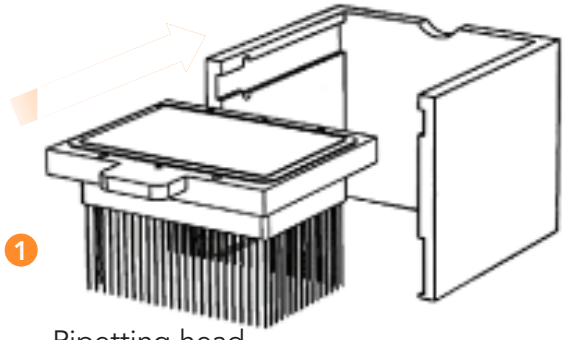
A fast, light-duty cleaning procedure can be easily carried out if a thorough cleaning is not required.

1. Make sure the tips are empty.
2. Place labware containing water or a specific cleaning agent on the tray seat. Using the iPod GUI, perform a Blow operation.

9.3 – Thorough Cleaning

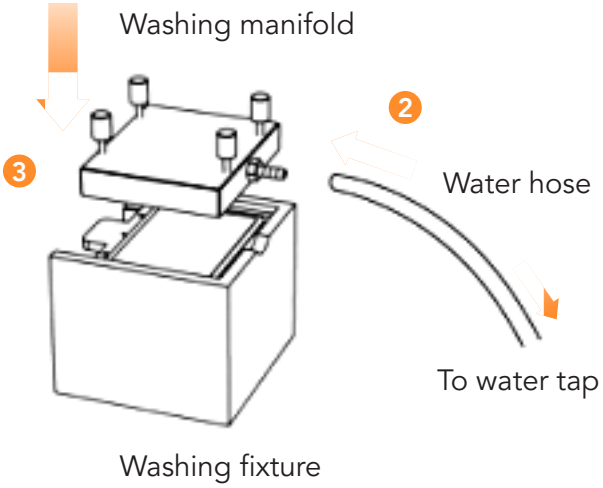
The tips can be thoroughly cleaned by using the provided head washing station, which consists of the washing manifold and the washing fixture. This procedure should be performed at least at the end of each working day, or as often as needed between different samples.

IMPORTANT: Always put the tips protection and alignment plate onto the tips before removing the pipetting head from the main unit for cleaning, treatment procedures or storage.



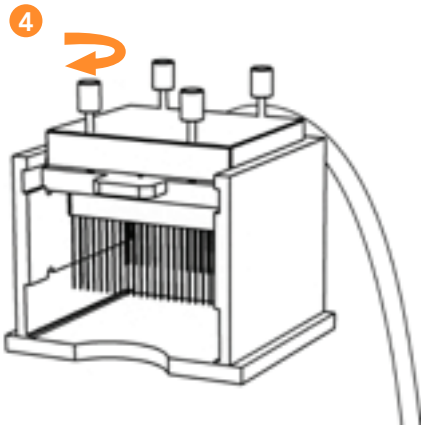
Pipetting head

1 Slide tip head into washing fixture.

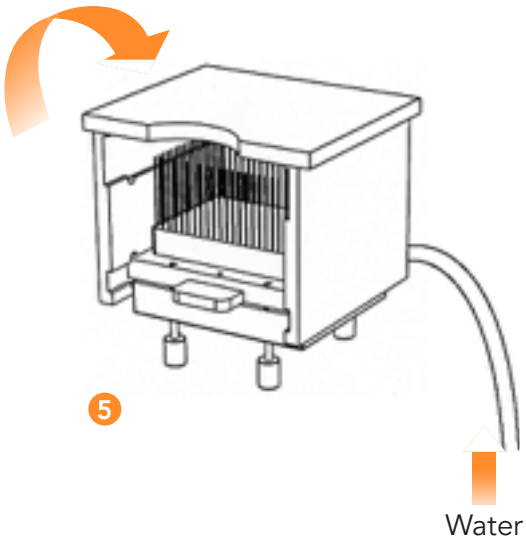


2 Connect water hose to the rear of the wahing manifold.

3 Place washing manifold onto tip head.



4 Secure washing manifold with 4 thumbscrews.



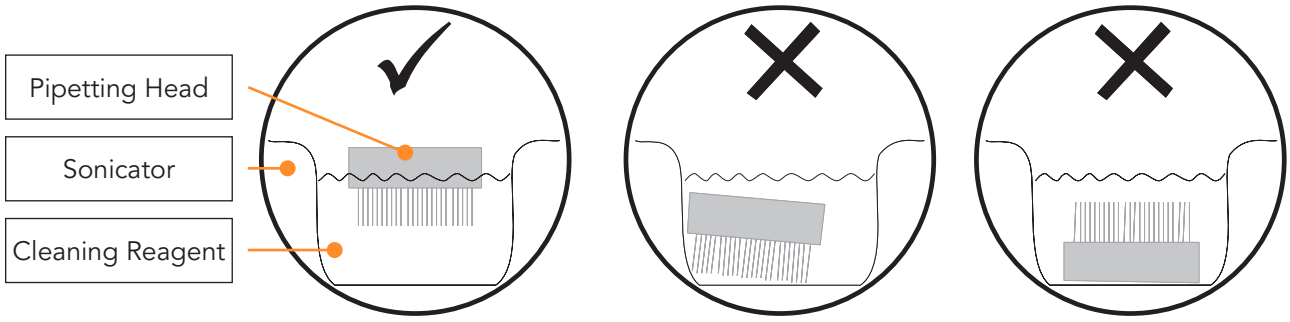
5 Invert the entire unit and turn on water at high pressurefor a minimum of 5 minutes.

Note: Inverting the unit provides more even water pressure to all needles.

9.4 – Sonic Cleaning (for Disposable and Fixed Tips)

TIP HEAD ASSEMBLY CLEANING ILLUSTRATIONS USING SONICATOR.

Positioning the pipetting head in sonicator as shown below, then sonicate the pipetting head fo about half hour.



Caution: Mixing more than 2.5 ounces of sonicating solution per liter of water may cause damage to tip surface.

10 TROUBLESHOOTING

Problem: Leakage.

Signs: Uneven liquid levels among the tips; dripping from needle(s) even when EMPTY or DISPENSE commands are not in use.

Solution:

- Apply thin film of mineral oil to the gasket(s) suspected of leaking.
- Make sure there is no foreign object(s) between the plunger block and the pipetting head.
- Make sure both the locking levers are at horizontal positions.
- Check the top of the pipetting head, make sure there is no missing or damaged gasket(s).
- If disposable tips are used, make sure tips are loaded correctly. Every tip has to cover both o-rings.

Problem: Machine crashed.

Solution: Remove pipetting head before restarting the machine and make sure no fluid left inside the pipetting head.

11 WARRANTY

Apricot Designs, Inc. warrants to the original purchaser of the i-Pipette that the instrument will meet the original manufacturer's performance specifications, and that the instrument will be free from defects in material and/or workmanship in normal for one year from the date of delivery.

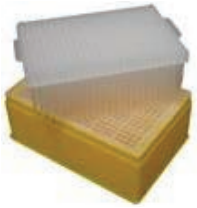
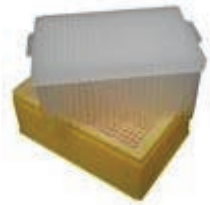
If the instrument is found to be defective during the warranty period, Apricot Designs, Inc. will repair or replace any defects in material and/or workmanship, or any failure of the system to conform to specifications, at no charge. The original purchaser must report any defects to Apricot Designs, Inc. in writing before the expiration date.

This warranty covers normal use and does not apply to the following:

- Damage during shipment other than original shipment to purchaser.
- Damage caused by impact with other objects, dropping, falls, spilled substances, or caustic liquids.
- Damage caused by unauthorized attachments, alterations,modifications or foreign objects.
- Damage caused by improper maintenance.
- Damage caused by other abuse, misuse, negligence, forces of nature or acts of God.
- Damage caused by the result of service or modification by anyone other than Apricot Designs, Inc., or its authorized agents.

12 PARTS AND ACCESSORIES

Please contact us to place an order for a part, accessories or consumables.

Part Number	Part	Picture	Compatible Tips	Channels
096-A-01-EZL-550 (Supplied with i-Pipette 96-500)	96 Channel 550µL Head		Apricot 550µL	96
096-A-01-EZL-ESP (Supplied with i-Pipette 96-125)	96 Channel Head		Apricot EZL	96
384-A-01-EZL-096 (Optional for i-Pipette 384)	96 Channel Offset Head		Apricot EZL	96
384-A-01-EZL (Supplied with i-Pipette 384)	384 Channel Head		Apricot EZL	384
	IP-Indexer 384			
	IP-Indexer 96			
050-96R-EZL-NS 050-96R-EZL-S 050-384R-EZL-NS 050-384R-EZL-S	Apricot 50µL EZL Tips Comes in racks of 96 or 384 Non-Sterile (NS) Sterile (S)			
125-96R-EZL-NS 125-96R-EZL-S 125-384R-EZL-NS 125-384R-EZL-S	Apricot 125µL EZL Tips Comes in racks of 96 or 384 Non-Sterile (NS) Sterile (S)			
550-96R-NS 550-96R-S 550-96R-F 550-96R-FS	Apricot 550µL EZL Tips Non-Sterile (NS) Sterile (S) Filtered (F) Filtered-Sterile (FS)			

13 APPENDIX A

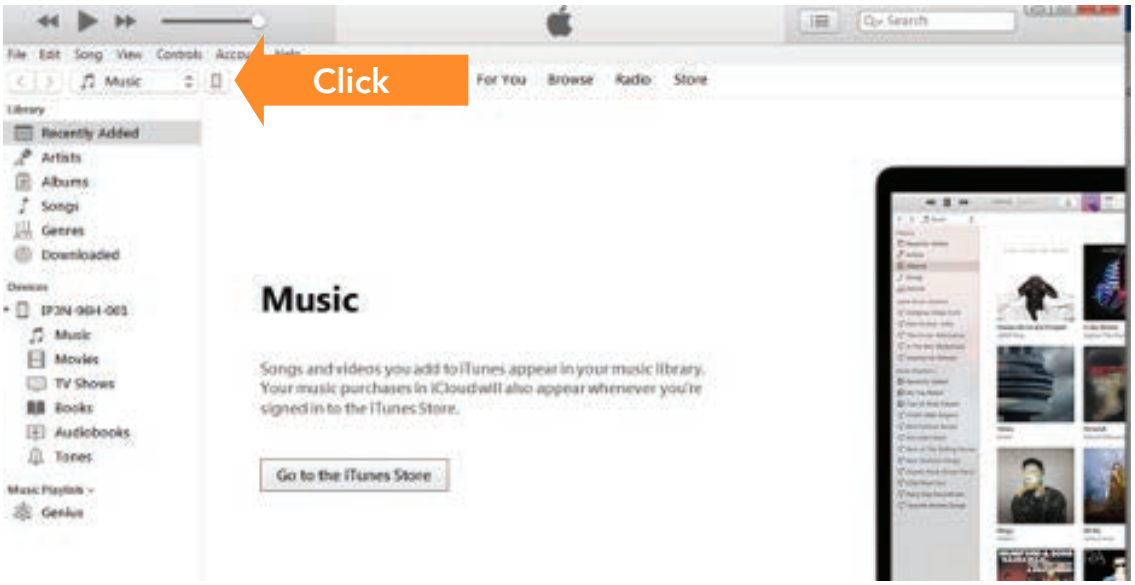
iPipette Backup/Restore Procedure

The iPipette App allows the user to back up the database (Functions, Config, Values, etc.) to a computer using iTunes. The stored information is then available for download if recovery is needed. The Backup function also facilitates ready sharing of database information amongst multiple users using separate iPAD mini devices (please contact your Apricot representative for assistance with multi-user sharing).

Follow the steps below for Backup and Restore procedures.

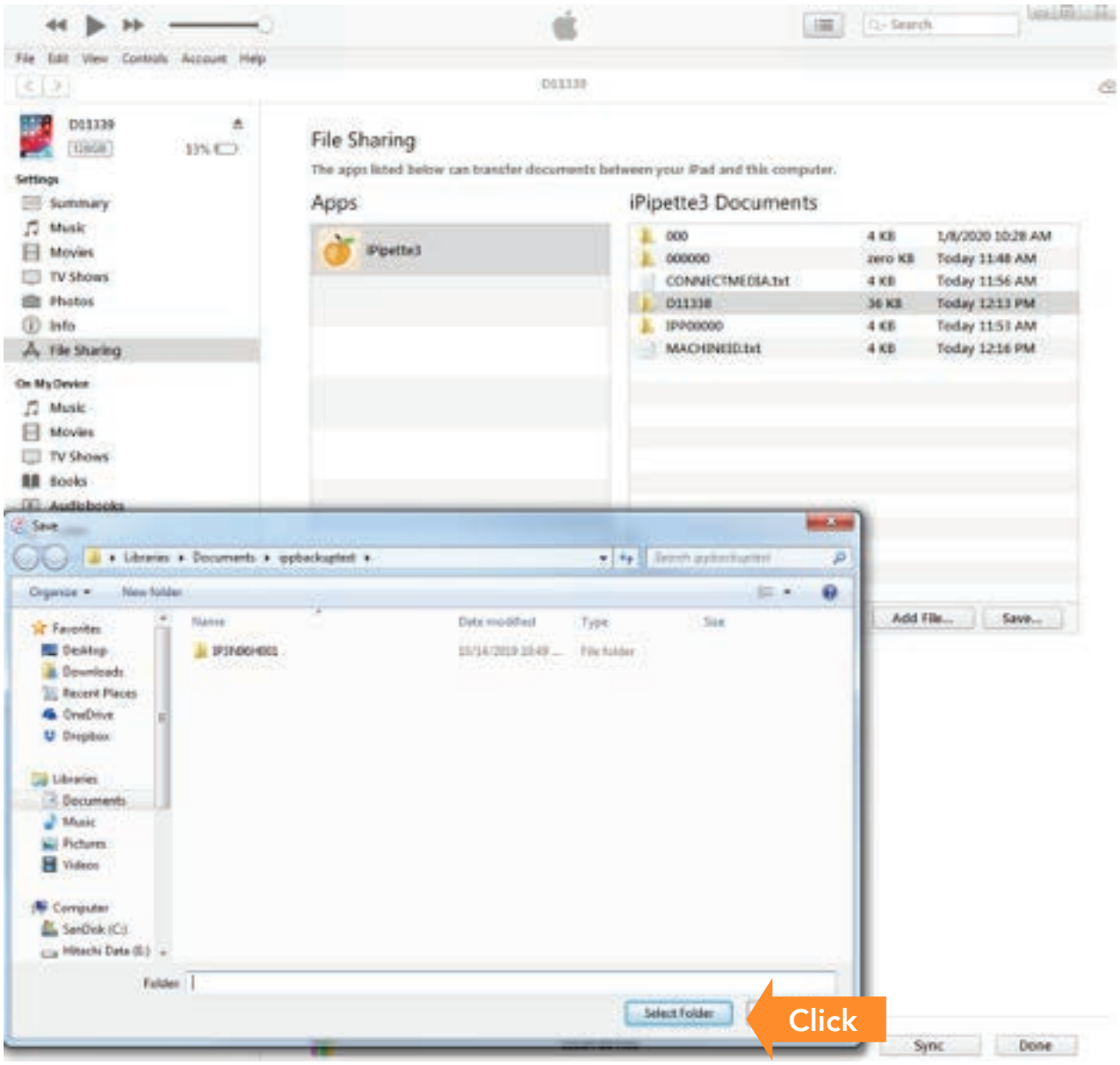
Backup

Step 1: Connect the iPad mini/iPod touch to a computer with the iTunes software. Click on the device icon in the menu.



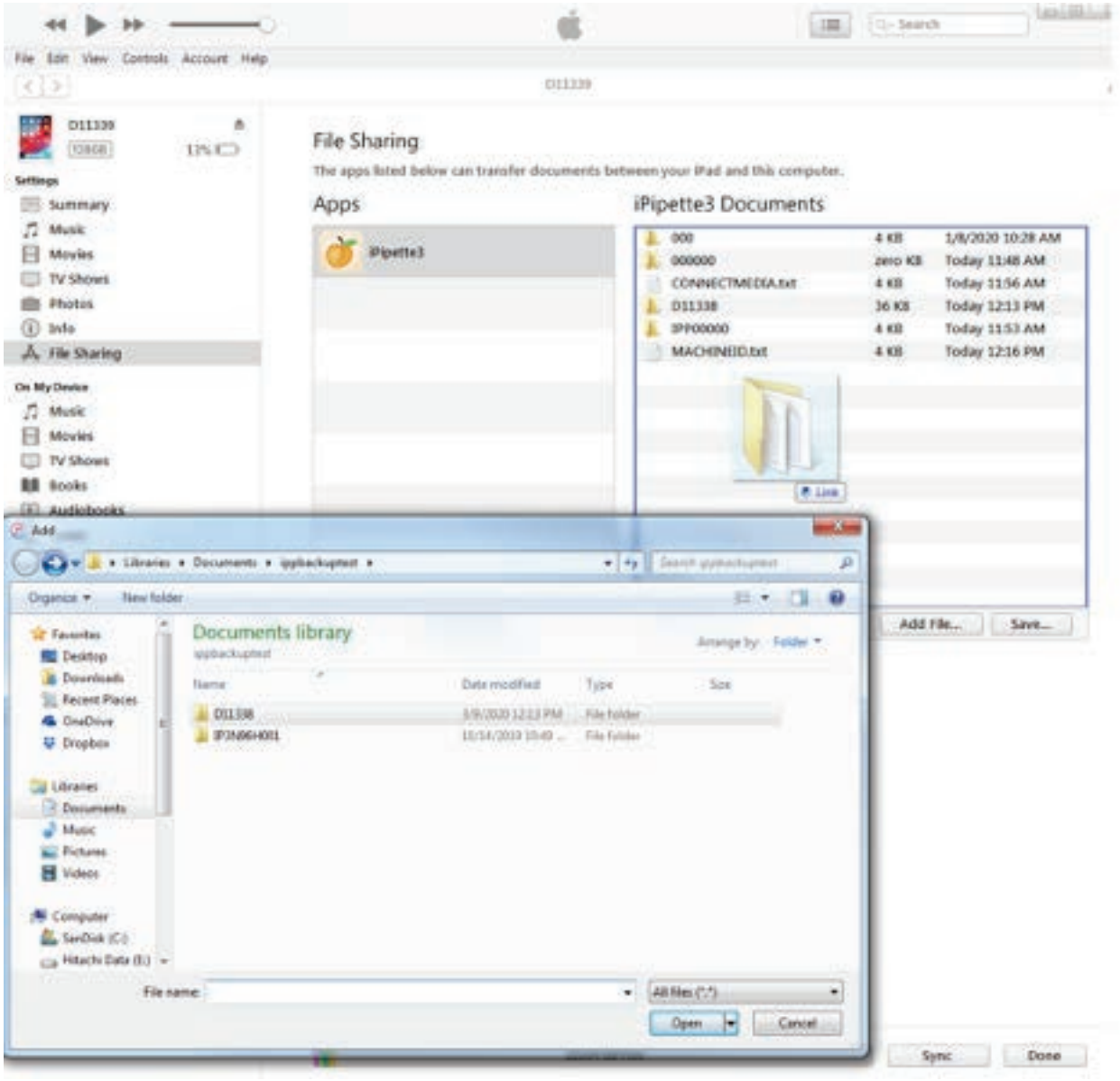
Step 2: Select "File Sharing" then select the iPipette3 App. Select the Folder that corresponds to the Machine ID. Select "Save".

Step 3: Choose a destination Folder and click "Select Folder". This action will create a sub Folder (named for the machine ID/Serial Number) and save the back-up data. Back-up data will appear as Text Documents in the folder.



Restore

Follow **Steps 1 and 2** as in the Backup procedure. At **Step 3**, select "Add File" at the iPipette3 File Sharing page. Use Browse to locate the Back-up file folder then drag the appropriate folder (system ID/Serial Number) into the iPipette3 Documents field.



This will transfer the backed-up data to the iPAD. The user should confirm results by checking the Machine ID in the CONFIG tab of the APP. The user should also review and test the VALUE and FUNCTION settings before running assays.

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