apricot S1
user guide

sptlabtech

Notes:

Introduction

Thank you for purchasing the apricot S1 – the innovative multi-channel liquid handling system with the Interchangeable Pipetting Core!

Our ongoing commitment is to help you get the best results, so we designed and manufactured this instrument with you in mind. With the apricot S1, access to the pipetting core is quick and easy for greater flexibility in pipettor operation. Just determine the pipetting configuration that best matches the applications you want to perform. Then, load a 96 or 384 channel core into the pipettor (without tools!) and you're ready to go.

With proper handling and maintenance, as detailed in this manual, this instrument will provide years of efficient and reliable service. This manual is your ready reference to the care, maintenance, and operation of the instrument and should be stored in a convenient place. 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.

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 email us at apricotsupport@sptlabtech.com

Frequency Interference

There are a variety of external causes for frequency interference and/or interruptions in connectivity or loss of data/information.

Frequency interference can occur when another signal passes through your location corrupting the signal.

Frequency interference is location specific and not device dependent and may result from the location of the device and nearby competing signals.

SPT Labtech staff does not provide any technical support relating to troubleshooting or identifying frequency interference.

SPT Latbtech is not responsible and assumes no liability for interruptions in connectivity or loss of data/information due to frequency interference.

Table of Contents

1. Specifications

The following is a list of the ideal operating parameters for the S-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	apricot S1
Dispensing Precision	(1250) <3% CV at 10µL ***Note**: 1250µL Aluminum Core
	(1000) <3% CV at 10µL
	(500) <3% CV at 5µL
	(125) <3% CV at 1µL
Dispensing Accuracy	(1250) +/– 2% error at 10µL
	(1000) +/– 2% error at 10µL
	(500) +/– 2% error at 5µL
	(125) +/– 2% error at 1µL
Resolution	(1250/1000/500) 1µL
	(125) 0.1µL
Volume	Max channel capacity 1250µL
	Dispense range
	(1250) 5–1000µL
	(1000) 5–1000µL
	(500) 1–500µL
	(125) 0.5–125µL
Particle Size	< 0.032” diameter to prevent tip blockage
Current	3 Amp
Power (Input)	100 – 240VAC, 50 – 60Hz
Power Consumption (MAX)	130W
Power Consumption Idle	60W
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	11.5”W x 13”D x 20.5”H
	(292mm W x 330mm D x 521mm H)
Weight	Approx. 44lbs (20kg)

1.1 Safety Precautions

The apricot S1 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 apricot S1:

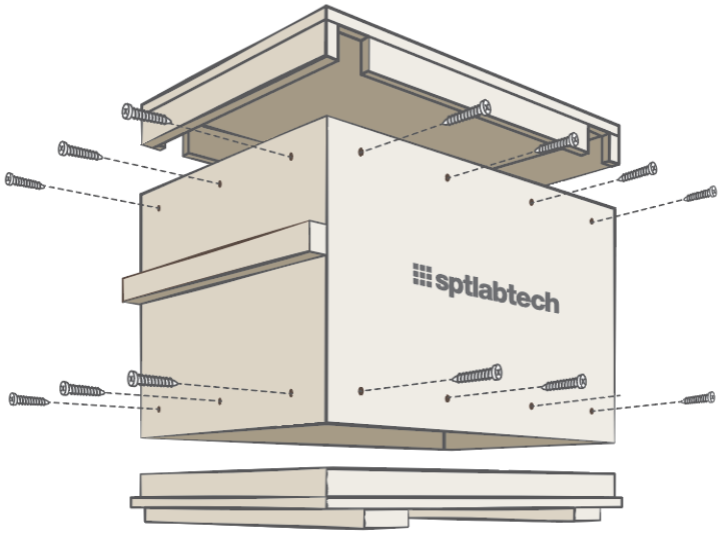
- Open the hood to exchange cores only!
- Do not attempt to make an adjustment or try to repair something that is not working correctly – this could result in injury and will void the warranty. If you encounter a problem with the instrument, please contact Apricot Designs, Inc. or your distributor.
- 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 SPT Labtech immediately – **take a picture of the damage** and send it to apricotsupport@sptlabtech.com, and contact the freight carrier.

After confirming that there is no damage you can start the installation of the apricot S1.

- 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 apricot S1

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.

Lift the S-Pipettor unit by the base plate of the instrument.

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

1.4 – Software Specs and Requirements

System Requirements

- Android System
- Display Requirement: Change display size to 100% ratio Inspect the instrument for any visible damage that may have occurred during shipping.

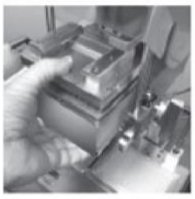
2. Features

Innovative, Accurate, Precise
Ideal for low-volume and/or high-volume multichannel microplate pipetting.

Trusted Brand
Apricot Designs specializes in high quality multi-channel pipettors developed to *help you get the best results!*

Touch Screen
Control via easy to use interfaces: touch screen, quick access keys – No external computer needed!

Interchangeable pipetting core
An innovative approach to precise 96 and 384 channel pipetting – you determine the configuration that best matches your application.



EZ-Load Tip Technology
EZ-Load tip technology to load disposable tips quickly and easily, without tools!

Versatile
Pipette into all wells of a 96-well plate with the S-Pipette 96 core, or 384-well plate with the S-Pipette 384 core.

Easy Set-up
Clamp the pipetting head into position with a simple lever for quick and easy set-up.

Adjustable Split Level Plate Elevators
Individual sampling you can control – using multiple plates and a variety of liquid handling labware

Quick Access Keys
Quick access to common functions:
- Aspirate
- Mix
- Dispense
- Empty/Blowout

12x Faster Than An 8-channel Handheld Pipettor
Pipette into all 96 wells without having to replace tips 12 times.

Optional Configurations
Configured with adjustable 2, 3 or 4 Split Level Plate Elevators for individual sampling using multiple plates and a variety of SBS standard labware.

Small Footprint
96/384 channel pipetting in a small footprint that maximizes bench space and fits suitably-sized hoods.

2.1 – Applications

- Plate replication
- Plate reformatting
- Reagent addition
- Compound addition
- Serial dilution by column
- Inspect the instrument for any visible damage that may have occurred during shipping.

2.2 – Core, Tip & Head Compatibility

The S 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 SPT Labtech Sales Representative or email apricotsupport@sptlabtech.com for assistance.

384/125	Volume Range	Heads	Tips (384 channel)	Serial Dilution Heads/Inserts	Serial Dilution Tips (Strip Tips)
SP-C-384-125	.5-125µL	SP-384-A-01-0125	125-384-EZ-NS/S/FS 050-384-EZ-NS/S/FS 015-384-EZ-NS/S	SP-384-A-01-125-SC	125-016-EZ-NS/S/FS 050-016-EZ-NS/S/FS

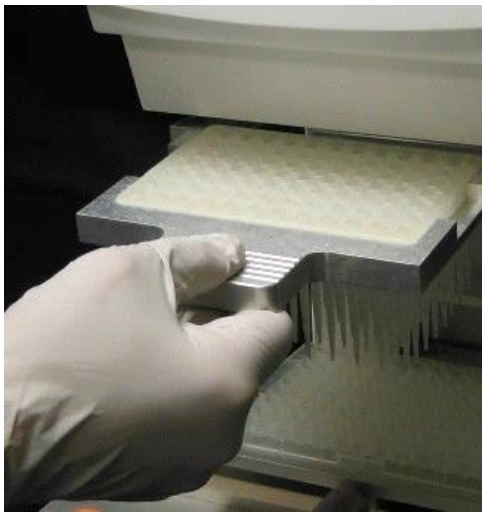
96/125	Volume Range	Heads	Tips (096/024 channel)	Serial Dilution Heads/Inserts	Serial Dilution Tips (Strip Tips)
SP-C-096-125	.5-125µL	SP-096-A-01-0125	125-096-EZ-NS/S/FS 050-096-EZ-NS/S/FS 015-096-EZ-NS/S	SP-096-A-01-0125-SC	125-008-EZ-NS/S/FS 050-008-EZ-NS/S/FS

96/550	Volume Range	Heads	Tips (096/024 channel)	Serial Dilution Heads/Inserts	Serial Dilution Tips (Strip Tips)
SP-C-096-500	1-500µL	SP-096-A-01-0500	550-096-EZ-NS/S/FS 250-096-EZ-NS/S/FS 550-024(OS)-EZ-NS/S/FS	096-A-01-EZL-550-SC (w/SP-096-01-0500)	550-008-EZ-NS/S/FS 250-008-EZ-NS/S/FS
	1-125µL	SP-096-A-01-0125	125-096-EZ-NS/S/FS 050-096-EZ-NS/S/FS 015-096-EZ-NS/S	SP-096-A-01-0125-SC	125-008-EZ-NS/S/FS 050-008-EZ-NS/S/FS

96/1000	Volume Range	Heads	Tips (096/024 channel)	Serial Dilution Heads/Inserts	Serial Dilution Tips (Strip Tips)
SP-C-096-1000	5-1000µL	SP-096-A-01-1000	1000-096-EZ-NS/S/FS	096-A-01-EZL-1000-SC (w/SP-096-01-1000)	1000-008-EZ-NS/S/FS
	5-500µL	SP-096-A-01-0500	550-096-EZ-NS/S/FS 250-096-EZ-NS/S/FS 550-024(OS)-EZ-NS/S/FS	096-A-01-EZL-0500-SC (w/SP-096-A-01-0500)	550-008-EZ-NS/S/FS 250-008-EZ-NS/S/FS
	5-125µL	SP-096-A-01-0125	125-096-EZ-NS/S/FS 050-096-EZ-NS/S/FS 015-096-EZ-NS/S	SP-096-A-01-0125-SC	125-008-EZ-NS/S/FS 050-008-EZ-NS/S/FS

2.3 – Pipettor + Head + Tips = Repeatable Results

The S Pipettor, 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

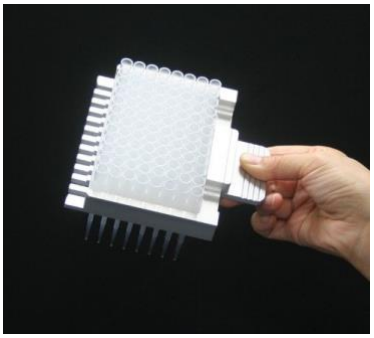
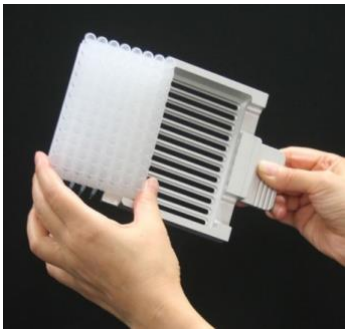
The “pipette head” is separate from the pipetting mechanism, allowing easy and economical reconfiguration in the lab.

Changing heads only takes a few seconds – easily reconfigure as needed!

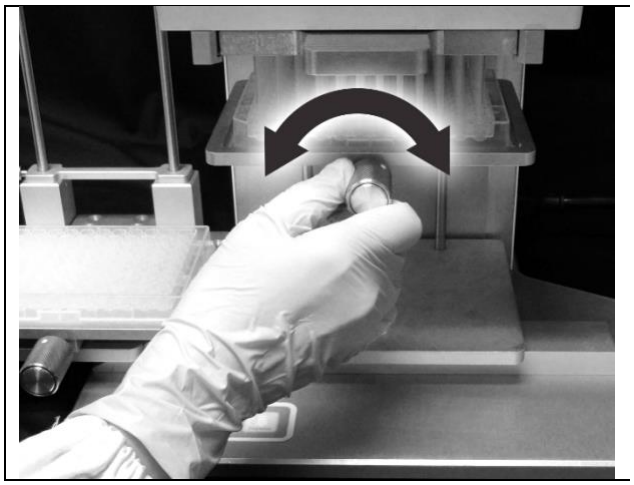
For best pipetting results – consider pipette tip selection along with the “pipette head” that will be used.

2.4 – EZ-Load Tip Technology

The S Pipettor 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!

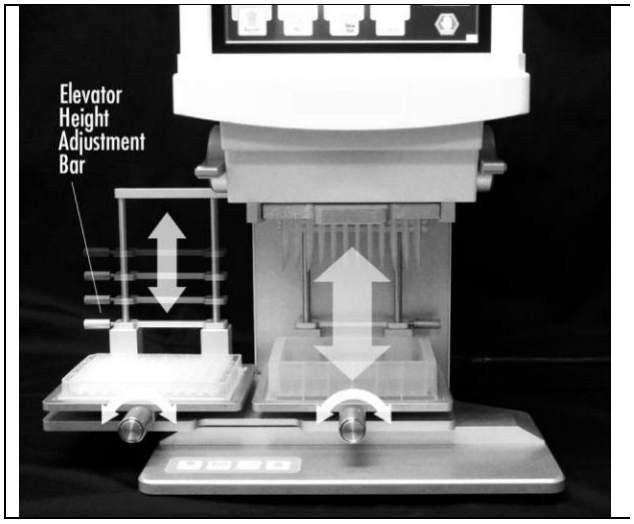




2.5 – Adjustable Plate Elevators



2, 3 or 4 Plate Elevators available for individual sampling using multiple plates and a variety of liquid handling labware.

2.6 – Adjustable Split-Level Shuttles



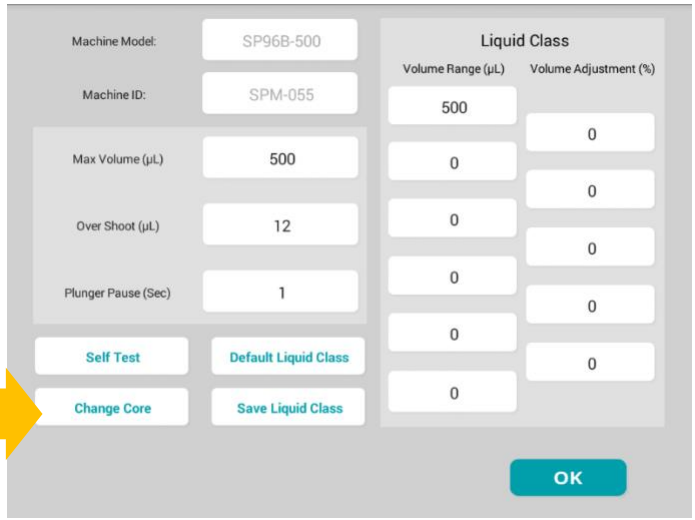
Additional flexibility and even greater sampling control – 2, 3 or 4 Split Level Shuttles available for individual sampling using multiple plates and a variety of liquid handling labware.

2.7 – Accessing the Pipetting Core

Interchangeable Pipetting Core

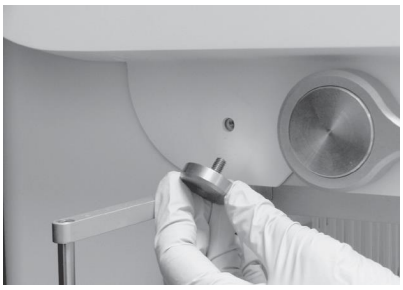
The S Pipettor features an interchangeable pipetting core.

To change the core, tap the **Settings tab** then select **Change Core**. Selecting Change Core moves the plunger to a designated position for core exchange.



Accessing Core

To access the core, (1) remove the lock screws, (2) raise the hood and (3) set the hood on the support rod.



Remove Lock Screws

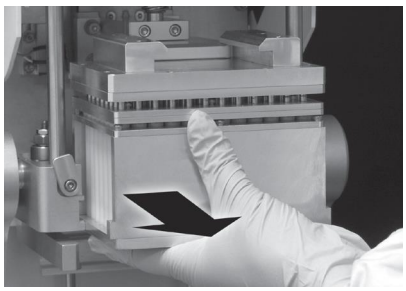
Raise Hood

Set Hood Support

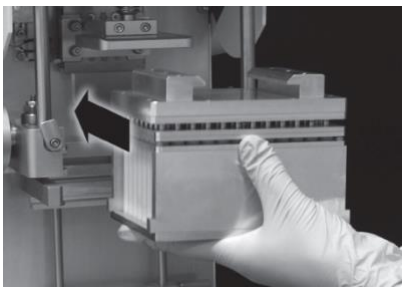
2.8 – Loading a 96 or 384 Channel Core

Determine the pipetting configuration that best matches your application. Load a 96 or 384 channel core into the apricot S1.

Release Fasteners



Lift Out the Core

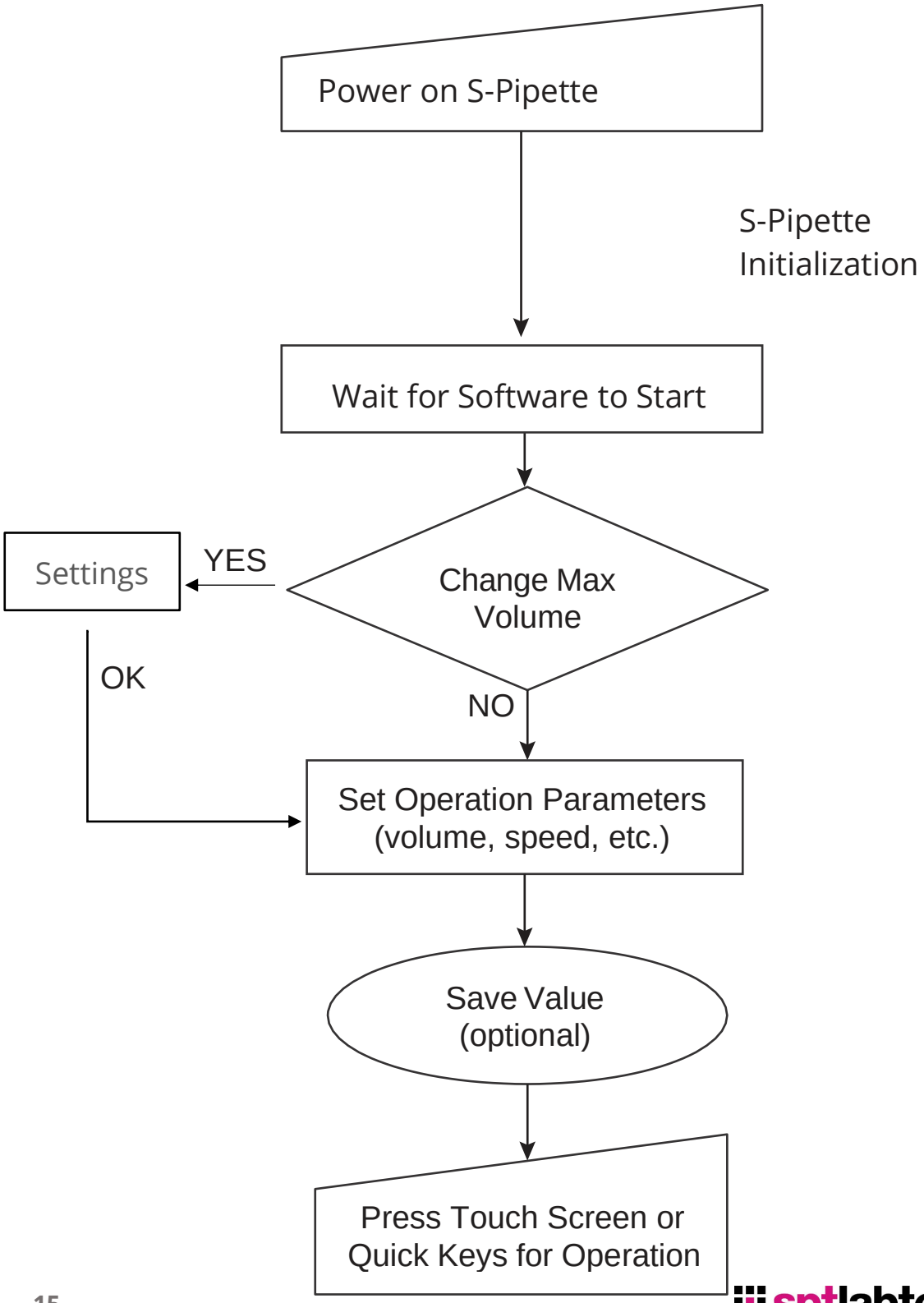


Exchange Channel Core

3. Operation Overview

Care should be exercised when unpacking the crate.

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

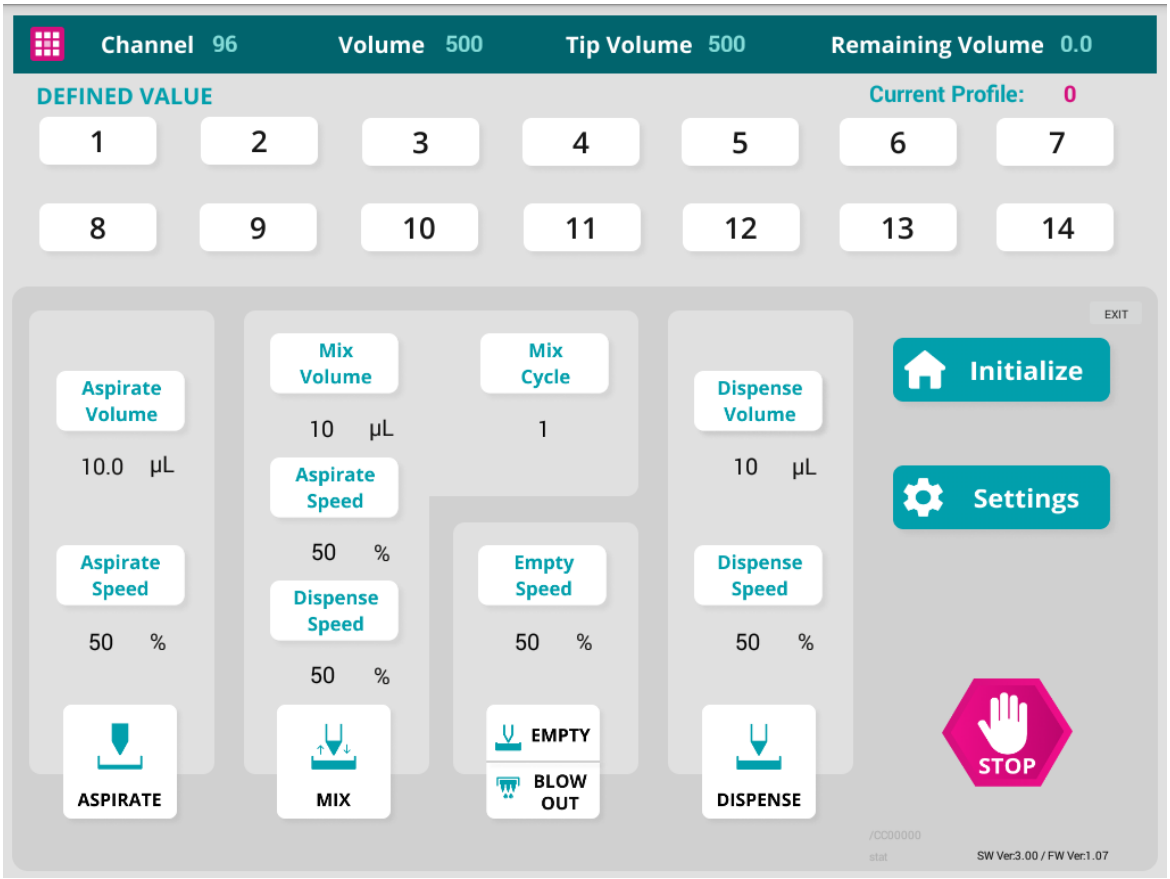


4. Main Screen Overview

4.1 – Pipettor Control Interfaces

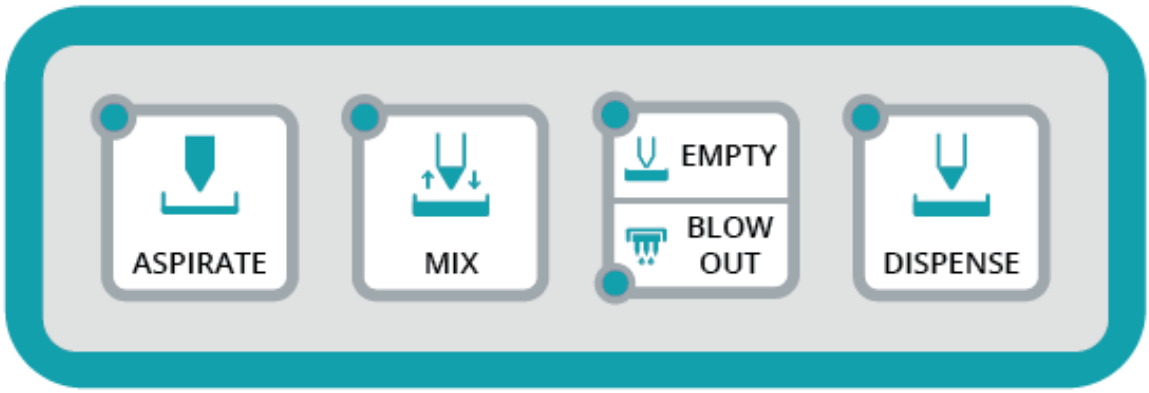
Pipettor control is at your fingertips. No external computer needed.

Intuitive Touch Screen



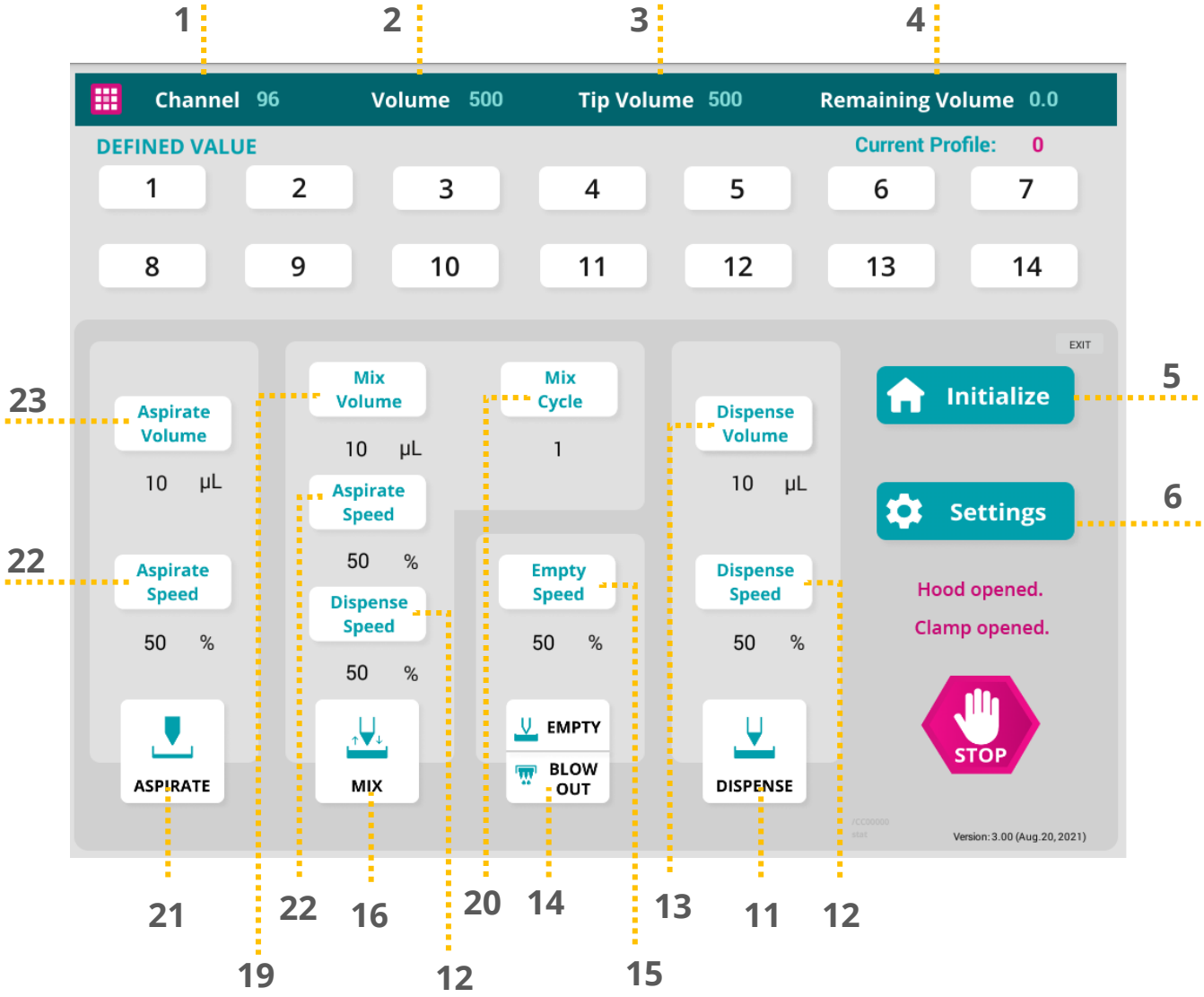
Quick Access Keys

See more detail on page 21



4.2 – Touch Screen (User Interface)

- S-Pipette software automatically loads when you power up the instrument.
- Wait for the initialization cycle to finish (the flashing lights will stop) and then enter the desired maximum tip volume.
- Press a function key (Aspirate, Mix, Dispense, etc.) the light will turn ON. When the operation is completed the light will turn OFF.
- Wait for the flashing lights to stop before pressing another function.

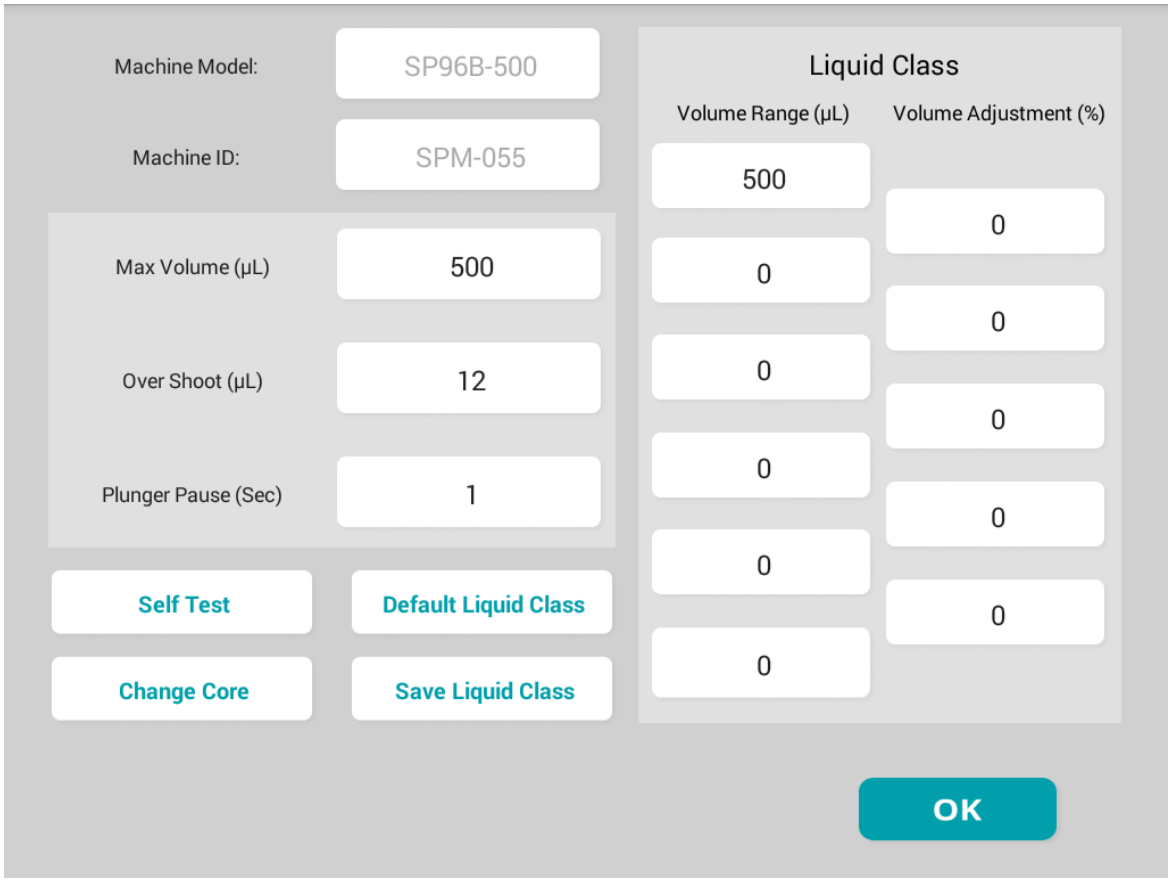


1	**Channel**	Display of the number of channels in the core.
2	**Volume**	Display of maximum volume per channel.
3	**Tip Volume**	Display of user defined tip volume per channel.
4	**Remaining volume**	Display of the current actual volume remaining in the tips per channel.
5	**Initialize**	Moves plunger to the default position.

6	**Settings**	New window tab. Change the values of Plunger Calibration/Maximum Volume/Overshoot Volume/ Plunger Pause Time/select Recorded Files (Record Action 1–5)/re-establish Default settings/Change Plunger Block function.
7	**Hood Open**	Label indicates that the hood is open.
8	**Clamp Open**	Label indicates that the clamps for tips/head are open.
9	**Stop**	Stops Mix function.
10	**Software Version and Date**	Current software version and the date modified.
11	**Dispense**	Tap to execute the dispense function.
12	**Dispense Speed**	Display of user selected (or default) dispense speed. Assign/change the dispense speed value via touchscreen.
13	**Dispense Volume**	Display of user selected (or default) dispense volume. Assign/change the dispense volume value via touchscreen.
14	**Empty/Blowout**	If the Remaining Volume is greater than zero, the empty command is executed. If the Remaining Volume is zero, the blowout command is executed.
15	**Empty Speed**	Display of user selected (or default) empty speed. Assign/change the empty speed value via touchscreen.
16	**Mix**	Tap Mix button to execute the mix function.
17	**Mix – Dispense Speed**	Display of user selected (or default) mix dispense speed. Assign/change the mix dispense speed value via touchscreen.
18	**Mix – Aspirate Speed**	Display of user selected (or default) mix aspirate speed. Assign/change the mix aspirate speed value via touchscreen.
19	**Mix Volume**	Display of user selected (or default) mix volume. Assign/change the mix volume value via touchscreen.
20	**Mix Cycle**	Display of user selected (or default) the number of mix cycles. Assign/change the mix cycle value via touchscreen.
21	**Aspirate**	Tap Aspirate button to execute the aspirate function.
22	**Aspirate Speed**	Display of user selected (or default) aspirate speed. Assign/change the aspirate speed value via touch screen.
23	**Aspirate Volume**	Display of user selected (or default) aspirate volume. Assign/change the aspirate volume value via touch screen.
24	**Profile (Defined Value)**	Establish 14 user-defined profiles/pre-sets of functions.
25	**To Assign Values**	Tap once to enable loading of user defined parameters. Assign values (via touchscreen) to Aspirate / Dispense / Mix /Empty functions.
26	**To Save Profiles (Assigned Values)**	Press and hold . . . wait for confirmation message “Profile Saved.”

4.3 Settings Screen

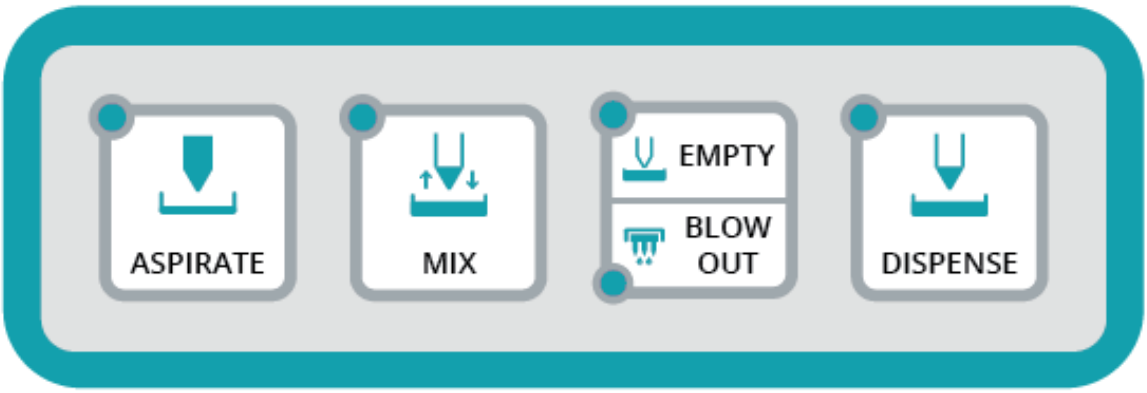
Default and user defined values. Tap/Hold to change values



Max Volume:	User defined maximum aspirate volume.
Overshoot:	Default overshoot value: 3µL; Maximum value is 48µL.
Plunger Pause:	Assign the plunger pause time (seconds) according to user requirements. Plunger pause adjustment range: 1-5 seconds.
Liquid Class:	Compensate aliquot volume.
Change Core:	Moves plunger to a designated position for core exchange.
Self-Test:	Plunger motor tests the maximum moves up and down and at various speeds.

4.4 Quick Access Keys (User Interface)

Default and user defined values. Tap/Hold to change values



S-Pipette software automatically loads when you power up the instrument and the lights of the Quick Access Keys will flash.

Wait for the initialization cycle to finish (the flashing lights will stop) and then enter the desired maximum tip volume.

Aspirate
Tap Aspirate button to execute the aspirate function.

Mix
Tap Mix button to execute the mix function.

Empty / Blowout
Tap Empty/Blowout button – if remaining volume is greater than zero, the empty command is executed.
If the remaining volume is zero, the blowout command is executed.

Dispense
Tap to execute the dispense function.

When pressed, the lights on the Quick Access Keys turn ON and when the operation is completed the light will turn OFF. Wait for the flashing lights to stop before pressing another function.

5. Care and Maintenance

Proper care and maintenance is an important part of user safety. It can help to prolong equipment life and have a positive impact on your results, as well.

Proper usage of tips will prevent contamination.

- Avoid touching the bottom of plates/reservoirs while aspirating or dispensing to prevent liquid from reversing flow and contaminating the core.
- When using low volume tips on high volume instruments, exercise extreme caution in setting the volume to avoid over aspiration and contaminating the core.
- While replacing tips, avoid contact between the tips' discharge end and the head to prevent cross contamination. Cleaning the head regularly using ethyl alcohol is recommended.

It is imperative that an appropriate cleaning regimen be devised so that the pipetting heads and cores do not become contaminated or damaged by harsh solvents.

Recommended, easy to follow, regular maintenance program:

Always unclamp the tips from the pipettor after use! Never leave tips clamped in the pipettor overnight.

Clean the unit regularly. Using a clean cloth moistened with ethyl alcohol or cleanser wipe down the instrument surfaces. **Avoid cleaning the Touch Screen** with solvent or cleanser that may damage the screen surface.

Regularly inspect the underside of the cores, the top of the pipetting heads and all moving parts. Look for and remove dirt or foreign objects. Failure to do so may severely jeopardize the performance of the instrument.

Regularly lubricate all moving parts. Lubricate with high-quality instrument-grade lubricant that contains silicone or molybdenum as necessary.

Regularly inspect the instrument for worn or damaged components. Replace worn or damaged components immediately. For help with replacing components, please contact Apricot Designs, Inc. or your distributor.

Periodically apply a thin layer of mineral oil to the bottom of the core. Applying a thin layer of mineral oil will help to promote proper vacuum seal. **Caution: Use mineral oil only.** Other types of lubrication may be detrimental to the gasket material and prevent a reliable seal.

Yearly maintenance is recommended. Proper maintenance helps ensure the accuracy and performance of your apricot S1.

6. Troubleshooting

System not responding?

Problem: Sometimes even an innovative multi-channel liquid handling system encounters an operating error and won't respond. But, re-establishing a connection is easy.

> **Solution:** Make sure there is no fluid in the tips then restart then instrument. Use the ON/OFF switch to power down the S-pipette ~ wait 10 seconds or so then use the ON/OFF switch to power back up!

Touch Screen out of synch?

Problem: Touch screen does not accept inputs

> **Solution:** Clean the screen with a microfiber polishing cloth.
> Access the keyboard using the stylus to touch the bottom of the screen and swipe upward. When the task bar is revealed select **Stylus** > **Calibration** and then select **Recalibrate.** Use the stylus and follow the instructions to tap center and 4 corners the keyboard via the keyboard icon.

Leakage?

Problem: Uneven liquid levels among the tips; dripping from tip(s) even when empty or dispense commands are not in use.

> **Solution:** Make sure there are no foreign objects between the core and pipetting head. Check the top of the core. Make sure there are no missing or damaged gaskets. Check to make sure the tips are loaded correctly. Make sure both the locking levers clamped. Apply a thin film of mineral oil to the gasket(s) suspected of leaking.

Core won't fit?

Problem: The interchangeable core is not fitting into the instrument.

> **Solution:** Make sure there are no foreign objects preventing the core from fully sliding into the instrument and that the guides are clear.
> The core's plunger positioning may be not aligned with the instrument. Push down on the top of the core until all the plungers are at the bottom.
> On the Settings screen tap the Change Core tab to sync the instrument with the core – then slide the core in.

Core not syncing with instrument?

* This requires a service technician to adjust the core's plunger positioning sensor

Technical Support Contact Information

reliance

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To request support from reliance, please use the contact information below:

Tel: +1 (855) 601-5867 (USA)
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