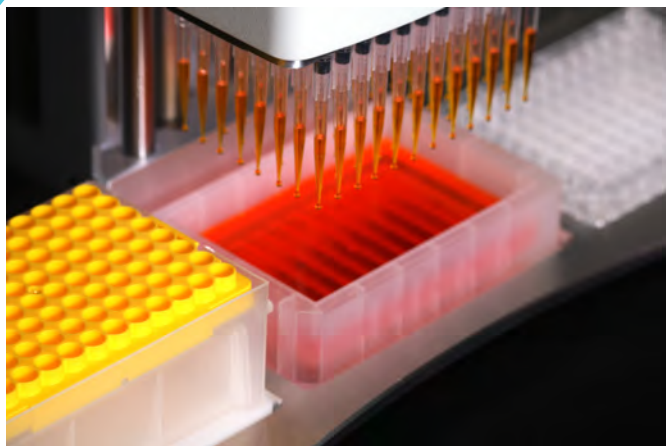


# PRECISION PLUS SERIES PIPETTOR

## Accelerate Liquid Transfers

96/384 BenchTop Pipettor



PRECISION SERIES Pipettor

*Quick Start Guide*

**MIDSCI™**

# Set-Up and Installation

## Unpacking the Precision Series Pipettor

Prior to operation, carefully remove instrument and accessories from the shipping container and inspect for damaged or missing items. If any parts are found to be damaged or missing, contact Sequence BioTech Technical Support at **(603) 769-0963** or email **service@sequencebiotech.com**.

*Included instrument and accessories:*

- 1 Precision Series Pipettor
- 2 24 VDC Power Supply
- 3 Power Cord
- 4 384 Plate Adaptor
- 5 Instruction Manual
- 6 Certificate of Performance
- 7 Warranty Card

# Set-Up and Installation

## Installing the Precision Plus Series Pipettor

The Precision Plus Series Pipettor has been shipped in the locked horizontal and vertical positions.

*To unlock and power up the instrument, follow these steps:*

**A     Unlock Horizontal Motion**

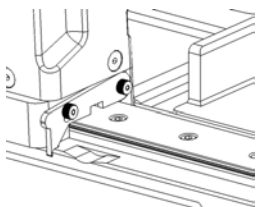
Pull up on the *Locking Key Ring (b)* and rotate it 90°. This places the spring-loaded plunger in the unlocked position. The instrument is now free to move side-to-side.

**B     Power Up**

Plug the 24 VDC power supply into an AC electrical outlet. Insert the plug on the back of the instrument **(c)** and screw the plug collar onto the threaded jack for positive engagement.

**C     Press the Power Button**

The instrument will immediately “home” itself. The instrument is now ready for use.



(a)

*Rotate/Push lock  
UP out of slot*



(b)

*Screw Power Cord  
on to Pipettor  
and Power Up*



(c)

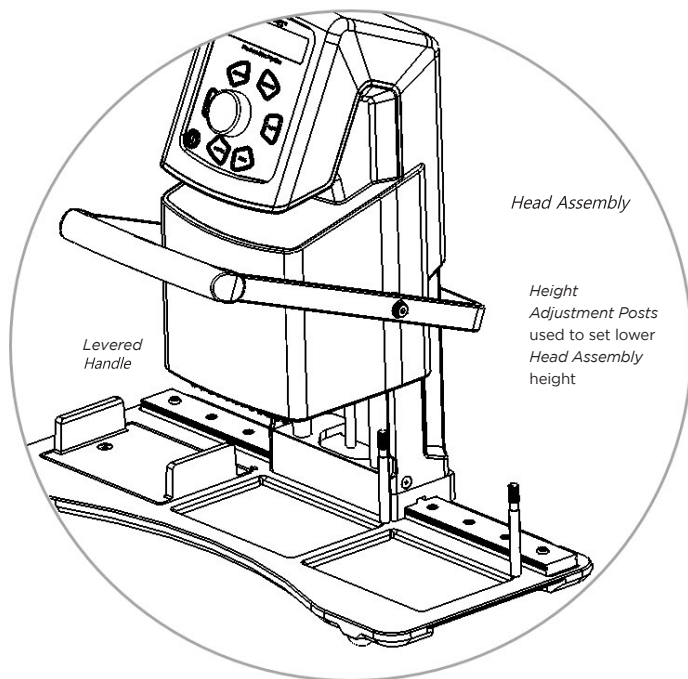
*Press the Power Button*

# Set-Up and Installation cont.

## Adjusting Pipettor Head Assembly

The Precision Series Pipettor *Head Assembly* is easily positioned vertically and horizontally by adjusting the *Thumb Screws* and sliding the *Levered Handle*.

- **Vertical Height Adjustment**  
Set the height that stops the *Head Assembly* when lowered with the *Levered Handle* by adjusting the two *Height Adjustment Posts* located under the *Chassis Assembly*. Place a microtiter plate in either the center or right plate position and lower the *Head Assembly* using the *Levered Handle* until the desired height is achieved. Rotate the *Height Adjustment Posts* until they touch the *Head Assembly*.
- **Horizontal Motion**  
The *Head Assembly* is automatically aligned and perfectly centered over each well position. Grab the *Levered Handle* and gently move left or right. Motion is effortless.

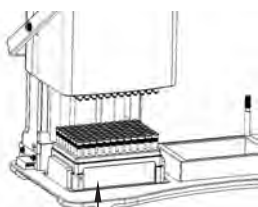


# Set-Up and Installation cont.

## Adjusting Tip Rack Holder

To place and pick up tips, simply:

- 1 Place a rack of pipette tips into the *Tip Rack Holder* (a)
- 2 Using the *Levered Handle*, slide the *Head Assembly* over the rack of tips. The *Head Assembly* will automatically center itself. Pull the *Levered Handle* down to engage with the tips (b). Push down firmly to seal.
- 3 Lift the tips up and out of the rack (c) and continue processing.



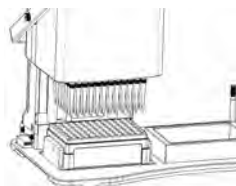
(a)

Place Rack with Tips  
in this Position.



(b)

Pull Lever Down



(c)

Lift Tips from Rack



**CAUTION:** FOR YOUR SAFETY, KEEP BOTH HANDS ON THE RUBBER GRIP OF THE *LEVERED HANDLE* WHEN MOVING THE *HEAD ASSEMBLY* TO AVOID ACCIDENTAL PINCHING AND INJURY.

# Basic Operation



Power

## Basic Operation Buttons

Operation	Action
POWER	Press Once: Powers up instrument and begins a "homing" sequence.
POWER	Press Again: Stops all motion, anytime. Acts as an emergency shut-off button.
ASPIRATE	Requires user to enter a liquid aspirating volume (uL). Turn black Control Wheel to select a value between 5 and 250. Adjust volumes slowly using 1uL increments or more quickly using 5uL increments up to 250uL maximum. Press <b>ENTER</b> to store the value.
ENTER	<p><i>Performs the following:</i></p> <ul style="list-style-type: none"> <li>* Use to enter <b>ASPIRATE</b> and <b>DISPENSE</b> volumes dialed in.</li> <li>* Activates the last command while displaying the total volume of liquid/air inside the OneTouch pipette tips. For example, if multiple 20uL dispenses are necessary, pressing ENTER will repeat the last 20uL dispense. This will continue until all of the aspirated liquid has been dispensed.</li> <li>* Clears the display screen when an error message appears.</li> <li>* Saves programs created in the program menu</li> <li>* Saves options selected in the "Options" menu, such as "Motor Speed"</li> </ul>
DISPENSE	Requires user to enter a liquid dispensing volume (uL). Turn black Control Wheel to select a value between 5 and 250. Adjust volumes slowly using 1uL increments or more quickly using 5uL increments up to 250uL maximum. Press ENTER to store the value.
EJECT	Ejects tips from Head Assembly. This action is terminated when there is liquid in the pipette tips; display screen instructs user to dispense liquid before ejecting pipette tips.
CANCEL	<p><i>Performs the following:</i></p> <ul style="list-style-type: none"> <li>* Use as a go-back button to bring user to previous command. Press repeatedly to go back several steps, one step at a time as necessary when programming.</li> <li>* Pauses an action.</li> </ul>

Operation	Action
MENU	<p>When pressed, displays the following actions (select action by turning black Control Wheel):</p> <p><b>“Mix”</b> Requires user to enter a mixing volume (5-250uL) and number of mixing cycles (0-25). Turn black Control Wheel to select the desired value. Adjust value slowly using 1uL increments or more quickly using 5uL increments. Press <b>ENTER</b> to store the value.</p> <p><b>“Options”</b></p> <ul style="list-style-type: none"> <li>● <b>“Motor Speed”</b> – Press <b>ENTER</b> to adjust speed to <b>“Slow,” “Normal,”</b> or <b>“Fast.”</b> Press <b>ENTER</b> once again to save option.</li> <li>● <b>“Pipettor Operating System”</b> – Select to view the current software version.</li> </ul> <p><b>“Service”</b> Hidden service menu used for calibrating volume and speed. Use only when working with a certified Sequence BioTech technician. For more information, contact Sequence BioTech Products Technical Support at 603-769-0963 or email <a href="mailto:info@sequencebiotech.com">info@sequencebiotech.com</a>.</p> <p><b>“Program”</b> Use to create and save an individual pipetting program into memory. A maximum of 100 individual steps can be stored in the program. Further programming information is located under <b>BASIC PROGRAMMING INSTRUCTIONS</b>, in the owners manual.</p>

# Basic Operation cont.

## General Pipetting Set-Up

To ensure safe and accurate liquid handling, follow these simple instructions to operate the Precision Series Pipettor:

### GENERAL PIPETTING SETUP

- Ensure *Levered Handle* is in the upright vertical position.
- Place tip rack into the *Tip Rack Holder*.
- Using the *Levered Handle*, adjust the horizontal slide to position the pipettor *Head Assembly* over the tip rack.
- Using the *Levered Handle*, fully engage 96 pipette tips onto nozzles using firm downward pressure. Raise the *Levered Handle* to the highest position.
- Set the tip depth for the reservoir using the *Height Adjustment Posts*. Refer to vertical *Height Adjustment* in the Set-Up and Installation section. Set the tip depth for the plate/block loading position using the *Height Adjustment Posts*.
- Place the desired reservoir into position two.
- Move the pipettor *Head Assembly* to the second position. The instrument will self-center directly over this position.

### ASPIRATING LIQUID INTO THE PIPETTE TIPS

- Select the **ASPIRATE** button on the *Control Panel*. Rotate the Control Wheel to the desired volume. Rotate slowly for small increments. Rotate quickly for large increments. *The display screen will display:*  
“**Aspirate**” —The desired aspirating volume  
“**Current Volume**” Total volume of liquid aspirated to each of the OneTouch tips.
- Using the *Levered Handle*, lower the tips into the vessel. The tips automatically stop at a depth defined by the *Height Adjustment Post* setting. Tips should immerse into liquid at a depth of 2mm.
- Press the **ENTER** button on the *Control Panel* to aspirate the selected volume.  
“Current Volume” appears on the display screen to indicate the selected volume.
- Once the pipette tips contain the aspirated sample volume, raise the pipettor *Head Assembly* to the highest position using the *Levered Handle*.
- Slowly slide the pipettor *Head Assembly* into the 3rd Position, it will self center over the target plate.
- Slowly and carefully lower the pipettor *Head Assembly* so that the ends of the tips do not touch the bottom of the wells (the *Height Adjustment Post* settings prevent bottoming out), or use the tip-saver accessory shown in the Owner's Manual to safely touch the bottom of the microplate.



### DISPENSING LIQUID FROM THE PIPETTE TIPS

- Select the **DISPENSE** button on *Control Panel*. Rotate the Control Wheel to the desired dispensing volume. Press **ENTER** on the *Control Panel* to begin dispensing. *The display screen will display:*
  - “**Dispense Volume**” – The amount to be dispensed from each tip
  - “**Current Volume**” – The volume remaining in each tip
- Once all liquid has been dispensed from the pipette tips and “**Current Volume**” reaches zero, “**Raise Tips**” will appear on the display screen.
- Using the *Levered Handle*, raise the pipettor *Head Assembly* upward to the highest position. Press **ENTER** once again to return the instrument to the “ready position.” “**Ready**” appears on the display screen.

### MIXING LIQUIDS

- Ensure pipette tips are empty. Fully submerge tips into liquid by lowering the pipettor *Head Assembly* until the tips are deep within the wells of the microplate (or other vessel). Using **MENU** on the *Control Panel*, select “**Mix**” and press **ENTER**. Rotate the Control Wheel to the desired mixing volume (approximately half the volume in the wells) and press **ENTER**. Next, rotate the Control Wheel to the desired number of mixing cycles (0-25 cycles). *The display screen will display:*
  - “**uL**” – The mixing volume or the amount of liquid to be mixed by each tip
  - “**Cycles**” – The number of desired mixing cycles
- Press **ENTER** to begin the mixing cycles. While the pipettor is mixing, the display screen will indicate the action until all mixing cycles have completed.
- Once mixing has finished, press **ENTER** to return the instrument to the “ready position.” “Ready” appears on the display screen.
- Repeat aspiration, dispensing, and mixing steps as necessary.

### EJECTING PIPETTE TIPS

- With the pipettor raised to the highest position, slide the pipettor *Head Assembly* into the notched guide in position one above the empty tip rack. Lower the tips so they are positioned half way into the holes of the rack. Press **EJECT** on the *Control Panel*.
- Once the pipette tips have been ejected, lift the pipettor *Head Assembly* to the highest position.

*This ends the basic pipetting operation. To adjust the aspiration and dispensing speeds on the Precision Series Pipettor, see **ADJUSTING ASPIRATION AND DISPENSING SPEEDS**.*



**Sequence**  
BioTech, LLC



**MIDSCI**<sup>™</sup>