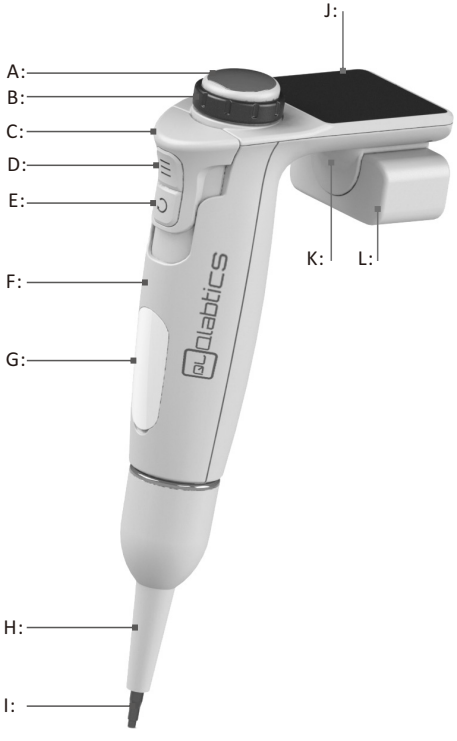
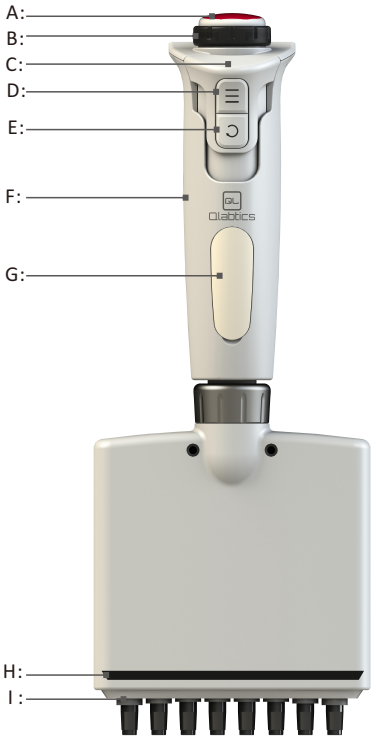
Electronic Pipette
Operating Instructions

Electronic Pipette
Operating Instructions



A - Pipetting key/ Confirmation key
B-Adjustment wheel
C- Tip ejection key
D- Function key/ Program key
E- Speed key
F - Handgrip
G- Label window
H- Pipette shaft
I - Tip cone
J - LCD display [Tempered glass panel]
K - Finger rest
L - External lithium battery

Electronic Pipette
Operating Instructions



A- Pipetting key/ Confirmation key

B-Adjustment wheel

C- Tip ejection key

D- Function key/ Program key

E- Speed key

F- Handgrip

G- Label window

H- Manifold

I - Tip cone

Electronic Pipette
Operating Instructions

M - USB charging jack

N - Power key

1 - Battery charge indicator

2 - Volume setting

3 - Navigation bar

4 - Speed indicator

Electronic Pipette Operating Instructions

Pipetting/enter key

---Is responsible for aspiration/discharging in the main pipette mode.

---The pipetting/enter key is OK key when necessary.

--- In standby mode, the system can be awakened to star working.

Adjustment wheel

---Clockwise rotation increases volume, while counterclockwise rotation decreases volume.

---Convert automatic liquid transfer mode to fast liquid separation mode.

Function key

---You can freely switch between automatic pipette mode, manual mode, multiple mode, and multiple dispensing mode.

---Quick discharge button, press the switch button in manual transfer and multiple mode to terminate suction and switch to discharge.

Speed key

---Is responsible for changing the aspiration/discharging speed in the state of aspiration/discharging. The speed key is divided into 3 gears: H (high), M (medium), L (low).

---In automatic suction, quick separation, manual suction, multiple suction, and multiple separation modes, long press the speed key to change to direct drainage.

Power reminder

---Green to full power.

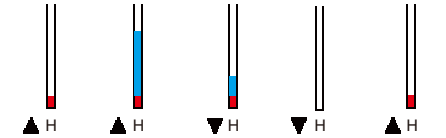
---Red is low power state, need to charge in time.

Pipetting speed

--- ▲ is in a suction state.

--- ▼ in the drainage state.

Liquid volume navigation bar



Piston is ready for aspiration

The state in which liquid is aspirated

Drain the liquid

Discharge completely

Piston reset zero point

Electronic Pipette
Operating Instructions

CONTENTS

Electronic Pipette
Operating Instructions

1、Introduction

This product is an electronic pipette operated based on the principle of air displacement. It can safely, accurately, and efficiently transfer liquids, making it an ideal liquid transfer tool for experimental operations.

The flexible knob can quickly set the infusion parameters and select functions. The 1.44-inch color screen clearly displays various infusion information, simplifying the menu and adjusting the knob to quickly convert various infusion combinations.

There are 9 specifications available for single channel electric pipette, and 3 specifications available for multi-channel electric pipette.

Specification information of single channel electric pipette

Cat.NO.	Range	Minimum	Maximum	Increment
QP-001	0.2-10μL	0.2μL	11μL	0.1μL
QP-002	0.5-20μL	0.5μL	20.5μL	0.1μL
QP-003	2-100μL	2μL	110μL	0.5μL
QP-004	5-200μL	5μL	220μL	0.5μL
QP-005	10-300μL	10μL	320μL	1μL
QP-006	10-500μL	10μL	550μL	1μL
QP-007	50-1000μL	50μL	1050μL	1μL
QP-008	0.1-5mL	100μL	5.1mL	10μL
QP-009	1-10mL	1mL	10.5mL	100μL

Specification information of 8-channel electric pipette

Cat.NO.	Range	Minimum	Maximum	Increment
QP-010	0.2-10μL	0.2μL	11μL	0.1μL
QP-011	5-100μL	5μL	110μL	1μL
QP-012	10-300μL	10μL	320μL	1μL

Package

① - Electronic pipette	1
② - Charger	1
③ - USB charging cable	1
④ - Li-ion battery	1
⑤ - Grease	1
⑥ - Instructions	1
⑦ - Performance certification	1

Please check that all items are included and that no damage has occurred during shipment.

2、Instructions before use

2.1 Battery

Matters Needing Attention:

① It is strongly recommended to fully charge the battery before using the product.

② Please use the factory-provided charge and battery pack. Using other batteries cause damage to the pipette. Damage caused as a result of using other batteries is not covered under the warranty.

③ Please charge indoors.

④ Do not place the battery with metal objects or objects which have metal surfaces, as this may cause a short circuit.

⑤ Dispose of used batteries in accordance with local laws and regulations. Do not place used batteries in household waste.

⑥ Do not throw batteries into open flames, as this may cause an explosion.

⑦ Remove the battery if you do not plan to use the pipette for an extended period.

Battery specifications

Li-ion battery:

- Nominal voltage：3.7V
- Rated capacity：800mAh
- Limited charge coltage: 4.2V
- Charging time: Approximately 2hours

Charger specifications

- Input: AC 100-240V,50/60Hz, Max 0.15A
- Output: USB 5V,1A

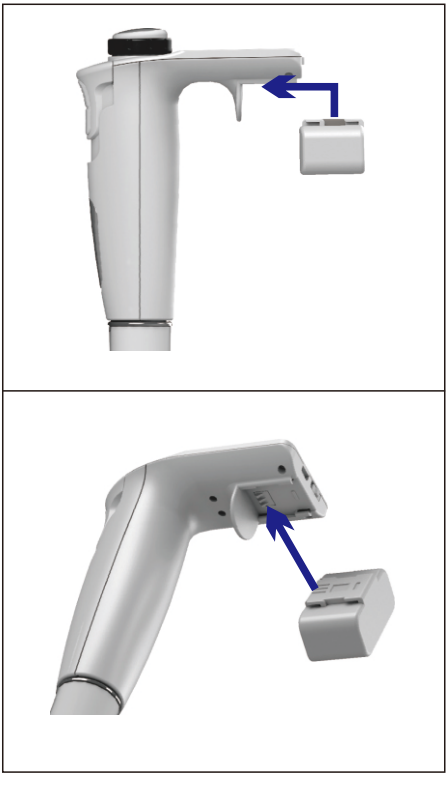
Charging

Before connecting the charger to a power outlet, verify that the power outlet matches the input voltage of the charger. Connect the charging cable to the charger and the charging port on top of the pipette, and then connect the charger plug to the AC outlet.

Tips:

1. When the pipette is turned on, the battery icon flashes to indicate charging; flashing green indicates that the battery is fully charged. Charging when pipette is turned off, the screen is off, and no icon is displayed.
2. The battery slightly heats up during charging, which is a normal phenomenon.
3. Please unplug the power supply as soon as possible after the battery is fully charged.
4. It is recommended to replace the battery every 2 years.

Battery installation



2 2 Installing and ejecting tips

Installing a tip:

Select a compatible tip before installation. To install a tip, insert the tip into the pipette vertically and tighten it with a half-turn.Installing the tip by knocking the pipette is not recommended, as this may result in parts becoming loose and cause damage to the pipette.

Rinsing the tip:

After installing the tip and before commencing the pipetting process, drain the tip 2-3 times to moisten is sufficiently and reduce pipetting errors.

Ejecting the tip:

Align the tip with the waste container and press the tip ejector to eject the tip.

Note: Do not remove any fluid from the pipette before the tip has been installed.

3、Basic operating instructions

3.1 Power on

Move the power switch to the ON position.

Power off

Move the power switch to the OFF position.

Power saving

If the pipette is not used for 2 minutes, the screen saver mode is entered. Exit the screen saver by pressing the pipetting key once, and the pipette can be used again.

Pipette mode

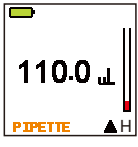
The pipette has 4 basic modes:
PIPETTE: automatic pipetting mode
MANUAL: manual pipetting mode
ASPIRATE: multi-aspiration mode
MULTI: multi-dispensing mode

3.2 Liquid Removal Operations

3.2.1 PIPETTE

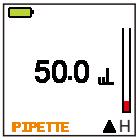
Automatic pipetting mode set volume is equal to the actual volume, commonly used in general suction operation, with automatic blowing function, can effectively avoid liquid residue.

Specific operations:



Power on
Automatic pipette mode display
(initial display)

Electronic Pipette Operating Instructions



Turn the adjustment wheel to set the volume

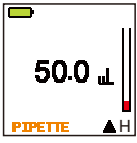
turn the knob counterclockwise

Press the pipetting key to aspirate the liquid

Press the suction key

Then press the pipetting key to discharge the liquid, and go back to the initial display (depending on actual selection.)

Press the drain key



Note:

1.During the suction process, do not place the suction head against the bottom of the container to avoid affecting the accuracy of the suction.

2.After the suction head inhales the liquid, stop for a while, and then move the suction head away from the liquid level: take below 1000µL, and stay for about 1 seconds; Move over 1000µL, stay for 3 seconds.

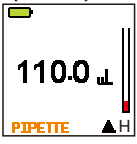
3.When removing liquids with viscosity or density greater than water, it is recommended that you pre-wash the tip 3-5 times with the liquid to be removed.

4.Use a small range pipette, such as 10µL,200µL,300µL, 1000µL. When aspirating, the tip should be immersed 3mm below the liquid surface; for larger volume, such as a 5mL pipette tip, it should be immersed below the surface 5mm.

3.2.2 Quick dispensing (STEPPER)

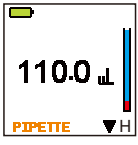
In this mode, user can control the discharge volume and the number of discharges. This pipetting combination is based on the automatic pipetting mode and is discharged in batches during discharging. If you need to dispense 10 times, drain 10μL each time, you can aspirate 110μL forward. When discharging, set the fluid volume to 10μL each time. Discharge 10 times, and the remaining 10μL will be used as the replenisher to drain.

Specific operations:



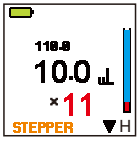
Automatic pipette mode display

Press the suction key to suck



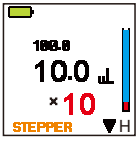
Press the suction key

Turn the adjustment wheel to STEPPER

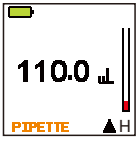


Turn the knob adjust to 10μL X 10 times

Press the drain button to drain



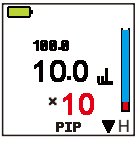
Press the drain button 10 times to drain the required liquid



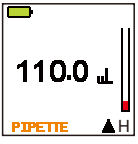
Return to PIPETTE display

Note:
Since the STEPPER mode is based on the extension of the automatic pipetting mode, so when the user is using the STEPPER process, please reserve a supplement liquid. For example: dispense 80μL, 4 times, please adjust the automatic aspiration volume to 90μL, reserve 10μL for replenishment.

Tip:
In the STEPPER mode, the user can press the speed key for 2 seconds to drain the liquid directly.



Press the speed key
for 2 seconds

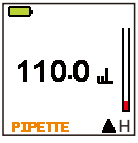


Press the drain key
to empty the liquid
back to the initial display

3.2.3 MANUAL

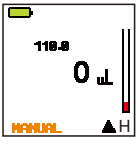
In this mode, the user can control the suction and discharge volume by himself. The suction and discharge operations are manually completed.

Specific operations:

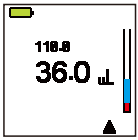


Automatic pipette mode display

Press function key to
MANUAL display

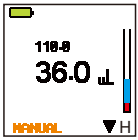


Press the function key



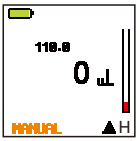
Press the pipetting key
until the target volume

Hold the pipetting key



Press the speed key
for 2 seconds

Press the pipetting key to
empty the liquid

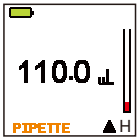


Empty liquid and
return to manual display

3.2.4 ASPIRATE

In this mode, the user can set their own settings to absorb solutions of equal or unequal volume and then discharge it again.

Specific operation: For example, suck 50µL of different liquids in equal volume twice and discharge them again.



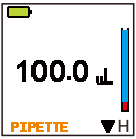
Automatic pipette mode display

Press the function key twice

Switch to Aspirate display
and turn the adjustment wheel
to set the target value

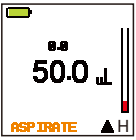
Press the pipetting key
until the target volume

Press the pipetting key twice
50uL per suction, a total 100uL



Press the function key
to drain the liquid

Press the function key

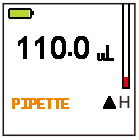


Press the pipetting key
to drain again

Press the pipetting key
to empty the liquid and
return to ASPIRATE display

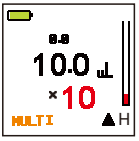
3.2.5 MULTI

In this mode, the user sets the volume of each dispense, and the system automatically calculates the number of dispense. When liquid is aspirated, the total volume (including the replenisher calculated by the system) is sucked at one time, and the liquid is discharged according to the set value during discharging. The specific operation is as follows: Take a 2-100µL pipette as an example, set 10µL each time to dispense 10µL, a total of 10 times, draw 110µL during aspiration, of which 10µL is the replenisher, not included in the total number of dispensing times:

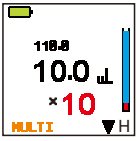


Automatic pipette mode display

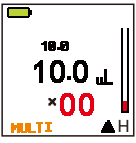
Press the function key 3 times



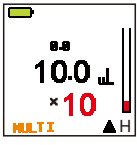
Switch to MULTI display
and turn the adjustment wheel
to the target value



Press the pipetting key
to absorb the total volume



Press the pipetting key 10 times,
10 times of 10µL required for discharge



Finally , press the pipetting key once
Drain the remaining liquid from the suction
head and return to the MULTI display

3.2.6 Other operating instructions

This pipette adopts an open and friendly operating system, through the combinations of basic pipette modes, multiple pipette combinations can be matched. Here are some commonly used pipette combinations.

1.Mixing mode

This pipette combination is in PIPETTE mode, MANUAL mode, and MULTI mode. After suction, press the function key to return to the PIPETTE display and long press the suction and discharge button. After discharge, the liquid will be automatically sucked and discharged 5 times to fully mix the liquid inside the suction head with the liquid outside the suction head.

2.Reverse pipetting

For viscous or volatile liquids, when aspirating, absorb more supplementary liquid, first discharge the target liquid amount and then discharge the remaining liquid. If necessary, pipette 100µL and aspirate 110µL. First discharge 100µL, second discharge 10µL.

The specific steps are as follows: Turn the knob to set the suction volume to 110µL, press the suction button to suction, and turn the knob to set the first discharge volume to 100µL. Press the drain button to discharge 100µL, then press the drain button to discharge the remaining 10µL.

3.Unequal separation liquids

Suctioning is done several times at a time, and the volume of each discharge is not equal. For example, it requires the first drainage of 10μL. Second discharge 20μL. Third discharge 30μL. The fourth discharge is 40μL, with a suction capacity of 110μL. The discharge is carried out step by step, and the last 10μL is the supplementary solution.

The specific operation is as follows: Turn the knob to set the total suction volume to 110μL, press the suction button to suction, and turn the knob to set the first separation volume to 10μL. Press the drain button to drain 10μL. Turn the knob to set the second liquid separation amount to 20μL, and press the discharge button to discharge the liquid by 20μL. Turn the knob to set the third liquid separation amount to 30μL, and press the drain button to drain the liquid by 30μL. Turn the knob to set the fourth liquid separation amount to 40μL. Press the drain button to drain 40μL. Press the drain button again to drain the liquid.

4.After manual sampling, divide the solution equally

Suitable for flexibly controlling the suction volume when the target liquid volume is unknown, and then dividing the liquid equally. Like the stratified liquid of a centrifuge tube.

The specific operation is as follows: In manual mode, press and hold the suction button to aspirate. After aspirating, press the switch button once to switch to the discharge state. Turn the knob to set the single liquid separation amount and press the discharge button to discharge. Repeat the discharge until all the liquid is discharged.

5.Unequal sampling

Unequal sampling is carried out in multiple suction mode. The system defaults to multiple suction as equal suction. If unequal suction is required, the suction volume is changed during suction. For example, taking unequal amounts of sample A 10μL. Extract sample B 15μL . Take 20μL of sample C and 25μL of sample D.

The body operation is as follows: in multiple suction modes, rotate the knob to 10μL. Press the suction button to extract sample A, rotate the knob to 15μL. Press the suction button to extract sample B, repeat the above operation to extract samples C and D. After the suction reaches 70μL, press the switch button to switch to the discharge state. Press the discharge button to discharge the liquid and complete the transfer.

4 Fault analysis and troubleshooting

4.1 Troubleshooting

Issue	Cause	Solution
Piston fault	① Piston is installed too tighty ② Insufficient piston lubrication ③ Solidification of lubricating grease on piston surface ④ Foreign matter on or damage to piston surface ⑤ Impurities or particles between the piston, O-ring and tip ejector sleeve ⑥ O-ring is damaged	--Refit the piston --Grease the piston --Remove old lubricating grease and apply new lubricating grease --Clean or replace the piston --Clean and lubricate the O-ring and tip ejector sleeve --Replace the O-ring
Inaccurate pipetting volume or leakage	① Tip is not properly installed ② Tip is incompatible ③ Impurities between the tip and tip holder ④ Tip is damaged ⑤ Fluid was removed too quickly ⑥ Tip was moved away from the fluid surface too quickly ⑦ Foreign matter on or damage to piston surface ⑧ Impurities and particles between the piston ,O-ring and tip holder ⑨ Insufficient lubrication of the O-ring and piston ⑩ O-ring is damaged ⑪ Incorrect operation	--Reinstall the tip --Clean the tip holder and replace the tip --Clean the tip holder and replace the tip --Replace with a new tip --Adjust the pipetting speed/ remove and place fluid more slowly --When removing large volumes of viscous fluids, pause for a few seconds before moving the tip away from the surface of the fluid --Clean or replace the piston --Clean and lubricate the O-ring and the tip holder --Apply lubricating grease evenly --Replace the O-ring --Follow the instructions
There is residue in the tip	①Tip is incompatible ②Tip is not properly installed ③Tip is highly absorbent ④Excessive liquid viscosity	--Use a suitable tip --Reinstall the tip --Replace with a low-absorption tip --Pre-wash the tip and reduce the suction speed
Noise during operation	①Insufficient piston lubrication ②Foreign matter on piston ③The O-ring is loosening	--Apply lubricating grease evenly to the piston --Clean the piston and grease it --Ensure the O-ring is installed correctly
The suction function is weak or does not draw fluid	①The battery has reached the end of its lifespan ②Battery is low	--Replace the battery --Charge the battery

Issue	Cause	Solution
Inaccurate dispensing of special fluids	① Incorrect calibration, needs to be recalibrated for high viscosity fluids ② Remove fluids that are volatile or which have a significantly different density to water	--Recalibrate with the problem liquid --Pre-wash tips or recalibrate
Tip is detached or difficult to	① Poor quality tips ② The tip has been damaged	--Use a high-quality tip --Replace with a new tip

If you have any other questions, please contact your local agent or call the national technical advisory hotline: 400 800 6815.

4.2 Leak Testing

A leaking pipette will directly affect sample results and cause errors in experimental results. The pipette should therefore be tested regularly for leaks.

Methods: Hold upright for 30 seconds after suction of fluid. Observe whether the fluid level drops and if fluid drips from the tip. If so, the pipette has a leak. For instructions on how to fix a leak, refer to the "Troubleshooting" section.

Note: If volatile fluid (e.g. most organic solvents) were removed, the loss of fluid may be due to the saturated vapor pressure of the fluid. Try removing and releasing the fluid several times before pipetting.

5、Maintenance and upkeep

5.1 Cleaning and sterilization

Regular maintenance should be performed to ensure the accuracy and precision of the pipette. The pipette should be cleaned, especially after removing corrosive solvents. Simple cleaning and maintenance extends the service life of the pipette.

Note: Always remove the battery before cleaning or sterilization.

①External Cleaning

Method: Wipe the surface of the pipette with a damp cloth soaked with 70% ethanol or 60% isopropanol to remove any external dirt, and then wipe the pipette with double-distilled water and leave to dry. Before starting work each day, inspect the surface of the pipette for dust or dirt, especially the parts that are connected to the tip.

②Internal cleaning

Cleaning procedure:

1. Detach the parts that need to be cleaned.
2. Wipe the tip ejector sleeve and tip holder with a damp cloth soaked with 70% ethanol or 60% isopropanol. Rinse with double-distilled water and leave to dry.
3. The O-ring and plunger do not usually need to be cleaned. If they become contaminated with solid particles, wipe gently with a clean, dry cotton cloth.
4. Apply a thin layer of lubricating grease to the O-ring and plunger.
5. Reassemble the pipette according to the instructions.

③Sterilization

The lower end of the Automatic pipette is made of corrosion and heat resistant materials that can be sterilized at high temperatures and pressures. After cleaning the detached lower end, sterilize it for 20 minutes at 121°C, 1 bar. Following sterilization, allow to cool at room temperature for at least 2 hours before use. This instrument is made from anti-aging materials and can be sterilized under ultraviolet light without being disassembled.

5.2 Replacing the battery

When the battery is low and the pipette does not function normally, connect the charging cable to recharge the battery. If the battery fails to recharge, replace the battery with new battery. When replacing the battery, make sure that the positive and negative terminals are aligned correctly. After replacing the battery, turn on the pipette to check that it is supplied with power.

5.3 Storage

Daily storage: Place the pipette vertically in a pipette stand when you have finished using it. When there is fluid in the pipette tip, do not place the pipette horizontally or upside down. This prevents fluid from flowing backwards and corroding the plunger.

If you do not plan to use the pipette for an extended period, remove the battery and store the cleaned and sterilized pipette in a clean and dry location at room temperature. Avoid storing the pipette in humid or dusty locations or environments which experience large changes in temperature.

5.4 Precautions

Handling liquid	Precautions	Cleaning and maintenance methods
Aqueous solution and buffer		Remove the lower end of the pipette, wash the contaminated parts with double-distilled water, dry or air dry naturally below 60℃, and apply a small amount of lubricating grease to the piston.
Inorganic acid or base	Use a tip with a filter element	After pipetting, remove the lower end of the pipette and place it in a ventilated area. If necessary, wash the contaminated parts with double-distilled water, dry or air dry naturally below 60℃, and apply a small amount of lubricating grease to the piston.
Infectious liquid	Using a tip with a filter element forward pipetting	Remove the lower end of the pipette, soak it in a routine laboratory disinfectant for 30min, and then wash it with double-distilled water. Autoclave the contaminated parts for 20min at 121℃, 1bar.
Cell culture	Use a tip with a filter element	Remove the lower end of the pipette, soak it in a routine laboratory disinfectant for 30min, and then wash it with double-distilled water. Autoclave the contaminated parts for 20min at 121℃, 1bar.
Organic solvent	Fast pipetting	After pipetting, remove the lower end of the pipette and place it in a ventilated area. If necessary, wash the contaminated parts with double-distilled water, dry or air dry naturally below 60℃, and apply a small amount of lubricating grease to the piston.
Radioactive solution	Using a tip with a filter element forward pipetting	Remove the lower end of the pipette, soak the contaminated parts in a composite solution or special cleaning solution for 30min, wash them with double-distilled water, dry or air dry naturally below 60℃, and apply a small amount of lubricating grease to the piston.
protein solution	Using a tip with a filter element forward pipetting	Nucleic acid: Boil for 10min in glycine or hydrochloric acid buffer solution(pH2.0), wash with double-distilled water, dry or air dry naturally below 60℃, and apply a small amount of lubricating grease to the piston. Protein： Remove the lower end of the pipette, wash it with detergent, and then wash with double-distilled water and dry or air dry naturally below 60℃.

6、Attention

○Read these instructions carefully and use the product in strict accordance with them.

○Use the product within its chemical corrosion limits.

○Do not remove highly flammable fluids.

○If the removed fluid does not match the temperature of the pipette or tip, the results may be inaccurate. The temperature of the fluid, pipette and tip should therefore be the same.

○Do not use the product in areas where there is an explosion hazard.

○Do not use force to disassemble the product.

○If the instrument is not functioning properly, discontinue use immediately and refer to the Troubleshooting section.

○The operating temperature should be kept between 15–40°C, and the relative humidity should be 80% or less.

○Handle the pipette and charger carefully to prevent them from being accidentally dropped and damaged.

7、Warranty information

The warranty period of this pipette is 2 years, calculated from the day after the purchase and delivery. During this period, if there is a problem with the pipette, please contact your local agent immediately. Damages caused by normal wear and tear, incorrect operation not in accordance with this instruction manual, unauthorized maintenance or repair, accidental damage, improper storage, operation beyond the scope of use, etc., are not covered by the warranty.

Product instructions are subject to update without notice. If you need help, please contact us.

Contact Us:
QlabticsLLC
Mob: 001(708)973-7076
E-mail: info@qlabtics.com