Instructions For Electronic Pipette
Ipipette

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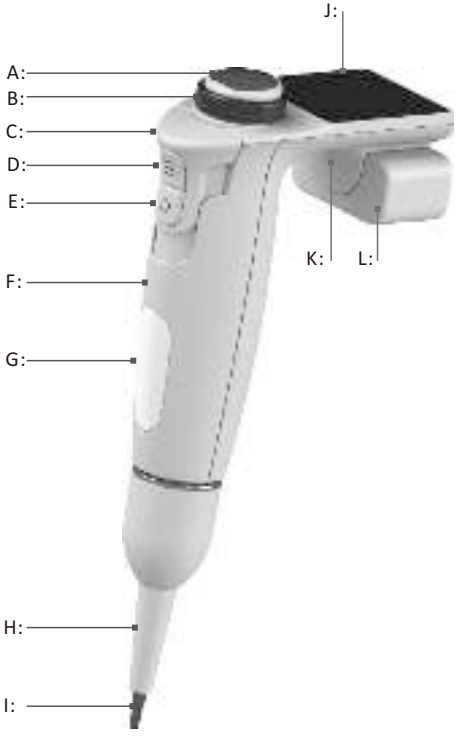
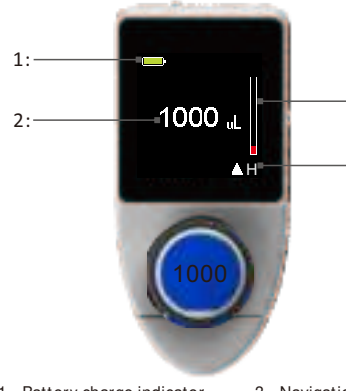


A- Pipetting key/ Confirmation key
B- Adjustment wheel
C- Tip ejection key
D- Function key
E- Speed key
F- Handgrip

G- Label window
H- Pipette shaft
I- Tip cone
J- LCD display
K- Finger rest
L- External lithium battery

M - USB charging jack

N - Power key



1 - Battery charge indicator

2 - Volume setting

3 - Navigation bar

4 - Speed indicator

Suction and Discharge Key/Confirm Key/Wake Up Key

---In the main interface, it isresponsible forsuctionand discharge.
--When it isnecessary toconfirm, it is the confirm key.
--In standbymode, you can wake up the systemto start working.

Adjusting Knob

---The volume increases with clockwise rotation and decreases with counterclockwise rotation.
---Switch from automatic suction mode to quick separation mode.

Toggle key

---It can be used in automatic suction mode, manual suction mode and multiple suction mode Mode and multiple liquid separation mode can be switched freely.
---Fast liquid discharge key, in the mode of manual liquid transfer and multiple suction,Press the switch key to stop suction and switch to discharge.

Speed Adjustment key

---In the state of suction and discharge, responsiblefor changing the suction and discharge speed. speedThe key is divided into three levels: H high, M Medium and L low.
---In automatic suction, quick liquid separation, manual suction, multiple suction in multiple liquid separation mode, press the speed keyfor a long time to change to direct discharge Liquid.

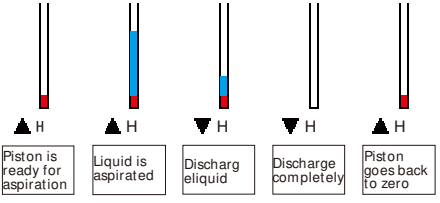
Power Prompt

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

Pipetting speed

---▲ It is aspirated.
---▼ It is in the discharge state.

Liquid Volume Navigation Bar



Contents

1、Product Overview

---This product is a brand-new product developed by Genfine Biotechnology Co.Ltd Move the pipette and operate according to the principle of air displacement. It is safe and accurate It is an ideal tool to transfer liquid efficiently.
---The flexible knob can quickly set the pipetting parameters and select functions,the 1.44-inch color large screen clearly displays all kinds of pipetting information to simplify the operation A single adjustment knob can quickly convert a variety of pipetting combinations.
---Single channel electric pipette is available in 9 specifications.

Specification information of single channel electric pipette

Type	Volume Range	Minimum Range	Maximum Range	Increment
IP-01	0.2-10μl	0.2μl	11μl	0.1μl
IP-02	0.5-20μl	0.5μl	20.5μl	0.1μl
IP-07	2-100μl	2μl	120μl	0.5μl
IP-03	5-200μl	5μl	220μl	0.5μl
IP-04	10-300μl	10μl	320μl	2μl
IP-08	10-500μl	10μl	550μl	2μl
IP-05	50-1000μl	50μl	1050μl	1μl
IP-06	0.1-5ml	100μl	5.1ml	10μl
IP-09	1-10ml	1ml	10.5ml	100μl

Box contents

①Electric pipette (1)
②Charger (1)
③USB Charging Cable(1)
④Lithium Battery (1)
⑤Grease (1)
⑥Product Instructions (1)
⑦Product Test Report (1)

Please open the packing box and check whether all items are consistent with the list,ensure that no damage or loss occurs during transportation.

2. Instructions Before Use

2.1 Battery

Matters Needing Attention:

① It is strongly recommended that the battery be fully charged before using this product.

② Please use the original charger and battery combination. If used other batteries may cause damage to the pipette. The damage caused by this is not included in the warranty.

③ Please charge in the room.

④ Do not place the battery with metal or objects with metal surface in case of battery short circuit.

⑤ Waste batteries should be disposed of in accordance with local laws and regulations. Please contact the domestic waste is often treated by classification.

⑥ Do not put the battery into the fire to prevent explosion.

⑦ If you do not use the pipette for a long time, please take out the battery.

Battery Specification:

Lithium Battery Nominal Voltage: 3.7V
Rated Capacity: 800mAh
Charging Limit Voltage: 4.2V

Charging Time: only 2 hours for the matching charger

Charger specification:

Input:AC100-240V, 50/60Hz, Max 0.15A

Output:USB 5V, 1A

Charge

Before connecting the charger with the power socket, please confirm whether the power socket is consistent with the input voltage of the charger. Then connect the charging line to the charger, connect the charging line to the charging socket on the top of the pipette, and connect the charger plug to the AC socket.

Tips:

1. When power on, the battery icon flashes to indicate charging; Flashing green means the battery is full. When the battery is powered off, the screen is closed and no icon is displayed.

2. It is normal that the battery is slightly heated during charging.

3. Please unplug the battery as soon as it is full.

4. It is recommended to replace the battery every two years.

Install The Battery

2.2 Installation and Push Out of Suction Head

Installation of suction head:

Before installation, please select the matching suction head. During the installation, the pipette should be inserted into the suction head vertically, rotated left and right for half a circle, and then tightened. It is not recommended to install the pipette by striking the suction head. If it is operated in this way for a long time, the parts of the pipette will be loose due to the impact and the pipette will be damaged.

Washing suction head:

Before the formal pipetting, after installing the suction head, please suck and drain 2-3 times.The suction head is fully wetted to reduce the error of liquid transfer.

Push out the suction head:

Align the waste container and press the sucker rod to push out the sucker.

Note: do not remove any liquid before the pipette is installed with suction head.

3 Operating Instructions

3.1 Power On

Turn the power on key to the left to ON.

Shut Down

The power on key moves to the right to 0FF.

Standby

If the pipette does not operate for 2 minutes, it will stand by automatically. Press the suction key to return to use.

Pipette Mode

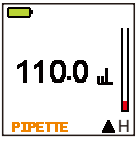
The pipette has four modes, including automatic suction, manual suction, multiple suction and multiple separation. The mode can be switched by pressing the switch key.

3.2 pipetting

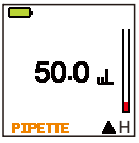
3.2.1Automatic suction (PIPETTE)

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

Specific Operation:

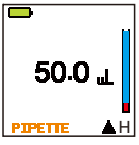


Power On
Automatic suction interface



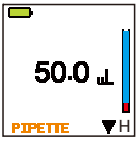
Turn the knob to adjust the liquid volume

Turn the knob counterclockwise



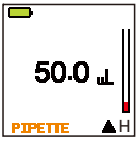
Press the suction key to suck

Press the suction key



Then press the discharge key to return to the automatic suction interface

Press the drain key



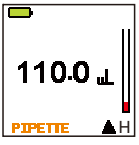
Note:

1. In the process of suction, do not hold the suction head against the bottom of the container, so as not to affect the accuracy of 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 1000 μ 1, and stay for about 1 second; Move 1000 μ 1, stay for 3 seconds.
3. When removing the liquid with viscosity or density greater than water, it is recommended to pre wash the suction head with the liquid to be removed for 3-5 times before formal suction.
4. Use a small volume 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.

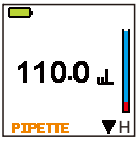
3.2.2 Quick dispensing (STEPPER)

In this mode, the user can control the discharge volume and the number of discharges. This pipetting combination is based on the automatic aspiration 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 Operation:

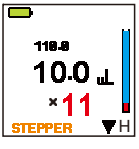


Automatic suction interface



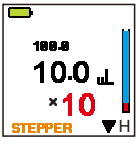
Press the aspiration button to aspirate liquid

Press the aspiration button



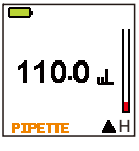
Turn the knob to quick dispensing

Turn the knob to adjust to 10μl X10 times



Press the drain button to drain

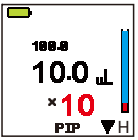
Press the drain button 10 times to drain the required liquid



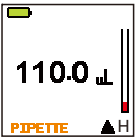
Return to the automatic aspiration interface

Note: Since the quick dispensing mode is based on the extension of the automatic aspiration modeFunction, so when the user is using the quick dispensing process, please reserve a supplement liquid. For example: dispense 80μl, 4 times, please adjust the automatic aspiration volume to90μl, reserve 10μl as replenishment solution.

Tip: In the quick dispensing mode, the user can drain the liquid directly by pressing the drain button for 2 seconds if the user does not need to drain the liquid in batches during the draining process.



Long press the empty button for 2 seconds

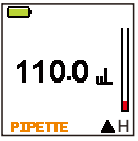


Press the drain button to drain the liquid and return to the automatic liquid suction interface

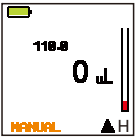
3.2.3 Manual Aspiration (MANUAL)

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

Specific Operation:

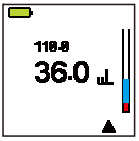


Automatic suction interface



Press the switch key to the manual suction interface

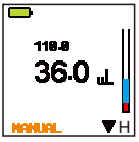
Press the switch key



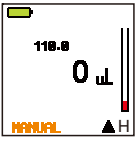
Press the aspiration button until the target volume

Press and hold the aspiration button

Long press the empty button for 2 seconds



Press the drain button to drain the liquid

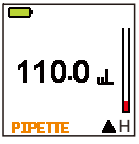


Empty liquid and return to manual suction interface

3.2.4 Multiple aspiration (ASPIRATE)

In this mode, the user can set up by himself to draw the solution of equal volume or unequal volume, and then discharge it again.

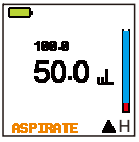
Specific operation: For example, draw 50μl of different liquids in equal volume, a total of 2 times, and then discharge again.



Automatic suction interface

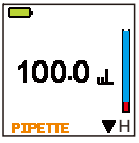
Press the switch key 2 times

Switch to the multiple aspiration interface and turn the knob to adjust to the target value



Press the aspiration button until the target volume

Press the aspiration button twice to aspirate 50μl each time, a total of 100μl



Press the switch button to change from suction to discharge

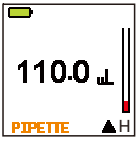
Press the switch key

Press the drain button to drain again

Press the drain button to drain the liquid and return to the multiple aspiration interface

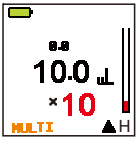
3.2.5 Multiple Dispensing (MULTI)

In this mode, the user sets the volume of each dispense, and the system automatically calculates the number of dispenses. 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 2-100 μl pipette as an example, set 10 μl each time to dispense 10 μl, a total of 10 times, draw 110 μl during aspiration, of which 10 μl is the replenisher, not included in the total number of dispensing times):

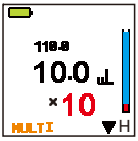


Automatic suction interface

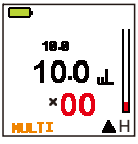
Press the switch key 3 times



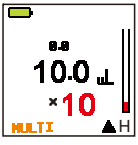
Press the switch key 3 times



Press the aspiration button to aspirate the total volume



Press the aspiration button to aspirate the total volume



Finally, press the drain button to drain the remaining liquid from the tip and return to the multiple dispensing interface.

3.2.6 Other operating instructions

This pipette adopts an open and friendly operating system, through the combined use of basic pipetting modes, it can be matched with a variety of pipetting combinations. Here are some commonly used pipetting combinations:

1. Mixed pipetting

This pipetting combination is in automatic liquid suction, manual liquid suction, and multiple suction modes. After liquid suction, press the switch button to return to the automatic liquid suction interface, long press the suction and discharge button, the liquid will be automatically sucked and discharged after the liquid is discharged 5 times,Mix the liquid inside the tip with the liquid outside the tip.

2. Reverse pipetting

For viscous or volatile liquids, draw more supplemental liquid when absorbing the liquid, discharge the target liquid volume first, and then discharge the remaining liquid. If you need to pipette 100µl, aspirate 110µl, drain 100µl for the first drain and 10µl for the second drain. Specific steps are as follows:

Turn the knob to set the aspiration volume to 110µl, press the aspiration button to aspirate, and turn the knob to set the first discharge volume to 100µl, press the drain button to discharge 100µl, and then press the drain button to drain the remaining 10µl.

3. Unequal dispense

The liquid is sucked and discharged several times at a time. For example, 10μl of the first drainage, 20μl of the second drainage, 30μl of the third drainage, 40μl of the fourth drainage, 110μl of liquid can be aspirated and discharged successively, and the last 10μl is the replenishing solution. The specific operation is as follows:

Turn the knob to set the total amount of aspiration to 110μl, press the aspiration button to aspirate, turn the knob to set the first dispensing volume to 10μl, press the drain button to drain 10μl, turn the knob to set the second time dispensing volume is 20μl, press the drain button to drain 20μl, turn the knob to set the third dispensing volume to 30μl, press the drain button to drain 30μl, turn the knob to set the fourth dispensing volume to 40μl, press Drain 40μl with the liquid key, and then press the liquid key again to empty the tip.

4. Dispense aliquots after manual sampling

It is suitable for the situation where the target liquid volume is unknown, and the liquid suction volume can be flexibly controlled, and then the liquid can be divided equally. Such as the layered liquid of the centrifuge tube, the specific operation is as follows:

In manual mode, press and hold the suction button to aspirate liquid, press the switch button once to switch to the discharge state after liquid suction, turn the knob to set the single dispensing volume, press the discharge button to discharge, and repeat the discharge until all the liquid is discharged.

5. Unequal sampling

Unequal volume sampling is an operation performed in multiple aspiration mode. The system defaults multiple pipetting as equal volume aspiration. If unequal volume aspiration is required, the volume of aspiration is changed during aspiration. For example, draw different amounts of sample A10μl, draw 15μl of sample B, draw 20μl of sample C, draw 25μl of sample D, the specific operations are as follows:

In the multiple aspiration mode, turn the knob to 10μl, press the aspirate button to extract sample A, turn the knob to 15μl, press the aspirate button to extract sample B, repeat the above operation to extract sample C and sample D, and press after aspirating 70μl Click the switch button to switch to the discharge state, and press the discharge key once to discharge to complete the pipetting.

4 Fault analysis and elimination

4.1 Troubleshooting

Phenomenon	Cause	Solution
Piston abnormal	o The piston is too tightly o The piston is not lubrication o Solidification of the grease of the piston o Foreign matter or damage on the piston surface o There are impurities and particles between the piston, O-ring and the suction head sleeve o Damaged O-ring	-Reinstall the piston -Grease the piston -Remove old grease and re-grease -Clean the piston or replace the piston -Clean and lubricate O-ring and ejector sleeve -Replace O-ring
Inaccurate pipetting volume or leakage	o Improper installation of suction head o Mismatched tips o Impurity particles between the suction head and the nozzle o The tip is damaged o Pipetting too fast o The tip leaves the liquid level too fast o Foreign matter or damage on the piston surface o Impurities particles between the piston, O-ring and the nozzle o Insufficient lubrication of O-ring and piston o Damaged O-ring o Incorrect operation	-Reinstall the tip -Replace with a suitable nozzle -Clean the connection nozzle and replace with a suitable nozzle -Replace with a new tip -Adjust the pipetting speed, slow aspiration and slow release -Stay for a few seconds after aspirating it from the liquid surface -Clean or replace the piston -Clean and lubricate the O-ring and the nozzle -Apply grease -Replace O-ring -Follow the instructions
Residual liquid in the tip	o The selected model with replenisher o Mismatched tips o Improper installation of suction head o High suction tip o The liquid is too viscous	-Press the start button to empty the tip -Use the right tip -Reinstall the tip -Replace the low adsorption tip -Select the reverse pipetting mode, pre-wash the tips, and slow down the speed
Noise during operation	o Insufficient lubrication of the piston o There is a foreign body on the piston o O-ring loose	-Apply grease evenly to the piston -Clean the piston and apply grease -Install the O-ring correctly
Weakened suction function or unable to aspirate liquid	o Battery consumption o Low battery	-Replace with new battery -Charge the battery

Phenomenon	Cause	Solution
Inaccurate dispensing of special liquids	o Improper calibration o Pipette liquids that are easily volatile or density is significantly different from water	-Recalibrate with the problem liquid -Pre-wash tips or recalibrate
The tip falls off or installs difficultly	o Poor quality tips o The tip has been damaged	-Use high-quality tips -Replace with a new tip

If you have any other questions, please contact your local agent or call the national technical consultation hotline: 18501955112.

4.2 Leak test

The leakage of the pipette will directly affect the results of the sampling and lead to errors in the experimental results.Therefore, pipettes should be regularly tested for leaks.

Method: After sucking the liquid, place it vertically in the air for 30 seconds, and observe whether the liquid level drops and whether the liquid drips from the tip. If there is, it means that the pipette is leaking. For solutions, please refer to the "Fault Analysis" chapter.

Note : If you transfer volatile liquids (such as most organic solvents), it may be a problem of saturated vapor pressure. You can aspirate and place the body several times before pipetting.

5 Maintenance

5.1 Cleaning and disinfection

In order to ensure the accuracy and precision of the pipette, regular maintenance should be carried out according to the specific usage. Especially after pipetting corrosive solvents, the pipette should be cleaned. Through simple cleaning and maintenance, the service life of the pipette can be appropriately extended.

Note: Before cleaning or disinfecting, be sure to remove the battery.

①External cleaning

Method: According to the conditions of use, you can wipe the surface of the pipette with a wet cotton cloth moistened with 70% ethanol or 60% isopropanol to remove external dirt, then wipe it with double distilled water, and then dry it. Before starting work every day, check the pipette for dust or dirt, especially the tip connection part.

②Internal cleaning

Cleaning steps:

1. Follow the steps to disassemble the parts that need to be cleaned.
2. Withdraw the tip sleeve and the tip connection nozzle with 70% ethanol or
Wipe with a damp cotton cloth with 60% isopropyl alcohol, rinse with double distilled water, and then dry.
3. Generally, O-rings and pistons do not need to be cleaned. If there is any solid particles, please wipe off gently with a clean dry cotton cloth.
4. Apply a thin layer of grease to O-rings and pistons.
5. Follow the steps to assemble the pipette.

③Disinfection
The lower end of the electric pipette adopts corrosion-resistant and high-temperature resistant materials, which can be sterilized under high temperature and high pressure. After cleaning the dismantled lower end, sterilize it at 121℃, 1bar for 20 minutes. After disinfection, cool down at room temperature for at least 2 hours before use. This instrument uses anti-aging It is made of materials and can be disinfected and sterilized under ultraviolet light without disassembly.

5.2 Replacing the battery

When the battery power is insufficient, or the battery is depleted, causing the pipette to not operate normally, please connect the charging cable to charge or replace with a new battery that is fully charged. When replacing the battery, please pay attention to the positive and negative directions of the battery. After replacing the battery, please turn on the device and check whether the pipette is normally energized.

5.3 Storage

Daily storage: After use, hang the pipette vertically on the pipette rack. When there is liquid in the pipette tip, do not place the pipette horizontally or upside down to prevent the liquid from flowing back and corroding the piston.

When the instrument is not used for a long time, please take out the battery, and then store the cleaned and disinfected pipette in a dry, clean, and normal temperature. Avoid placing it in an environment with large temperature changes, high humidity, and large amounts of dust.

Handling Liquid	Prevention method	Cleaning and maintenance methods
Aqueous solution and buffer		Disassemble the lower end of the pipette, rinse the contaminated parts with double distilled water, dry it below 60°C or let it dry naturally, and apply a small amount of grease to the piston.
Inorganic acid or base	Use filter tips	After pipetting, remove the lower end of the pipette and place it in a ventilated place. If necessary, use double distilled water to rinse the contaminated parts, dry them below 60℃ or let them dry naturally, and apply a small amount of grease to the piston.
Infectious fluid	Use a filter tip for forward pipetting	Remove the lower end of the pipette, soak it in a laboratory disinfectant for 30 minutes, then wash it with double distilled water, and autoclave the contaminated parts at 121°C, 1 bar, and 20 minutes.
Cell culture	Use filter tips	Remove the lower end of the pipette, soak it in a laboratory disinfectant for 30 minutes, then wash it with double distilled water, and autoclave the contaminated parts at 121°C, 1 bar, and 20 minutes.
Organic solvents	Quick pipetting	After pipetting, remove the lower end of the pipette and place it in a ventilated place. If necessary, rinse the contaminated parts with double distilled water, dry them at 60°C or let them dry naturally, and apply a small amount of grease to the piston.
Radioactive solution	Use a filter tip for forward pipetting	Remove the lower end of the pipette, soak the contaminated parts in a composite solution or a special cleaning solution for 30 minutes, then rinse with double distilled water, dry at 60°C or air dry, and apply a small amount of lubrication to the piston fat.
Nucleic acid or protein solution	Use a filter tip for forward pipetting	Nucleic acid: Boil in aminoacetic acid or hydrochloric acid buffer (pH2.0) for 10 minutes, rinse with double distilled water, dry at 60°C or air dry, and apply a small amount of grease to the piston. Protein: Remove the lower end of the pipette, clean it with detergent, rinse with double distilled water, and dry at 60°C or air dry.

6 Attention

o Read this instruction carefully, please use this product strictly in accordance with the instructions
o Use within the chemical corrosive force limit of the product
o Do not remove highly flammable liquids
o If the temperature of the pipetting liquid is different from that of the pipette and the tip, the pipetting result may be deviated, so the three should be kept at the same temperature
o Do not use this product in the gas area with explosion hazard
o If the temperature of the pipetting liquid is different from that of the pipette and the tip, the pipetting result may be deviated, so the three should be kept at the same temperature
○ Do not use this product in the gas area with explosion hazard
○ Do not use or disassemble this product with brute force
○ If the instrument fails to operate normally, stop the operation immediately and refer to the chapter on failure analysis
o The operating temperature should be kept between 15℃ and 40℃, and the relative humidity should be below 80%
○ Please place pipettes, chargers and other objects properly to avoid accidental fall and damage

7 Warranty information

The warranty period of this pipette is 3 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. For warranty details, please contact Genfine Company or your local dealer.

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