



# ali-Q™ 2 Series Operating Manual



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# Safety Instructions

Read this operating manual completely before using the device for the first time. Also, observe the instructions for use of the accessories. This instrument may sometimes be used with hazardous materials, operations, and equipment. It is beyond the scope of this manual to address all the potential safety risks associated with its use in such applications. It is the responsibility of the user of this instrument to consult and establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

**ali-Q 2** is an aliquoting pipet controller designed for aspirating and dispensing aqueous solutions with plastic or glass serological pipets in 1 to 100 mL volumes. It is intended for laboratory use. Any use of this instrument in a medical or IVD setting is the sole responsibility of the user.

## **! Read the following carefully!**

1. Every user must read and understand this operating manual before operation.
2. Follow general instructions for hazard prevention and safety instructions; e.g., wear protective clothing, eye protection and gloves.
3. Observe all specifications provided by reagent manufacturers.
4. Never use the instrument in an atmosphere with a danger of explosion. Highly flammable liquids must not be pipetted.
5. Only use the instrument for pipetting liquids, with strict regard to the defined limitations of use. If in doubt, contact VistaLab.
6. Always use the instrument in such a way that neither the user nor any other person is endangered. Avoid splashes. Only use suitable vessels.
7. Never use force on the instrument.
8. Use only VistaLab accessories and spare parts. See Ordering Information on pg 18. Do not attempt to make any technical alterations. Do not dismantle the instrument any further than is described in the operating manual!
9. Always check the instrument for visible damage before use. If there is a sign of a potential malfunction, immediately stop pipetting. Consult the 'Troubleshooting' section of this manual or contact VistaLab if needed.
10. Only the original Power supply can be used for recharging of the Lithium Ion battery. Do not replace with non-rechargeable batteries or rechargeable batteries of other manufacturers.
11. The Power supply must be protected against moisture and must be used only for this instrument.
12. Only authorized service personnel may service the instrument. Unauthorized repair or service may void the units' warranty
13. **DO NOT AUTOCLAVE ali-Q.** Only approved parts and accessories may be removed from unit for autoclaving. See pg. 15, Cleaning / Decontaminating.
14. **WARNING!** Improper use of the instrument or the battery (short-circuit, mechanical damage, overheating etc.) may cause the explosion of the battery.

## **Operating Conditions:**

- o Operating Temp: 15°C to 40°C (59°F to 104°F)
- o Storage Temp: -20°C to + 50°C (-4°F to +122°F)
- o Altitude up to 2000 m
- o Relative Humidity: 10% – 95%, non-condensing
- o Atmospheric Pressure: 70 – 106 kPa (525 – 795 mmHg)
- o Vapor Pressure up to max. 500 mbar. Aspirate slowly above 300 mbar, to prevent liquid boiling

## **ali-Q 2 Body Chemical Compatibility for cleaning and decontaminating:**

Water, diluted ethanol or isopropanol. For more information on chemical compatibility, see the support area of our website, [www.vistalab.com/support](http://www.vistalab.com/support)

## **Safety Compliance:**

See Declaration of Conformity at end of manual

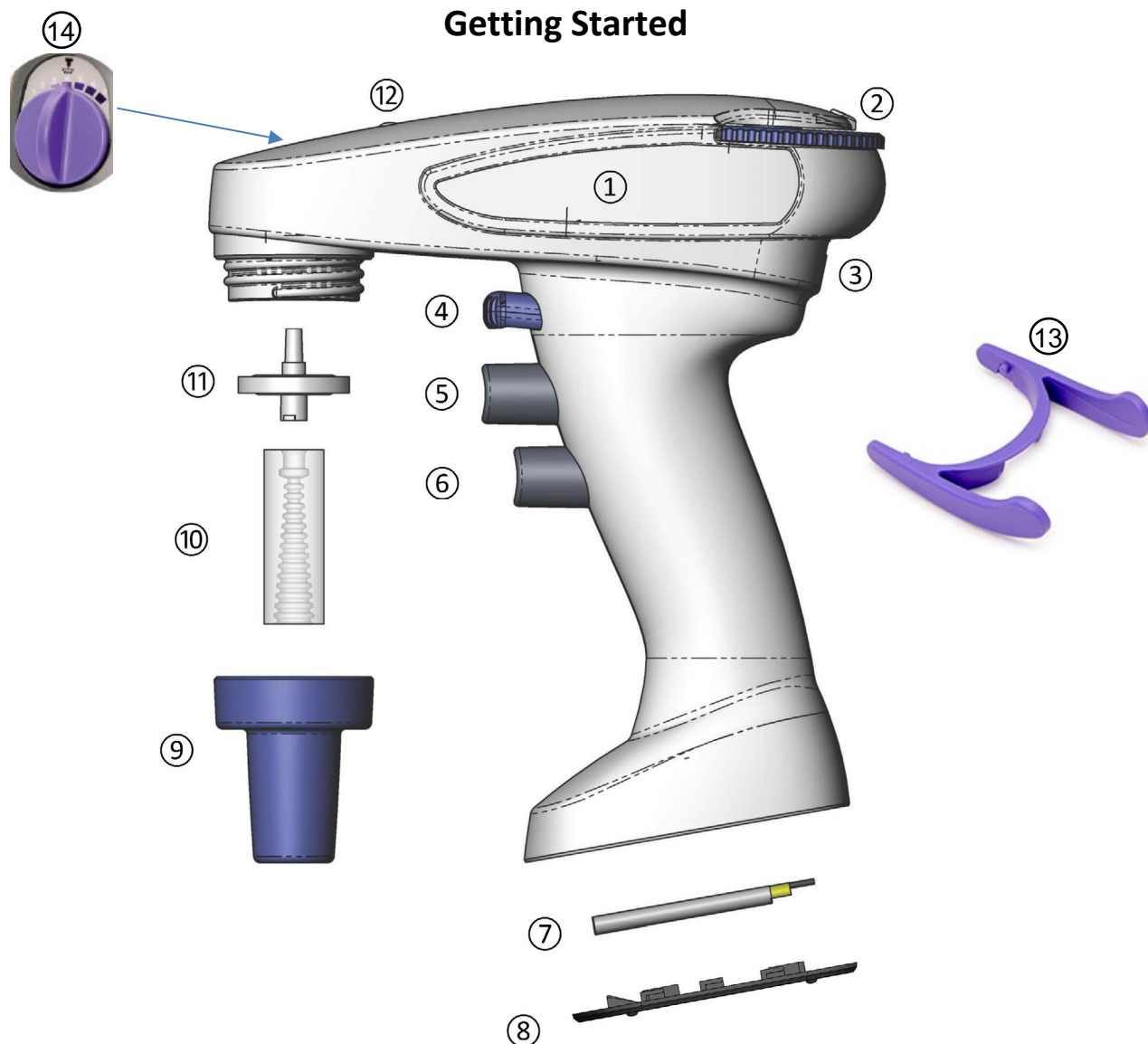
EN 61010-1 General Safety Requirements

EN 61326 EMC Requirements

CSA C22.2, No. 61010.1

UL 31111-1

## Getting Started



## Materials Chart

	<b>Description</b>	<b>Material</b>
1	Body/ Main Housing	PC/ABS
2	Aliquot volume dial	Nylon
3	Charging port, USB-C	N/A
4	Aliquot button	Nylon
5	Aspirate button	Nylon
6	Dispense button	Nylon
7	Battery, Lithium ion	Lithium Polymer
8	Battery compartment cover	PC/ABS
9	Nozzle Cover	Nylon
10	Nozzle Insert	Silicone
11	Membrane Filter, 0.22 µm	PTFE
12	LED Indicator	Polycarbonate
13	Kickstand	PC/ABS
14	Speed Dial (VS Models Only)	PC/ABS



### **Package Contents:**

- ali-Q 2 pipet controller (Original, LS, or VS)
- Power supply (with universal outlet adapters)
- USB-C charging cord
- Kickstand
- Wobble-not™ serological pipet samples (1 per size: 5mL, 10 mL, 25 mL, 50 mL, Shorty 10 mL, Shorty 25 mL)
- 1 Wall Mount
- 1 Replacement membrane filter (.22 µm)
- Quick Reference Guide
- Safety Sheet
- Certificate of Calibration

### **Terms and Definitions:**

Aliquot – (noun) An equal fractional part of a total amount of a solution or suspension; (verb) To divide (as a solution) into equal parts.

Aspirate – (verb) to draw by suction

Dispense – (verb) to expel liquid

Serological Pipet (pipet) – (noun) disposable glass or plastic tube with volume graduations used to aspirate and dispense liquid. Sometimes spelled 'pipette'.

Accuracy – How close the measured volume is to the target volume

$$Accuracy (\%) = \frac{(Target Volume - Measured Volume)}{Target Volume} \times 100$$

Precision (Coefficient of Variation (CV)) – How close measurements (aliquots) are close to each other in volume; independent of target volume

$$Coefficient of Variation (\%) = \frac{Standard Deviation}{Mean} \times 100$$

Performance – Another way of referring to the unit's accuracy and precision (repeatability/reproducibility)

## Operation and Use

### Shipping Mode:

ali-Q™ 2 is shipped from the factory in **Shipping mode** for safety and to preserve battery life. When you first take your ali-Q 2 out of the box, you must wake it out of shipping mode by pressing the **purple aliquot button** with the unit in the upright position.

To put the ali-Q 2 back into Shipping mode, set the volume dial above 5 mL, turn the unit completely upside down and press and hold the **purple aliquot button** for at least 5 seconds. You will then hear 3 “power down” tones. Shipping mode should only be used when shipping or transporting ali-Q 2 for extended periods of time.

### Sleep Mode:

ali-Q 2 automatically goes into **Sleep mode** to preserve battery life after being motionless for 3 minutes. The status LED (see below) will turn off when the unit is in sleep mode. Once the ali-Q 2 is picked up or moved, it will automatically wake itself up, and status LED will be **Magenta** again.

### Pipetting speed control:

In **Conventional Pipetting Mode** (see next page), the speed that the ali-Q 2 aspirates and dispenses liquid is controlled by the touch-sensitive aspirate and dispense buttons. The amount of force used to push on the buttons determines the speed that the liquid enters or exits the pipet.

↑ BUTTON FORCE = ↑ SPEED

### LED Indicators:

All ali-Q 2 models feature two LEDs at the top of the unit. The two LEDs will be referred to as the Status LED and the Battery LED. The chart below outlines the possible LED combinations, and explains the meaning of each. If both ali-Q 2 status LEDs are off, see the Sleep Mode or Shipping Mode above.

**NOTE:** The functions of these LEDs will change when the unit is in calibration mode. See the Calibration section for further information on this procedure.



**NOTE:** ali-Q 2 can still be used when connected to charger. If LED does not light up during charging, see Troubleshooting section.

	<i>Unit Plugged In</i>	<i>Unit on Battery Power</i>
<i>Battery LED</i>	<b>Solid Red</b> – Charging <b>Green</b> – Fully Charged	<b>Off</b> – Battery Normal <b>Slow Red Blink</b> – Battery Low <b>Fast Red Blink</b> – Battery Critical
<i>Status LED</i>	<b>Magenta</b> – Ready <b>Off</b> – Unit Busy/Asleep <b>Fast Red Blink</b> – Error	<b>Magenta</b> – Ready <b>Off</b> – Unit Busy/Asleep <b>Fast Red Blink</b> – Error

### **Conventional Pipetting Mode:**

**1 Attach serological pipet** - Hold the pipet as near to its upper end as possible, and carefully insert it into the nozzle until it fits tightly. **NOTE: ali-Q 2 is compatible with all brands and sizes of pipets!**

#### **WARNING!**

Using excessive force when inserting pipets risks breakage and injury. If you are having difficulty inserting pipets fully, try using VistaLab Wobble-not™ low insertion force pipets.

**2 Aspirate liquid** - Immerse the pipet's tip into the liquid. Press and hold the gray aspirate button and fill the pipet so that the meniscus is above the volume graduation desired. Then press the bottom gray dispense button until bottom of meniscus is at the desired volume graduation.

#### **ATTENTION!**

Do not fill the serological pipet over the max volume! Severe damage can occur if any liquid enters ali-Q 2! Decrease pressure on aspirate button when reaching max volume to slow down aspiration.



**3 Dispense liquid** - Carefully position the tip of the full pipet over the receiving vessel. Press and hold the gray dispense button until meniscus reaches desired volume graduation or when pipet is completely empty.

#### **ATTENTION!**

NEVER invert ali-Q 2 or lay it on a bench when filled with liquid.



#### **NOTE:**

The motor will activate at seemingly random times when pressing the aspirate or dispense buttons.

**Don't worry. It's normal!**

For more information on ali-Q 2's **Intelligent Measuring System**, see pg. 9.

### Aliquot Mode:

- 1 **Attach serological pipet.**
- 2 **Set the desired aliquot volume on purple volume dial (left picture)** - Turn the dial so that the arrow points to the volume you wish to aliquot.



- 3 **Set the aliquot speed on the purple aliquot speed dial (VS models only; right picture)** – Turn the dial so that the arrow points to the desired speed. 1 is the slowest and 7 is the fastest. 1 dispenses with the lowest force and 7 dispenses with the highest force.

- 4 **Aspirate** enough liquid to dispense as many aliquots as you will need.

Ex: If you need to dispense 10 aliquots of 2 mL, you will need to aspirate at least 20 mL of liquid.

- 5 **Aliquot** - Carefully position the tip of the full pipet over the first receiving vessel. Press and HOLD the purple aliquot button until the status LED blinks **GREEN**. You will feel and hear the motor turn on briefly. Then, carefully transfer to the next vessel and repeat for each aliquot.

NOTE: Discard first aliquot for optimal precision.

NOTE: If you release the aliquot button too soon, i.e. before the full aliquot volume has dispensed, you will hear an “alert” sound and the status LED will blink **RED**. The aliquot did not dispense fully/properly and will not be accurate. Re-do the aliquot.

### Aliquot



### Intelligent Measuring System:

ali-Q 2's **aliquot mode** utilizes a state-of-the-art measuring system that incorporates information and feedback from multiple sensors to give real-time feedback and parameter adjustment for different variables that affect the accuracy and precision when in **aliquot mode**.

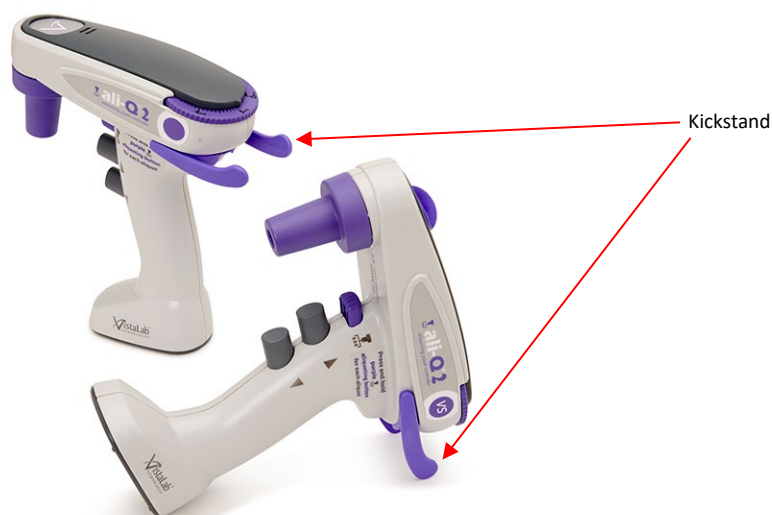
- **Varying environmental conditions:** Temperature, humidity and pressure all have significant effects on the performance of any liquid handling device.... EXCEPT for the ali-Q 2! ali-Q 2 can sense changes in ambient conditions and compensate as necessary to ensure accurate aliquoting whether you're in the deserts of Arizona, or the mountains of Colorado!
- **Varying pipet angle:** One of the most useful (and ergonomic!) features of the ali-Q 2 is its ability to adjust the dispensed aliquots for varying pipet angles. This is especially useful in a hood, where space and maneuverability are limited. Whether you hold the pipette completely vertical or tilted, you can be confident that accuracy and repeatability of the aliquots will not be affected.
- **Varying brands/sizes serological pipets:** Every brand of pipet has different sizes and geometries. These geometric differences contribute to changes in the physical characteristics of the system. ali-Q 2 can sense the effect of these differences and will automatically compensate accordingly to optimize performance.

### Wall Mount:

ali-Q 2 may be stored in the wall mount (included in box) to avoid damage from accidental drops and chemical spills (and save precious bench space!). ali-Q 2 may also be placed in the wall mount with pipets up to 100 mL inserted. The wall mount will firmly adhere to any **smooth, clean, non-painted** surface, such as the inside of a hood, using the 3M Command strips included. Clean the surface with alcohol before applying the wall mount. Remove the stickers on the adhesive backs and immediately press onto surface and keep applying moderate pressure for about 30 seconds. DO NOT place ali-Q 2 into the wall mount for about 30 minutes to allow the adhesive to set.

### Kickstand:

ali-Q 2 can be used with the removable kickstand (included in box) even with a serological pipet inserted. The kickstand attaches securely in one orientation only. Be sure to attach so that the curved ends point up. Simply snap the pins on the kickstand into the round dimples on the sides of the ali-Q 2 body. To remove, gently pinch the curved ends and pull kickstand away from body.



## Technical Specifications

### **Conventional pipetting mode:**

Accuracy and precision (CV) is determined by the graduations on the serological pipet used (typically  $\pm 2\%$ , see manufacturer's spec) as well as the user's ability to consistently eyeball and control the liquid meniscus.

### **Aliquot mode:**

ali-Q 2 is calibrated to perform within the following performance specifications, under controlled environmental conditions with Grade 3 purified water:

#### **ali-Q 2 and ali-Q 2 VS (speed 7): 0.5-5mL**

With **Wobble-not™** serological pipet (any size):

Volume	Accuracy	Precision (CV)
5.0 mL	$\pm 2\%$	$\pm 1\%$
0.5 mL	$\pm 2\%$	$\pm 2\%$

With any other brand of serological pipet (any size):

Volume	Accuracy	Precision (CV)
5.0 mL	$\pm 3\%$	$\pm 2\%$
0.5 mL	$\pm 4\%$	$\pm 3\%$

#### **ali-Q 2 LS (Low Speed): 0.3-3mL**

With **Wobble-not™** serological pipet (any size):

Volume	Accuracy	Precision (CV)
3.0 mL	$\pm 2\%$	$\pm 1\%$
0.3 mL	$\pm 3\%$	$\pm 3\%$

With any other brand of serological pipet (any size):

Volume	Accuracy	Precision (CV)
3.0 mL	$\pm 4\%$	$\pm 3\%$
0.3 mL	$\pm 5\%$	$\pm 4\%$

#### **ali-Q 2 VS (speed 7) 10 mL: 1.0-10.0 mL**

With **Wobble-not™** serological pipet (any size):

Volume	Accuracy	Precision (CV)
10.0 mL	$\pm 2\%$	$\pm 1\%$
1.0 mL	$\pm 2\%$	$\pm 2\%$

With any other brand of serological pipet (any size):

Volume	Accuracy	Precision (CV)
10.0 mL	$\pm 3\%$	$\pm 2\%$
1.0 mL	$\pm 4\%$	$\pm 3\%$

**Dimensions:** 7.2" x 7.0" x 2.2" (18.3 cm x 17.8 cm x 5.6 cm)

**Weight:** 350g

**Volume Capacity:** Accepts 1 to 100 mL serological pipets

**Pipet Compatibility:** Compatible with ANY size and ANY brand serological pipet. Optimal performance when using VistaLab Wobble-not serological pipets. Not for use with Pasteur pipets.

# Technical Specifications

## **Mains/ power supply:**

Input Voltage = 100-240 VAC

Frequency = 50-60 Hz

Input Current = 190-320 mA Output Voltage = 5V

Output Current = 2 A

## **Rechargeable Battery:**

Type = Lithium-Polymer Voltage = 3.7V

Capacity = 1000 mAh Charging Time = ~ 3 hr

Number of Dispenses = ~2000 dispenses (with a 25mL pipet)

## **Ambient Conditions:**

Ambience = For indoor use only Ambient Temperature = 15 - 40°C

Relative Humidity = 10% - 95%, non-condensing

Atmospheric pressure = 70 – 106 kPa (525 - 795 mmHg)

## Calibration

ali-Q 2's **aliquot mode** volume delivery is factory calibrated to aliquot the volume set on the aliquot volume dial to the factory specs, as listed on Technical Specifications section, in a state-of-the-art ISO 17025 accredited calibration lab under the following conditions:

- Temperature: 20°C - 22°C (68°F - 71.6°F)
- Relative humidity: 45% - 75%
- Using **Wobble-not** serological pipet
- Using ISO 3696 Grade 3 purified water

**NOTE:** Using ali-Q 2 with different liquids more/less dense than water may *slightly* affect the **accuracy** of the dispensed aliquots. However, **precision** is always maintained with the ali-Q 2 thanks to its Intelligent Measuring System. To adjust the accuracy of your unit, see page 12.

### Calibration Verification:

VistaLab recommends sending ali-Q 2 to VistaLab for calibration, or performing verification, at least once a year or whenever conditions and equipment change.

### In-lab Verification / Adjustment:

Users can verify the accuracy of the dispensed aliquots in four ways:

- 1 **Gravimetric** - Use a digital scale and water, determine the weight (in grams) of the dispensed aliquot. See the Performance Verification document for gravimetric procedure at [www.vistalab.com/support](http://www.vistalab.com/support)
  - 2 **Colorimetric** - Use a spectrophotometer to measure the absorbance value of diluted dye in a solvent of controlled volume. Absorbance value is then converted into a volume (µL).
  - 3 **Visual** - Use an approved graduated cylinder (Class A, To Contain, calibration certified).
  - 4 **Visual** (least reliable\*) - Use the volume graduations on the serological pipet as a reference of how much liquid is being dispensed.
- \* Serological pipets in general have  $\pm 2\%$  accuracy (at full scale) of their volume graduations, so this is the **least accurate way of verifying**.



## ali-Q 2 In-lab Calibration Protocol

The ali-Q 2 series pipet controllers include calibration software which allows users to perform in-lab calibration adjustments as needed.

### Perform Initial Performance Verification:

In order to calibrate the ali-Q 2, gravimetric measurements from the unit will first need to be obtained. Follow the instructions for a Performance Verification below to determine the initial/current % error at 0.5 and 5.0 mL and record the 2 numbers to use in the following calibration procedure.

### Worksheet

Determine the current accuracy of your ali-Q 2 by taking the average of 4 gravimetric measurements at 0.5 mL and 5.0 mL (or 0.3 and 3.0 mL for the ali-Q 2 LS or 1.0 mL and 10 mL for the ali-Q 2 VS 10 mL). \*

**\*NOTE:** The table below reflects measurements at 0.5 mL and 5.0 mL for the Ali Q 2 and Ali Q 2 VS models. The measurements would be at 0.3 mL and 3.0 mL for the Ali-Q 2 LS and 1.0 and 10.0 mL for the Ali Q 2 VS 10 ml.

**NOTE:** We recommend using speed 7 for taking measurements with the ali-Q 2 VS.

Use this table to record the values. Then calculate the avg. at each volume.

_____ Measurements (grams) _____							
	1	2	3	4	avg.	% error	high or low
0.5 mL							
5.0 mL							

Then calculate the % error

$$\text{at 0.5 mL: } \frac{(\text{avg.} - 0.5)}{0.5} \times 100$$

$$\text{at 5.0 mL: } \frac{(\text{avg.} - 5.0)}{5.0} \times 100$$

Use the % error numbers for Steps 2 and 3 on the next page.

## Calibration Mode:

In Calibration Mode, the user enters the % errors calculated in the initial Verification Procedure. Once these values are entered, the unit will calibrate automatically.

**NOTE: The upper LED indicates the current calibration status. Solid blue indicates factory calibration, while solid white indicates user calibration values have been stored.**

### Step 1 - Enter Calibration Mode

- 1 Set the volume dial to BELOW 0.0 mL.
- 2 Hold the ali-Q 2 upside down.
- 3 Press and hold the aliquot button for 5 seconds. Three tones will sound to indicate entry into calibration mode and the lower LED will be **quickly** blinking **blue**.
- 4 Release the button and return the unit to upright orientation.
- 5 Watch for the lower LED to blink blue before proceeding.



**NOTE: Calibration mode can be exited, without saving changes, during step 2 or step 3 by quickly pressing and releasing the **aliquot** button. This will be followed by 5 **red** LED flashes to confirm exit.**

### Step 2 - Enter the % error at 0.5 mL

After entering calibration mode, the lower LED will be **quickly** blinking **blue**. This indicates that the unit is ready to accept the calculated error at 0.5 mL.

- 1 Enter the 0.5 mL % error value, from the previously performed Verification Procedure by setting it on the volume dial. **For example, if the mean error is 1.5%, set the volume dial to 1.5.**
- 2 If the ali-Q 2 is dispensing too high (+1.5% error), press the **Aspirate** button to save the changes. If the ali-Q 2 is dispensing too low (-1.5% error), press the **Dispense** button to save the changes. The 2 LEDs will alternate **blue** 5 times, accompanied by a tone, to confirm entry.
- 3 Wait until the **lower LED** is blinking **blue** before proceeding.



### Step 3 - Enter the % error at 5 mL

The lower LED will now be **slowly** blinking **blue**, indicating that the unit is ready to accept the calculated error at 5 mL. Repeat the process outlined in Step 2 with the previously obtained 5 mL % error value. The 2 LEDs will alternate **blue** 5 times, accompanied by a tone, to confirm entry.

(Note: If the LEDs blink **YELLOW**, the calibration values are out of bounds (+/-10%) and the values will not be stored. Call our Technical Application Specialist at 914-244-4068 for assistance.)

If the LEDs blink **GREEN**, the unit has been successfully calibrated. The unit will now return to normal operation.

**A post-calibration Verification should always be performed to confirm the changes were successful and the ali-Q 2 accuracy should now be within spec.**

## Reset to Factory Calibration:

The ali-Q 2 has been calibrated from the factory to  $\pm 2\%$  at 0.5 mL and 5 mL. The user can easily revert to the factory calibration at any time. To reset the unit:

- 1 Enter calibration mode using Step 1 in the Calibration Mode section.
- 2 Turn the ali-Q 2 upright.
- 3 Press and hold the aliquoting button for about 5 seconds, until the LEDs begin to blink **green**.
- 4 Release the button. The LED will blink **green** 5 times to confirm the factory reset has been applied.

## Troubleshooting

Problem	Possible Cause	Suggested Fix
Slow aspiration	<ul style="list-style-type: none"> <li>- Membrane filter clogged</li> <li>- Not enough force on aspirate button</li> </ul>	<ul style="list-style-type: none"> <li>- Replace membrane filter</li> <li>- Press aspirate button with more force to increase aspirate speed</li> </ul>
Aspirating air bubbles	<ul style="list-style-type: none"> <li>- Pipet tip not fully immersed in liquid while aspirating</li> <li>- Pipet not fully inserted into nozzle insert</li> <li>- Aspirating too fast for solution (ex: detergents)</li> </ul>	<ul style="list-style-type: none"> <li>- Make sure pipet tip is fully immersed in liquid throughout aspiration</li> <li>- Insert pipet more</li> <li>- Lightly press the aspirate button to slow aspirate speed</li> </ul>
Pipette drips liquid	<ul style="list-style-type: none"> <li>- Pipet not fully inserted into nozzle insert</li> <li>- Crack in serological pipet</li> <li>- Membrane filter not properly positioned or upside down</li> <li>- Nozzle insert worn or damaged</li> <li>- Valve not shutting properly</li> </ul>	<ul style="list-style-type: none"> <li>- Try Wobble-not low insertion force, less drip serological pipets</li> <li>- Get a new pipet</li> <li>- Insert filter properly (see pg. 4)</li> <li>- Replace nozzle insert</li> <li>- Send ali-Q 2 in for repair service</li> </ul>
Pipet does not stay in ali-Q 2	<ul style="list-style-type: none"> <li>- Nozzle insert worn or damaged</li> </ul>	<ul style="list-style-type: none"> <li>- Replace nozzle insert</li> </ul> <p>NOTE: Using Wobble-not pipets will significantly <b>decrease</b> damage to the nozzle insert.</p>
Out-of-Calibration	<ul style="list-style-type: none"> <li>- Using different equipment or different density liquid, varying environmental conditions</li> <li>- Membrane filter clogged</li> </ul>	<ul style="list-style-type: none"> <li>- See In-lab Calibration on page 12</li> <li>- Replace membrane filter</li> </ul>
ali-Q 2 makes "error" sound when dispensing aliquots	<ul style="list-style-type: none"> <li>- Not <b>holding</b> down aliquot button long enough</li> </ul>	<ul style="list-style-type: none"> <li>- <u>HOLD</u> aliquot button until status LED blinks <b>GREEN</b> and motor starts (you will hear and feel motor)</li> </ul>
LED blinks or does not light up when connected to charger	<ul style="list-style-type: none"> <li>- Battery not properly installed</li> <li>- Wrong Power supply</li> <li>- Battery / Power supply damaged</li> </ul>	<ul style="list-style-type: none"> <li>- Firmly push in battery connector</li> <li>- Only use Power supply Cat. #9020-9005</li> <li>- Replace battery/ replace Power supply</li> </ul>
Battery does not hold charge	<ul style="list-style-type: none"> <li>- Charger not inserted fully</li> <li>- Battery defective or drained</li> </ul>	<ul style="list-style-type: none"> <li>- Check charger connection. Replace charging cord</li> <li>- Replace battery</li> </ul>
ali-Q 2 is unresponsive	<ul style="list-style-type: none"> <li>- Dead battery</li> </ul>	<ul style="list-style-type: none"> <li>- Recharge battery</li> <li>- Restart unit by unplugging battery for 10 seconds and plug battery back in.</li> </ul>

If problem still occurs, contact VistaLab Technical Support at (914) 244- 4068 or techservice@celltreat.com

# Maintenance

[www.vistalab.com/services](http://www.vistalab.com/services)

**Routine Maintenance:** ali-Q 2 will require minimal, if any, maintenance, if used as intended. VistaLab recommends performing routine maintenance and calibration verification at least once a year. Routine maintenance includes:

- Cleaning and disinfecting outer body, nozzle cover, nozzle insert and filter
- Replacing the membrane filter
- Replacing nozzle insert (as-needed)
- Aliquot mode calibration verification

## **Cleaning / Decontaminating:**

- Chemical - Occasionally wipe outer housing of the ali-Q 2 and the nozzle cover with a damp cloth of soapy water or diluted alcohol solutions (e.g. 70% isopropanol).

## **WARNING!**

ALWAYS use protective gloves and eye protection. Avoid the risk of contamination!

- UV Sanitizing - The complete ali-Q 2 unit (outer housing) can withstand typical output (254 nm wavelength) from UV sterilization lamps.

NOTE: The effects of the UV exposure will likely cause discoloration over time.

## **Autoclaving:**

**NEVER AUTOCLAVE ALI-Q 2!!** Only the nozzle cover, nozzle insert and membrane filter can be **detached from the unit** and separately autoclaved at:

- 121°C (250°F); 30 psi (2 bar absolute) with a holding time of at least 15 minutes.

## **Replacing the Membrane Filter:**

- 1 Unscrew the purple nozzle cover.
- 2 Remove the membrane filter.
- 3 Place new membrane filter with the thicker end facing downwards into the silicone nozzle insert and thinner end into ali-Q 2.
- 4 Screw the nozzle cover assembly back onto the ali-Q 2.

## **Replacing the Nozzle Insert:**

- 1 Unscrew the purple nozzle cover.
- 2 Remove the membrane filter and silicone nozzle insert from nozzle cover.
- 3 Insert new silicone nozzle insert into nozzle cover. Place membrane filter with the thicker end inserted into the silicone nozzle insert and thinner end into ali-Q 2.
- 4 Screw the nozzle cover assembly back into the ali-Q 2.



### **Recharging Battery Instructions:**

Only use VistaLab Lithium ion battery (Cat # 9020-4001). The battery must not be replaced by non-rechargeable rechargeable batteries from other manufacturers.

**WARNING:** Use of other manufacturer's batteries or improper use of the instrument (e.g., short circuit, mechanical damage, overheating, etc.) may cause the battery to explode.

Charge time = approx. 3 hours (from 0% to 100% battery)

Battery life = approx. 40 hours (dependent on frequency and intensity of use)

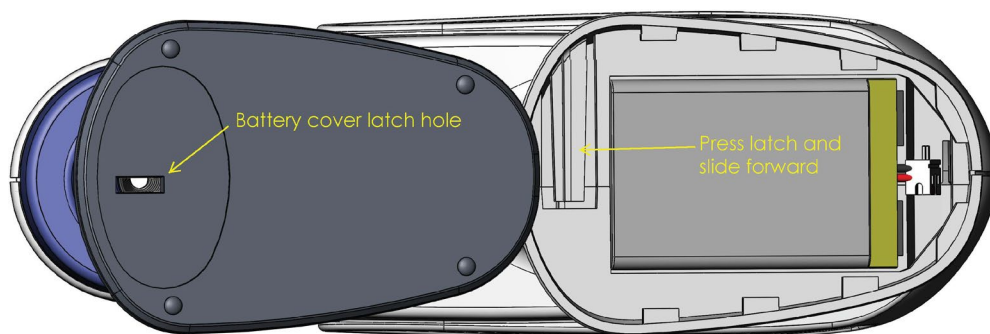
Conditions for recharging = 0°C to 40°C (32°F to 104°F), 20% to 80% relative humidity

### **Recharging Procedure:**

- 1 Attach the proper outlet adapter to the power supply pack and insert into wall outlet.
- 2 Attach the wide end of the USB-C charging cord to the power supply pack.
- 3 Plug the USB-C end of the charging cord into the charging port of the ali-Q 2 (under the aliquot volume dial).  
ali-Q 2 can be used when plugged into the charger.

### **Replacing the Battery/ Removing Battery (Hard reset):**

- 1 **Remove battery cover:** On the bottom of the ali-Q 2,
  - A) Remove the white sticker on the battery cover to expose battery cover latch hole.
  - B) Insert a flat, narrow tool into latch hole and press on latch while pushing cover forward.
- 2 **Remove battery:** Grip the battery in one hand and the white connector in the other hand and gently pull apart. **Do not pull by the leads!**
- 3 **Replace battery:** Plug (new) battery into white connector until it snaps-in. Insert battery into compartment. Slide battery cover back into place.



## Warranty

VistaLab guarantees the functionality of ali-Q 2 for **1 year** from the Date of Manufacture (original proof of purchase required).

VistaLab shall not be liable for the consequences of improper handling, use, servicing, operating or unauthorized repairs of the instrument or the consequences of normal wear and tear especially of wearing parts such as pistons, seals, valves and the breakage of glass as well as the failure to follow the instructions of the operating manual. We are not liable for damage resulting from any actions not described in the operating manual or if non-original spare parts or components have been used.

For warranty claims, please contact Technical Support to receive Return Authorization. Unit will be inspected for defects and repaired/replaced as necessary at the sole discretion of VistaLab. Customer will be responsible for service charges for non-warranty damage.

To validate warranty, register your ali-Q 2 at [www.vistalab.com/register-your-pipette](http://www.vistalab.com/register-your-pipette)

### **Send-in Service:**

To send your ali-Q 2 in for routine calibration and maintenance or repairs, go to [www.vistalab.com/service](http://www.vistalab.com/service) to create a service order and pre-pay using Purchase Order or Credit Card. Follow instructions on website and email confirmation to send-in for service. Be sure to decontaminate the unit before packaging. For safety, put ali-Q 2 into **Shipping mode** (see pg. 6) by turning the volume dial past 5 mL, holding it completely upside-down, and pressing and holding the purple aliquot button for at least 5 seconds until a confirmation tone is heard. The LED will flash **teal**.

## Ordering Information

<b>Catalog Number</b>	<b>Description</b>
2100-0005	<b>ali-Q 2 aliquoting pipet controller</b> Includes power supply, wall mount, 1 spare 0.22 µm membrane filter (non-sterile), Kickstand, Wobble-not pipet samples (1 each; 5mL, 10 mL, 25 mL, 50 mL)
2100-0003	<b>ali-Q 2 LS (Low Speed) aliquoting pipet controller</b> Includes power supply, wall mount, 1 spare 0.22 µm membrane filter (non-sterile), Kickstand, Wobble-not pipet samples (1 each; 5mL, 10 mL, 25 mL, 50 mL)
2100-1005	<b>ali-Q 2 VS (Variable Speed) aliquoting pipet controller</b> Includes power supply, wall mount, 1 spare 0.22 µm membrane filter (non-sterile), Kickstand, Wobble-not pipet samples (1 each; 5mL, 10 mL, 25 mL, 50 mL)
2100-1010	<b>ali-Q 2 VS (Variable Speed) 10 mL aliquoting pipet controller</b> Includes power supply, wall mount, 1 spare 0.22 µm membrane filter (non-sterile), Kickstand, Wobble-not pipet samples (1 each; 5mL, 10 mL, 25 mL, 50 mL)

### Accessories and Parts:

<b>Catalog Number</b>	<b>Description</b>	<b>Quantity</b>
9020-4001	Replacement Rechargeable Lithium ion Battery	1/pack
9020-4002	Replacement Battery Cover	1/pack
9020-4003	Replacement Membrane Filter, 0.22 µm, non-sterile	5/pack
9020-4004	Replacement Membrane Filter, 0.22 µm, sterile	5/pack
9020-4005	Replacement Membrane Filter, 0.45 µm, non-sterile	5/pack
9020-4006	Replacement Membrane Filter, 0.45 µm, sterile	5/pack
9020-4008	Replacement Silicone Nozzle Insert	2/pack
9020-4010	Replacement Nozzle Cover	1/pack
9020-4011	Replacement Kickstand	1/pack
9020-9005	Replacement Power Supply w/Universal outlet adapters	1/pack
9020-9008	Wall Mount	1/pack

### Wobble- not Serological Pipets (all Wobble-nots are sterile, RNase/DNase free, and non-pyrogenic):

<b>Catalog Number</b>	<b>Description</b>	<b>Quantity</b>
4090-0005	Wobble-not serological pipets, 5 mL	200/case, Indiv. wrapped
4090-0010	Wobble-not serological pipets, 10 mL	200/case, Indiv. wrapped
4090-0025	Wobble-not serological pipets, 25 mL	200/case, Indiv. wrapped
4090-0050	Wobble-not serological pipets, 50 mL	100/case, Indiv. wrapped
4290-0005	Wobble-not serological pipets, 5 mL	500/case, Bulk pack
4290-0010	Wobble-not serological pipets, 10 mL	400/case, Bulk pack
4290-0025	Wobble-not serological pipets, 25 mL	150/case, Bulk pack
4290-0050	Wobble-not serological pipets, 50 mL	100/case, Bulk pack
5090-0010	Shorty Wobble-not serological pipets, 10 mL	200/case, Indiv. wrapped
5090-0025	Shorty Wobble-not serological pipets, 25 mL	100/case, Indiv. wrapped

### Distributors:

Visit [www.vistalab.com/distributors](http://www.vistalab.com/distributors) to find your local distributor.

## Transport, Storage, and Disposal

### Transport:

Before sending the ali-Q 2 into an authorized service center, you must **decontaminate** the controller per instructions on page 12. Please note the following:

	Air Temperature	Relative Humidity	Atmospheric Pressure
General Transport	-20°C – +50°C	10% - 95%	30 kPa – 106 kPa
Air Freight	-5°C – +45°C	10% - 95%	30 kPa – 106 kPa

### Storage:

	Air Temperature	Relative Humidity	Atmospheric Pressure
General Transport	-20°C – +50°C	10% - 95%	70 kPa – 106 kPa
Air Freight	-5°C – +45°C	10% - 95%	70 kPa – 106 kPa

### Disposal:



The adjoining symbol means that storage batteries and electronic devices must be disposed of separately from household trash (mixed municipal waste) at the end of their service life.

- According to the Directive 2002/96/EC of the European parliament and of the Council on Waste Electrical Equipment (WEEE) of 27 January 2003, electronic equipment requires disposal according to the relevant national disposal regulations.
- Batteries contain substances that can have harmful effects on the environment and human health. Therefore, according to the Directive 2006/66/EC of the European Parliament and the Council on Waste Batteries of 6 September 2006 batteries require disposal according to the relevant national disposal regulations. Dispose of batteries only when completely discharged.

### **WARNING!**

Do not short circuit battery to discharge it!

Risk of explosion and fire due to overheated rechargeable batteries. Do not heat to over 80°C and do not throw into fire.

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## Declaration of Conformity



VistaLab Technologies Inc. declares on its own responsibility that the devices

**ali-Q 2 aliquoting pipet controller, Model 2100-0005**

**ali-Q 2 LS aliquoting pipet controller, Model 2100-0003**

**ali-Q 2 VS aliquoting pipet controller, Model 2100-1005**


**ali-Q 2 VS 10 mL aliquoting pipet controller, Model 2100-1010**

comply with:

<b>Green/Ecodesign Regulations</b>
Meet CEC, DoE Level VI, Energy Star, ErP Stage 2
NRCan & GEMS
No Load Power Consumption Less 0.075W

<b>Standards for EU</b>	
Safety requirements for electrical equipment for measurement, control and laboratory use- General Requirements	EN 61010-1:2010
Electrical equipment for measurement, control and laboratory use- EMC requirements	EN 61326-1:2013
Information Technology Equipment Safety General Requirements	EN60950-1:2006 A2:2013

<b>Standards for Canada and USA</b>	
Safety requirements for electrical equipment for measurement, control and laboratory use- General Requirements	CAN/CSA-C22.2 No. 61010-1
Safety requirements for electrical equipment for measurement, control and laboratory use- General Requirements	UL 61010-1
Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.	Part 15 of the FCC Rules Class A

  
Jim Orcutt  
President

  
Jeff Calhoun  
Quality Manager



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