RF3000®
Pipette Controller

Heathrow Scientific®

CE

Contents

Safety Precautions

The Pipette Controller may be involved with hazardous materials. This instruction manual cannot address all safety hazards. It is the responsibility of the user to consult and observe all health and safety precautions and to assess the instrument's suitability to the task.

1. Before operating the instrument, read this instruction manual.
2. Observe general laboratory safety precautions and regulations.
3. Follow all precautions from the Material Safety Data Sheet (MSDS) for any reagent you use with this instrument.
4. Never operate the instrument in a hazardous or flammable environment.
5. Do not pipette flammable solvents such as Acetone or Ether.
6. Always work in a manner which neither endangers the user, nor any other person.
7. Use the instrument only for pipetting, and within the recommended limits of its chemical resistance and mechanical properties.
8. Never use force when using this instrument.
9. When not in use, store the instrument on stand or in holder.
10. Should the instrument fail to work to specification, immediately stop pipetting. Clean and troubleshoot the instrument according to the instructions under "Trouble Shooting" before any further use of the instrument.
11. Only use original manufacturer's accessories (AC adapter, stand, and holder) and spare parts (filters, nose piece, and pipette adapter).
12. Only the original AC adapter should be used for recharging the battery.
13. The Micro USB connector can only be inserted one way into the unit. Forcing the plug into the housing will damage both the Micro USB and socket, thus voiding the warranty.
14. Do not immerse in any liquid nor use it with wet hands.
15. Repairs are to be performed by trained and authorized service personnel only.
16. Opening the instrument or improper use of the instrument voids the warranty. If there is a failure during the warranty period, contact Heathrow Scientific® for warranty service. (See warranty section)

Warning!
If the unit is not used as recommended by the manufacturer, the overall safety will be impaired.

17. Instrument must only be used with original manufacturer's battery.
18. Battery must be completely discharged before disposal. Disposal should be performed in accordance with all governmental regulations.

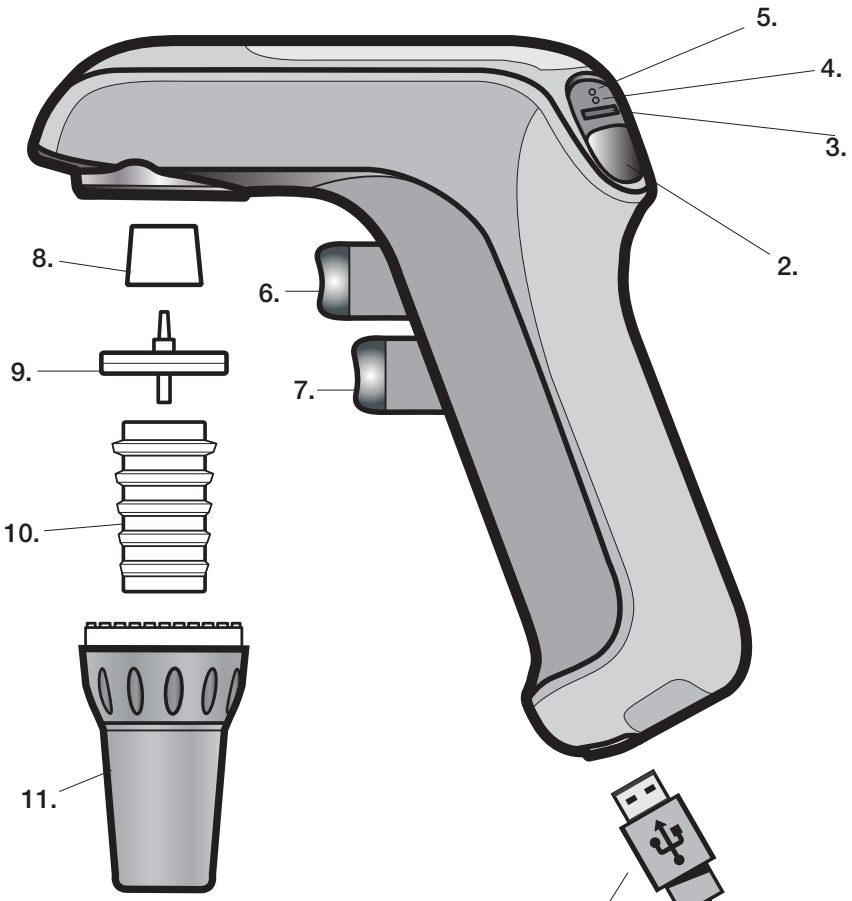
Warning!
Check MSDS, wear required Personal Protective Equipment, and observe all applicable local and national regulations before dispensing and disposing of hazardous sample.
Only use pipettes suitable for the sample.

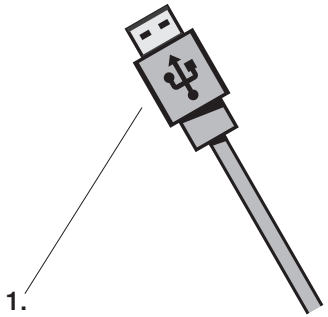
Product Description

The Pipette Controller has been designed to assist in the filling and dispensing of pipettes. It accepts graduated and volumetric pipettes made of glass or plastic and for measuring liquids from 0.1 to 100 mL. It is not designed for use with Pasteur pipettes.

If used correctly, the pipetted liquid will only contact the pipette. The vacuum or pressure necessary for filling or dispensing liquid is generated by a pump. The fill or dispense speed of the pump can be set using the pump speed control. Set on high speed for use with large-volume pipettes or low speed for use with small-volume pipettes. Select the gravity mode (G on the unit) for {to contain} pipettes for low-speed aspiration and gravity-driven delivery.

Components





Micro USB
Connector Type

1. Micro USB Connector and Adapter
2. Pump speed mode button
3. Mode indicator light
4. Charge indicator light
5. Low-battery indicator light
6. Aspirating button
7. Dispensing button
8. Filter adapter
9. Filter
10. Pipette holder
11. Pipette nozzle

Technical Data

Pipettes: 1 to 100 mL pipettes, glass or plastic

Operating Conditions:

Electrical: 100-240~, 50/60 Hz, 0.25 Amps
Ambient temperature: 5°C to 40°C
Altitude: up to 2,000m
Relative humidity: ≤80% noncondensing

Storage Conditions:

Storage temperature: 20°C to 55°C
Relative humidity: ≤90% noncondensing

Battery: One replaceable Li-Ion; approximately 20 hours operation

Power Requirements: 5v 1A DC

Micro USB
Connector Type

Input: 100-240 VAC 50/60 Hz 0.5A Max
Output: 5.0 VDC 1.0A

Materials

Housing:	ABS
Nose cone:	Polypropylene
Pipette holder:	Silicone
Filter:	PTFE 25mm Dia 0.45µm filter; Polypropylene housing

The Pipette Controller must not be used with liquids whose vapors are incompatible with silicone, ABS+Polyoxymethylene, PTFE, polypropylene, and NBR.

Warning!
This instrument must not be used or recharged in an explosive atmosphere. Highly flammable liquids (e.g. ether, acetone, and other liquids with a flash point below 0°C) must not be pipetted.

CE This mark is the confirmation that the unit conforms to the EU guidelines and has been tested according to the following EU Declaration of Conformity.

EC Declaration of Conformity
Manufacturer: Heathrow Scientific®
Address: 620 Lakeview Parkway • Vernon Hills, IL 60061 USA
European Contact: Emergo Europe
Prinsessegracht 20, 2514 AP The Hague,
The Netherlands
Model: RF3000, HS3000
This unit has been constructed and conforms to the following:
Safety Standards:
IEC/EN61010-1:ed. 3.1, 2017
UL Std. 61010-1, ed. 3, 2012
CAN/CSA C22.2 No. 61010-1-12 (R2017)
2014/35/EU (Low Voltage Directive)
EMC Standards:
IEC 61326-1:2012 (EN61326-1:2013)
FCC Part 15 Subpart B
IECS-003, Issue 6
2012/19/EU (WEEE)
2011/65/EU (RoHS)

This device complies with Canadian ICES-001
Cet appareil est conforme à la norme NMB-001 du Canada

Signed: 

Jim Woldenberg, CEO
Vernon Hills, Illinois, USA
July 2017

Disposal Responsibilities:

The equipment you purchased may contain hazardous substances that could impact the environment. Per regulations on electronic devices in the European Community, you must use the appropriate disposal systems to avoid exposure of these substances to the environment. The disposal systems will reuse or recycle hazardous materials from your equipment responsibly.

The crossed-out wheeled bin symbol invites you to use those systems.

If you need more information on the collection, reuse and recycling systems, please contact your local or regional waste administration. You can also contact us for more information on the environmental performance of our products.

Getting Started

Remove the contents from the package, examining them carefully for breakage, defects, or shortages. Save the packaging.

Charging the Battery
For transport safety reasons, the instrument is shipped with minimal battery charge. The battery must be charged before initial use.

Warning!
Use original battery charger only!
The use of a different charger could damage the battery or product and would void the warranty. Confirm that the voltage of the adapter matches the AC voltage of the electrical outlet.

Before starting to charge, confirm that the voltage and the plug of the AC adapter is identical to the main power supply at the outlet. See below if the plug type is not identical and needs to be changed.

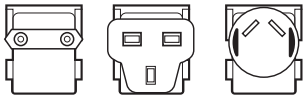
1. The temperature range for recharging is 50 to 95°F (10 to 35°C).
2. Plug the Micro USB connector into the base of the instrument. Or insert the Micro USB connector into the stand and place the instrument on the stand.

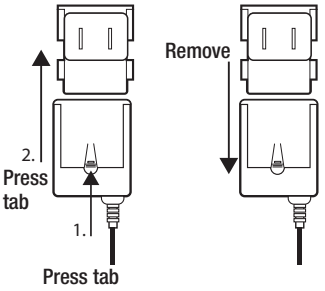
   The Micro USB connector can only be inserted one way into the unit. Forcing the plug into the housing will damage both Micro USB and socket, thus voiding the warranty.

3. Insert the plug of the AC adapter into a suitable wall outlet.
4. Allow to charge up to 6 hours from empty to fully charged. The green light blinks when charging.
5. Once the instrument is fully charged, the adapter automatically switches to a trickle charge operation and the red indicator will turn off.

Notes
—When fully charged, the instument can be operated for approximately 20 hours.
—If using the Pipette Controller daily, the product can be charged over night or any convenient time. A residual charge of approximately 10% is available when the red LED has lit.

Changing the AC Adapter Plug Type

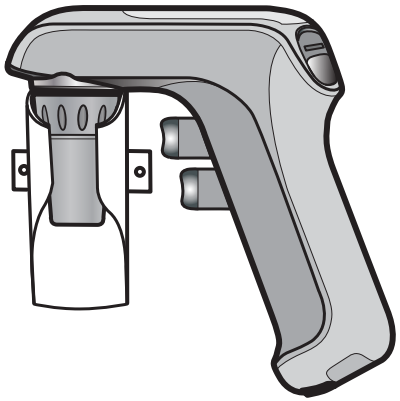




Mounting the Holder

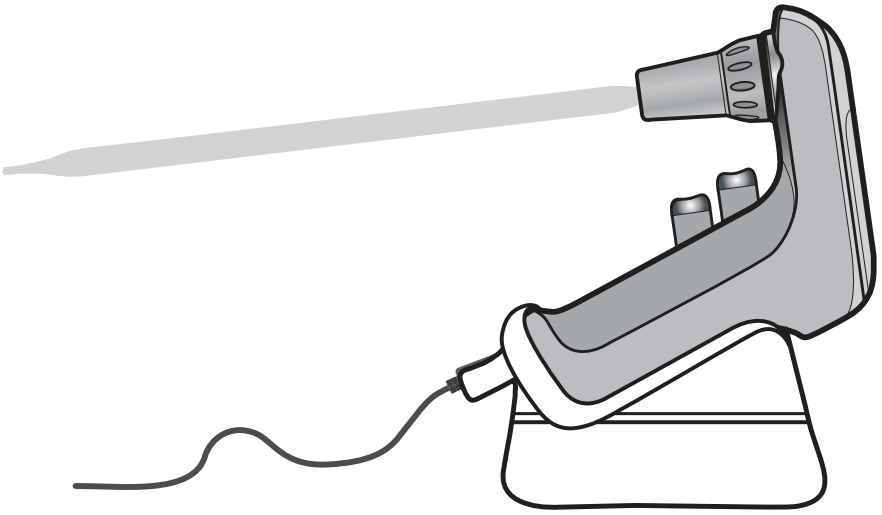
For storage, insert the Pipette Controller in the wall holder.
Mounting options:

1. The magnetized holder will grip a metal surface to provide support for the instrument.
2. Wall mount the holder with screws.



Using the Stand

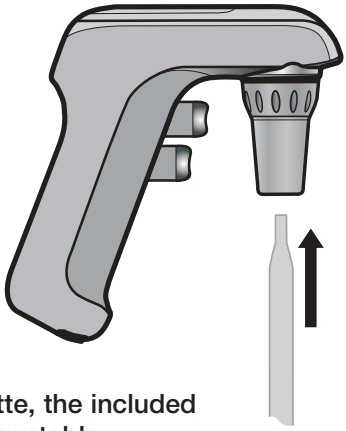
For charging, place the Pipette Controller in the stand with the connector inserted in the stand. A pipette can stay inserted within the controller within the stand during charging. Do not place near doors or the edge of benchtop.



Pipetting

Attaching the Pipette
Prior to attaching the pipette, inspect the pipette's top end for damage. A chipped pipette may damage the silicone pipette adapter.

Holding the pipette as near to the top as possible, carefully push it into the nozzle for a secure fit.



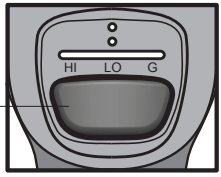
When using a 1mL pipette, the included adapter will make it more stable.
First insert the 1mL adapter into the nozzle then insert the pipette.

Caution!
Do not use force when inserting the pipette. Excessive force can cause the pipette to break. Use extra caution when inserting thin pipettes.

Once the pipette has been securely attached, always hold the instrument in a vertical position with the pipette tip facing down.

Filling the Pipette
Set the pump speed with the mode button on the top of the instrument. Pressing the mode button will cycle through High, Low and Gravity settings. Set on high speed for use with large-volume pipettes or low speed for use with small-volume pipettes. Select the gravity mode (G on the unit) for "to contain" pipettes for low speed aspiration and gravity-driven delivery.

Pump speed mode button



Immerse the pipette tip into the liquid. Slowly press the aspirating button (upper pipetting button). The speed of aspiration is dependent on the amount the button is depressed. Fill the pipette so that the meniscus is just above the desired volume.

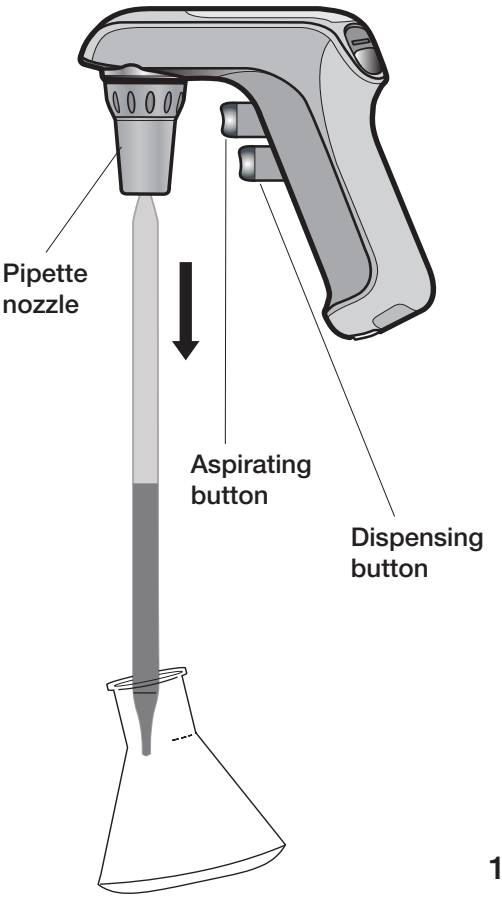
Wipe the outer surface of the pipette tip to remove residual liquid. Place the tip of the pipette against the side wall of the container. Slowly press the dispensing button (lower pipetting button) until the meniscus is exactly level with the desired volume.

Caution!
Take care to avoid aspirating the liquid into the Pipette Controller which can impair performance. If liquid is aspirated into the unit, clean the pipette adapter and nose cone per instructions under "Maintenance". If necessary, replace the filter.

Dispensing
Place the pipette tip at an angle against the inside of the receiving vessel. Slowly press the dispensing button (lower pipetting button). The dispensing speed is dependent upon the pressure/distance the button is depressed.

In the "Blow-Out" mode where the pump speed slide switch is set to "High" or "Low", the dispensing button activates the pump to blow-out all liquid from the pipette.

In the "Gravity" mode (G-on the unit), the dispensing button does not activate the pump. The liquid is dispensed by gravity. The pipette volume can be regulated using various degrees of finger pressure. This mode is for "To Contain" pipettes.



Maintenance

The Pipette Controller is normally maintenance-free. When necessary, the housing can be wiped occasionally using a damp cloth.

Cleaning the Pipette Adapter and Replacing the Filter

Caution!
When cleaning and exchanging the filter, wear protective gloves and safety goggles to avoid the risk of splashes and contamination.

If liquid has entered the nozzle or if the aspirating efficiency has decreased, observe the following instructions:

1. Hold the pipette over a container and remove the pipette.
2. Gently unscrew the nozzle.
3. Remove the filter.
4. Remove the pipette adapter from the nose cone by pushing it upwards.
5. Rinse the pipette adapter with demineralized water and allow to dry at room temperature.
6. The filter's smooth sided connector must be facing the pipette adapter. The filter's stepped, larger diameter connector should be facing the filter adapter. Push the filter adapter onto the filter.
7. Reassemble the instrument by reversing the steps above.
8. Test instrument for leaks, see "Checking for Leaks" (below).

Notes

—Not all membrane filters are suitable for use with the instrument. For proper performance, only use the manufacturer's recommended replacement filters.
—The pipette adapter, nozzle, and filter adapter may be steam sterilized at 121°C for 20 minutes.
—It is the user's responsibility to ensure proper sterilization.

Checking for Leaks

When the pipette has been filled, liquid should not drip from the pipette. Should the pipette drip, disassemble the pipette adapter, filter, and filter adapter. Carefully reassemble. If necessary, replace worn parts. See "Ordering Information".

Recharging the Battery
One full charge of the battery allows approximately 20 hours of continuous pipetting. Decreasing motor power and or a lit red “Low-Battery Indicator” LED, indicate the need for recharging.

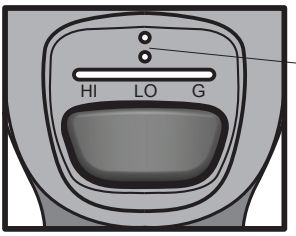
For environmental reasons, the Pipette Controller is powered by a rechargeable battery, which does not contain Cadmium or Mercury.

Warning!
Use original power adapter only!
The use of a different charger could damage the battery or the unit and would void the warranty.
Confirm that the voltage of the AC adapter matches the voltage of the electrical outlet.

Before starting to charge, confirm that the input voltage of the AC adapter is identical to the main power supply at the outlet.
1. The temperature range for recharging is 50 to 95°F (10 to 35°C).
2. Plug the Micro USB connector into the base of the instrument. Or insert the Micro USB connector into the stand and place the instrument on the benchtop stand. Note: Micro USB plug only fits into unit one way.
3. Insert the plug of the AC adapter into a suitable wall outlet.
4. Allow to charge up to 6 hours from empty to fully charged. The green light blinks when charging.
5. The Pipette Controller is fully charged when the green light stays on.

Notes
—When fully charged, the Pipette Controller can operate for approximately 20 hours.

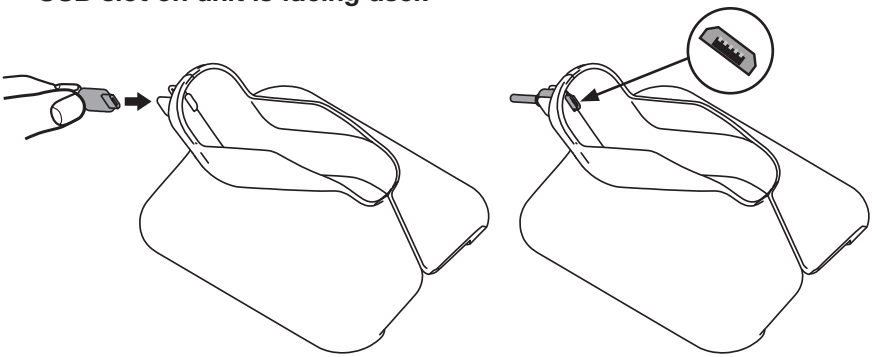
—If using the instrument daily, the product can be charged overnight or any time. A residual charge of approximately 10% is available when the red LED has lit. If the red LED blinks when a trigger is pulled, this indicates the battery is too low to use the product and must be charged.



Low battery LED (red -top)
Battery charge LED (green - bottom)

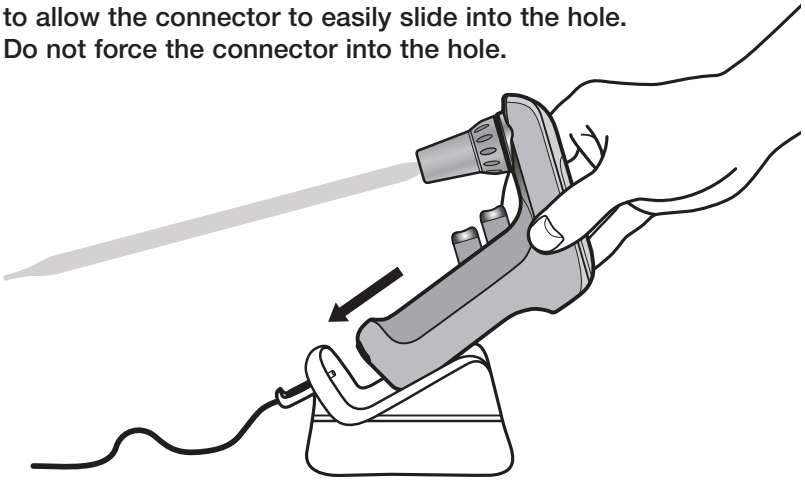
To Insert Connector into Bench Top Stand.

1. Place the Micro USB connector into the stand as shown. **Make sure USB symbol on connector and stand are adjacent when USB slot on unit is facing user.**



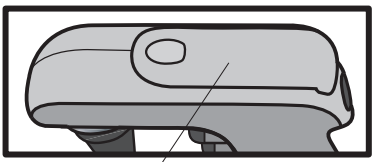
To Insert Pipette Controller into Stand.

1. Place the connector into the stand as shown.
2. Grasp the stand with the other hand and slide the instrument down the stand.
3. Make sure the connector inserts into the hole on the bottom of the instrument. You may need to adjust the position of the instrument to allow the connector to easily slide into the hole.
4. Do not force the connector into the hole.



Replacing the Battery

Instrument must only be used with the original manufacturer's battery. Battery must be completely discharged before disposal. Disposal should be performed in accordance with all governmental regulations.



Slide battery compartment cover open

Warning!
Improper use of the instrument or the battery such as short-circuiting, mechanical damage, or overheating, may cause an explosion or other event that could harm the user.
Only use battery recommended by the manufacturer.
Follow the battery replacement procedure closely.

1. Remove battery compartment cover.
2. Carefully remove battery. Gently disconnect the connector from the receptacle in the unit.
3. Insert the connector of the new battery back into the receptacle and insert the battery into the compartment.
4. Replace battery compartment cover.

Warning!
Confirm that the voltage of the adapter matches the voltage of the electrical outlet.

Trouble Shooting

Trouble	Possible Cause	Solution
Reduced aspirating efficiency	— Filter wetted — Battery discharged	— Replace filter — Recharge the battery
Pipette drips	— Filter installed upside down — Pipette or pipette adapter damaged	— Reinstall filter — Check pipette and pipette adapter; replace if damaged
Pipette is loose	— Pipette adapter is dirty or damaged	— Clean pipette adapter; replace if damaged
Reduced operating time with fully-charged battery	— Battery worn — Instrument or AC adapter failed	— Contact Heathrow Scientific® if in warranty — Contact Heathrow Scientific® if in warranty

If the above recommendations do not solve current problems, contact Heathrow Scientific® directly.

Ordering Information

Pipette Controller with AC adapter, 5nozzles,
holder, stand, and two spare filters.....HS3000
Pipette holder, silicone.....HS3000RFP
Nozzle, polypropylene, set of 5 colors.....HS300504
Replacement filters, 0.45µm, pack of 5 .....HS3000RFC
Battery HS300502

Return for Repair

Important:
Transporting hazardous materials without a permit is a violation of federal law.

Heathrow Scientific® will not accept any Pipette Controller that is not appropriately cleaned and decontaminated.

In the unlikely event of the unit needing repair, or where damage to the unit necessitates return, contact Heathrow Scientific® and obtain return authorization **before** sending your instrument for service.

Warranty

Limited Warranty
Heathrow Scientific® warrants the Pipette Controller will be free from material defects in workmanship and material for 1 year from the date of purchase.

If Heathrow Scientific® is properly notified and, after inspection confirms that there is a defect and the warranty period has not expired, Heathrow Scientific® will repair, modify, or replace the product, at its sole option, at no charge.

OTHER THAN THIS LIMITED WARRANTY, HEATHROW SCIENTIFIC® MAKES NO WARRANTIES, EXPRESS OR IMPLIED, WITH RESPECT TO THE QUALITY OR PERFORMANCE OF THE PRODUCT, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE WHICH ARE HEREBY DISCLAIMED AND EXCLUDED. HEATHROW SCIENTIFIC® WILL IN NO EVENT BE LIABLE FOR ANY LOSS OF USE, LOSS OF PROFITS, CONSEQUENTIAL, SPECIAL, EXEMPLARY OR PUNITIVE DAMAGES. THIS WARRANTY DOES NOT COVER:

- ANY DEFECT OR DAMAGE CAUSED BY IMPROPER OR UNREASONABLE USE OF THE PRODUCT. (THE PIPETTE CONTROLLER IS DESIGNED FOR USE ONLY BY TRAINED LABORATORY TECHNICIANS. USE BY ANYONE ELSE WILL VOID THIS WARRANTY.)

- ANY PRODUCT THAT HAS BEEN, IN HEATHROW SCIENTIFIC®'S SOLE JUDGEMENT, TAMPERED WITH, ALTERED, OR REPAIRED BY ANYONE OTHER THAN HEATHROW SCIENTIFIC®.

- ANY PRODUCT THAT IS INOPERATIVE BECAUSE OF: (a) WEAR OCCASIONED BY USE, (b) NEGLIGENCE, (c) ACCIDENT, (d) INCORRECT MAINTENANCE, OR (e) USE UNDER ABNORMAL CONDITIONS OF TEMPERATURE, DIRT OR CORROSION, OR USE WITH ABRASIVE OR CORROSIVE MATERIALS.

- ACCESSORY PARTS, SUCH AS RUBBER PARTS, THAT ARE DAMAGED BY LIQUIDS OR MISUSE.

IN NO EVENT WILL HEATHROW SCIENTIFIC®'S OBLIGATION UNDER THIS WARRANTY EXCEED THE PRICE OF THE PRODUCT.

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