LIQUID HANDLING TECHNOLOGY

ErgoOne FAST

User Manual · Bedienungsanleitung

USA SCIENTIFIC

EC Declaration of Conformity

USA Scientific certifies that

7166-0010 ErgoOne® FAST

has been manufactured and inspected in accordance with the following European standards:

2006/95/EC Low Voltage Directive
2004/108/EC Electromagnetic Compatibility Directive

Harmonized Standards:

EN 61010-1:2010
EN 61326-1:2006

This product is manufactured in adherence to ISO 9001 and ISO 13485 standards.

USA Scientific, Inc. - PO Box 3565 - Ocala, FL 34478-3565
www.usascientific.com

1 OPERATING INSTRUCTIONS

1.1 Using this manual

› Read this user manual completely before using the device for the first time. Also observe the instructions for use of the accessories.
› This user manual is part of the product and must always be easily accessible.
› Enclose this user manual when transferring the device to third parties.

1.2 Danger symbols and danger levels

1.2.1 Hazard icons

	**Biohazard**		**Explosion**
	**Cuts**		**Toxic substances**
	**Hazard point**		**Material damage**

1.2.2 Degrees of danger

The safety instructions in this user manual indicate the following degrees of danger:

WARNING	May lead to severe injuries or death.
CAUTION	May lead to light to moderate injuries.
NOTICE	May lead to material damage.

1.3 Symbols used

Depiction	Meaning
›	You are requested to perform an action.
1. 2.	Perform these actions in the sequence described.
•	List.
ⓘ	References useful information.

1.4 Glossary

E

Elapse time Time required to empty a pipette from the upper part of the scale to the lowest scale graduation or to fully empty a measuring pipette or volumetric pipette.

2 PRODUCT DESCRIPTION

2.1 Main illustration

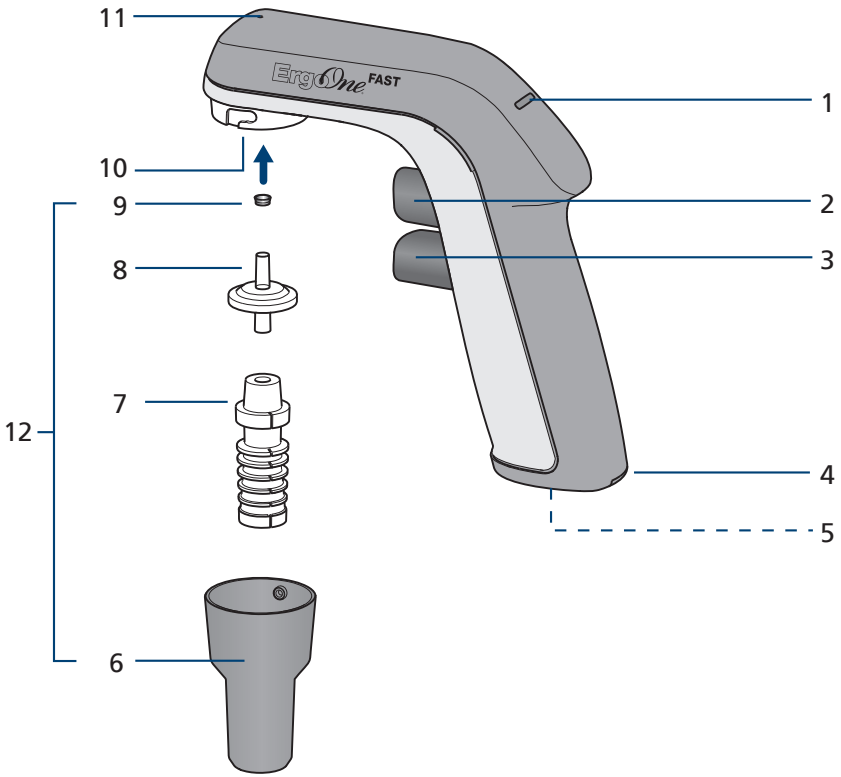


Fig. 1: ErgoOne FAST®

1 Rechargeable battery status display	7 Pipette adapter
2 Aspirating button	8 Membrane filter
3 Dispensing button	9 Seal for filter adapter
4 Rechargeable battery compartment lid	10 Filter adapter
5 Connector socket	11 Pressure compensation opening
6 Aspirating cone	12 Pipette clamp

2.2 Delivery package

Quantity	Description
1	ErgoOne® FAST
1	Wall mount
1	Sticky tape for wall mount
1	Membrane filter, 0.2 µm, non-sterile, PTFE
2	Membrane filter, 0.45 µm, non-sterile, PTFE (1 filter is built-in)
1	Seal for filter adapter
1	Filter adapter (Silicone)
1	Aspirating cone
1	Rechargeable battery compartment lid
1	Lithium Polymer rechargeable battery, 3.7 V
1	Power supply, 100-240V
1	User manual
1	Quickstart manual

2.3 Warranty

For warranty claims, please contact your local supplier. If the housing of the pipette controller is opened by unauthorized individuals, or the device is misused, no warranty claim may be made. The rechargeable battery and all other wear parts are excluded from the warranty.

2.4 Materials

NOTICE! Aggressive substances may damage the ErgoOne® FAST and accessories.

› Check the chemical resistance before using organic solvents or aggressive chemicals.

› Observe the cleaning instructions.

The pipette controller assemblies are composed of the following materials:

Component	Material
Housing, aspirating cone, aspiration button, dispensing button, membrane filter housing, wall holder	Polypropylene (PP)
Filter adapter	Polytetrafluoroethylene (PTFE)
Pipette adapter	Silicone
Filter membrane	Polytetrafluorethylen (PTFE)
Seal for filter adapter	Hydrated acrylonitrile butadiene rubber (HNBR)
Tubes and valves	Polymer fluorine rubber (FKM), polybutylene terephthalate (PBT), polyphenylene sulfide (PPS), silicone
Battery status display	Cyclic olefin copolymer (COC)

2.5 Features

The ErgoOne® FAST is a battery-driven pipette controller. You can use glass or plastic pipettes in a volume range of 0.1 mL to 100 mL.

A pump generates underpressure or overpressure to aspirate or dispense the liquid. The liquid can also be dispensed solely via the atmospheric pressure. The aspirating and dispensing speed is controlled by how far the control buttons are pressed in.

3 SAFETY

3.1 Intended use

The pipette controller is intended for dispensing liquids. In-vivo applications (in or on the human body) are not allowed.
The pipette controller may only be operated by skilled personnel who have received the appropriate training. All users must have read the user manual carefully and must have become familiar with the device's mode of operation.

3.2 Warnings for intended use

WARNING! Damage to health due to infectious liquids and pathogenic germs.

- When handling infectious liquids and pathogenic germs, observe the national regulations, the biological security level of your laboratory, the material safety data sheets, and the manufacturer's application notes.
- Wear personal protective equipment.
- Follow the instructions regarding hygiene, cleaning and decontamination.
- For complete instructions regarding the handling of germs or biological material in risk group II or higher, please refer to the "Laboratory Biosafety Manual" (source: World Health Organization, current edition of the Laboratory Biosafety Manual).

WARNING! Risk of explosion from potentially explosive atmospheres and potentially explosive substances.

- Do not use the ErgoOne® FAST in potentially explosive atmospheres.
- Do not operate the ErgoOne® FAST in rooms where work is conducted using potentially explosive substances.
- Do not dispense any explosive, highly flammable (flash point < 21°C), extremely flammable (flash point < 0°C), or highly reactive substances with the ErgoOne® FAST.
- Do not use the ErgoOne® FAST to dispense any substances that could create an explosive atmosphere.

WARNING! Damage to health due to toxic, radioactive or aggressive chemicals.

- Wear personal protective equipment.
- Observe the national regulations for handling these substances.
- Observe the material safety data sheets and manufacturer's application notes.

CAUTION! Poor safety due to incorrect accessories and spare parts.
The use of accessories and spare parts other than those recommended by us may impair the safety, functioning and precision of the device. We cannot be held liable or accept any liability for damage resulting from the use of incorrect or non-recommended accessories and spare parts, or from the improper use of such equipment.

› Only use accessories and original spare parts recommended by us.

CAUTION! Danger to people due to grossly negligent use.

› Never direct the opening of a ErgoOne® FAST at yourself or other people.
› Only initiate dispensing if it is safe to do so.
› For all dispensing tasks, make sure that you do not place yourself or other people at risk.

NOTICE! Damage to device due to penetration of liquids.

› Do not allow any liquids to penetrate the inside of the housing.
› If liquid has entered the inside of the housing, the inner parts may only be repaired by our service partners. Please contact your responsible sales office before reshipping the parts.

NOTICE! Damage to device from missing pipette.

› Use ErgoOne® FAST only when the pipette is inserted.

Use only ErgoOne® FAST with inserted pipette.
If you would like to dispense highly flammable or extremely flammable liquids, we recommend using a positive displacement system consisting of manual dispenser (e.g. RepeatOne) and dispenser tips (e.g. TipOne REPEAT). Check the chemical resistance and observe the safety notes before using the manual dispenser.

3.3 Information on product liability

In the following cases, the designated protection of the device may be compromised. Liability for any resulting property damage or personal injury is then transferred to the operator:

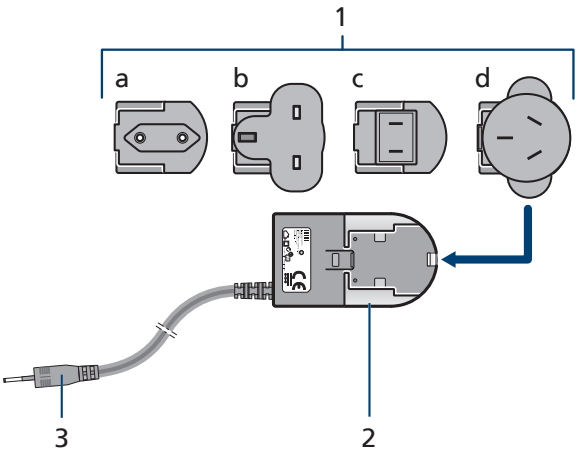
- The device is not used in accordance with the user manual.
- The device is used outside of its intended use.
- The device is used with accessories or consumables which are not recommended by us.
- The device is maintained or repaired by people not authorized by us.
- The user makes unauthorized changes to the device.

4 INSTALLATION

4.1 Preparing installation

› Use the delivery package details to check that the delivery is complete.
› Check all parts for any transport damage.
› Keep the transport carton and the packing material for subsequent safe transport or storage.

4.2 Power supply assembly

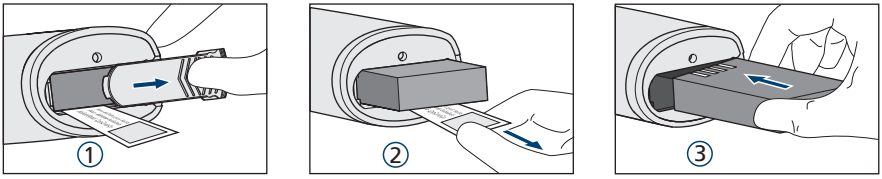


1	**Power plug adapters: a) EU, b) United Kingdom, c) USA, d) Australia**
2	**Power supply**
3	**Charging plug**

› Insert the appropriate power plug adapter into the opening of the power supply. If there is any doubt as to which power plug adapter is required, you should consult an electrician.

4.3 Removing the discharge protector

ErgoOne FAST® is delivered with a rechargeable battery inside.

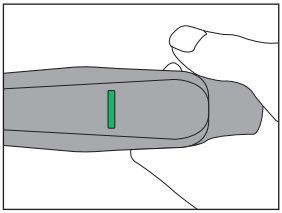


Prior to first usage please proceed as follows:

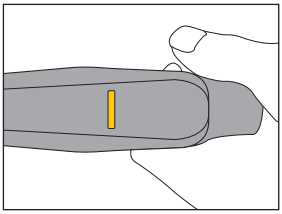
1. Slide the battery compartment lid open.
2. Remove the battery and discharge protection.
3. Install the battery.
4. Close the battery compartment lid.

4.4 Battery status display during operation

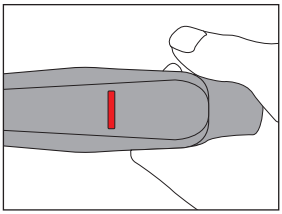
4.4.1 Ready for operation



Solid green light:
The rechargeable battery is fully charged.

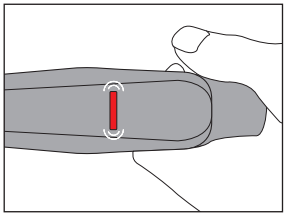


Solid yellow light:
The rechargeable battery is half-charged.



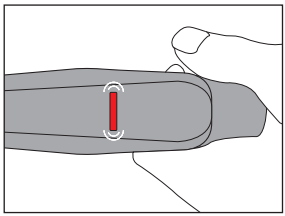
Solid red light:
The rechargeable battery is almost empty.

4.4.2 Empty battery

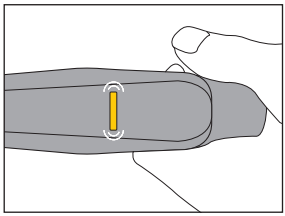


Flashing red light:
The rechargeable battery needs to be charged.

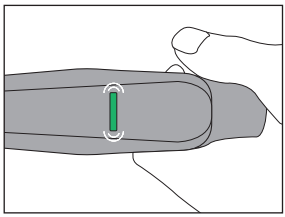
4.4.3 Charge battery



Flashing red light:
The rechargeable battery is <5% charged.

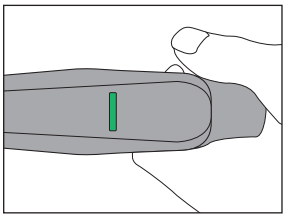


Flashing yellow light:
The rechargeable battery is 5-60% charged.



Flashing green light:
The rechargeable battery is 60-99% charged.

4.4.4 Battery is fully charged



The rechargeable battery is >99% charged.
If the power supply is connected when the battery is fully recharged, the battery status display lights up for approx. 30 seconds and no further charging will take place.

5 OPERATION

5.1 Charging the rechargeable battery

WARNING! Incorrect or damaged power supplies can lead to severe personal injury or damage to the device.

Incorrect or damaged power supplies can cause electric shock or cause the device to overheat, catch fire, melt, short circuit, or cause similar damage.

- Use only supplied the power supply to charge the device. The correct power supply can be identified by the ‚ErgoOne FAST' name on the unit.
- Do not use a damaged Power supply.

WARNING! Personal injury caused by incorrect handling of the rechargeable battery.

- Do not disassemble or modify the rechargeable battery.
- Never pierce, crush or throw the rechargeable battery.
- Only use the battery in the ErgoOne® FAST.
- Do not touch a leaking rechargeable battery.
- Do not use a damaged rechargeable battery.
- Dispose of a damaged rechargeable battery in accordance with the legal requirements.

NOTICE! Loss of full battery charging capacity if charged incorrectly.

- The supplied rechargeable battery is not fully charged. The rechargeable battery only achieves its full capacity after several discharge/charge cycles.
- Do not charge the rechargeable battery in a hot environment (> 60 °C).
- Only the power supply provided with the device may be used to charge the rechargeable battery.

Proceed as follows:

Fig. 2: Loading the rechargeable battery

1. Connect the power supply to the mains power socket.
2 Insert the charging plug of the power supply into the connector socket.

The charging time depends on the charging state of the rechargeable battery. For a fully discharged rechargeable battery, this is about 3 hours.

You can continue using the pipette controller during the charging process.

5.2 Inserting the pipette

WARNING! Risk of cuts from shattered glass pipettes.
Glass pipettes are fragile and may cause severe cuts if they break.

- › Do not use force to insert glass pipettes.
- › Wear your user protection (UP).
- › Use a towel to protect the hand used for insertion.

› Pick up the pipette from above and carefully insert it in the aspirating cone until is positioned securely and air-tight.

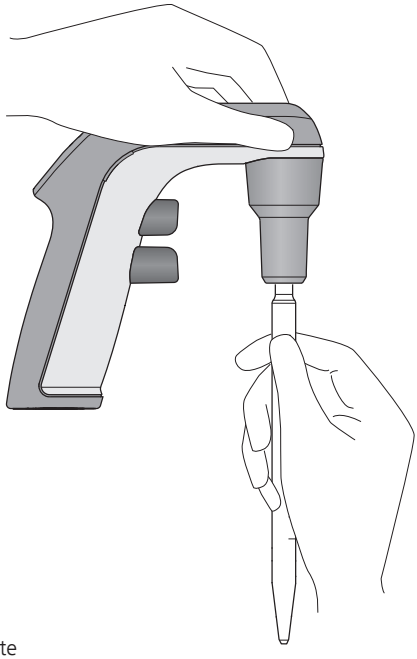


Fig. 3: Inserting the pipette

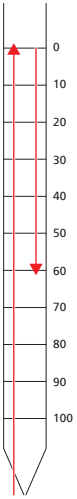
5.3 Pipette types

Measuring pipettes and volumetric pipettes are divided into 3 classes: A, AS and B.

Class A and AS pipettes are more precise than Class B pipettes. They vary according to the elapse time, which depends on the nominal volume and the design. Class AS pipettes are quick-drain pipettes.

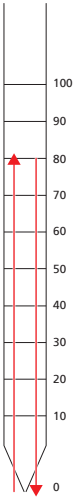
Volumetric pipettes have 1 or 2 marks and are adjusted to flow-out. Measuring pipettes have a scale and are divided into 4 types.

Type 1 measuring pipette



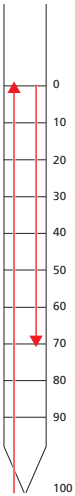
- Adjusted to flow-out.
- Nominal volume is indicated by the lowest scale graduation.
- Aspiration up to the zero line at the upper end of the pipette.
- Dispensing to any scale graduation on the scale.

Type 2 measuring pipette



- Adjusted to flow-out.
- Nominal volume is indicated by the top scale graduation.
- Aspiration to any scale graduation on the scale.
- Dispensing until the pipette is completely empty.

Measuring pipette type 3 and type 4



Type 3 measuring pipette

- Adjusted to flow-out.
- Nominal volume is indicated by the tip of the pipette.
- Aspiration up to the zero line at the upper end of the pipette.
- Dispensing to any scale graduation on the scale or until the pipette is completely empty.

Type 4 measuring pipette

- Adjusted to blow-out.
- Nominal volume is indicated by the tip of the pipette.
- Aspiration up to the zero line at the upper end of the pipette.
- Dispensing to any scale graduation on the scale or until the pipette is completely empty.
- Dispensing the last drops using blow-out.
- Blow-out pipettes are only available in accuracy class B.

5.4 Speed control

The liquid aspiration speed is regulated continuously by controlling the pressure on the control buttons, i.e. how far in the button is pressed.

Slowly aspirating or dispensing liquid

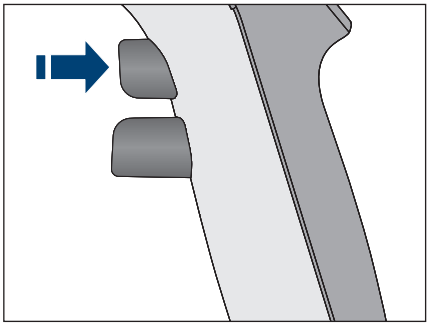


Fig. 4: Slow aspiration

› To slowly aspirate or dispense liquid, press the corresponding control button lightly.

Quickly aspirating or dispensing liquid

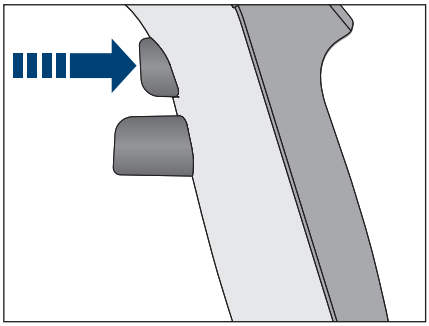


Fig. 5: Quick aspiration

› To quickly aspirate or dispense liquid, press the corresponding control button firmly.

5.5 Aspirating liquid

The speed of aspirating liquid is adjusted steplessly. For this the control knob is pressed at different depths.

NOTICE! Damage to device due to missing or damaged membrane filter.

› Do not use the pipette controller if the membrane filter is not inserted.

› Replace the membrane filter if it is damaged.

Consider the type of pipette used.

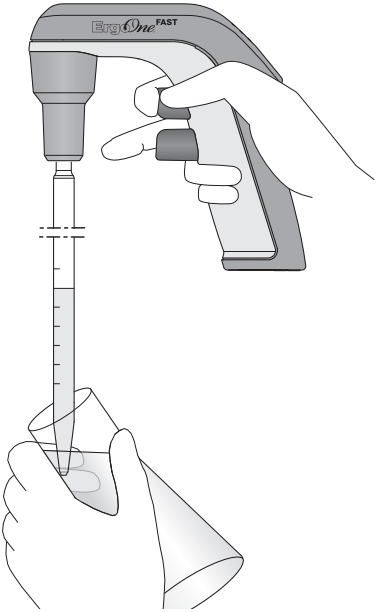


Fig. 6: Aspirating liquid

1. Immerse the pipette into the liquid.
2. Slowly press the aspirating button and keep it pressed down. The further the aspirating button is pressed, the quicker the liquid will be aspirated.
3. Wipe the pipette on the tube inner wall and remove it.

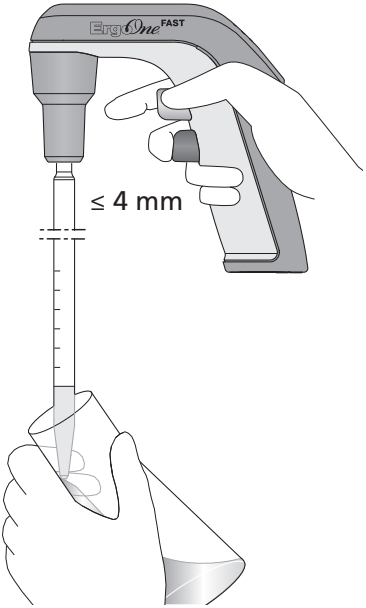
5.6 Dispensing liquid

Consider the type of pipette used.

After liquid dispensing, hold class AS quick-drain pipettes on the tube inner wall for 5 seconds to allow the liquid to drain.

5.6.1 Flow-out

A valve will be opened during flow-out. The liquid drains from the pipette as a result of atmospheric pressure.

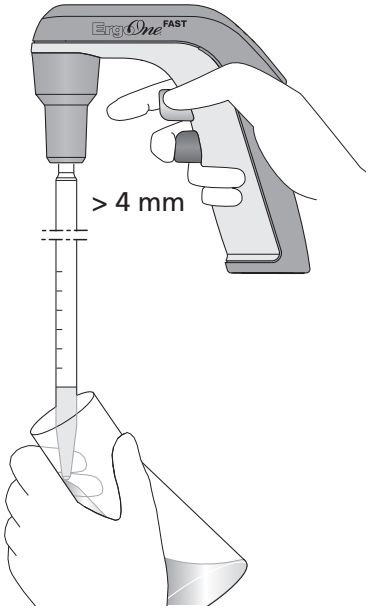


1. Hold the pipette vertically and place it on the tube inner wall.
2. Press the dispensing button lightly.

Fig. 7: Allowing liquid to flow-out

5.6.2 Blow-out

During blow out, the liquid will be dispensed using the pump.



1. Hold the pipette vertically and place it on the tube inner wall.
2. Press the dispensing button.

Fig. 8: Blowing out liquid

5.7 Using the wall mount

For storage, the pipette controller can be put in a wall mount.

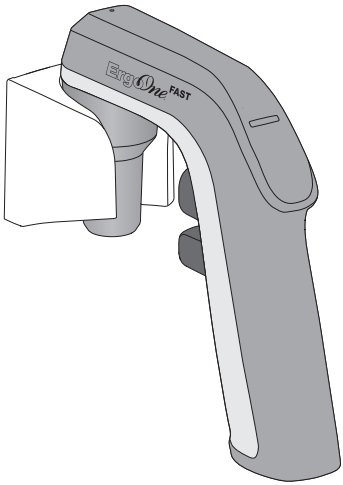


Fig. 9: ErgoOne® FAST with wall mount

5.7.1 Mounting the wall mount

1. Clean the mounting location on the wall and allow it to dry.
2. Remove the protective foil.
3. Press the wall mount firmly against the wall. Allow the adhesive tape to dry for 24 hours.

5.7.2 Removing the wall mount

1. Rotate the wall mount to loosen the adhesive tape.
2. Remove the adhesive tape.

6 MAINTENANCE

6.1 Disassembling the pipette clamp

If liquid has entered the pipette clamp, the aspiration capacity may be decreased, or pipette clamp assemblies may be damaged. The pipette clamp must be disassembled in order to clean or replace the assemblies.

1. Turn the aspirating cone counterclockwise and remove it.
2. Remove the pipette adapter and membrane filter from the filter adapter.
3. Remove the membrane filter from the pipette adapter.
4. Use a narrow pointed object to pry the seal out of the filter adapter.

6.2 Cleaning

6.2.1 Cleaning the Pipette Controller

Special service is not required.

NOTICE! Damage to the device due to autoclaving.

› Do not autoclave the pipette controller.

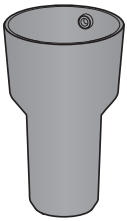
To clean contaminated surfaces, proceed as follows:

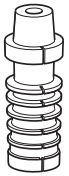
› Wipe the housing using a damp cloth.

› Disinfect surfaces using alcohol (ethanol, propanol) or alcohol-containing disinfectants.

6.2.2 Cleaning the pipette clamp

The pipette clamp assemblies can be replaced, cleaned or autoclaved as described below (121 °C, 1 bar overpressure for 20 min.)

Aspirating cone	
	• Can be wiped using a damp cloth • Can be disinfected with alcohol (ethanol, propanol) or alcohol-containing disinfectants. • Repeatedly autoclavable • Can be replaced

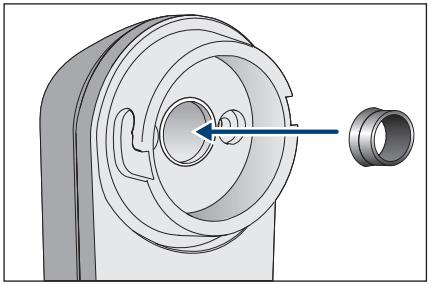
Pipette adapter	
	• Can be rinsed with demineralized water • Repeatedly autoclavable • Can be replaced

Membrane filter	
	• To be disposed of if contaminated • Cannot be cleaned • Can be autoclaved once • Can be replaced

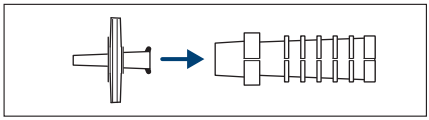
Sealing	
	• Can be rinsed with demineralized water • Repeatedly autoclavable • Can be replaced

You can also use a membrane filter with a pore size of 0.2 µm.

6.3 Mounting the pipette clamp



1. Push the seal with the groove up into the filter adapter.



2. Push the wide opening of the membrane filter into the narrow opening of the pipette adapter.
3. Guide the aspirating cone over the pipette adapter and turn it until it engages.

6.4 Checking the leak tightness

1. Insert the pipette.
2. Fill the pipette with water.
3. Hold the pipette vertically.
4. Observe the pipette outlet for approx. 30 seconds.

Do not touch the pipette. Do not press the control buttons.

No water may be allowed to escape.

5. If water escapes, disassemble and carefully reassemble the pipette clamp.

6.5 Replacing the rechargeable battery

Proceed as follows:

1. Slide the battery compartment lid open.
2. Remove the battery.
3. Insert a new battery.

7 TROUBLESHOOTING

7.1 General errors

Symptom/message	Cause	Remedy
Liquid drips out of the pipette.	• Pipette adapter and/or membrane filter inserted incorrectly.	❯ Remove the pipette adapter and membrane filter and reinsert them.
	• Pipette not inserted far enough.	❯ Continue to carefully insert the pipette.
	• Pipette adapter damaged.	❯ Replace pipette adapter.
	• Pipette damaged.	❯ Replace pipette.
	• Seal damaged.	❯ Replace seal.
	• Liquid column too high. • Speed too low.	❯ Slowly press the aspirating button down further.
Aspiration capacity reduced	• Membrane filter wetted.	❯ Replace membrane filter.
No functional period despite fully charged battery.	• Battery is too old.	❯ Replace battery.
Pipette loose.	• Pipette adapter damaged.	❯ Replace pipette adapter.
Bubble formation in the pipette during liquid aspiration.	• Speed too high.	❯ Apply less pressure to the aspirating button.
Rechargeable battery will not charge	• Rechargeable battery is charged.	❯ Disconnect the Power supply. ❯ Only recharge the battery if the status display is blinking.

8 TECHNICAL DATA

8.1 Weight/dimensions

Weight	134 g (0.295 lb) (without rechargeable battery, without pipette)

8.2 Mains/power supply device

Input voltage	100 V – 240 V AC, ±10 %
Frequency	50 Hz – 60 Hz
Output voltage	5 V
Input current	200 mA – 250 mA
Output current	1 A

8.3 Rechargeable battery

Type	Lithium-Polymer
Voltage	3.7 V
Capacity	1100 mAh
Charging time	~3 h
Weight	26 g (0.057 lb)
Number of dispensings	~2000 (with a 25-mL pipette)

8.4 Ambient conditions

Ambience	For indoor use only.
Ambient temperature	5 °C – 40 °C
Relative humidity	10 % – 95 %, non-condensing
Atmospheric pressure	79.5 kPa – 106 kPa

9 TRANSPORT, STORAGE AND DISPOSAL

9.1 Decontamination before shipment

Before sending the pipette controller to the authorized Technical Service for repairs you must decontaminate the pipette and fill out a Declaration of Decontamination. Please note the following:

9.2 Transport

› The device may only be transported in its original packaging.

	Air temperature	Relative humidity	Atmospheric pressure
General transport	-25 °C – 60 °C	10 % – 95 %	30 kPa – 106 kPa
Air freight	-40 °C – 45 °C	10 % – 95 %	30 kPa – 106 kPa

9.3 Storage

	Air temperature	Relative humidity	Atmospheric pressure
In transport packaging	-25 °C – 55 °C	10 % – 95 %	70 kPa – 106 kPa
Without transport packaging	-5 °C – 45 °C	10 % – 95 %	70 kPa – 106 kPa

9.4 Disposal

In case the product is to be disposed of, the relevant legal regulations are to be observed.

Information on the disposal of electrical and electronic devices in the European Community:
Within the European Community, the disposal of electrical devices is regulated by national regulations based on EU Directive 2002/96/EC pertaining to waste electrical and electronic equipment (WEEE).

According to these regulations, any devices supplied after 13 August 2005, in the business-to-business sphere, to which this product is assigned, may no longer be disposed of in municipal or domestic waste. They are marked with the following symbol to indicate this:

As disposal regulations may differ from country to country within the EU, please contact your supplier if necessary.

WARNING! Risk of explosion and fire due to overheated accumulators and batteries.

› Do not heat accumulators and batteries to over 80 °C and do not throw them into fires.

Disposing of accumulators and batteries
Do not dispose of accumulators and batteries as household waste. Dispose of accumulators and batteries according to the locally applicable legal regulations.

10 ORDERING INFORMATION

Cat. No.	Description
7166-0010	**ErgoOne® FAST** Pipette Controller
7166-6402	Wall mount
7166-6701	Sticky tape for wall mount
7166-6605	Membrane filter, 0.2 µm, sterile, PTFE, 1 pack (5 pcs.)
7166-6800	Membrane filter, 0.45 µm, sterile, PTFE, 1 pack (5 pcs.)
7166-6904	Seal for filter adapter
7166-6002	Pipette adapter (silicone)
7166-6103	Aspirating cone
7166-6200	Battery compartment lid
7166-6501	Lithium Polymer Battery, 3.7 V
7166-6109	Power supply, 100-240 V / 50-60Hz

USA Scientific, Inc.
PO Box 3565
Ocala, FL 34478-3565

www.usascientific.com