



Easypet® 3

Operating manual

eppendorf



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1 Operating instructions

1.1 Using this manual

- ▶ Read this operating manual completely before using the device for the first time. Also observe the instructions for use of the accessories.
- ▶ This operating manual is part of the product. Thus, must always be easily accessible.
- ▶ Enclose this operating manual when transferring the device to third parties.
- ▶ If this manual is lost, please request another one. The current version is available on our website: www.eppendorf.com.

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 operating manual indicate the following degrees of danger:

DANGER	<i>Will</i> lead to severe injuries or death.
WARNING	<i>May</i> 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
i	References useful information.

1.4 Glossary

E

Elastance 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

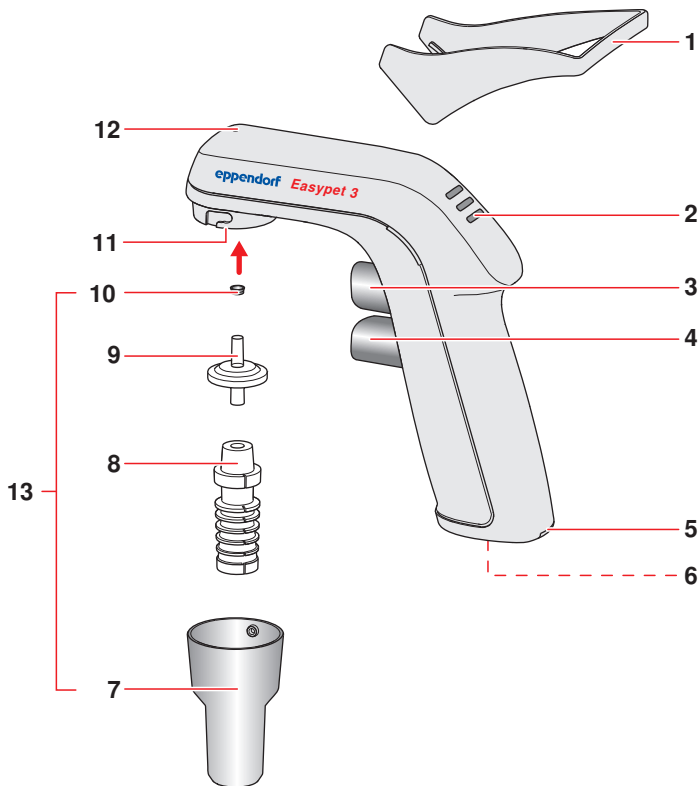


Fig. 1: Easypet 3 with accessories

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

2.2 Delivery package

Quantity	Description
1	Easypet 3
1	Lithium polymer battery
2	Non-sterile membrane filter, 0.45 µm
1	Wall mount
1	Shelf stand (not available in the USA)
1	Universal power supply
1	Operating manual
1	Short operating manual
1	CD

2.3 Warranty

For warranty claims, please contact your local Eppendorf sales partner. 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 Easypet 3 and accessories.

- ▶ Check the chemical resistance before using organic solvents or aggressive chemicals.
- ▶ Observe the cleaning instructions.
- ▶ Additional information on the chemical resistance can be found on the enclosed CD or on our webpage: www.eppendorf.com.

The pipette controller assemblies are composed of the following materials:

Component	Material
Housing, aspirating cone, aspiration button, dispensing button, membrane filter housing, wall holder, shelf stands	Polypropylene (PP)
Filter adapter	Polybutylene terephthalate (PBT)
Pipette adapter	Silicone
Filter membrane	Polytetrafluoroethylene (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 Easypet 3 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 operating 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.

- ▶ The Easypet 3 in potentially explosive atmospheres.
- ▶ Do not operate the Easypet 3 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 Easypet 3.
- ▶ Do not use the Easypet 3 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 Eppendorf may impair the safety, functioning and precision of the device. Eppendorf 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 Eppendorf.

**CAUTION! Danger to people due to grossly negligent use.**

- ▶ Never direct the opening of a Easypet 3 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 Eppendorf AG service partners. Please contact your responsible sales office before reshipping the parts.

**NOTICE! Damage to device from missing pipette.**

- ▶ Use Easypet 3 only when the pipette is inserted.



If you would like to dispense highly flammable or extremely flammable liquids, we recommend using a positive displacement system consisting of manual Multipettes/Repeaters and Combitips. Check the chemical resistance and observe the safety notes before using the Multipette/Repeater.

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:

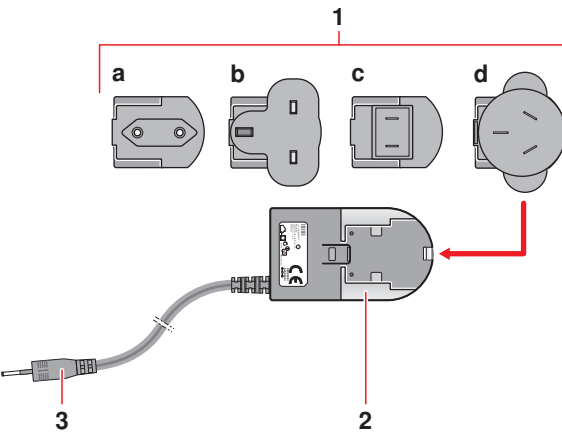
- The device is not used in accordance with the operating manual.
- The device is used outside of its intended use.
- The device is used with accessories or consumables which are not recommended by Eppendorf.
- The device is maintained or repaired by people not authorized by Eppendorf.
- The user makes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

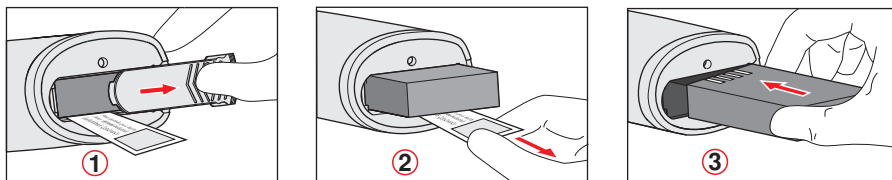
4.2 Mains/power supply device assembly



1 Power plug adapters a EU b United Kingdom c USA d Australia	2 Mains/power supply device
3 Charging plug	

- ▶ Insert the power plug adapter required for your mains/power supply into the opening of the mains/power supply device. If there is any doubt as to which power plug adapter should be used for the power supply unit, you should consult an electrician.

4.3 Removing the discharge protector

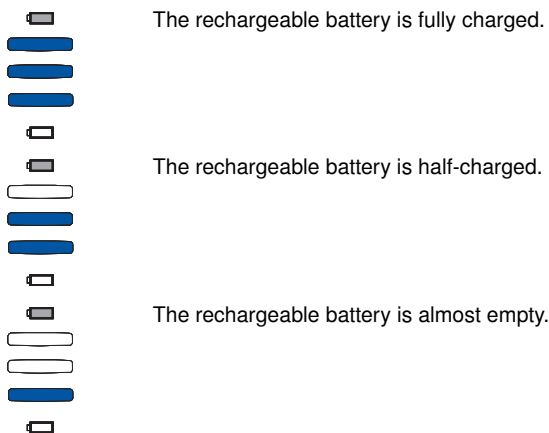


Proceed as follows:

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 Rechargeable battery status display during operation

4.4.1 The device is ready for operation.



4.4.2 Charging the rechargeable battery

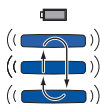


The status display is blinking. The rechargeable battery needs to be charged.



The rechargeable battery is empty and needs to be charged.

4.4.3 Rechargeable battery charging



The status display blinks alternately. The rechargeable battery is being charged.



The status display lights up for approx. 30 seconds when the rechargeable battery is fully charged.



4.4.4 The rechargeable battery is charged.



If the mains/power supply device is connected to a charged rechargeable battery, the rechargeable battery status display lights up for approx. 30 seconds. The rechargeable battery will not be charged.

5 Operation

5.1 Loading the rechargeable battery



WARNING! Incorrect or damaged power supplies can lead to severe person 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.

- ▶ Only use the supplied mains/power supply device to charge the device. The correct mains/power supply device is indicated by the Eppendorf logo and the device name on the mains/power supply device.
- ▶ Do not use a damaged mains/power supply device.



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 Easypet 3.
- ▶ 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.

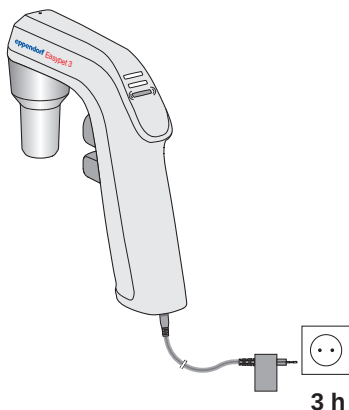


NOTICE! Loss of full battery charging capacity if charged incorrectly.

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 ($> 60\text{ }^{\circ}\text{C}$).
- ▶ Only the supplied mains/power supply device may be used to charge the rechargeable battery.

Proceed as follows:



1. Insert the mains/power supply device into the socket.
2. Insert the charging plug of the mains/power supply device into the connector socket on the grip.

Fig. 2: Loading the rechargeable battery

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

i 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.

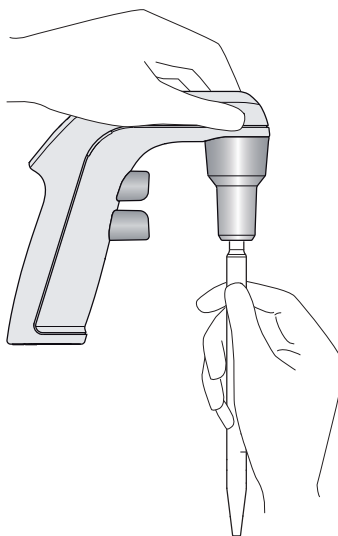


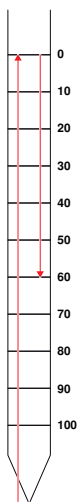
Fig. 3: Inserting the pipette

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.

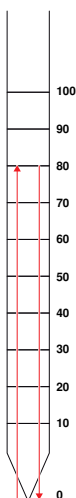
Volumetric pipettes have 1 or 2 marks and are adjusted to flow-out. Measuring pipettes have a scale and are divided into 4 types.

Type 1 measuring pipette



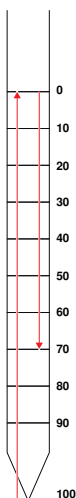
- Adjusted to flow-out.
- Nominal volume is indicated by the lowest scale graduation.
- Aspiration up to the zero line at the upper end of the pipette.
- Dispensing to any scale graduation on the scale.

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



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 how far the control button is pressed.

Slowly aspirating or dispensing liquid

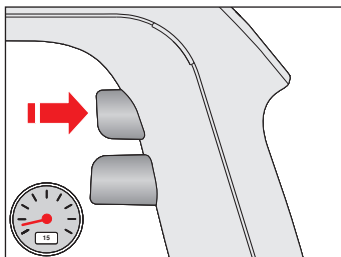


Fig. 4: Slow aspiration

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

Quickly aspirating or dispensing liquid

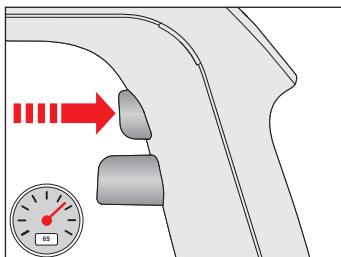


Fig. 5: Quick aspiration

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

5.5 Aspirating liquid



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.

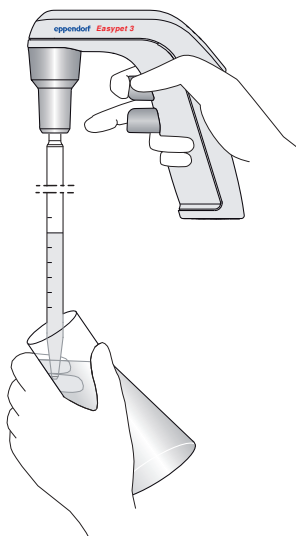


Fig. 6: Aspirating liquid

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.

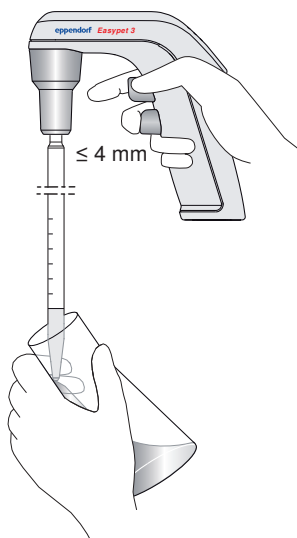
5.6 Dispensing liquid

i Consider the type of pipette used.

i 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.

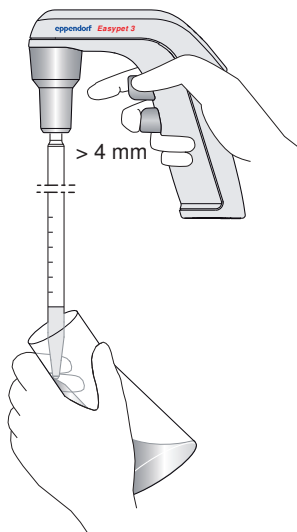


Fig. 8: Blowing out liquid

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

5.7 Using the wall mount

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

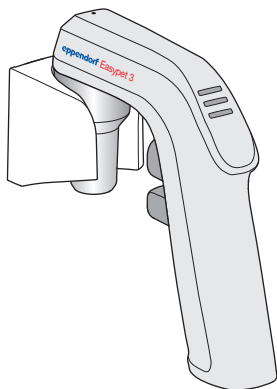


Fig. 9: Easypet 3 with wall mount

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.

5.8 Using the shelf stand

The supplied shelf stand can also be used for storage.

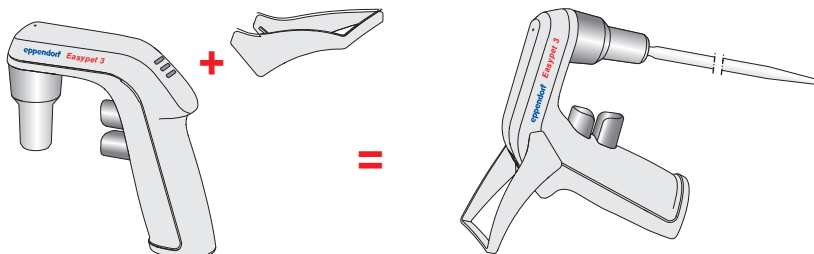


Fig. 10: Attaching the shelf stand

- ▶ Insert the shelf stand in the groove.
- ▶ To remove the shelf stand, press the sides of the shelf stand together.

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 sharp 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.

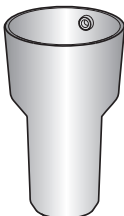
6.2.2 Cleaning the pipette clamp

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

6

Maintenance

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 dispose 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



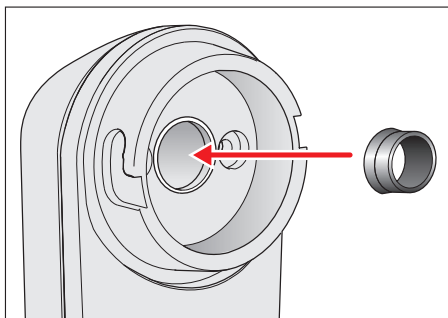
You can also use a membrane filter with a pore size of 0.2 µm.

6.3 Replacing the rechargeable battery

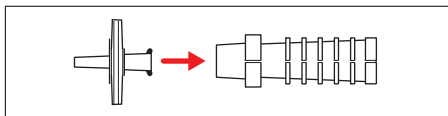
Proceed as follows:

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

6.4 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.

6.5 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.

i 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.

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.	• Too high speed.	▶ The aspirating button may only be pressed lightly.
Rechargeable battery will not charge.	• Rechargeable battery is charged.	▶ Disconnect the mains/power supply device. ▶ Only charge the rechargeable 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, $\pm 10\%$
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 Ordering Information

Order No. (International)	Order No. (North America)	Description
4430 000.018	–	Easypet 3 Incl. power supply, wall holder, shelf stand, 2 membrane filters (unsterile) 0.45 µm
–	4430000026	Easypet 3 Incl. power supply, wall holder, 2 membrane filters (unsterile) 0.45 µm
4420 801.004	022236105	Pipette adapter
4430 601.003	4430601003	Aspirating cone
4421 601.009 4430 606.005	022232002 4430606005	Membrane filter sterile, 1 set (5 pieces) 0.45 µm 0.2 µm
4421 602.005	4421602005	Seal for filter adapter 5 pieces
4430 605.009	4430605009	Lithium-polymer battery For Eppendorf Easypet 3
4986 603.005	4986603005	Power supply with power plug adapters
4430 604.002	4430604002	Wall mount
4430 603.006	–	Shelf stand
4430 602.000	4430602000	Rechargeable battery compartment lid
4430 607.001	4430607001	Sticky tape

10 Transport, storage and disposal

10.1 Decontamination before shipment

Before sending the pipette controller to the authorized Technical Service for repairs, or to your authorized dealer for disposal, you must decontaminate the pipette. Please note the following:

10.2 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

10.3 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

10.4 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 August 13, 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.



EG-Konformitätserklärung EC Conformity Declaration

Das bezeichnete Produkt entspricht den einschlägigen grundlegenden Anforderungen der aufgeführten EG-Richtlinien und Normen. Bei einer nicht mit uns abgestimmten Änderung des Produktes oder einer nicht bestimmungsgemäßen Anwendung verliert diese Erklärung ihre Gültigkeit.

The product named below fulfills the relevant fundamental requirements of the EC directives and standards listed. In the case of unauthorized modifications to the product or an unintended use this declaration becomes invalid.

Produktbezeichnung, Product name:

Easypet® 3

inkl. Netzteil / including charging adapter

Produkttyp, Product type:

elektrische Pipettierhilfe / electric pipette helper

Einschlägige EG-Richtlinien/Normen, Relevant EC directives/standards:

2006/95/EG, EN 61010-1

2004/108/EG, EN 55011/B, EN 61000-6-1, EN 61326-1

2011/65/EU

H.-G. Köhl

Vorstand, Board of Management:

11.06.2012

Hamburg, Date:

Godwin Pae

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