

edp 3™

Advanced Ergonomic Electronic Pipette

8 pipettes for
volume ranges
from
0.5 μ L to 10 mL

200 μ L EDP3 shown



RAININ
®

ISO
9001
CERTIFIED

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Introduction

EDP3 is a motorized microprocessor-controlled pipette with advanced operational features that eliminate pipetting inconsistencies and eliminates most pipetting forces. EDP3 controls and features are shown below.

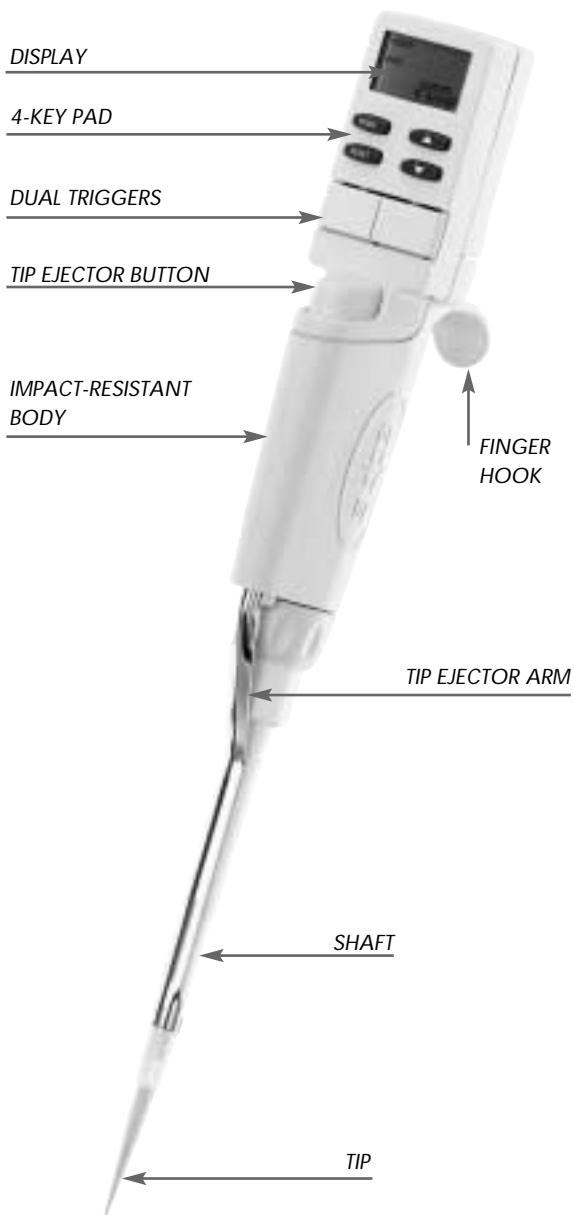


Figure 1 200 µL EDP3 Pipette

Unpacking

The EDP3 package should contain:

- | | |
|----------------------------|----------------------|
| 1. EDP3 Electronic Pipette | 4. Performance Check |
| 2. Operator Manual | Report/Warranty Card |
| 3. Quick Reference Guide | 5. Sample Tips |

If ordered, the Wall Power Supply or the Rapid Charge Stand will be in a separate box.

Unpack and check the contents against this list. If anything is missing, call Technical Service: 800-543-4030.

If any damage is evident, file a claim with the shipping carrier, who is responsible for damage incurred in transit. Save the shipping packages if you file a claim.

Set Up / Initial Charge

EDP3 is shipped with the battery charged. However, the pipette may have been stored before being delivered to you, so you should charge it for about 15 minutes initially – you can use EDP3 while it is being charged.

Connect the wall power supply to a power outlet matching the line voltage printed on the label:

120VAC 60Hz US	220VAC 50Hz Europe
240VAC 50Hz UK	100VAC 50Hz Japan

Connect the other end of the cord to the power socket on the back of EDP3. After 15 minutes the pipette will be charged enough for a typical day's pipetting, and fully charged after approximately 60 minutes.

While the pipette is connected to the charger, the display will show a "lightning" symbol in the top right corner. This symbol will flash while charging.

Rapid Charge Stand

E3-RCS Rapid Charge Stand will charge three EDP3 pipettes, one at a time, in sequence.

With only one EDP3 on the stand, charging will proceed as if the wall power supply were connected directly to the pipette. However, when charging more than one EDP3, the first one placed on the stand will be charged first.

To charge a particular pipette, remove other pipettes and place the desired pipette in the stand.

Refer to page 10 for more information.

Tip Selection

To ensure proper, leak-free fit and conformance to specifications, use only Rainin tips with EDP3 pipettes.

When loading tips, press the EDP3 shaft into the end of the tip with only sufficient force to make a positive seal.

Tip Immersion Depth

The recommended depth for tip insertion into the sample is shown in the table below.

EDP3 Volume	Range	Immersion Depth
10 μL	0.5 - 10 μL	1 - 2 mm
20 μL	2 - 20 μL	2 - 3 mm
100 μL	10 - 100 μL	2 - 3 mm
200 μL	20 - 200 μL	2 - 4 mm
1000 μL	100 - 1000 μL	2 - 4 mm
2000 μL	200 - 2000 μL	3 - 6 mm
5000 μL	500 - 5000 μL	6 - 10 mm
10 mL	1mL - 10 mL	6 - 10 mm

Tip immersion depth is important. If these depths are exceeded, the volume measured may be inaccurate, possibly out of specification. Tip angle is also important. Hold the pipette vertically, or within 20 degrees of vertical.

Filter

EDP3 5000 μL and 10 mL pipettes use a filter in the end of the shaft to help prevent liquid entering the shaft and contaminating the piston. Using such a filter is particularly important when pipetting large volumes. Replace the filter if it gets wet.

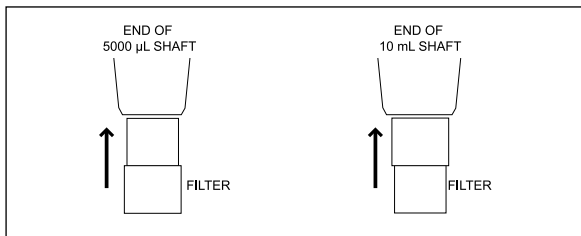


Figure 2 Filter Orientation

For 5000 μL pipettes insert the small diameter into the shaft, for 10 mL pipettes insert the large diameter into the shaft. Filter part nos. are: 6190-164 (pack of 100) and 6190-165 (pack of 1000).

Operation

Before initial operation you should charge EDP3 for about 15 minutes as described on page 2.

Before pipetting for the first time, take time to familiarize yourself with the key functions, and practice scrolling through the modes and options. If this is the first time the EDP3 pipette is used, it will default to PIPET mode. If not, press the MODE button until PIPET shows on the LCD.

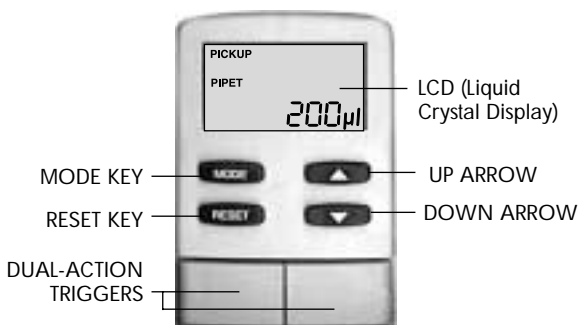


Figure 3 EDP3 Interface

Pipet Mode:

Select Volume with Arrow Keys

The ARROW keys only operate when the piston is at zero point ready to pick up sample. The DOWN ARROW reduces, and the UP ARROW increases, the volume.

Touch either ARROW key to change volume by one increment. Press and hold the ARROW key: the volume changes while you hold down the key, slowly at first then with increasing speed.

Volume Scrolling

While pressing the ARROW key, note the changing volume setting pauses at 75%, 50%, and 25% of the pipette's nominal volume, then continues at the faster rate.

At maximum volume, pressing the UP ARROW causes the display to roll over and begin again at the minimum volume. Pressing the DOWN ARROW at the minimum volume rolls over to the maximum volume. This means you can rapidly change the volume from high to low or vice versa without having to scroll the entire volume range. If you are scrolling through volumes, the display pauses briefly at either the maximum or minimum volume before it rolls over.

Aspirate or Dispense with Trigger

Once you have set the volume you wish to aspirate, immerse the tip into the sample the proper depth and press either of the triggers. To dispense, touch the tip end against the vessel side wall. Press either trigger. After blowout, remove the tip from the vessel. Then press the tip ejector button to discard the used tip.

Both triggers have the same function. Press a trigger once to aspirate sample, then press it again (or press the other trigger) to dispense. You can even press both triggers at once to aspirate and dispense – use the trigger which is convenient for you. Note: Always use the pipette within 20° of vertical.

Multidispense Mode:

1. Select Aliquot Volume with Arrow Keys

Press MODE button repeatedly until PICKUP MULTI shows on the LCD. Press either ARROW key to set aliquot size. EDP3 automatically computes the number of aliquots that can be dispensed and shows the number in the lower left of the display.

EDP3 aspirates the maximum volume of sample needed. To ensure accuracy on the last aliquot, EDP3 always picks up slightly more sample than will be pipetted.

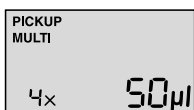
Or:

2. Select Number of Aliquots with RESET/ARROW Keys

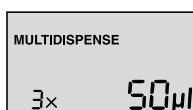
Press either ARROW key to set aliquot size. Then set the total number of aliquots you wish to dispense by momentarily pressing RESET. When the display flashes, press the ARROW key to set the number of aliquots you wish to dispense. (Note that it is impossible to increase the number on the display, you can only select a smaller number of aliquots).

EDP3 will pick up only the amount of sample necessary to accurately dispense the number of aliquots you select.

After aspiration, each time you press a trigger, one aliquot is dispensed. Touch off the droplets from each tip against the vessel wall to ensure accuracy as each aliquot is dispensed.



Multidispense: Pickup



Multidispense: Dispense

The counter will count down to zero and RESET will flash on the display. Press the reset key or double-click either trigger to expel the extra liquid remaining in the tip.

In this mode you can dispense all the liquid in the tip at any time by pressing the reset key.

Manual Mode:

Press MODE button repeatedly until MANUAL shows on the LCD. Using the ARROW keys, select the maximum sample size you wish to pipette. The first trigger you actuate is the ASPIRATE trigger and the other becomes the DISPENSE trigger.

Immerse the tip into the sample. To pick up the set volume, press and hold the aspirate trigger. This causes the display to reset to "0" and then increase until the set volume is aspirated. Press and hold the dispense trigger until the set volume is dispensed. To blow out any remaining sample press the RESET key momentarily or, if at the HOME position double-click the DISPENSE trigger.

You can also pick up or dispense one increment at a time by momentarily pressing the appropriate trigger.

After setting maximum sample size and immersing the tip into sample, the first time you press and release the ASPIRATE trigger the display will zero, then show the smallest possible increment of volume for the particular EDP3 model.

Then each time you press the ASPIRATE trigger momentarily, one increment of sample is drawn into the tip: If you press and hold the trigger the aspiration rate will increase to the preset speed. When you release the trigger, aspiration will stop. The display always reads the actual amount of sample in the tip. To dispense, press the DISPENSE trigger.

EDP3's manual mode is ideal for TITRATION, DILUTION, and MEASURING unknown sample volumes.

How to Titrate in Manual Mode

Use the ARROW keys to set the maximum volume of titrant. Press and hold the aspirate key to fill the tip with set volume of titrate. When the tip is filled, press and hold the reset key so the display resets to zero.

Then either click or press and hold the DISPENSE trigger to slowly or rapidly dispense the titrant. Any time you release the trigger, titration will stop.

The actual volume titrated will be shown on the display.

How to Measure in Manual Mode

To determine an unknown liquid volume:

In MANUAL mode, you can MEASURE an unknown volume of liquid. Set the pipette's maximum volume with the ARROW key. Immerse the tip the into the unknown volume.

Press either trigger: the display will set to zero and then increase while you hold the trigger, and EDP3 will begin aspirating. Click or press the trigger until the complete volume to be measured is inside the tip. If you overshoot and pick up some air after the liquid, just click the other trigger (DISPENSE) until the air is expelled and the liquid is level with the tip orifice.

When all the liquid is in the tip with no air visible, the display shows the exact volume of the liquid picked up.

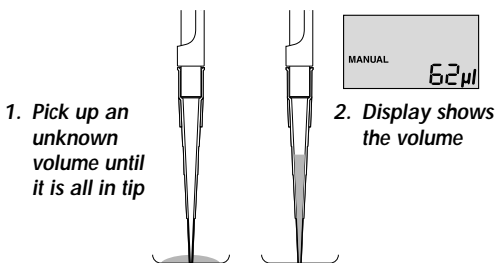


Figure 4 Measuring Unknown Volume

How to Dilute in Manual Mode

Example: Using E3-200 to dilute 20 μL of sample with 100 μL of diluent with 10 μL air gap between sample and diluent.

Set the maximum volume with the ARROW keys.

Place the tip in the diluent and press one of the triggers to aspirate 100 μL of liquid. If you accidentally pick up too much use the other trigger to adjust the volume to 100 μL .

Remove the tip from the diluent and press the aspirate key to pick up 10 μL of air. The display shows 110 μL .

Place the tip in the sample and press the aspirate key to pick up 20 μL of sample. Display reads 130 μL .

To dispense the sample and diluent, momentarily press RESET. The contents of the tip will be dispensed into the vessel, and the piston will go through blowout and reset to zero ready for the next sample pickup. The display reads 200 μL .

Alternate Dilute method: with EDP3 showing each volume

Set the maximum volume with the ARROW keys.

Place the tip in the diluent and press one of the triggers to aspirate 100 μL of liquid. If you accidentally pick up too much use the other trigger to adjust the volume to 100 μL .

Press and hold RESET until the display reads 0 μL . Remove the tip from the diluent and press the aspirate key to pick up 10 μL of air.

Press and hold RESET until the display reads 0 μL . Place the tip in the sample and press the aspirate key to pick up 20 μL of sample.

To dispense the sample and diluent, momentarily press RESET. The contents of the tip will be dispensed into the vessel, and the piston will go through blowout and reset to zero ready for the next sample pickup. The display reads 200 μL .

Options

Options available for each mode:

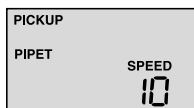
PIPET:	SPEED, MIX, CYCLE COUNT
MULTIDISPENSE:	SPEED
MANUAL:	SPEED, CYCLE COUNT

Access the OPTION menu in any mode by pressing and holding the MODE key until the display changes (1½ seconds). The display shows the last option selected. To scroll through the option menu press the MODE key momentarily.

Turn options on or off with the arrow keys. To lock options in memory press RESET or a trigger. This action locks all options in memory. Pressing a trigger starts the cycle as well.

SPEED:

Separate SPEED settings are available for each mode (see chart on inside back cover). Select a speed between 1 and 10 using the arrow keys. High speeds (9 or 10) are best for aqueous samples and slower speeds are useful for viscous, foaming or shear-sensitive samples.



Speed option

Speed Setting	Full-scale Pickup	Full-scale Dispense	Delay before Blowout	Blowout Duration	Hold at end (constant)
10	0.7 sec	0.7 sec	0.0 sec	0.13 sec	1.0 sec
9	1.0 sec	1.0 sec	0.4 sec	0.22 sec	1.0 sec
8	1.5 sec	1.5 sec	0.6 sec	0.30 sec	1.0 sec
7	1.9 sec	1.9 sec	0.8 sec	0.38 sec	1.0 sec
6	2.4 sec	2.4 sec	0.9 sec	0.50 sec	1.0 sec
5	2.8 sec	2.8 sec	1.1 sec	0.32 sec	1.0 sec
4	3.2 sec	3.2 sec	1.5 sec	0.58sec	1.0 sec
3	3.8 sec	3.8 sec	1.7 sec	0.69 sec	1.0 sec
2	4.5 sec	4.5 sec	1.9 sec	0.80 sec	1.0 sec
1	5.3 sec	5.3 sec	2.5 sec	1.04 sec	1.0 sec

Speed Setting Table applies to EDP3 in PIPET MODE.

PIPET & MIX:

Available in PIPET mode. Turn on using ARROW keys. With sample in the tip, immerse tip into the liquid you wish to mix with the sample. Press and hold the trigger. Liquid is rapidly dispensed and aspirated in and out of tip. When mixing is complete, release trigger and remove tip from liquid.

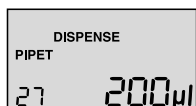


Mixing two solutions

CYCLE COUNTER:

Available in PIPET mode and MANUAL mode. When on, the last sample number pipetted appears in the lower left corner of the display. The display counts up to 99 and then returns to 0. Reset the counter to 0 at anytime by pressing and holding RESET until the display reads 0.

It is possible to start the display at any sample number. If you momentarily press RESET the sample number will flash. Then use the ARROW keys to set any sample number you wish to start with.



Display shows last sample pipetted (in photo)

Charging using the Wall Power Supply

The Li-Ion battery in the EDP3 pipette will provide about 3000 full-stroke cycles before needing to be recharged.

To recharge EDP3, connect the wall power supply to a power outlet matching the line voltage printed on the label:

120VAC 60Hz US	220VAC 50Hz Europe
240VAC 50Hz UK	100VAC 50Hz Japan

and connect the other end of the cord to the power socket on the back of EDP3. After 15 minutes the instrument will be charged enough for a typical day's pipetting, and fully charged after approximately 60 minutes.

Charging using the Rapid Charge Stand

E3-RCS Rapid Charge Stand will charge three EDP3 pipettes, one at a time, in sequence.

With only one EDP3 on the stand, charging will proceed as if the wall power supply were connected directly to the pipette. However, when charging more than one EDP3, the first one placed on the stand will be charged first.

To charge a particular pipette, remove other pipettes and place the desired pipette in the stand.

It is a good idea to store the EDP3 pipette on the stand when it is not in use. This practice will provide a safe storage place, and the EDP3 will always be fully charged.

Note: no charging takes place if the EDP3 pipette has reached approximately 90% of its charging capacity. While connected to a charging device, a "lightning" symbol shows in the top right corner. This symbol flashes while charging.



*E3-WPS Wall Power Supply
EDP3 can be used while charging*



E3-RCS Rapid Charge Stand

Figure 5 Charging Devices

Replacing the Battery

Open the battery compartment by pushing upward with your thumb on the grooved area of the compartment door.

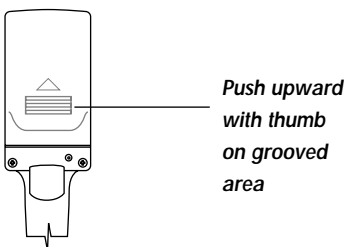
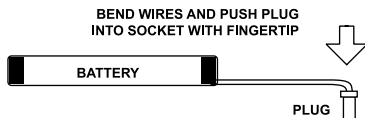


Figure 6 Battery Compartment

To change the battery:

1. Disconnect the connector and take the old battery out.
2. Connect the replacement battery plug to the keyed socket in the battery compartment of EDP3. A label in the battery compartment shows the correct orientation of the plug when connected properly. It is helpful to bend the wires as shown below before making the connection.



3. You will hear the EDP3 set itself to zero as you plug in the connector.
4. Place the new battery in position between the retaining walls. Make sure the wires are not trapped under the battery; fold them between the battery and the end of the compartment, as shown below in the diagram.
5. Slide the battery compartment door closed.

Lay wires between battery and this wall when installing battery

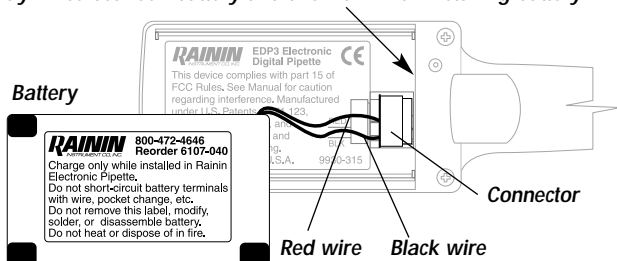


Figure 7 Replacing the Battery

Care and Maintenance

EDP3 pipettes are sophisticated laboratory instruments and should be treated with appropriate care. Designed to need very little maintenance, your EDP3 should give years of trouble-free service provided it is treated with proper care and the operating recommendations in this manual are followed.

The most important factor in taking proper care of the EDP3 pipette is to keep the mechanism dry and clean. The following simple rules should be strictly observed.

1. Never allow liquid to enter the shaft where it can contact the piston or seal.
2. Never pick up liquid without a tip attached.
3. Never invert the EDP3 pipette or lay it on its side with liquid in the tip. Always hold it upright and store it upright if possible. The Rapid Charge Stand can be used to hold (and charge) three EDP3 pipettes.
4. Never use solvents to clean EDP3. Instead, use a lint-free wipe dampened with water to clean the instrument. Keep the keyboard display dry.

Also:

5. Never attempt to recharge EDP3 with any other device than either the Rainin Model E3-WPS Wall Power Supply or the Model E3-RCS Rapid Charge Stand. Severe damage to the internal electronics would result.

Autoclaving

Autoclavable parts of the Model EDP3 are the shaft and the tip ejector: 121°C, 1 bar, 15-20 minutes.

Do not autoclave the complete EDP3 pipette or any parts other than the shaft and the tip ejector.

Tip Ejector Arm Removal

The tip ejector can be removed if necessary. Two types of tip ejector are used and both types can be removed with minimum effort—do not use force.

For models up to 2000 μL , press in the quick-release tabs on the ejector arm and pull the ejector down. For 5000 μL and 10 mL pipettes, grasp the top of the ejector arm and pull outward then downward.

To replace the ejector arm on all models, insert the shaft through the large opening, align the top with the tip ejector pushrod, and push until the ejector arm snaps in place.

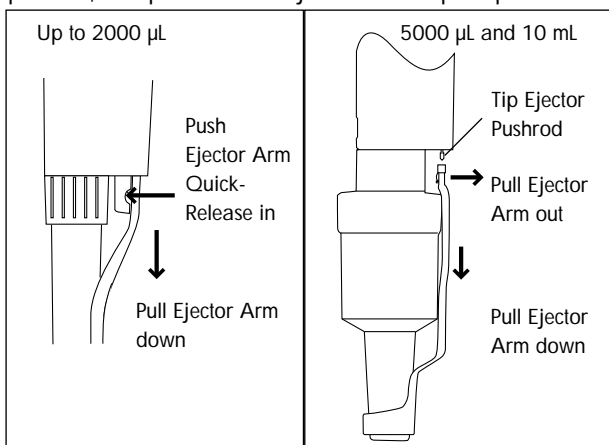


Figure 8 Removing the Tip Ejector Arm

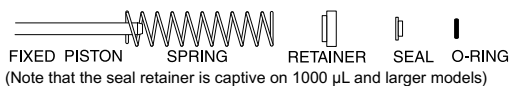
Troubleshooting and Repairs

WARNING:

On models from 10–200 μL , when removing the shaft from the body, ensure the spring, seal and o-ring do not fall off the piston.

Sample Splash (liquid inside the mechanism)

1. Refer to Figure 8 to remove the tip ejector arm.
2. Unscrew the shaft coupling and carefully remove the shaft. Note how the parts fit onto the piston.



3. Inspect the seal assembly and piston for contamination. The piston should be shiny and free of corrosion. Clean with distilled water or isopropyl alcohol. Dry with a lint-free tissue and reassemble after inspecting the interior of the shaft for any contamination.

4. If piston corrosion or staining is evident, do not use the pipette. Call 800-662-7027 for Pipette Service.

Leaks, Inaccurate Sampling, Abnormal Stroke

1. **Loose shaft.** Tighten coupling by hand.
2. **Split or cracked shaft.** Remove the tip ejector and inspect the shaft. Replace the shaft if necessary. If the shaft was dropped, remove it to see if the piston is bent. If so, return the instrument for service.
3. **Worn seal and/or o-ring.** All models incorporate a polyethylene seal and o-ring. Check the seal and o-ring, replacing them as necessary. To replace, pull off the old seal and o-ring, position the new seal and o-ring on the piston assembly, and reassemble the pipette.

Do not lubricate any components*. EDP3 has a dry seal (*except for 5000 μ L and 10 mL models, which use a small amount of grease on the seal).

After pipetting concentrated acids or highly corrosive solutions, disassemble EDP3 and inspect and clean the piston assembly, shaft, and seal with distilled water. Dry all components thoroughly and reassemble.

Extensive contact with corrosive fumes may result in premature seal wear and damage to the piston. Exposure of internal components to corrosive fumes can be reduced by using Rainin tips with aerosol barrier filters.

Service, Calibration and Repair

Repair and Calibration facilities:

Rainin Service Center

5400 Hollis St., Emeryville, CA 94608, USA

Tel: 800-662-7027 Fax: 510-652-4403

Rainin Service Center

Rainin Road, Woburn, MA 01801, USA

Tel: 800-662-7027 Fax: 781-935-7631

Rainin Europe

Nieuwenhuizenweg 9, 2314 XP, Leiden, The Netherlands

Tel: + 31 (0) 71 5412668 Fax: + 31 (0) 71 5415390

Rainin Japan

4-1-11, Bunkyo-Ku, Tokyo 113-0033, Japan

Tel: (03) 5689-8311 Fax: (03) 5689-2670

Service is also available in many other countries through authorized Rainin distributors.

Replacement Parts

Parts for E3-Series 10 µL to 1000 µL:

	A Shaft	B Tip Ejector	C Seal	D O-ring	
	E Stroke Spring	F Seal Retainer	G Shaft Coupling		
	E3-10	E3-20	E3-100	E3-200	E3-1000
A	6202-064	6202-065	6202-066	6202-067	6202-068
B	6202-071	6202-071	6202-073	6202-073	6202-074
C	6200-138	6200-143	6200-150	6200-154	6200-161
D	6200-139	6200-170	6200-151	6200-155	6200-162
E	6200-195	6200-197	6200-197	6200-199	6107-108
F	6200-196	6200-198	6200-201	6200-200	6107-106
G	6107-063	6107-063	6107-063	6107-063	6107-063

Parts for SE3-Series 10 µL to 1000 µL:

	A Shaft	B Tip Ejector	C Seal	D O-ring	
	E Stroke Spring	F Seal Retainer	G Shaft Coupling		
	SE3-10	SE3-20	SE3-100	SE3-200	SE3-1000
A	6200-140	6200-145	6200-147	6200-157	6200-160
B	6200-133	6200-144	6200-148	6200-156	6200-163
C	6200-138	6200-143	6200-150	6200-154	6200-161
D	6200-139	6200-170	6200-151	6200-155	6200-162
E	6200-195	6200-197	6200-197	6200-199	6107-108
F	6200-196	6200-198	6200-201	6200-200	6107-106
G	6107-063	6107-063	6107-063	6107-063	6107-063

Parts for E3 and SE3 series 2000 µL to 10 mL:

	A Piston o-ring	B Cylinder	C Cylinder O-ring	D Shaft
	E Tip Ejector	F Seal	G Stroke Spring	H Seal Retainer
		2000 µL	5000 µL	10 mL
A		6200-167	6107-112	6107-113
B		n/a	6200-365	6200-371
C		n/a	6200-364	6200-370
D E3 Series		6202-214	6202-222	6202-223
D SE3 Series		6200-169	6200-362	6200-368
E		6200-168	6200-373	6200-374
F		6200-166	n/a	n/a
G		6107-109	n/a	n/a
H		6107-107	n/a	n/a

Common parts for 5000 µL and 10 mL E3 and SE3 series:

Tube of grease:	6100-555
Filters:	6190-164 (pack of 100)
	6190-165 (pack of 1000)

Common parts for all EDP3 models:

Battery:	6107-040
Battery Cover:	6107-085

Specifications *subject to change without notice*

Accuracy and precision specifications for EDP3 are defined in this manual as follows:

Accuracy is the closeness of a measured volume to the true volume as specified by the volume setting of the pipette. Also known as “mean error”.

Precision is the scatter of individual measurements around the mean of a large number of replicate measurements of the same volume. Also known as “standard deviation”.

EDP3 Specifications			Accuracy (mean error)		Precision (repeatability)	
Model	Volume μL	Increment μL	Rel % (≤)	Abs μL (±)	Rel CV % (≤)	Abs SD μL (±)
10 μL	1	0.05	2.5	0.025	1.2	0.012
	5		1.5	0.075	0.6	0.03
	10		1.0	0.1	0.4	0.04
20 μL	2	0.1	7.5	0.15	2.0	0.04
	5		3.0	0.15	0.9	0.045
	10		1.5	0.15	0.5	0.05
	20		1.0	0.2	0.3	0.06
100 μL	10	0.5	3.5	0.35	1.0	0.1
	50		0.8	0.4	0.24	0.12
	100		0.8	0.8	0.15	0.15
200 μL	20	1	2.5	0.5	1.0	0.2
	100		0.8	0.8	0.25	0.25
	200		0.8	1.6	0.15	0.3
1000 μL	100	5	3.0	3	0.6	0.6
	500		0.8	4	0.2	1
	1000		0.8	8	0.15	1.5
2000 μL	200	10	3	6	0.6	1.2
	1000		0.8	8	0.2	2
	2000		0.8	16	0.12	2.4
5000 μL	500	25	2.4	12	0.6	3
	1000		1.2	12	0.3	3
	2500		0.6	15	0.2	5
	5000		0.6	30	0.16	8
10 mL	1 mL	50	5	50	0.6	6
	5 mL		1	50	0.2	10
	10 mL		0.8	80	0.16	16

**EC Declaration of Conformity
according to ISO/IEC Guide 22 and EN45014**

Manufacturer's Name: Rainin Instrument Co.

Manufacturer's Address: 5400 Hollis St.
Emeryville CA 94608, U.S.A.

declares that the following product:

Product Name: EDP3 Motorized Microliter Pipette

Model Number: EDP3

Product Options: E3-RCS Rapid Charge Stand
E3-WPS Wall Power Supply

conforms to the following Product Specifications:

Safety: EN61010-1:1995
IEC1010:1990 + A1, A2

EMC: EN55011:1998 Class A
(Electromagnetic Interference)
EN50082-1
pr EN61000-4-2:1995
(Electrostatic Discharge)
pr EN61000-4-3:1997
(Electromagnetic Immunity)
pr EN61000-4-4:1995
(Electrical Fast Transient)
pr EN61000-4-8:1994
(Magnetic Field Immunity)

Supplementary Information:

Responsible Signatory: Jim Petrek, VP, Engineering
Date: March 25, 1999

This Declaration of Conformity applies only to products which have the CE mark attached.

WARNING:

This equipment generates and uses radio frequency energy and if not installed and used properly, i.e. in strict accordance with the instruction manual, may cause harmful interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment.

Operation of this equipment in a residential area is likely to cause interference, in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

Limited Warranty

See the enclosed Limited Warranty and Limitations of Liability Statement. Please complete and return the Warranty Registration Card on receipt of your pipette.

Rainin pipettes are calibrated with Rainin tips. To assure excellent reproducibility and performance, use only Rainin tips as recommended in this manual. Specified performance is guaranteed only when Rainin tips are used.

Contacting Rainin

Technical Information:

Phone: 800-543-4030
Fax: 781-938-1152
E-mail: tech.service@rainin.com

Pipette Service:

Phone: 800-662-7027
Fax: 781-935-7631
E-mail: service@rainin.com

Direct Order Line:

Phone: 800-472-4646
Fax: 781-938-1152
E-mail: pipets@rainin.com

Web: www.rainin.com

From outside the U.S.:

Massachusetts Office: 001-781-935-3050
California Office: 001-510-654-9142

Rainin Europe:

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Specifications are subject to change without notice.
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