

EDP3-PlusTM

Multichannel Electronic Pipette with LTSTM LiteTouchTM Tip Ejection

**Advanced
Ergonomic
Multichannel
Pipette**

Models:

**E8-10
E8-20
E8-50
E8-200
E8-300
E8-1200**

**E12-10
E12-20
E12-50
E12-200
E12-300
E12-1200**

**E2X8-20
E2X8-100**

**E24-20
E24-100**

E8-200 shown



RAININ

EDP3-Plus LTS Electronic Multichannel Pipette

EDP3-Plus multichannel pipettes are based on EDP3-Plus single-channel models which use the patented LTS LifeTouch Tip Ejection System.

Four versions of the multichannel EDP3-Plus are available: 8-channel (E8), 12-channel (E12), 16-channel in two rows (E2X8), and 24-channel in two rows (E24).

8 and 12-channel models are available in 6 volume ranges: 0.5-10 μ L, 2-20 μ L, 5-50 μ L, 20-200 μ L, 20-300 μ L, and 100-1200 μ L. The 2x8-channel and 24-channel models are available in 2 volume ranges, 2-20 μ L and 10-100 μ L.

This is an addendum to the EDP3-Plus manual (9920-235) which describes pipette operation, modes, and options.

Speed Setting

The maximum speed setting for E8 and E12 multichannel pipettes is **10** for the 10-300 μ L models, and **9** for the 1200 μ L model.

The maximum speed setting for E2X8 and E24 pipettes is **10**.

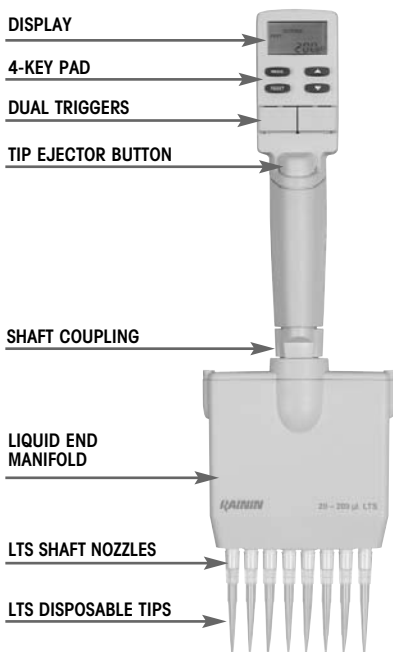


FIGURE 1 E8-200 PIPETTE

Tip Selection

EDP3 multichannel pipettes must be used with RAININ LTS tips.

E8-10, E8-20, E12-10, E12-20, E2X8-20 & E24-20: 20µL LTS tips

E8-50, E12-50, E8-200, E12-200, E2X8-100 & E24-100: 250 µL LTS tips

E8-300 and E12-300: 300 µL LTS tips

E8-1200 and E12-1200 use 1200 µL LTS tips (recommended)

OR 1000 µL LTS tips – picks up 1200 µL (except aerosol-resistant)

LTS tips have a cylindrical cross-section with a well-defined seal ring, thin wall, and positive stop. They seal properly on the shaft and cannot be jammed or forced too far onto the shaft nozzles.

Mounting LTS Tips: 8- and 12-channel

Mounting racked LTS tips onto E8 and E12 pipettes is simple. First align the shaft nozzles into the row of tips, holding the pipette at a slight angle. (Figure 2.1). Position the pipette upright and press the nozzles into the tips until the “positive stop” is reached. (Figure 2.2). The tips are now mounted with proper sealing.

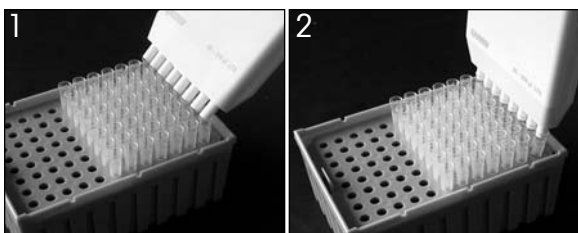


FIGURE 2: MOUNTING RACKED LTS TIPS, 8-AND 12-CHANNEL

You do not need hand-tighten, use heavy pressure, or “rock” the nozzles onto the tips to obtain a good seal.

Mounting LTS Tips: 2x8- and 24-channel

1. Align the first row of shaft nozzles with the first row of tips, holding the pipette almost vertically. Move the pipette as shown by the arrow to align the second row of tips. You may need to “rock” or rotate the pipette to get all tips aligned.

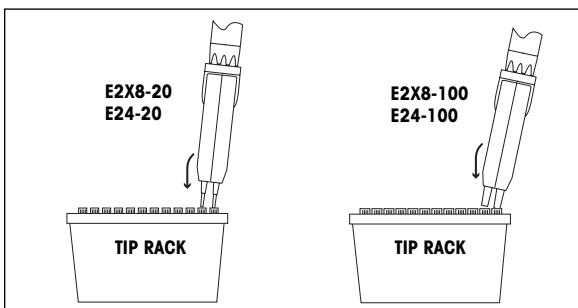


FIGURE 3: MOUNTING RACKED LTS TIPS, DOUBLE-ROW MODELS

- 2. When you are satisfied that all tip nozzles are aligned with the tips, lightly press both rows of shaft nozzles into the tips until you feel the “positive stops” in the tips.
- 3. While maintaining slight pressure, “rock” the pipette back and forth and in a circular direction to ensure both rows of tips are attached. Do not press very hard; a little practice will help you find the optimal pressure and amount of rocking.

The tips are now mounted with proper sealing.

Tip Immersion Depth

The recommended depth for tip insertion into the sample for each EDP3-Plus multichannel model is shown in the table below.

EDP3-Plus Model	Immersion Depth
E8-10, E12-10	2 - 3 mm
E8-20, E12-20, E8-50, E12-50, E2X8-20, E24-20	2 - 3 mm
E8-200, E12-200, E2X8-100, E24-100	2 - 4 mm
E8-300, E12-300	2 - 4 mm
E8-1200, E12-1200	4 - 10 mm

Tip immersion depth is important. If exceeded, the volume measured may be inaccurate, possibly out of specification.

Tip angle: Operate the pipette within 20 degrees of vertical.

Tip Ejection

Simply press on the tip ejector button. All tips are ejected cleanly with minimal pressure on the thumb.

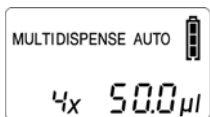
Positioning the Liquid End Manifold

The liquid end manifold can be rotated to any angle for convenience. You do not need to loosen the coupling nut.

AutoPace (AUTO)

AutoPace allows multiple aliquots of the same volume to be dispensed repeatedly at equal time intervals after the dispense trigger is pressed once. For example, on the 300 μ L volume pipette, all channels can dispense ten 30 μ L aliquots at 2-second intervals with one touch of the trigger.

In MULTI mode, press and hold the mode key to reach the options menu. Then click the mode key until “auto” appears on the display. The first time used, the display will flash “off”. Use the arrow keys to set the time interval between dispenses. The range is 0.2 seconds to 25 seconds, in 0.1 second increments.



Autodispensing set in MULTI mode
Note: AUTO symbol flashes when paused
and is steady when active

FIGURE 4: AUTOPACE

When the time interval is set, press either trigger to pick up the set volume. Then press the trigger again to begin dispensing automatically at the set time interval. Pressing either trigger pauses autodispensing until either trigger is pressed again, when autodispensing restarts. At the end of the last dispensed aliquot, press RESET to begin the next pickup.

Note for 2x8- and 24-channel models



FIGURE 5: E2X8-20 (L) AND E24-100 (R)

On the 2x8-channel and 24-channel models, both rows of tips need to be touched-off. Normally, dispense and blow-out are performed automatically by EDP3-Plus as you press and release the trigger for dispensing. This may not provide enough time to touch-off the second row on double-row models, if you touch-off each row separately.

You can delay the dispense / blowout sequence and obtain more time for touch-off by holding-in the dispense trigger for the dispense stroke, instead of pressing and releasing the trigger. Hold the trigger only long enough to touch-off both rows of tips, then release the trigger.

You can also touch-off both rows of tips at the same time; touch off all tips together at the bottom of the wells. Practice both methods to develop your technique.

Power requirements for E12-1200

E12-1200 has different power requirements than other RAININ electronic multichannel pipettes. It can be operated (a) with the battery, (b) with the battery as well as connected to the optional wall power supply. However, the high forces in E12-1200 preclude operation with the wall power supply alone.

Note: Unique tips for 1200 µL models

The RT-L1200 and RT-L1200S tips are specifically designed for use with 1200 µL models in MULTIDISPENSE mode. The unique design of these tips prevents drop formation and eliminates the need for touch-off between dispenses in MULTIDISPENSE mode.

The RT-L1200F aerosol-resistant tip allows a full 1200 µL to be aspirated under the filter. However, fluid dynamics dictate that touch-off may be required when multidispensing.

Specifications

These manufacturer's specifications should be used as guidelines when establishing your own performance specification.

Model	Volume µL	Increment µL	Accuracy		Precision	
			%	µL (±)	%	µL (≤)
E8-10, E12-10 (range 0.5-10 µL)	1	0.01	2.5	0.025	1.2	0.012
	5		1.5	0.075	0.6	0.03
	10		1.0	0.10	0.4	0.04
E8-20, E12-20 E2X8-20, E24-20 (range 2-20 µL)	2	0.02	7.5	0.15	2.0	0.04
	10		1.5	0.15	0.5	0.05
	20		1.0	0.20	0.3	0.06
E8-50, E12-50 (range 5-50 µL)	5	0.05	3.5	0.18	1.5	0.075
	25		1.2	0.30	0.4	0.1
	50		0.8	0.40	0.2	0.1
E2X8-100, E24-100 (range 10-100 µL)	10	0.1	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
E8-200, E12-200 (range 20-200 µL)	20	0.2	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
E8-300, E12-300 (range 20-300 µL)	30	0.2	2.5	0.75	1.0	0.3
	150		0.8	1.2	0.25	0.375
	300		0.8	2.4	0.15	0.45
E8-1200, E12-1200 (range 100-1200 µL)	100	1.0	3.6	3.6	0.60	0.60
	600		0.8	4.8	0.20	1.20
	1200		0.8	9.6	0.15	1.80

(Specifications subject to change without notice)

Service

If you experience any problems with your multichannel EDP3 pipette contact RAININ Technical Support at 800-543-4030.

Ordering Information

Cat. No. Description

Pipettes: 8-channel

E8-10	8-channel, 0.5 to 10 µL
E8-20	8-channel, 2 µL to 20 µL
E8-50	8-channel, 5 µL to 50 µL
E8-200	8-channel, 20 µL to 200 µL
E8-300	8-channel, 20 µL to 300 µL
E8-1200	8-channel, 100 µL to 1200 µL

12-channel

E12-10	12-channel, 0.5 to 10 µL
E12-20	12-channel, 2 µL to 20 µL
E12-50	12-channel, 5 µL to 50 µL
E12-200	12-channel, 20 µL to 200 µL
E12-300	12-channel, 20 µL to 300 µL
E12-1200	12-channel, 100 µL to 1200 µL

2x8 (16-channel)

E2X8-20	16-channel in 2x8 configuration, 2 µL to 20 µL
E2X8-100	16-channel in 2x8 configuration, 10 µL to 100 µL

24-channel

E24-20	24-channel in 2x12 configuration, 2 µL to 20 µL
E24-100	24-channel in 2x12 configuration, 10 µL to 100 µL

Note: LTS multichannel pipettes require LTS tips.

Accessories:

HU-M3	Package of 3 Magnetic Hang-Ups. Includes adhesive disk for attachment to a non-ferrous vertical surface
HU-S3	Shelf clamp with 3 Hang-Ups attached
CR-7	Free-standing Pipette Carousel, for up to 7 pipettes
HU-A3	Adapter for Multichannels for HU-M3, HU-S3 & CR-7
6107-040	Battery
6107-249	Battery for E12-1200

Note: One of the following charging devices must be used to charge EDP3-Plus battery.

E3-WPS Wall Power Supply. Recharges EDP-Plus in about an hour.
Allows the pipette to be used while being charged.

E3-RCS Rapid Charge Stand. Recharge up to three EDP3-Plus pipettes. Includes E3-WPS. Bench or wall mounting.

To order pipettes or accessories, call 800-472-4646, or visit www.rainin.com on the web.

RAININ is a registered trademark and EDP3 and LTS are trademarks of Rainin Instrument, LLC. EDP3 Pipettes are manufactured under U.S. Patents. 4,671,123, 4,905,526, 5,187,990, 5,614,153, 6,299,841 and 6,254,832. LTS LiteTouch Tip Ejection System is protected under U.S. patents 6,168,761 B1 and 6,171,553 B1. Other U.S. and national patents pending. Prices and specifications subject to change without notice.

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 LTS pipettes are calibrated with RAININ LTS tips.

To assure excellent reproducibility and performance, use only RAININ LTS tips as recommended in this manual. Specified performance is guaranteed only when RAININ LTS tips are used.

Contacting RAININ

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RAININ

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Prices and specifications are subject to change without notice.



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