

RAININ

Pipetting 360°

EDP[®]3-Plus

Adjustable Spacer

**Electronic Multichannel Pipette
with Adjustable Nozzle Spacing
and LTS[®] LiteTouch[™] Tip Ejection**

**6 or 8
channels**

Models:

EA8-50

EA6-300

EA8-300

EA6-1200

EA8-1200

EA8-1200 shown



METTLER TOLEDO

Introduction

This is an addendum to the EDP3-Plus manual (9920-235) which describes general pipette operation, modes, and options. EDP3-Plus Adjustable-Nozzle multichannel pipettes are based on single-channel models, and operate in the same way. Two versions of the adjustable-nozzle multichannel EDP3 pipette are available: **6-channel (EA6)** and **8-channel (EA8)**, with nozzle spacing adjustment ranges shown below:

6-channel 9 mm to approx. 19 mm

8-channel 9 mm to approx. 14 mm

6- and 8-channel versions are available in the volume ranges: 20-300 μL and 100-1200 μL . 8-channel versions are also available in the 5-50 μL volume range.

Packing List

In addition to this manual, the pipette box should contain:

EDP3-Plus instruction manual 9920-235, Rainin Test Report, Performance Assurance Brochure, sample tips.

Spacing Controls and Indicators

Nozzle spacing is changed with the use of two knurled knobs on either end of the liquid end manifold: the LIMITER knob and the SPACING ADJUSTMENT knob.

The LIMITER knob (marked with the nozzle spacing range) sets the desired maximum spacing within the pipette's spacing range. A vertical arrow at the top of the knob on the liquid end manifold is the set point.

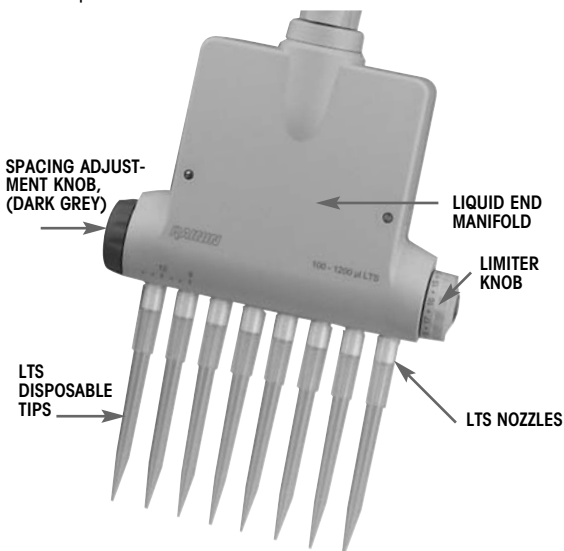


FIGURE 1 NOZZLE SPACING CONTROLS

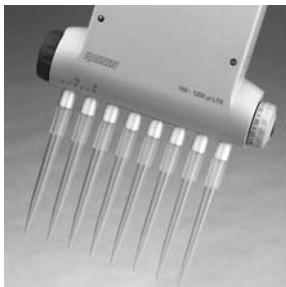
When you have set the maximum spacing with the LIMITER knob, turn the SPACING ADJUSTMENT knob to open the nozzle spacing to the set value. A scale on the liquid end manifold gives a visual reference of the set spacing. Simply line up the the left-most nozzle with the scale on the manifold, as shown here.



The full range of adjustment for the eight-channel version is shown below. Nozzles are set to 9 mm spacing on the left and 14 mm spacing on the right.



Minimum spacing



Maximum spacing

FIGURE 2: NOZZLE SPACING RANGE

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.

When in use, it is recommended to hold the handle in your dominant hand and turn the adjustment knob with your other hand. Right-handed users should position the pipette as shown on the cover.

If you are left-handed, you can rotate the liquid end manifold 180° clockwise, so that the adjustment knob can be manipulated with your non-dominant hand.

Tip Selection

RAININ LTS tipss must be used with Adjustable-Spacer pipettes:

EA6-50: use 250 μ L LTS tips

EA6-300 and EA8-300: use 300 μ L LTS tips

EA6-1200 and EA8-1200: use 1200 μ L LTS tips (recommended)

OR 1000 μ L LTS tips – picks up 1200 μ L (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 LTS nozzles and cannot be jammed or forced too far onto the nozzles.

Mounting LTS Tips

Mounting racked LTS tips onto EA6 and EA8 pipettes is simple.

1. Set the nozzle spacing to 9 mm (same as the spacing for racked tips) by rotating the dark grey SPACING ADJUSTMENT knob fully clockwise.
2. Align the nozzles into the row of tips, holding the pipette at a slight angle. (Figure 3.1). Rotate the pipette upright and press the nozzles into the tips until the “positive stop” is reached. The tips are now mounted with proper sealing. You do not need to hand-tighten, use heavy pressure, or “rock” the nozzles onto the tips to obtain a good seal. Withdraw the tips from the tip rack. (Figure 3.2)

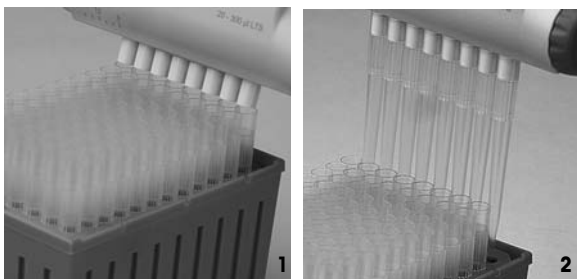


FIGURE 3: MOUNTING TIPS

Setting the Nozzle Spacing

With tips mounted on the nozzles, and before you begin to aspirate sample:

- If you know the spacing for the receiving wells or test-tube block, set this value on the LIMITER knob.
- If you do not know the spacing, hold the pipette so that the tip ends are above the centers of the wells or test tube block into which you will dispense. Look at the scale on the liquid end manifold, and note where the marked nozzle aligns. Set this value on the LIMITER knob.
- If you accidentally over-extend the spacing, you can click the LIMITER knob to smaller values, stopping when the tip ends are aligned over the centers of the wells/test tubes.

Once the LIMITER knob has been set, spacing the nozzles properly is simple.

Just pick up sample, set the nozzle spacing by moving the SPACING ADJUSTMENT knob until it stops at the value set by the LIMITER knob, and dispense into the wells or test-tube block.

Tip Immersion Depth

The recommended depth for tip insertion into the sample for each Adjustable-Spacer model is shown in the table below.

Model	Immersion Depth
EA8-50	2 - 3 mm
EA6-300, EA8-300	3 - 6 mm
EA6-1200, EA8-1200	6 - 10 mm

Tip immersion depth is important. If exceeded, the measured volume 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.

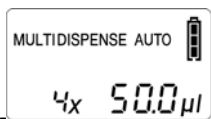
Speed Setting

The maximum speed setting for EA6 and EA8 multichannel pipettes is **10** for 50 & 300 μ L models, **9** for 1200 μ L models.

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: Unique tips for 1200 μL models

RAININ 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 (\pm)	%	μL (\leq)
EA8-50 (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
EA6-300, EA8-300 (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
EA6-1200, EA8-1200 (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)

Care and Maintenance

EDP3-Plus Adjustable Spacer Multichannel pipettes are precision devices and should be treated with the degree of care appropriate for laboratory instrumentation.

When not in use it is recommended to store the pipette safely in one of the accessory stands listed in Ordering Information. Do not drop the pipette, or store the pipette flat if tips with liquid are mounted.

Apart from recharging the battery, (see note in Ordering Information) no user maintenance is required except for occasional cleaning: wipe the pipette with a clean cloth dampened with distilled water. Avoid wetting the display or battery compartment and do not use detergents or abrasives.

Service

If you experience any problems with your Adjustable-Spacer pipette contact RAININ Technical Support at 800-543-4030. If you are located outside North America please refer to the numbers listed on the back page.

Ordering Information

Cat. No. **Description**

Pipettes:

EA8-50	8-channel, 5 μ L to 50 μ L
EA6-300	6-channel, 20 μ L to 300 μ L
EA8-300	8-channel, 20 μ L to 300 μ L
EA6-1200	6-channel, 100 μ L to 1200 μ L
EA8-1200	8-channel, 100 μ L to 1200 μ L

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	Multichannel Adapter for HU-M3, HU-S3 & CR-7. Set of 3
6107-040	Li-Ion Battery

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

E3-WPS	Wall Power Supply. Recharges EDP3-Plus in about an hour. Pipette can 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.

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Limited Warranty

See the 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:

T: 800-543-4030 F: 510-564-1617 tech.support@rainin.com

Pipette Service:

T: 800-662-7027 F: 781-935-7631 service@rainin.com

Direct Order Line:

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From outside North America: T: +1-510-564-1600
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