

## Excel Electronic Pipettor Calibration

### Mode 12 Motor motion parameter( Motor motion parameter setting)

Procedures of motor steps setting;

1. Press Up, Down and Reset buttons at the same time to enter Service Mode
2. Press Up/Down button to select S-012
3. Press Enter button to confirm the selection. You can see twenty calibration points under S-012 in 10-200ul pipette models ( including 1-channels and multi-channels). If you want to adjust the volume of 10ul, select the first point and adjust the step numbers .If you want to adjust the volume of 20ul, select the second point and adjust the step numbers. Please refer Table 1, row 3 to adjust the rest of points.

If the measured value( by high precision balance under temperature and humidity controlled room ) is 201ul( at set volume 200ul), decreased the step number by two steps. The measured value should change to 200ul. (Please refer to the Table2, row 3).

4. After the adjustments, press and hold Enter button for 3 seconds. You will hear 3 beeps and the setting values are stored.

Table 1

	Model	calibration points																			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	0.5-10ul	1	2	3	4	5	6	7	8	9	10										
2	2-20ul		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
3	10-200ul	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200
4	100-1200ul	100	200	300	400	500	600	700	800	900	1000	1100	1200								

Table2

	Model	Increase one step the volume increase (ul)
1	0.5-10ul	0.025
2	2-20ul	0.05
3	10-200ul	0.5
4	100-1200ul	2.45

#### Note:

If you are able to get into the service mode but unable to scroll up to "S-12" then there pipette is using Firmware 317. Units using Firmware 317 only go to "S-07". The calibration mode in these pipettes can be found under "S-06".

If a major issue occurs during the calibration is being attempted the user should reset the unit to the manufacturing default by selecting "S-05" in the service mode.

Sometimes it takes a few tries to get into service mode. If all of the buttons are not hit at the same time together then the pipette will reset and you must try again.