

Calibration

Each pipette has been checked & calibrated at factory with procedure conforming to DIN 12650 standards. It is recommended to check the calibration at least once a year, for regularly used pipette.

Checking calibration

♦For checking calibration, each channel should be considered as an individual pipette.

♦Fit the new tips to all the tip cones (channels).

♦Pipette distilled water in to a pre-weighed beaker at least ten times & record the weight each time.

♦Compare the results with the permitted variation chart given below for imprecision & inaccuracy.

The calibration of the pipette must be set even if only one of the results falls outside the permitted range.

Important Notes

1. The permitted range of inaccuracy & imprecision established by us are at highly controlled environment & facilities. For user in a normal lab environment, the limits may be doubled.
2. There should be minimum 3 set volumes for every pipette as shown earlier.
3. Procedure should take place at $20^{\circ}(\pm 0.5^{\circ})$ C. constant temperature.
4. The weighing beaker, distilled water, pipettor & tips must be at same temperature.
5. Use an analytical balance with 0.01 mgs readability.
6. Prerinse the tip 3 to 5 times before pipetting.
7. Divide the weight of the water by its density (at 20°C , 0.9982) to get the volume.

Trouble Shooting

Trouble	Possible Reason	Correction
Droplets left inside the tip.	Unsuitable tip. Non-Uniform wetting of the plastic.	Use new better Quality tip.
Leakage or Pipetted Volume too small	Tip holder (cone) scratched or damaged.	Change the tip cone.
	Organic Solvent as liquid.	Aspirate & discard the organic solvent several times before actual pipetting by the same tip.
	Tip incorrectly attached.	Attached firmly.
	Unsuitable tip.	Use better quality tip.
	Foreign particles between tip and tip cone.	Clean the tip cone.
	Insufficient amount of grease on piston and O-ring.	Clean & grease o-ring and piston.
Inaccuracies	O-ring not correctly positioned or damaged.	Change the O-ring.
	Incorrect operation.	Follow instruction carefully.
	Calibration altered.	Recalibrate according to instruction.
	Unsuitable for the particular liquid pipetting technique.	Use correct pipetting technique.
Push button jammed or move erratically	Instrument damaged.	Send for repair.
	Piston contaminated. Penetration of solvent vapours.	Clean & grease O-rings and pistons.
Tip Ejector jammed or move erratically	Tip cone contaminated from outside.	Remove ejector collar and clean tip cone's outer surface with ethanol.
Volume setting is not properly click stopped	Click stop mechanism damaged.	Send for repair.
Push button does not turn for volume setting	Use of excessive force beyond the range of pipette.	Send for repair.

MULTICHANNEL Instruction Manual



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MULTICHANNEL TECHNICAL SPECIFICATION

Volume range	Increment	Accuracy%	Precision (CV%)
0.5-10µl	0.1µl	± 3.5-1.0	3.0-0.8
2-20µl	0.1µl	± 3.0-1.0	1.5-0.4
5-50µl	1.0µl	± 2.0-0.6	2.0-0.3
10-100µl	1.0µl	± 3.0-0.8	1.0-0.2
20-200µl	1.0µl	± 1.8-0.6	0.7-0.2
30-300µl	1.0µl	± 1.5-0.6	0.7-0.2
50-300µl	1.0µl	± 1.5-0.6	0.8-0.2

These Multichannel Micropipette are the most advanced and designed for different type of routine laboratory work. Having soft finger grip of thermoplastic ensuring Minimum transfer of body heat to the plastic resulting high accuracy on continuous use. The Most Accurate, Reliable, Comfortable for extensive pipetting in today's research. Your research today demands only highest quality when it comes to pipetting and precision.

These Fully Autoclavable Multichannel meets high quality demands by providing exceptionally accurate pipetting while standing up to the rigorous of everyday use. Large and clear 4 digit display giving smaller increments for wider volume selection

Constructed of High Quality plastic combined with individual finely polished stainless steel piston ensure accuracy.

Light weight and ergonomic design for user comfort. The manifold should rotate 360°, for comfortable pipetting in any direction.

Precision designed tip cones provide leak proof top fit. Easy operation and handling.

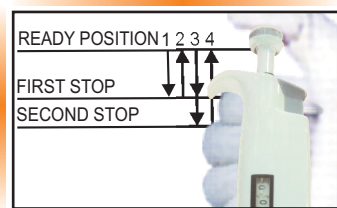
Each pipette supplied with calibration tool and factory calibration certificate.

Slender shaft for universal tip fit.

Accuracy and Precision values provided are better than those laid down in the ISO 8655 standards

Pipetting Technique

A. Forward Pipetting



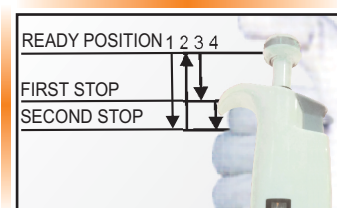
Press the operating button to the first Stop.

Dip the tip attached to the multichannel into the solution to a depth of about 1 cm, and slowly release the operating button. Wait for a while then withdraw it from the liquid touching it against the edge of the reservoir to remove excess liquid adhering to Outer surface of the tip.

Dispense the liquid into the receiving vessel by gently pressing the operating button to the first stop. After a second, press the operating button to the second stop. This will empty the tip completely. Remove the tip from the vessel sliding it up the wall of the vessel.

Release the operating button to the ready position.

B. Reverse Pipetting



Press the operating button to the second stop.

Dip the tip attached to the multichannel into the solution to a depth of about 1 cm, and slowly release the operating button. This action will fill the tip with a volume that is larger than the set volume. Wait 1-2 seconds and withdraw the tip from the liquid touching it against the edge of the reservoir to remove excess liquid.

Dispense the liquid into the receiving vessel by pressing the operating button gently and steadily to the first stop. This volume is equal to the set volume. Hold button in this position. Some liquid will remain in the tip, which should not be dispensed.

The liquid remaining in the tip can be pipetted back into the original solution or disposed together with the tip.

Release the operating button to the ready position.

Note: Reverse pipetting technique is recommended for viscous solutions, solution having tendency to foam or dispensing very small volumes.

Pipetting Recommendations

- Aspirate liquid into the pipette only when a tip is attached to its cones.
- While pipetting, the pipette should be vertically straight and tips should be dipped only a few millimeters into the liquid.
- Pre-rinsing of tip 5 times with the liquid to be dispensed is recommended. This is important especially when dispensing liquids which have a viscosity and density different from water.
- Always control the push button movements with the thumb to ensure consistency.
- Allow liquids, Tips and pipettes to equilibrate to the ambient temperature.
- Wipe the tip only if there is liquid on the outside of the tip, being careful to avoid touching tip's orifice.
- Don't keep pipette in your hand while not working to avoid transferring body heat.
- Use the correct pipette tip designed for use with the particular pipette.
- Select the correct pipetting technique (e.g. Reverse, Forward etc.) depending on the nature of the liquid.
- Using excessive force to turn the push button outside the range specified for it may jam the mechanism and damage the pipettor.

Maintenance

To maintain the best results from your pipette, each unit should be checked every day for cleanliness. Particular attention should be paid to the tip cone(s).

This pipette has been designed for easy in-house service. However, we also provides complete repair and calibration service. Please return your pipette to your local distributor for repair or calibration. Before returning please make sure that it is free from all contamination.

Check the performance of your pipette regularly e.g every 3 months and always after in-house service or maintenance.

Cleaning Your Pipettor

To clean your pipette use ethanol and soft cloth or lint -free tissue, It is recommended to clean the tip cone regularly.

Autoclaving

This pipette is fully autoclavable. Autoclave the pipette at 121°C and 15 psi for 20 minutes.

Recalibration

Place the service tool in to the holes at the base of the thumb button as shown below. Turn it clockwise to increase & anticlockwise to decrease the volume.

Repeat the checking calibration procedure.

Storage

When not in use it is recommended that your pipette is stored in a vertical position.

leaving a pipette on its side can cause liquids to leak in to the body of the pipette and cause corrosion.