INTEGRA

INTEGRA`s method for calibrating the PIPETBOY GENIUS

Explanation of specification and calibration

The PIPETBOY GENIUS allows for precise dispensing in accordance with the following specifications:

The aliquot volume must be at least 10% of the capacity of the pipet and an INTEGRA serological pipet.

Aliquot size > 0.5ml +/- 2 % Accuracy < 1% Precision	Aliquot size <= 0.5ml +/- 35 µl Accuracy < 2 % Precision

The specifications are fulfilled at following environmental conditions: 21°C, 520 m altitude, DI water.

1 Calibration process for the PIPETBOY GENIUS

The PIPETBOY GENIUS is calibrated at room temperature using air. Its internal flow sensor is aligned with an external, certified flowmeter, which has an accuracy of ±0.6% and repeatability of ±0.1% of the reading.

After calibration, the PIPETBOY is tested by dispensing five specific air volumes: 0.1 ml, 5 ml, 10 ml, 25 ml, and 50 ml. These volumes are chosen to represent the smallest (0.1 ml) and largest (50 ml) possible dispenses, as well as typical aliquot volumes (5 ml, 10 ml, and 25 ml). The airflow for each volume is measured using an external flowmeter to assess the instrument's accuracy and precision, which must conform to INTEGRA's defined specifications.

2 Correlation of airflow and dispense volume

Through extensive testing, a correlation is established between the defined airflow and a specific volume of deionized (DI) water under controlled laboratory conditions. The stability of this process is verified through routine checks of the calibrated flowmeter.
As the airflow volume remains consistent for each specific dispense volume, reproducible, accurate, and precise aliquots are ensured, as shown in figure (1).

Note: Once the flow sensor is calibrated, no further adjustments are necessary.

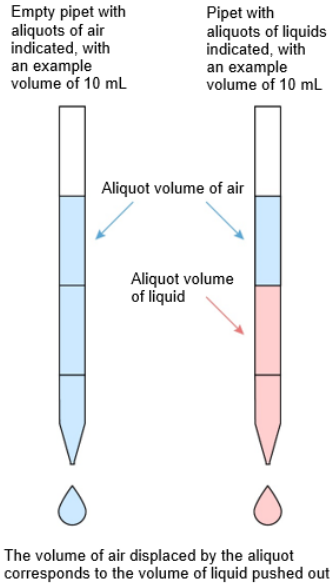

Figure 1 Correlation of airflow and dispense volume