

***Effectiveness Analysis of Electrode Spacing in Non-Contact Sensor-Based***

***Liquid Volume Measurement in Beaker Glass***

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**ABSTRACT**

*Accurate liquid volume measurement is important in the food and beverage industry to ensure consistent quality and portions. Non-contact volume measurement methods can minimize the risk of contamination because there is no direct contact between the sensor and the liquid being measured. This study analyzes the most optimal electrode spacing for measuring the volume of liquid in a 500 ml beaker glass in the context of the food and beverage industry. The results show that the electrode distance of 5 mm MAPE value is about  $\pm 10\%$ . However, the accuracy decreased at an electrode distance of 10 mm with a MAPE of about  $\pm 25\%$ . And the accuracy also decreases at an electrode distance of 20 mm with a MAPE of about  $\pm 12\%$ . Overall, changes in electrode spacing in a 500 ml beaker glass affect the accuracy of capacitance measurements, with a distance of 5 mm giving more accurate results than 10 mm and 20 mm.*

***Keywords: Non-Contact Liquid Volume Measurement, FDC1004 Converter, Electrode, Beaker Glass.***