

ABSTRACT

The Positive End Expiratory Pressure (PEEP) parameter is a parameter that must be considered in the process to determine the patient's condition, the safe threshold, and must be in accordance with the settings. However, often the PEEP value on the ventilator does not match the settings so that the measuring instrument capable of detecting PEEP on the ventilator is the Flow analyzer. The purpose of this study is to design a Flow analyzer using the MPX2010DP sensor to analyze the stability of the PEEP parameters on the ventilator. This study used PEEP settings of 0, 5, 8, 11, 14, 17, 20, 23, 26, and 29 cmH₂O. Data were collected using a ventilator with VCV (Volume Control Ventilation) and PCV (Pressure Control Ventilation) modes. The tool used for reference from standard measurements uses the Standard Flow analyzer tool. The results of this study indicate that the accuracy of the PEEP parameter measurement with the Flow analyzer module at each PEEP setting has the smallest error of $\pm 0\%$ at the 0 cmH₂O setting so that it also has the smallest value, namely 0 with a standard deviation and uncertainty (UA) value of 0 at each setting. The Flow analyzer

measurement module has the largest error at the 5 cmH₂O setting, which is $\pm 13.2\%$ with the largest correction value of 0.77. From the data obtained, it can be said that the PEEP parameter monitoring is fairly stable even though the value is still out of tolerance. Monitoring of PEEP stability parameters needs to be done to analyze the damage and reduce the damage time on the ventilator.

Keywords: PEEP, Calibration, PCV Mode, VCV Mode, Stability