ABSTRACK

The use of Transcutaneous Electrical Nerve Stimulation (TENS) therapeutic devices to reduce the complexity of the patient's continuing can cause an increase in the performance of the tool. The purpose of this study is to design a tool to calibrate TENS. The contribution of this study is the ease of users when performing TENS calibration because it can display the shape of the signal, the frequency value in units of Hz, as well as the current value in units of mA directly. To match the frequency and current according to the position of the red electrode cable it must be higher than the position of the black electrode cable. The frequency-to-voltage that is changed then entered is converted into a voltage to be processed using Arduino. Then also with the current-to-voltage which changes the inrush current and then is converted into a voltage to be processed using Arduino. In the frequency setting of 10 Hz to 200 Hz the error value is obtained between -0.25 and 0.2 while in the current setting step 1 to step 50 an error value is obtained between 0.04 and 0.64. The results showed that the frequency values in all settings had an average error of 0.018 while the average error of the current in all settings was 0.25. The results of this study can be applied to the field of calibration, specifically the TENS therapy instrument calibration.

Keywords: TENS Measurement Device, Frequency-to-Voltage, Current-to-Voltage