

# Measurement of Electrical Activity of the Heart Using Electro Cardiogram

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## Introduction

Electro cardiogram is used to check the electrical activity of the heart by using different heart conditions. This electro cardiogram consists of BIO kit, ECG amplifier module, three wire input connection and output connection connected to a data acquisition front panel and there are three to nine pin female receptors for ECG module and a led power indicator back panel contains 230 v ac fusible switch and a battery supply fuse holder and a USB connector. This electrocardiogram is a graphical representation of the time variant voltages produced by the myocardium during a cardiac cycle and the adjacent graph tells about the basic waveform of the electro cardiogram. This can be represented by wave parameters P, Q, R, S, T these waves represent the depolarization and repolarization of the myocardium associated with the heart.

Usually p wave amplitude consists of 0.25 mV frequency, R wave consists of 1.60 millivolts, Q wave consists of twenty five per cent of the R wave and T wave consists of 0.1 to 0.5 mV coming to the duration p wave to R wave duration lasts for 0.12 to 0.20 seconds and q wave to t wave consists of 0.35 to 0.44 seconds S wave to T Wave segment consists of 0.05 to 0.15 seconds. When coming to cardiac diseases cardiologist first check the heart rate of the patient the normal value lies in the range of sixty to hundred beats per minute.

There are two types of cardio rates below the normal range of heart rate is called Brady cardio and the rate higher than the normal rate is called Tracy cardio. If the interval time between p wave and r wave is greater than 0-2 seconds then it shows some blockage if there are more time interval changes then this indicate more blockages in the heart. If you take a healthy person the electro cardiogram shows the normal constant

values and the position of the heart in the body decides the electrical axis of the heart.

This ECG or electro cardio gram mainly works on the Einthoven postulated triangle and here we consider three axis or three apexes where the three apexes are left arm right arm and left leg and the right leg is always considered to be ground by using these we have tree leads lead one deals with left arm and right arm, lead two deals with left leg and right arm lead three deals with left leg and left arm and here we consider the heart as centre of the equilateral triangle here the potentials are placed at some specific points on the body.

There are different types of triangles first one is bipolar limb lead configuration this triangle is made by using lead 1, lead 2, lead 3. Second one is unipolar limb lead configuration. Third triangle is chest lead configuration where the parameters we consider are v1, v2, v3, v4, v5, v6. Unipolar limb lead configuration consists of Augmented Vector Right Augmented Vector Left and Augmented Vector Foot.

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## Conflict of Interest

Author declares there is no conflict of interest.

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