

## ECG DEVICE BASED ON ADS1298

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**Abstract.** *The aim of this paper is to describe a modern ECG device based on ADS1298, an embedded system and an analog Front-End unit. In the same chip there are the programmable gain amplifiers, delta-sigma ADC and SPI interface communication. It can achieve the standard 12-lead ECG on the computer by using a graphical interface (GUI) designed with the LabWindows CVI program.*

**Keywords:** ECG signal, ADS1298, SPI, LabWindows CVI

### 1. Introduction

Electrocardiography is a process of recording the electrical activity of the heart. The electrical variation from the body surface is generated by electrical events. [1]

The QRS complex is the most important component of the ECG recording. It corresponds to the process of a more extensive ventricular activation. An electrocardiograph has a system for signal processing, formed by electrodes, cables and an input block that contains electrical resistance required for the building various unipolar derivations. It also has a system of signal amplification and a system for signal display [2]. The electrodes are made from metal surfaces that are covered with a Ag/AgCl layer. Standard colors of the limbs electrodes are in the table below:

**Table 1.** Limbs electrodes

No.	Color	Limb
1.	yellow	left hand
2.	red	right hand
3.	green	left leg
4.	black	right leg

The electrocardiogram has a standard 12-lead to represent the heart's electrical activity recorded from electrodes. A lead is not the electrode contact, it represents the difference between 2 limb potential.

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