ecgdraw package*

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July 1, 2016

Abstract

This package was born to create fake elettrocardiograms, thanks to TikZpackage and LaTeX3 bundle.

Contents

1 Introduction

To work correctly ecgdraw package are needed

- TikZpackage,
- LaTeX3 bundle.

2 Use

`ecg` The package defined `ecg` environment with a optional argument `[`⟨*options*⟩`]`

`\begin{ecg}` `[`⟨*options*⟩`]` ECG path `\end{ecg}`

where ⟨*options*⟩ are TikZ keys. Inside the environment it's possible to draw a ECG thanks the `\ECG` macro

`\ECG [`⟨*TikZ options*⟩`] (`⟨*vertical position*⟩`) {`⟨*ECG waves*⟩`}`

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The macro have an optional argument `[`⟨*options*⟩`]`, that accepts Tikz options, an optional argument delimeted by brace (⟨*vertical position*⟩), vertical position of the path, and a mandatory argument `{`⟨*ECG waves*⟩`}` which contain the list of ECG waves abbreviation.

Each abbreviation is made of different part:

`\ECG { [`⟨*options*⟩`] {`⟨*wave name*⟩`}` ⟨*other*⟩ `}`

⟨*options*⟩ aregiven to the single wave, ⟨*wave name*⟩ is the abbreviation of the wave, while ⟨*other*⟩ depends on the types of wave.

2.1 Waves

Different wave types are possible:

`p` `p` wave needs ⟨*polarity*⟩ (allowed value `p`, `n`), wave height ⟨*tenths of millivolts*⟩ (between 0.1-0.3 mV) and time ⟨*milliseconds*⟩.

`p` ⟨*polarity*⟩ `0` ⟨*tenths of millivolts*⟩ ⟨*milliseconds*⟩

Bifasich wave with `d` and `b` polarity is needed a second wave

`p` ⟨*polarity*⟩ ⟨*first tenths millivolts*⟩ ⟨*second tenths millivolts*⟩ ⟨*milliseconds*⟩

`q,r,s` Waves for QRS complex. Thei take as first argument wave height in millivolts and as second argument the duration in milliseconds.

`q/r/s {`⟨*wave height Q/R/S*⟩`}` ⟨*milliseconds*⟩

`i` Isoelettric wave, take only one argument, which is time in ⟨*milliseconds*⟩.

`i` ⟨*milliseconds*⟩

`t` First argument is ⟨*polarity*⟩, positive `p` or negative `n`, second argument is ⟨*tenth of milliVolts*⟩, as optional argument a correction if wave isn't simmetrical and last argument ⟨*milliseconds*⟩.

`t` ⟨*polarity*⟩ ⟨*tenth of milliVolts*⟩ `[`⟨*correction*⟩`]` ⟨*milliseconds*⟩

`!` Allow to use a wave defined through `\newECG` macro.

`!` ⟨*wave name*⟩

`?` Insert a label left to the path. Optional argument (default value `1 cm`) set horizontal shift.

`? [`⟨*horizontal shift*⟩`]` ⟨*text*⟩

2.2 Options

2.2.1 Grid

`ecg` environment accept different options to modify grid dimension.

`grid top` Accept a dimension as value. Grid is elarged toward top of the set value.

`grid bottom` Similar to `grid top`, but grid is enlarged toward bottom.

`grid left` Similar to `grid top`, but grid is enlarged toward left.

`grid right` Similar to `grid top`, but grid is enlarged toward right.

`grid border` Set bottom, top, left and right with the same ⟨*value*⟩.

2.3 Break ECG path

Sometimes ECG are too much wide and cannot fit the textwidth. So it's possible to allow LaTeX to break ECG using the `breaklines` key.

`breaklines` This key allow automate wrap ECG pattern. New line has an indent of `breakindent`
`breakindent` value (default 1 cm).

2.4 ECG title

`ECG title` I's possible to insert a ECG title by `ECG title` and set title align by `ECG title align`
`ECG title align` key (value `righ`, `left`, `center`).

2.5 Wave database

`\newECG` macro add a custom wave

`\newECG {`⟨*wave name*⟩`} {`⟨*wave code*⟩`}`

It's possible to call ⟨*wave name*⟩ inside `\ECG` using the key `!`.