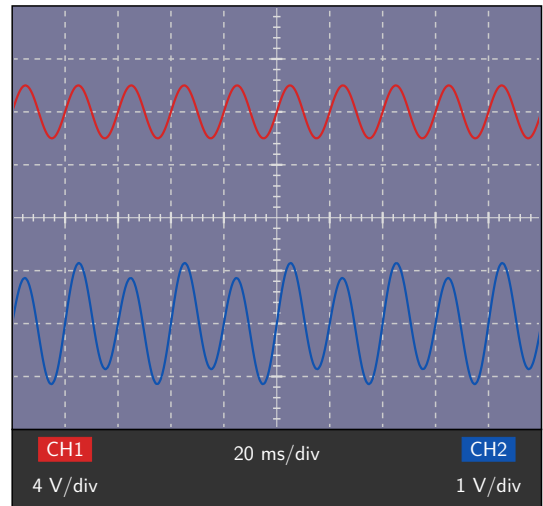
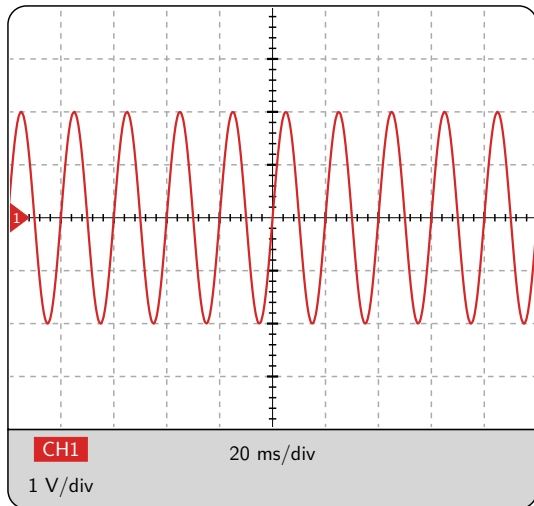


TikZ Oscilloscope Package

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Version 0.3.0 of October 8, 2023

1 Introduction



This package is a modest alternative to the `pst-osci` package (not maintained anymore). It allows you to draw oscilloscope "screen shots" with \LaTeX , TikZ and pgfplots.

Contact

Some features are not implemented yet, but the package is already usable for basic representations. I'm doing this for fun and still learning how to make \LaTeX packages. Therefore, I'm open to any suggestion or contribution :

contact at ensciences dot fr

Issues tracker

An issues tracker is available at :

https://framagit.org/ThibGiauffret/latex_packages/-/issues.

Feel free to report any bug you find or send suggestions.

Important note : Please indicate the concerned package name in the title of the issue. For example, if you want to report an issue about this package, please use the following title : `[tikz-osci]` My issue report title.

2 Usage

The package is loaded with the command `\usepackage{tikz-osci}`. It defines a single command, `\osci`, which takes a list of options as argument. The options allow you to configure and customize the oscilloscope screen view :

scale	Scale of the oscilloscope (with scalebox).	Default: 1
rounded corners	Radius of the oscilloscope corners (in pt).	Default: 10
second channel	1 if the second channel is enabled, 0 otherwise.	Default: 0
screen offset one	Vertical screen offset of the first channel.	Default: 0
screen offset two	Vertical screen offset of the second channel.	Default: 0
time div	Time division (in ms).	Default: 20
voltage div one	Voltage division of the first channel (in V).	Default: 1
voltage div two	Voltage division of the second channel (in V).	Default: 1
sample rate	Sample rate.	Default: 200
xy mode	1 if the oscilloscope is in XY mode (Lissajou curve), 0 otherwise.	Default : 0
math mode	1 for addition, 2 for subtraction, 3 for multiplication, 4 for division, 0 otherwise. xy mode option must be set to 0.	Default: 0
math mode hide source	0 to display channels CH1 and CH2 with the third channel, 1 to hide them.	Default : 0
func one	Expression of the first channel (pgf maths format). Trigonometric functions are defined in degrees.	Default: $2*\sin(2*180/0.020*x)$
func two	Expression of the second channel (pgf maths format). Trigonometric functions are defined in degrees.	Default: $1*\sin(2*180/0.020*x)$ + $0.2*\sin(2*180/0.040*x)$
indicators	1 if the channel indicators are enabled, 0 otherwise.	Default: 1
color one	Color of the first channel (in hexadecimal).	Default: D62626
color text one	Text color of the first channel (in hexadecimal).	Default: FFFFFFFF
color two	Color of the second channel (in hexadecimal).	Default: 1053AF
color text two	Text color of the second channel (in hexadecimal).	Default: FFFFFFFF
color three	Color of the XY mode and the math mode (in hexadecimal).	Default: 2E8B73
color text three	Text color of the XY mode and the math mode (in hexadecimal).	Default: FFFFFFFF
graph back color	Background color of the graph (in hexadecimal).	Default: FFFFFFFF
info back color	Background color of the information box (in hexadecimal).	Default: D6D6D6
info text color	Text color of the information box (in hexadecimal).	Default: 000000
main axis color	Color of the main axis (in hexadecimal).	Default: 000000
grid color	Color of the grid (in hexadecimal).	Default: CCCCCC

A quick documentation in french is available here :

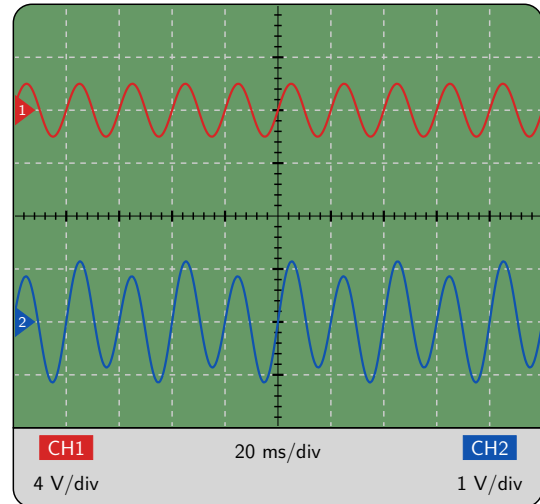
<https://www.ensciences.fr/read.php?article=1220>

3 Examples

For more examples, see the `tikz-osci-example.tex` file.

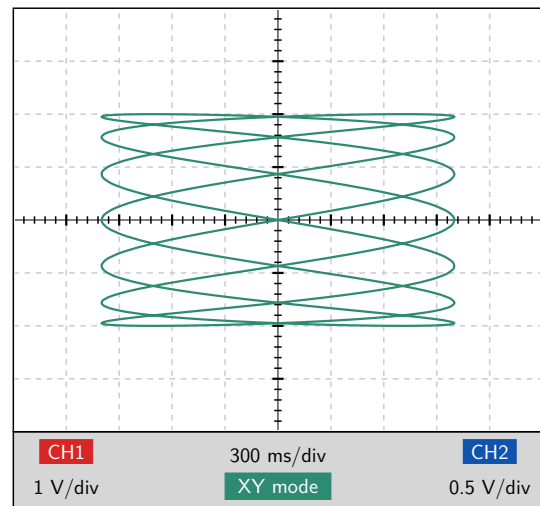
Two channels plot with custom background color

```
\osci[%
  scale=0.7,
  second channel=1,
  screen offset one=2,
  screen offset two=-2,
  time div=20,
  voltage div one=4,
  voltage div two=1,
  sample rate=200,
  xy mode=0,
  func one=2*sin(2*180/0.020*x),
  func two=1*sin(2*180/0.020*x) +
0.2*sin(2*180/0.040*x),
  color one=D62626,
  color two=1053AF,
  graph back color=669966,
  info back color=D6D6D6,
  info text color=000000,
  main axis color=000000,
  grid color=CCCCCC
]
```



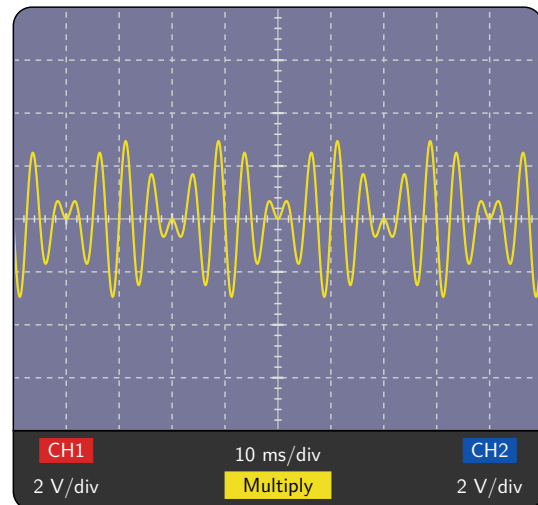
Lissajou curve (XY mode) and no rounded corner

```
\osci[%
  scale=0.7,
  rounded corners=0,
  second channel=1,
  time div=300,
  voltage div one=1,
  voltage div two=0.5,
  sample rate=500,
  xy mode=1,
  func one=sin(7*x),
  func two=sin(2*x),
  indicators=1,
  graph back color=FFFFFF,
  info back color=D6D6D6,
  info text color=000000,
  main axis color=000000,
  grid color=CCCCCC,
]
```



Math mode (multiply) with hidden sources and dark mode

```
\osci[%  
  scale=0.7,  
  second channel=1,  
  time div=10,  
  voltage div one=2,  
  voltage div two=2,  
  sample rate=500,  
  xy mode=0,  
  math mode=3,  
  math mode hide source=1,  
  func one=2*sin(2*180/0.040*x),  
  func two=3*sin(2*180/0.005*x),  
  indicators=0,  
  color three=F0DE25,  
  color text three=000000,  
  graph back color=777799,  
  info back color=333333,  
  info text color=FFFFFF,  
  main axis color=DDDDDD,  
  grid color=CCCCCC,  
]
```



4 License

This package is distributed under the terms of the **LaTeX Project Public License** (LPPL), version 1.3c or later. The latest version of this license is available at <http://www.latex-project.org/lppl.txt>.

5 Credits

This package requires the following packages :

- xcolor maintained by the *LaTeX3 Project* (license LPPL 1.3c) ;
- tikz maintained by the *TikZ and PGF Project* (license LPPL 1.3c) ;
- pgfkeys maintained by the *Till Tantau* (license LPPL) ;
- pgfplots maintained by the *Christian Feuersänger* (license LPPL).

6 Changelog

- **0.3.0** (2023/10/08) :
Implemented XY mode and math (add, subtract, multiply, divide) functionality.
- **0.2.0** (2023/10/07) :
Added color text one, color text two and color text xy options.
Added indicators option.
Added rounded corners option.
Fixed the main axis color not being applied.
Reworded the documentation and the example file.

- **0.1.1** (2023/10/06) :
 - Renamed sub axis color to grid color.
 - Renamed expr one and expr two to func one and func two.
 - Updated package files names.
- **0.1.0** (2023/10/06) : Initial release. XY mode not implemented yet.