

RTPlot Help

Mouse Actions

- Mouse wheel: vertical scroll.
- CTRL+Mouse wheel: horizontal scroll.
- Click with mouse left button: shows the current crosshair reference lines for current point.
- Click with CTRL+mouse left button: adds display's reference lines.
- Click with CTRL+mouse right button: increases the display's relative size.
- Click with ALT+mouse right button: decreases the display's relative size.
- Click with mouse right button: toggles the display's graphs' visualization state.
- Drag&Drop with mouse right button: moves the display and its graphs.
- Click with mouse left button on graph's square: toggles the graph's visualization state.
- Drag&Drop with mouse left button on graph's square: moves the graph.

Key Binding Accelerators

- **Ctrl +**: increments font size, line size and ref-line size.
- **Ctrl -**: decrements font size, line size and ref-line size.
- **Ctrl p**: toggle pause and play graphs.
- **Ctrl o**: clears plotting area and plots selected file.
- **Ctrl m**: loads file and merges it with current plots.
- **Ctrl b**: starts backing-up the input data received from device.
- **Ctrl s**: save the current graphs and displays to file in PLT format.
- **Ctrl x**: exports the current plots to PDF or SVG formats.
- **Ctrl e**: evaluates an arithmetic expression in the X-axis range. The X-axis range can be, optionally, selected.
- **Ctrl ?**: pops-up the help window.
- **Ctrl q**: exits the program.
- **Ctrl a**: adds a display to the plotting area (it disables the *Independent Displays* mode).
- **Ctrl r**: removes the last display from the plotting area. Graphs in removed display are moved to the first display (it disables the *Independent Displays* mode).
- **Ctrl l**: removes any stored data and plots, and clears the displays.
- **Ctrl i**: in this mode, each enabled graph is plotted in its own display, but disabled graphs are moved to the first display, though they are not plotted. Otherwise graphs can be moved and plotted to any display.
- **Ctrl f**: this mode creates a frame with grid values around each graph. Otherwise graphs are plotted with no frame, and grid lines do not show their referenced values.
- **Ctrl h**: this mode plots each graph statically, making it suitable for plotting high frequency signals. Otherwise each graph is plotted dynamically.

- **Ctrl y:** in this mode, all displays in *auto mode* are synchronized to show the same scale and range for the Y-axis. Otherwise each display has its own scale and range for the Y-axis.
- **Ctrl c:** pops-up the configuration menu.

File Menu

- **Open File:** clears plotting area and plots selected file.
- **Merge File:** loads file and merges it with current plots.
- **Open Device:** starts plotting input from selected device.
- **Close Device:** finishes input from device.
- **Backup Device:** starts backing-up the input data received from device.
- **Close Backup:** finishes backing-up the input data from device.
- **Save:** save the current graphs and displays to file in PLT format.
- **Export:** exports the current plots to PDF or SVG formats.
- **Eval Expression:** evaluates an arithmetic expression in the X-axis range. The X-axis range can be, optionally, selected.
- **Help:** pops-up the help window.
- **Quit:** exits the program.

Display Menu

- **Add Display:** adds a display to the plotting area (it disables the *Independent Displays* mode).
- **Remove Display:** removes the last display from the plotting area. Graphs in removed display are moved to the first display (it disables the *Independent Displays* mode).
- **Clear:** removes any stored data and plots, and clears the displays.
- **Independent Displays:** in this mode, each enabled graph is plotted in its own display, but disabled graphs are moved to the first display, though they are not plotted. Otherwise graphs can be moved and plotted to any display.
- **Frames:** this mode creates a frame with grid values around each graph. Otherwise graphs are plotted with no frame, and grid lines do not show their referenced values.
- **High Frequency:** this mode plots each graph statically, making it suitable for plotting high frequency signals. Otherwise each graph is plotted dynamically.
- **Fixed X-Axis:** in this mode, input data is stored in a cyclic buffer with a fixed size, so that only the last data are kept and plotted. Otherwise the size of the X-axis extends to store all input data or until maximum size is reached.
- **Shared Y-Axis Min:Max:** in this mode, all displays in *auto mode* are synchronized to show the same scale and range for the Y-axis. Otherwise each display has its own scale and range for the Y-axis.
- **Configure:** pops-up the configuration menu.
- **Version:** shows the program version.

Configuration Menu Options

- **Samplig Rate:** specifies the sampling rate for the current input data (zero if ignored).
- **X-Axis Size:** specifies the current size for the X-axis (when *Fixed X-Axis* mode is enabled).
- **X-Axis Limit:** specifies the maximum value for the X-axis. A zero value means no maximum limit (when *Fixed X-Axis* mode is disabled).
- **Backup Limit:** specifies the maximum amount of data to be backed-up.
- **Font Size:** specifies the font size for plotting.
- **Line Width:** specifies the width for plotted lines.
- **Ref Line Width:** specifies the width for reference lines.

Display Configuration

- **RefLines:** reference lines specified with space separated numbers.
- **Grid:** specifies the grid level for this display. If this value is negative, then the general grid level is used.
- **Y-Auto:** in *auto mode*, the range of the Y-axis is selected automatically. Otherwise, the user can specify the values (*Y-Max* and *Y-Min*) for the Y-axis range.
- **Y-Max:** maximum value for the Y-axis range (enabled when *Y-Auto mode* is disabled).
- **Y-Min:** minimum value for the Y-axis range (enabled when *Y-Auto mode* is disabled).
- **Weight:** relative size of this display with respect to the size of the other displays.

Graph Configuration

- **Title:** title for this graph.
- **Display:** display where this graph is plotted (enabled when *Independent Displays* mode is disabled).
- **Scale:** specifies the scale in the Y-axis to plot this graph.
- **Enabled:** enables or disables the plotting of this graph.
- **Color:** chooses the graph color.

Configuration Line Options

```
#> General Title
#$ [options] ...
#~ [more-options] ...
```

- **-no-limits:** specifies no maximum limits for the X-axis.
- **-max-xsize *value*:** specifies the maximum limit value for the X-axis.
- **-xsize *value*:** specifies the size for a fixed X-axis.
- **-fixed [*value*]:** specifies a fixed X-axis with an optional size value.
- **-no-fixed [*value*]:** specifies an extendable X-axis with an optional maximum limit value.
- **-srate *value*:** specifies the sampling frequency.

- **-hfreq**: specifies high frequency mode.
- **-no-hfreq**: specifies low frequency mode.
- **-indep**: each plot will be displayed in an independent display.
- **-no-indep**: each plot can be displayed in any display.
- **-frame**: specifies a frame for each display.
- **-no-frame**: do not frame each display.
- **-ysharedmax**: all displays with automatic range for Y-Axis will share the same Min:Max.
- **-no-ysharedmax**: each display has its own Min:Max.
- **-lw *value***: specifies the width for plotted lines.
- **-rlw *value***: specifies the width for reference lines.
- **-fsz *value***: specifies the font size for plotting.
- **-dpy *display***: establishes the base display for the following options.
 - **-yauto**: specifies automatic range for Y-Axis for the base display.
 - **-y *min:max***: specifies the range for Y-Axis for the base display.
 - **-w *weight***: specifies the relative size for the base display.
 - **-grid *level***: specifies the grid level for the base display. A negative value means using the general grid level.
 - **-l *val***: specifies a reference line for the base display.
- **-t *title***: establishes the base graph for the following options and specifies its title.
 - **-d *display***: specifies the display for the base graph.
 - **-s *scale***: specifies the scale for the base graph.
 - **-disabled**: disables the base graph.
 - **-beep**: enables the beep mode for the base graph.

Evaluate Expression

- **Unary Operators**
 - **-** minus
 - **~** bitwise complement
 - **!** logical not
- **Binary Operators**
 - ****** power
 - ***** multiply
 - **/** divide
 - **%** modulus
 - **+** addition
 - **-** subtraction
 - **<<** left shift
 - **>>** right shift
 - **<** less than
 - **<=** less than or equal
 - **>** greater than
 - **>=** greater than or equal
 - **==** equal

- `!=` distinct
 - `&` bitwise AND
 - `^` bitwise XOR
 - `|` bitwise OR
 - `&&` logical AND
 - `||` logical OR
- Ternary Operators
 - `? :` conditional
- Functions (1 argument)
 - **abs**: absolute value
 - **acos**: arc-cosine (in radians)
 - **asin**: arc-sine (in radians)
 - **atan**: arc-tangent (in radians)
 - **ceil**: smallest integral value not less than argument
 - **cos**: cosine (in radians)
 - **cosh**: hyperbolic cosine (in radians)
 - **exp**: base-e exponential
 - **fabs**: absolute value
 - **fact**: factorial
 - **floor**: largest integral value not greater than argument
 - **log**: natural logarithmic
 - **log10**: base-10 logarithmic
 - **log2**: base-2 logarithmic
 - **sin**: sine (in radians). Sinusoidal signal: `sin(x*2*pi*sf/sample)`, where $(sf/sample) < 0.5$
 - **sinh**: hyperbolic sine (in radians)
 - **sqrt**: square root
 - **tan**: tangent (in radians)
 - **tanh**: hyperbolic tangent (in radians)
 - **trunc**: round to integer, toward zero
- Constants
 - **e**: 2.7182818284590452354
 - **pi**: 3.14159265358979323846
- Variables
 - **x**: current value in X-axis
 - **z**: previous evaluation result