

LOGPLOT48 library for HP-48G series

(c) 2007 by Takashi Matsubara

1 Introduction

This library makes logarithmic scale graphs for the 48G series. Plot types “Function”, “Scatter” and “Parametric” with (semi)log-scale are implemented. In the type “Function”, TRACE and (X,Y) in the HP-49G plot menu are available. In the type “Scatter” and “Parametric”, (X,Y) in the HP-49G plot menu is available. Non-uniform logarithmic tick, zoom-in, zoom-out and recenter are implemented.

The library is written in SysRPL.

The program is based on LOGPLOT for 49G. I have 49G, but don't have 48GX, so this program is checked only on 48GX emulator of the Emu48.

The library ID is 1460.

2 Files

logplot.hp	The library file for the HP48G series
readme.pdf	This file

3 Command

SETLOG : set parameters for LOGPLOT

LOGPLOT : plot function or data.

4 Version

Ver1.09 :	2005.8.15	First release for 48G converted from corresponding version of 49G.
Ver1.10 :	2005.9.1	Default values in SETLOG are fixed.
Ver1.11 :	2005.9.2	Errors on nonuniform tick are fixed.
Ver1.12 :	2005.9.2	When the left value of V-View is larger than the right value, these values are automatically exchanged.
Ver1.14 :	2005.9.10	Small bugs are fixed.
Ver1.15 :	2005.9.28	Small bugs are fixed.
Ver2.00 :	2006.12.18	Holding cursor key is available. Zoom-in, zoom-out and recenter are available. Faster than previous versions.
Ver2.01 :	2006.12.25	Bug on clock display is fixed. Check mark on TRACE is implemented.
Ver2.02 :	2006.12.27	Bug on recenter is fixed.
Ver2.03 :	2007.1.08	AUTO and BOXZ are implemented.
Ver2.05 :	2007.5.7	A bug on check mark of TRACE is fixed.

5 Installation

Send the file `logplot.hp` to the calculator, then move the file to some port. Press ON+C (warmboot), then the library can be used.

6 Usage

1. Press LIBRARY and select LOGPLOT48.

The commands “SETLOG”, “LOGPLOT” are shown in the menu.

2. Use built-in “PLOT” menu.

Choose the type of plot (only “Function”, “Scatter” or “Parametric” is available in this library). Set the equations or data.

If you check AXES, x-axis and y-axis are drawn. If you check Pixels, the values of ticks are rounded by one pixel width or height. Since H-Tick and V-Tick are set in SETLOG menu, do not input these values in this step. After setting, press ENTER key.

3. Execute SETLOG (F1)

Choose H-type and V-type from Linear, log10 or dB. Linear is linear scale. log10 is log scale. dB means decibel. ($z \text{ (linear)} = 20 \log_{10}(z) \text{ (dB)}$)

Set minimum and maximum of H-View and V-View. If you check AXES in step2, set H-tick and V-tick.

For example,

H-type:Log10	H-tick : 1.
V-type:dB	V-tick : 5.
H-View: .1	10.
V-View: -20.	0.

This means: The range of horizontal view is from 0.1 to 10 (in PPAR, the range is from $\text{LOG}(0.1)=-1$ to $\text{LOG}(10)=1$) The range of vertical view is from -20dB to 0dB (in PPAR, the range is from -20 to 0) H-tick is 1 decade (that is, tick mark is given in the places $x = 0.1, x = 1, x = 10$.) V-tick is 5dB .

After setting, press ENTER or F6(OK).

Then, another setting menu is shown. H-center and V-center mean the crossing point of axes. An example of these values is that H-center is the minimum of H-View and V-center is the maximum of V-View. If you check Log-tick, nonuniform log-tick will be displayed for axis with type log10 and corresponding H-tick and/or V-tick are set to be zero. To check Auto means autoscale for axes If you want to show label for axes, check Label. Step is the same in the built-in Plot menu.

After setting, press ENTER or F6(OK).

If an error “Undefined Result” or “Infinite Result” occurs, check the value of H-View and V-View. When H-type (V-type) is log10, the values of H-View (V-View) must be positive.

4. Use built-in command ERASE, if you want to erase previous graph.
5. Press LOGPLOT

After drawing graph, below commands in the menu (F1-F6) are available.

- Press MENU to turn off/on the menu.
- Press (X,Y) to display the coordinate of the current cursor position.
- Press TRACE to trace the curve. If y-coordinate is not real number (eg. when $y < 0$, $\log_{10}(y)$ is not real), the coordinate is displayed as “y:not real.”
- Press X,Y→ to copy the current coordinate into level1 stack.
- Press AUTO for auto scaling of y-axis.
- Press QUIT or ON to quit.
- Press NXT then another menu is shown.
- Press ZFACT to set parameters H-Factor (horizontal zoom factor, default:4), V-Factor (vertical zoom factor, default:4) and recenter (default:Yes) for ZIN, ZOUT.
- Press ZIN to zoom in.
- Press ZOUT to zoom out.
- Press CNTR to recenter plot on the current cursor position.

- Press BOXZ to zoom the selected rectangular sector (cf. built-in BOXZ). First move the cursor to one of the corners of the rectangular that you want to zoom, and press BOXZ. Move the cursor to the opposite corner of the rectangular, then press ZOOM.
- Cursor key : moving cursor 1 dot. Holding-down cursor key moves cursor continuously.
- Left-shift + cursor key : moving cursor just 10 dot. Holding-down cursor key do not moves cursor continuously.
- Right-shift + cursor key : moving cursor to one of the boundary.

6. If you meets an error, purge PPAR, ZPAR and LOGPAR and try to start from step1.

If you find any problems, please let me know in comp.sys.hp48 or by E-mail.

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