

BodeX v.2.2.1 user's manual by

92BROTHERS®

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§ About BodeX

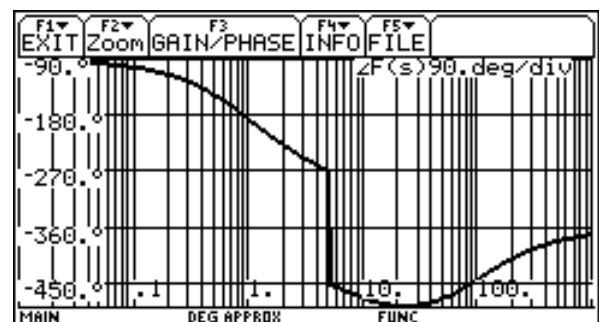
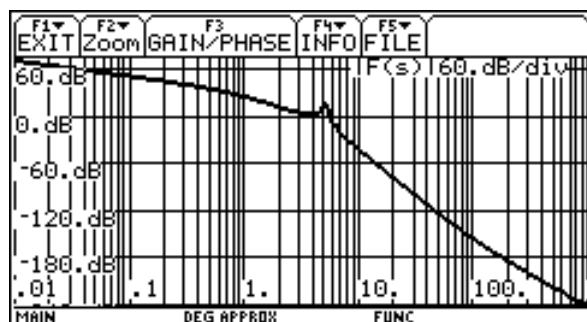
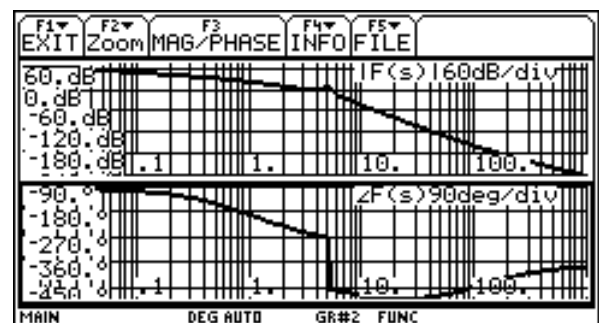
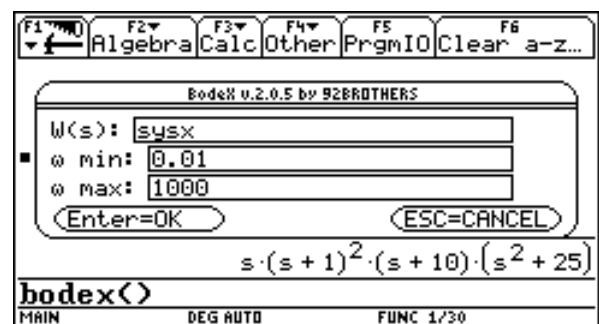
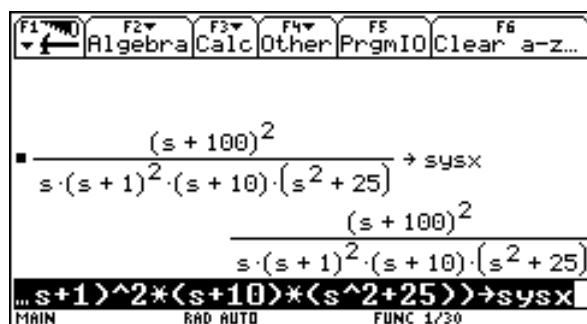
The best program for TI calculators that trace frequency plot of a transfer function $W(s)$ of a SISO or MIMO system (Bode plots) with or without time delay. BodeX use a powered routine to plot the phase plot of a transfer function (don't use simply the angle(•) function). The BodeX routines ensure the correct phase plot any $W(s)$ it's plotted.

What's new in version 2.2.1:

- new routine for faster plotting;
- now you can specify the time delay separately by system;
- routine for auto setting of frequency range;
- in Split Screen Mode you can have plot info for MAG or Phase plot;
- a simple set of graph tools to elaborate plots;
- user's manual in PDF.

To demonstrate the power of BodeX related to the others bode plotter try plot the phase plot of this system:

$$(s+100)^2 / (s(s+1)^2(s+10)(s+5i)(s-5i))$$



ONLY BodeX RETURN THE RIGHT PLOT. The routine is slowest than the simple angle(•) function but it works!

§ Systems Modelling

LTI Systems models are specified by transfer function of the system (Laplace variable must be s). If there is a time delay, it must be specified in a specific field.

If system is a MIMO (Multiple Input Multiple Output) the system must be defined by a matrix of transfer functions. If the system has M inputs and N outputs the system SYS must be a matrix ($N \times M$) where SYS_{ij} is the transfer function from the input j to the output i . Time delay must be: a number if SYS is SISO, a matrix ($N \times M$) if SYS has M inputs and N outputs (setting time delay to zero, for MIMO systems it is interpreted as a $[[0]]$ matrix ($N \times M$))

§ BodeX commands

To run BodeX program type `bodex` in the HOME screen and press `<RETURN>`. When dialog box appears you must:

- enter the system (or matrix of systems) model by transfer function (Laplace variable must be s). This field is blank by default
- enter the time delay (or time delay matrix). This field is 0 by default. If system is a MIMO system, 0 is interpreted as a $[[0]]$ matrix of adequate dimensions
- enter the frequency range of the plot. These two fields are `AUTO` by default
- press `<ENTER>`

§ BodeX plots

After BodeX routines evaluate the MAG and the Phase plots a pop-up menu will ask the type of plot you want:

- MAG plot
- Phase plot
- MAG and Phase plot in split screen mode

When plots are plotted you can

- Exit program
- Set Zoom Factor
- Reselect type of plot
- Select input and output (only for MIMO systems)
- Get plot info (frequency range and MAG or Phase range)
- Get a point info (select point and press `<ENTER>`)
- Elaborate graph with simple tools
- Save current plot in a PIC file
- Load saved plot from a PIC file

For more info on 92BROTHERS' programs: <http://www.92brothers.net/>

For other 92BROTHERS' programs: <http://programs.92brothers.net/>

For support on 92BROTHERS' programs: <http://support.92brothers.net/>

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