BodeX v.2.2.4

users manual

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 withoout 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 2.2.4:
▪ a little bug of version 2.2.3 fixed;

What's new in version 2.2.3:
▪ 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:

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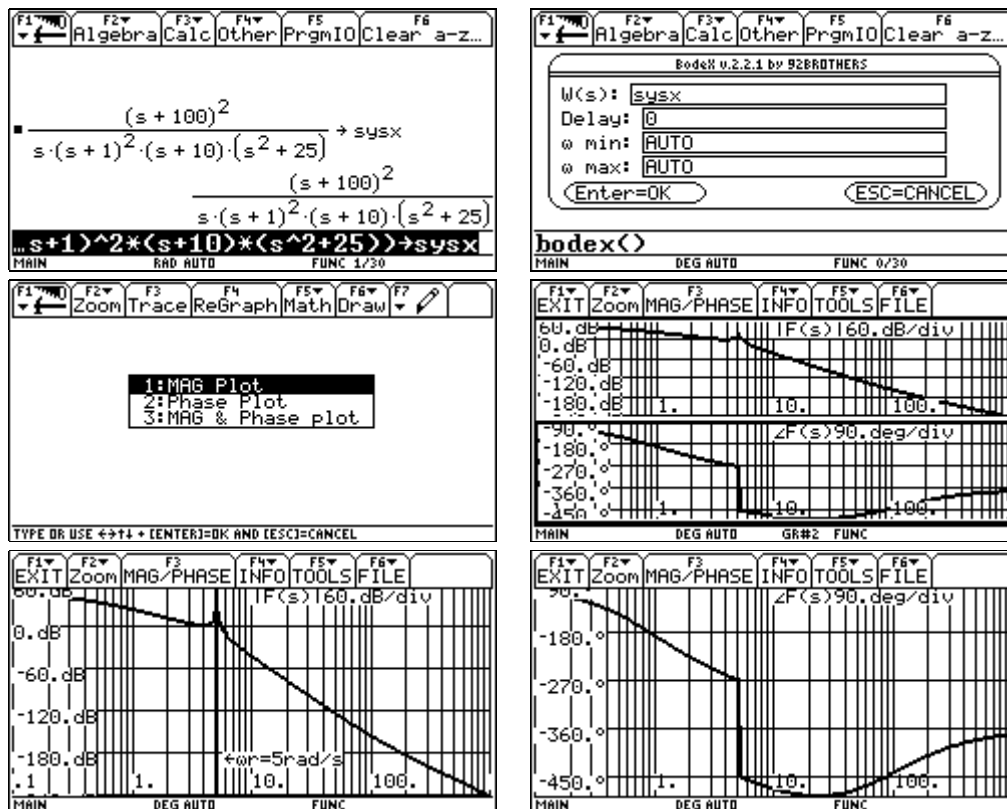
Systems Modelling

LTI Systems models are specified by transfer function of the system (Laplace variable mus be s). If there is a time delay, it must 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 output the system SYS must be a matrix (NxM) where SYS ij it's the tranfer function from the input <j> to the output <i>.Time delay must be: a numbers if SYS it's SISO, a matrix (NxM) if SYS has M inputs and N outputs (setting time delay to zero, for MIMO systems it's interpreted as a [[0]] matrix (NxM)).

BodeX commands

To run BodeX program type bodex() in the HOME screen and press <RETURN>.

When dialog box apper you must:
- enter the system (or matrix of systems) model by transfer function (Laplace variable must be s). This field it's blank by default
- enter the time delay (otr time delay matrix). This filed it's 0 by default. If system it's a MIMO system, 0 it's interpreted as a [[0]] matrix of adequate dimensions
- enter the frequency range of the plot. This 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 Pase 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

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