

Introduction

The XDP-4000X requires the use of a computer to make any changes to its settings. The computer must be running the Windows95 operation system (or later) and have a CD-ROM and an open Com port. To make changes to the XDP-4000X settings, the Digital Sound Creator software must be installed on the computer, and a specific cable must be connected between the computers Com port and the Com port on the XDP-4000X. The cable and software can be obtained by any authorized Sony Mobile ES dealer by contacting the Sony Mobile Hotline (800.366.3460). Replacement or additional cable can be found at many computer stores. They are referred to as either "null modem" cables or "LapLink" cables. The software is only licensed for dealer use. End users cannot obtain copies at this time.

Software Installation

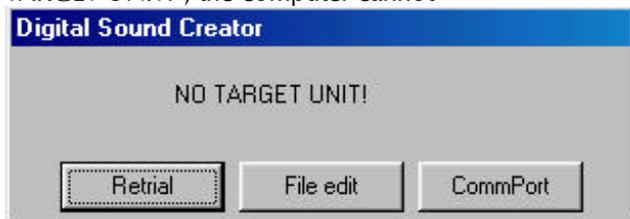
Before beginning, make sure you close any applications that are running on the computer. Be particularly aware of any software programs that may be running in the background - especially those that make use of the computer's COM ports. Some examples include the "Palm Pilot" program, mouse programs, or fax and modem programs.

- 1) Insert the Digital Sound Creator CD-ROM into the computer's CD-ROM Drive.
- 2) If the installation program does not start automatically, click on "Start", and then "Run".
- 3) In the "Run" window, type in D:\SETUP.EXE, where "D" is the drive letter of your CD-ROM drive.
- 4) Click on "OK"
- 5) The software installation program will start. Follow the prompts until the installation is complete.

Running Digital Sound Creator

Before you launch Digital Sound Creator, connect the communication cable to your computers Com port and the Com port on the XDP-4000X. The XDP-4000X must be connected to a DSP capable head unit, and powered up. Once done, launch Digital Sound Creator.

Note: If a dialog box appears that states "NO TARGET UNIT!", the computer cannot



find the XDP-4000X. This will happen if you are running the software without connecting the computer to the XDP-4000X also. By clicking on "Comm port", you can select the Com port that

connected your computer to the XDP-4000X. You can use Com1, Com2, Com3, or Com4 for this connection. Confirm you are using the correct Com port. If the computer still cannot find the XDP-4000X, try clicking on "Retrial". If this does not work, call the Sony Mobile Hotline for technical support. If you wish to simply run the software without the computer hooked up the XDP-4000X, click on "File Edit". Another dialog box appears which lets you choose between XDP-4000X and XES-Z50 files. Click on the appropriate unit to continue.

If communications are properly initialized between the computer and the XDP-4000X, the main DSC screen appears in the upper left-hand corner of the computers screen.



Creating Settings

Digital Sound Creator starts up with "default" settings initialized. In most cases, these would not be the settings required for the particular current system. DSC has two "modules" used for changing settings. The "PEQ" module allows changes to be made to the parametric equalizer. The "CNW" module allows changes to be made to the crossover network. This module also controls each channels delay settings and output level settings. The CNW module is where a typical setup would begin.

Typical Setup

In most cases, a system has already been designed by the time an installer is ready to begin setting up the XDP-4000X. The system's configuration would determine how an installer would setup the XDP-4000X. The XDP-4000X has 4 sets of stereo crossover filters, all controlled through the use of DSC. Channel A is typically used for the subwoofer. Channel B is typically used for the mid-bass, mid-range, or rear speakers. Channel C is typically used for mid-range or front speakers. Channel D is typically used for tweeters. If the XDP-4000X is being used in a 3-way system, 2-way system, or a "front/rear/sub" system, all of the crossover filters need not be used. In fact, channels B and C can be set for full-range pass-through. Doing so, by-passes the crossover filters in those channels and permits the XDP-4000X to be used as just an equalizer, or for signal delay, or both. The following sections will review typical setup procedures for various types of system configurations.

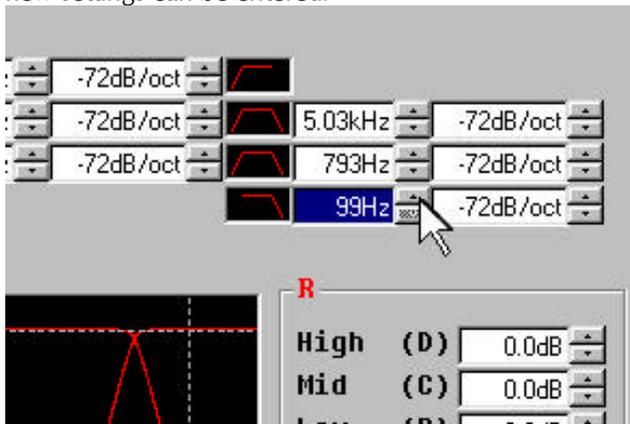
Front/Rear/Sub System Setup

In this configuration, Channel A will be used for the subwoofer, Channel B will be used for the Rear speakers, and Channel C will be used for the Front speakers.

Step 1) Load the "CNW" software module by clicking on "File", then "New", then "Cnw". This launches the Cross-over Network Tuning screen. A new file is automatically created called "new.cnw". The cnw file extension is used by DSC to identify it as a crossover network file. You will probably want to save it as a file name that makes sense for the particular system you are working on - as an example "joesmith.cnw."



If you are simply learning the software at this time, you may wish to name the file as "test.cnw". To do so, click on "file" in the cross-over network tuning screen, then "Save" (or "Save As"). A "save as" window appears with a file name already in the window, typically "new.cnw". Simply type in the name you want to save it as (there's no need to type in the "cnw" extension as DSC will add this for you, and click on "Save". DSC defaults to saving these files in the "XDP-4000X folder, which is located in the "Digital Sound Creator" folder, which is located in the "Program Files" folder, which is located on the drive on which DSC is installed - typically the "C" drive. You may save it anywhere on your computer that makes sense. Some create folders for each job, and would save the files there, others create folders just for DSC files and save them there. Still others use the default folders that DSC creates. At this point, the new settings can be entered.

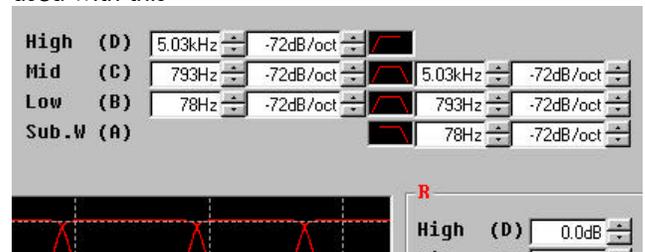


Step 2) Setting the Subwoofer channel cut-off frequency.

Channel A can be set for either 78Hz or 99Hz. To change it, simply position the mouse over the "up" arrow next to the filter adjustment box and click. To change it back to 78Hz, click on the down arrow.

Step 3) Setting the crossover Slope.

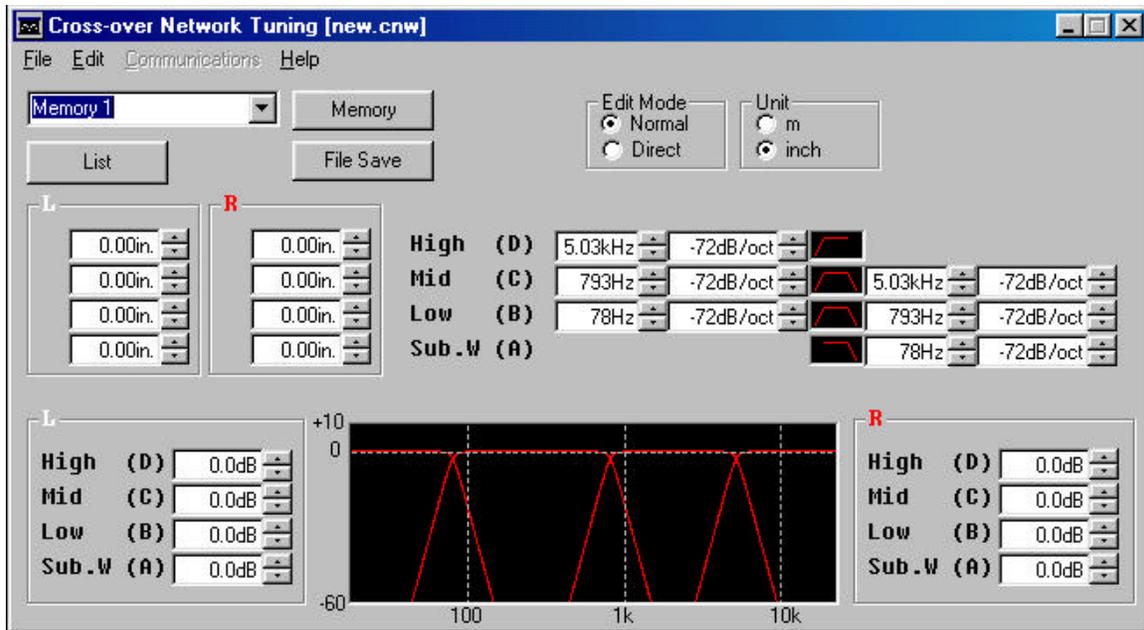
In the adjacent box, the slope is displayed. In this example, it is set to the default setting of 72dB/oct. This can be changed by clicking on the up arrow. Either 36dB/oct can be selected, or 0dB/oct can be selected. If the filter is set to 9dB/oct, the filter is effected turned off, and this channel becomes a full range pass through. That is to say that it has no crossover filter activated, and all frequencies sent to it will be passed through. Full range applications can be used with this



channel. If the system is on while you are making these adjustments, these changes can be heard almost instantly. Additionally, any of these changes can be seen on the crossover graph, located in the lower central portion of the "Cross-over network tuning" screen.

Step 4) Setting the Front and Rear Channels

In many cases, an installer would want to set both the front and rear channels as high pass filters. This can be done by setting the slope of the low-pass portion of the filter (located just above the subwoofer's slope adjustment) to 0dB/oct. Again, as this is being done, the on-screen graph reflects the change. After this is set, the crossover frequency and slope should be adjusted for the front and rear channels. This is done on the high pass adjustment arrows, to the left of the small graph icons. Crossover frequencies of 78Hz, 99Hz, 500Hz, 793Hz, or 1.25kHz can be chosen and the slope can be adjusted to 72dB/oct or 36dB/oct on the B channel, and 72dB/oct or 24dB/oct on the C channel. Of course, if these are set to 0dB/oct, that turns the high pass filter off, and the channel becomes a full range pass-through.



Three-way systems

In a typical three-way system, tweeters and midrange components are in the front of the car, and woofers are mounted in the rear. There may be rear fill speakers in the back of the car as well. The XDP-4000X can handle either of these configurations. A typical system would use channel A for the subs, channel B for the rear fill speakers, channel C for the midrange speakers, and channel D for the tweeters. If there are no rear fill speakers, you can either simply not use channel B, or change each channel use for the optimal performance.

It's important to note that channel D is a dedicated high pass channel, and channel A is a dedicated low pass channel. Keep this in mind when configuring the unit for specific systems.

Step 1) Start by launching DSC, and load the "CNW" software module by clicking on "File", then "New", then "Cnw". This launches the Cross-over Network Tuning screen.

Step 2) Set the Subwoofer crossover channel cut-off frequency.

Channel A can be set for either 78Hz or 99Hz. To change it, simply position the mouse over the "up" arrow next to the filter adjustment box and click. To change it back to 78Hz, click on the down arrow.

Step 3) Set the rear fill channel (channel B)

This channel can be configured in a variety of ways, depending on the desired results. If a full range pass through channel is desired, simply turn off the filters by clicking on the small up/down arrows next to the slope indicators, until 0dB/oct is displayed for both high pass and low pass. This channel can also be configured for either high pass, low pass, or band pass by turning off and/or on the slope adjustment. Once the filters are

set, select the crossover frequency as appropriate for the application.

Step 4) Set the midrange channel (channel C)

This channel, and channel B are virtually the same, in that they can be configured as either full range, high pass, low pass, or band pass crossovers. In this application, it's set as a band pass. Select the crossover frequencies and slopes as previously described.

Step 5) Set the tweeter channel

This channel (channel D) is a dedicated high pass channel. Select the crossover frequency and slope using the appropriate up/down arrows until the desired settings are achieved.

Step 6) Save the settings using the "file" menu.

Four-way Systems

DSC starts up in a default four-way system setup.

Channel A is setup for the sub channel, channel B for the mid-bass, channel C for the midrange, and channel D for the tweeters.

For use in this configuration, simply change each crossover point and slope to the desired setting.

Preset Memories

Each cnw file can hold up to 10 presets for instant recall right from the DSP control head unit. To work with each preset, load it by clicking on the down arrow next to the "memory" button, in the upper left-hand corner of the crossover network tuning screen, and selecting the appropriate preset. The presets come pre-labeled as "Memory 1", "Memory 2", etc., all the way to "Memory10". To change the name of any preset, select it, and click your cursor in the name box. The blue background behind the memory name turns white. Backspace over the name until it

disappears. Type in a new name (using up to 8 characters) and hit "enter". The cursor should automatically move to the start of the name, indicating that the new name has been entered. Remember to save the file after you make any changes. When you do so, a dialog box appears asking "Do you wish to replace the old settings with the new ones?", along with the file name.



Before you click on ok, be sure that you are not overwriting settings that you wanted to save. If you are not sure, simply select the "save as" selection from the file menu, and save the file under a different name. You can see a visual depiction of each preset in the file by clicking on the "List" button, just below preset name box. Each preset is pictured, and titled with its name.

Click on the "exit" button to close the window, or click on the "redraw" button to update the window after making changes.

Time Delay Settings

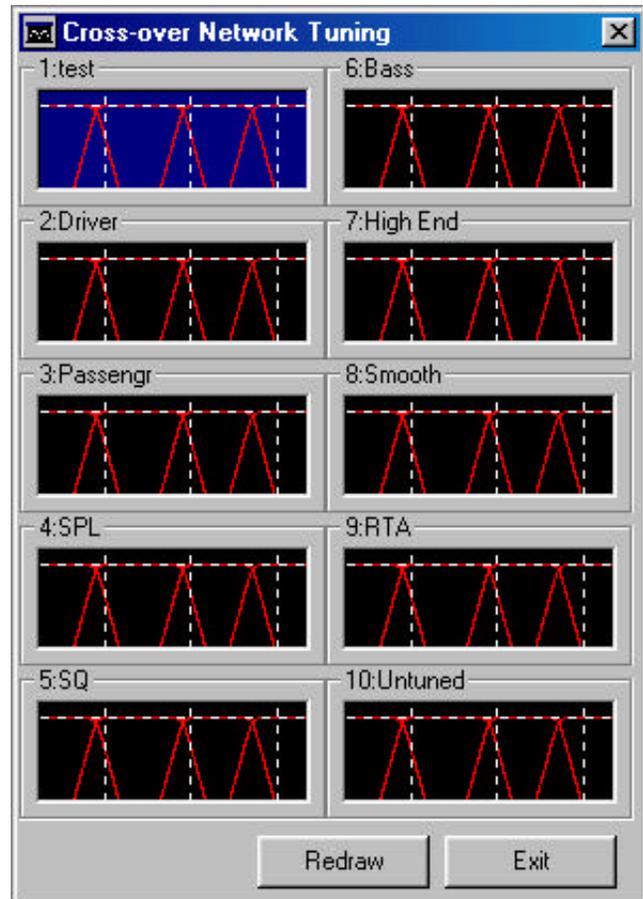
Each output channel can be delayed by the equivalent of 984.25 inches. Simply click on the up/down arrows beside each time delay box to enter the desired amount of delay. Either metric or American standard measurements can be used, by clicking on the appropriate "unit", located in the upper right hand corner of the crossover network tuning window.

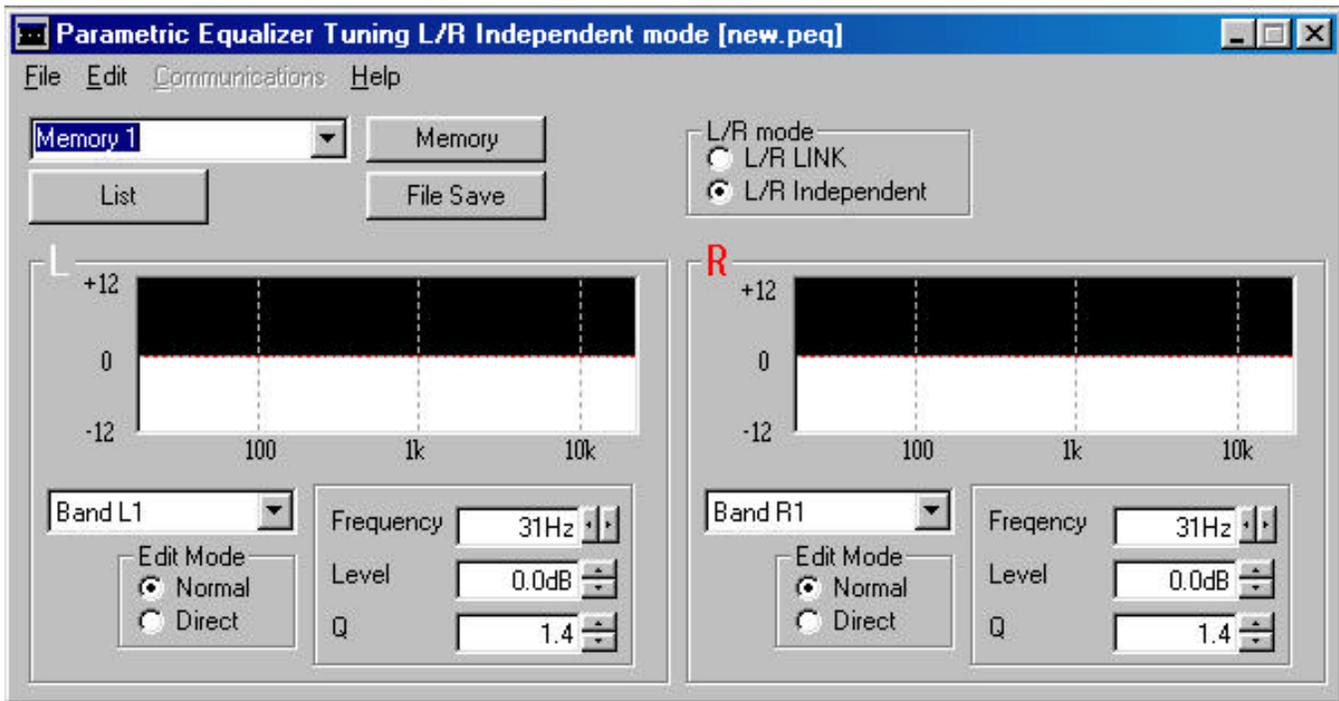
Output Level

Each channel has an output level adjustment, located to the left and the right of the main graph. Simply click on the up/down arrows next to each channel to make the adjustments. Each channel can be set from +6dB to -12dB, or off, positioned just below -12dB.

Edit Mode

Clicking on the "direct" button under the "edit mode" allows the user to make adjustments by "clicking and dragging". Crossover points, cutoff frequencies, and output levels can all be changed in this manner. To allow for only manual input, click on "normal".



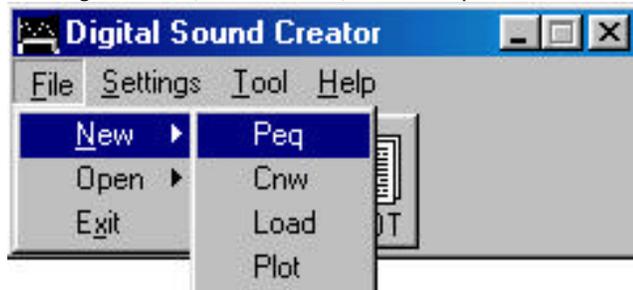


Parametric Equalizer Tuning

The XDP-4000X also features a 10 band parametric equalizer, with independent left and right channel adjustments, frequency adjustments in 1dB increments, level adjustments in 0.1dB increments, and slope adjustments in 0.1 Q increments. The frequency adjustment ranges from 18Hz to 21.7kHz, the level ranges from -12dB to +12dB, and the Q ranges from 0.1, which effects virtually 3/4ths of the entire frequency range, to 25.5, which has virtually no effect on adjacent frequencies. The left and right channels can either be linked together, for easy adjustment of both channels simultaneously, or adjusted independently, for variations in left and right outputs. The parametric equalizer module can store up to 10 different presets, for instant access directly from the DSP control head unit.

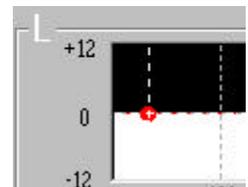
Working with the Parametric Equalizer

To begin using the equalizer, open a new file by clicking on "File", then "New", then "Peq".



At this point, the parametric equalizer tuning screen is opened, and adjustments may begin. When this screen is launched, note that the left and right channels are set to be configured independently by

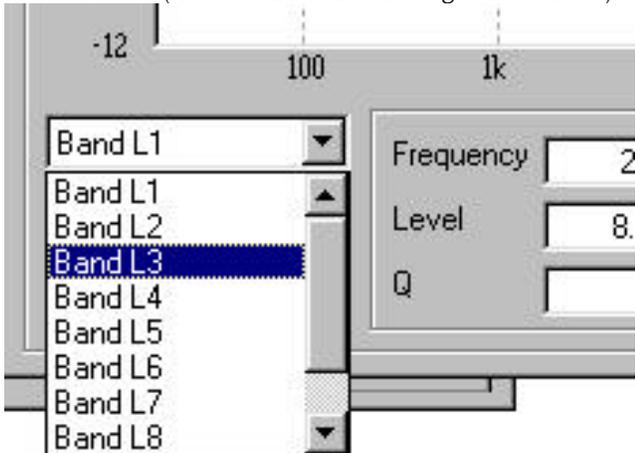
default. When first learning this software, it's recommended that this be changed to "L/R Link" mode, which allows the same changes to both channels to occur by making adjustments to only the left channel. To change this, simply click the small circle next to "L/R Link", just below the "L/R Mode" indication.



You'll notice that the right channel adjustment areas "gray out", reflecting this change. At this point, and periodically throughout working in Digital Sound Creator, it's probably a good idea to save your work. Simply click on "File", then "Save" and a "save" window opens. The default file name is "new.peq", though it's recommended that you save the file with a name that is representative of the particular car that's being worked on, as in "joesmith.peq". Additionally, the file is saved by default in the XDP-4000X directory (or folder). You can create a new folder or use any existing folder to save your work in. Remember that you need not add the "peq" extension to the file name when naming as DSC does this for you.

Changes to each frequency band can be made by either using the up/down or left/right arrows next to each adjustment window, or by clicking on the EQ graph window, changing the edit mode to "direct". This allows settings to be changed using the "drag and drop" method - "grabbing" the band with the cursor on the red circle, and moving it around the graph with your mouse. As soon as you "let go" of the left mouse button, the changes can be heard thru the system.

Band 1 comes up at the default frequency of 31Hz, but this can be changed to any frequency within the adjustment range. Use either the drag and drop method, or the left/right arrows next to the text window. Level and Q adjustments are made using the up/down arrows or the drag and drop method. To make adjustments to another frequency band, click on the down arrow next to the band text box, and select another band (labeled "Band L1" through "Band L10").



Continue making adjustments to enough bands until the desired sound quality is achieved, and remember to save your work often. Once this is done, there are 9 additional preset EQ curves that can be set. A suitable name can be chosen for each preset, and each is accessible directly from the DSP control head unit. The "list" button below the preset memory name launches a screen with a preview of all 10 presets and their associated name for easy identification.

