PROFESSIONAL PRODUCTS

dbx DDP Digital Dynamics Processor Software Version Update Notice

v.1.3

Note: Your DDP now comes with software features not described in the user manual. Read below to learn about the new features included in this software update.

New features:

Dither: The DDP now has the capability to dither digital output signals using dbx's proprietary dither algorithms. Dither parameters are found under the "DS/DTH" key on the keypad. The following text will appear in future versions of the user manual:

In analog recording, the noise floor is not correlated to the input signal. Tape hiss sounds the same if you are recording a drum or a guitar or vocal. This characteristic is called uncorrelated. One of the real limitations of digital recording is that the noise floor is not smooth and in fact changes with the signal. This is called correlation. A correlated noise floor will often modulate up and down with a low level signal input. This modulation is only apparent when reducing the number of bits used to capture the signal. If you are using the DDP analog outputs, the 24 bit D/A utilizes the full range of the 24 bit DDP signal path. However, if you are recording from the digital output of the DDP to something like a DAT player which only has 16 bit resolution, then you should use dither.

Dither is used to "smooth out" the digital noise floor, giving it an analog-like characteristic. Dither is actually a low-level random noise added to the signal before it is truncated to the smaller bit width. The resultant noise floor will be uncorrelated with the input signal, so it will not modulate with the signal. Because you are adding noise, you will hear the noise floor of the output signal raise slightly, but it will not have the harshness that is often associated with digital recording. Numerous psychoacoustic studies have been performed which show that people prefer the higher level uncorrelated noise floor of a dithered signal to the sound of a truncated correlated signal. On the DDP you can use flat TPDF dither when mixing to a DAT player. More about TPDF dither can be found in the paper by Vanderkooy and Lipshitz "Resolution Below the Least Significant Bit in Digital Audio Systems with Dither", JAES 32:3 1984.

Sync: When the Digital input/output option is installed in the DDP, it has the ability to sync its clock in three different ways: The DDP's sync controls are located under the "Utility" button.

First, The DDP can sync to a digital source clock when the analog input is used. This means that if you are using the analog input and want to sync the DDP to a subsequent piece of digital gear, an EAS/EBU (XLR) cable may be attached to the DDP from the piece of digital gear, and the DDP's clock will sync to that piece of gear. The same is true of an S/PDIF signal used by the subsequent equipment. Additionally, the DDP can use its internal clock when in analog input mode.

Second, while using the digital AES/EBU input, the DDP will sync to the incoming digital stream of the AES/EBU audio signal (which also contains the clock data).

And third, the DDP can use an S/PDIF signal the same as number 2 above.

Over...

The following text should be added to the manual on page 5 under the heading “Setups and Programs”:

Dither: Dithering capabilities are available to users who have the DDP Digital I/O module installed. Dithering allows you to optimize the digital performance of the DDP's 16 and 20 bit digital output.

Additionally, two new linked chain types have been added to take advantage of the dithering algorithms. They should appear on page 11. They are shown below. For additional information on dbx's TYPE IV™ Conversion System and our proprietary digital processing algorithms, go to the dbx web site at www.dbxpro.com, or go directly to the dbx ftp site at ftp.dbxpro.com and download our TYPE IV™Conversion System White Paper in pdf format. You will need the Acrobat Reader application from Adobe Systems (www.adobe.com).

