

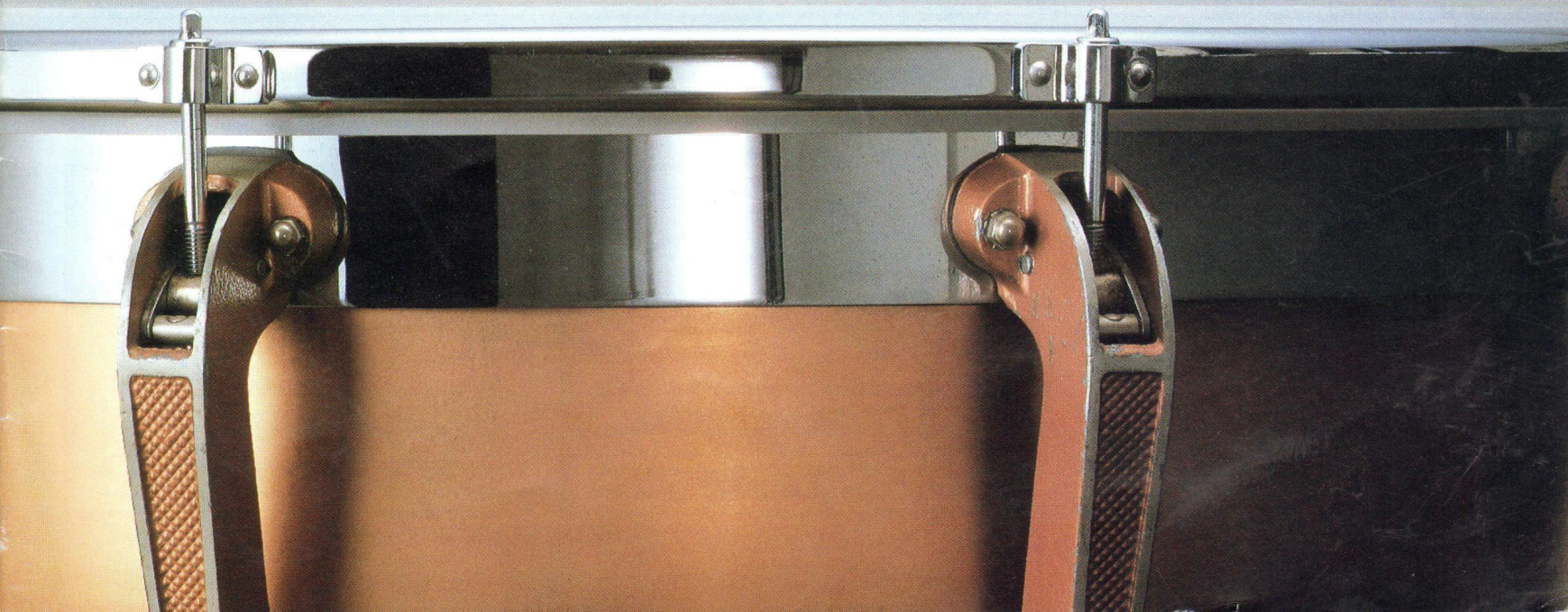
# dbx

## The dbx Catalog

High-Performance Options  
for  
Home Stereo Systems



beim Hersteller  
Archiy Michael Otto  
HiFi-Classic.de



# When the music's feeling good, dbx makes it

There are moments in a live performance when the music touches something special inside.

When you want to shut your eyes and quietly drift with it.

Or when you just have to get up and dance.

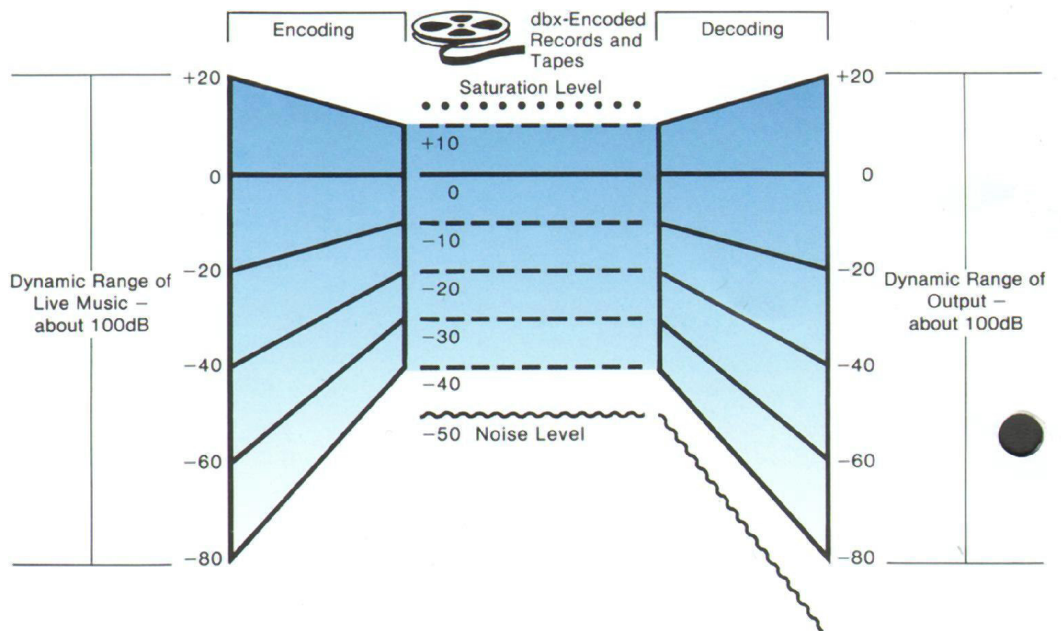
It's this transporting, thrilling quality of live music that the manufacturers of stereo equipment have always sought to capture.

And failed.

Failed, that is, until dbx.

Because by adding dbx high-performance options to even a modest stereo system, you can, for the first time, bring the vibrancy, the excitement of being there, into your living room.

## Record/Playback Process through dbx Encoding/Decoding



## What's wrong with today's stereo equipment?

In a word, nothing.

Today's sophisticated stereos could deliver the impact of a live performance, but for one thing.

The sources of recorded music—the tapes, records and FM you play on your stereo—aren't nearly so sophisticated.

Tapes hiss. Records snap, crackle and pop. And none of the recorded sources of music have anywhere near the musical impact of a live performance.

Even the room in which you play your stereo alters the tonal balance of the original recording.

dbx has solved these problems. So that by adding dbx high-performance options to the stereo system you already own, your stereo can do what the manufacturer intended it to do—capture the realism, the dynamics, the "liveness" of a live performance.

It is a difference no other option can make. A dramatic difference you can hear.

How did we do it?

## dbx tackled the problem at the source.

We developed a whole new process of recording called linear decibel companding. Originally, for professional recording studios, it's based on two unique dbx inventions: voltage-controlled amplifiers (VCAs) and rms-level detectors. By applying this technology to our components, we successfully overcame virtually all the limitations of tapes, discs and FM stereo.

Ordinarily, recording studio engineers are forced to compress the dynamic range of music—literally squeeze it onto the record or tape—to fit the limitations of those media.

Dynamic range is the difference in volume, measured in decibels (dB), between the loudest and softest pas-

sages in music. Live performances can produce about 90 dB of dynamic range. But even the best of the audiophile records are able to fit only around 60 dB into the grooves. Tape is even more limited.

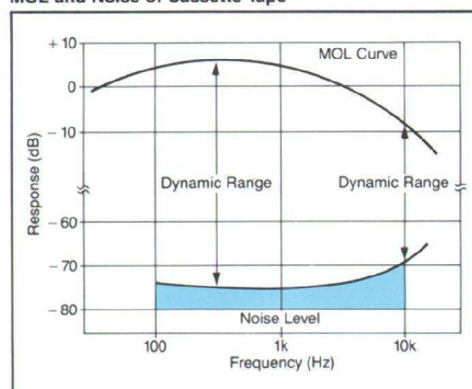
The result is that the loud passages don't sound as loud as they should, nor the soft passages as quiet. dbx does it differently.

We compress the dynamic range as the music signal is transferred onto tape or disc, but in an exact 2 ratio. This encoded signal fits comfortably within the dynamic-range limitations of the media.

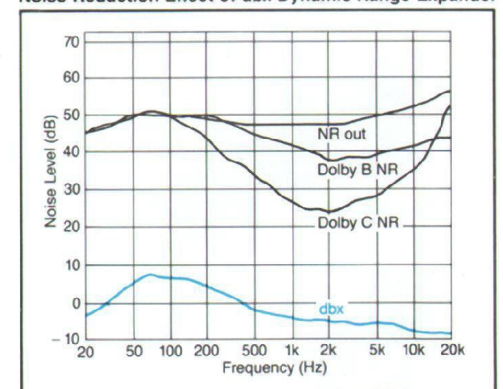
Then, when played through a dbx component, the signal is decoded, expanded in an exact mirror image ratio of 1:2.

The full dynamic range of the signal is thus restored.

MOL and Noise of Cassette Tape

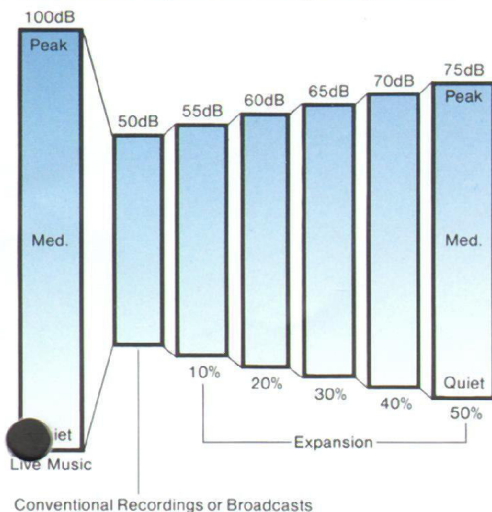


Noise-Reduction Effect of dbx Dynamic-Range Expander



# perfect.

## dbx Linear Dynamic-Range Expansion



## The results are extraordinary.

Full dynamic range means a stunning difference from the recorded music you're used to hearing. In fact, you may be surprised just how cramped ordinary music is by comparison.

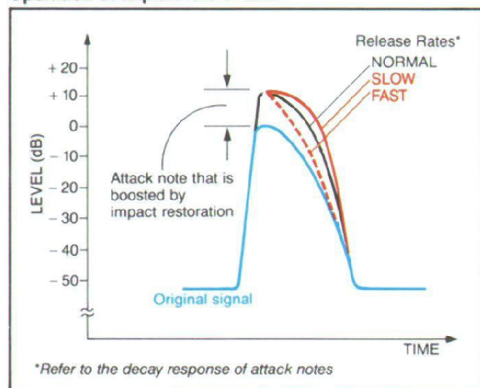
Because now your music isn't just loud where it's supposed to be. It thunders.

It isn't just soft where it's supposed to be. It whispers.

Linear decibel companding also proved to be many times more effective than competing systems in solving the other major obstacle to realistic sound reproduction: tape hiss.

dbx Tape Noise-Reduction Systems are used in about 80% of the

### Operation of Impact Restoration



professional recording studios around the world, and are now a standard for home recording, too.

Why?

You can hear for yourself.

Just add a dbx Tape Noise-Reduction System to any tape deck, and listen to the difference. Other noise-reduction systems reduce hiss. But only dbx eliminates the tape hiss added by your cassettes and reels (twice the noise reduction of the best competing system).

## We've even reinvented the record.

By using the same encode-decode technique, dbx Discs let you hear music with dynamic range equal to that of studio master tapes.

And our Digital dbx Discs take the art a step further still. Produced from tapes made by the digital recording process, Digital dbx Discs deliver the full 90-dB dynamic range of a live performance.

Play them on your system using the dbx Disc Decoder (built into our Tape Noise-Reduction Units) and for the first time you can listen to the music. Instead of the noise on the record.

## Hear a dbx live performance today.

There are a number of other dbx high-performance options designed to bring you closer to your music than ever before.

Our dramatic Dynamic-Range

Expanders for instance. Adapted from our noise-reduction technology, our expanders increase the dynamic range of any source—conventional records and tapes, and even FM—by up to 50%. In addition, our newest expanders incorporate a new concept we call impact restoration. It emphasizes musical attacks, giving more power, more realism to percussion, brass and piano. dbx Dynamic-Range Expanders re-create the excitement and emotional impact of a live performance. Used alone or in combination with a dbx Noise-Reduction Unit, they allow greater sonic realism with any stereo system.

The dbx Computerized Equalizer/Analyzer, model 10/20. It lets you achieve flat frequency response for any location in a room, automatically. And it memorizes up to ten different equalization settings for one-touch recall.

And the PPA-1, that lets you play dbx tapes on any headphone stereo.

Take a look at all the dbx high-performance options. Read about some of the remarkable things they can do for your music.

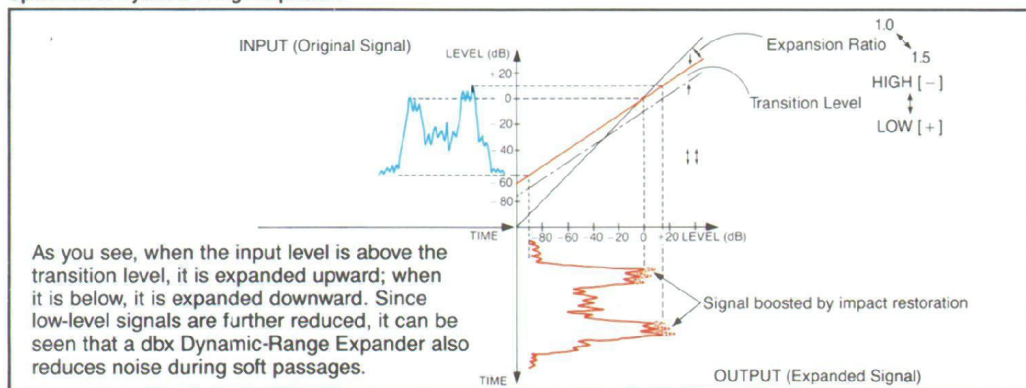
But don't just listen to the words.

Go to an authorized dbx dealer.

Listen to a clarity in recorded music you've never heard before outside the concert hall.

And dust off your dancing shoes.

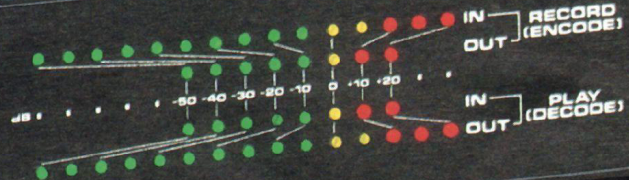
### Operation of Dynamic-Range Expansion



**dbx**  
224X

POWER

RECORD  
TAPE LEVEL  
PLAY



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HiFi-Classic.de

## 224X

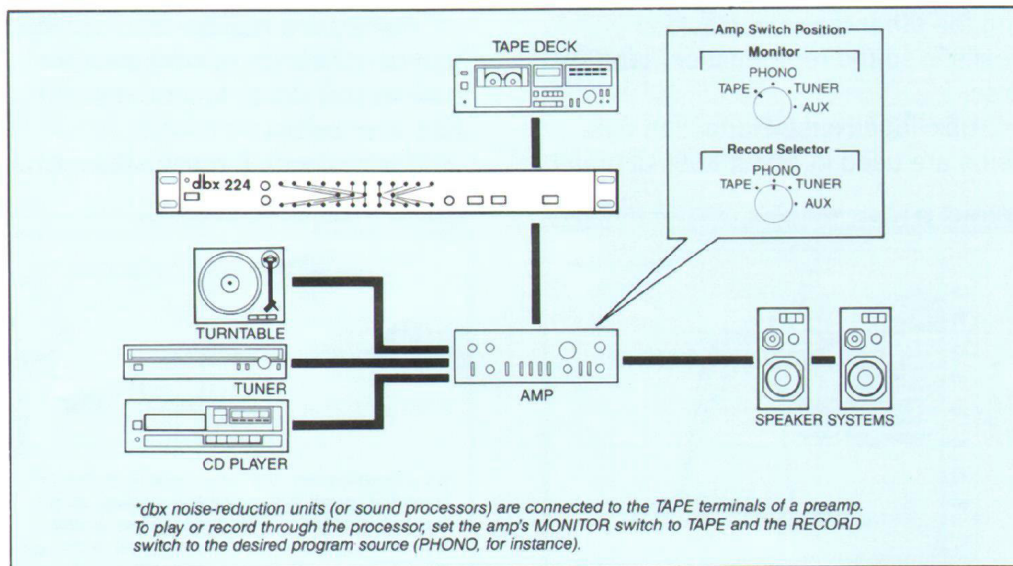
### Type II Tape Noise-Reduction Unit

With the dbx 224X, your standard cassette or open reel tape recorder can perform at a level fully comparable to sophisticated PCM digital recording systems.

That is, with the dbx 224X, you can record and play back the full dynamic range of digital sound sources like Compact Discs as well as live music. You hear full dynamic range. You don't hear background hiss.

Other noise-reduction systems reduce tape hiss in limited areas of the audio frequency range. But the 224X reduces tape hiss by up to 40 dB across the entire audio frequency range.

And while dbx is not sensitive to the level mismatching problems of other





## PPA-1

### Portable Cassette Player Adaptor

noise-reduction systems, the dbx 224X is equipped with controls and LED indicators to allow you easily and precisely to match the encode/decode levels. Level-matching controls are on the front panel for easy access.

So just by inserting the 224X between your present preamp/receiver and tape recorder, you'll hear not just less tape noise, as with competing systems. You'll hear no tape hiss whatsoever.

And with dbx-encoded tapes, those you make yourself or any of the prerecorded dbx cassettes, you get the original, full musical impact of the music—in excess of 90 dB of dynamic range with the latter. The range of a live performance.

The 224X has two complete dbx tape noise-reduction circuits built in, so it is perfect for use with three-head decks with monitoring capability. Of course, it may be used with standard two-head recorders too.

The built-in dbx Disc Decoder lets you play dbx Discs and Digital dbx Discs.

### Specifications

<b>Noise Reduction</b>	Greater than 40dB
<b>Dynamic Range</b>	Greater than 105dB
<b>Frequency Response</b>	± 0.5dB 40Hz—20kHz
<b>Total Harmonic Distortion (THD)</b>	less than 0.15% 100Hz—20kHz less than 0.5% 30Hz—100Hz
<b>Intermodulation Distortion (IMD)</b>	less than 0.2%
<b>Equivalent Input Noise</b>	-88dBV
<b>Maximum Input and Output Levels</b>	7V
<b>Power Requirements</b>	100-120/220-240V, 50/60Hz
<b>Dimensions (W × H × D)</b>	17-1/8" × 1-3/4" × 7-1/2"
<b>Weight</b>	4-3/4 lbs.

Everywhere you look today, people are wearing portable headphone stereos.

There's one problem, though. Only the newest and most expensive models have built in noise-reduction circuitry so you can reduce tape hiss. And practically no models are properly equipped to decode dbx tapes.

We've conquered both of these problems with one tiny decoder unit. The PPA-1. Not only does it give you dbx Type II noise reduction so you won't hear a trace of tape hiss, but it also gives you dbx B noise reduction, which gives good results with cassettes made with other noise reduction.

This compact, inexpensive unit may be used with any portable cassette player on the market. Just insert the PPA-1's plug into the headphone jack of your cassette player, and then insert your stereo headphones into the PPA-1.

Separate left/right volume controls and a selector which lets you choose dbx Type II noise reduction, dbx B noise reduction, or bypass both altogether are provided. The PPA-1 requires two size AAA batteries.

### Specifications

<b>Dynamic Range</b>	90dB
<b>Frequency Response</b>	Follows dbx type II decoding curve ± 1.5dB 50Hz—15kHz
<b>Total Harmonic Distortion</b>	less than 0.3% at 1kHz
<b>Input Level (Nominal)</b>	100mV
<b>Output</b>	Greater than 25mW; drives standard lightweight headphones
<b>Power Requirements</b>	Two AAA batteries (not included); 3V dc nominal, will operate down to 1.8V
<b>Dimensions (W × H × D)</b>	1-1/4" × 4-5/16" × 1-3/16"
<b>Weight</b>	3.3 ozs.



## 4BX

### Multi-Band Expander with Logicontrol System

Impact restoration. The dbx 4BX is the first sound processor in the world with this capability. It restores the "punch," the excitement, of a live performance.

Here's how it works: when a high-level signal suddenly follows a low-level one, the difference in level is expanded. In this way, transient musical attacks, from percussion to brass, are emphasized.

The result is a new musical experience which brings back the impact of a live performance.

The amount of impact restoration can be adjusted up to +12 dB, and is displayed on the front panel.

The 4BX is also a three-band dynamic-range expander. It can make loud passages louder and soft passages softer—in total, increase dynamic range by 50%. Expansion is displayed on the front panel by LEDs. This display, along with the one for impact restoration, can be dimmed by an intensity control.

Since high frequencies, mid frequencies and low frequencies are processed independently, the result is extremely smooth and consistent with all types of music.

In other ways, too, the 4BX is different. It has no mechanical-type switches. Rather, it uses a logic system with touch control. Positions are retained in the memory, so there's no need to readjust each time the unit is turned on.

In addition, all controls and switching—except for Source/Tape and Pre/Post—can be accomplished by means of a

wireless remote-control unit (included). Furthermore, controls are included so that, even if you're not using the expander, you can adjust the volume of your entire hi-fi system without leaving the comfort of your chair.

### Specifications

Expansion	From none (1:1) to 50% (1:1.5), each band
Impact-Restoration Gain	0 to +12dB, each band Greater than 105dB
Dynamic Range	±0.5dB 20Hz—20kHz at no expansion
Frequency Response	±0.5dB 20Hz—20kHz at no expansion
Total Harmonic Distortion	less than 0.15% at no expansion
Intermodulation Distortion	less than 0.1%
Equivalent Input Noise	—90dBVA
Attack Rates	Program-dependent, optimized for each band
Release Rates	Linear expander program-dependent, optimized; impact restorer adjustable —40 to +10dB
Volume Control Range	6V
Maximum Input and Output Levels	USA/CANADA: 120V, 60Hz 17-1/8" x 3-1/2" x 12-1/4"
Power Requirements	13 lbs.
Dimensions (W x H x D)	
Weight	
REMOTE CONTROL	9V
Battery	

## 3BX III

### Dynamic-Range Expander

50% more dynamic range. The equal of a live performance.

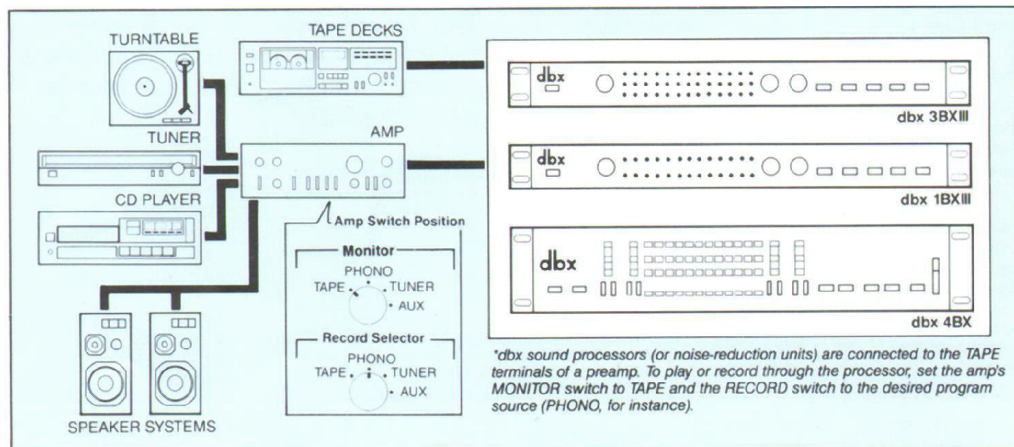
Almost no noise at all.

The 3BX III divides audible frequencies into three ranges—HF (High Frequencies), MF (Mid Frequencies), and LF (Low Frequencies)—and handles each separately.

This ensures that an overly loud bass note, for example, will not artificially raise the level of mid or high frequencies present at the same time. It is extremely effective with highly complex musical pieces.

Simple controls let you choose however much expansion you desire, from no expansion up to 50% expansion, as well as the transition level, the threshold at which upward or downward expansion occurs.

The LED display shows you how much upward and downward expansion is occurring at each of the three frequency ranges.





## 1BX III

### Dynamic-Range Expander

In addition to dynamic-range expansion, the 3BX III restores the impact of a live performance that is lost during mix-down and mastering. The transient attacks of percussion, for instance, are heard as they should be, with overpowering impact. The range is adjustable from 0 to 12 dB.

For recording purposes, Pre and Post switching is available to you. The Pre position routes the expanded signal to the tape deck, while the Post position places the expanded signal after the tape deck, as desired.

In short, the 3BX III can make records, tapes, and radio and TV broadcasts approach the realism of a live performance. Right in the home.

#### Specifications

Expansion	Variable from none (1:1) to 50% (1:1.5), each band
Impact-Restoration Gain	0 to +12dB, each band
Dynamic Range	Greater than 105dB
Frequency Response	± 0.5dB 40Hz—20kHz
Total Harmonic Distortion	less than 0.15% at no expansion
Intermodulation Distortion	less than 0.2% at no expansion
Equivalent Input Noise	- 88dBVA
Attack and Release Rates	Program-dependent, optimized for each band
Maximum Input and Output Levels	7V
Transition-Level Range (Mid-Band)	30mV to 3V
Power Requirements	100-120/220-240V, 50/60Hz
Dimensions (W x H x D)	17-1/8" x 1-3/4" x 7-1/2"
Weight	5 lbs.

Affordably priced. Yet up to 50% more dynamic range from any music source. Plus impact restoration.

Now everyone can enjoy a new, fuller, more realistic sound experience from records, tapes and radio and TV broadcasts.

A simple control provides expansion ratios from 1.0 to 1.5 (0% to 50% expansion), and the transition level control lets you select the exact threshold at which upward and downward expansion occurs. A series of LED indicators shows you how much expansion—both upward and downward—is taking place at any moment.

Just as easily, you can add exciting impact and realism to any music with impact restoration. Up to +12 dB is possible. LED indicators display how much punch is added.

For full versatility, the 1BX III has the functions PRE, POST and BYPASS. The PRE button lets you record an expanded signal. The POST button lets you hear an expanded signal but the recorded signal will not be expanded. The BYPASS button bypasses the expander altogether.

#### Specifications

Expansion	Variable from none (1:1) to 50% (1:1.5)
Impact-Restoration Gain	0 to +12dB
Dynamic Range	Greater than 105dB
Frequency Response	± 0.5dB 40Hz—20kHz
Total Harmonic Distortion	less than 0.15% at no expansion
Intermodulation Distortion	less than 0.2% at no expansion
Equivalent Input Noise	- 88dBVA
Attack and Release Rates	Program-dependent
Maximum Input and Output Levels	7V
Transition-Level Range	40mV to 3V
Power Requirements	100-120/220-240V, 50/60Hz
Dimensions (W x H x D)	17-1/8" x 1-3/4" x 7-1/2"
Weight	4-3/4 lbs.



# 120X

## Stereo Subharmonic Synthesizer

Have you ever thrilled to the powerful drive of music played at a club and wondered why your own stereo can't reproduce this excitement? Bass you feel as well as hear?

Now you can do the same thing. In your home. For the same unit used by many clubs is available to you. The dbx 120X Stereo Subharmonic Synthesizer.

What the 120X does can hardly be called unnatural, for recording engineers often eliminate the lowest octave from music when they are mixing and pressing records. The reason is that very low frequencies are difficult to record and broadcast and even more difficult for the average home stereo system to reproduce.

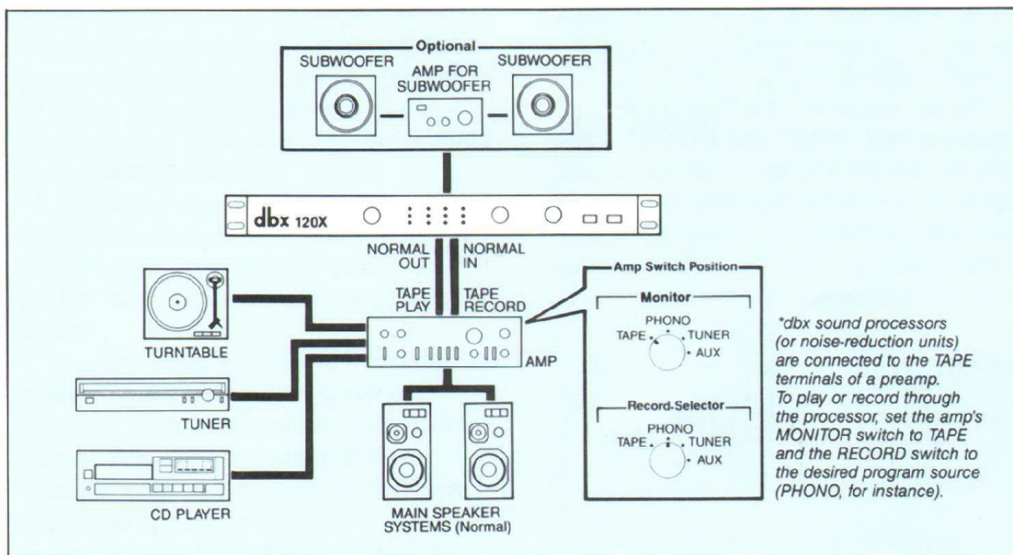
How does the 120X operate? It samples all bass frequencies between 55 and 110Hz, synthesizes corresponding frequencies exactly one octave lower (frequencies between 27.5 and 55Hz), and mixes them back into the music.

By this re-creation of the natural subharmonics that were taken out during the recording process, music takes on a new life, a new power. It has to be felt to be believed.

If you plan to add on a subwoofer system, you'll find the 120X to be just the thing you're looking for, because it also operates as an electronic crossover separating low frequencies for driving a subwoofer amp. Since the 120X has a control as well as an output for a subwoofer, you can easily balance low-frequency output against upper frequencies being handled by your amplifier or receiver.

### Specifications

<b>Frequency Response</b>	± 1dB 25Hz—20kHz
<b>Total Harmonic Distortion</b>	less than 0.05%
<b>Synthesis-Frequency Range</b>	27—55Hz with 55—110Hz input
<b>Equivalent Input Noise</b>	-88dBVA
<b>Low-Frequency Boost Slider Range</b>	To +6dB at 50—60Hz
<b>Subharmonic Synthesis Slider Range</b>	To +9dB of synthesized frequencies
<b>Subwoofer Level Slider Range</b>	Up to 0dB
<b>Crossover Frequency</b>	120Hz
<b>Maximum Input and Output Levels</b>	6.5V
<b>Power Requirements</b>	100-120/220-240V, 50/60Hz
<b>Dimensions (W × H × D)</b>	17-1/8" × 1-3/4" × 7-1/2"
<b>Weight</b>	4-3/4 lbs.





## 400X

### Program-Route Selector

dbx has developed a new component that solves all your hookup problems in a single stroke. It's the model 400X Program-Route Selector.

It has inputs for as many as three decks, three sound processors, and a noise-reduction unit. With pushbutton ease, you can select the processor of your choice, the deck of your choice, and add noise reduction at will.

The first new feature of the 400X is its capability for taking a non-encoded music tape and producing an encoded copy that incorporates any combination of noise reduction and sound processing, depending on what units are hooked up. In the same way, an NR-encoded music tape can be made into a non-encoded copy that incorporates any combination of sound processing you choose.

The newly incorporated LED indica-

tors clearly show the functions that have been chosen and the "path" the signal is taking.

All in all, the dbx 400X is an invaluable "system simplifier" that is compatible with any stereo system, and recommended for anyone having one or more noise-reduction units and sound processors or two or more decks.

### Specifications

**Power Requirements** 100-120/220-240V, 50/60Hz  
**Dimensions (W x H x D)** 17-1/8" x 1-3/4" x 7-1/2"  
**Weight** 5-1/16 lbs.

## 200X

### Program-Route Selector

Sound processors (graphic equalizers, reverb units, dynamic-range expanders, subharmonic synthesizers, etc.) are essential for enjoying today's music, but hooking them all up can be a problem.

No longer. The dbx 200X Program-Route Selector solves it.

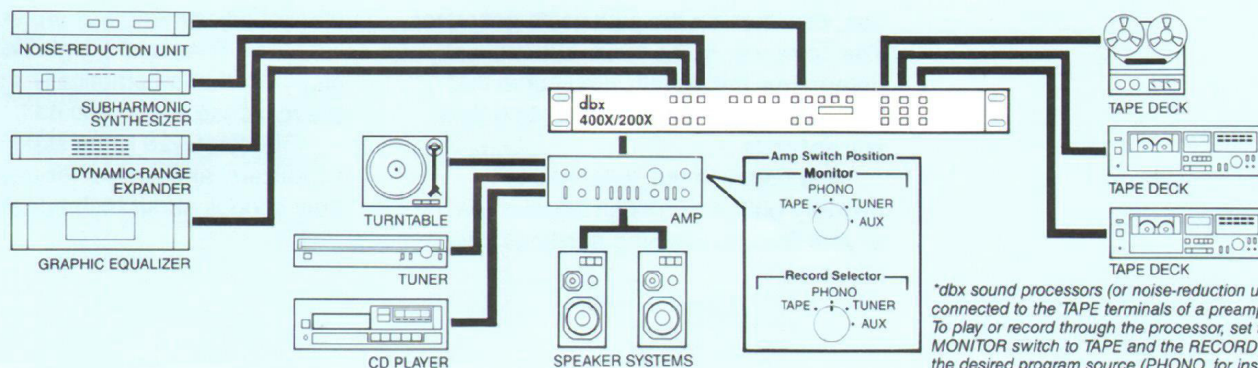
It lets you easily hook together as many as three decks, three sound processors, and a noise-reduction unit. All through a single tape-monitor loop of your amp or receiver.

Tape copying directly between decks is possible, and the PRE/POST switch lets you add processing before or after recording (but not dubbing).

The dbx 200X is the logical and inexpensive way to simplify your stereo.

### Specifications

**Dimensions (W x H x D)** 17-1/8" x 1-3/4" x 7-1/2"  
**Weight** 4 lbs.



#### IMPORTANT NOTE

With the dbx 200X, note that during tape dubbing the signal path is direct only and signal processors connected are bypassed. However, when using the 400X, it is possible to dub an encoded tape utilizing any combination of processing and noise reduction from a non-encoded tape, and vice versa.

\*dbx sound processors (or noise-reduction units) are connected to the TAPE terminals of a preamp. To play or record through the processor, set the amp's MONITOR switch to TAPE and the RECORD switch to the desired program source (PHONO, for instance).



## 10/20

### Computerized Equalizer Analyzer

The dbx 10/20 is the automatic equalizing system—four components in one.

It is a microprocessor-controlled 10-band octave equalizer. It is a real-time analyzer. It is a pink-noise generator. It is a sound-pressure-level meter. And it comes with a calibrated microphone.

Unlike other equalizers, the 10/20 automatically compensates for the effects furniture, drapes, carpets and other acoustical variables in your room may have on sound quality. The result is highly accurate tonal balance and sharp definition of every instrument. In a word, more realistic sound.

To equalize a room, simply place the microphone at any desired listening position, then turn on the pink-noise generator. The computer in the 10/20 automatically determines the equalization curve that results in optimally flat sound. In only a few seconds.

And because the 10/20 has ten memory buttons, you can equalize each of your favorite listening positions, then

store them for later recall. You can even make up and store your own personalized equalization settings, or special settings for improving the sound of tapes for play on car stereos or headphone stereos, where frequency response is often poor or irregular.

The 10/20 will also average several listening positions automatically to give you the best possible frequency response over the widest possible area. It will also equalize speakers separately or as a stereo pair.

Some of the other advanced features of the 10/20 include LED readouts on all ten bands, precision switches instead of traditional slider controls for UP/DOWN manual adjustment, a sharp and inaudible infrasonic filter, and a high-frequency roll-off (HFR) that automatically simulates the response of a music hall.

The dbx 10/20 is the state of the art in equalizers, and a must for anyone who is truly serious about high fidelity.



## Specifications

### EQUALIZER

<b>Center Frequencies</b>	31.5, 63, 125, 250, 500, 1k, 2k, 4k, 8k, 16kHz
<b>Control Range</b>	± 12dB (one band at maximum or minimum with all others centered)
<b>Resolution of Settings</b>	1dB
<b>Accuracy of Equalizer</b>	± 1.4dB at full boost or cut
<b>Max. Input Level</b>	5V
<b>Max. Output Level</b>	5V
<b>Impedance</b>	47k ohms
<b>Output Impedance</b>	330 ohms
<b>Total Harmonic Distortion</b>	0.03% (at 20Hz—20kHz)
<b>Equivalent Input Noise</b>	— 95dBVA

### ANALYZER SECTION

<b>Number of Bands</b>	10
<b>Center Frequencies</b>	Same as Equalizer
<b>Resolution</b>	1dB
<b>Relative Accuracy</b>	± 1dB
<b>Readouts</b>	25 LEDs for 10-band display, one illuminated per band

### SPL METER

<b>Bandwidth</b> (at 90dB SPL Input)	15Hz—20kHz
<b>Dynamic Range</b>	80dB
<b>Resolution</b>	1dB
<b>Relative Accuracy</b>	± 3dB
<b>Detector Type</b>	rms
<b>Readouts</b>	Same as Analyzer

### PINK-NOISE GENERATOR

<b>Type</b>	Digital pseudo-random white-noise source, with analog filtering for 3dB/octave roll-off, uncorrelated
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### Accuracy

± 3dB/octave curve from 20Hz to 20kHz within ± 0.5dB

### Output Level

Variable via front-panel slider

### MICROPHONE

<b>Type</b>	Electret condenser
<b>Directional Characteristic</b>	Omnidirectional
<b>Impedance</b>	2k-ohms at 1kHz
<b>Frequency Response</b>	± 1dB 20Hz—20kHz
<b>Power Requirements</b>	Supplied by dbx 10/20
<b>Cord Length</b>	20'
<b>GENERAL</b>	
<b>Power Requirements</b>	120V, 60Hz
<b>Batteries</b>	2 AA size (included)
<b>Dimensions (W × H × D)</b>	17-1/8" × 3-1/2" × 11-7/8"
<b>Weight</b>	17-5/8 lbs.

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Music can't live without us.

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