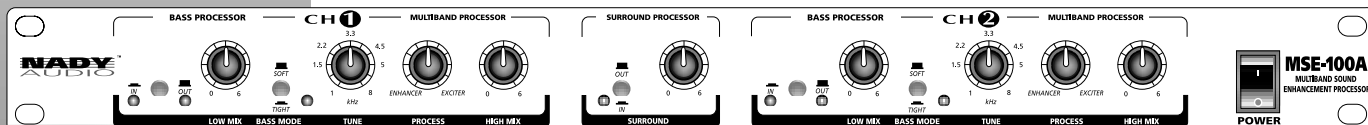


OWNER'S MANUAL



MSE-100A

MULTIBAND SOUND ENHANCEMENT PROCESSOR

MSE-100A

MULTIBAND SOUND ENHANCEMENT PROCESSOR

NADY™
AUDIO



Congratulations on your choice of processors — you have purchased one of the finest stereo processors on the market today. This unit was developed using the expertise of professional sound engineers and working musicians. You will find that your new NADY AUDIO MSE-100A has superior performance and greater flexibility than any other enhancer/exciter in its price range. Please read this manual carefully to get the most out of your new unit.

Thanks for selecting NADY AUDIO as your choice in processors.

Date of Purchase _____

Dealer's Name _____

City _____

State _____

Zip _____

Model # _____

Serial # _____

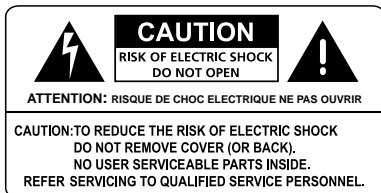
FEATURES

- Professional multiband enhancer/exciter for all applications provides a subjective loudening of the audio and improves intelligibility, bass punch, presence and transparency and reduces listening fatigue
- Variable sound processing circuitry for simultaneous enhancer and exciter effects
- Dual-mono or stereo operation
- Surround processor for spatial enhancement and improved stereo imaging
- Dual-mode bass processor (which allows choosing between "soft" and "tight" bass sounds; and multiband processing
- XLR and 1/4"TRS input/outputs for balanced or unbalanced operation
- Shielded internal power supply and standard IEC receptacle for power cord.

CONTENTS

FEATURES	3
WARNING	4
INTRODUCTION.....	5
FRONT PANEL CONTROLS AND CONNECTIONS ..	6
REAR PANEL CONTROLS AND CONNECTIONS	7
APPLICATION.....	8
Basic Settings	8
Sound Enhancement During Replay	8
Sound Enhancement During Recording	8
Enhancing the Sound of Effects Devices	8
Enhancing the Sound of Tape Duplications	9
Enhancing the Sound of Instruments	9
Enhancing the Sound of P.A. Systems.....	9
Enhancing the Sound of Monitor Systems	10
Sound Enhancement in Hi Fi and Video	10
SPECIFICATIONS	10

WARNING



An equilateral triangle enclosing a lightening flash/arrowhead symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure which may be of sufficient magnitude to constitute a risk of electric shock.



An equilateral triangle enclosing an exclamation point is intended to alert the user to the presence of important operating and service instructions in the literature enclosed with this unit.

IMPORTANT SAFETY INSTRUCTIONS

When using this electronic device, basic precautions should always be taken, including the following:

1. Read all instructions before using the product.
2. Do not use this product near water (e.g., near a bathtub, washbowl, kitchen sink, in a wet basement, or near a swimming pool, etc.).
3. This product should be used only with a cart or stand that will keep it level and stable and prevent wobbling.
4. This product, in combination with headphones or speakers, may be capable of producing sound levels that could cause permanent hearing loss. Do not operate for a long period of time at a high volume level or at a level that is uncomfortable. If you experience any hearing loss or ringing in the ears, you should consult an audiologist.
5. The product should be positioned so that proper ventilation is maintained.
6. The product should be located away from heat sources such as radiators, heat vents, or other devices (including amplifiers) that produce heat.
7. The product should be connected to a power supply only of the type described in the operating instructions or as marked on the product. Replace the fuse only with one of the specified type, size, and correct rating.
8. The power supply cord should: (1) be undamaged, (2) never share an outlet or extension cord with other devices so that the outlet's or extension cord's power rating is exceeded, and (3) never be left plugged into the outlet when not being used for a long period of time.
9. Care should be taken so that objects do not fall into, and liquids are not spilled through, the enclosure's openings.
10. The product should be serviced by qualified service personnel if:
 - A. The power supply cord or the plug has been damaged.
 - B. Objects have fallen into, or liquid has been spilled onto the product.
 - C. The product has been exposed to rain.
 - D. The product does not appear to operate normally or exhibits a marked change in performance.
 - E. The product has been dropped, or the enclosure damaged.
11. Do not attempt to service the product beyond what is described in the user maintenance instructions. All other servicing should be referred to qualified service personnel.

INTRODUCTION

In the last two decades, sound enhancement systems such as enhancers, exciters, psycho-acoustic processors etc. have become an indispensable aid in the studio and have found widespread application in almost all film, broadcast and recording productions as well as in P.A. and sound reinforcement systems.

Basically, several principles of sound enhancement prevail in today's market. The sound improving effect produced by the enhancer is based on program-dependent phase shifting with the goal of enlarging the pulse width. In contrast, psychodynamic processors use a dynamic frequency correction of the program material and therefore enrich the program material with high-frequency processing.

Conventional units often may work perfectly on pop music, but when processing acoustic instruments, the result is aggressive and unnatural. Enhancers are preferable for processing classical music and acoustic instruments. The result is a "softer", unobtrusive transparency and an increased richness in sound. However, to make a pop recording more "aggressive", to set up a sound system for maximum intelligibility or to give a rhythm/bass guitar the necessary "punch", it is recommended to process the high-frequency range with an Exciter.

The new VSP (Variable Sound Processing) circuit used in the MSE-100A, allows for variable fading over from enhancer to exciter mode. With the PROCESS control clockwise, the Exciter circuit increasingly provides a variable and carefully adjusted processing of high frequencies. The result is an increased brilliance and transparency. Fading over from one effect to the other can thus adapt the effects perfectly to the respective program material.

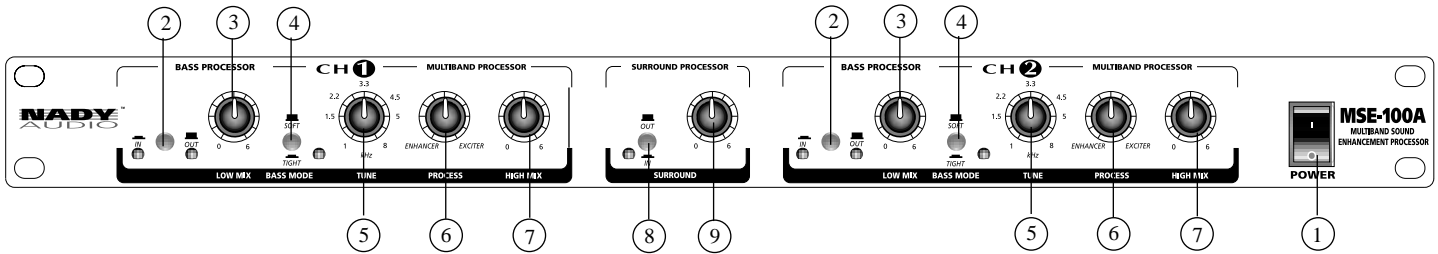
The MSE-100A utilizes state-of-the-art level-independent enhancer circuitry which completely eliminates the problem of restricted leveling capacity in previous, conventional units. Consequently, the DRIVE control to be found on conventional exciters, which adapts the devices to different input levels, could be omitted on the MSE-100A. Thus, previous common problems such as insufficient or excessive signal processing are eliminated.

The MSE-100A is equipped with a separate bass processor, which allows for sound enhancement in the lower frequency band. A newly developed "Dual Mode" circuit allows you to vary between two different bass sounds from "soft" to "tight". Processing the bass range provides the optimum complement to high-frequency processing and opens up new dimensions in the field of sound enhancement.

The MSE-100A can be used wherever professional sound improvement is required. This unit not only enhances the presence and clarity of the program material, but also adds power to the bass frequencies. In addition it provides improved spatial definition.

These qualities make this unit an indispensable tool for many applications. For example, the MSE-100A produces a greater penetration of sound, which is invaluable in improving the audio quality of radio and television transmissions. The sound improvement offered by the MSE-100A is also perfectly suited to the demands of the recording industry. The following operational manual will introduce you to the MSE-100A and its various functions. After reading the manual carefully, make sure it is always on hand for future reference.

FRONT PANEL CONTROLS AND CONNECTIONS



1. POWER Switch with LED Indicator

This switches the AC power ON or OFF. The integrated LED will light to indicate power ON.

Note: In order to avoid possible undesired noise transients in a live sound reinforcement application, switch on the power to your MSE-100A before switching on the amplification system.

2. IN/OUT Buttons and LED Indicators

The IN/OUT button activates the corresponding channel into operation. With the button in the OUT position, the unit is bypassed. The green LED will light to indicate "IN" and the red LED will indicate "OUT".

Bass Processor

The Enhancer is equipped with a separate bass processor which provides sound enhancement in the lower frequency band. A newly developed "Dual Mode" circuit allows you to vary between two different bass sounds, from "soft" to "tight". Processing the bass range allows the optimum complement to high-frequency processing and opens up new dimensions in the field of sound processing.

3. LOW MIX Control

The LOW MIX control of the low band determines the amount of signal used for sound enhancement (from zero to six). The setting depends on the application you are addressing.

4. MODE Buttons

With the MODE button you can define the sound effect of the bass processor. If the button is on ("TIGHT") the bass will sound "dry" and "punchy", whereas the released switch mode ("SOFT") creates a warm and full bass. The yellow LED will indicate "TIGHT".

Note: That the bass processor should be set carefully to avoid possible speaker damage. Most near-field monitors are not capable of handling the bass produced by the Enhancer.

Multiband Processor With Variable Sound Processing Circuit

The Variable Sound Processing circuit allows for variably fading over from Enhancer to Exciter mode. Turning the PROCESS control clockwise activates the Exciter circuit increasingly to provide additional processing of high fre-

quencies for more signal transparency and brilliance.

Fading over from one effect to the other can thus adapt the effects perfectly to the respective program material to suit any application or personal sound preference.

5. TUNE control

The TUNE control sets the lower cutoff frequency of the high-pass filter. Using this control you can select the frequencies that are routed to the Natural Sonic Processor. The cut-off frequency can be adjusted within a range of 1 to 8 kHz.

6. PROCESS control

The PROCESS control determines the function of the device. Turning the control clockwise increasingly activates the Exciter mode.

Note: That for input signals that already include sufficient treble content, such as classical music or acoustic instruments, generally the setting should emphasize the Exciter mode. However, when processing, for instance, a "slapped" bass guitar, the "Exciter" setting should dominate. Experiment for the sound you like.

7. HIGH MIX control

The HIGH MIX control of the high band determines the amount of signal used for sound enhancement (from zero to six). It would depend on the application as to whether a high-quality system is to be given the "finishing touch" with the Enhancer, or whether maximum intelligibility is to be achieved in a relatively poor sound reinforcement system.

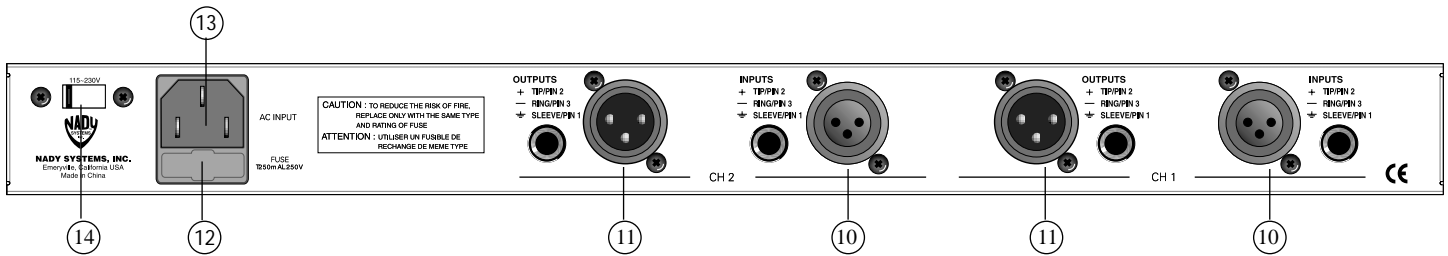
8. SURROUND IN/OUT Button

This button activates the SURROUND section. As this mode is designed only for stereo applications, note that this button has to be released when processing two separate signals (dual mono) otherwise there will be undesired crosstalk between the two channels. The green LED indicates "IN".

9. SURROUND Control

This controls the effect of the SURROUND processor (zero to six). Turning the control clockwise improves the intensity of the stereo imaging and increases the spatial enhancement, depending on the signal being processed. It can only be used with stereo program material.

REAR PANEL CONTROLS AND CONNECTIONS



10. INPUTS

The MSE-100A is equipped with both 1/4" (6.3mm) TRS and XLR audio input jacks. These can be used for either balanced or unbalanced operation as follows:

- Unbalanced use of mono 1/4" plugs:
Tip = Signal, Sleeve = Ground / Shield.
- Balanced use of TRS stereo 1/4" plugs:
Tip = hot (+), Ring = cold (-), Sleeve = Ground / Shield.
- Balanced use with XLR connectors:
1 = Ground / Shield, 2 = hot (+), 3 = cold (-).

11. OUTPUTS

The audio outputs of the MSE-100A are matching phone jack and XLR connectors wired in parallel.

- Balanced use of stereo 1/4" jack/plugs:
Tip = hot (+), Ring = cold (-), Sleeve = Ground / Shield
- Balanced use with XLR connectors:
1 = Ground / Shield, 2 = hot (+), 3 = cold (-).

12. FUSE HOLDER

The IEC power socket has an integral fuse holder that takes a 20mm fuse.

NOTE: Always replace a blown fuse with the same type as specified on the rear of the unit.

13. POWER CONNECTION

A standard IEC AC power socket for connecting to the main AC supply.

Note: Before you connect your Enhancer to the AC, please make sure that your local voltage matches the voltage required by the unit!

Note: Do not remove the center ground conductor.

14. VOLTAGE SELECTOR SWITCH

For selecting the proper voltage (115/230VAC) to match the power supply in your area.

APPLICATIONS

BASIC SETTINGS

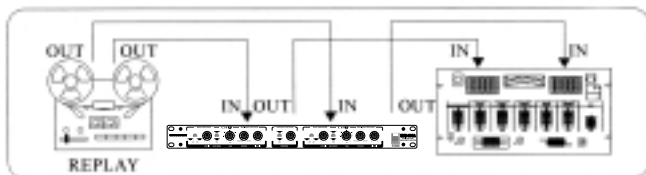
We recommend setting the controls as indicated in the following three sections. This will give you a better idea of the switch and control functions:

1. Set the MSE-100A channel (1 or 2) to bypass mode (the mode switch OUT and the red LED lit). Set the LOW Mix and the TUNE center position and the PROCESS controls fully counterclockwise.
2. Turn the MIX controls fully CCW and press the IN/OUT switch (green IN LED lit). Now turn the LOW MIX controls counterclockwise from the center position and the HIGH MIX controls slowly clockwise until the fundamental bass and high frequencies become more emphasized and the sonic image begins to “open up” or to “widen”.
3. The quality of the sound enhanced signal can be adapted to the program material by varying the LOW MIX controls and the TUNE controls.

When using enhancers or exciters, it is easy to get carried away. Therefore, we recommend regular A/B comparisons (IN/OUT) while setting the controls, in order to constantly check the signals integrity. Rule of thumb: the enhancer's effect should only be noticeable when it is lacking, but not when it is present! Listening at high volume levels over long periods (in studios, for example) leads to listening fatigue and thus reduces sensitivity to higher frequencies. Regular pauses keep your hearing “healthy” and helps you avoid exaggerated sound processing.

SOUND ENHANCEMENT DURING REPLAY

For this application, the MSE-100A follows the master or multi-track recorder, i.e., inserted between tape machine and mixer (or amplifier). Of course, a cassette recorder, or similar equipment can also be used as a signal source. If a companding noise reduction system is used in this situation, it should precede the MSE-100A.



Using the MSE-100A during replay

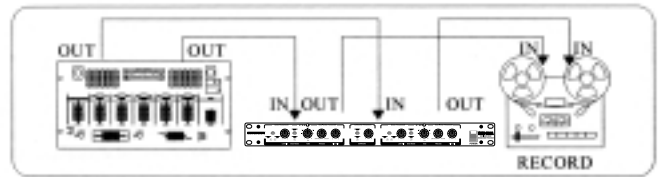
1. Set up your equipment as usual, with the effects switched off.
2. Turn on the MSE-100A and adjust the controls as desired (if necessary, read above “Basic Settings” once again).

3. Check your settings by making an A/B comparison using the IN/OUT switch.

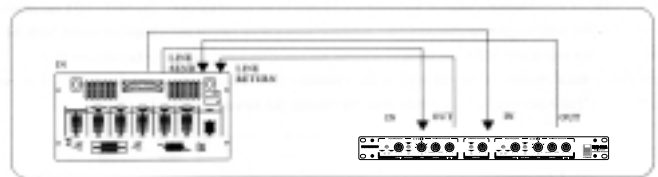
SOUND ENHANCEMENT DURING RECORDING

The sound enhancing effect can be increased by using the MSE-100A, not only during replay, but during actual recording. This method of sound processing is recommended, in particular, if the subsequent storage medium is of poor quality. When doing tape duplications, the enhancer signal added during the recording will compensate for the loss in quality which occurs when several generations of copies are subsequently made from the master tape.

In this scenario, insert the MSE-100A directly after the master output of the mixer into the recording path of the master or multi-track machine. Set up the unit as described above in “Sound Enhancement During Replay”. In particularly difficult cases, we recommend using the MSE-100A both during both recording and replay.



Using the MSE-100A during recording



Using the MSE-100A in a mixer send/return loop

ENHANCING THE SOUND OF EFFECTS DEVICES

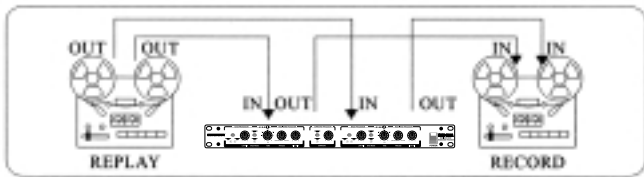
Often, signal processing units such as flangers, phasers, distortion, chorus, delay and reverb units etc. considerably limit the signal's sound quality. Here too, the MSE-100A will be of help. Simply insert the unit after the effects device. If there are several devices, insert the MSE-100A as the last unit in the chain.

APPLICATIONS

ENHANCING THE SOUND OF TAPE DUPLICATIONS

Even under the most favorable of conditions, presence, liveliness and transparency of the program material will suffer during each copying process. These losses are particularly obvious when copying cassettes while simultaneously using a noise reduction system. With the MSE-100A, losses during tape duplication can be avoided or compensated for, provided that the original is of good enough quality, with only low noise levels. It is even possible to produce “super” copies, which sound even better than the original. For this application, the MSE-100A is inserted between the line outputs of the source machine and the inputs of the target machine. Machines with post-head listening control (setting “Tape Monitor”) allow you to check the quality of the copy while duplicating.

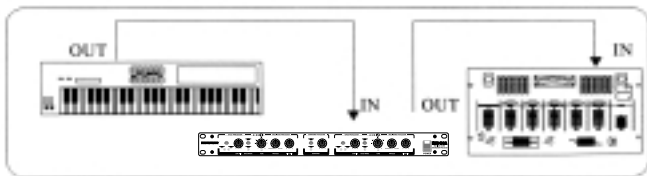
If the tape noise is fairly high, a different strategy is required, since the MSE-100A can effectively process the frequency ranges in which the most predominant noise portions can be found. We recommend attenuation of noisy high frequencies, either with an equalizer or preferably with a “single-ended” noise reduction system. The MSE-100A will process those frequencies with all of their natural clarity, but without the tape noise.



Using the MSE-100A during tape duplication

ENHANCING THE SOUND OF INSTRUMENTS

The bandwidth of most electronic musical instruments is limited by its “sampling rate”. The MSE-100A can improve the sound so that the synthesizers, samplers, and drum machines have a more natural and transparent sound. With the MSE-100A, even tiny details within the sound of acoustic musical instruments such as guitars, etc., can be emphasized without affecting the overall sound of the instrument. Drum instruments, such as toms, bass drums, etc., benefit from such “punch” and thus achieve a more powerful, precise and defined sound.



Processing the sound of a synthesizer with the MSE-100A

Note: That low-level signal sources such as microphones, guitars, etc., should pass through a preamplifier before the processing stage, since the MSE-100A is a line-level device (120 to +10 dBu).

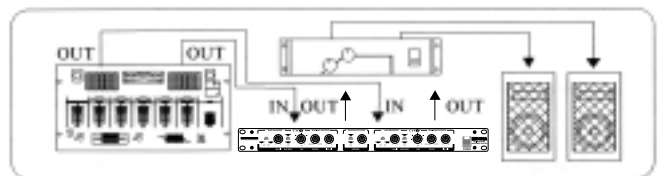
ENHANCING THE SOUND OF P.A. SYSTEMS

If used in P.A. and other sound reinforcement systems, for background or live music, the MSE-100A offers dramatic advantages:

1. In audio systems for announcements and background music, the MSE-100A is placed in a similar way to recording and tape duplication—directly before the power amp. The intelligibility and range of your system will be improved and the sonic image will become clear and transparent, even at low volume levels. You will quickly find that the MSE-100A can be a valuable tool in solving otherwise difficult audio problems.

For instance, in clubs, you do not need to constantly readjust the high frequencies as the room becomes increasingly crowded. With the MSE-100A, you will thus be able to protect your speaker system and the hearing of your visitors. Also, background music in bars and restaurants can be heard more easily while keeping the volume more manageable.

2. The sound of any P.A. system will be improved by the MSE-100A. For example, vocals and speech will be considerably more transparent and intelligible, and the instruments can be distinguished more easily.



Using the MSE-100A in the P.A. System

The MSE-100A will increase the speaker system’s acoustic performance and its ability to penetrate a room, particularly in places with difficult acoustics. The system will also need less effective amplifier power, since the subjectively heard volume level increases. Powerful and detailed sound reproduction can thus be achieved in “weak” systems. Often the MSE-100A can help you prevent spending a small fortune on upgrading your entire system.

APPLICATIONS

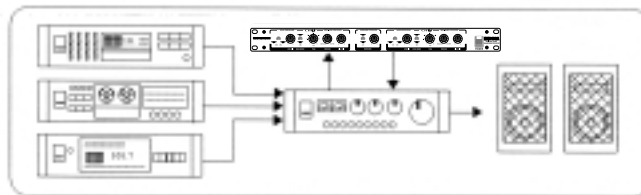
Note: If the P.A. speakers are operated in mono, the second channel of the MSE-100A can be used for another application.

ENHANCING THE SOUND OF MONITOR SYSTEMS

The MSE-100A can be effectively used to improve the sound of stage monitor systems. Here intelligibility and transparency are of paramount importance during sound reproduction. For this purpose, the MSE-100A is inserted either in the "monitor send" path or between monitor mixer and power amplifier.

SOUND ENHANCEMENT IN HI FI AND VIDEO

Of course, the MSE-100A can also be used in Hi Fi and video applications. The unit is simply placed between the signal source (cassette recorder, tuner, VCR, etc.) and the power amplifier. We recommend using the "tape monitor" inputs most preamplifiers provide, thus the MSE-100 A can be switched into any signal source.



Using the MSE-100A in a Hi Fi system

The NADY MSE-100 A can be used for improving audio for:

- Disc and tape recordings
- Recorded video and audio cassettes
- Radio reception
- TV reception

SPECIFICATIONS

INPUT

Type RF filtered, servo-balanced input
Connectors XLR and 1/4" TRS jacks
Impedance 24K Ω balanced,
12K Ω unbalanced
Max. Input Level +21dBu balanced and unbalanced
CMRR Typically 40dB, > 55dB @ 1kHz

OUTPUT

Type DC-decoupled unbalanced
output stage
Connectors XLR and 1/4" TRS jacks
Impedance 90 Ω balanced, 45 Ω unbalanced
Max. Output Level +21dBu balanced and unbalanced
Bandwidth 20Hz to 20kHz, +0/-0.5dB
Frequency Response 5Hz to 100kHz, +0/-3dB
Noise > -95dBu, unweighted, 22Hz to
22kHz
THD 0.008% typically @ +4dBu, 1kHz
IMD 0.01% typically, SMPTE
Crosstalk < -86dB, 22Hz to 22kHz

BASS PROCESSOR

Type "Dual Mode" Bass Processor
Switches the bass sound
from "Soft" to "Tight"
Low Mix Control Variable (0 to 6; Off to Max.)

MULTIBAND PROCESSOR

Type "Natural Sonic" processor with
"Variable Sound Processing"
Tune Control Variable (1 to 8kHz).
Process Control Variable (Enhancer to Exciter)
High Mix Control Variable (0 to 6; Off to Max.)

FUNCTION SWITCHES

IN/OUT switches both channels, with red/green LED status indicators

POWER SUPPLY

AC Voltage 100-120/60HZ or 200-240/50HZ
VAC as marked
Power consumption 9 watts
Fuse T250mA, 250V
Power Cord Connector .. Standard IEC receptacle

DIMENSION

1.75" X 19" X 7.8" (44 X 482 X 197mm.)

WEIGHT

6.2 lbs. (2.8 Kg.)

*Specifications and design subject to change without prior notice
for improvement purposes*

SERVICE FOR YOUR NADY AUDIO PRODUCT

(U.S.) Should your NADY AUDIO product require service, please contact the Nady Service Department via telephone at (510) 652-2411, or e-mail at service@nady.com.

(International) For service, please contact the NADY AUDIO distributor in your country through the dealer from whom you purchased this product.

DO NOT ATTEMPT TO SERVICE THIS UNIT
YOURSELF AS IT CAN BE DANGEROUS AND
WILL ALSO VOID THE WARRANTY.



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