

## OTHER MSB PRODUCTS



### LINK DAC III \$399

Add outboard digital to analog conversion to your MDP-3X for improved soundstage, clarity and 96K capability.



### MVC-1 \$799

Put MSB's 8 channel volume control between your MDP-3X and your power amp for simple control and automatic volume level matching.



### Digital Director \$319

Use the Digital Director to add 5 additional digital inputs to your MDP-3X.



### Audio Director \$599

Use the ADD-1 to digitize your analog signals such as tape or LP for digital processing in your MDP-3X. Adds 8 analog inputs and one phono input.



# MDP-3X

## USERS MANUAL

MULTIPLE DIGITAL PROCESSOR  
WITH  
TRIPLE DIGITAL OUTPUTS

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### WARRANTY

MSB Technology will repair this product at our facility with new or refurbished parts (at our discretion) in the event of a defect in materials or workmanship, free of charge for one year from the date of original sale. MSB is not responsible for shipping or collecting the product.

This warranty covers only failures due to defects in materials and workmanship that occur during normal use and does not cover normal wear. The warranty does not cover shipping damage, or failures that result from accident, misuse, abuse, neglect, mishandling, faulty installation, alteration, modification, power surge, lightning damage, or acts of God. MSB Technology reserves the right to determine what is, and what is not covered by warranty on a case by case basis.

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## TECHNICAL SPECIFICATIONS

<b>Outlet voltage/Impedance</b>	2 V (at 0dB)/1 k $\Omega$
<b>Input impedance</b>	
<b>LINE</b>	22 k $\Omega$
<b>COAXIAL</b>	75 k $\Omega$
<b>Frequency response</b>	
Front L/R, Center, Surround (LARGE)	20Hz-20kHz, $\pm$ 1dB
<b>Delay time (DOLBY DIGITAL)</b>	
<b>CENTER</b>	0-5 ms
<b>SURROUND L/R</b>	0-15 ms
<b>Delay time (DOLBY PRO LOGIC)</b>	
<b>SURROUND L/R</b>	15-30 ms
<b>Total harmonic distortion</b>	
<b>FRONT L/R (1kHz, 0 dB. PCM)</b>	0.007%
<b>Dynamic range</b>	96 dB
<b>S/N (IHF A)</b>	100 dB
<b>Load impedance</b>	More than 10 k $\Omega$

## **YOUR NEW MDP-3X**

Congratulations on your purchase of the MSB Technology MDP-3X. We are confident that you will receive years of excellent service from your new unit.

Your MDP-3X is capable of automatically detecting and decoding DTS and Dolby Digital surround formats. It also does Dolby Pro Logic processing.

The MDP-3X uses a decoder from Crystal Semiconductor. It is simple to use and set up. Its unique digital outputs makes it a true digital processor. As a true digital processor it does not have analog level adjustments or analog inputs. Analog levels are intended to be set in the volume control, which must be placed after the MDP-3X or the DACs attached to it.

### **QUICK START**

- \* Plug in power supply.
- \* Attach any digital source to any digital input.
- \* Stereo signals default to Prologic decoding. Press STEREO button for stereo mode. Leave STEREO OFF for Prologic Mode.
- \* Attach digital outputs to 1, 2 or 3 DACs depending on desired configuration.
- \* Set toggle switches on back to define number and type of speakers.
- \* Attach analog outputs of DACs or MDP-3X if no DAC is used to volume control.
- \* Play the source and enjoy.

## FRONT PANEL INDICATORS AND CONTROLS

The MDP-3X is designed to work automatically once set up and installed. It does not use a remote, so setup is quite simple. The front panel features are as follows:

**Power** - The MDP-3X always powers up when plugged into power. We recommend leaving the power on all the time. To turn off the unit, simply press the “Power” switch. The power light will turn off indicating that the unit is off.

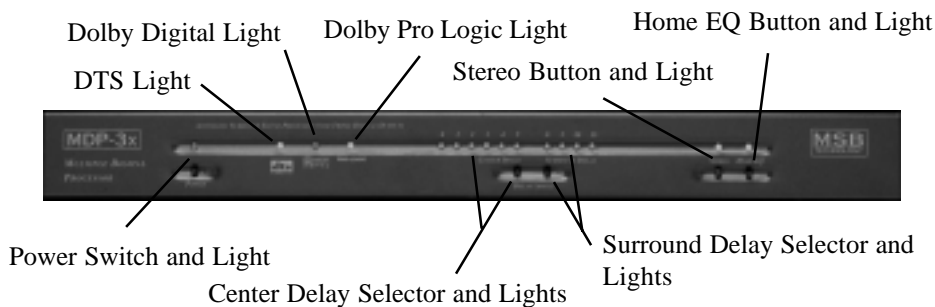
**Source Indication** - When a source becomes active, the MDP-3X will determine what type of media it is and process it accordingly. In the default mode, one of the three indicators will light when a valid input signal is detected; either DTS, Dolby Digital or Pro Logic. In the Stereo Mode, the Stereo Light remains on at all times regardless of whether a signal is present or not.

**Center Delay** - Allows the center delay to be set while playing a Dolby Digital source. Indicates the delay setting active in each mode.

**Surround Delay** - Allows the rear delay to be set while playing a Dolby Digital source. Indicates the delay setting active in each mode.

**Stereo Mode** - When stereo digital signals are detected, the MDP-3X defaults to the Pro Logic mode. By pressing the “Stereo” button, the Pro Logic mode is turned off and stereo signals are output without processing. For DTS and Dolby Digital sources, activation of the Stereo Mode downmixes the outputs of the processor to 2-channel stereo on both the front channel digital and analog outputs. The stereo LED is lit when the unit is in the Stereo Mode. The Stereo LED is also lit anytime a 24 bit / 96K source is played.

**Home EQ Function** - By pressing the “Home EQ” button the user enables a dynamic range compression feature. This feature softens loud sounds, boosts quiet sounds, and equalizes high frequency roll-off. This makes the audio more suitable for a home theater as opposed to a movie theater where curtains, carpets, seats, and viewers act to deaden reflecting high frequency.

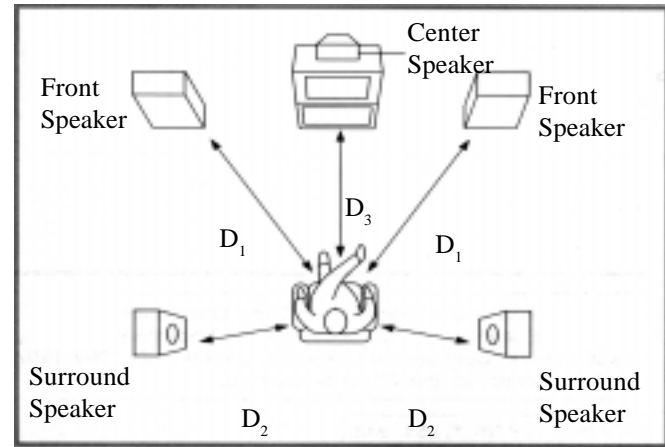


## Delay Time Configuration

The MDP-3X has delay settings for the center and surround channels. Pressing the button that correlates with the channel the user wishes to adjust will cycle through the different delay times. The delay time increments are different depending on the channel as follows.

Delay settings are set for Dolby Digital listening. Appropriate adjustments are made to accommodate specific DTS and Prologic requirements.

Speaker	Available delay time settings (ms)
Center	0, 1, 2, 3, 4, 5
Surround	0, 5, 10, 15



Setting the center channel delay time:

If $D_1$ is equal to or less than $D_3$	Set to 0 ms
If $D_3$ is less than $D_1$	Increase 1 ms for every 30 cm (1 foot) of difference between $D_1$ and $D_3$

Setting the surround channel delay time:

If $D_1$ is equal to or less than $D_2$	Set to 0 ms
If $D_2$ is less than $D_1$	Start at 0 ms and increase by 5 ms for every 1.5 m (5 feet) of difference between $D_1$ and $D_2$

## USING THE MDP-3X

**Powering Up** - The MDP-3X always powers up when plugged into power. We recommend leaving the power on all the time. To turn off the unit, simply press the “Power” switch. The power light will turn off indicating that the unit is off.

**Source Detection** - When a source becomes active, the MDP-3X will determine what type of media it is and process it accordingly. DTS is automatically decoded, as is Dolby Digital. Stereo digital signals will cause the MDP-3X to default to Pro Logic mode.

**Stereo Mode** - When stereo digital signals are detected, the MDP-3X defaults to the Pro Logic mode. By pressing the “Stereo” button, the Prologic mode is turned off and stereo signals are output without processing. For DTS and Dolby Digital sources, activation of the Stereo Mode downmixes the outputs of the processor to 2-channel stereo on both the front channel digital and analog outputs. The stereo LED is lit when the unit is in the Stereo Mode.

**24 bit / 96KHz Function** - When a 24 bit / 96KHz signal is detected, the analog outputs are muted and the 24 / 96 signal is output on the front channel digital output. This output should be attached to a 24/96 capable DAC.

**Home EQ Function** - By pressing the “Home EQ” button the user enables a dynamic range compression feature. This feature softens loud sounds, boosts quiet sounds, and equalizes high frequency roll-off. This makes the audio more suitable for a home theater as opposed to a movie theater where curtains, carpets, seats, and viewers act to deaden reflecting high frequency sounds.

### Speaker size setup and downmixing

Located on the rear of the unit between the analog outputs, there are 4 switches correlating to the front, surround, center, and sub channels. These switches allow the MDP-3X to optimize the information sent to each speaker based on their capability. Consider speakers capable of playing sounds below around 100 Hz LARGE, and any other speakers as SMALL. The different switch settings are shown here.

Channel	Possible switch settings		
	Up	Center	Down
Front	Large	----	Small
Surround	Large	Off	Small
Center	Large	Off	Small
Sub	On	----	Off

## REAR PANEL CONNECTORS AND CONTROLS

**Analog Outputs** - Six channels of decoded audio are provided at line level. No trim or volume control is provided as this feature is a part of our companion volume control.

**Front Speaker Selection** - Sets front speaker to large or small. Large is normal and is full range, small has some bass filtered off.

**Surround Speaker Selection** - Sets surround speaker to large, small, or off. Large is normal and is full range, small has some bass filtered off. When turned off, the surround information is mixed with the front channels.

**Center Speaker Selection** - Sets center speaker to large, small, or off. Large is normal and is full range, small has some bass filtered off. When turned off, the center information is mixed with the front channels creating an effective stereo image.

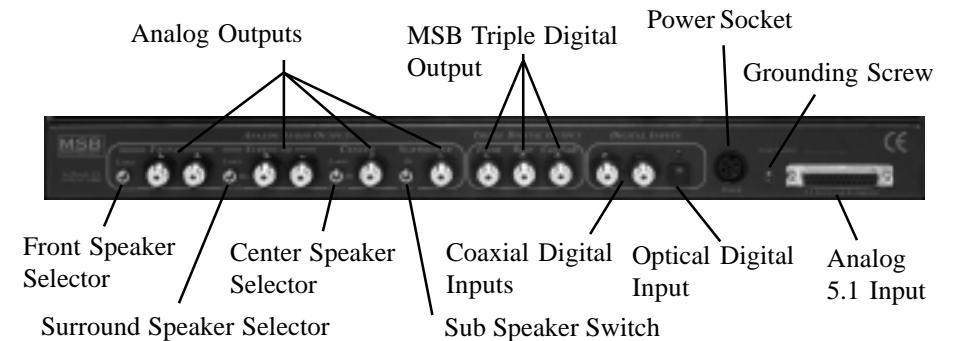
**Subwoofer Speaker Selection** - Turns subwoofer speaker on and off. When on, bass information is output, even in the stereo mode. When turned off, the bass information is mixed with the front channels.

**Digital Outputs** - These outputs can be attached to any Digital-to-Analog converter (DAC). An outboard DAC can provide far greater sound quality than that possible in a primarily digital surround processor. All downmixing and delay features work on both analog and digital outputs.

**Digital Inputs** - 2 coaxial and 1 optical input are provided. The input being used at any one time is determined on a priority basis, going from left to right (as viewed from the back of the unit). The MDP-3X will process the signal on the highest priority active input.

**Analog Input** - The 5.1 input uses the standard DB-25 5.1 cable wiring (cable optional). No processing is done on analog sources; they are simply passed-through to the analog outputs when no digital sources are active.

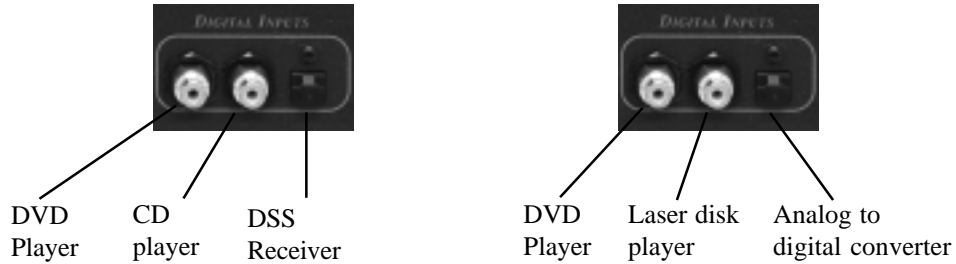
**Power** - Connect the included MSB desktop supply or other MSB approved power supply to the DC power plug on the back of the unit.



## HOOKING UP YOUR MDP-3X

### Inputs:

Your MDP-3X is equipped with 2 different kinds of inputs. The first and most important are the 3 digital inputs. 2 coaxial and 1 optical are provided. The input being used at any one time is determined on a priority basis, going from left to right (as viewed from the back of the unit). The MDP-3X will process the signal on the highest priority active input. If you want to process from an input of lower priority, all you have to do is turn off all higher priority sources. The source that you listen to most should be connected to the lowest priority input. Connect the rest of your sources to higher priority inputs in order of how often you use them. If you have a DSS receiver or other source that remains on all the time it should be connected to the lowest priority input. Following are several possible input configurations.



The other type of input is the 5.1 analog input. The 5.1 input is accessed through the “5.1 input/external interface” DB-25 connector using the standard 5.1 cable wiring (cable optional). The 5.1 input is for analog use only. No processing is done on analog sources; they are simply passed through to the analog outputs only. No audio from the 5.1 input is output through the digital outputs. The 5.1 analog audio pass-through becomes active when no digital sources are active.

### Outputs:

Your MDP-3X is equipped with 2 sets of outputs: digital and analog.

The analog outputs (labeled analog audio outputs on the rear of the unit) may be connected to a volume control, the 5.1 input of a receiver, or other devices that require a 6 channel analog input.

The Digital outputs are arranged in a “triple digital output” format. They are set up so that

you can use external 2 channel DACs instead of the MDP-3X’s on-board DACs. You may use one to three external DACs as you prefer. One example would be to use an external DAC for the front channels, and the MDP-3X’s analog outputs for the surround, center, and sub channels. Any combination of on-board and external DACs may be used.

To use this feature, simply connect the digital input on your external DAC(s) to the digital outputs of your choice on the MDP-3X. Then connect the analog outputs of your DAC(s), and the analog outputs of the MDP-3X for any channels on which you are not using an external DAC to your receiver, volume control etc. Each digital output contains two channels. The Front includes Right and Left Front channels, the Surround includes Right and Left Rear channels and the Center/Sub has the center track on the right channel and the subwoofer track on the left channel.

### Additional Connections:

Connect the included or other MSB-approved power supply to the power plug on the back of the unit.

The Philips screw located next to the power plug may be used if you wish to add an additional grounding lead.



**MSB AUDIO \$45** Triple  
Shielded with ultra high resolution. Produced with 99.96% pure oxygen free, silver plated copper wire and gold plated terminals. Separate ground wire.



**DB-25 TO SIX RCA \$95**  
Home Theater Cable for Dolby Digital / DTS outboard processors. Produced with 99.96% pure oxygen free, silver plated copper wire and gold plated terminals.

**TOSLINK \$45, \$55, \$185**  
(One, two or fifteen meter length)  
Ergonomic connector design. Rugged construction, ultra high optical transmission.



**MSB DIGITAL AUDIO \$35**  
Double Shielded, high resolution. Optimized for 44.1, 48, 88.2 and 96 kHz sampling frequency. Produced with 99.96% pure oxygen free, silver plated copper wire and gold plated terminals.

