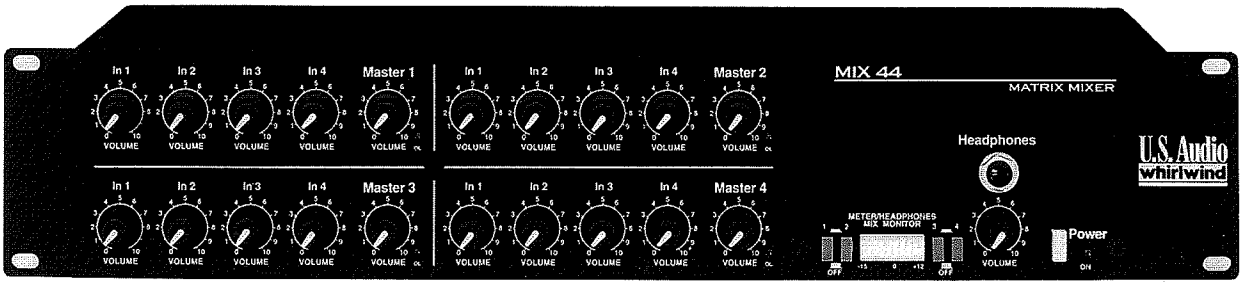
MIX 44

MATRIX MIXER



INTRODUCTION

Thank you for selecting the US Audio Mix 44. The unique combination of features in the Mix 44 offers a creative solution for countless audio mixing and distribution situations. The four input by four output matrix design allows flexible routing of four line level signals to as many as four separate locations at the same time. Applications include live sound monitor mixing, industrial audio signal routing, studio headphone cue mixing and teleconference mix minus generation. Each mixer has four input volume controls and a master volume control with a clip LED. Connections are made through actively balanced professionl XLR jacks. The high input impedance of the Mix 44 (1 Meg Ω) allows bridging any balanced audio line without loading. The Mix 44 represents an excellent value, delivering professional recording quality audio wherever discrete mixes are needed. Other features include a headphone monitoring circuit, loop thru jacks and switches to convert the Mix 44 into two four by two matrices.

UNPACKING

US Audio has made every effort to ensure that your equipment is received in the same perfect condition it was in when it left the factory. Please inspect your product for any signs of damage during shipping and report them to your dealer so that he can present a claim to the shipper. We recommend that you save your packaging material for use in the unlikely event that you need to return your equipment for service.

THEORY OF OPERATION

The Mix 44 combines four separate mixers into one unit, providing a versatile method of line level audio signal mixing and distribution. The four input by four output matrix design allows flexible routing of four input signals to as many as four separate locations at the same time. A typical use for the Mix 44 is as an outboard four channel matrix with four buss audio consoles, to provide multiple feeds. All inputs and outputs are active, electronically balanced circuits accessed through XLR connectors. The input section and all critical gain sections of the Mix 44 use the same IC chips as top professional mixing boards. The inputs are instrumentation grade differential amplifiers which yield exceptionally high Common Mode Rejection (CMR). The C.M.R. of the Mix 44 is greater than 75dB, 20 to 20KHz. The Mix 44 has a 1 Meg Ω input impedance allowing it to tap onto any balanced audio line without loading it.

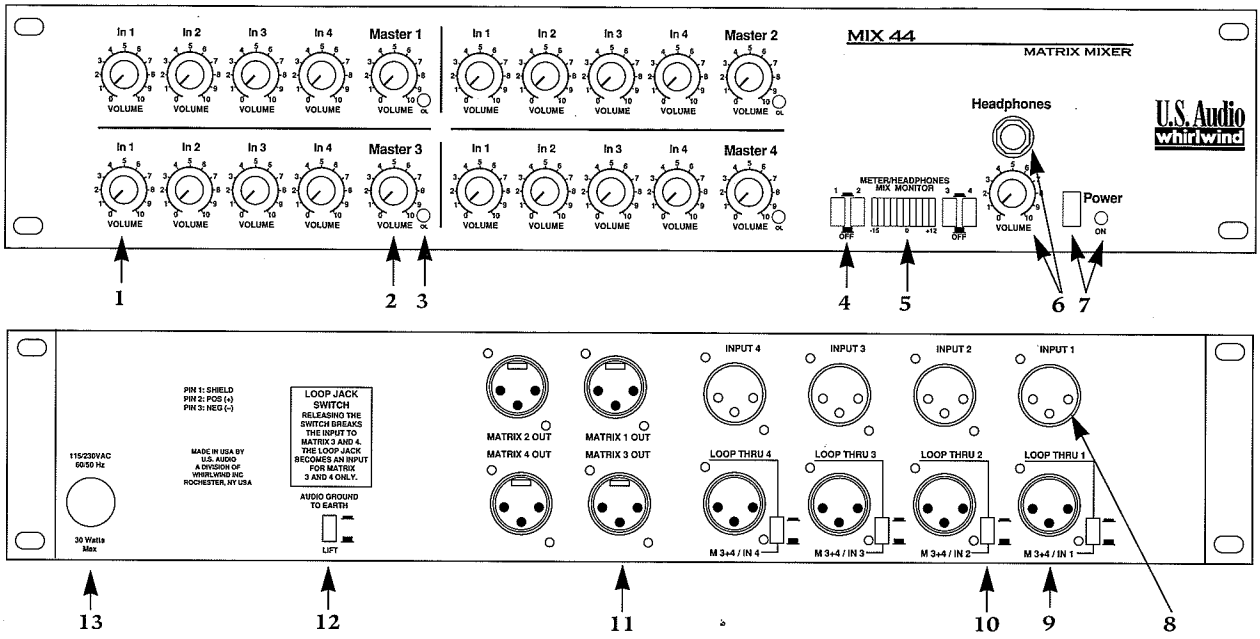
Each of the 4 inputs is connected through a female XLR and is parallelled to a male XLR thru jack for normal operation. Pin 2 is positive, pin 3 is negative and pin 1 is audio ground for all connections. Next to each male XLR there is an input select switch which determines how matrix 3 and matrix 4 are fed input signal. With the channel input select switch set to the normal, loop thru "in" position, the female and male XLR are parallel wired for in and thru connections. With the channel input select switch in the "out" position, the female XLR becomes the input for matrix 1 and matrix 2 only and the male XLR becomes the input for matrix 3 and matrix 4. This configuration eliminates the thru connection but increases flexibility by completely separating mixers 1 and 2 from mixers 3 and 4. Female to female XLR adaptors can be used to change the sex of the male connectors.

All the gain controls on the Mix 44 (Channel gain and Master) have a range of -60 to +13dBm. Total gain of the unit is 26dB. With both the channel and master volume controls at the same position, unity gain is at the 12 O'Clock knob position. The 60dB of attenuation in the off position allows the Mix 44 to adequately "turn off" line level signals. Maximum signal level through the Mix 44 at clipping is +28dBm balanced and +22dBm unbalanced. The same figures apply to both the input and the output and individual clip LEDs are provided which illuminate at -3dB below actual clipping. With THD+n typically less than .02% in the entire audio spectrum and a unity gain signal to noise ratio greater than 85dB with 22dB of headroom, the Mix 44 delivers excellent sonic performance. An internal provision has been made for a direct input to the sum buss of each mixer. The Mix 44 can be individually customized to take advantage of this feature if required.

The male output XLR connectors on the Mix 44 are actively balanced with pin 2 being positive, pin 3 being negative and pin 1 being audio ground. For unbalanced operation use pins 1 and 2 leaving pin 3 UNCONNECTED.

The Mix 44 has a monitoring section consisting of channel select switches, an LED VU meter, a headphone volume control, and a 1/4" TRS headphone jack. Selecting any combination of the 4 channel select switches routes those channels' audio signals to the headphone circuit and the LED VU meter, allowing the user to monitor the output of the mixers. The VU LEDs display, in dBm, the exact level that is at the XLR output. The headphone circuit is a mono type which drives both left and right stereo earpeices. The circuit works with any headphones of greater than 20 ohm impedance. The headphone volume control also has a gain range of -60 to +13 dB to accommodate a wide range of audio levels.

The Mix 44 utilizes two dual primary power transformers which can be configured with internal jumpers for 120 VAC 60Hz. or 230 VAC 50Hz. operation. There is an internal fuse on the hot side of the AC cord, and the power switch makes and breaks both the hot and neutral legs of the AC cord. A ground lift switch is provided which can disconnect the audio circuit ground from the AC chassis ground.



CONTROLS AND CONNECTIONS

1. Channel Volume Pots control input signals feeding the master volume over a range of 60dBm attenuation at full off to 13dBm of gain at full on.

2. Master Volume Pots determine the amount of signal from the summing amps that is fed to the output drivers and the headphone monitor circuit. These have a gain range of -60 to +13dBm.

3. Clip LEDs on each of the four master outputs indicate signal overload conditions within the circuitry. The red clip lights illuminate at 3dB below actual clipping (the unit clips at +28dB balanced so the LEDs come on at +25dB).

4. Mix Monitor Select Switches apply the output of each of the four mixers to the VU meter and the headphone circuit. Outputs may be monitored individually or in any combination.

5. LED VU Meter displays the exact level present at the output XLR connectors measured in dBm. Meter readings will be higher with multiple monitor select switches activated.

6. Headphone Circuit monitors the signals going to the Mix 44 outputs. Any combination of mixer outputs can be monitored simultaneously. It is a mono circuit which drives both earpieces in stereo headphones that have an impedance greater than 20 ohms . The volume control has a gain range of -60 to +13dB to accommodate a wide range of audio levels. The jack is a standard 1/4" TRS type.

7. Power Switch connects AC to the transfornmer primary and the LED indicates that the unit is working. Both sides of the AC line are switched and a mains fuse is located on the circuit board inside the unit.

8. Input Female XLR Connectors are actively balanced, differential amplifiers providing over 75dB of common mode rejection. The input impedance is factory set at 1Meg ohms, which eliminates loading of the source signal. Pin 2 is positive, pin 3 negative and pin 1 is connected to audio ground.

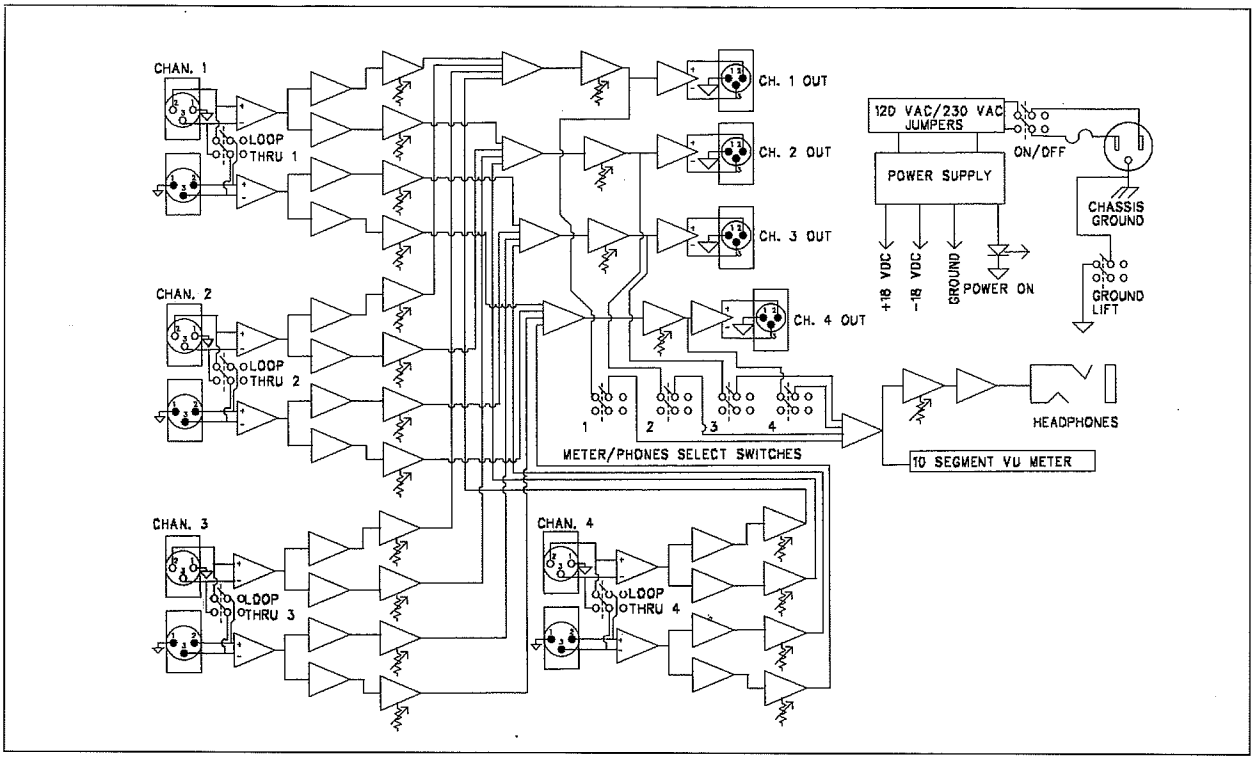
9. Loop thru **Male XLR Connectors** serve two purposes, depending on the position of the input select switch. The first function is as actively balanced differential inputs, providing over 75dB of common mode rejection, for mixers 3 and 4. The other purpose is to act as loop thru connectors for signals applied to the corresponding female input. Input impedance is also 1Meg ohms, with pin 2 positive, pin 3 negative and pin 1 connected to audio ground. Female to female XLR adaptors can be used to correct gender when used as inputs.

10. Input Select Switches determine the source of input signal for mixers 3 and 4. In the loop thru "in" position the male XLRs are parallelled to the female inputs above them. With the switch "out" mixer 3 and 4 inputs are accessed through the male XLR connectors.

11. Output XLRs on the Mix 44 are actively balanced with pin 2 being positive, pin 3 being negative and pin 1 being audio ground. For unbalanced operation use pins 1 and 2 leaving pin 3 UNCONNECTED.

12. Ground Lift Switch connects the audio circuit ground to AC ground and the chassis of the unit, if desired.

13. Power Cord has a standard 15 amp plug for 120Vac and has no plug on the Mix 44X 230Vac model. Black is line, white is neutral and green is earth.



Block Diagram: Matrices 3 and 4 can be separated from matrices 1 and 2 via the loop thru switches, providing even more flexibility.

SPECIFICATIONS

Frequency Response	±.3dBm 20 to 20KHz
Input Impedance	1M.Ω balanced
Max. Input Level	+22dBm unbalanced +28dBm balanced
Output Impedance	100Ω balanced
Max. Output Level	+22dBm unbalanced +28dBm balanced
Total Gain	26dB
T.H.D.+n	.007% at 1kHz <.02% 20Hz-20kHz
Rise Time	8µS
Phase Shift	<.01 degree at 1kHz
Intermodulation Distortion	.01% at unity gain
E.I.N.	-90dBm
Working S/N Ratio (22dB headroom)	
at unity gain	-85dBm
at 18 dB gain	-79dBm
C.M.R. of Inputs	>75dBm @ 60Hz
LED Clip Threshold	+19dBm unbalanced +25dBm balanced
Range of Level Pots	-60 to +13dBm
Range of Headphone Volume Control	-60 to +13dBm
Power Consumption	.3 Amps Max. A.C. @120VAC .3 Amps Max. A.C. @230VAC
AC Dropout Voltage	+105 V.A.C. @120Vac +205 V.A.C. @230Vac
Internal Mains Fuse	.25 Amps Slo Blo 3AG
Size (Single Space Standard E.I.A. Spec)	19.0"(482.6mm) Width 6.0"(152.4mm) Depth 3.5"(88.9mm) Height
Shipping Weight	11 lbs (4.99kg)
Unit Weight	9.0 lbs (4.08kg)

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U.S. Audio
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