



MIX-7

STEREO MIXER

INTRODUCTION: Thank you for selecting the Whirlwind MIX-7 stereo mic/line mixer. The MIX-7 is a versatile stereo mixer, combining four mono mic/line inputs and three stereo line inputs, in a compact, one-rack space package. Features include stereo/mono switching and a tone control on each of the mic/line inputs, two place master EQ, metering and a stereo/mono switch on the main outputs. This mixer represents an excellent value, delivering the highest quality audio performance at a low cost.

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

WARRANTY: This product is guaranteed to be free from defects in materials and workmanship to the original purchaser for a period of 5 years from the date of purchase. Should service be required, return the unit postage prepaid along with the original sales receipt to:

whirlwind
 Attention - Repair
 99 Ling Road
 Rochester, New York 14612

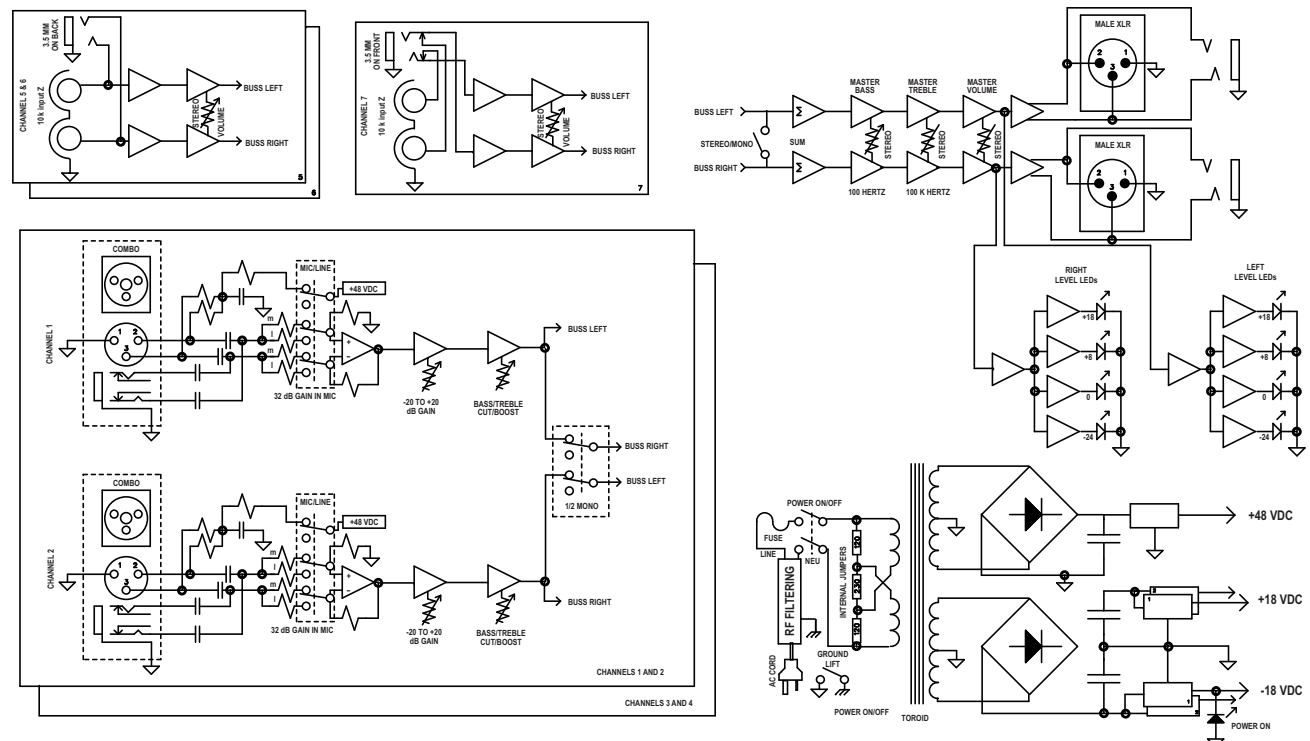
The warranty on this product shall not apply to defects or damage resulting from abuse, abnormal use or from repairs or modifications performed by anyone other than whirlwind. If it is determined a manufacturing defect has occurred, whirlwind will repair or replace the unit at our option and pay the postage back to you.

whirlwind
 99 Ling Road - Rochester, NY 14612
 800-733-9473 / 585-663-8820 Fax: 585-865-8930
www.whirlwindusa.com
sales@whirlwindusa.com

MIX-7 SPECIFICATIONS

MEASUREMENT	VALUE
Frequency Response (Line) unity gain	±.25 dBV 20 Hz - 20 kHz
Frequency Response (Mic) 40 dB gain	±.35 dBV 20 Hz - 20 kHz
THD + N Line Mode unity gain	<.0035% 20 Hz - 20 kHz
THD + N Mic Mode 40dB gain	<.012% 20 Hz - 20 kHz
Equivalent Input Noise	-120 dBV
Rise Time	4.1 uSec
Total Gain mic mode full gain	70 dBV
Gain of Microphone Preamp	Mic/Line switch (in) +32 dBV
Range of input level pot	-63 to +20 dBV
Range of master level pot	-70to +17 dBV
Common Mode Rejection of Input (Mic)	>63 dB
Maximum Input level	Line +21 dBV; Mic -11 dBV
Input Impedance	Mic 1.3 kOhms; Line 8.8 kOhms
Isolation between input channels	Line at unity gain; 72 dB @ 1 kHz
Maximum output level	+26 dBV balanced
Output Impedance	200 Ohms balanced; 100 Ohms each leg
Noise at unity gain (Line)	-88 dBV
Noise at 40 dB gain (Mic)	-79 dBV
Dynamic Range	111 dBV
Treble Control	±15 dBV @ 16kHz, shelving
Bass Control	±15 dBV @ 20 Hz, shelving
Tone Control	±12 dBV @ 2 kHz, peaking
LED thresholds	+18, 22 dBm bal; 16 dBm unbal + 8, 12 dBm bal; 6 dBm unbal 0, 4 dBm bal; -2 dBm unbal -24, -20 dBm bal; -26 dBm unbal
Phantom Power	48 VDC
Power consumption	.13 Amps AC at 120 VAC max. .09 Amps AC at 120 VAC min.
Power requirements	120 VAC 60 Hz US model 240 VAC 50 Hz Export model
Internal Mains fuse	.5 Amp Slo-blo type 3AG US model .25 Amp Slo-blo 3AG Export model
AC dropout voltage	95 VAC
Size	1.75" H x 19" W x 6" D
Unit Weight	5.3 lbs
Shipping Weight	7 lbs

MIX-7 BLOCK DIAGRAM



THEORY OF OPERATION:

Mic/Line Inputs: Mic or line level signals are input to the MIX-7 via Neutrik Combo XLR/TRS connectors. Phantom power is present on the female XLR connector only when the mic/line switch for that channel is in the MIC position. Phantom power is never present at the TRS input. The MIC switch position adds 32 dB of fixed gain on both of the input connectors allowing for maximum connectivity versatility. By using +/- 18 power rails, the MIX-7's inputs have high headroom, low noise and low distortion. After the mic/line switch, the signal passes through the volume control, with a gain range of -63 to +20 dB. The -63 dB of attenuation also serves as off or mute in most applications. This ensures no matter what input level is presented to the mic/line inputs, the volume can be adjusted to the desired level. After the volume control, the signal is next presented to a unique tone control, designed to add clarity to the human voice. This mid range peak/cut filter boosts or cuts 2 kHz by 12 dB, which greatly affects the voice band. The final stages are the Left/Right bussing switches; one for channels 1 and 2, and a second for channels 3 and 4. In L|R mode for channels 1 and 2, channel 1 is placed on the left output of the mixer, and channel 2 on the right side. This configuration is commonly used to connect 2 balanced sources in stereo. With the switches in L+R mode for channels 1 and 2, both inputs are placed in mono on the left and right sum busses. Switches for channels 3 and 4 work the same way. This allows use with 4 mic or line level balanced inputs (XLR or TRS), 2 pairs of stereo line level inputs or 2 mics and 1 stereo source. Care was taken so that when the signals are summed to mono, in phase audio will remain at the same level. This allows the user to sum stereo signals on the fly without level changes.

Line Inputs: There are 3 sets of stereo line inputs via RCA jacks on the back panel. Inputs 5 and 6 also have a 3.5 mm input on the rear and channel 7 has a 3.5 mm normalised input on the front panel. With channels 5 and 6 use either the RCA or 3.5 mm inputs. On input 7, plugging into the 3.5 mm jack on the front panel disconnects the RCA inputs on the back. This is intended for patching music players on the fly. All 3 line inputs are first buffered to maintain uniform impedance to the source, and then pass through a stereo volume control with a wide range of -63 to +20 dB. The -63 dB of attenuation also serves as off or mute in most applications. This ensures no matter what input level is presented to the line inputs, the volume can be adjusted to the desired level.

Sum buss: The signals from all seven sets of inputs are summed to master left and right signals at the sum buss.

Master Bass and Treble controls: These stereo tone controls usually remove the need for an equalizer in the audio system. With +/- 15 dB of boost or cut at 20 Hz for the bass and at 16 kHz for the treble, most tone shaping tasks can be done with these controls.

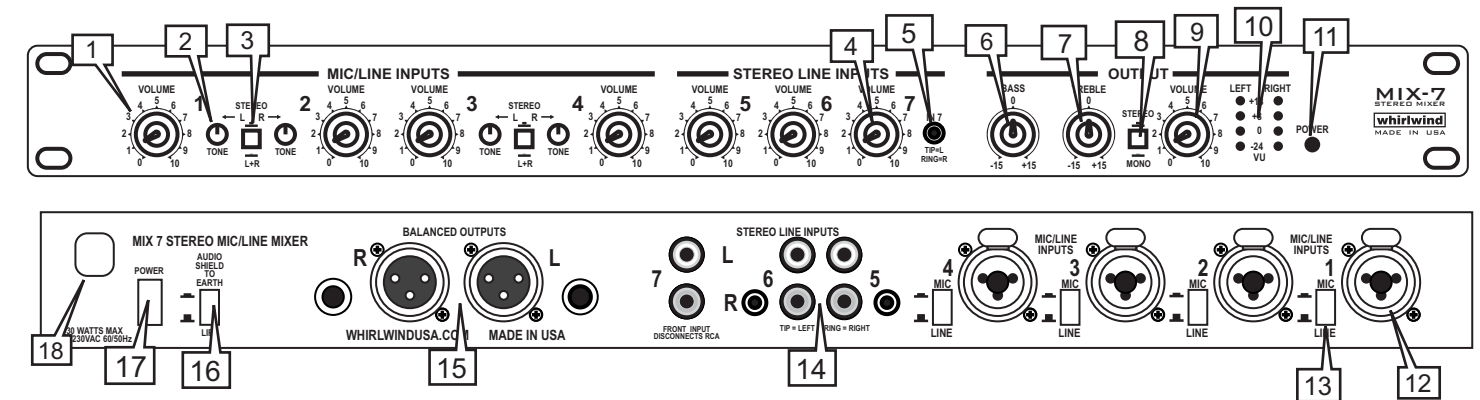
Stereo/Mono output switch: The MIX-7 can be used as stereo or in mono with the left and right outputs combined. Care was taken so when the signals are summed to mono, in phase audio will remain at the same level. This allows the user to sum stereo signals on the fly without level changes.

Output Level control: This has a wide range of -70 to +17 dB allowing the user to dial in any volume needed. The -70 dB of attenuation also serves as off or mute in most applications.

Output VU level LEDs: Two sets of 4 LEDs offer visual indication of output level. The reference numbers represent nominal levels unbalanced. For balanced outputs the levels are approximately 6 dB higher.

Power Supply: The MIX-7 uses a toroidal power transformer for optimal sound quality. There are solder type internal jumpers, which configure the dual primary of the transformer for 120 VAC 60 Hz or 230 VAC 50 Hz operations. The hot and neutral incoming AC lines are completely disconnected when the power is switched off. A power LED indicates the unit is on.

AUDIO SHIELD TO EARTH switch: The switch on the back panel connects the audio grounds to the earth ground on the AC cord. Use this switch to break ground loop hum between the MIX-7 and other AC powered equipment when audio grounds have multiple return paths.



CONTROLS AND CONNECTIONS:

- MIC/LINE INPUTS (4)** pots vary the amount of signal sent to the left and right output busses through a range of -63 dB attenuation at full off to +20 dB of gain full on.
- TONE (4)** pots on each Mic/Line input have a ± 12 dB boost and cut range at 2 kHz. This can be very helpful in enhancing clarity in mic signals or reducing feedback.
- STEREO L-R (2)** switches assign the input signals to the output busses. In the L-R position, inputs 1 and 2 or 3 and 4 are sent to the left and right busses (stereo). The L+R positions assign the corresponding input pairs to both left and right output busses (mono).
- STEREO LINE INPUTS (3)** pots vary the amount of signal from the line inputs sent to the left and right output busses through a range of 63 dB attenuation at full off to +20 dB of gain full on.
- IN 7** front panel stereo jack is a 3.5mm type that allows convenient access for connection of a portable music player. Using this jack automatically disconnects the rear panel RCA inputs.
- OUTPUT BASS** pot is a shelving type tone control with ± 15 dB of range at 20 Hz. This is useful for adding bass in a sound system or reducing wind noise on microphones in outdoor applications.
- OUTPUT TREBLE** pot is a shelving type tone control with ± 15 dB of range at 10 kHz. This is useful for adding brightness to music sources or reducing sibilance with some microphones.
- OUTPUT STEREO/MONO** switch determines whether the left and right outputs have separate signals or both have a mono summed signal.
- OUTPUT VOLUME** pot adjusts the amount of signal from the summing amps that is fed to the left and right outputs. This also has a gain range of -70 to +20 dB.
- VU LED** meters are precisely calibrated and span a range of -24 to +18 dB, measured unbalanced with the input switch in Line mode, at either the 1/4" or XLR output. (Add 6 dB for balanced output.)
- POWER LED** indicates that the unit is turned on.
- MIC/LINE INPUTS (4)** are combination XLR and balanced 1/4" TRS jacks. Either jack can be used for mic or line input signals. The XLR has 48 Volt phantom power applied to it when the Mic/Line switch is in Mic mode. Phantom power is always blocked from the 1/4" TRS input jack.
- MIC/LINE** switches (4) are connected to an active circuit that adds 32 dB of gain in the MIC position. This gain is applied to both the XLR and 1/4" jacks.
- STEREO LINE INPUTS (3 x 2)** RCA jacks are white (left) and red (right). On inputs 5 and 6 there are 3.5mm jacks wired in parallel with the RCA jacks. Only use one set of inputs at a time. On input 7 there is a 3.5mm jack is on the front panel that disconnects the RCA input when a plug is inserted in the front. The 3.5mm jacks are wired tip to left and ring to right.
- BALANCED OUTPUTS** XLR and 1/4" TRS jacks are wired in parallel with tip to pin 2 and ring to pin 3. Use only one set of outputs at a time. Maximum output level is +26 dB balanced. Balanced or unbalanced cables can be connected to either output. When using the XLR unbalanced, wire pin 2 as hot and leave pin 3 open.
- AUDIO SHIELD TO EARTH** switch disconnects the audio ground path from the electrical chassis ground in the Lift position.
- POWER** switch connects AC to the transformer primary and the front panel LED indicates that the unit is working. Both sides of the AC line are switched and the main fuse is located on the circuit board inside the unit.
- Power Cord has a standard 15 Amp plug for 120 VAC and has no plug on the MIX -7X 230 VAC model. Black is line, white is neutral and green is earth.