

MIX-6 SPECIFICATIONS

MEASUREMENT	VALUE
Frequency Response (Line) unity gain	±1 dBV 20 Hz - 20 kHz
Frequency Response (Mic) 40 dB gain	±1 dBV 125 Hz - 20 kHz
THD + N Line Mode unity gain	<.03% 20 Hz - 20 kHz
THD + N Mic Mode 40dB gain	<.01% 125 Hz - 20 kHz
Equivalent Input Noise	-120 dBV
Total Gain	72 dBV
Gain of Microphone Preamp	Mic switch +32 dBV; 20 dBV on pot
Range of input and output pots	-56 to +20 dBV
Common Mode Rejection of Input (Mic)	>85 dB at 60 Hz
Maximum Input level	Line +21 dBV; Mic -11 dBV
Low Frequency Filter (Mic mode)	24 dB per octave at 120 Hz
Phantom Power	48 VDC
Input Impedance	Mic 1.5 kOhms; Line 8.7 kOhms
Channel isolation	75 dB
Maximum output level	+26 dBV balanced
Output Impedance	200 Ohms balanced; 100 Ohms each leg
Noise at unity gain (Line)	-92 dBV
Noise at 40 dB gain (Mic)	-80 dBV
Clip LED Threshold	+19 dBV
Minimum Headphone Impedance	30 Ohms
Maximum Headphone output level	6.5 dBm; 1.6 VAC rms at 30 Ohms
Power consumption	.2 Amps AC at 120 VAC max. .11 Amps AC at 120 VAC min.
Power requirements	120 VAC 60 Hz US model 230 VAC 50 Hz Export model
Internal Mains fuse	.25 Amp Slo-blo type 3AG US model .125 Amp Slo-blo 3AG Export model
AC dropout voltage	105 VAC max load; 99 VAC min load
Size	1.75" H x 19" W x 6" D
Unit Weight	5.3 lbs
Shipping Weight	7 lbs



MIX-6

STEREO MIXER

INTRODUCTION

Thank you for selecting the Whirlwind MIX-6. The MIX-6 delivers the ultimate in sonic performance for the most demanding professional mic and line mixing applications. Utilizing the classic 5532 op amp, a carefully wound toroidal power transformer, true star grounding, plus many other design features, the MIX-6 has a working signal to noise ratio (S/N) of 96 dB with 20 dB headroom at unity gain! At 40 dB of gain the MIX-6 holds a working S/N of 85 dB making it ideally suited for production with digital recording media. The MIX-6 can provide up to 72 dB of gain, with professional quality signal to noise ratio and still have 10 to 15 dB of headroom. Other features include two stereo aux inputs, one of which can be used as a separate monitor input, built in low cut filters when using the mic settings and a headphone circuit. With a full complement of hook-up hardware, the MIX-6 is capable of handling any configuration of line or mic level signals as well as any combination of balanced or unbalanced XLR and 1/4" connectors.

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

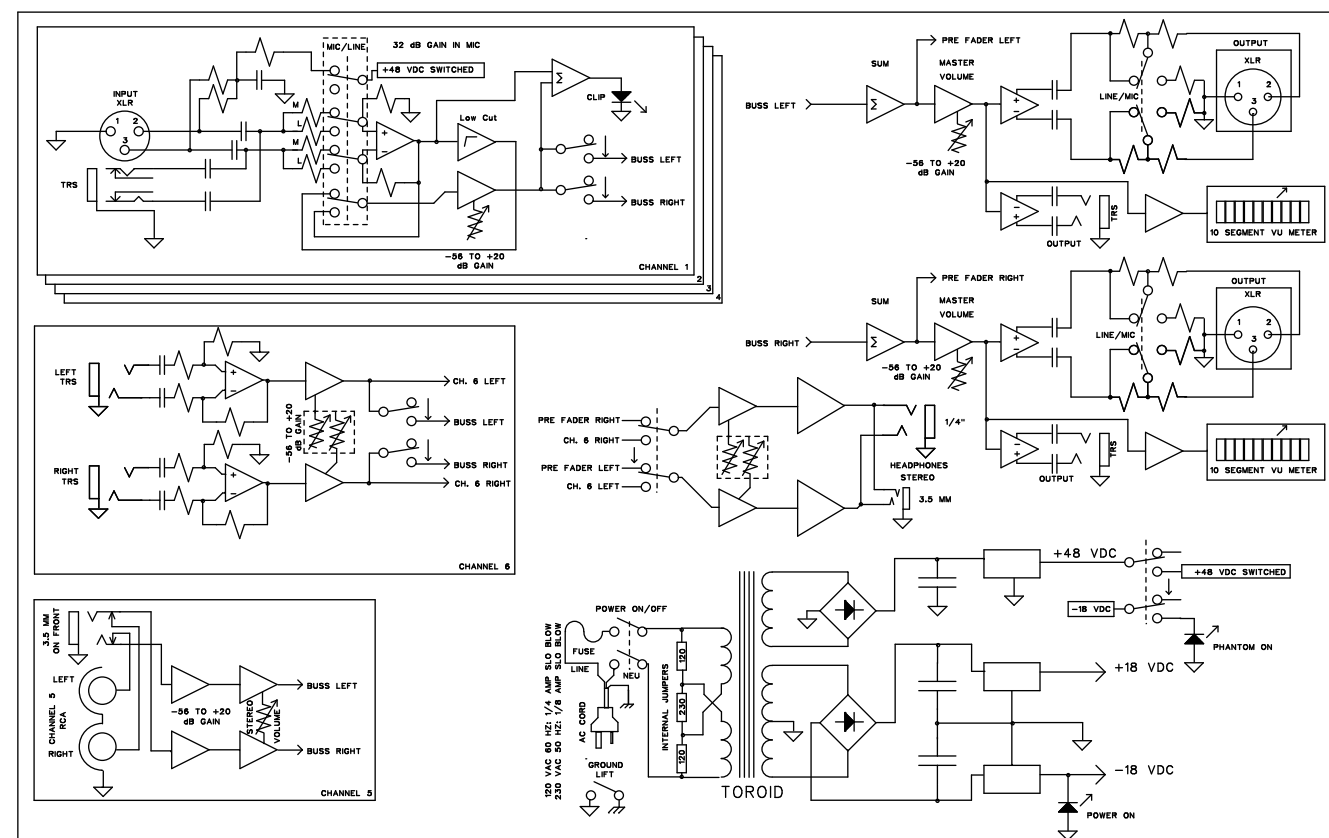
This product is guaranteed to be free from defects in materials and workmanship to the original purchaser for a period of 5 years from the date of purchase. Should service be required, return the unit postage prepaid along with the original sales receipt to:

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-6 BLOCK DIAGRAM



THEORY OF OPERATION

The Whirlwind MIX-6 has four mic or line input channels and two stereo line inputs. All of the XLR and 1/4" input and output jacks, except Input 5, are active electronically balanced circuits. The input sections of channels 1-4 on the MIX-6 use the classic 5532 op amp. This IC, along with careful component selection, a toroidal power transformer, and true star grounding, enable the MIX-6 to achieve a working S/N ratio of 96 dB with 22 dB of headroom at unity gain. The MIX-6 holds a S/N ratio of 85 dB at 40 dB of gain and can provide up to 72 dB of gain, still maintaining 10 to 15 dB of headroom. With the mic/line switch in the mic position, the mic preamp circuit is set at 32 dB of gain. This 32 dB plus the two sections of 20 dB available from each of the channel volumes and master volume offer a total gain of 72 dB. All the gain controls on the MIX-6 (Channel gain and Master) have a range of -56 to +20 dBV. With the input and output switches in the Line position and with both the channel and master volume controls at the same position, unity gain is at the 11 O'Clock knob position, 10 dB at the 2 O'Clock, and 15 dB at 3 O'Clock. The 56 dB of attenuation in the off position allows the MIX-6 to adequately turn off line level signals. Maximum signal level through the MIX-6 at clipping is +21 dBV balanced and unbalanced. The same figures apply to both the input and the output and individual clip LEDs are provided, which illuminate at -2 dB below actual clipping. The OL (Over Load) circuit senses the signal in two places (pre and post channel gain) to ensure fool-proof indication of distortion.

Channels 1-4 have assign switches which apply the signal to the left and right output busses. With the rear panel mic/line switch in the mic position, phantom power and a low frequency rolloff for elimination of sub frequencies, such as mic handling or wind noise, are automatically engaged. The cutoff frequency is 120 Hz with a 24 dB per octave slope. Phantom power is removed from the individual input XLR jacks when the input switch is in Line mode. Each of the mic inputs is filtered to eliminate crosstalk through the supply rail and phantom power is blocked from the TRS input jacks. A global phantom power on/off switch is located near the power cord on the rear of the unit.

Channels 5-6 are true stereo line level inputs. Channel 5 is has rear panel unbalanced RCA jacks and a normalised front panel 3.5mm jack. Inserting a plug into the front panel 3.5mm jack disconnects the signal from the rear panel RCA inputs.

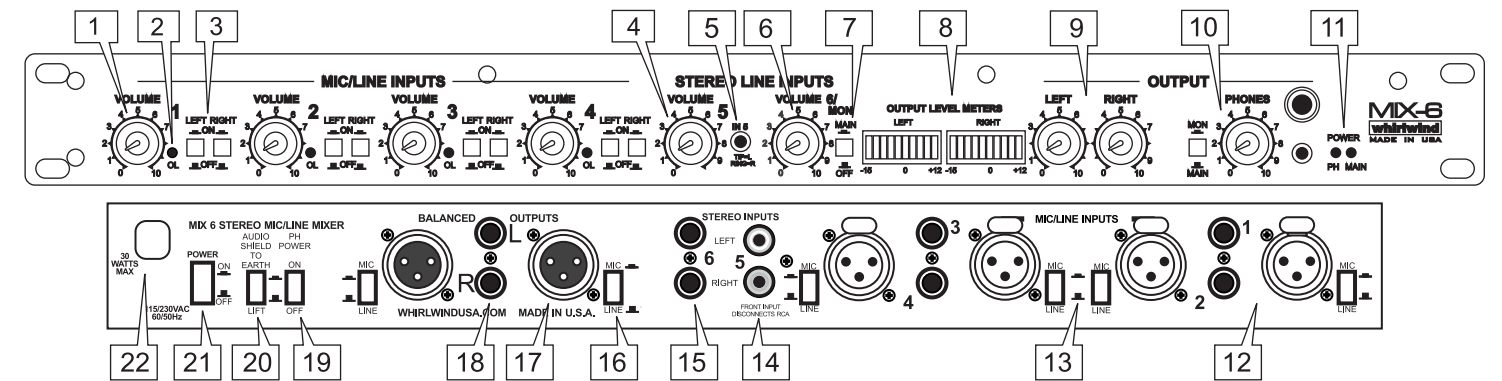
Channel 6 is accessed through left and right 1/4" TRS jacks, which can be used balanced or unbalanced. Channel 6 has a unique main/off switch which applies the input signal to the left and right stereo busses when activated. This feature allows Channel 6 to be disconnected from the main output and in combination with the headphone main/mono switch, routes the signal to only the headphones for cueing or monitoring. These inputs will interface easily with most types of consumer or professional equipment.

The output section of the MIX-6 was designed to accommodate any configuration, line or mic level balanced or unbalanced XLR and balanced or unbalanced 1/4" connectors. Each channel's output jacks are individually buffered so any combination of the outputs, at any impedance, will not affect the other outputs. With the Mic/Line output switch in the Mic position, the XLR's output is reduced by 20 dB. This switch does not affect the 1/4" jacks. The MIX-6 uses an H-pad resistor network at the XLR to maintain the S/N ratio, regardless of the position of the Mic/Line switch. If unbalanced operation is desired from the XLR outputs, pin 2 is hot, pin 1 is ground and pin 3 should be left UNCONNECTED.

LED meters provided on the MIX-6 are precisely calibrated in 3 dB increments and span a range of -15 to + 12 dBV, measured balanced at the XLR output.

The MIX-6 has a headphone monitoring section consisting of a source select switch, a volume control and both 1/4" and 3.5mm headphone jacks. The headphone circuit is stereo and drives headphones with 30 Ohm or greater impedances. The volume control has a gain range of -56 to +20 dB to accommodate a wide range of audio levels. The select switch allows listening to either the prefader stereo master outputs or the postfader signal coming from the channel 6 inputs.

The MIX-6 uses a dual primary toroidal power transformer which is configured by internal jumpers for 120 VAC 60 Hz or 230 VAC 50 Hz operation. There is a 1/4 A Slo Blo internal fuse on the hot side of the AC cord and the power switch makes and breaks both the hot and neutral sides of the incoming AC. A ground lift switch is provided which can disconnect the audio circuit ground from the AC chassis ground.



CONTROLS AND CONNECTIONS

- 1. Mic/Line Input** pots vary the amount of signal sent to the left and right output busses through the assign switches.
- 2. OL (Overload) LEDs** illuminate when the level is 2 dB below distortion. The circuit senses the signal level both pre and post the channel gain.
- 3. Left and Right Assign** switches connect the input signals to the output busses. Inputs 1-4 can be switched to either or both busses simultaneously. These switches can also be used for signal muting.
- 4. Channel 5 Input** pot varies the amount of signal from the unbalanced stereo inputs sent to the left and right output busses.
- 5. IN 5** front panel stereo jack is a 3.5mm type that allows for convenient access for connection of a portable music player. Using this jack automatically disconnects the rear panel RCA input.
- 6. Channel 6 Input** pot varies the amount of signal from the rear panel 1/4" TRS input jacks sent to the left and right output busses.
- 7. Channel 6 Main/Off** switch controls the routing of the channel 6 input signals. The Main or "in" position sends the signal from the 1/4" input jacks to the left and right output busses. The Off or "out" position disconnects the signal from the left and right busses.
- 8. LED dB** meters are precisely calibrated in 3 dB increments and span a range of -15 to + 12 dBV, measured balanced at the XLR output.
- 9. Master Volume** pots determine the amount of signal from the summing amps that is fed to the output drivers and the meters.
- 10. Stereo Headphone Circuit** consists of a source select switch, a volume control, two parallel wired headphone jacks and will drive 30 Ohm or greater headphone impedances. The Mon/Main switch assigns either prefader stereo master output or postfader channel 6 input signal to the headphone amplifiers. The headphone jacks are wired with left on the tip and right on the ring.
- 11. LED Indicators** for Phantom power and Unit power illuminate when power is applied and the rear panel switches are activated.
- 12. Mic/Line Inputs** are a combination of XLR and 1/4" TRS jacks. Either jack can be used for balanced mic signals. Line level signals can be balanced or unbalanced. The XLR has 48 Volt

phantom power applied to it when the Mic/Line switch is in the Mic mode and the global phantom switch is on. Phantom power is always blocked from the 1/4" TRS input jack.

13. Input Mic/Line switches 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 the TRS jacks.

14. Channel 5 RCA input jacks apply unbalanced stereo signal to the mixer. These RCA jacks are normalised to the front panel 3.5mm TRS jack. Inserting a plug into the front panel 3.5mm jack disconnects the signal from the rear panel RCA inputs. The 3.5mm jack is wired tip to left and ring to right.

15. Channel 6 1/4" TRS input jacks are balanced line level and connect signal to the main left and right busses or to the headphone monitor through the front panel Main/Off switch.

16. Output Mic/Line switches affect only the XLR output jacks by inserting a 20 dB pad across pins 2 and 3 in the Mic position.

17. Output male XLR jacks are 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.

18. Output 1/4" TRS jacks deliver the same line level signal as the XLRs but have a separate driver circuit, providing complete isolation. These outputs may be used balanced with a TRS plug or unbalanced with a TS plug. Tip is positive, ring is negative and sleeve is audio ground.

19. Phantom Power switch activates 48 VDC on channels 1-4 mic inputs. Status is indicated by the front panel LED.

20. Audio Shield to Earth switch disconnects the audio ground path from the electrical chassis ground in the Lift position.

21. 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 1/4 A Slo Blo 3AG (for 120 VAC; 1/8 A for 230 VAC) mains fuse is located on the circuit board inside the unit.

22. Power cord has a standard 15 Amp plug for 120 VAC and has no plug on the Mix 6X 230 VAC model. Black is line, white is neutral and green is earth.