UNPACKING

Thank you for selecting the US Audio DA-2M. The DA-2M is a professional quality two channel analog audio distribution amplifier which accepts either mic or line level inputs. There are eight electronically balanced XLR line level outputs with individual volume controls and clip indicators. The audio performance is of the highest quality, making it an excellent value. Great care was taken in the design so that the DA-2M can fulfill any distribution requirement, from broadcast audio feeds to loudspeaker audio input distribution.

Inputs feature Neutrik combo 1/4” TRS/XLR connectors, mic/line level input switches, variable input gain controls, low cut switches for reducing low frequency rumble or wind noise, four segment headroom indicators and 48 V phantom power that is applied to the XLR in mic mode and turned off when the input is used in line mode.

The front panel COMBINE switch converts the DA-2M from two 1X4 distribution amps to a 2x8 distribution amp with the two inputs combining to feed all eight outputs. This provides the capability of having both a line and a mic input simultaneously.

A headphone circuit allows signal monitoring of each input in mono or listening to both input channels in a stereo mode.

UNPACKING

U.S. Audio 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.
THEORY OF OPERATION

The Whirlwind DA-2M is a 1 RU Distribution Amplifier (DA) with 2 mic inputs and 8 outputs. Using the same technology as in high end mixing consoles, the DA-2M boasts low noise and distortion, suitable for the most demanding of professional audio applications. The expanded feature set allows this unit to be used in numerous applications.

The DA-2M can be used in stereo or a 2 channel application as two sets of 1 (mic or line) to 8 outs (mono). The 2 inputs are switchable for either mic or line level applications. The mic preamp is set for a fixed 28 dB of gain when the mic/line switch is in the mic position. A trim control after the preamp adds another 6 dB of gain, allowing one to drive power amplifiers to full power with all microphones.

The input connector is a Neutrik Combo, which is female XLR and combination female XLR and 1/4 inch Tip Ring Sleeve jack. Either connector can be used in mic or line mode. When the DA-2M’s inputs are in mic mode 48 Volt phantom power will be present on the XLR input connector (not present on the TRS). A low cut filter can be activated on both XLR or TRS inputs with a switch. The low cut filter operates at a 24 dB per octave slope. An octave 4 pole filter set at 120 Hertz which will reduce wind noise, stage vibrations etc. In line mode, the DA-2M’s 40 kOhm input impedance allows the user to parallel many DA-2M inputs together to generate numerous buffered outputs.

The headphone section of the DA-2M uses a 3-position switch allowing for stereo listening or mono listening of either input. In the non combine mode (stereo or 2 channel) with the headphone select switch in the middle position, input 1 will be on the left earpiece and input 2 will be on the right earpiece. With the headphone select switch in the channel 1 position, channel 1 will be in both earpieces. With the headphone select switch in the channel 2 position, channel 2 will be in both earpieces. The volume control and the headphone amps are designed so a wide range of headphones of varying impedances may be used.

The 8 balanced outputs of the DA-2M are male XLR with individual level controls, clip LEDs, and ground lift switches. The level control span a range of -60 to +18 dB of gain. With the level control able to reduce signal 60 dB, this is sufficient to mute audio in most applications. When ground hum occurs, lifting the ground at the DA-2M’s outputs can help break the loop. The clip LED on each channel visually shows the user that levels are on the verge of clipping.

1. Output Volume Pots control the level at the corresponding near panel output. It enables the control of attenuation range of -60 dB attenuation at full off to +18 dB at full on.

2. Individual Gain Controls for each channel adjust the input signal to optimize to drive level to the outputs. These controls operate through a range of -40 dB to +30 dB and are shipped at zero degrees to provide unaltered operation. If knob actuation is desired, remove the bushings and install the included knobs as follows: Carefully pry the edges of the bushing away from the front panel and depress the plastic fingers that hold them in place. The fingers are located behind the printed areas on the face of the bushing. Rotate the control fully counterclockwise, align the knob’s pointer with the scale and push it onto the shaft. If repopulation is required, the knob insert must be removed separately by grabbing the rectangular top with pliers and pulling it off. Reinstall the insert into the knob by aligning the ridge on the insert with the groove inside the knob behind the pointer.

3. Input Gain Controls for each channel adjust the input signal to optimize to drive level to the outputs. These controls operate through a range of -40 dB to +30 dB and are shipped at zero degrees to provide unaltered operation. If knob actuation is desired, remove the bushings and install the included knobs as follows: Carefully pry the edges of the bushing away from the front panel and depress the plastic fingers that hold them in place. The fingers are located behind the printed areas on the face of the bushing. Rotate the control fully counterclockwise, align the knob’s pointer with the scale and push it onto the shaft. If repopulation is required, the knob insert must be removed separately by grabbing the rectangular top with pliers and pulling it off. Reinstall the insert into the knob by aligning the ridge on the insert with the groove inside the knob behind the pointer.

4. Headroom Indicator LEDs on each of the input channels indicate the remaining headroom of the signal being applied to the output drive circuitry. The two green lights and the yellow indicate level below clipping (-36,-24, and -12 dB respectively) and the red LED indicates at 12 dB below actual clipping.

5. Combine Switch converts the DA-2M from 2X4 distribution amps to a 2X8 distribution amp with the two inputs combining to feed all eight outputs. In this mode the two inputs are actively summed, either input may be used to feed the eight outputs. The mono-sum feature allows the DA-2M to properly combine left and right stereo signals into a mono feed and also provides the capability of using both a line and a mic input simultaneously.

6. Channel 1/ST/2 Select switch determines the input signal that is fed to the headphone circuitry for monitoring. Channel 1 or 2 selections are to both left and right mono and the center ST position feeds Ch. 1 to the left and Ch. 2 to the right.

7. Headphone Circuit monitors the signals coming into the DA-2M inputs. It separates drives both earpieces in stereo headphones having an impedance 8 Ohms or greater. The headphone circuit has a gain range of 40 to 60 dB to accommodate a wide range of audio levels. The jack is a standard 1/4” TRS type.

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

9. Output XLRs on the DA-2M are actively balanced with each output driven by its own individual driver circuit providing channel to channel isolation greater than 102 dB. The outputs are wired pin 2 positive, pin 1 negative and are RF bypassed with capacitors for rejection of RF signals on output lines.

10. Output Ground Switches are provided to connect Pin 1 from each output XLR to the common audio ground bus. The dip switches are supplied in the 1-4 and correspond with the same numbered male XLR. In the down (off) position the Pin 1 of each output is lifted.

11. Low Cut Switch activates a 24 dB per octave filter set at 120 Hertz which will reduce wind noise, stage vibrations etc. The low cut filter is applied to both XLR and TRS inputs in either mic or line input mode.

12. Input Connectors are combination female XLR and balanced 1/4 inch TRS jacks. Either type can be used in mic or line mode. In mic mode 48 Volt phantom power will be present on the TRS input connector (not present on the XLR). A low cut filter can be activated on both XLR or TRS inputs with a switch. The low cut filter operates at a 24 dB per octave slope.

13. MicLine Switches the microphone preamps into the circuit when required for mic input level applications. Each mic preamp is set for a fixed 29 dB of gain in the mic position.

14. Audio Shield to Earth Switch separates the earth ground of the power cord (which is always connected to the chassis) from the audio ground. When in high Radio Frequency Interference situations, it is suggested to keep audio ground connected to chassis ground.

15. Power Cord has a standard 15 Amp plug for the DA2M 120 VAC model and has no plug on the DA2M 230 VAC model. Black is line, white is neutral and green is earth. The mains fuse is internal.