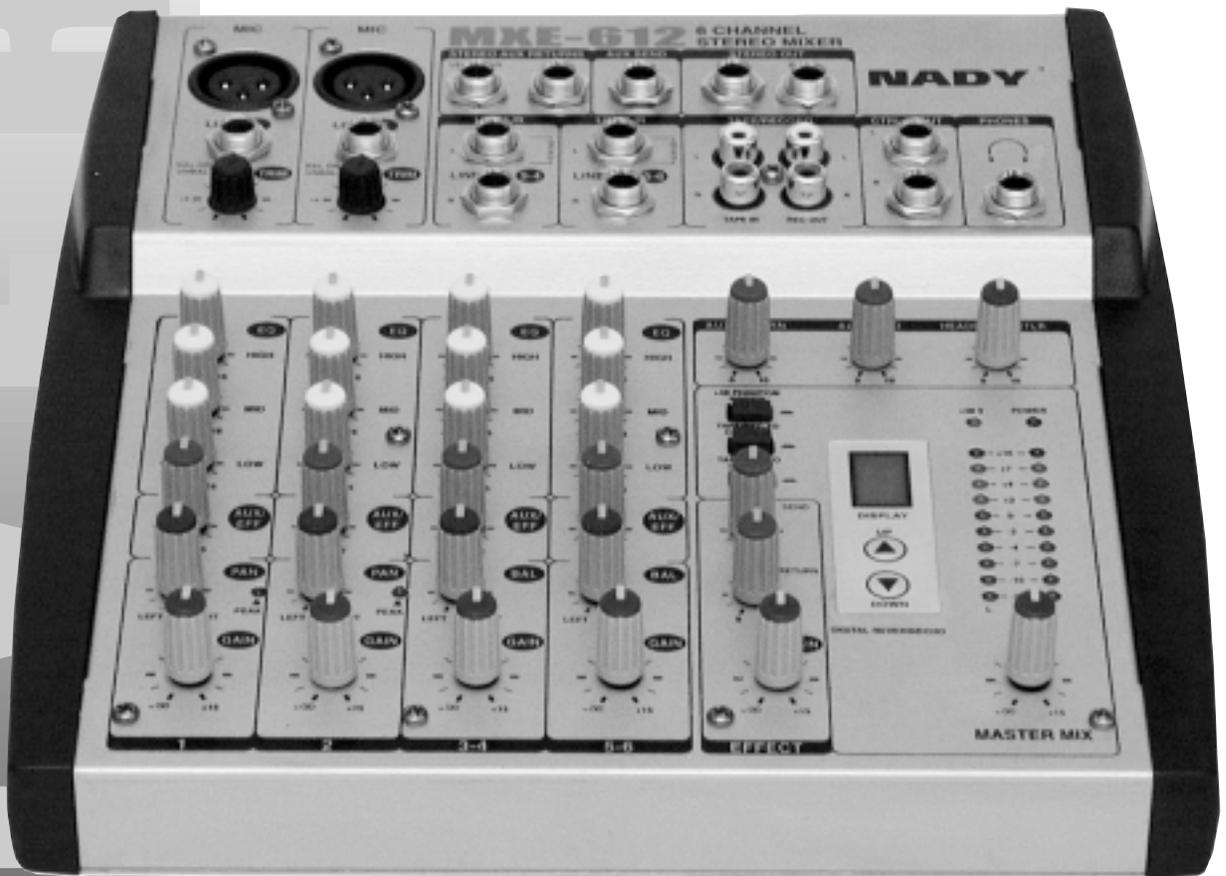


NADY[®] AUDIO

OWNER'S MANUAL



MXE-612

6 Channel Mic/Line Mixer with Internal DSP Effects

MXE-612

6 Channel Mic/Line Mixer with Internal DSP Effects



Congratulations on your choice of mixers — you have purchased one of the finest compact mixing consoles on the market today. This unit was developed using the expertise of professional sound engineers and working musicians. You will find that your new NADY AUDIO MXE-612 has superior performance and greater flexibility than any other mixer in its price range. Please read this manual carefully to get the most out of your new unit.

Thanks for selecting NADY AUDIO as your choice in mixing consoles.

Date of Purchase _____

Dealer's Name _____

City _____

State _____ Zip _____

Model # _____

Serial # _____

TABLE OF CONTENTS

WARNING	3
FEATURES	4
INSTALLATION	5
1. Inspection	5
2. Rack Mounting	5
3. Setup and Operation	5
CONTROLS AND CONNECTIONS	6
1. Mono Input Section	6
2. Stereo Input Section	8
3. Master Section	9
a. Aux Sends>Returns Function and Operation	9
b. Main Mix Function and Operation	9
c. Digital Echo Effects Function Operation	10
d. Monitor Function and Operation	10
e. Power Connection, Indicators, and Switches	10
4. Connections	12
SPECIFICATIONS	13
BLOCK DIAGRAM	14

WARNING



An equilateral triangle enclosing a lightning flash/arrowhead symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure which may be of sufficient magnitude to constitute a risk of electric shock.



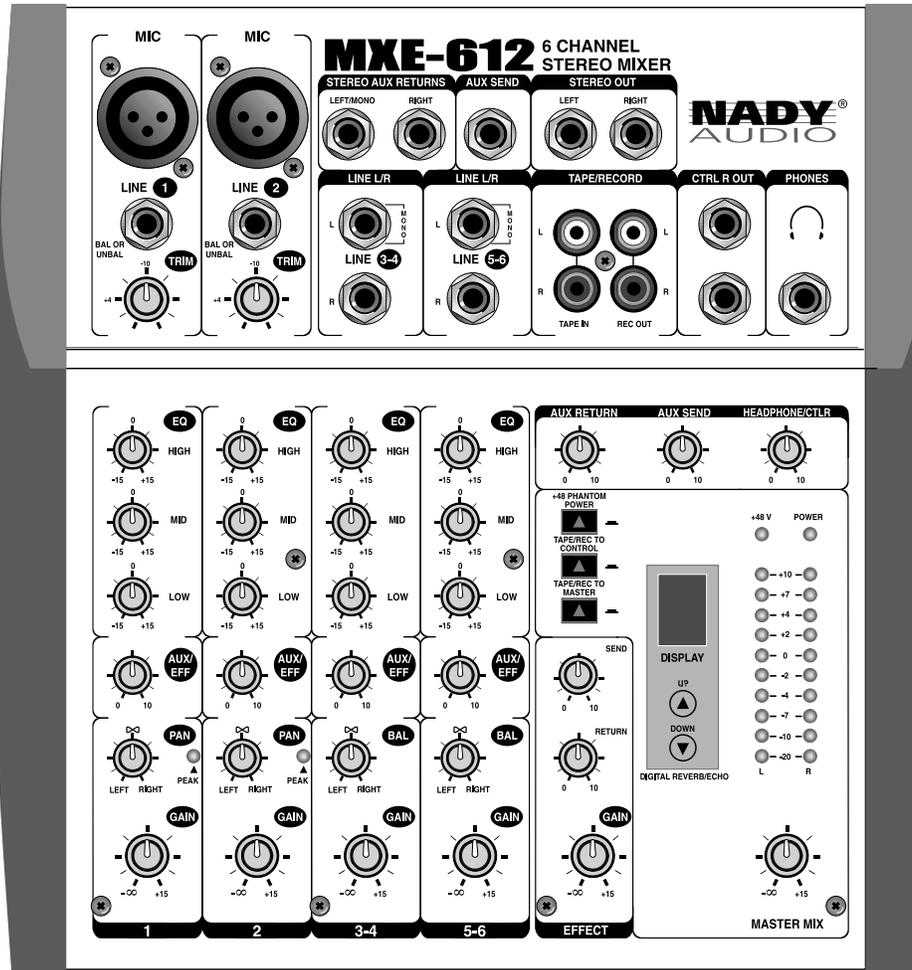
An equilateral triangle enclosing an exclamation point is intended to alert the user to the presence of important operating and service instructions in the literature enclosed with this unit.

IMPORTANT SAFETY INSTRUCTIONS

When using this electronic device, basic precautions should always be taken, including the following:

1. Read all instructions before using the product.
2. Do not use this product near water (e.g., near a bathtub, washbowl, kitchen sink, in a wet basement, or near a swimming pool, etc.).
3. This product should be used only with a cart or stand that will keep it level and stable and prevent wobbling.
4. This product, in combination with headphones or speakers, may be capable of producing sound levels that could cause permanent hearing loss. Do not operate for a long period of time at a high volume level or at a level that is uncomfortable. If you experience any hearing loss or ringing in the ears, you should consult an audiologist.
5. The product should be positioned so that proper ventilation is maintained.
6. The product should be located away from heat sources such as radiators, heat vents, or other devices (including amplifiers) that produce heat.
7. The product should be connected to a power supply only of the type described in the operating instructions or as marked on the product. Replace the fuse only with one of the specified type, size, and correct rating.
8. The power supply cord should: (1) be undamaged, (2) never share an outlet or extension cord with other devices so that the outlet's or extension cord's power rating is exceeded, and (3) never be left plugged into the outlet when not being used for a long period of time.
9. Care should be taken so that objects do not fall into, and liquids are not spilled through, the enclosure's openings.
10. The product should be serviced by qualified service personnel if:
 - A. The power supply cord or the plug has been damaged.
 - B. Objects have fallen into, or liquid has been spilled onto the product.
 - C. The product has been exposed to rain.
 - D. The product does not appear to operate normally or exhibits a marked change in performance.
 - E. The product has been dropped, or the enclosure damaged.
11. Do not attempt to service the product beyond what is described in the user maintenance instructions. All other servicing should be referred to qualified service personnel.

FEATURES



The MXE-612 is compact, versatile console or rackmountable mixers with 16 built-in selectable DSP echo and reverb effects that is ideal for any small venue live sound reinforcement applications where ultimate performance, advanced features, and affordability are needed.

- Superb performance with low noise and smooth, transparent audio across the full audio spectrum and natural sounding selectable echo/reverb effects
- Built-in DSP (Digital Sound Processor) for ECHO (REVERB) with 16 selectable preset level and echo intervals and separate Effects Send and individual channel Effects Return controls, and numeric LED display
- Input Trim controls on all channel inputs
- Peak LEDs on all input channels
- Pan pots on each mono channel and Balance pots on each stereo input
- 3 band EQ for all input channels
- Aux Send and Aux Return with Aux Send and Aux Return controls
- Switchable global 48V phantom power on mono channels
- Super accurate 10-segment LED display bargraph meters
- High-quality sealed pots with center detents for all Pan/Balance and EQ controls
- Road-tough all steel construction. Optional rack ears available.
- Ultra-compact 2-bus mixer
- 2 mono input channels with balanced XLR Mic and 1/4" TRS Line inputs for maximum signal integrity
- 4 stereo input channels with balanced 1/4" TRS jacks for balanced or unbalanced inputs
- Aux Send for external effects and monitoring
- Stereo Aux returns with master Aux Return control
- Balanced 1/4" TRS L/R Stereo Outputs
- Separate Master Mix, Control Room and Headphone Outputs
- Tape In and Record Out RCA jacks with Tape inputs assignable to Master Mix or stereo Control Room/Headphone outputs
- External AC supply for optimum signal integrity and superior transient response
- Dimensions & Weight: 9"x 7"x 2.5" (229 x 178 x 63.5 mm), 3.7 lbs (1.7 Kg)

INSTALLATION

To ensure years of enjoyment from your NADY AUDIO MXE-612 mixing console, please read and understand this manual thoroughly before using the unit.

1. INSPECTION

Your NADY AUDIO MXE-612 was carefully packed at the factory in packaging designed to protect the units in shipment. Before installing and using your unit, carefully examine the packaging and all contents for any signs of physical damage that may have occurred in transit.

[Please note: Nady Systems is not responsible for shipping damage. If your unit is damaged, do not return to Nady, but notify your dealer and the shipping company (if shipped to you) immediately to make a claim. Such claims must be made by the consignee in a timely manner.]

2. RACK MOUNTING

The MXE-612 can be rackmounted with the optional RMK-612 rackmount kit which can be ordered from your dealer or through the Nady Service Department (see back page).

3. SETUP AND OPERATION

Parts of the unit can become very warm during use. This is normal during operation. Care should be taken to ensure that there is enough space around the unit for cooling. Also, do not place the MXE-612 on high temperature devices such as power amplifiers, etc., or the unit may overheat in operation.

Although the unit's chassis is shielded against radio frequency (RF) and electromagnetic interference (EMI), extremely high fields of RF and EMI should be avoided.

The MXE-612 is designed to operate with the supplied external power supply unit (PSU). Please make sure that the power unit supplied is marked for the correct voltage in your area (120VAC/60 Hz or 230VAC/50 Hz). Power requirements for electrical equipment differ from area to area. In new installations and portable sound systems, or any situation in which the AC power is in question, it is wise to confirm the voltage and use the appropriate power supply unit before connecting it to power sources.

Europe (except UK): 230V, 50Hz
UK and Australia: 240V, 50Hz
USA and Canada: 120V, 60 Hz
For other areas, please check with local authorities.

When ready to operate, plug the AC cord into the power source. Make sure that the unit is turned off before connecting to the AC power source to avoid possible loud transients which can damage your speakers or your ears, especially when monitoring with headphones. Set the noted controls to the positions indicated below to further minimize the chance of undesired noise when first powering up your MXE-612 :

GAIN FADERS (8/33) SET TO MINIMUM

HI, MID & LOW EQ'S (4) AND PAN/BALANCE CONTROLS (6/14) TURNED TO THE CENTER DETENT POSITION

AUX/EFF CONTROLS & PHONES LEVEL CONTROLS (5/20) TURNED COMPLETELY COUNTERCLOCKWISE

ALL OTHER CONTROLS SHOULD ALSO BE TURNED COMPLETELY COUNTERCLOCKWISE

Power up the unit as noted in **Power Connections, Indicators, and Switches** (Section 3e in **CONTROLS AND CONNECTIONS**, page 11).

CONTROLS AND CONNECTIONS

1. MONO INPUT SECTION

(1) MIC INPUT

The Mic input is an electronically balanced XLR type designed to accept signals from any balanced low impedance (Low Z) microphone. To accommodate condenser microphones, this input is also equipped with +48VDC phantom power globally switchable to all XLR input jacks with the **Phantom Power switch (22)** on the front panel. Dynamic or ribbon-type microphones do not require phantom powering. It will be necessary to adjust the channel gain with the input **Trim control (3)** to achieve a nominal operating level. The XLR jack is configured for: Pin1 = ground, Pin2 = positive (+), Pin3 = negative (-).

*[Note: The Mic inputs are more sensitive than the Line inputs. Also, do not connect mics with the power switched on, as indicated by the **Phantom Power On LED (25)** in the Master Section of the front panel. Never use unbalanced mic cables with the Phantom Power switched on. Never short the +48VDC to ground, as that can cause serious damage to your mixer. Also, mute the Monitor/PA speakers when turning the phantom power on or off.]*

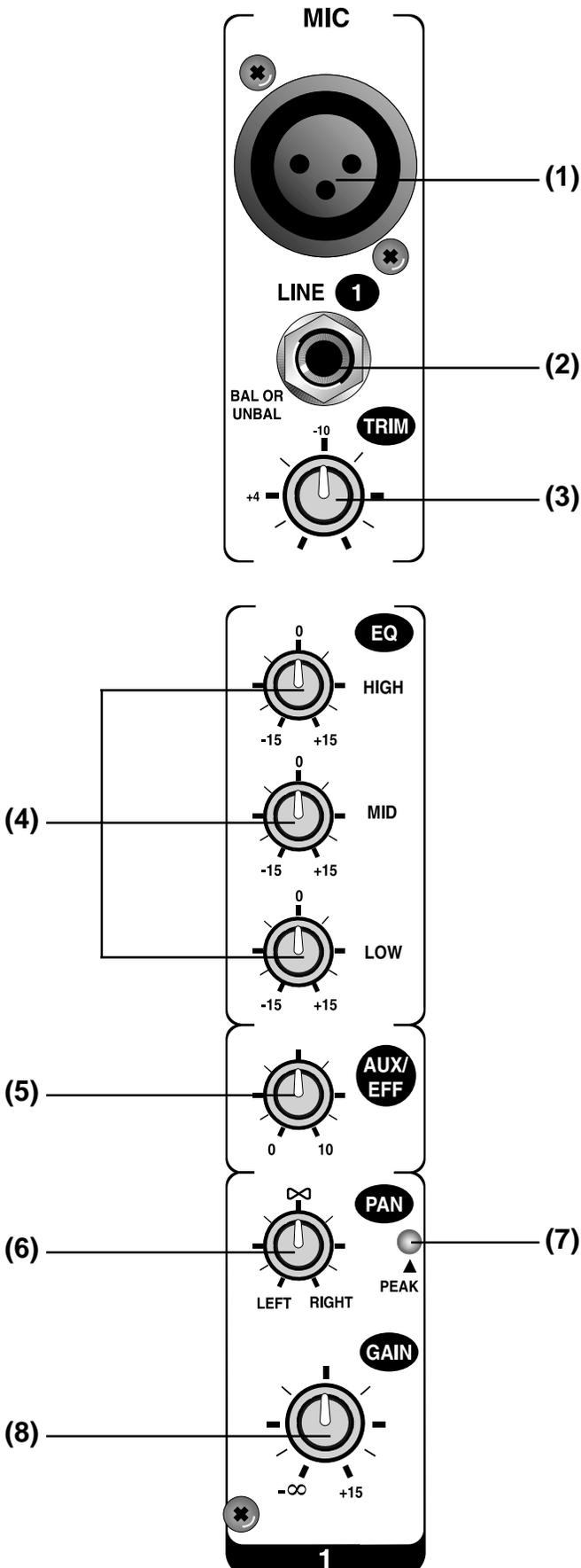
(2) LINE INPUT

The Line input is designed to accept balanced or unbalanced line-level signals such as those from keyboards, drum machines, or samplers. There is enough gain available on the line input to accept even lower level signals, such as those from an unbalanced microphone or guitar output. Use the **Trim control (3)** to adjust for the desired level. If a balanced signal is to be connected to the line input, then a 1/4" TRS (stereo) phone plug should be wired for: Tip = positive (+), Ring = negative (-), Sleeve = ground.

(Note: Only either the Mic or the Line input of a given channel can be connected at one time. Never connect both simultaneously to the same channel.)

(3) TRIM CONTROL

The trim control adjusts the input sensitivity (channel gain) of the mic and line inputs on the mono input channels. This control can be adjusted to accommodate input signals from a wide variety of sources, from the high outputs from keyboards or drum machines to the small signal outputs of microphones. This wide range eliminates the need for Mic/Line switching. The best balance of S/N and dynamic range will be achieved if you adjust the TRIM control on each channel separately so that the **Peak Indicator LED (7)** for that channel lights occasionally.



CONTROLS AND CONNECTIONS

(4) EQUALIZER CONTROLS

All mono input channels are fitted with a three-band EQ. All three bands have up to 15 dB of cut and boost, with a center detent for "off". The frequency response is flat when all three EQ knobs are in the center detent position. The upper and lower shelving controls have their frequencies fixed at 12 kHz and 80 Hz respectively. The midrange control has a peaking response at 2.5KHz (Q fixed at 1 octave). The channel EQ is a valuable feature of the mixer as it allows the user to control the tonal characteristics of each instrument separately. For example, boosting the LOW can fatten the sound and add punch to the bass or drums; the MID control can be used to define the midrange or bring out the vocals; and adjusting the HIGH control can provide a crisp sounding high end. Another very important, yet often overlooked technique is to use the EQ to subtract from the mix. Cutting the HIGH control can reduce unwanted hiss during multi-track recording, while attenuating the MID or LOW can eliminate feedback in a live performance or clear up a muddy sounding mix. Cutting away the top and bottom, then pushing up the Gain is equivalent to mid range boost!

[Note: Always reset a channel's input Gain (or external devices' output level) after altering the amount of mixer equalization cut or boost applied.]

The key to successful equalization is to avoid excess. Too much equalization on the input channels will result in a mix that is smeared together with nothing specifically defined. During rehearsals, experiment with the equalizer controls on various instruments, vocals and combinations of these mixed together to become familiar with various equalizer settings.

(5) AUX/EFF SEND CONTROL

The AUX/EFF controls are mono and post-EQ and post-fader and the signal level sent to the AUX/EFFECTS bus will be affected by the channel fader setting. The AUX configurations is ideal for almost all monitoring purpose: for example, for a separate stage monitor mix in live performances or a studio room monitor in recording applications, such as for a headphone cue system. The EFF controls the adjustment of level sent by each channel to the internal DSP (Digital Sound Processor). (See also **Digital Echo Effects Functions and Operations**, page 10)

(6) PAN CONTROL

The Channel Pan positions the output of the channel in the stereo field of the Master Mix. Its constant-power design ensures there are no level discrepancies whether a signal is hard-panned, center-stage, or somewhere in-between.

(7) PEAK LED INDICATOR

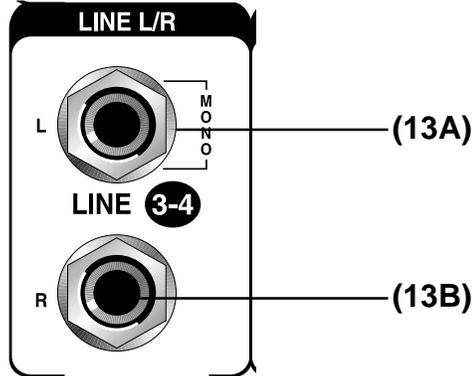
The Peak LED illuminates when a channel is going into overload. It detects the peak level after the EQ and will light at 3 dB before clipping to warn that the signal is approaching overload. You do not want the Peak LED to light except very intermittently during a take or a mix. If it does light persistently, reduce input gain with the **TRIM control (3)**.

(8) CHANNEL GAIN CONTROL

The channel gain controls determine the output signal level to the Master Mix bus. There is no PFL function on the MXE-612. In order to audition any single channel for proper gain, you can turn off the gain control of all the other channels (fully counterclockwise), and set both the auditioned channel and **Master Mix control (29)** to unity gain (0 dB). The **LED Output Meter (21)** should read around 0 dB.

CONTROLS AND CONNECTIONS

2. STEREO INPUT SECTION



(13A) L (MONO) LINE INPUT

On stereo input channels 3-6, the 1/4" line inputs are designed for stereo or mono line-level signals such as those from keyboards, drum machines, CD players, tape decks, or samplers. However, these inputs can also be used as standard mono line inputs by connecting the signal to the L (MONO) line in. This signal will be routed equally to the BAL control and the left and right outputs in the same way as the standard line input channels. For the stereo inputs, the mono channel **PAN (6)** control is replaced by the BAL (Balance) control. See also **BAL CONTROL (14)** below.

(13B) R LINE INPUT

When using channels 3-4, 5-6 as stereo input channels, the left signal should be connected to the L input and the right signal to the R input. These signals will be routed to the AUX, EQ and Channel Gain controls equally and will retain their stereo separation. The AUX, EQ, BAL, and Channel Gain controls all function the same as those on the mono input channels.

When a stereo signal is input to a stereo input channel, these controls will affect the left and right signals equally. The Stereo Line Inputs jacks are 1/4" TRS balanced phone jacks, Tip = positive (+), Ring = negative (-), Sleeve = ground. The input signals to these jacks can be either balanced or unbalanced.

(4) EQUALIZERS

The stereo channel EQ's operate in the same manner as those in the mono channels. The left and right signals will be affected equally. A stereo equalizer is generally preferable anyhow to using two mono equalizers when equalizing a stereo signal as it avoids possible discrepancies between the left and right settings.

(5) AUX/EFF SEND

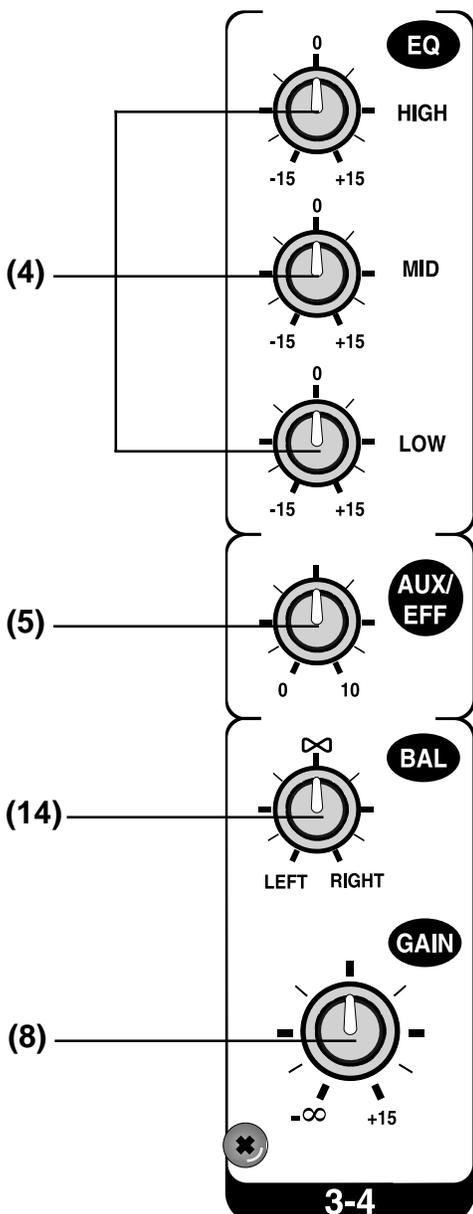
These are the same as for the mono channels. Note that a mono sum is taken from the stereo input.

(14) BAL CONTROL

For a mono input to the L (MONO) input the function of the control is the same as the **PAN controls (6)** of the mono channels. However, when a channel is run in stereo, this control functions as a Balance control, determining the relative Balance of the left and right channel signals being sent to the left and right Master Mix buses. For example, with the Balance control turned fully clockwise, only the right portion of the channel's stereo signal will be routed to the Master Mix.

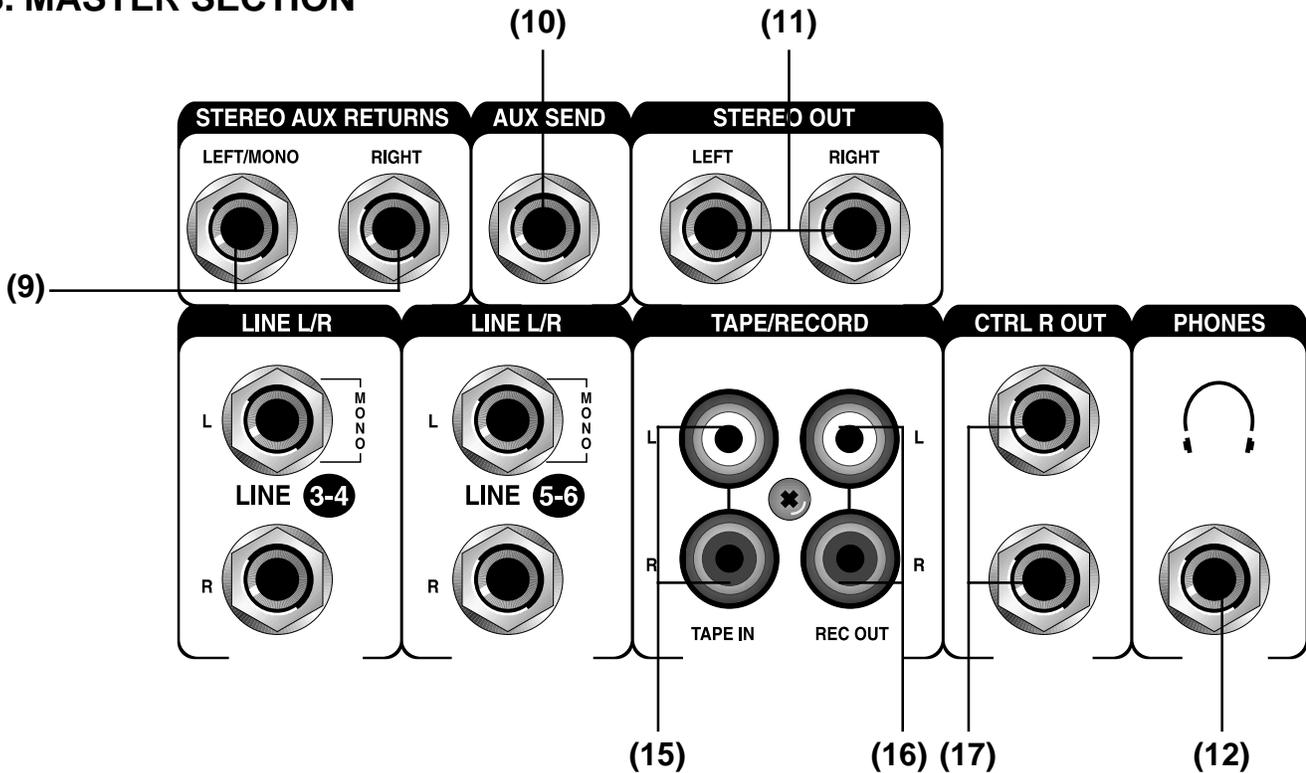
(8) CHANNEL GAIN CONTROL

This has the same function as for the mono channels. See **MONO INPUT SECTION**, page 6.



CONTROLS AND CONNECTIONS

3. MASTER SECTION



a. AUX Sends>Returns Function and Operation

- (9) STEREO AUX RETURNS (LEFT/MONO, RIGHT)
- (18) AUX RETURN CONTROL

The Aux Return jacks are the mono or stereo returns for Aux Send. If you connect a signal to the Left/Mono Return jack only, the Aux Return will operate in mono and the signal will be routed to the **Aux Return Control (18)** and then mixed into the left and right **Master Mix Stereo Outputs (11)**. The separate left and right return jacks are provided for use with stereo signals such as those from the output of a stereo effects processor. The left and right return signals will be routed to the **Aux Return level control (18)** and mixed into the left and right **Stereo Out (11)**, while maintaining stereo separation.

The Aux Returns are multi-functional. They may be used for returning the outputs of effect units, as Tape Returns from a multi-track recorder, or as extra instrument inputs, especially if your MIDI keyboard or rack supplies a pre-mixed stereo signal.

Certain stereo effects produce a perceived imbalance between the left and right channel levels. To correct for this you will have to bring your stereo effect back on a stereo channel, which has a **Balance control (14)**. When applying short left and right delays, the shortest one will always seem loudest. When pitch shifting up and down in wide stereo to thicken a sound, the signal shifted upwards will seem louder than one that goes down. In both cases use the Balance control to compensate. When performing any stereo imaging exercise, don't just rely on the control room

monitors. Get a pair of headphones and listen in stereo and in reverse stereo, just in case you have any significant hearing discrepancies. Sometimes you might want to narrow the stereo width of a reverb field. To do this you will have to come back on two mono channels to get independent pan for the left and right signals.

(10) AUX SEND

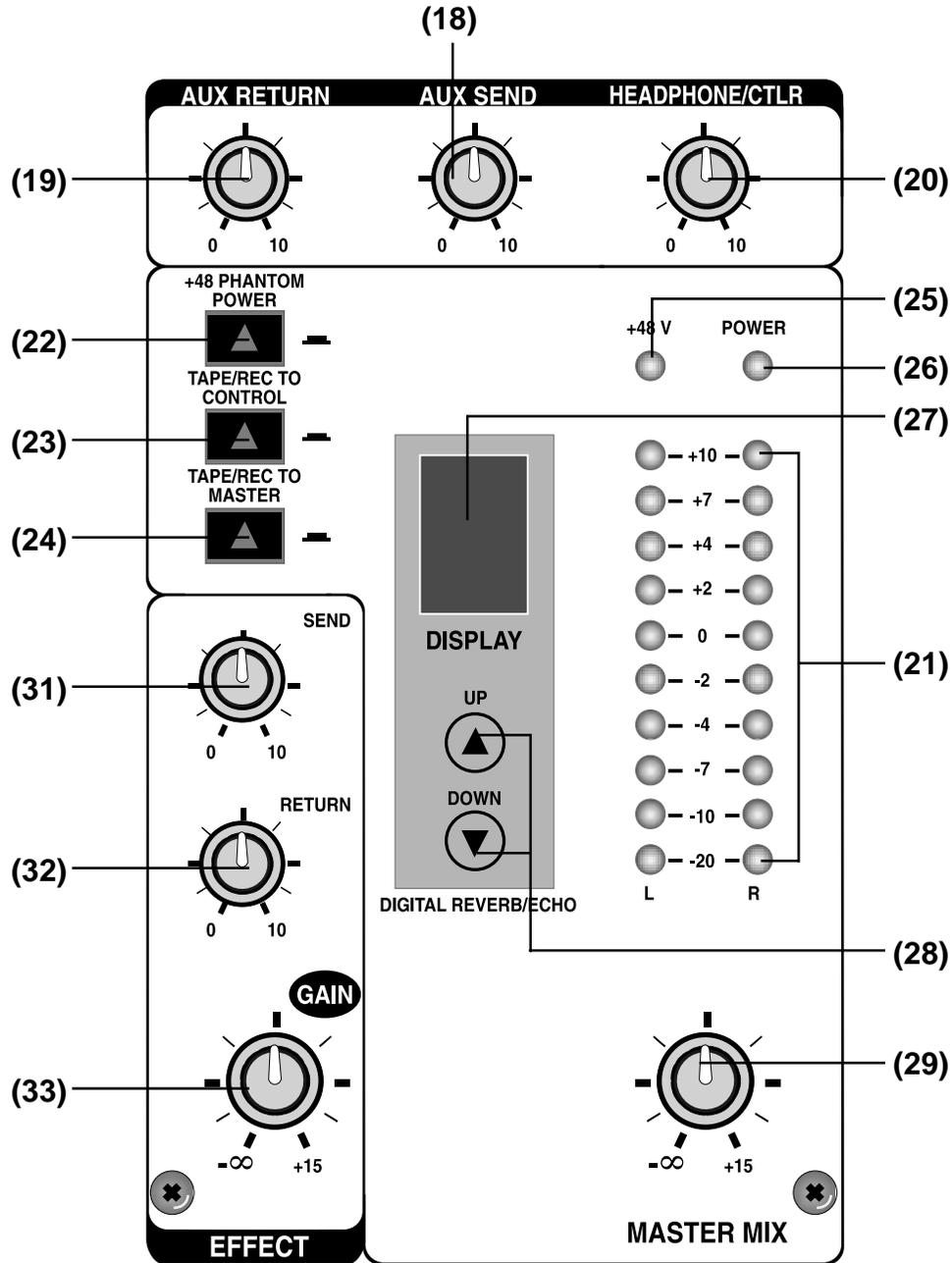
The Aux Send jack is the output for the signal sent from the channel **AUX/EFF controls (5)**. They are 1/4" unbalanced phone jacks wired: Tip = positive (+), Sleeve = ground. Aux Send is post-fader. These signals can be sent to the input of an effects processor, multi-track recorder, or used for any other line-level auxiliary purpose

b. Main Mix Function and Operation

- (11) STEREO OUTPUTS
- (15) TAPE INPUTS
- (16) REC OUTPUTS
- (29) MASTER MIX GAIN CONTROL
- (21) LED OUTPUT METER
- (24) TAPE/REC TO MASTER SWITCH

The Stereo Outputs are Left (L) and Right (R) unbalanced 1/4" phone jacks, wired: Tip = positive (+), Sleeve = ground. The **REC Outputs (16)** also provide an output of the Master Mix. These outputs are RCA jacks, and designed primarily for inputs to tape recorders, etc.

CONTROLS AND CONNECTIONS



The output level routed to the Stereo Outputs and REC Outputs is determined ultimately by the setting of the **Master Mix Gain Control (29)**. The Master Mix (signal on the master bus) is the sum of the signals routed from all the channels and also the inputs from the AUX return bus and the **Tape Input (15)**. Use the **Tape/Rec to Master switch (24)** to route signals from the **Tape Input (15)** to the **Master Mix Gain Control (29)**. The level of signal routed to the **Master Mix Gain Control (29)** from DAT, tape decks, CD players, etc., input to the **Tape Input (15)** is determined by the setting of the output volume control of the audio device being connected, so care must be taken in adjusting this level so as to achieve proper balance in the final mix and to

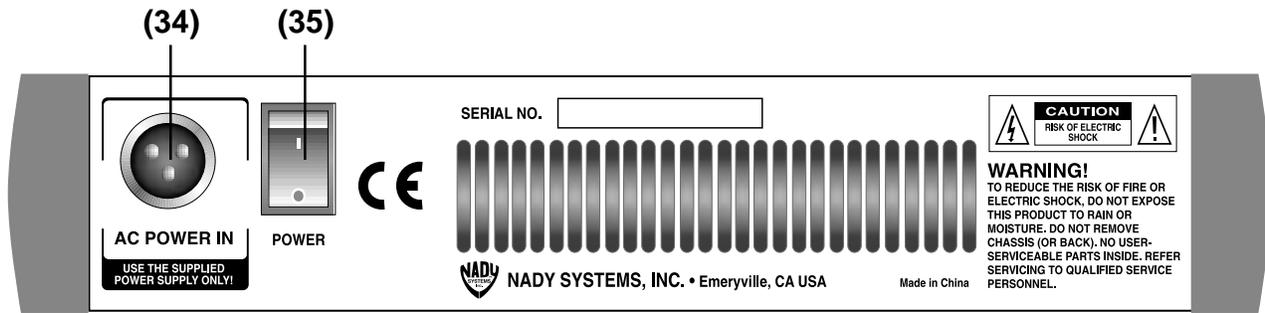
prevent overload distortion. The 10-stage **LED Output Meter (21)** displays the Master Mix output level.

c. Digital Echo Effects Function and Operation

- (27) EFFECTS DISPLAY
- (28) ECHO EFFECT SELECT BUTTONS
- (31) EFFECT SEND
- (32) EFFECT (ECHO) RETURN
- (33) EFFECT GAIN

The built-in DSP (Digital Sound Processor) offers 16 different preset level and echo intervals selectable by the **Echo Effect Select UP/DOWN buttons (28)**. Press either button to scroll in

CONTROLS AND CONNECTIONS



Back panel

either direction through the 16 presets. The numeric **Effects Display (27)** will indicate which of the 16 effect presets has been selected. The DSP processes the signal on the EFFECTS bus, which is the sum of the 4 mono and 8 stereo channel inputs controlled by the **EFF control (5)**. The **EFFECT SEND control (31)** adjusts the level of the signal on the EFFECTS bus fed to the DSP. The **EFFECT (ECHO) RETURN control (31)** adjusts the number of repeats of the echo effect selected with the **UP/DOWN buttons (28)** and the **EFFECTS GAIN fader (33)** controls the signal level sent to the Master Mix busses.

d. Monitor Function and Operation

- (17) CONTROL ROOM OUTPUTS
- (12) HEADPHONES OUTPUT
- (20) PHONES/CONTROL ROOM CONTROL
- (23) TAPE/REC TO CONTROL ROOM SWITCH

The MXE-612 allows you to monitor the Master Mix. The signal level is adjusted with the **Phones/Control Room control (20)** and routed to both the **Control Room (17)** and **Headphones (12)** outputs. The **L-R Control Room Outputs (17)** can be connected to an amp to power stereo control room (or other) monitor speakers and are 1/4" unbalanced phone jacks, wired: Tip = positive (+), Sleeve = ground. The **Phones Output (12)** will feed headphones and is a 1/4" TRS jack, wired: tip = left signal, ring = right signal, sleeve = ground.

e. Power Switches

- (34) AC POWER IN SOCKET
- (35) MAIN POWER SWITCH
- (26) POWER ON LED INDICATOR

Once the external PSU is connected to the **AC Power In socket (34)** and then to the AC power source, you may switch on your mixers with the **Power On switch (35)**. The **Power "ON" LED (26)** will light up. Allow 1 minute after powering up for the system to reach equilibrium before setting inputs gains and other levels.

- (22) PHANTOM POWER SWITCH
- (25) PHANTOM POWER ON LED INDICATOR

When using condenser mics, +48VDC can be switched globally on or off to the XLR mic inputs for all mono channels (also see

MONO INPUT SECTION, MIC INPUTS). When this switch is in the "ON" position, The **Phantom Power On LED Indicator (25)** will light , and +48VDC will be provided between pins 2 and 3 on all the mono Mic input XLR connectors. If you don't need phantom power, be sure to turn this switch to the "OFF" position.

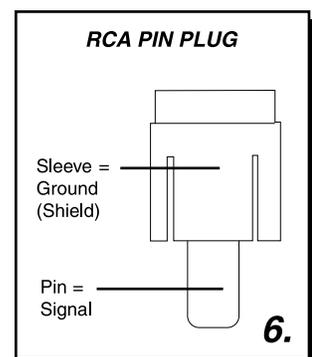
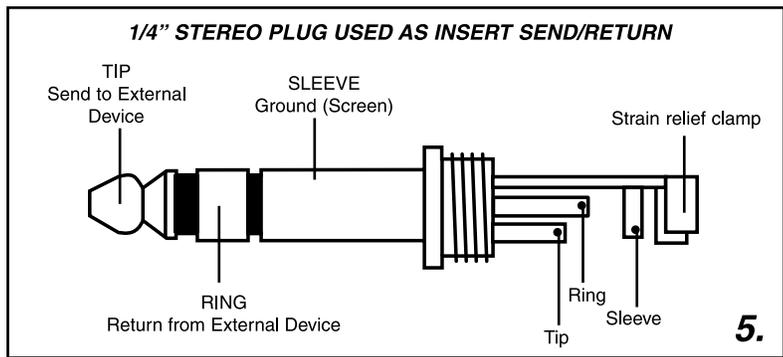
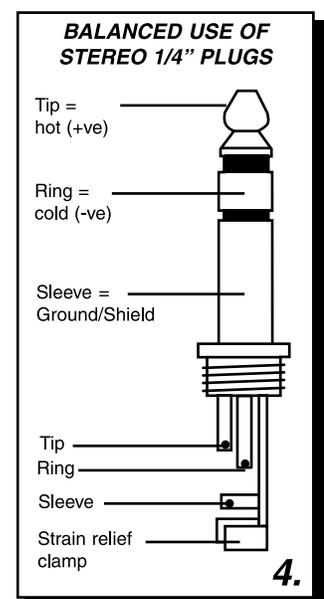
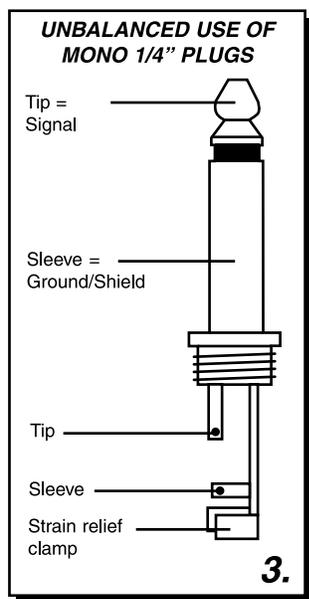
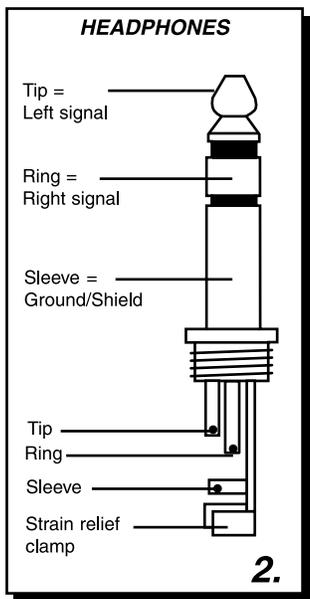
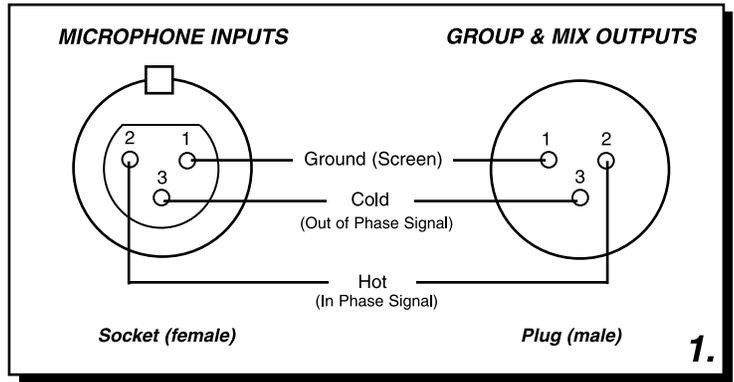
[Note: It is safe to connect balanced dynamic mics or line level devices even if this switch is on, but connecting unbalanced devices or devices whose transformers are center-grounded will cause hum or malfunctions. Shorting the +48VDC can also damage your mixer. Also, mute the Monitor/PA speakers when turning the phantom power on or off.]

CONNECTIONS

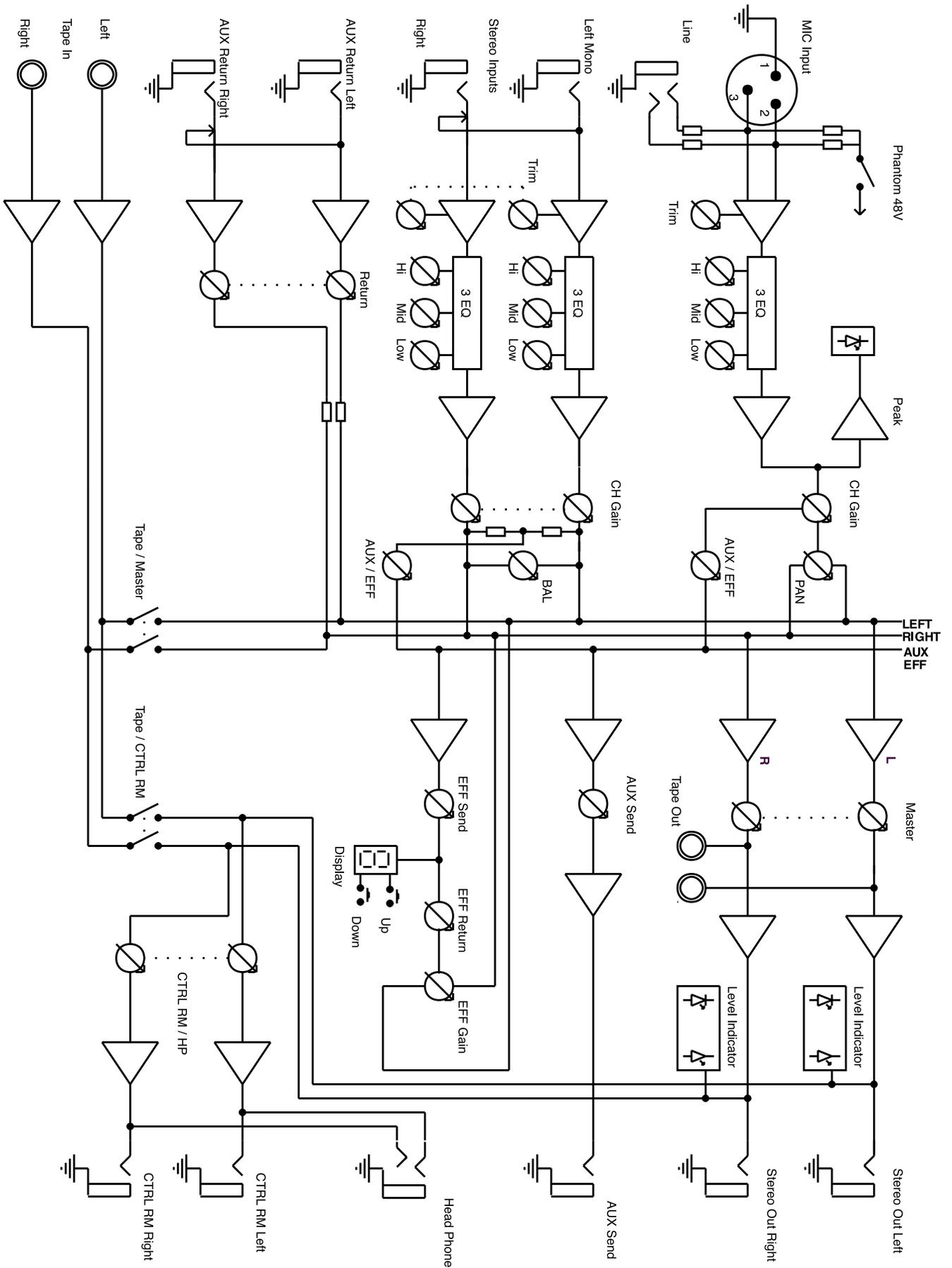
This NADY AUDIO mixer uses 4 different types of audio connectors for the various input/output connections: (1) XLR balanced; (2) 1/4" TRS phone jacks for balanced, unbalanced, stereo, or in/out inserts; (3) 1/4" TS unbalanced; (4) RCA pin unbalanced

Figures

1. Balanced XLR input/output connections
2. Stereo headphone connection with 1/4" TRS plug
3. 1/4" mono (TRS) plug used as unbalanced input/output
4. 1/4" stereo (TRS) plug used as balanced input/output
5. 1/4" TRS plug used as Insert Send/Return
6. RCA pin plug for unbalanced input/output



BLOCK DIAGRAM



SERVICE FOR YOUR NADY AUDIO PRODUCT

(U.S.) Should your NADY AUDIO product require service, please contact the Nady Service Department via telephone at (510) 652-2411, or e-mail at service@nady.com.

(International) For service, please contact the NADY AUDIO distributor in your country through the dealer from whom you purchased this product.

DO NOT ATTEMPT TO SERVICE THIS UNIT
YOURSELF AS IT CAN BE DANGEROUS AND
WILL ALSO VOID THE WARRANTY.



NADY SYSTEMS, INC. • 6701 SHELLMOUND STREET, EMERYVILLE, CA 94608
Tel: 510.652.2411 • Fax: 510.652.5075 • www.nady.com