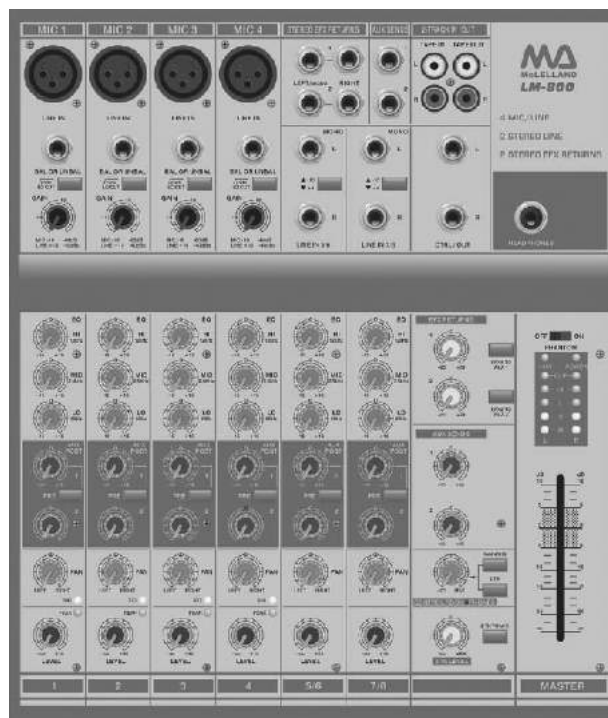


# LM-800

## Compact Mixers

McLELLAND



## User's Manual



[www.mclellandmusic.com](http://www.mclellandmusic.com)

# COMPACT MIXERS LM-800

## USER'S MANUAL

### TABLE OF CONTENTS

	Page
• INTRODUCTION .....	1
• FEATURES .....	1
• GETTING STARTED .....	2
• MONO INPUT CHANNELS .....	3
• STEREO INPUT CHANNEL .....	5
• AUX SENDS .....	6
• STEREO EFX RETURNS .....	6
• METERING .....	6
• 2T RACK IN/OUT .....	7
• CONTROL ROOM/PHONES .....	7
• MAIN LEVEL .....	7
• REAR PANEL .....	8
• CONNECTIONS .....	9
• BLOCK DIAGRAMS .....	11
• SPECIFICATIONS .....	12

**Introduction**

Thank you for purchasing an LM-800 Mixer from MCLELLAND Professional. Please read these instructions carefully to ensure problem free operation and user satisfaction. The LM Series of mixers from MCLELLAND Professional are designed to offer a superior quality audio performance in an easy to use, great value package. The quality of the LM Series is such it can be used in a variety of professional applications such as studio, sound reinforcement, field recording and film/video production.

**Features :**

- 4 balanced/unbalanced mono line input
- 4 low noise, high headroom XLR mic inputs
- 4 pairs of balanced/unbalanced stereo line inputs with +4/-10 input gain/sensitivity selector
- 48V DC global phantom power
- 3- band EQs in all input channels (12kHz, 2.5kHz, 80Hz)
- 75Hz, 18dB/octave low cut filter on mono input channels
- 2 stereo EFX returns
- EFX to Main, AUX1 and AUX 2 switch
- Balanced inputs and outputs
- Peak and signal LEDs on mono channel
- Two AUX send (Pre and Post fader switch on AUX 1)
- Separate main mix, control room and headphone outputs
- 2 track inputs assignable to main mix, control room/headphone outputs
- Highly accurate 5 segment bargraph meters
- High quality 60mm faders
- 19" Rack Mounting kit included

## **Getting Started**

### **1. Power Supply**

The LM Series mixer is supplied with an external power supply unit. Only use the power supply provided with your mixer. Connect the LM Series mixer to the power supply unit and THEN connect the power supply unit to the Mains. During long periods of operation the mixer may become warm. Therefore it is important that the unit is placed where the air is able to flow freely around it. The power supply is factory set to the correct voltage and this can be checked by referring to the label on the unit. If the mixer is used in a country having a different supply voltage then a new power supply will be required and you should consult your dealer.

### **2. Packing**

Every care has been taken to ensure that your mixer reaches you in perfect condition and working order. The exterior and internal packaging has been designed to protect the unit in transit, but should you notice any damage to the unit, please notify the place of purchase immediately.

### **3. Safety**

Avoid the excessive heat, humidity, dust and vibration: Keep the unit away from locations where it is likely to be exposed to high temperature or humidity, such as near radiators, stoves, etc. Also avoid locations which are subjected to excessive dust accumulation, or to vibration that could cause mechanical damage.

**Avoid physical shocks:** Strong physical shocks to the unit may cause damage. Handle the unit with care.

**Do not open the case to attempt to repairs or modifications yourself:** This product contains no user-serviceable parts. Refer all maintenance to qualified service personnel.

**Always power off before making connections:** Always turn the AC mains OFF before connecting cables. This is important to prevent damage to the unit itself as well as other connected equipment.

## Features of the LM Series Mixer

### Mono Input Channels:

#### 1. Low Impedance (or Low Z) Mic Inputs

The low noise, high headroom Low Z mic inputs for use with balanced or low impedance microphones or low level external equipment with XLR connectors.

#### 2. Line Inputs

The features of balanced/unbalanced high impedance mono line inputs for, use with high level signals with 1/4 phone plug connectors.

#### 3. Low Cut Filter

The low cut filter can be activated by pressing this button. The slope of this filter is 18dB/oct., -3dB at 75Hz and should be used when it is necessary to eliminate or reduce background rumble, breathing noises and popping.

#### 4. Gain Control

The input level on the Mic channels is controlled by using the Gain Control to achieve the best signal to noise ratio and dynamic range. The Gain control should be used in conjunction with the Peak LED which will illuminate if the input gain is too high. The gain circuit has a wide range from -10dB to -60dB.

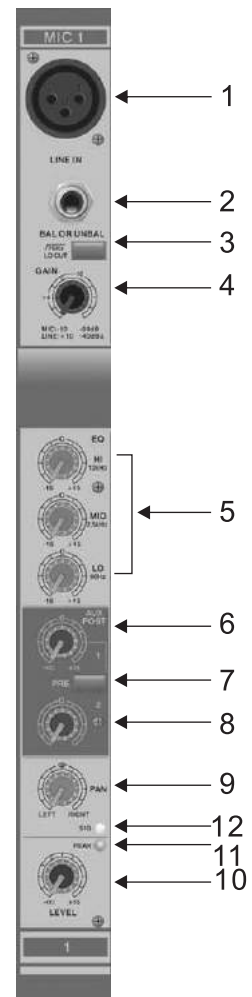
#### 5. EQ Section:

Each mono input channel feature a three band EQ section. The Hi EQ control has an upper shelf limit of 12kHz, the Mid EQ 2.5kHz and the Low EQ 80 Hz. Each control has a range of -15dB to +15dB cut and boost.

- The EQ control section should be used in conjunction with the Low Cut Filter (3) to add extra warmth or extra punch to the mix where necessary.

**AUX Section:** There are two types of auxiliary: PRE FADER and POST FADER.

A PRE FADER auxiliary occurs in the signal path before the main channel fader, and therefore the amount of signal going down the auxiliary is only affected by the auxiliary level control. Any change in the main fader level will not affect the amount of signal going down the auxiliary. This type of auxiliary is often used for a monitor mix when the levels need to be independent of the main mix.



**A POST FADER:** auxiliary occurs in the signal chain after channel fader. This type of auxiliary is normally used to send to an effects unit, such as a reverb, where the level of reverb needs to follow the level of the main fader.

6. **AUX 1 Control:** The Aux Send is mono and Post EQ. This controls the amount of signal being sent down AUX 1, and ranges from -Infinity dB to +15dB.
7. **PRE/POST Switch:** The AUX 1 could select pre or post fader for monitors, effects or separately balanced feeds for recording and broadcast. Signals being sent to an effect unit can be return to mixer via the EFX Returns found on the top panel of the mixer.
8. **AUX 2 Control:** Aux 2 is set to post fader which allows you adjust channel send level to external devices such as effect units or additional headphone/monitor system, and ranges from -Infinity dB to +15dB.

#### **Volume and Panning**

9. **PAN Control:** The Pan control adjusts the amount of channel signal sent to the left versus the right inputs. On the mono channels the controls act as true Pan pots. When working with subgroups, you can use PAN control to assign the signal to just one output, which gives you additional flexibility in recording situations.
10. **The Channel Fader:** The fader allows you to control the amount of channel signal being sent to the Left and Right Main Outputs. The amount of signal ranges should from, -infinity dB (no signal) to +15 dB (maximum signal). When in 0 dB position there is no boosting or cutting of the signal coming down the channel, and this give the optimum signal to noise ratio. To get best results it is important to set the Input gain level correctly.
11. **Peak LED:** The PEAK LED lights up when the input signal is driven too high.
12. **Signal Present LED:** The LED will light when the channel signal exceeds -20dBu.

### Stereo Input Channel

The LM-800 stereo channel features two unbalanced line level, inputs with 1/4" jacks for left and right signals. These inputs can be used as both Stereo and Mono inputs. When using them with a mono source then the left input should be used. The stereo input channels are designed for use with any line level sources such as CD players and EFX units. Each stereo input channel features a three band EQ section, the Hi EQ control has an upper shelf limit of 12kHz, the Mid EQ 2.5kHz and the Low EQ 80Hz. The AUX sends are the same as for mono channels.

**15. Stereo Input:** Left and Right Input sockets.

**16. Left (Mono) Input:** When the left input is connected only, then the Channel operates in mono.

**17. The Level button:** This button lets you choose between the two standard operating level -10dBV and +4dBu. It is important to check the, incoming device s operating level and choose the appropriate level on The channel Input.



## Master Section

### AUX sends

- 18. AUX 1 & 2 Control: The AUX1,2 master VR provide over all level control of AUX send.
- 19. AUX Send Jacks: These unbalanced 1/4 jacks are AUX1 and AUX 2 outputs.

### Stereo EFX Returns

#### 20. EFX Return Jacks

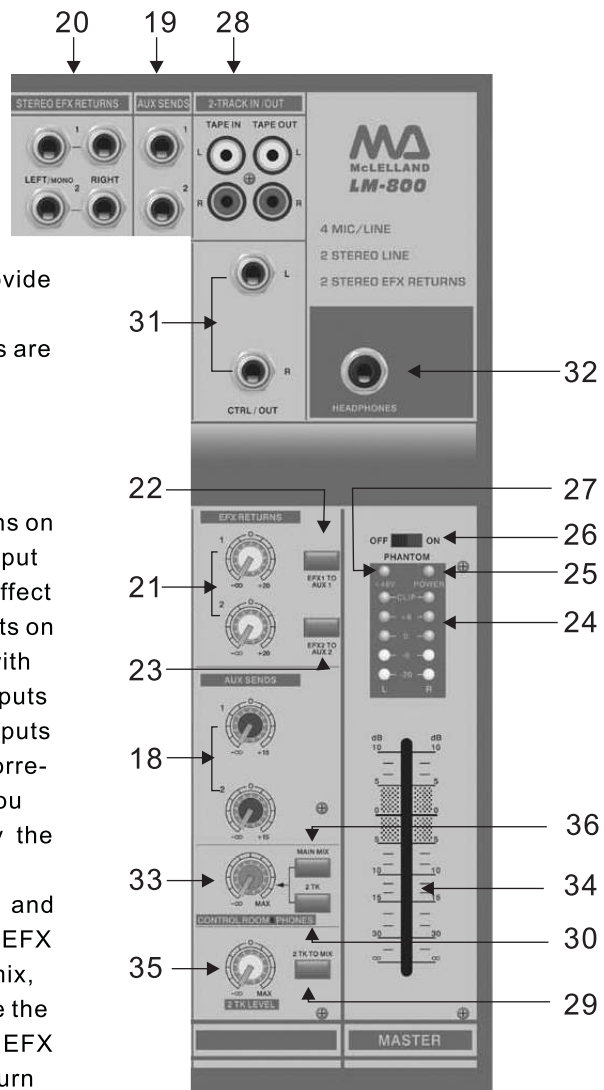
There are two additional Stereo AUX returns on the LM800. The EFX Return act as mini Input Channels and are used to bring signals from Effect Unit back to the mixer via the EFX Return inputs on the top panel. When using an Effect Unit with stereo outputs the left and right EFX Return inputs can be used to keep the stereo effect. The outputs of the Effect Unit should be plugged into the corresponding left and right EFX Return inputs. If you wish to use an EFX Return in MONO then only the left inputs should be used. This mono signal is then switched to be sent equally to the left and right Main outputs. Both EFX Return 1 and EFX Return 2 signal are assigned to the Main mix, press the EFX TO AUX1 (22) button can route the EFX Return 1 signal to the AUX 1 bus. Press EFX to AUX2 (23) button can route the EFX Return 2 signal to the AUX 2 output.

- 21. The EFX Returns levels are operated by these controls.
- 22. EFX to AUX button. (EFX Return 1)
- 23. EFX to AUX 2. (EFX Return 2)

### Metering

#### 24. Level Meter

The level of the Main Mix. Input Gain into a channel. If the signal levels are too high, distortion may result, and if they are too low then unwanted noise will present.





- 25. Power ON LED:** This LED is illuminated when Power is ON.
- 26. Phantom Power switch:** Press this switch applies 48 volt phantom power to all the microphone inputs. Phantom power should be turned off when not required, and must never be used with an unbalanced microphone. Do not operate this switch with the fader up, as a loud click will result.
- 27. Phantom Power LED:** When this LED is illuminated it indicates that the +48 V DC Phantom Power is present.

## **2Track In/Out**

- 28. 2 Track Input:** The two track input section has RCA jack inputs to enable easy connection to a DAT tape devices, or a cassette and other audio equipment. This is used primarily for listening to mix playback from a tape for example.
- 29. 2 TK to MIX:** Press this button allows you to monitor the output from the two track tape machine connected to the Stereo 2 Track inputs. The signal from the tape is fed in to the Main mix.
- 30. 2 TK to CONTROL ROOM AND PHONES:** Press this button allows you to monitor the output from the two track tape machine connected to the Stereo 2 Track inputs. The signal from the tape is fed in to the

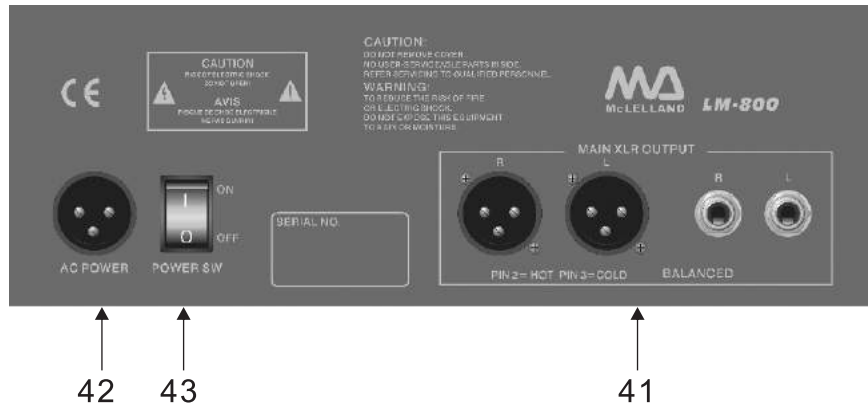
## **CONTROL ROOM and PHONES.**

### **Control Room/Phones**

- 31. Control Room Output Jacks:** The control room output is normally connected to the monitoring system in the control room and carries the stereo MAIN mix or, when selected, the SOLO signals.
- 32. Headphones:** This is unbalanced on a 1/4" stereo jack. Cables connected to this output should be wired with **TIP** left signal, **RING** right signal, and **SLEEVE** to ground. Use only stereo headphones! Use mono headphones may cause damage!
- 33. Control Room Level control:** This knob controls the levels of both the stereo control room and phones outputs.

## **Main and Level**

- 34. Main Mix Faders:** These control the overall level of any signals which have been sent to the stereo left and right outputs on the back section.
- 35. 2TK LEVELS CONTROL :**  
This controls the amount of signal being sent down 2TK and ranges from -Infinity MAX.
- 36. MAIN MIX switch:** Press these buttons allow you to monitor the signal from the Main Mix.

**Rear Panel LM-800**

**41. Main XLR Outputs:** Balanced XLR will be wired pin 1 ground/ pin 2 hot (positive), pin 3 cold (negative).

**42. AC Power Cable Connector**

**43. Power Switch - On/Off**

## Connections

The LM series use 3 different types of connectors: 3 pin XLR, 1/4" jacks, and phone plugs. Some of these are balanced, some unbalanced, some are stereo and some have dual functions. These connectors are used in various ways as shown in the following.

### Microphone Inputs, Main Mix Outputs

These are balanced on female XLR connectors and connected as shown. Cables connected to any microphone sockets should be wired with pin 1 ground, pin 2 hot(+ve) and pin 3 to cold(-ve). Use high quality shield pair cable or multicore with individually shield pairs.

### Line Inputs

These are balanced on 1/4" stereo type (TRS) jacks. Cable connected to any of these should use a stereo jack wired with TIP hot(+ve), RING cold(-ve) and SLEEVE to ground.

### Auxiliary send, EFX return and Control Room Outputs

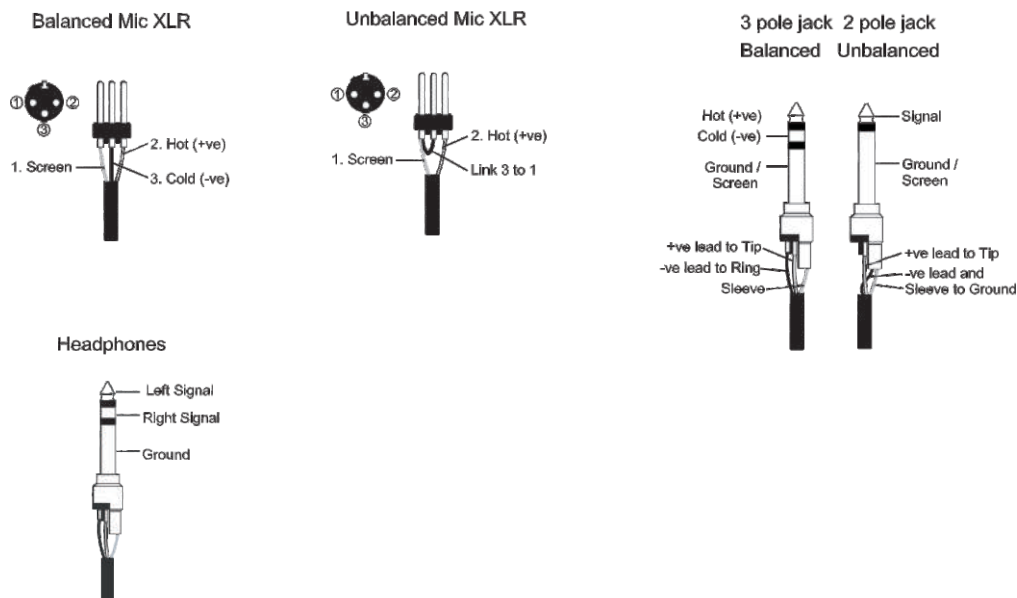
These are unbalanced on 1/4" jack. Cables connected to these inputs should use a mono jack wired with TIP signal and SLEEVE to ground.

### Stereo 2 Track Inputs and Outputs

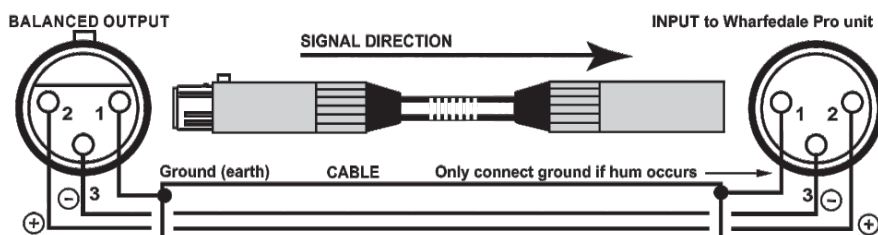
These are unbalanced on mono plugs. Cables connected to these should be wired PIN signal, and SLEEVE to ground.

### Headphone Output

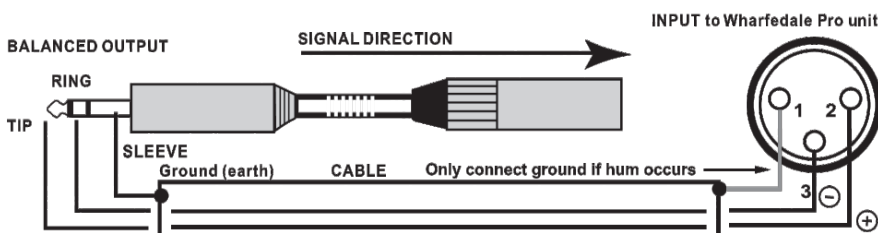
This is unbalanced on a 1/4" stereo jack. Cables connected to this output should be wired with TIP left signal, RING right signal, and SLEEVE to ground



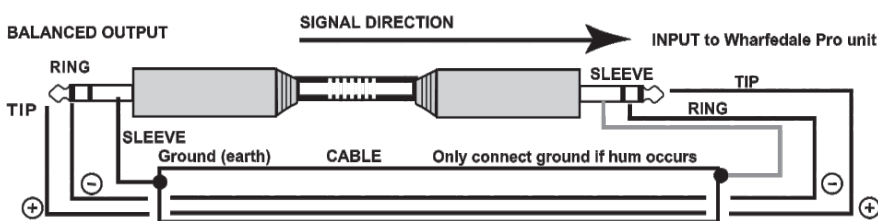
## BALANCED INPUT WIRING TO WHARFEDALE PRO UNIT WITH XLR CONNECTORS



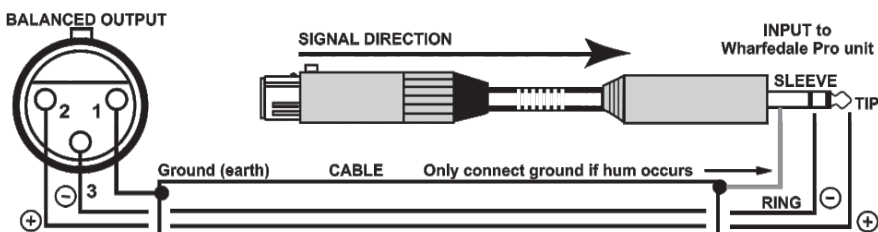
## BALANCED INPUT WIRING TO WHARFEDALE PRO UNIT WITH 1/4" JACK to XLR CONNECTORS



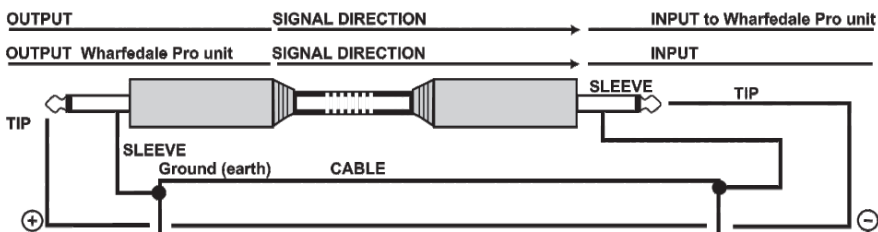
## BALANCED INPUT WIRING TO WHARFEDALE PRO UNIT WITH STEREO 1/4" JACK to XLR CONNECTORS



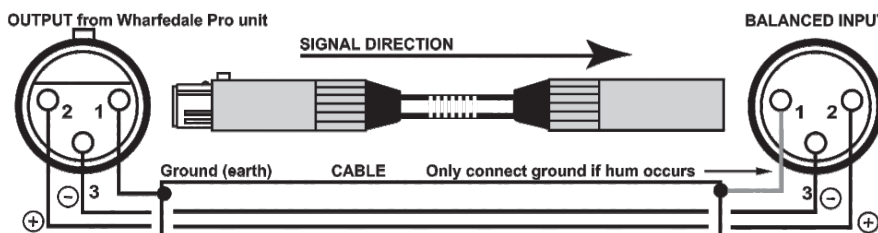
## BALANCED INPUT WIRING TO WHARFEDALE PRO UNIT WITH XLR CONNECTORS to STEREO 1/4" JACK



## UNBALANCED INPUT AND OUTPUT WIRING WITH MONO 1/4" JACK CONNECTIONS



## BALANCED OUTPUT WIRING FROM WHARFEDALE PRO UNIT WITH XLR CONNECTORS TO BALANCED UNIT



A great deal of mistakes in sound installations can be down to wrongly wired audio connections. It is important that the connections are correct to suit your system.

An unbalanced audio system cable is typically a single conductor shielded with the centre conductor relaying the signal and the shield at ground.

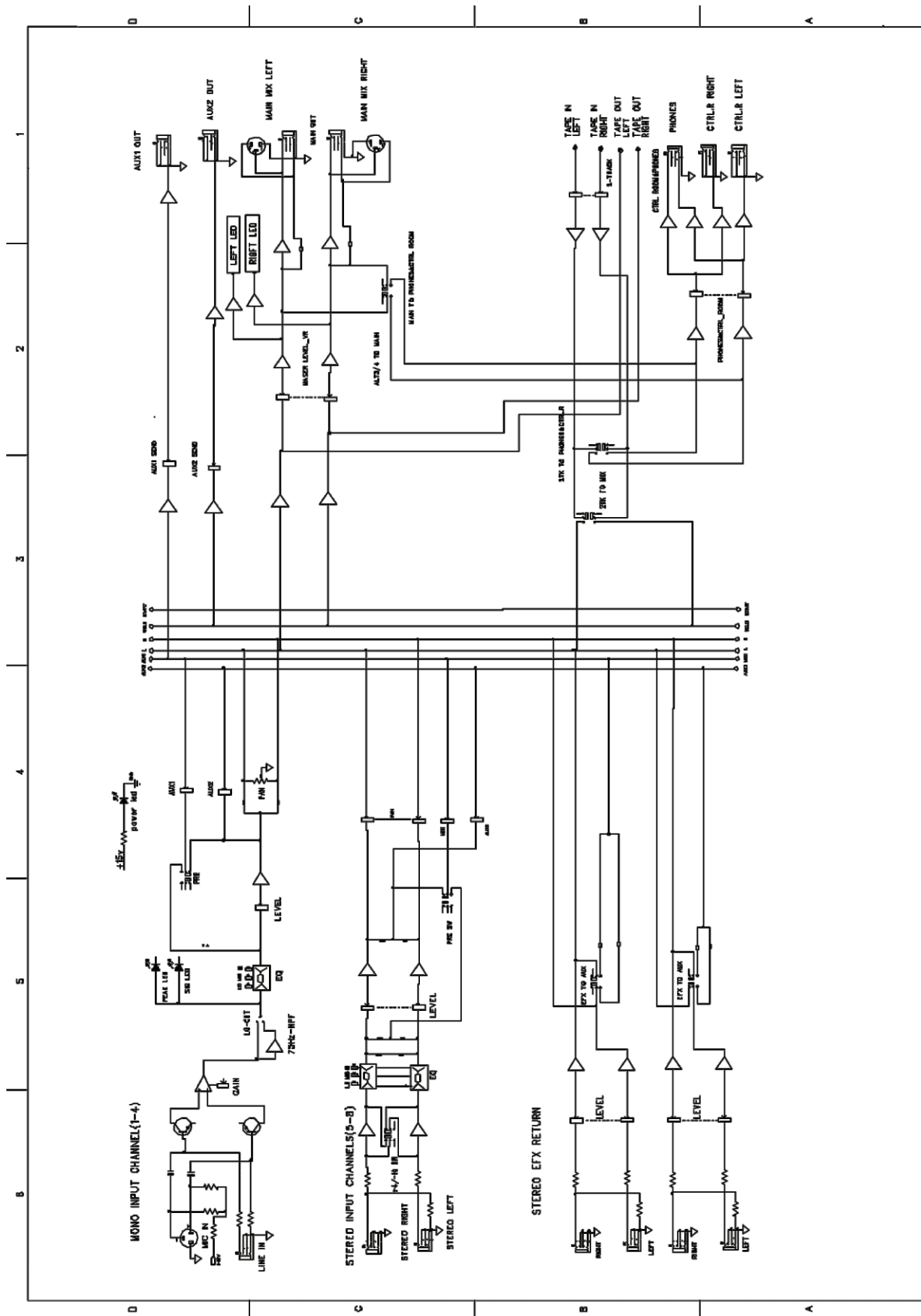
Using a balanced audio system is where a two conductor shielded cable has each of the two center conductors carrying the signal but of opposite phase. This gives each conductor an equal but inverted potential difference from that of the ground. It is recommended that you use a balanced microphone to the mixer. This will eliminate interference such as mains hum. If a non balanced microphone is used do not use this microphone at the same time as a microphone requiring phantom power 'on' as this could cause damage to the non balanced microphone.

For the best results whilst using balanced line level inputs, common grounding should be avoided. This means not connecting the ground on both the mixer input and output connectors. McLELLAND Pro advise that you connect the ground (shield) of the input connecting cable to the ground of the signal source while making sure the ground (shield) is not connected to the mixer's input connector. The output cable connector from the mixer when connecting to another balanced unit input should have the ground (shield) connected. This is the process by which the ground (shield) is connected (tied) at the source unit but is not connected to the destination unit. If hum develops in some instances the ground (shield) can be connected on the input. Some manufacturers have units that recommend that the input connector ground (shield) is tied and the output disconnected. In this instance you may need to connect the input connector ground (shield) going to the input of the mixer.

If an unbalanced system is used with XLR connections please connect pin 3 to pin 1 (ground) of the connector. This will mean that pin 2 transports the positive (+ / hot) signal. If pin 1 and 3 are not connected this results in the negative (- / cold) input being 'open'. This will give an audible degradation of the signal to noise ratio. This would relate to both the input and output connectors and involve the cable ground (shield) connected at both.

Please note that some manufacturers run their units with pin 2 (- / cold) and pin 3 (+ / hot). This should be looked out for and then the wiring could be modified with labeled cables so that connections of + / hot go to their corresponding + / hot etc. Some manufacturers run their unit with balanced inputs and unbalanced outputs, therefore care should be taken with the connections when inserted into the system.

**LM-800 BLOCK DIAGRAM**



**SPECIFICATIONS - LM-800**

Maximum Output Level (0.5% T.H.D at 1kHz)	+22dB(MIX L/ R)@ 600 ohm +22dB(AUX SEND1~2) @600 ohm +22dB(INSERT) @40 k ohm +22dB(CTRL ROOM) @600 ohm Over 100mW(Headphone) @ 32ohm
Total Harmonic Distortion	0.0025% @+14dB 20Hz~20kHz (MIX L/ R, AUX SEND1~2, CTRL ROOM) @600 ohm
Frequency Response	20Hz~ 20kHz, +0/-1dB (MIX L/ R, AUX SEND1~2, CTRL ROOM) @600 ohm
Hum and Noise (Average, Rs=150 )	-127dB equivalent input noise - 95dB residual noise(MIX L/ R, AUX SEND1~2, CTRL ROOM) -90dB(MIX L/ R, AUX SEND1~2, CTRL ROOM) * Master fader at nominal level and all channel assign switch OFF.
Maximum Voltage Gain	72dB MIC IN TO AUX 1 72dB MIC IN TO AUX 2(POST), EFX 74dB MIC IN TO CONTROL ROOM L/ R 72dB MIC IN TO REC L/ R 58dB LINE IN TO AUX 1 58dB LINE IN TO AUX 2(POST), 60dB LINE IN TO CONTROL ROOM L/ R 20dB AUX RETURN IN TO MIX L/ R 16dB TAPE IN TO MIX L/ R
Maximum Levels	Mic in: +4dBu Tape in: +13dBu All other inputs: +25dBu
Interference(Crosstalk) at 1kHz	Main fader down: -85dBu Channel Alt/Mute switch engaged: -80dBu Channel fader down: -70dBu
Mono input channel gain	50dB variable(-60dB ~ -10dB), (-40dB ~ +10dB)
Input channel EQ	HIGH: (+/-15dB) 12kHz shelving MID: (+/-15dB) 2.5kHz shelving LOW: (+/-15dB) 80Hz shelving * Turnover/ rollover frequency: located 3dB below the point of maximum amplification and attenuation
Level meter	5 - Segment LED X 2(output of +4dB at 0dB) Main L/R
Peak indicator	Input channel: turns on 3dB under pre-fader signal clip
Phantom power	+48V DC
Power/ power consumption	AC 100V/ 120V/ 230/ 240V, 50/60Hz
Weights	4.5kg
Dimensions(mm)	251.8X298X88

<b>Input Connector</b>	<b>Input Impedance</b>	<b>Regular Impedance</b>	<b>Regular Input Level</b>	<b>Connector Type</b>
Channel Mic	3k ohm	50~600 ohm	-60dB	XLR 3-31 Type Balanced
Channel Line	10k ohm	600 ohm	-30dB	Phone Jack (TRS) T = Hot R = Cold S = GND
Stereo Input	10k ohm	600 ohm	-20dB	Unbalanced Phone Jack
Aux Return 1~2	10k ohm	600 ohm	+4dB	Unbalanced Phone Jack
Tape In	10k ohm	600 ohm	-10dBV	RCA pin Jack

<b>Output Connector</b>	<b>Output Impedance</b>	<b>Regular Impedance</b>	<b>Rated Output Level</b>	<b>Connector Type</b>
MIX Out L/R	120 ohm	600 ohm	+4dB	XLR Type
CTRL Room Output	100 ohm	600 ohm	+4dB	Unbalanced Phone Jack
Aux Send 1~ 2	100 ohm	600 ohm	+4dB	Unbalanced Phone Jack
Rec Output	600 ohm	10k ohm	-10dBV	RCA pin Jack
Headphone Output	100 ohm	32 ohm	45 mW	Stereo Phone Jack