

User's Manual

L-8

8-CHANNEL MIXING CONSOLE WITH DIGITAL EFFECTS



www.altoproaudio.com

Version 1.0 August 2003

— English —

SAFETY RELATED SYMBOLS



This symbol, wherever used, alerts you to the presence of un-insulated and dangerous voltages within the product enclosure. These are voltages that may be sufficient to constitute the risk of electric shock or death.



This symbol, wherever used, alerts you to important operating and maintenance instructions. Please read.



Protective Ground Terminal



AC mains (Alternating Current)



Hazardous Live Terminal

ON: Denotes the product is turned on.

OFF: Denotes the product is turned off.

WARNING

Describes precautions that should be observed to prevent the possibility of death or injury to the user.

CAUTION

Describes precautions that should be observed to prevent damage to the product.

WARNING

• Power Supply

Ensure that the mains source voltage (AC outlet) matches the voltage rating of the product. Failure to do so could result in damage to the product and possibly the user.

Unplug the product before electrical storms occur and when unused for long periods of time to reduce the risk of electric shock or fire.

• External Connection

Always use proper ready-made insulated mains cabling (power cord). Failure to do so could result in shock/death or fire. If in doubt, seek advice from a registered electrician.

• Do Not Remove Any Covers

Within the product are areas where high voltages may present. To reduce the risk of electric shock do not remove any covers unless the AC mains power cord is removed.

Covers should be removed by qualified service personnel only.

No user serviceable parts inside.

• Fuse

To prevent fire and damage to the product, use only

the recommended fuse type as indicated in this manual. Do not short-circuit the fuse holder. Before replacing the fuse, make sure that the product is OFF and disconnected from the AC outlet.

• Protective Ground

Before turning the product ON, make sure that it is connected to Ground. This is to prevent the risk of electric shock.

Never cut internal or external Ground wires. Likewise, never remove Ground wiring from the Protective Ground Terminal.

• Operating Conditions

Always install in accordance with the manufacturer's instructions.

To avoid the risk of electric shock and damage, do not subject this product to any liquid/rain or moisture. Do not use this product when in close proximity to water.

Do not install this product near any direct heat source.

Do not block areas of ventilation. Failure to do so could result in fire.

Keep product away from naked flames.

IMPORTANT SAFETY INSTRUCTIONS

Read these instructions

Follow all instructions

Keep these instructions. Do not discard.

Heed all warnings.

Only use attachments/accessories specified by the manufacturer.

• Power Cord and Plug

Do not tamper with the power cord or plug. These are designed for your safety.

Do not remove Ground connections!

If the plug does not fit your AC outlet seek advice from a qualified electrician.

Protect the power cord and plug from any physical stress to avoid risk of electric shock.

Do not place heavy objects on the power cord. This could cause electric shock or fire.

• Cleaning

When required, either blow off dust from the product or use a dry cloth.

Do not use any solvents such as Benzol or Alcohol. For safety, keep product clean and free from dust.

• Servicing

Refer all servicing to qualified service personnel only.

Do not perform any servicing other than those instructions contained within the User's Manual.

PREFACE

Dear Customer:

Thanks for choosing ▲LTO L-8 8-Channel Mixing Console With Digital Effects and thanks for choosing one of the results of ▲LTO AUDIO TEAM's work and researches.

For our ▲LTO AUDIO TEAM, music and sound more than a job... are first of all passion and let us say... our obsession!

We have been designing professional audio products for a long time in cooperation with some of the major brands in the world in the audio field.

The ▲LTO line presents unparalleled analogue and digital products made by Musicians for Musicians in our R&D centers in Italy, Netherlands, United Kingdom and a large range of state of the art algorithms which have been developed by our Software Team for the last 7 years.

Because we are convinced you are the most important member of ▲LTO AUDIO TEAM and the one confirming the quality of our job, we like to share with you our work and our dreams paying attention to your suggestions and your comments. Following this idea we create our products and we will create the new ones! From our side, we guarantee you and we will guarantee you also in future the best quality, the best fruits of our continuous researches and the best prices.

Our ▲LTO L-8 8-Channel Mixing Console with Digital Effects has 4 mono (these are provided with Ultra Low Noise microphone preamplifiers and Phantom Power at +48 Volt) and 2 stereo input channels, and each of them is provided with a 3 bands graphic equaliser for HI, MID and LOW controls. It is specifically designed for professional appliance.

To our surprise, it provides 24 bits digital stereo effect processor with 256 presets and small and exquisite modeling. Seeing is believing, let's meet the ▲LTO L-8.

Nothing else to add, but we would like to thank all the people that made the ▲LTO L-8 8-Channel Mixing Console with Digital Effects a reality available to our customers, and thank our designers and all the ▲LTO staff, people who make possible the realization of products containing our idea of music and sound and are ready to support you, our customers, in the best way, conscious that you are our most important member.

Thank you very much
▲LTO AUDIO TEAM

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1. INTRODUCTION

Thank you very much for expressing your confidence in ▲LTO products by purchasing ▲LTO L-8 8 Channel Mixing Console with Digital Effects. The L-8 8 Channel Mixing Console with Digital Effects is a professional compact mixer. You will get the smooth, accurate more natural and open sound from this apparatus, and it is really ideal for small gigs, recording and fixed PA installations.

The L-8 8 Channel Mixing Console with Digital Effects is packed with feature that can not be found in other consoles of its size: 4 mono (these are provided with Ultra Low Noise microphone preamplifiers and Phantom Power at +48 Volt) and 2 stereo input channels, and each of them is provided with a 3 bands graphic equaliser for HI, MID and LOW controls; 24 bit effects processor; 256 effects (16 presets × 16 variations); 2 AUX sends with separate level control on each channel; highly accurate 12-segment bar graph meters and ultra low noise discrete MIC pre-amps with +48V Phantom power and 2-Track inputs assignable to main mix, control room / headphone outputs.

Your L-8 is very easy to operate but we advise you to go through each Section of this Manual carefully. In this way you will get the best out of your L-8.

2. FEATURES

The L-8 8 Channel Mixing Console with Digital Effects is designed for professional appliance. It will provide the following features:

- 5 MIC input channels with gold plated XLRs and balanced LINE input
- 2 stereo input channels with balanced TRS jacks
- Ultra-low noise discrete MIC pre-amps with +48V Phantom power
- Extremely high headroom offering more dynamic range
- Balanced inputs for highest signal integrity
- Warm, natural 3-band EQ on each channel
- 24 bit digital effects processor
- 256 effects (16 presets × 16 variations)
- Effect on/off by means of MUTE switch or a footswitch connected to the DFX FOOTSWITCH
- Switch-able Low-cut filter on each mono channel
- Peak LED on each channel
- AUX send 2 switch-able to PRE/POST fader
- AUX send 1/2 per channel for external effects and monitoring
- Control room and headphone outputs
- 2-Track inputs assignable to main mix, control room / headphone outputs
- Highly accurate 12-segment bar graph meters
- Inserts on MIC channels

3. READY TO START?

- 3.1 Please check the AC Voltage available in your Country before connecting your L-8 to the AC socket.
- 3.2 Be sure that the main power switch is turned off before connecting the Mixer to the AC socket. Also, you should make sure that all Input and Output Controls are turned down. This will avoid damages to your speakers and avoid excessive noise.
- 3.3 Before turning on the L-8 you shall connect it to a power amplifier and turn-on the mixer BEFORE the power amplifier. Once you have finished your working session you shall turn the mixer off AFTER the power amplifier.
- 3.4 Before disconnecting the L-8 always turn-off the Power switch.
- 3.5 Do not use solvents to clean your L-8. A dry and clean cloth will be OK.

4. CONTROL ELEMENTS

MIC 1 **MIC 2** **MIC 3** **MIC 4**

STEREO AUX RETURN
LEFT(MONO) 1 RIGHT
2

AUX SEND
1
2

2-TRACK IN/OUT
L
R
TAPES IN TAPES OUT

LINE IN 1 **LINE IN 2** **LINE IN 3** **LINE IN 4**

TRIM

+15dB -45dB LINE
0dB 60dB MIC

LOW CUT
75Hz 18dB/Oct

DFX FOOTSWITCH

LINE IN 5/6 **LINE IN 7/8**

LEFT (MONO) RIGHT

PHONES

ALTO® L-8
8-CHANNEL MIXING CONSOLE
WITH DIGITAL EFFECTS

EQ HI 12kHz MID 2.5kHz LOW 80Hz

AUX PRE POST (PRE) 2/D/F/X

PAN LEFT RIGHT

BAL LEFT RIGHT

LEVEL PEAK

PRESETS

- VOCAL 1
- VOCAL 2
- LARGE HALL
- SMALL HALL
- LARGE ROOM
- SMALL ROOM
- PLATE
- TAPE REVERB
- SPRING REVERB
- MONO DELAY
- STEREO DELAY
- FLANGER
- CHORUS
- REVERB + DELAY
- REVERB + FLANGER
- REVERB + CHORUS

VARIATIONS DFX MUTE PEAK

AUX2/DFX TO AUX 1

AUX RTN 1

AUX RTN 2 (DFX)

PHONES / CONTROL ROOM

POWER **PHANTOM**

L CLIP R

10 7 4 2 0 -2 -4 -7 -10 -20 -30

OUTPUT LEVEL

2TK TO MIX **2TK TO CTRL ROOM**

MAIN MIX LEVEL

1 **2** **3** **4** **5/6** **7/8**

4.1 The mono MIC/LINE channels 1

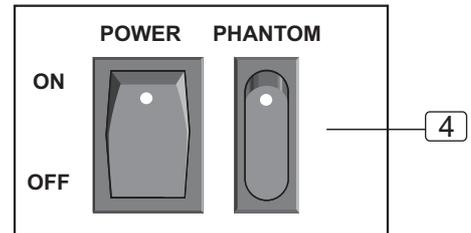
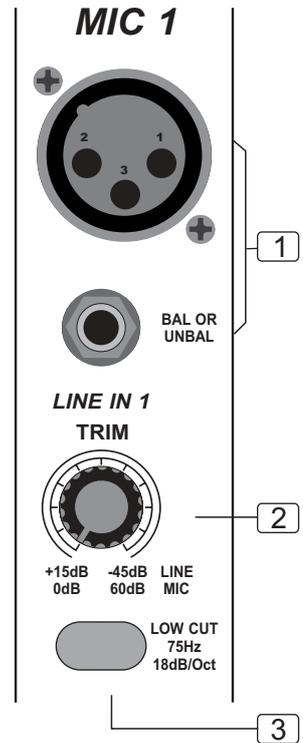
These are Channel 1 through Channel 4. You can connect balanced, low impedance microphones to the XLR socket. On the 1/4" phone jack you can connect either a microphone or a line level instrument. You shall never connect an unbalanced microphone to the XLR socket if you do not want to damage both the Microphone and the Mixer.

48 Volt phantom power 4

It is available only to the XLR Mic sockets. Never plug in a microphone when phantom power is already on. Before turning phantom power on, make sure that all faders are all the way down. In this way you will protect your Stage Monitors and Main Loudspeakers.

4.2 INPUT LEVEL setting 2

This Control is provided with 2 different indication rings: One is for the Microphone and the other for the Line levels. When you use a microphone you shall read the OUTSIDE ring (0-60 dB), When you use a Line level instrument you shall read the INSIDE ring (+15~-45 dB). For optimum operation you shall set this control in a way that the peak LED will blink also occasionally in order to avoid distortion on the input channel.



4.3 LOW-CUT FILTER 3

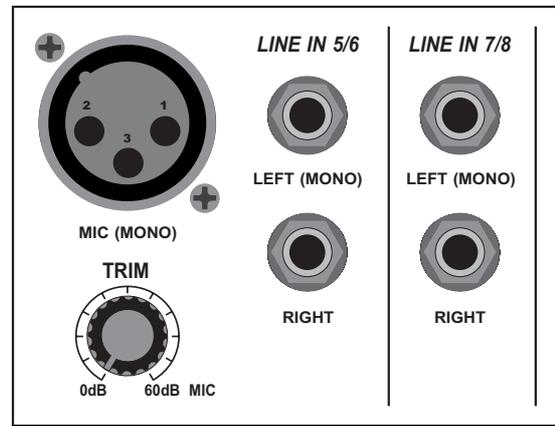
By pressing this button you will activate a 75 Hz low frequency filter with a slope of 18 dB per octave. You can use this function to reduce hum and stage rumble when using microphones.

4.4 STEREO INPUTS

5

These are Channel 5 through 8. They are organised in stereo pair and they are provided with 1/4" TRS phone sockets.

If you connect only the left jack, the input will operate in mono mode.



4.5 The 3 BANDS EQUALISER

A 3-band equaliser is provided for all input channels with a wide range of frequency adjustment.

4.5.1 HI

6

This is the Treble control. You can use it to get rid of high frequency noises or to boost the sound of cymbals or the high harmonics of the human voice. The gain range goes from -15dB to +15dB with a center frequency of 12 kHz.

4.5.2 MID

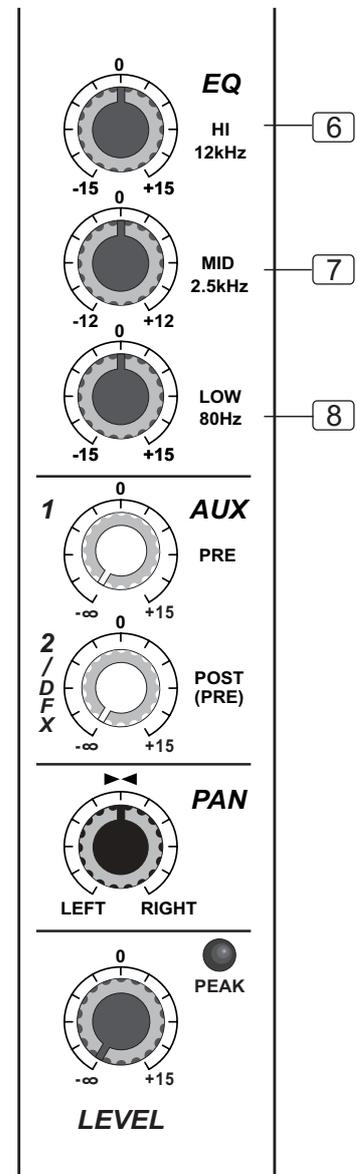
7

This is the Midrange control. It can affect most fundamental frequencies of all musical instruments and human voice. An attentive use of this control will give you any very wide panorama of sound effects. The gain range goes from -12dB to +12dB and the center frequency is 2.5 kHz.

4.5.3 LOW

8

This is the Bass control. Boost male voice or kickdrum and bass guitar. Your system will sound much bigger than what it is. The gain range goes from -15dB to +15dB and the center frequency is 80 Hz.



4.6 AUX SEND 9

These two controls are used to adjust the level of the signal sent to AUX buses, and their adjustable range goes from $-\infty$ to +15dB.

AUX1 is configured as PRE-FADER, so, generally, it can be used for monitor application.

While AUX2 is configured as POST-FADER, therefore, most of the times, it will be used for effects and processors input, however, you can also changed it to PRE-FADER configuration according to the specific application. (For more detail, please see chapter 6.)

In this typical compact unit, excluding sending out directly to the external effect or processor equipment, AUX SEND2 will also be sent to the internal onboard effect module.

4.7 PAN 10

This is the PANORAMA control, or balance control. You can adjust the stereo image of the signal via this Control. Keep this control in center position and your signal will be positioned in the middle of stage. Turn this control fully counterclockwise and the signal will be present only on the left speaker and vice-versa. Of course a wide number of intermediate positions is available.

4.8 PEAK 11

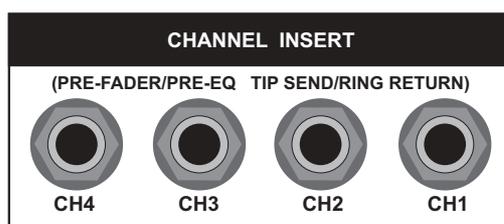
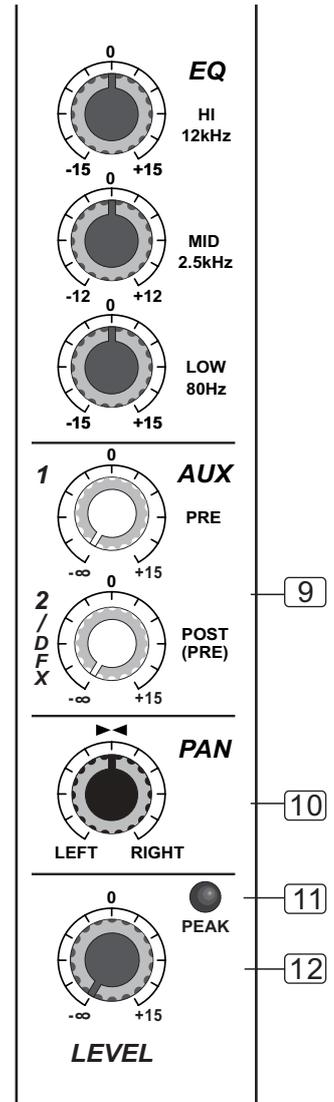
Inside your L-8 the audio signal is monitored in several different stages and then sent to the PEAK Led. When this Led blinks, it warns you that you are reaching signal saturation and possible distortion. The PEAK Led will blink with a level that is 6dB before actual clipping.

4.9 LEVEL 12

This Control will adjust the overall level of this channel and set the amount of signal sent to the Main output.

4.10 INSERT 13

Insert points are provided for the Mono Mic Channels. When you insert a jack in the insert socket, the signal will be taken out after the Input Gain Control (Trim), sent to an external processor such a compressor-limiter, and returned into the channel strip immediately before the EQ section. Of course, the jacks used must be stereo (Tip Send/ Ring Return).



13

4.11 MASTER SECTION

- MAIN MIX LEVEL 14

This Control sets the amount of signal sent either to the Main Out socket or to the Tape Output.

- LED METER 15

This stereo 12 segments Led Meter will indicate the level of the overall output signal.

- 2 TRACK signal path 16

If you push down the 2TK TO CONTROL ROOM button, the 2 TRACK IN signal will be routed into the Control Room output and the level will be adjusted by the Control Room knob nearby the Main MIX LEVEL knob.

If you push the 2TR TO MIX button the 2 TRACK IN signal will be routed into the MAIN output and will be adjusted by the MAIN MIX LEVEL knob.

- AUX RETURN 17

As implied in the name, the Auxiliary Returns are used to 'return' the signal from the external effects or processors to the main mix, but, most of the times, it can also be worked as the additional stereo line inputs.

In this typical compact unit:

AUX RETURN1 is configured to be assigned to the main mix bus permanently, for mono application, only use the left input jack.

But for AUX RETURN2, instead of assigning the returned signal to main mix bus, it can also to AUX1 bus, and in this case, adjust AUX2/DFX TO AUX1 knob (18) to control the input level.

Normally, AUX RETURN2 is connected rightly with the output of the internal digital effects, but, this signal flow will be broken, if you have any external signal inserted from these two jacks.

- POWER LED 19

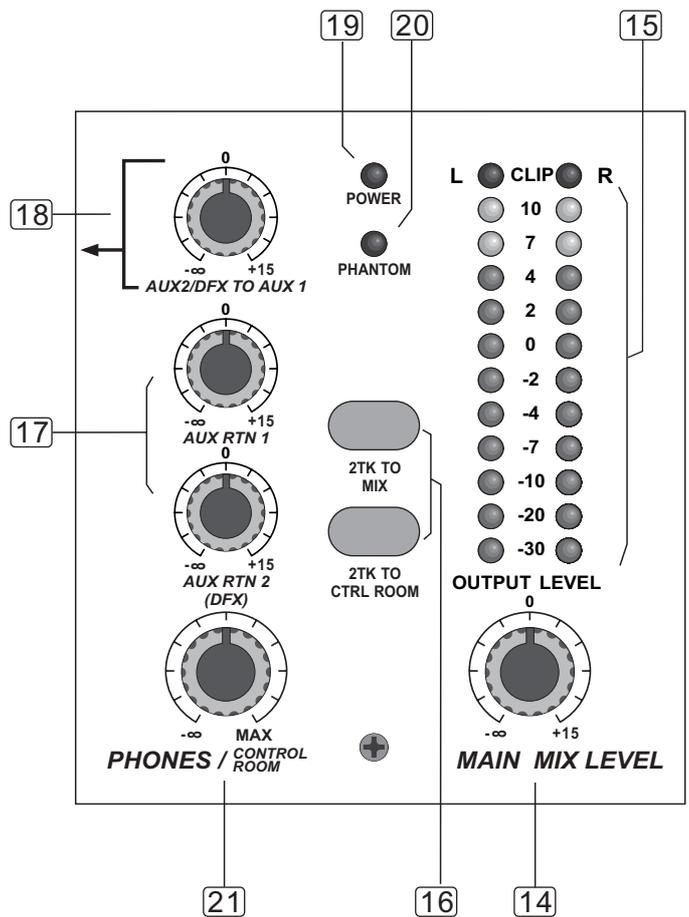
This LED indicates when the Power is on in your L-8.

- PHANTOM LED 20

This LED indicates when the Phantom Power is switched on.

- PHONES/CONTROL ROOM 21

This Control sets the amount of signal sent to the Control Room and headphone.



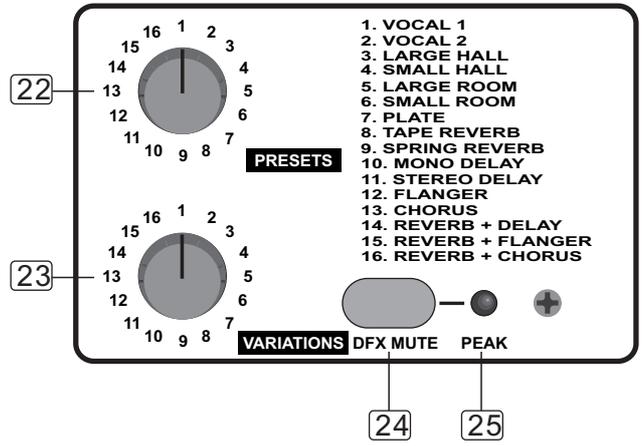
- 24 BIT DIGITAL EFFECTS

PRESETS 22

Adjust this knob to select the right effect you wish to perform. There are total 16 options for you: several kinds of reverb, mono and stereo delay, effects with modulation, and versatile two-effect combination.

VARIATIONS 23

Since you have selected the preferable effect, the next step, please go with the fine consideration, there are also total 16 variations for each preset, Each variation may be managed by several different factors.



MUTE SWITCH 24

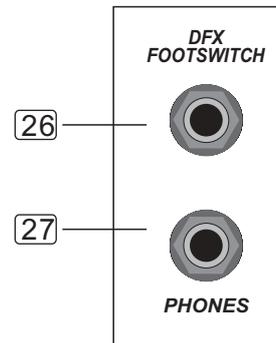
This switch is used to activate/deactivate the effect facility. Sometimes, you can also use the DFX FOOTSWITCH for convenient operation.

PEAK LED 25

This LED lights up when the input signal is too strong. In case of the digital effect module being muted, this LED also lights up.

- DFX FOOTSWITCH 26

This 1/4" phone jack can be used to connect an external footswitch to turn on/off the onboard effect module.



- PHONES 27

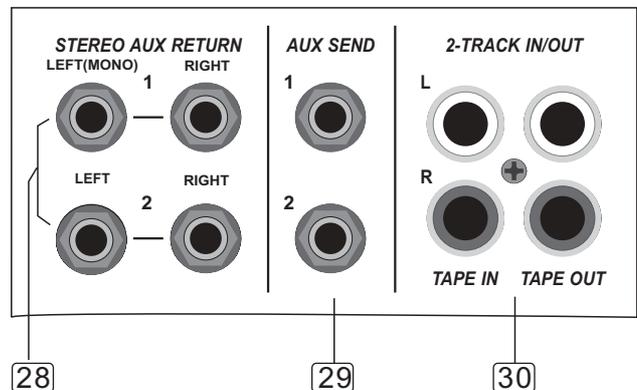
This socket will send out the mix signal to a pair of headphones.

- STEREO AUX RETURN 28

Use these stereo 1/4" phone socket to return the sound of an effect unit or sound processor to the Main Mix. Alternatively you can use them as an extra auxiliary input.

- AUX SEND 29

These 1/4" phone sockets are used to send out the signal from the AUX Bus to external devices such as effects and sound processors.



- 2-TRACK IN/OUT 30

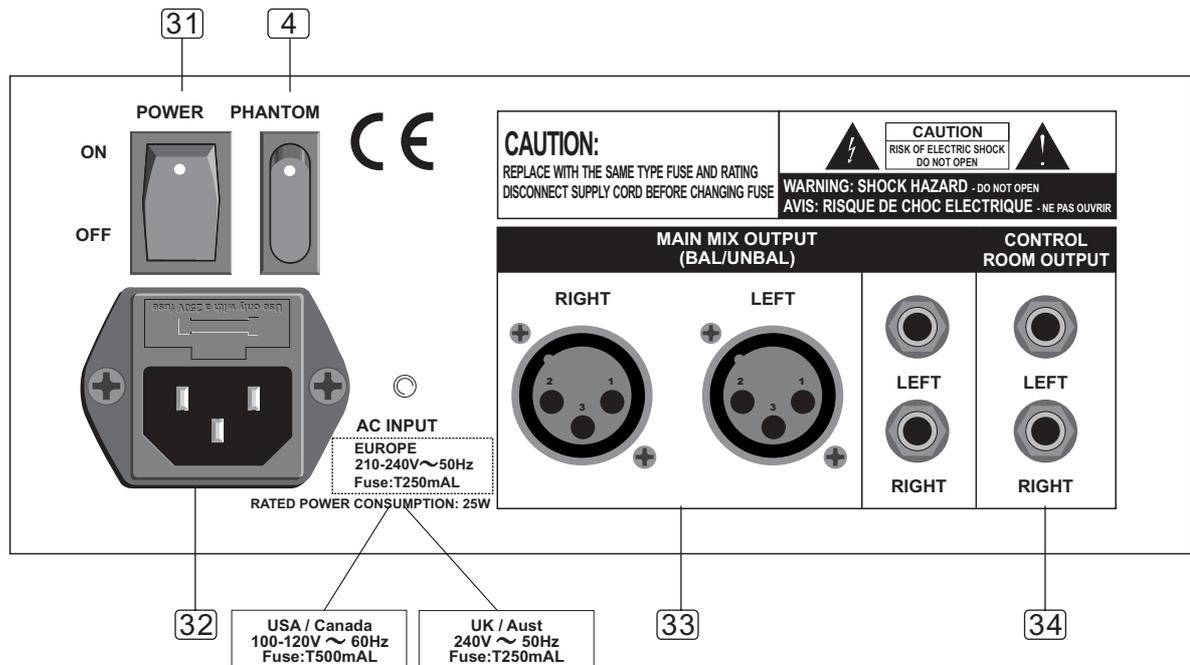
Input

Use the Tape input if you wish to listen to your Mix from a Taper Recorder or DAT, you can assign the signal coming from the Taper Recorder either to a pair of studio monitor using the Control Room assignment on the front panel or directly to the Main Mix.

Output

These RCA jacks will route the main mix into a tape recorder.

4.12 REAR PANEL DESCRIPTION



- POWER ON/OFF switch 31

This switch is used to turn the Main Power ON and OFF.

- PHANTOM ON/OFF switch 4

This switch will apply +48 Volt Phantom Power only to the 5 XLR microphone inputs. Never connect microphones when the Phantom Power is on already.

- AC INLET WITH FUSE HOLDER 32

Use it to connect your L-8 to the Main AC with the supplied AC cord. Please check the Voltage available in your Country and make sure the Voltage for your L-8 before attempting to connect your L-8 to the Main AC.

- MAIN MIX OUTPUT 33

This stereo output is supplied both with XLR and 1/4" jack socket and it is controlled by the Main Mix Level on the front panel. It will send the audio signal to an amplifier. The output level can be varied from $-\infty$ to +15dB.

- CONTROL ROOM OUTPUT 34

These 1/4" phone sockets will be used to send the signal to Studio Monitor speakers or to a second set of PA.

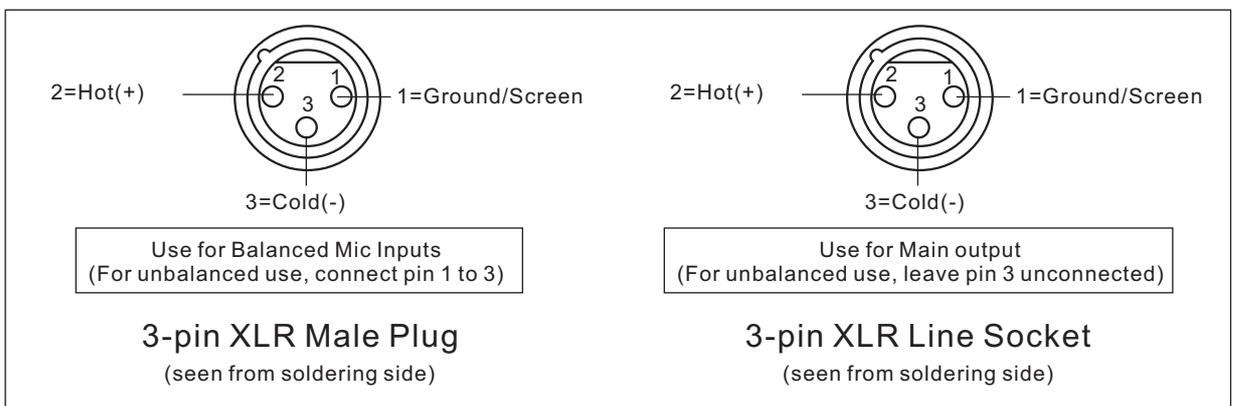
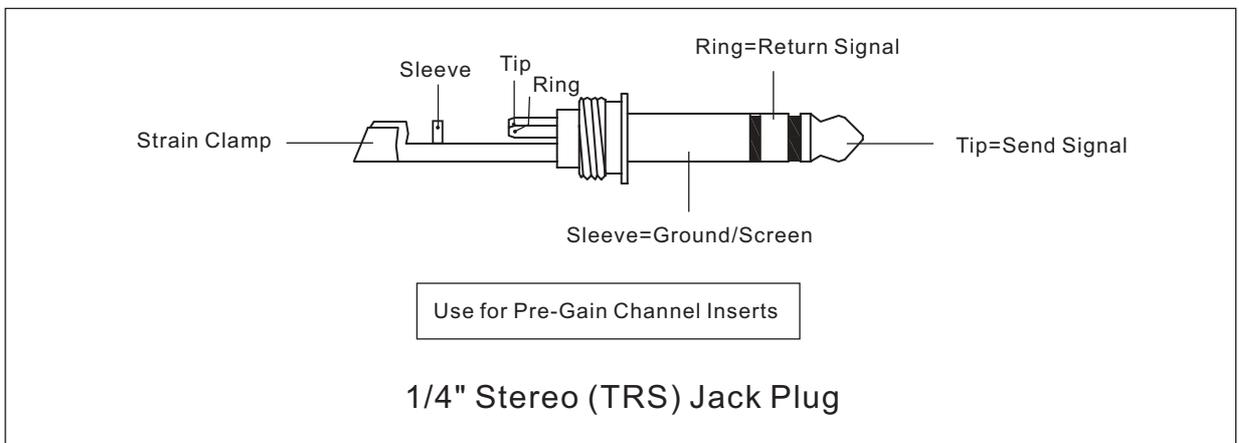
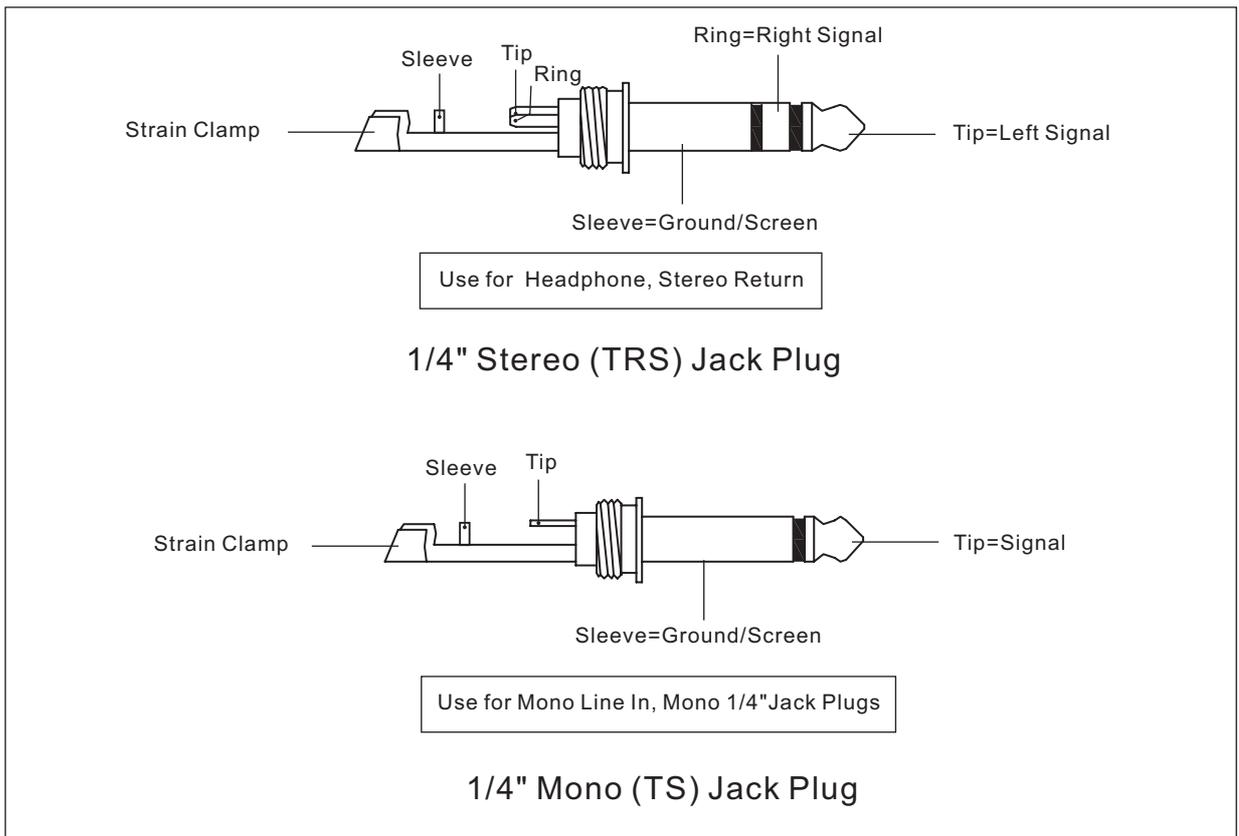
5. INSTALLATION AND CONNECTION

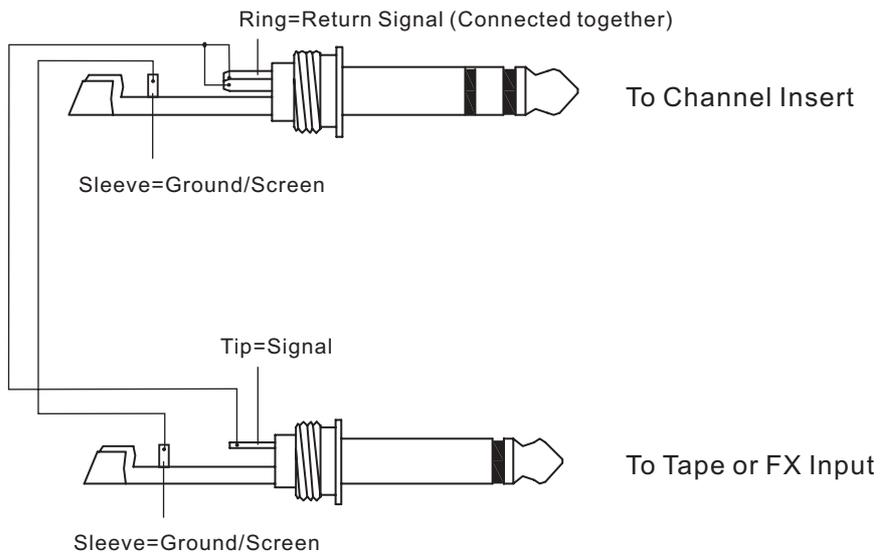
Ok, you have got to this point you are now in the position to successfully operate your L-8. However, we advise you to read carefully the following section to be the real Master of your own Mix. Not paying attention enough to the Input signal level, to the routing of the signal and the assignment of the signal will result in unwanted distortion, a corrupted signal or no sound at all. So you should follow this procedure for every single channel:

- Turn down all Input and Output Gain Controls.
- Connect phantom powered microphones before switching on the +48Volt Phantom Power switch.
- If you have a power amplifier connected to your L-8 set the Level of the amplifier at no more than 70%.
- Now, set the CONTROL ROOM/PHONES level at no more than 50%. In this way you will be able to hear later what you are doing connecting a pair of headphones or a pair of powered studio monitor speakers.
- Position HI, MID and LOW eq controls on the middle.
- Position panoramic (PAN) control on the center.
- With a headphone or studio monitor speakers connected apply a Line Level input signal so that the PEAK Led does not light up.
- At this point increase the input gain so that the PEAK led will blink occasionally. In this way you will maintain good headroom and ideal dynamic range.
- Now connect a microphone and ask the singer to sing loud into the microphone. Turn slowly the Gain Control clockwise and have the PEAK Led blink only occasionally.
- Now repeat the same sequence for all input channels. The Main Led Meter could move up into the red section. In this case you can adjust the overall output level through the MAIN MIX control.

5.1 SOME FINAL TIPS ON WIRING CONFIGURATION

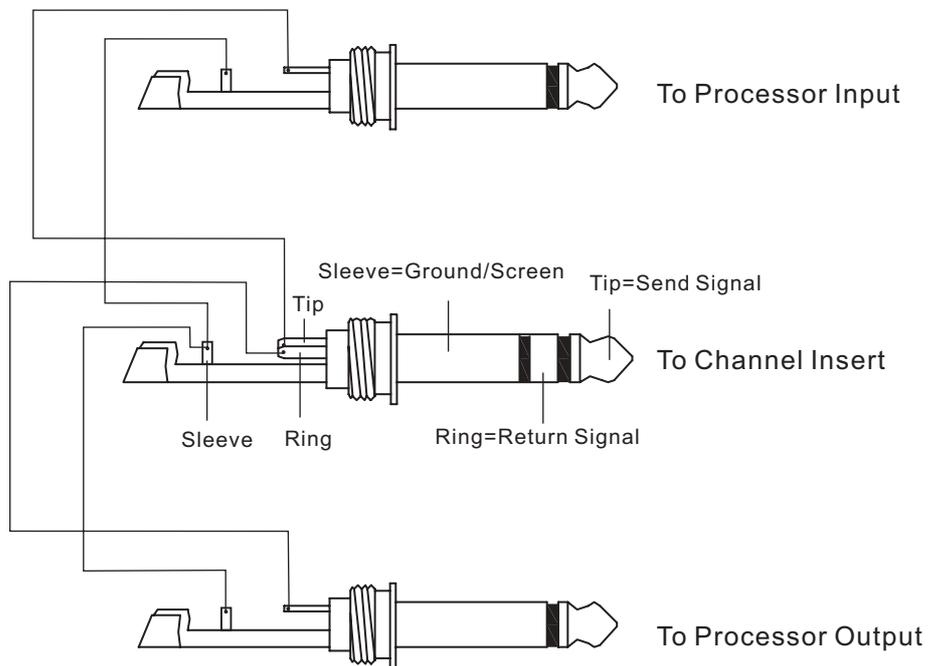
You can connect unbalanced equipment to balanced inputs and outputs. Simply follow these schematics.





'Tapped' Connection Direct Output Lead

(Enables the Insert to be used as a Direct Output while maintaining the channel signal flow)

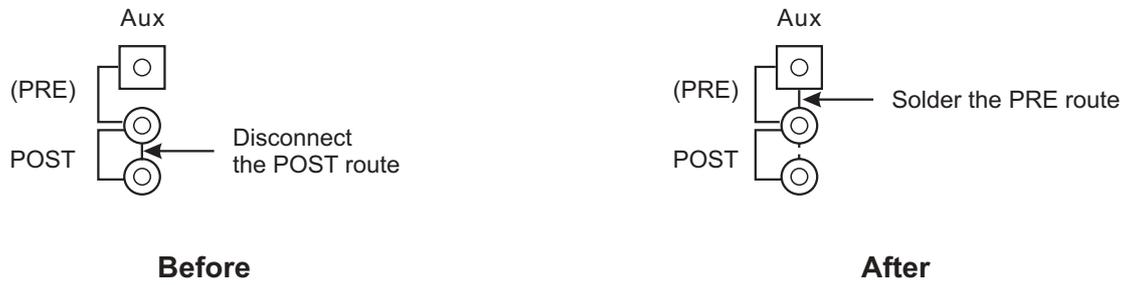


Y-Stereo lead for insert Connection

(To be used when the processor does not employ a single jack connection for the In/Out Connections)

6. FOR THE EXPERTS WHO WANT TO KNOW MORE

As we have told you previously in this Manual, the Aux Send 2 Control both on Mono and on stereo channels is factory wired as POST-FADER. If you have some skill in electronic components soldering you can modify this setting and have all your AUX sends configured as PRE-FADER.



Modification on mono and stereo channels

7. PRESET LIST

01. VOCAL1

No	Pre-delay	Rev Time	Room Size	Rev. Type	Hi Damp
1	84	1.00	39	Hall	-12
2	30	1.00	8	Tape	-12
3	0	4.50	10	Spring	-12
4	55	3.60	11	Plate	-12
5	10	1.20	9	Spring	-12
6	79	3.60	8	Hall	-12
7	45	0.8	41	Plate	-12
8	45	1.50	41	Plate	-12
9	25	2.40	9	Spring	-12
10	0	0.90	41	Tape	-12
11	45	1.50	10	Plate	-12
12	114	1.00	45	Hall	-12
13	40	1.00	9	Spring	-12
14	50	2.10	10	Tape	-12
15	45	4.50	11	Plate	-12
16	55	1.70		Plate	-12

02. VOCAL2

No	Pre-delay	Rev Time	Room Size	Rev. Type	Hi Damp
1	114	1.00	10	Spring	-12
2	45	0.80	41	Plate	-12
3	79	3.60	8	Hall	-12
4	10	1.20	9	Spring	-12
5	55	3.60	11	Plate	-12
6	0	4.50	10	Spring	-12
7	30	1.00	8	Tape	-12
8	84	1.00	39	Hall	-12
9	55	1.70	11	Plate	-12
10	45	4.50	41	Plate	-12
11	50	2.10	9	Tape	-12
12	40	1.00	45	Spring	-12
13	114	1.00	10	Hall	-12
14	45	1.50	41	Plate	-12
15	0	0.90	41	Tape	-12
16	25	2.40	9	Spring	-12

03. LARGE HALL

No	Pre-delay	Rev Time	Room Size	Hi Damp	Rev level
1	55	5.40	45	-0.96	79
2	55	5.40	45	-12.00	79
3	40	5.40	35	-0.96	78
4	40	5.40	35	-12.00	78
5	50	4.50	43	-0.96	82
6	50	4.50	43	-12.00	82
7	27	4.50	33	-0.96	82
8	27	4.50	33	-12.00	82

9	50	4.00	42	-0.96	82
10	50	4.00	42	-12.00	82
11	27	4.00	32	-0.96	82
12	27	4.00	32	-12.00	82
13	45	3.60	41	-0.96	88
14	45	3.60	41	-12.00	88
15	23	3.60	30	-0.96	88
16	23	3.60	30	-12.00	88

04. SMALL HALL

No	Pre-delay	Rev Time	Room Size	Hi Damp	Rev level
1	45	2.90	39	-0.96	92
2	45	2.90	39	-12.00	92
3	23	2.90	28	-0.96	92
4	23	2.90	28	-12.00	92
5	40	2.10	38	-0.96	100
6	40	2.10	38	-12.00	100
7	20	2.10	27	-0.96	100
8	20	2.10	27	-12.00	100
9	40	1.50	37	-0.96	100
10	40	1.50	37	-12.00	100
11	20	1.50	26	-0.96	100
12	20	1.50	26	-12.00	100
13	40	1.00	36	-0.96	100
14	40	1.00	36	-12.00	100
15	20	1.00	25	-0.96	100
16	20	1.00	25	-12.00	100

05. LARGE ROOM

No	Pre-delay	Rev Time	Room Size	Hi Damp	Rev level
1	55	4.50	20	-0.96	82
2	55	4.50	20	-12.00	82
3	40	4.50	11	-0.96	82
4	40	4.50	11	-12.00	82
5	50	4.00	19	-0.96	82
6	50	4.00	19	-12.00	82
7	27	4.00	11	-0.96	82
8	27	4.00	11	-12.00	82
9	50	3.60	18	-0.96	88
10	50	3.60	18	-12.00	88
11	27	3.60	10	-0.96	88
12	27	3.60	10	-12.00	88
13	45	2.90	18	-0.96	88
14	45	2.90	18	-12.00	88
15	23	2.90	10	-0.96	88
16	23	2.90	10	-12.00	88

06. SMALL ROOM

No	Pre-delay	Rev Time	Room Size	Hi Damp	Rev level
1	45	2.10	17	-0.96	92
2	45	2.10	17	-12.00	92
3	23	2.10	9	-0.96	92
4	23	2.10	9	-12.00	92
5	40	1.50	17	-0.96	100
6	40	1.50	17	-12.00	100
7	20	1.50	9	-0.96	100
8	20	1.50	9	-12.00	100
9	40	1.00	16	-0.96	100
10	40	1.00	16	-12.00	100
11	20	1.00	8	-0.96	100
12	20	1.00	8	-12.00	100
13	40	0.70	16	-0.96	100
14	40	0.70	16	-12.00	100
15	20	0.70	8	-0.96	100
16	20	0.70	8	-12.00	100

07. PLATE

No	Pre-delay	Rev Time	Room Size	Hi Damp
1	10	6.10	10	-2.08
2	10	5.40	10	-2.08
3	10	4.50	10	-2.08
4	10	4.00	10	-2.08
5	10	3.60	10	-2.08
6	10	2.90	10	-2.08
7	10	2.40	10	-2.08
8	10	2.10	10	-2.08
9	10	1.70	10	-2.08
10	10	1.50	10	-2.08
11	10	1.30	10	-2.08
12	10	1.20	10	-2.08
13	10	1.00	10	-2.08
14	10	0.80	10	-2.08
15	10	0.70	10	-2.08
16	10	0.60	10	-2.08

08. TAPE REVERB

No	Pre-delay	Rev Time	Room Size	Hi Damp	Rev level
1	84	5.4	38	-0.96	79
2	84	5.4	38	-12.00	79
3	84	4.50	35	-0.96	79
4	84	4.50	35	-12.00	79
5	84	4	31	-0.96	84
6	84	4	31	-12.00	84
7	84	3.60	28	-0.96	84
8	84	3.60	28	-12.00	84

9	0	3.60	23	-0.96	92
10	0	3.60	23	-12.00	92
11	0	2.90	23	-0.96	92
12	0	2.90	23	-12.00	92
13	0	2.10	21	-0.96	100
14	0	2.10	21	-12.00	100
15	0	1.30	21	-0.96	100
16	0	1.30	21	-12.00	100

09. SPRING REVERB

No	Pre-delay	Rev Time	Room Size	Hi Damp	Rev level
1	35	5.4	35	-0.96	79
2	35	5.4	35	-12.00	79
3	30	4.50	33	-0.96	79
4	30	4.50	33	-12.00	79
5	30	4	30	-0.96	87
6	30	4	30	-12.00	87
7	30	3.60	28	-0.96	87
8	84	3.60	28	-12.00	87
9	0	2.90	22	-0.96	92
10	0	2.90	22	-12.00	92
11	0	2.40	22	-0.96	100
12	0	2.40	22	-12.00	100
13	0	1.70	22	-0.96	100
14	0	1.70	22	-12.00	100
15	0	1.30	22	-0.96	100
16	0	1.30	22	-12.00	100

10. MONO DELAY

No	Delay	F.B.
1	650	60
2	625	60
3	600	60
4	577	60
5	555	60
6	535	60
7	517	60
8	500	60
9	484	60
10	461	60
11	448	60
12	434	60
13	350	60
14	250	65
15	100	0
16	60	0

11. STEREO DELAY

No	Delay	Right Delay	Left F.B.	Right F.B.
1	400	200	51	72
2	375	187	51	72
3	352	176	40	72
4	326	163	40	72
5	312	156	40	72
6	300	150	40	72
7	288	144	40	66
8	277	138	40	66
9	267	133	30	66
10	258	129	38	73
11	250	125	37	73
12	241	120	36	73
13	238	119	36	73
14	230	115	37	74
15	222	111	38	73
16	214	107	37	73

12. FLANGER

No	Mod. Freq	Pitch. Depth	Left F.B.	Right F.B.
1	2.79	30	38	42
2	2.52	40	42	38
3	2.33	40	38	42
4	2.25	40	38	42
5	2.10	40	42	38
6	1.99	40	38	42
7	1.75	40	42	38
8	1.61	50	38	42
9	1.34	50	42	38
10	1.22	70	58	62
11	1.00	70	62	58
12	0.80	70	62	58
13	0.65	70	58	62
14	0.54	70	68	72
15	0.42	70	68	72
16	0.16	70	68	72

13. CHORUS

No	Mod. Freq.	Pitch. Depth	IHFR
1	5.00	15	-3(0)
2	4.74	15	-4(0)
3	4.39	15	-4(0)
4	4.12	15	-4(0)
5	3.90	30	-4(0)
6	3.67	30	-4(0)
7	3.32	30	-4(0)
8	3.02	30	-4(0)
9	2.87	30	-4(0)
10	2.63	40	-4(0)

11	2.33	40	-3(0)
12	1.99	40	-3(0)
13	1.70	40	-3(0)
14	1.35	40	-2(0)
15	1.00	70	-2(0)
16	0.50	70	-2(0)

14. REVERB+DELAY

No	Rev Time	Room Size	Left Delay	Right Delay	Left F.B.	Right F.B.	Rev level
1	2.90	39	375	187	48	82	80%
2	2.90	39	326	163	28	67	80%
3	2.90	39	300	150	28	67	80%
4	2.90	39	277	138	28	67	80%
5	2.40	39	258	129	28	60	80%
6	2.40	39	241	120	28	49	80%
7	2.40	39	230	115	28	49	80%
8	2.40	39	211	107	28	49	80%
9	2.10	26	375	187	48	82	90%
10	2.10	26	326	163	28	67	90%
11	1.50	26	300	150	28	67	90%
12	1.50	26	277	138	28	67	90%
13	1.50	26	258	129	28	60	90%
14	1.50	26	241	120	28	49	90%
15	1.00	26	230	115	28	49	90%
16	1.00	26	211	107	28	49	90%

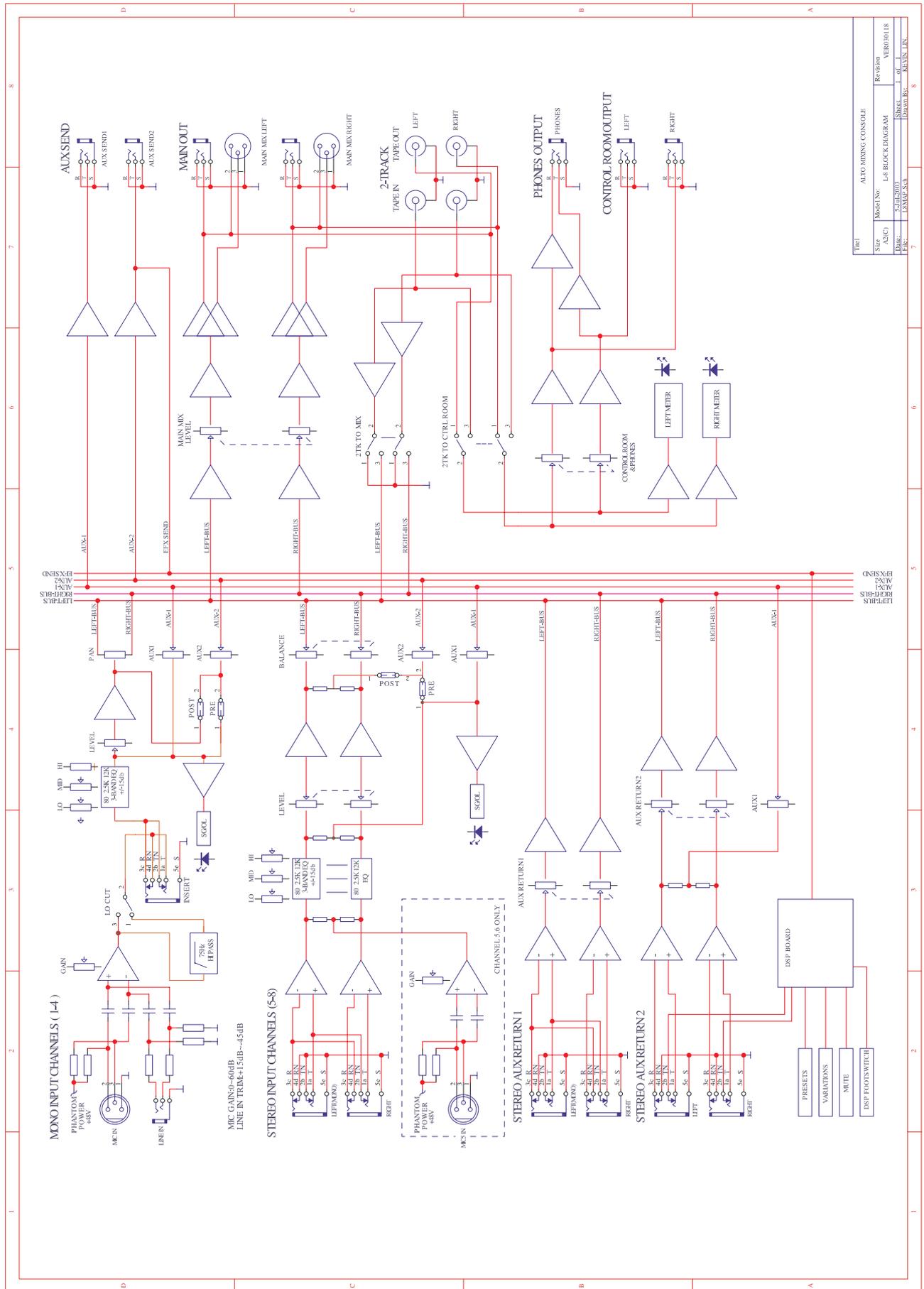
15. REVERB+FLANGER

No	Rev Time	Room Size	Mod. Freq.	Pitch. Depth	Left F.B.	Rev level
1	2.90	39	2.52	40	40	90%
2	2.90	39	2.25	40	40	90%
3	2.90	39	1.99	40	40	90%
4	2.90	39	1.61	50	40	90%
5	2.90	39	1.22	70	60	90%
6	2.90	39	0.80	70	60	90%
7	2.90	39	0.54	70	70	90%
8	2.90	39	0.16	70	70	90%
9	1.50	26	2.52	40	40	90%
10	1.50	26	2.25	40	40	90%
11	1.50	26	1.99	40	40	90%
12	1.50	26	1.61	50	40	90%
13	1.50	26	1.22	70	60	90%
14	1.50	26	0.80	70	60	90%
15	1.00	26	0.54	70	70	90%
16	1.00	26	0.16	70	70	90%

16. REVERB+CHORUS

No	Rev Time	Room Size	Mod. Freq.	Pitch. Depth	Left F.B.	Rev level
1	2.90	39	4.74	40	100	90%
2	2.90	39	4.12	40	100	90%
3	2.90	39	3.67	40	100	90%
4	2.90	39	3.02	40	100	90%
5	2.90	39	2.63	40	100	90%
6	2.90	39	1.99	40	100	90%
7	2.90	39	1.35	70	100	90%
8	2.90	39	0.50	70	100	90%
9	1.50	26	4.74	40	100	90%
10	1.50	26	4.12	40	100	90%
11	1.50	26	3.67	40	100	90%
12	1.50	26	3.02	40	100	90%
13	1.50	26	2.63	40	100	90%
14	1.50	26	1.99	40	100	90%
15	1.00	26	1.35	70	100	90%
16	1.00	26	0.50	70	100	90%

8. SYSTEM BLOCK DIAGRAMS



Title			
Size	Model No.	Revision	VER03/01/18
A3(C)	L-8 BLOCK DIAGRAM	Sheet	1 of 8
Date:	5-JUL-2018	Drawn By:	KEVIN LIN
File:	L8BLOC.SCL		

9. TECHNICAL SPECIFICATION

Mono input channels

Microphone input electronically balanced, discrete input configuration
Frequency response 10Hz to 55kHz, +/- 3dB
Distortion (THD & N) 0.005% at +4dBu, 1kHz

Gain range 0dB to 60dB (MIC)
SNR (Signal to Noise Ratio) 115dB

Line input electronically balanced
Frequency response 10Hz to 55kHz, +/- 3dB
Distortion (THD & N) 0.005% at +4dBu, 1kHz
Sensitivity range +15dBu to - 45dBu

Stereo input channels

Line input unbalanced
Frequency response 10Hz to 55kHz, +/- 3dB
Distortion (THD & N) 0.005% at +4dBu, 1kHz

Impedances

Microphone input 1.4kOhm
Channel Insert return 2.5kOhm
All other inputs 10kOhm or greater
Tape out 1kOhm
All other output 120Ohm

Equalization

Hi shelving +/- 15dB @12kHz
Mid bell +/- 12dB @2.5kHz
Low shelving +/- 15dB @80Hz
Low Cut filter 75Hz, 18dB/oct.

DSP SECTION

A/D and D/A converters 24 bit
DSP resolution 24 bit
Type of effects Hall, Room, Vocal & Plate REVERBS
Mono & Stereo DELAY (max DELAY TIME 650ms)
Chorus, Flanger & Reverb MODULATIONS
REVERB+DELAY, REVERB+CHORUS, REVERB+FLANGER combinations
Presets 256
Controls 16-position PRESET Selector
16-position VARIATION selector
CLIP LED
MUTE SWITCH with LED indicator

Main Mix Section

Noise (Bus noise) Fader 0 dB, channels muted: - 100dBr (ref.:+4dBu)
Fader 0dB, all input channels assigned
and set to UNITY gain: - 90dBr (ref.:+4dBu)
Max output +22dBu balanced XLR,
+22dBu unbalanced, 1/4" jacks
AUX Return gain range OFF to +15dB
AUX Sends max out +22dBu

Power supply

Main voltage	USA/Canada	100 - 120V~, 60Hz
	Europe	210 - 240V~, 50Hz
	U.K./Australia	240V~, 50Hz
Power Consumption		25 watts
Fuse	100- 120V~	: T500mAL
	210 - 240V~	: T250mAL
Main connection		Standard IEC receptacle

Physical

Dimension (W×D×H)	245mm×268mm×24/73mm (9.64"×10.54"×0.94"/2.87")
Net weight	3.0Kg (6.62lb)
Shipping weight	4.1Kg (9.04lb)

10. WARRANTY

1. WARRANTY REGISTRATION CARD

To obtain Warranty Service, the buyer should first fill out and return the enclosed Warranty Registration Card within 10 days of the Purchase Date.

All the information presented in this Warranty Registration Card gives the manufacturer a better understanding of the sales status, so as to purport a more effective and efficient after-sales warranty service.

Please fill out all the information carefully and genuinely, miswriting or absence of this card will void your warranty service.

2. RETURN NOTICE

2.1 In case of return for any warranty service, please make sure that the product is well packed in its original shipping carton, and it can protect your unit from any other extra damage.

2.2 Please provide a copy of your sales receipt or other proof of purchase with the returned machine, and give detail information about your return address and contact telephone number.

2.3 A brief description of the defect will be appreciated.

2.4 Please prepay all the costs involved in the return shipping, handling and insurance.

3. TERMS AND CONDITIONS

3.1 ▲LTO warrants that this product will be free from any defects in materials and/or workmanship for a period of 1 year from the purchase date if you have completed the Warranty Registration Card in time.

3.2 The warranty service is only available to the original consumer, who purchased this product directly from the retail dealer, and it can not be transferred.

3.3 During the warranty service, ▲LTO may repair or replace this product at its own option at no charge to you for parts or for labor in accordance with the right side of this limited warranty.

3.4 This warranty does not apply to the damages to this product that occurred as the following conditions:

- Instead of operating in accordance with the user's manual thoroughly, any abuse or misuse of this product.
- Normal tear and wear.
- The product has been altered or modified in any way.
- Damage which may have been caused either directly or indirectly by another product / force / etc.
- Abnormal service or repairing by anyone other than the qualified personnel or technician.

And in such cases, all the expenses will be charged to the buyer.

3.5 In no event shall ▲LTO be liable for any incidental or consequential damages. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion or limitation may not apply to you.

3.6 This warranty gives you the specific rights, and these rights are compatible with the state laws, you may also have other statutory rights that may vary from state to state.

SEIKAKU TECHNICAL GROUP LIMITED
No. 1, Lane 17, Sec. 2, Han Shi W. Road, Taichung, 401 Taiwan
<http://www.altomobile.com> Tel: 886-4-22313737
email: info@altomobile.com Fax: 886-4-22346757

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