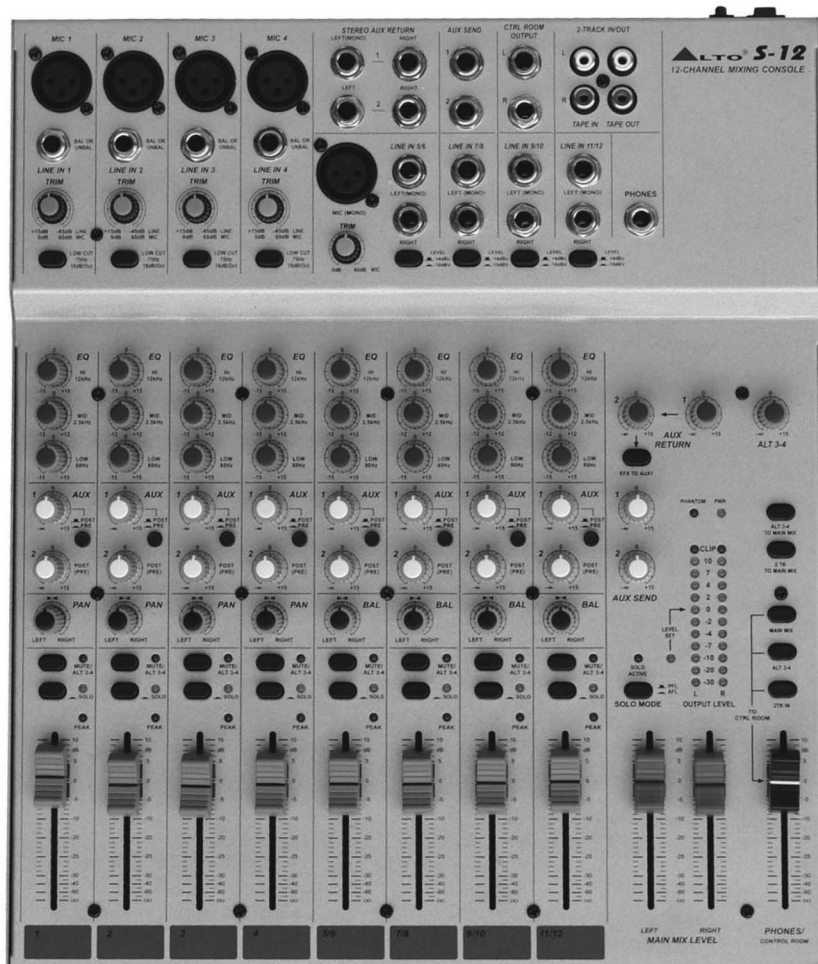


# User's Manual

# S-12

## 12-CHANNEL MIXING CONSOLE



**ALTO**<sup>®</sup>

www.altoproaudio.com  
Version 2.0 January 2003

— English —

## SAFETY RELATED SYMBOLS



The symbol is used to indicate that some hazardous live terminals are involved within this apparatus, even under the normal operating conditions.



The symbol is used in the service documentation to indicate that a specific component shall be only replaced by the component specified in that documentation for safety reasons.



Protective grounding terminal.



Alternating current /voltage.



Hazardous live terminal.

**ON:** Denotes the apparatus is turned on.

**OFF:** Denotes the apparatus is turned off, because it uses the single pole switch, be sure to unplug the AC power to prevent any electric shock before you proceed with your service.

**WARNING:** Describes precautions that should be observed to prevent the danger of injury or death to the user.

**CAUTION:** Describes precautions that should be observed to prevent danger of the apparatus.

### WARNING

#### • Power Supply

Ensures the source voltage matches the voltage of the power supply before turning ON the apparatus. Unplug this apparatus during lightning storms or when unused for long periods of time.

#### • External Connection

The external wiring connected to the output hazardous live terminals requires installation by an instructed person, or the use of ready-made leads or cords.

#### • Do not Remove any Cover

There are maybe some areas with high voltages inside, to reduce the risk of electric shock, do not remove any cover if the power supply is connected.

The cover should be removed by qualified personnel only.

No user serviceable parts inside.

#### • Fuse

To prevent a fire, make sure to use fuses with specified standard (current, voltage, type). Do not use a different fuse or short circuit the fuse holder.

Before replacing the fuse, turn OFF the apparatus and disconnect the power source.

#### • Protective Grounding

Make sure to connect the protective grounding to prevent any electric shock before turning ON the apparatus.

Never cut off the internal or external protective grounding wire or disconnect the wiring of protective grounding terminal.

#### • Operating Conditions

This apparatus shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on this apparatus.

To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.

Do not use this apparatus near water.

Install in accordance with the manufacturer's instructions. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

Do not block any ventilation openings.

No naked flame sources, such as lighted candles, should be placed on the apparatus.

### IMPORTANT SAFETY INSTRUCTIONS

- Read these instructions.
- Follow all instructions.
- Keep these instructions.
- Heed all warnings.
- Only use attachments/accessories specified by the manufacturer.

#### • Power Cord and Plug

Do not defeat the safety purpose of the polarized or grounding type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet. Protect the power cord from being walked on or pinched particularly at the plug, convenience receptacles, and the point where they exit from the apparatus.

#### • Cleaning

When the apparatus needs a cleaning, you can blow off dust from the apparatus with a blower or clean with a rag etc. Don't use solvents such as benzol, alcohol, or other fluids with very strong volatility and flammability for cleaning the apparatus body.

Clean only with a dry cloth.

#### • Servicing

Refer all servicing to qualified personnel. To reduce the risk of electric shock, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

Servicing is required when the apparatus has been damaged in any way, such as the power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

## PREFACE

Dear Customer:

Thanks for choosing ▲LTO S-12 12-Channel Mixing Console 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 and 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 new ones! From our side, we guarantee you now and also in future the best quality, the best fruits of our continuous researches and the best prices. The ▲LTO S-12 is an extremely flexible, ultra-low noise 12-Channel (4 mono and 4 stereo input channels) professional mixing console. Each channel is equipped with warm, natural 3-band EQ, Peak LEDs, MUTE / ALT 3-4, SOLO-in-Place and high quality faders etc..

Nothing else to add, we would like to thank all the people that made the ▲LTO-12 12 Channel Mixing Console, especially 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

Your S-12 is a 12-channel mixer and it is one of the most popular compact mixing consoles in the world. In fact it has been sold already in tents of thousands of units worldwide. Despite its compact dimensions, great performances and sound quality are insured thanks to the specification of the components used and the building quality.

Your S-12 is packed with features that can not be found in other consoles of its size: 5 Mono (these are provided with Ultra Low Noise microphone preamplifiers and Phantom Power at +48 Volt) and 4 stereo input channels are provided, and each of them is provided with a 3 bands graphic equaliser for HI, MID and LOW controls.

Your S-12 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 S-12.

## 2. FEATURES

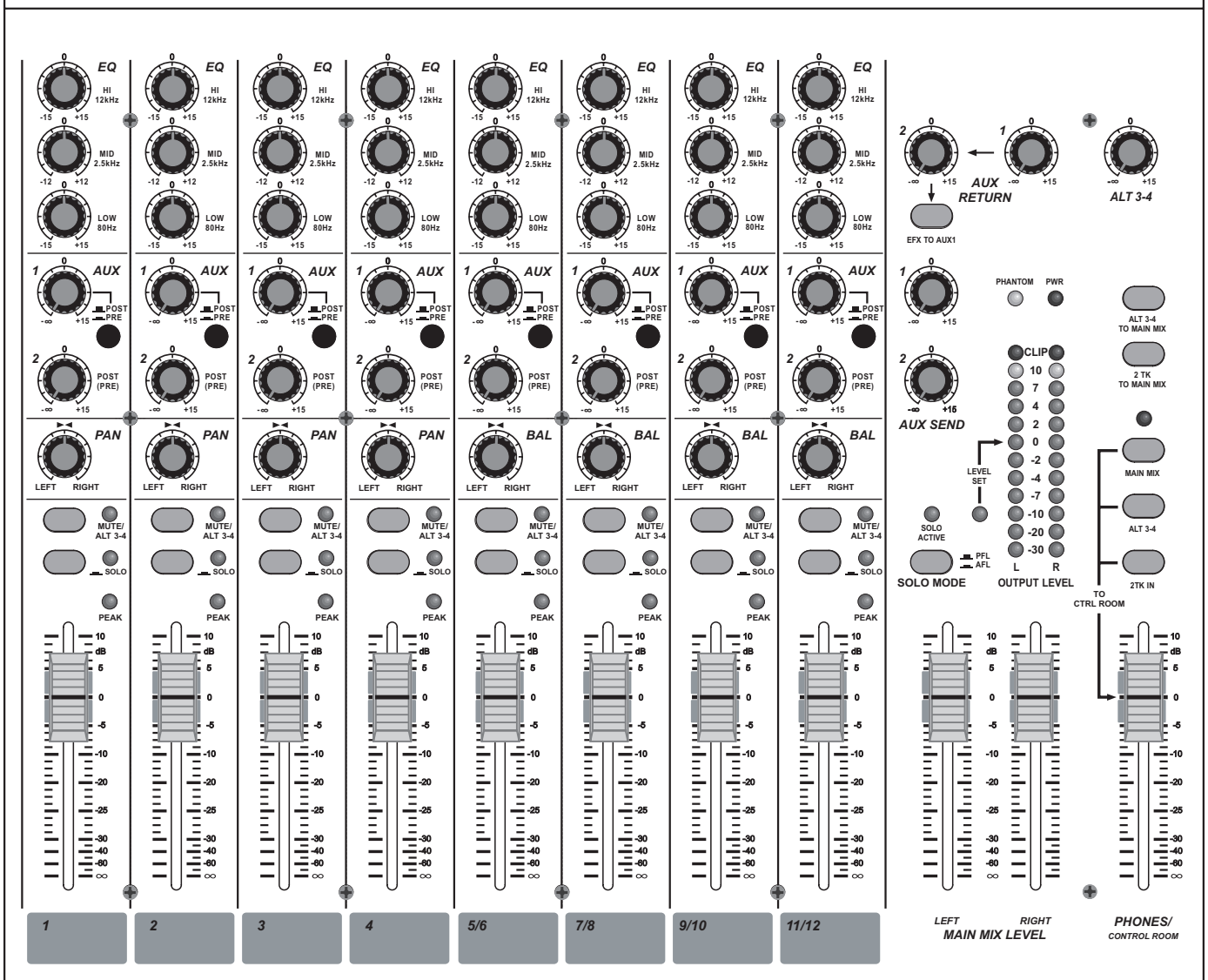
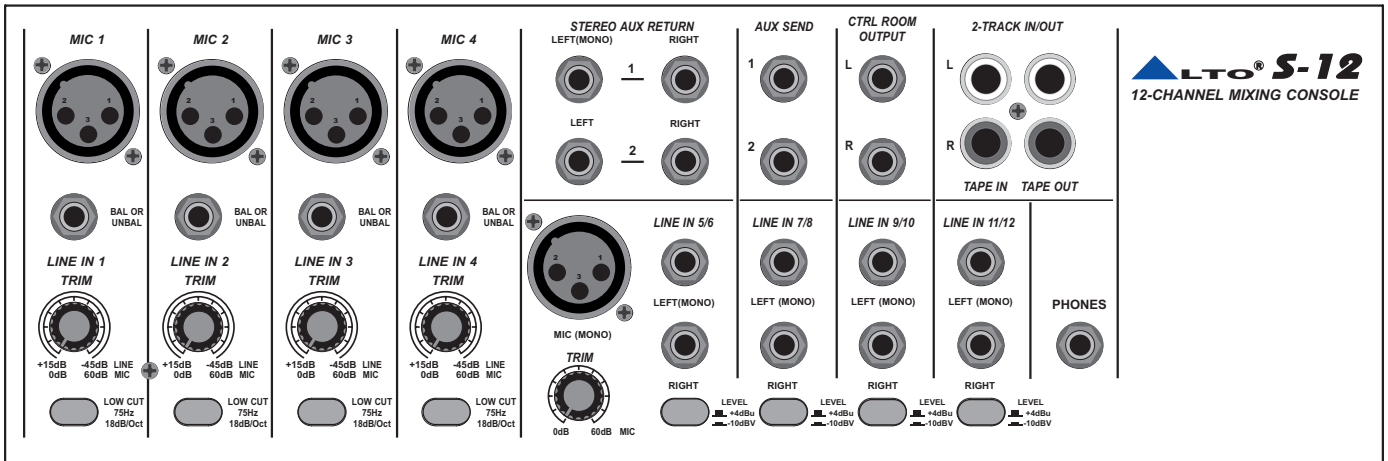
The S-12 12-Channel Mixing Console is designed for the professional application, and presents with the following specific features:

- Ultra-low noise 12-channel 2+2-bus mixing console
- 4 MIC input channels with gold plated XLRs and balanced Line inputs
- 4 stereo input channels with balanced TRS jacks
- 2 additional multi-functional stereo AUX Returns
- Ultra-low noise discrete MIC preamps with +48V Phantom power
- Low noise, high headroom
- Peak LEDs on each channel
- TRS and XLR outputs, Phones / Control Room output and Alt output.
- 2 Aux Sends per channel for external effects and monitoring
- 2-Track inputs assignable to Main Mix, Phones / Control Room outputs
- Mute / Alt 3-4, Solo function on each channel
- Highly accurate 12-segment Bar-graph meters
- +4dBu / -10dBV on each stereo channel
- Switchable Low Cut filter on each mono channel
- Inserts on MIC channels
- High quality faders and potentiometers

### 3. GETTING STARTED

- 3.1 Please check the AC Voltage available in your Country before connecting your S-12 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 S-12 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 S-12 always turn-off the Power switch.
- 3.5 Do not use coke, beer or solvents to clean your S-12. A dry and clean cloth will be OK.

# 4. CONTROL ELEMENTS



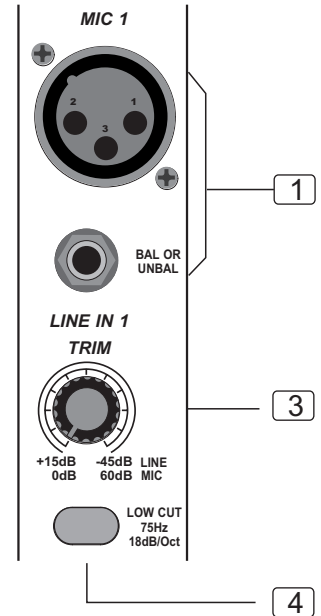


#### 4.1 The mono MIC/LINE channels 1

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.

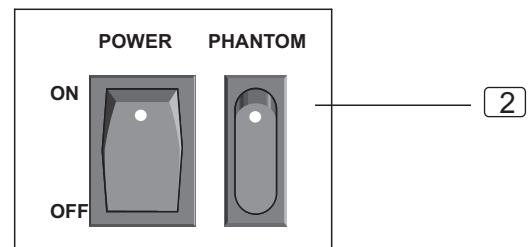
#### 48 Volt phantom power 2

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 3

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 4

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 12. 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 +4dBu / -10dBV 6

This switch adjusts the input sensitivity of the line inputs on the stereo channels CH 5 ~ CH 12. Engaging the switch is used to suit for "-10dBV" sound source. If you are unsure, leave the switch up.

#### 4.6 PHONES 7

The 1/4" TRS socket will send out the signal mix to a pair of headphones

#### 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 8

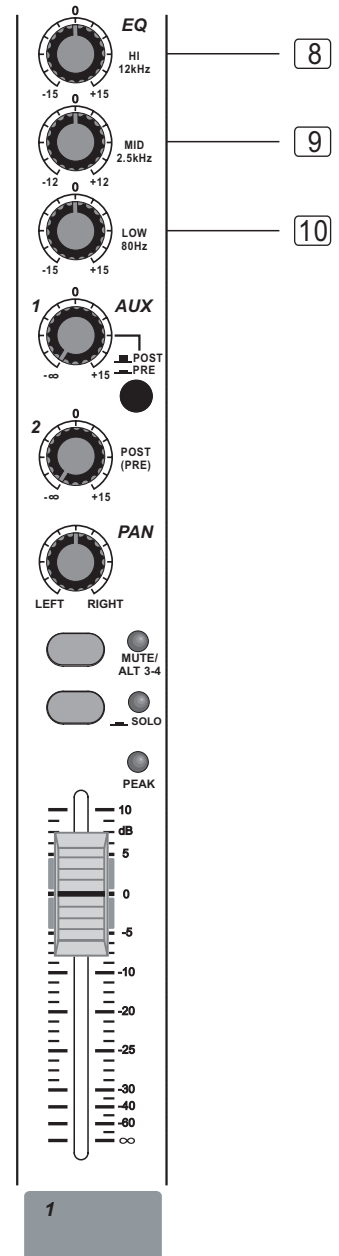
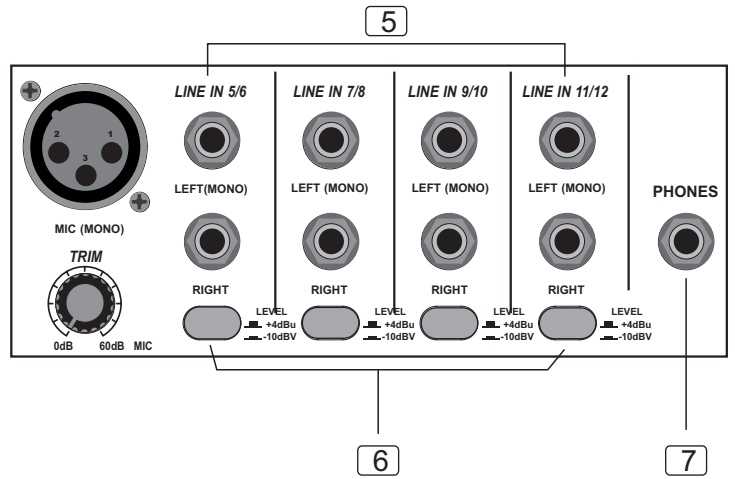
This is the Treble control. You can use it to get rid of high frequency noises or to boost the sound of cymbals or the high harmonics of the human voice. The gain range goes from -15dB to +15dB with a center frequency of 12 kHz.

##### 4.5.2 MID 9

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 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 10

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.



#### 4.8 AUX SEND 11

These two controls will send the audio signal out to Auxiliary busses. AUX 1 can be configured as PRE/POST Fader via the PRE/POST switch: Up for POST Fader, the audio signal will be affected by the main Channel Fader; Down for PRE Fader, the signal is sent out before reaching the main fader. AUX 2 is configured as POST-Fader; However, AUX 2 can also be configure as PRE-Fader through any internal modification. (Please see "MODIFICATIONS" later on in this Manual.)

#### 4.9 PAN 12

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.

#### 4.10 MUTE / ALT 3-4 13

Each channel is equipped with the MUTE / ALT 3-4 switch. Pressing this switch is used to route the channel signal to ALT 3-4 output instead of the main mix and the LED beside MUTE/ ALT 3-4 will illuminate.

#### 4.11 SOLO 14

Pressing this switch allows you to monitor the signals through your headphone or CONTROL ROOM, then the SOLO signal will replace other signals, and be also sent to the CONTROL ROOM, PHONES and METERS. Usually use the solo in live work to preview channels before they are let into the mix.

It is useful to set an instruments's input level and EQ, and you can also solo any channel that you want to. The SOLO switch never affects any mix other than the CONTROL ROOM mix.

#### 4.12 SOLO LED 15

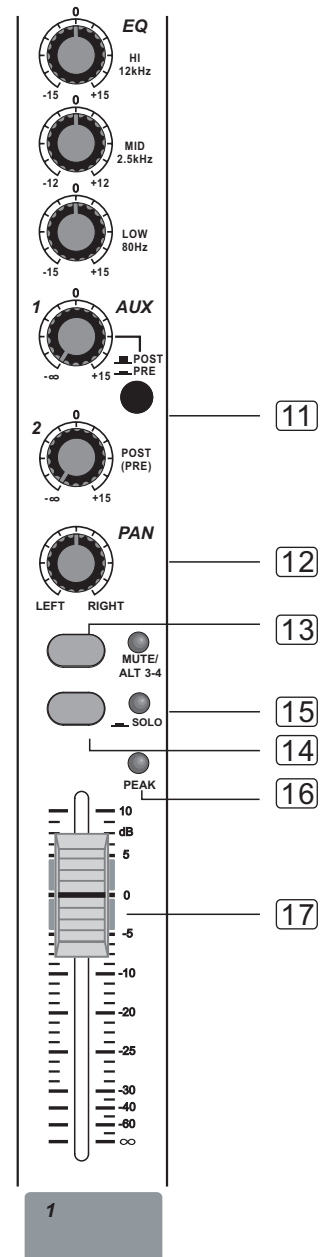
Each channel is equipped with the SOLO LED display. When the SOLO was engaged, the LED on corresponding channel will illuminate.

#### 4.13 PEAK 16

Inside your S-12 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.

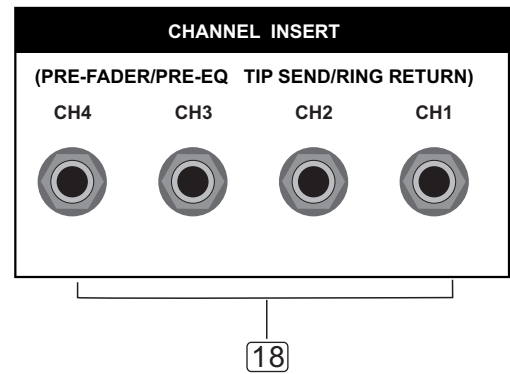
#### 4.14 FADER 17

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



#### 4.15 INSERT 18

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).



#### 4.16 MAIN SECTION

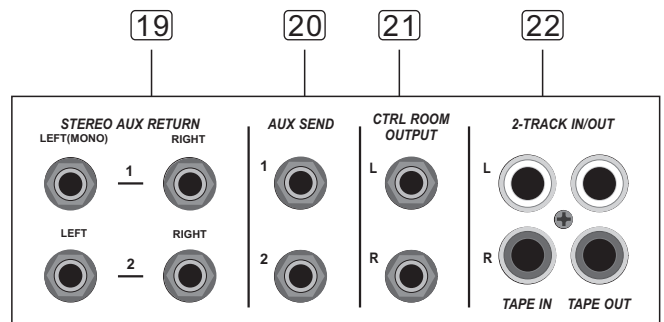
##### - STEREO AUX RETURN 19

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 1 & 2 20

This 1/4" phone socket is used to send out the signal from the AUX Bus to external devices such as effects and sound processors.



##### - CONTROL ROOM OUTPUT 21

These two unbalanced TRS jacks should be connected to the input of your control room amplifier.

##### - 2-TRACK IN / OUT 22

###### 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 form the Taper Recorder either to a pair of studio monitor using the Control Room assignment on the front panel or you can also send the signal directly to the Main Mix.

###### Output

These 1/4" TRS sockets will route the main mix into a tape recorder.

**- AUX SEND** 23

The both switches are used to determine the master AUX SEND levels. The adjustable range is from  $-\infty$  to +15dB.

When the effect unit connected to mixer has no input gain control, you can get a further +15dB gain available from these AUX SEND outputs.

**- AUX RETURN** 24

The Auxiliary Returns 1 and 2 are in fact 2 additional stereo Line inputs. AUX RETURN 1 is configured to be assigned permanently to the Main Mix. (It operates in Mono Mode if you connect only the left jack).

The EFX TO AUX1 button is used to switch the signal from AUX RETURN 2 between MAIN MIX and AUX SEND 1.

If a signal is routed to AUX RETURN 1 and no signal is connected to AUX RETURN 2, the signal will be switched to AUX SEND 1 via depressing the EFX TO AUX1, then the signal will be controlled in level by AUX RETURN 2.

Without doubt, this feature will be very useful to you.

**- MAIN MIX LEVEL** 25

These faders set the amount of signal sent either to the Main Out socket or to the Tape Output.

**- LED METER** 26

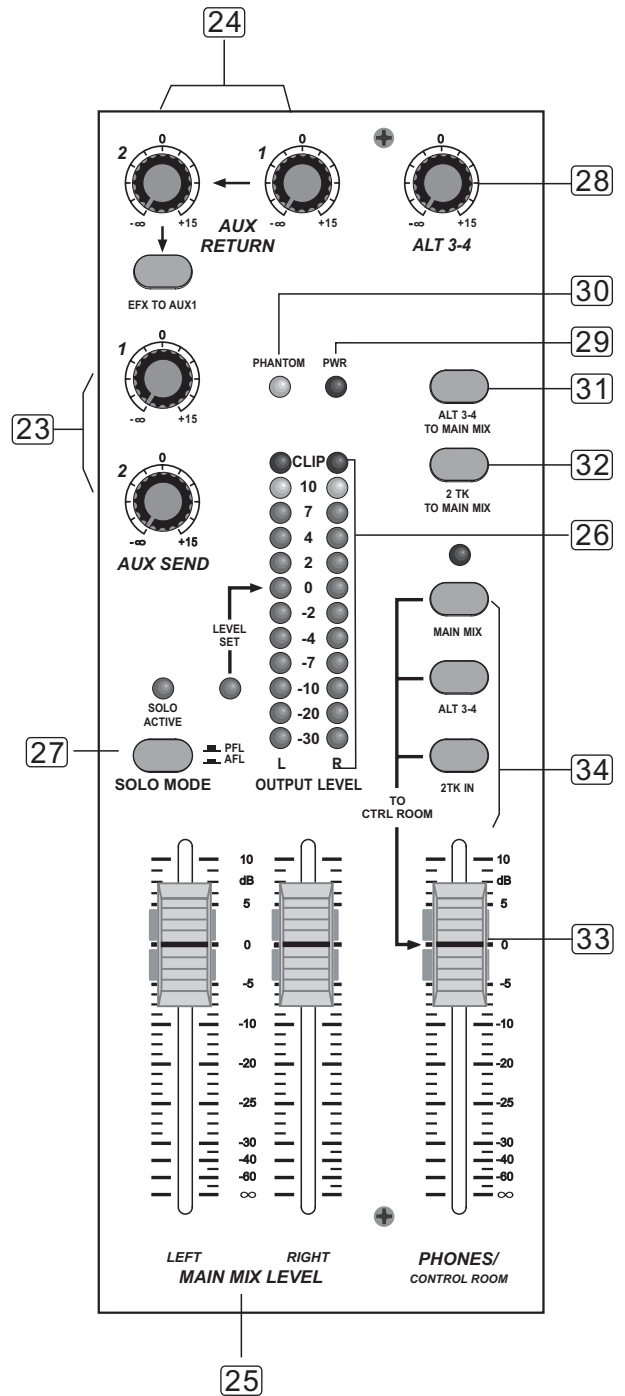
This stereo 12 segments Led Meter will indicate the level of the overall output signal.

**- SOLO MODE** 27

This button provides two modes: up for PFL (Pre-Fader-Listen) mode, down for AFL (After-Fader-Listen) mode. Engage the button, the output signal of soloed channel will follow the TRIM, EQ, FADER and PAN/BAL control, and the SOLO ACTIVE LED illuminates.

When the button is in PFL mode, the output signal of soloed channel is unaffected by the PAN/BAL and FADER control.

Please note that the SOLO function can never affect the mix at main recording output, and also can't be affected by channel's MUTE/ALT 3-4 switch.



**- . ALT 3-4**      **28**

This switch is used to adjust the level of the ALT output, and the adjustable range is from  $-\infty$  to +15dB. This is another way to offer you an extra independent stereo submix with its own level adjustment knob.

**- . POWER**      **29**

This LED indicates when the Power is on in your S-12.

**- . PHANTOM**      **30**

This LED indicates when the Phantom Power is switched on.

**- . ALT 3-4 TO MAIN MIX**      **31**

Engaging this switch allows you to combine the ALT 3-4 output with the MAIN MIX, and feeds ALT 3 - 4 signals into MAIN L / R output.

**- . 2 TK TO MAIN MIX**      **32**

Engaging this switch allows you to combine the 2 TRACK Output with the MAIN MIX, in other words, feeds the 2 TRACK IN signals into MAIN L / R output.

**- . PHONES / CONTROL ROOM**      **33**

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

**- . CONTROL ROOM SOURCE**      **34**

You can choose to monitor any combination of MAIN MIX, ALT 3-4 and 2 TK IN via these MATRIX switches. The ALT 3-4 is the additional stereo mix bus; 2 TK IN is the stereo signal coming in from the TAPE IN RCA jacks.

These stereo signals will be delivered to the PHONES / CONTROL ROOM and METERS display via engaging these switches. If no switches engaged, there will be no signal at these outputs.

Note: When the channel's SOLO switch was engaged, then, the SOLO signal will replace other signals, and also be sent to the CONTROL ROOM, PHONES and METERS.

## 4.17 REAR PANEL

### - AC INLET & FUSE HOLDER 35

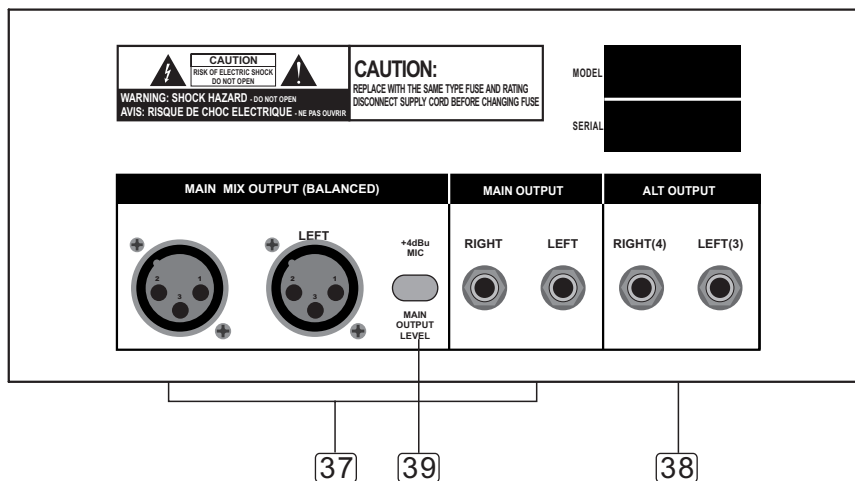
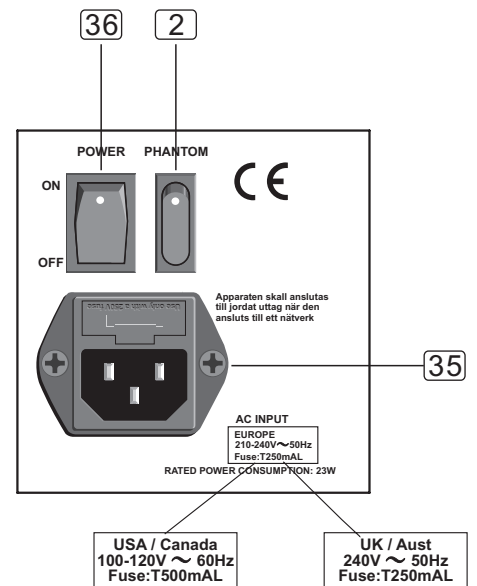
Use it to connect your S-12 to the Main AC with the supplied AC cord. Please check the Voltage available in your Country and how the Voltage for your S-12 is configured before attempting to connect your S-12 to the Main AC.

### - POWER 36

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

### - PHANTOM 2

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.



### - MAIN MIX OUTPUT 37

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 +10dB.

### - ALT OUTPUT 38

These 1/4" sockets are unbalanced outputs. They are capable of delivering +22dBu into the load. Level to the ALT OUTPUT is adjusted by ALT 3-4 rotary knob on the front panel.

### - MAIN OUTPUT LEVEL 39

When depress the switch, the output level from MAIN MIX OUTPUT will be reduced 30dB.

## 5. INSTALLATION & CONNECTION

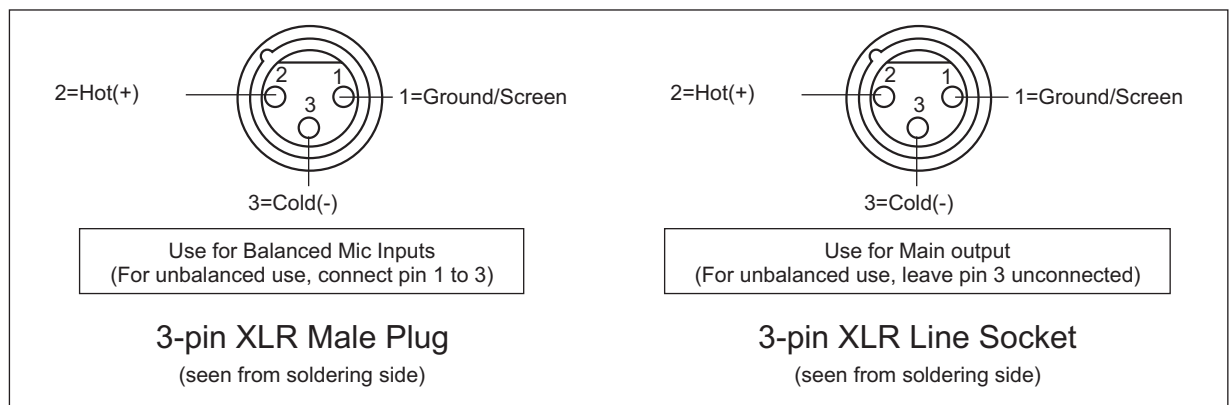
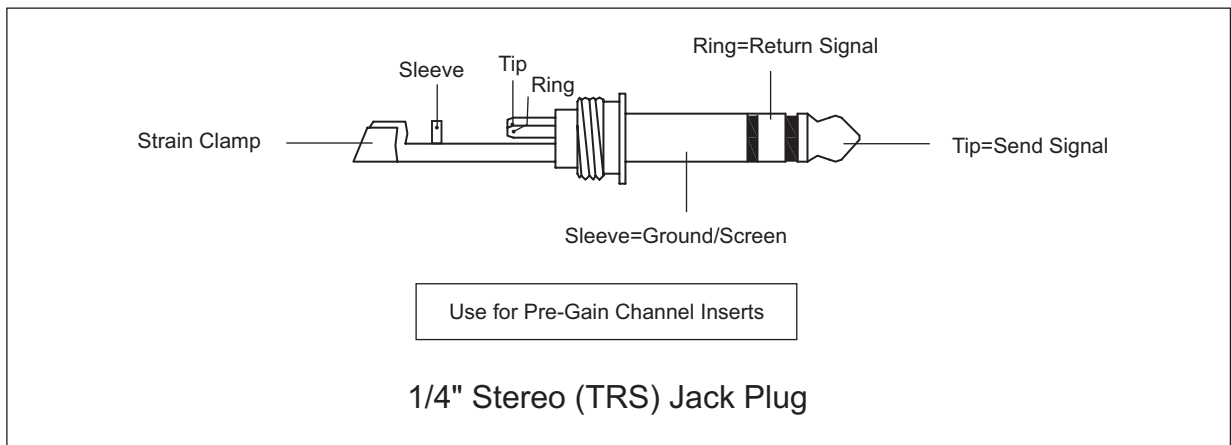
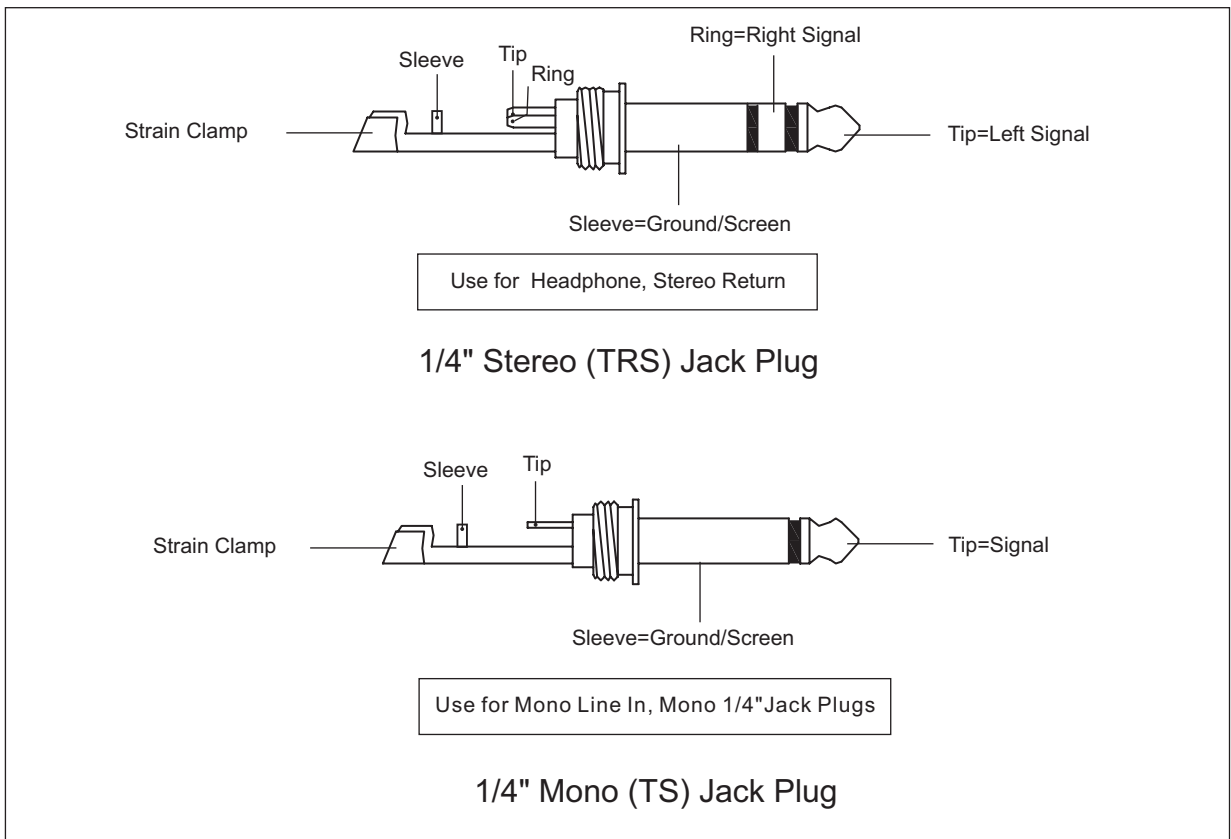
Ok, you have got to this point you are now in the position to successfully operate your S-12. However, we advise you to read carefully the following section to be the real Master of your own Mix. Not paying attention enough to the Input signal level, to the routing of the signal and the assignment of 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:

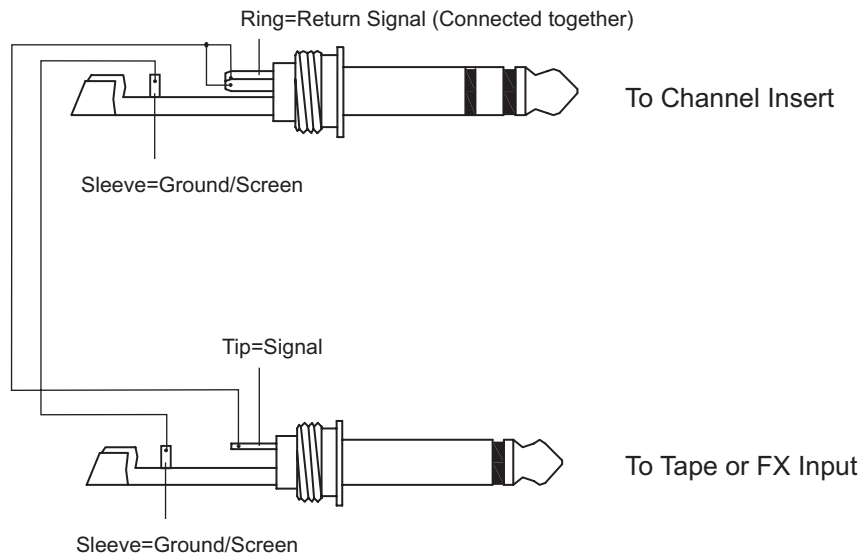
- Turn down all Input and Output Gain Controls.
- Connect phantom powered microphones before switching on the +48Volt Phantom Power switch.
- If you have a power amplifier connected to your S-12 set the Level of the amplifier at no more than 70%.
- Now, set the CONTROL ROOM/PHONES level at no more than 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 EQ controls on middle position.
- Position panoramic (PAN) control on center position.
- 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.



## B. Wiring Configuration

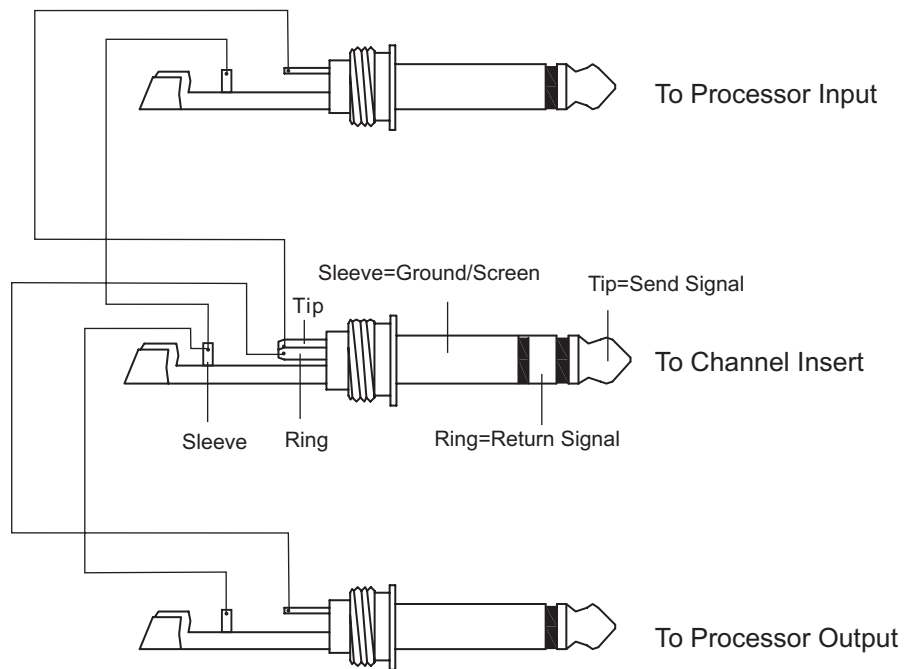
You can connect unbalanced equipment to balanced inputs and outputs. Simply follow these schematics.





**'Tapped' Connection Direct Output Lead**

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

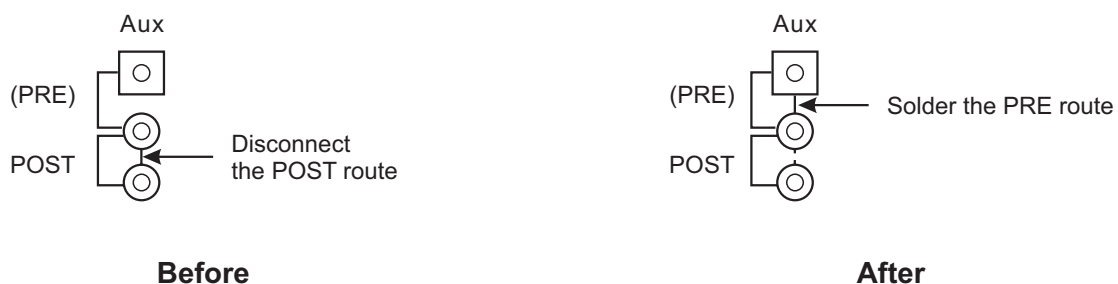


**Y -Stereo lead for insert Connection**

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

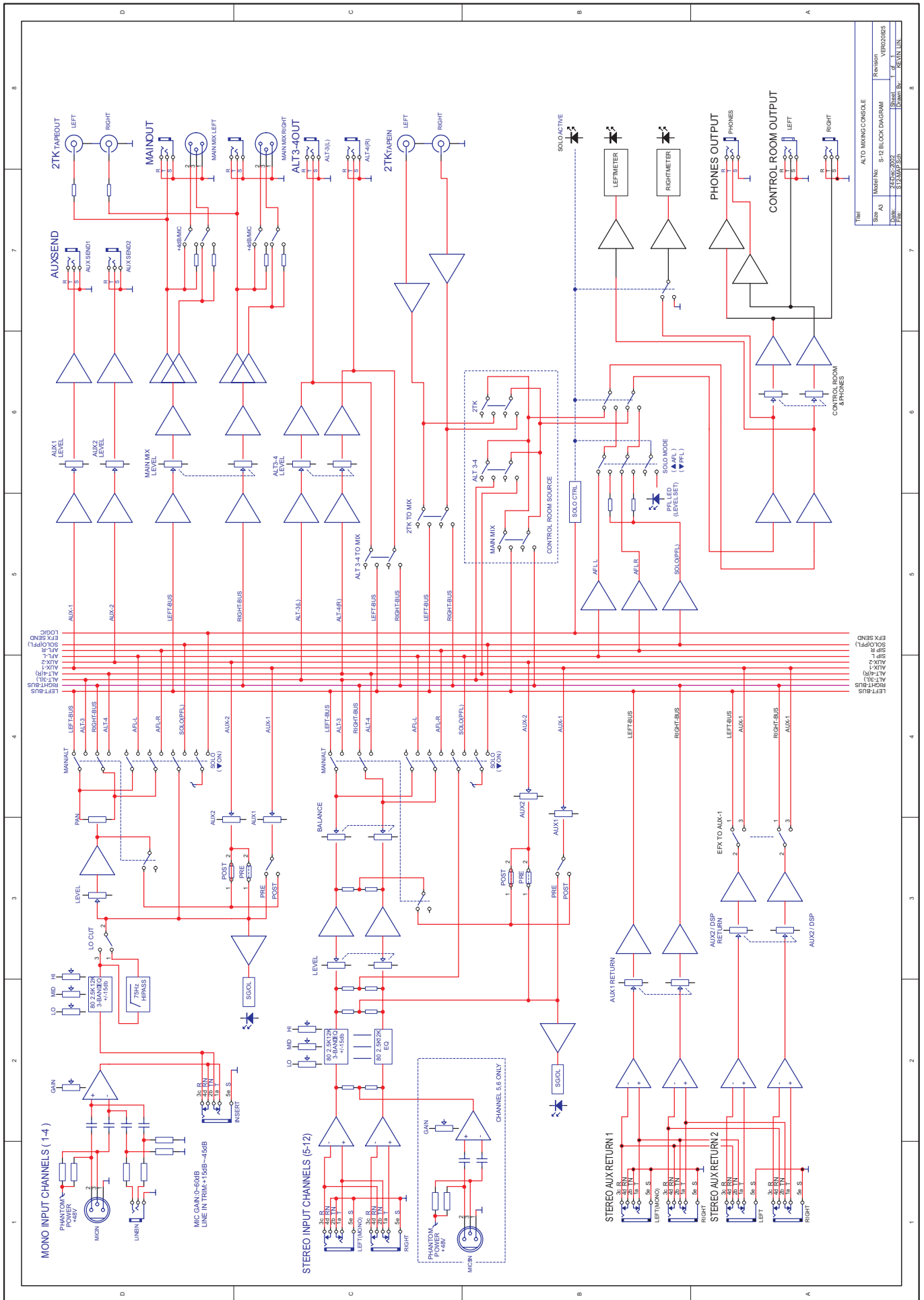
## 6. FOR THE EXPERTS WHO WANT TO KNOW MORE

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. SYSTEM BLOCK DIAGRAMS



Rev	Modif No.	S-12 BLOCK DIAGRAM	Revision
1	1	24/02/2007	VER020805
2	2	24/02/2007	VER020805
3	3	24/02/2007	VER020805
4	4	24/02/2007	VER020805
5	5	24/02/2007	VER020805
6	6	24/02/2007	VER020805
7	7	24/02/2007	VER020805
8	8	24/02/2007	VER020805

## 8. TECHNICAL SPECIFICATIONS

### 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 Noise Rated) 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.

### Main Mix Section

Noise (Bus noise) Fader 0 dB, channels muted:-100.0dBr (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 +20dB  
AUX Sends max out +22dBu

### Power supply

Main voltage USA/Canada100-120V~, 60Hz  
Europe210-240V~, 50Hz  
U.K./Australia240V~, 50Hz

Power Consumption 23watts  
Fuse 100-120V~ : T500mAL  
210-240V~ : T250mAL  
Main connection Standard IEC receptacle

### Physical

Dimension (WXDXH) 300mmX355mmX28/80mm (11.8"x14.0"x0.8"/3.1")  
Net weight 4.04Kg (8.908lb)

## 9. 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.

**SEKAKU ELECTRON IND. CO., LTD**

NO.1, LANE 17, SEC. 2, HAN SHI WEST ROAD, TAICHUNG, 401 TAIWAN

<http://www.altoproaudio.com> Tel:886-4-22313737

email: [alto@altoproaudio.com](mailto:alto@altoproaudio.com) Fax:886-4-22346757

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