

User's Manual

VOICE plus D

MIC PREAMPLIFIER/
VOICE PROCESSOR
WITH DIGITAL OUTS



www.altoproaudio.com
Version 1.0 August 2005

— 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.



Disposing of this product should not be placed in municipal waste and should be separated for separate collection.

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 VOICE plus D MIC PREAMPLIFIER/VOICE PROCESSOR WITH DIGITAL OUTS and thanks for choosing one of the results of ▲LTOAUDIO TEAM job and researches.

For our ▲LTOAUDIO TEAM, music and sound are 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 Centres in Italy, Netherlands, United Kingdom and Taiwan. The core of our digital audio products is a sophisticated DSP (Digital sound processor) and a large range of state of the art algorithms, which have been developed by our Software Team for the last few 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 VOICE plus D is the result of many hours of listening and tests involving common people, area experts, musicians and technicians. The result of this effort is that you can acquire an extremely efficient and universal dynamics processor.

It contains several circuit designs which make the unit an ultimate dynamic processor: INPUT, TUBE EMULATION, COMPRESSOR, VOICE OPTIMIZED EQ, DE-ESSER and MASTER VOL., which can guarantee to acquire the optimized sound.

Nothing else to add, but we would like to thank all the people that made the VOICE plus D 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. It is their passion for music and professional audio that has made it possible for us to offer you, our most important team member, our continued support.

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 our VOICE plus D MIC Preamplifier/Voice Processor with digital outs .

With the VOICE plus D, you will acquire an extremely useful MIC Preamplifier/ Voice Processor which is based on many years of experience and findings in amplifier and processor technology and is used throughout the world in renowned studios, sound reinforcement systems as well as in broadcast and television studios. The VOICE plus D meets the highest and non-compromise requirements in terms of operation, sound, specifications and workmanship.

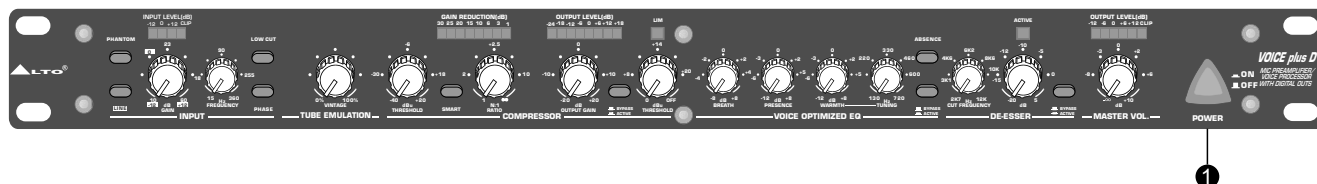
The VOICE plus D provides you a more natural and musical sound: eliminating interference signals, smoothing out the overall signal dynamics, compensating deficiencies in the sound image and removing unwanted frequencies etc he switchable +48V Phantom Power supply allows you to operate condenser microphone more conveniently. It also includes a sophisticated 24 bit digital output interface with SPDIF connector for transmitting digital audio signal. We believe the VOICE plus D is your perfect choice for enhancing the performance of any console or digital audio workstation

2. FEATURE LIST

- Mountable in one standard 19" rack unit.
- Providing +48V phantom power for MIC input stage
- Smart compressor for precision, limiting signal peaks and dynamic processing
- Voice optimized EQ is responsible for voice reinforcement
- De-essor for eliminating the hiss and unnecessary vocal
- High quality parts and rigid configuration for long life and full credibility

3. CONTROL ELEMENTS

3.1 The Front Panel

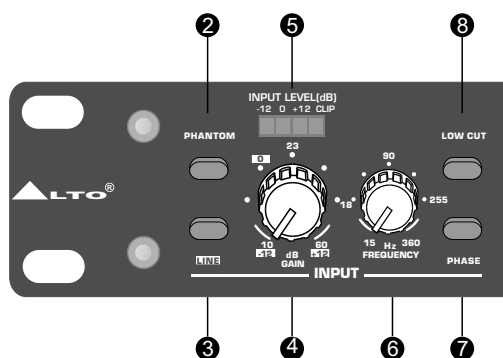


Your VOICE plus D provides with convenient operation interface and excellent performance. You can easily find the six sections from the interface: input section, Tube Emulation , Compressor section, Voice optimized EQ section, De-esser section and Master Vol. Section. For more details, please refer to the following description.

1. POWER Switch

Turn the apparatus ON or OFF.

3.1.1 INPUT Section



2. PHANTOM Switch

Engage this button will provide the standard +48V DC power for most condenser microphones.

Note: Plug in the microphone well before turning phantom power on.

3. LINE Switch

This switch determines the type of input signal, up for MIC input; down for LINE input.

4. GAIN Control

Through this control you can adjust the input level. When the LINE switch is engaged, the input signal can be varied from -12dB to +12dB, otherwise, the input signal can be varied from 10dB to 60dB.

5. INPUT LEVEL Meter

The 4 segments LED will read the actual input level. The CLIP LED will light up when clipping distortion occurs in the circuit.

6. FREQUENCY Control

This control is used to select the frequency for low cut filter from 15Hz to 360Hz, based on which, the frequency below selected frequency will be cut off.

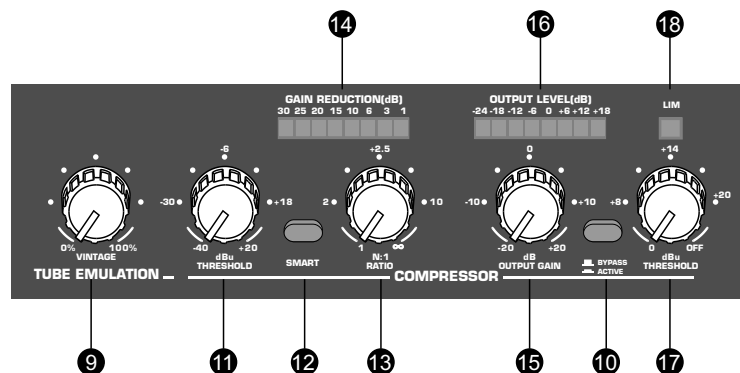
7. PHASE Switch

This button will reverse the phase of the corresponding frequency output by 180°, so that, the frequencies cancellation in some fields can be compensated for.

8. LOW CUT Switch

Engage this button to add a low cut filter in the signal path with a 18dB/Octave. You can use this function to reduce hum and stage rumble when using microphones.

3.1.2 TUBE EMULATION Section



9. VINTAGE Control

This pot can be used to select the amount of boost (0%-100%) applied to the even harmonic series of the signal being amplified by the unit. The effect of manipulating the harmonic distortion is of increasing or decreasing the apparent "warmth" of the signal. This capability is derived from the transformer and its dual servo gain stage.

3.1.3 COMPRESSOR Section

10. BYPASS/ACTIVE Switch

Pressing this switch, the compressor will be active. While release this switch, the Compressor is turned off. It can be used to make an A/B comparison between the processed and the unprocessed signal.

11. THRESHOLD Control

Via this control, you can set the threshold of the compressor from -40 to +20dBu. When the level of audio signal is higher than the set threshold, Hard knee compression will be applied; once the audio signal level is 10dB more than the set threshold, the SKC (Smart Knee Control) will be applied to the audio signal

12. SMART Switch

Lovable function, through this button the hard knee mode will be converted into SKC mode. If you want to get a very musical compression and you wish to get the most inaudible compression, use SKC.

13. RATIO Control

It is input signal to output signal ratio. That is to say how the signal exceeding the threshold has to be reduced. It can be varied from 1:1 to ∞ :1. When the ratio is 1:1, the signal hasn't been compressed at all. And the signal will be over-compressed with high compression rate, which results in much loss in dynamic range.

14. GAIN REDUCTION Meter

It indicates the gain reduction. The range is from 1 dB to 30dB.

15. OUTPUT GAIN Control

Via this control, you can vary the output signal by a maximum of 20dB. In this way you can recover a level that had been lost because of the compression process.

16. OUTPUT LEVEL Meter

It reads the actual output level. The range goes from 24dB to +18dB.

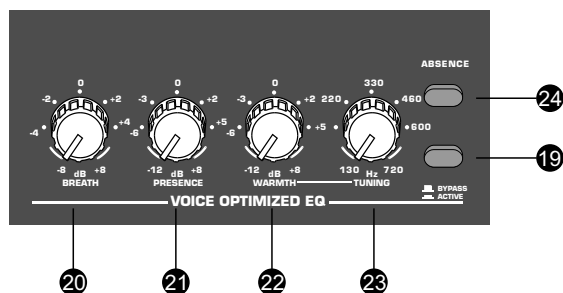
17. THRESHOLD Control

Through this control, you can set the threshold of the limiter. The unit will activate the limiter when the signal exceeds the threshold for more than 20dB, when the signal is below threshold again, reduction goes back to 0dB and in this case input and output signals are again identical.

18. LIM LED

The LED lights up when the limiter is engaged.

3.1.4 VOICE OPTIMIZED EQ Section



19. BYPASS/ACTIVE Switch

Engaging this button is equal to adding the optimized EQ to signal path; oppositely, releasing the button will allow you turn off the Optimized EQ function.

20. BREATHE Control

Through rotating this control, you can boost or attenuate the treble range by 8dB. You can use it to get rid of high frequency noises or to boost the high harmonics of the human voice.

21. PRESENCE Control

Rotate this control to boost or attenuate those frequencies around 1.2kHz from -12dB to +8dB, which can affect most fundamental frequencies of human voice. It will give you a very wide panorama of sound effects.

22. WARMTH Control

Rotate this control to boost or attenuate the signal level of selected frequency from -12dB to +8dB.

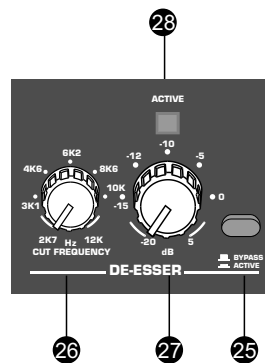
23. TUNING Control

Adjust this control to select the right frequency you wish to polish, the adjustable range is from 130Hz to 720Hz

24. ABSENCE Switch

Engaging this button will give you up to 4dB cut at 4kHz. It is used to reduce the unwanted noise in this band.

3.1.5 DE-ESSER Section



25. BYPASS/ACTIVE Switch

Engaging this button is equal to adding the De-esser function to signal path; oppositely, releasing the button will allow you turn off the function. 12dB to +8dB.

26. CUT FREQUENCY Control

Rotate this control to select the frequency that you want to cut off, the adjustable range is from 2k7 to 12kHz.

27. THRESHOLD Control

Rotate this control to set the threshold of De-esser from -20dB to 5dB. It's used to eliminate the hiss and unnecessary vocal caused by approaching MIC too nearest.

28. ACTIVE LED

It will light up when the De-esser is on.

3.1.6 MASTER VOL. Section



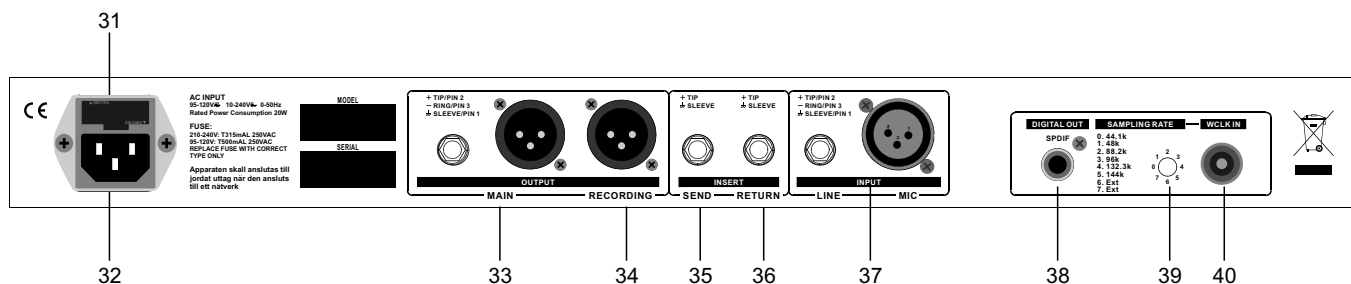
29. MASTER VOL. Control

Rotate this control to attenuate or boost the output level, which can be varied from $-\infty$ to +10dB.

30. OUTPUT LEVEL Meter

It will read the actual output level. The range goes from -12dB to +12dB. The CLIP LED will light up when clipping distortion occurs in the circuit.

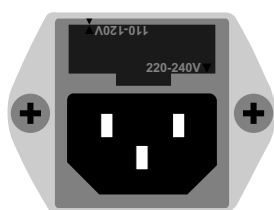
3.2 Rear Panel



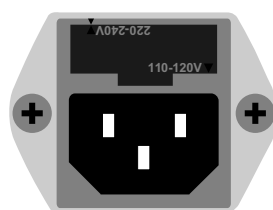
31. FUSE Holder/Voltage Selector

This is a dual voltage unit. Before you attempt to connect and operate the unit, please make sure that your local voltage matches the voltage on the fuse-holder cover.

Caution: The fuse protecting the AC supplies circuits of this unit. The fuse can only be changed by a qualified technician, in the event of a fault or changing the supply voltage. If the fuse continues to blow after replacing, discontinue use of this unit before repaired.



THIS IS SET FOR
110V AC TO 120V
AC OPERATION



THIS IS SET FOR
220V AC TO 240V
AC OPERATION

The fuse-holder above the AC connector on the rear of the chassis has 3 triangular markers(please refer to the above pictures), with two of these triangles opposing each other, your unit is set to the operating voltage printed next to these markers.

To change, pull fuse-holder out and rotate 180°, then push in again.

32. AC Inlet

This connector is meant for the connection of the supplied main cord. Do not insert power cord into unit until voltage has been correctly set. Do not plug power cord into AC power until voltage has been correctly set.

33. MAIN OUTPUT

These connectors are used to output the signal. You can output the signal via the balanced XLR connector or 1/4"TRS phone jack.

34. RECORDING

The XLR connector is used to output the signal to hard-disk recording system for recording.

35. SEND

Through this unbalanced 1/4" jack the audio signal can be routed to an external effects devices.

36. RETURN

The return signal from an external effect device will be processed through this 1/4" jack.

37. Audio INPUT

These connectors are used to input the signal source. You can input the signal via the balanced 1/4"TRS phone jack or XLR connector.

38. DIGITAL OUT

The connector provides 24 bit digital output. This connector is a professional interface for transmitting digital audio signal.

39. Sample Rate Selector

The unit is provided with 6 different sample rates: 44.1k, 88.2k, 96k, 132.3k, 144k When you connect WORD CLOCK IN connector for exterior clock, please select 6.EXT or 7.EXT.

40. WORD CLOCK IN

The exterior clock signal can be input from the BNC connector. The clock in scans the incoming information and automatically synchs to the necessary sample rate.

4. INSTALLATION AND CONNECTION

4.1 Mains Connection

VOICE plus D is provided with dual voltage plug. You must check the power supply voltage available in your country before connecting the power cord in the wall outlet.

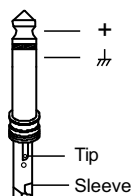
4.2 Audio Connection

The VOICE plus D Mic Preamplifier/Voice Processor is equipped with balanced XLR connectors as well as 1/4" phone jack and can be connected with other units in different ways to support a vast range of applications without experiencing a signal loss.

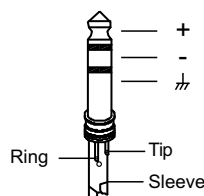
a. Wiring Configuration

Both types of connectors available on VOICE plus D can be wired in balanced and unbalanced modes. Please see following drawing for details.

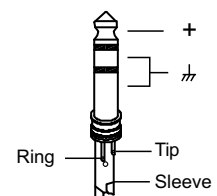
- For 1/4" Phone jack



TS Type Unbalanced

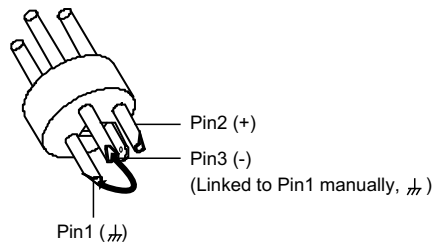


TRS Type Balanced

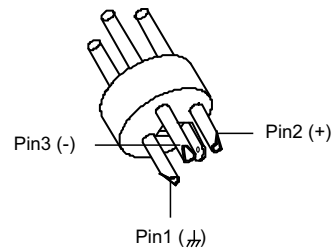


TRS Type Unbalanced

- For XLR connector



XLR Type Unbalanced

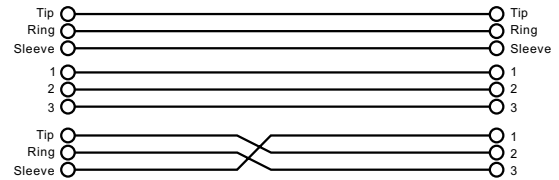
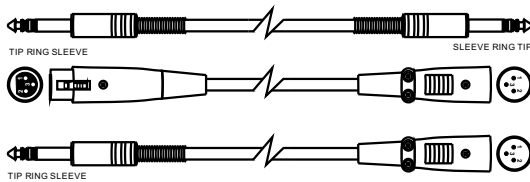


XLR Type Balanced

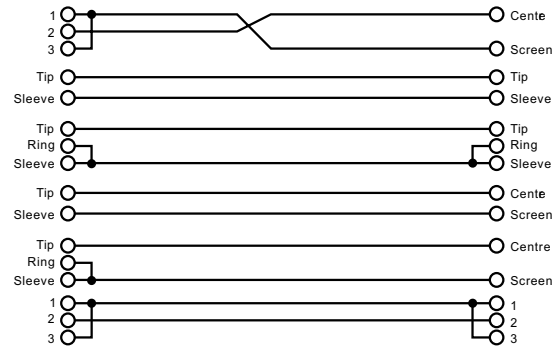
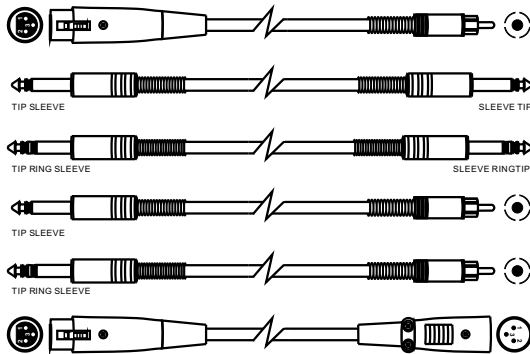
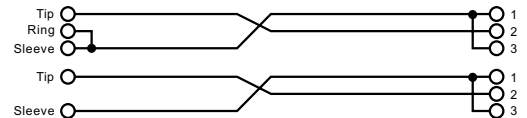
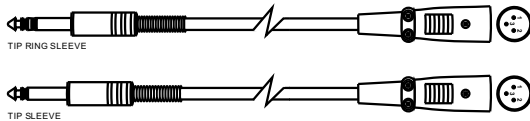
b. In Line Connection

Please see following drawing for details.

- **Balanced**



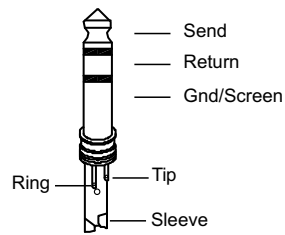
- **Unbalanced**



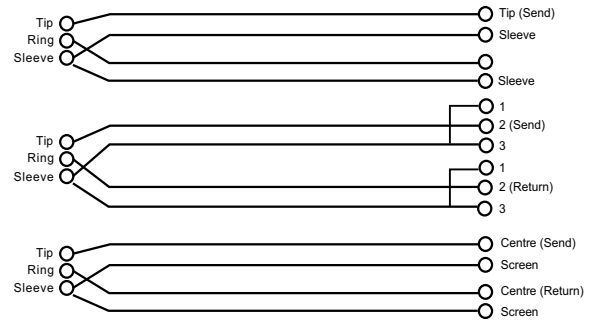
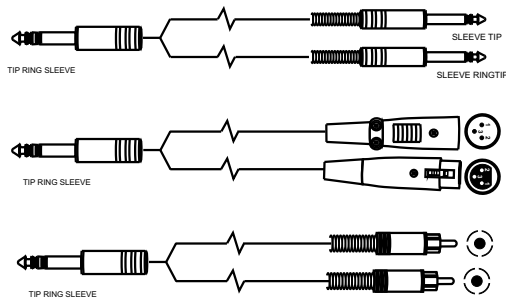
c. Insert Points Connection

In case you are using the main inserts of your mixing console and you have a single jack for SEND and RETURN, you can use an insert Y cable. Please see following drawing.

- 1/4" TRS insert



- Insert Leads



4.3 Rack Mounting

The most secure mounting is on a universal rack shelf available from various rack manufactures or your music dealer. The VOICE plus D Mic Preamplifier/Voice Processor fits into one standard 19" rack unit of space.

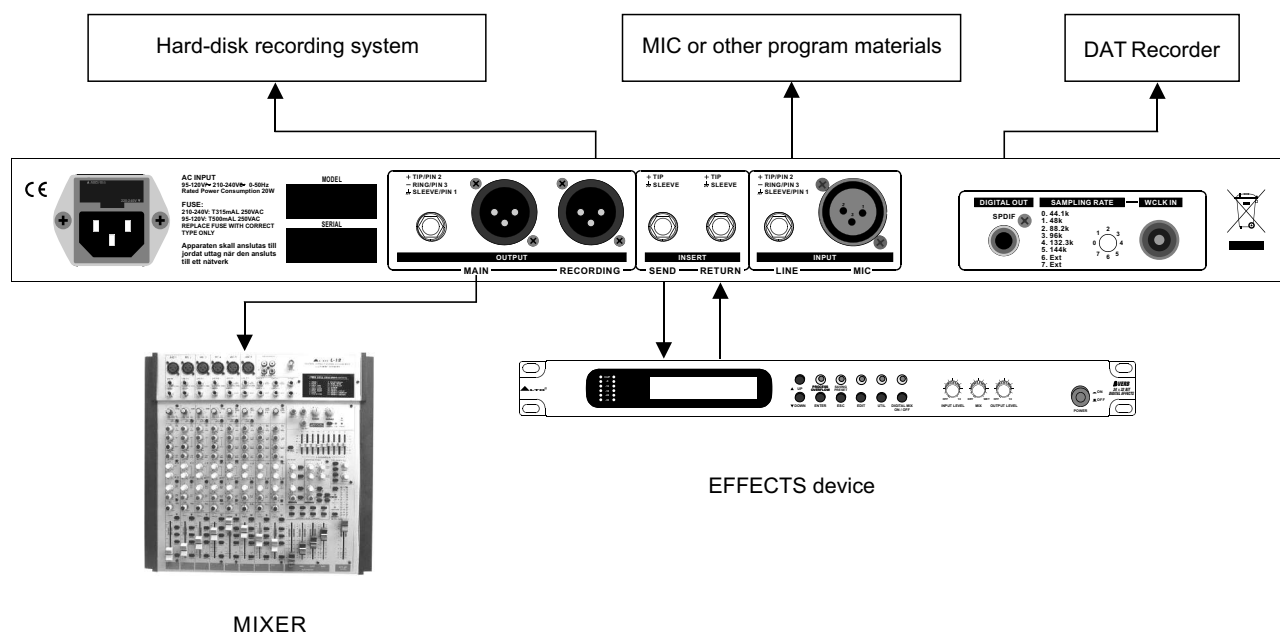
Please allow at least an additional 4" depth for the connectors on the rear panel. Be sure that there is enough air space around the unit for sufficient ventilation and please do not place the VOICE plus D on high temperature devices such as power amplifiers etc. to avoid overheating.

5. APPLICATION

When use the VOICE plus D mic pre-amplifier voice processor in a complex recording or PA system, the instrument or voices to be recorded or processed are directly connected to the INPUT connector of this apparatus. Polish the program materials depend on adjusting each function. The further details please refer to the following description:

- Depending on the LINE switch to select the input signal types, releasing button for MIC input signal or engaging button for LINE input signal;
- In order to achieve the proper gain before noise, don't ignore the input gain control, it can compensate the gain for external unit connected to VOICE has no input gain control. Besides, through the low cut function you can reduce hum and stage rumble when using microphones.
- If you sing into your microphone more gently in a soft passage, the level of the signal generated by your voice will get much closer the floor noise level and such floor noise will become disturbing. In order to kill this problem, expander/gate are used. Either more or less, the work done by expander/gate is similar to compressor, it's used to eliminate hiss or hum from a stage amplifier, crosstalk in a system or any other kind of background.
- The compressor is used to smooth out dynamic changes, create a more consistent volume throughout the program materials. It has two main parameters: threshold and ratio. Generally speaking, lower ratios are best for vocals and acoustic guitars; higher ratios tame the errant drum hit.
- In fact, the EQ function is corrective device, which is used to remove unwanted frequencies, or compensate for imperfect microphone response curves etc..
- Adjust the output volume control to get the proper gain.

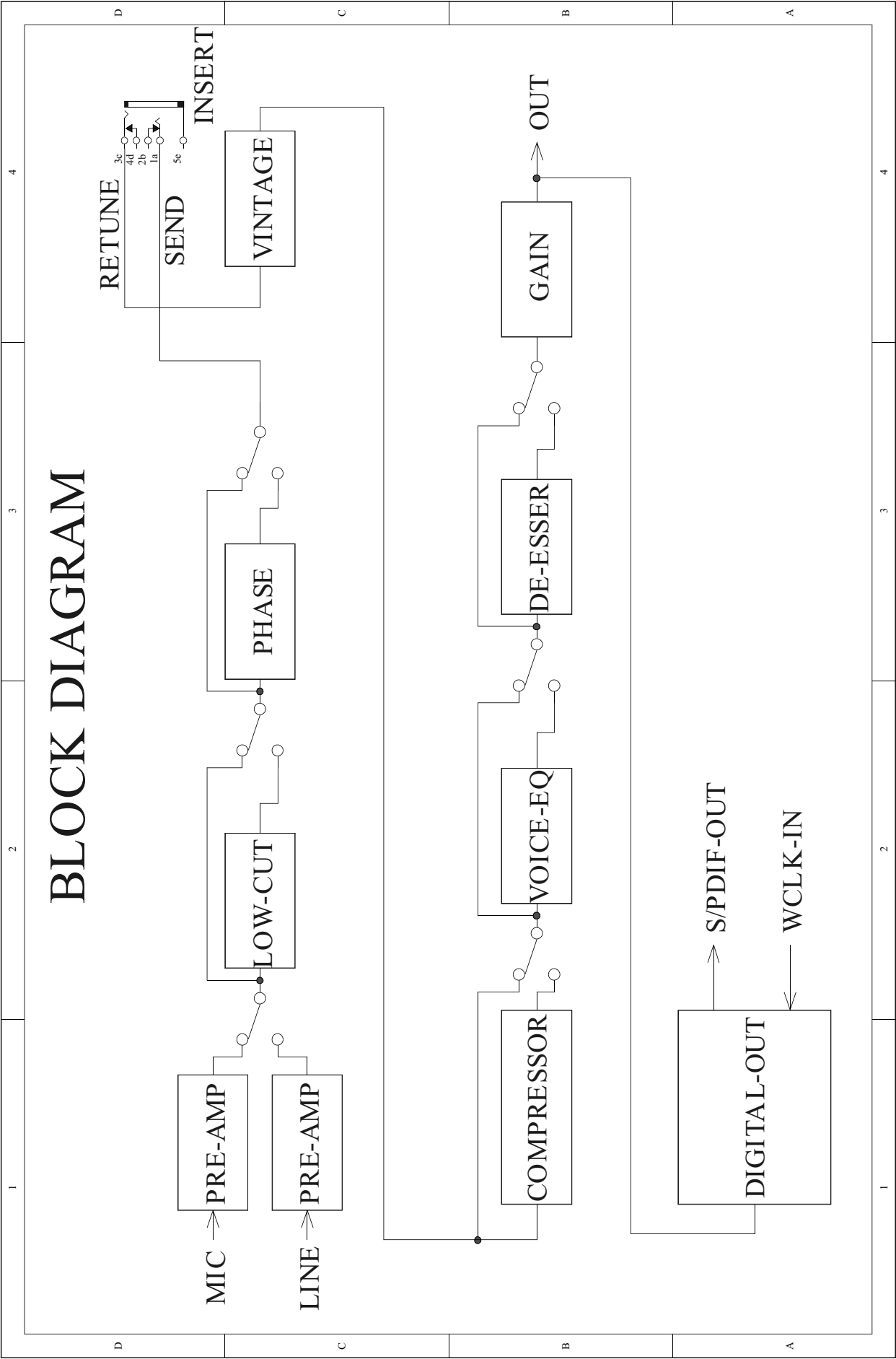
Here, we will introduce the common wiring configuration about VOICE plus D in a system. Please reserve your time to well understand the application example, so as to be able to fully exploit the VOICE plus and its versatile features.



6. TECHNICAL SPECIFICATIONS

Frequency Response	Line In To Main Out	10kHz-50 kHz : +0/-2dB
Distortion	MIC->INS Send	<0.01%/-30dBu/30dB Gain
	Line->INS Send	<0.01%/0dB/Unity
Noise	Main Out BAL	-88dBu
	Recording Out	-100dBu
	SNR	>100dBu
Input Level (Max.)	MIC In	+11.7dBu
	Line In	+22.7dBu
Output Level (Max.)	Main Out BAL	+22dBu
	Main Out UNBAL	+22dBu
	Recording	+22dBu
	Insert Send	+22dBu
Digital	Sampling Rates	44.1k, 48k, 88.2k, 96k, 132.3k, 144k
	Output	24-bit
Power Supply	Mains Voltage	U.S ./ Canada 120V~, 60Hz
		U.K ./ Australia 240V~, 50Hz
		Europe 230V~, 50Hz
	General Export Model	95-120V~, 200-245V, 50-60Hz
	Power Connector	20W MAX
	Fuse	100-120V: 500mA
		200-240V: 315mA
Physical	Dimensions	1 3/4" (44.5mm) × 19" (482.6mm) × 8
		1/2" (217mm)
	Net weight	Approx.3.3kg
	Shipping Weight	Approx.4.1kg

7. BLOCK DIAGRAM



8. 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.

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