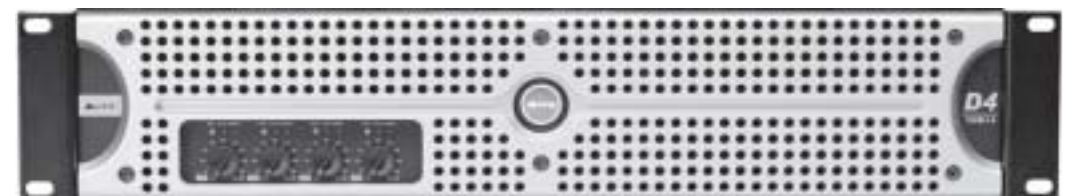
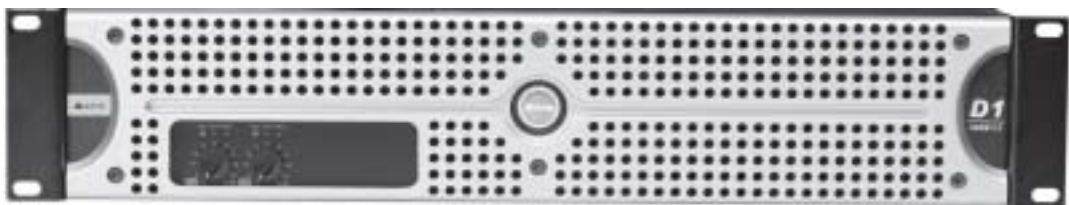


User's Manual

- D1
- D2
- D3
- D4

MULTI-CHANNEL POWER AMPLIFIER



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 dis-connect 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 D series Multi-channel Power Amplifier and thanks for choosing one of The results of ▲LTO AUDIO TEAM job and researches.

For our ▲LTO AUDIO 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 Centers 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 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'd 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, and the best fruits of our continuous researches and the best prices.

Our ▲LTO D series Stereo Power Amplifier is the result of many hours of listening and tests involving common people, area experts, musicians and technicians. The result of this effort is the sophisticated circuit design featuring high power and superb quality together with superior reliability and stability to provide the highest possible audio performance.

Nothing else to add, but that we would like to thank all the people that made the ▲LTO D series Multi-channel Power Amplifier a reality available to our customers, and thank our designers and all the ▲LTO staff, there to make possible the realization of products containing our idea of music and sound and there to support you, our customers, In the best way, conscious that you are our best richness.

Thank you very much.

▲LTO AUDIO TEAM

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1. ▲LTO D SERIES

The ▲LTO D series includes D1, D2, D3, D4. It is a line of high power, low profile, professional Power Amplifiers with advanced features and great reliability. They deliver tremendous power in only two rack spaces, providing high level performance under the most demanding conditions. An automatic speed fan matches cooling capacity with heat requirements. The amplifier frame contains all solid-state circuitry, using complementary silicon output devices. The amplifier is supplied with a single moulded AC cord having an appropriate AC plug for the intended operating voltage. The amplifier employs forced air cooling with a variable speed fan for minimum acoustic noise. Air flow is from rear to front to avoid temperature rise inside the Rack. D1, D3 contain two independent channels and D2, D4 contain four independent channels, with separate AC transformer secondaries, power supplies and protection system. All protection systems, except the main AC one, are self resetting upon removal of fault, and the remaining channel shall continue to operate. Each channel has independent protective circuitry against short circuit, over-loads and over temperature, and also has DC protection. Each channel has also LEDs for power-on, signal, clip and protection. Standard power connectors are used for power outputs. Input can be parallel or stereo or bridge and an high quality audio transformer can be added on the input stage of each channel.

2. FEATURES

- 2U rack, multi-channel high power amplifier.
- Fantastic audio quality even with extremely high volume levels.
- Solid and durable, can be mounted into a cabinet.
- Automatic limiter
- Stereo (dual-channel), or bridge mono operating modes.
- Balanced XLR, ϕ 6.3 inputs / parallel outputs to ensure noiseless long wiring.
- Binding post and professional speak-on connectors for output.
- Stereo, bridge, and parallel output wiring possibility.
- Front panel LED indicators for power-on, signal, protection and clip.
- Accurate gain control
- Independent DC, thermal, overload and short-circuit protection on each channel automatically protects amplifier and speakers.
- Used together with line array cabinet in one audio system
- Class D technology, switch power, light weight and high power
- Manufactured under TS16949, ISO 14001 certified management system and RoHS directive.

3. CONTROL ELEMENTS

3.1 Front Panel (Take the rear panel of D4 as an example)



① Illuminated Power Switch

It turns on or off the unit. When the amplifier is powered-on, the power switch illuminates blue.



② Signal LED

Green LED, This LED lights up green when the output level reaches -20dB.

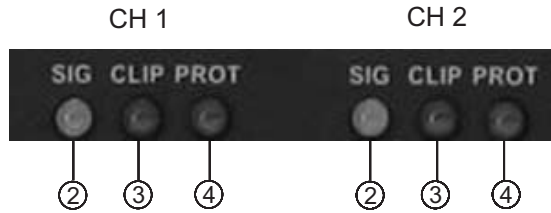
③ Clip LED

Red LED, When the signal distortion reaches or surpasses 0.5%, the Led lights up. This means the output level of signal source is too high and it is time to reduce input level until clip led lights off.

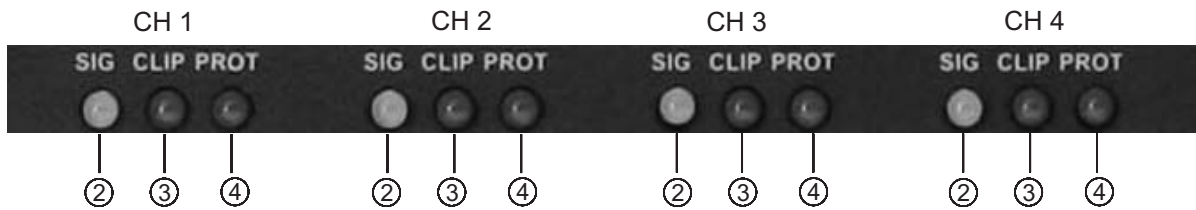
④ Protection LED

Red LED, D1, D2, D3, D4 each has four protection functions. They are respectively short-circuit protection, over-load protection and over heat protection. If one of the protections is activated, the protection LED lights up. If the unit works well, the protection LED lights off.

SIGNAL, CLIP, PROTECTION LED on 2-channel models



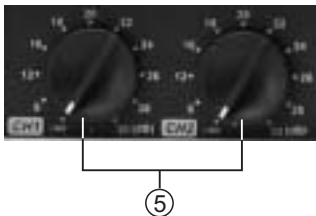
SIGNAL, CLIP, PROTECTION LED on 4-channel models



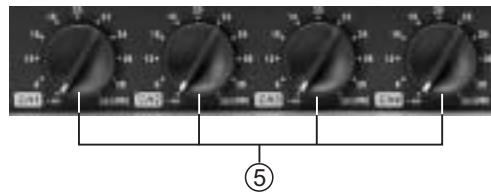
⑤ Gain Control

Turn the gain control clockwise to increase gain and counter clockwise to decrease gain. The maximum voltage gain for each model is shown on the front panel. The gain control are marked in dB.

Gain Control on 2-channel models



Gain Control on 4-channel models



3.2 Rear Panel (take the rear panel of D4 as an example)



⑥ Power Supply Socket

It is used to connect power cord, after setting the proper voltage, connect one end of power cord with the unit and another end with mains.

⑦ Breaker

Breaker protects the amplifier from damage from over-current. If the current surges, the breaker switches off amplifier circuit automatically, and then it can resume the amplifier operation by pressing the breaker manually.

⑧ Combo Input Connector

One connector for each channel. These are combo connectors which input signal to amplifier respectively.

⑨ Mode Selector

For two-channel models, there is only one mode selector. It controls the operation of channel1-2. For four-channel models, there are two mode selectors. One controls the operation of channels1-2. The other controls the operation of channels3-4. It is impossible to bridge or parallel channels 1 or 2 with channels 3 or 4. The selectors can set the amplifier's operating mode for Stereo, Parallel, or Bridged operation.

- Parallel

In this mode, both inputs of a pair are connected together. One signal supplies both channels. Please don't connect different signals to each input. The signal input from channel 1 or 2 will be output from both channel 1 and 2 simultaneously. Each channel's gain control and speaker connection are independent.

- Stereo

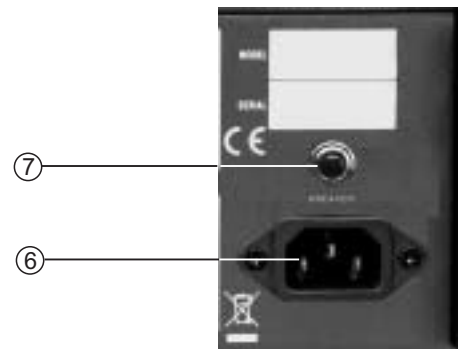
In this mode, Channel 1 and Channel 2 operate independently (just as traditional stereo amplifier). The signal input into channel 1 can be output from channel 1 only, similarly, the signal input into channel 2 can be output from channel 2 only.

- Bridged

In this mode, both channels of a pair are combined into a single channel with twice the output voltage. Use only the first channel's input and gain control. Set the second channel's gain control to minimum.

⑩ 30Hz FILTER

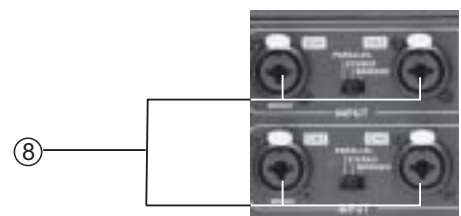
Set the switch to the position ON, the filter cut off frequency below 30Hz. This reduces distortion and prevent amplifier from overload. Set the switch to the position OFF, the switch is turned off



Combo connector of 2-channel models



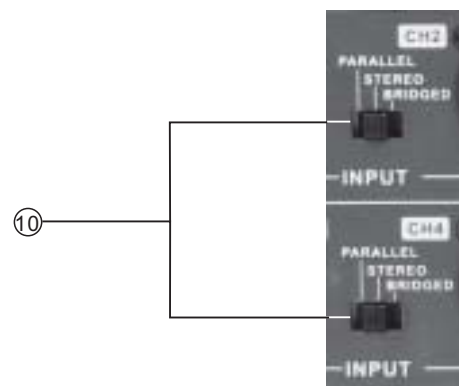
Combo connector of 4-channel models



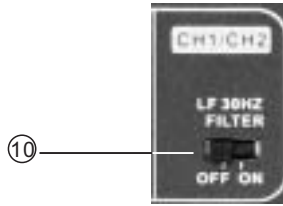
Mode Selector of 2-channel models



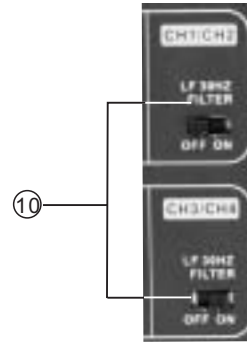
Mode Selector of 4-channel models



30Hz Filter of 2-channel models



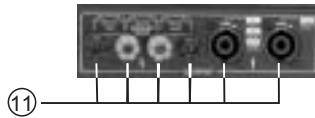
30Hz Filter of 4-channel models



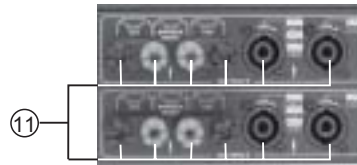
⑪ Output Connector

There are two kinds of connectors: Binding post and professional speak-on connector. You can choose proper connectors according to actual need. Wiring connections are shown on the back of the chassis. Please pay special attention the polarity marks, which are designed to make connections easier. Please refer to PART 4 for wiring.

Output connector of 2-channel models



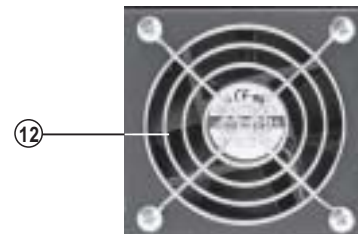
Output connector of 4-channel models



⑫ Fan

The fan can accelerate the flow of air to lower the temperature inside unit. It runs faster when amplifier temperature gets higher.

Note: do not block the air vents of the amplifier. There is a net to prevent amplifier from dust. Too much dust can block air flow. You can unscrew the six screw on front panel to take out the net for cleaning.



4. APPLICATION

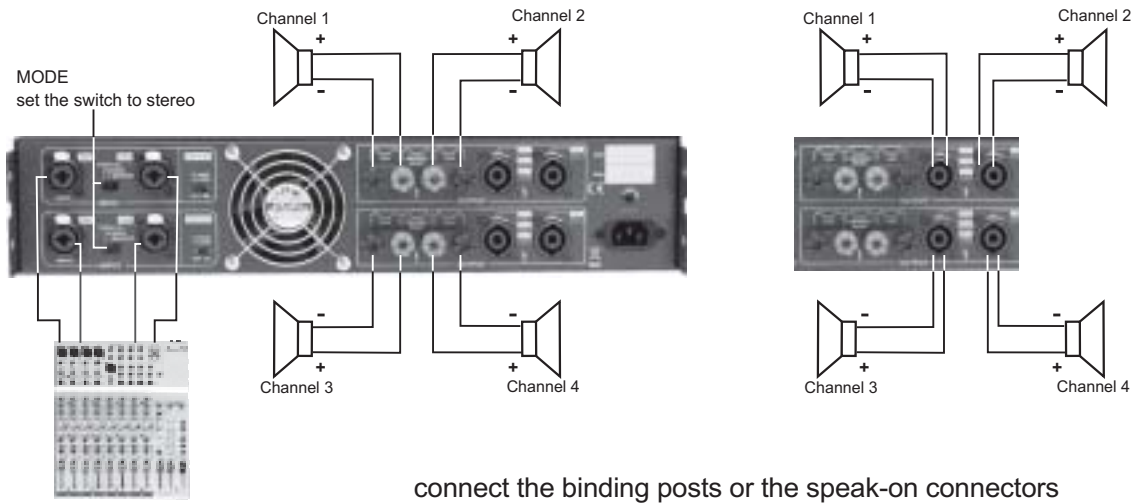
Totally two optional modes:

Please see following diagram for connecting the power amplifier into your audio system.

4.1 Stereo and Parallel Mode

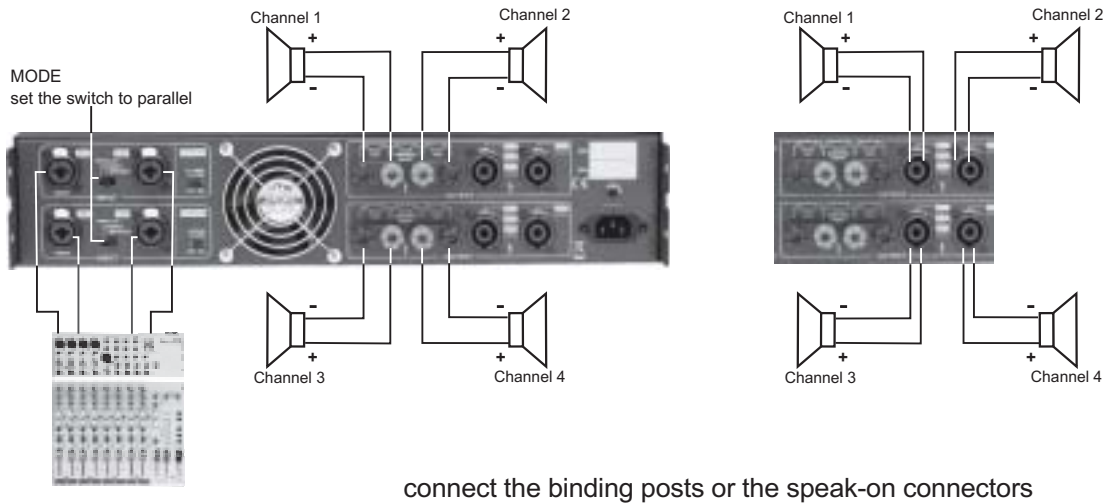
In stereo mode, the mode selector should be set to STEREO. Channel 1 and Channel 2 operate independently (just as traditional stereo amplifier). The signal input into channel 1 can be output from channel 1 only, similarly, the signal input into channel 2 can be output from channel 2 only.

Connect each loudspeaker with the corresponding channel of the power amplifier as the connection figure shown on the chassis. Four channel models are shown in the figures below. Make sure the polarity connection of all the speakers are correct.



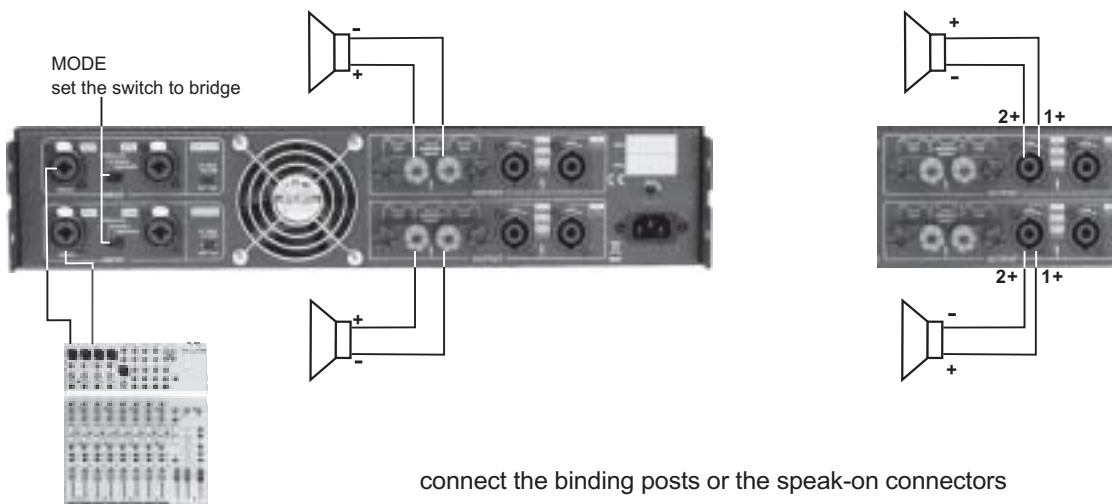
4.2 Parallel Mode

In parallel mode, the mode selector should be set to PARALLEL, the signal input from Channel 1 or Channel 2 can be output from Channel 1 and Channel 2 simultaneously. The volume of channel 1 or channel 2 can be controlled separately.



4.3 Bridge Mode

In this mode, the signal input into channel 1 will be output from the bridged end, on other hand, the output level control of channel 2 should be turn down to smallest (turn the volume control at counterclockwise). Only the volume control of channel 1 is used to control the volume of whole system.



5. TECHNICAL SPECIFICATIONS

	D1	D2	D3	D4
Output power				
	2CH Amplifier	4CH Amplifier	2CH Amplifier	4CH Amplifier
Power continuous @0.5% THD . Both channels driven, 230V				
8ohms per channel(RMS)	2 X 240W	4 X 240W	2 X 340W	4 X 340W
4ohms per channel(RMS)	2 X 390W	4 X 390W	2 X 540W	4 X 540W
Power EIAJ@1% THD, both channels driven, 230V				
8ohms per channel(EIAJ)	2 X 270W	4 X 270W	2 X 370W	4 X 370W
4ohms per channel(EIAJ)	2 X 500W	4 X 500W	2 X 750W	4 X 750W
BRIDGED MODE				
16ohms (EIAJ)	1 X 520W	2 X 520W	1 X 740W	2 X 740W
8ohms (EIAJ)	1 X 1000W	2 X 1000W	1 X 1500W	2 X 1500W
Distortion(AMPTE-IM)	< 0.5%(THD, DIM, SMPTE)			
Frequency Response	20Hz-20kHz+/-0.1dB, -3dB points: 10Hz - 60kHz			
Damping Factor, at 8 ohms	> 300 at 8ohms			
100Hz	> 500			
1KHz	> 200			
10KHz	> 100			
Signal to Noise, 20Hz -20KHz	> 105dB/A weighted			
Voltage Gain	40 X (32dB)			
Input Sensitivity @ 4ohms	1Vrms			
Input Clipping	10Vrms (+22dB)			
Input Impedance	10k ohms unbalanced, 20k ohms balanced 56(36dB)			
Controls	Front: AC switch, gain knobs			
	Rear: low pass filter, mode selector			
	Power-on: blue			
Indicators (1per channel)	Operation/Protection: red			
	Clip: red			
Cooling	Continuously 7-variable-speed fan, rear- to - front air flow			
Load Protection	On/off muting, DC-fault load grounding relay. Internal fault fuses			
Power Requirements	AC230V,AC115V, 50-60Hz			
Dimensions	19"(483mm) rack mounting, 3.5"(88.8mm) tall (2 rack spaces)			
	11.2"(285mm) deep	14.8"(376mm) deep	11.2"(285mm) deep	14.8"(376mm) deep
Net Weight	5.50Kg	7.90Kg	5.50Kg	7.90Kg

6. 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. (H.K.) CO., LTD

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