User's Manual

▲LTODRIVE2.3

2 – WAY STEREO
DIGITAL X – OVER

▲LTO®

SAFETY RELATED SYMBOLS

	CAUTION	
⚡	RISK OF ELECTRIC SHOCK DO NOT OPEN	!

⚡ 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 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.

— 1 —

PREFACE

Dear Customer:

Thanks for choosing ▲LTO DRIVE2.3 2-Way Stereo Digital X-Over 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 would 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 DRIVE2.3 is the result of many hours of listening and tests involving common people, area experts, musicians and technicians. Nothing else to add, but that we would like to thank all the people that made the ▲LTO DRIVE2.3 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 best richness.

Thank you very much
▲LTO AUDIO TEAM

TABLE OF CONTENTS

1.INTRODUCTION

Thank you very much for expressing your confidence in ▲LTO products by purchasing our ▲LTO DRIVE2.3. With the ▲LTO DRIVE2.3 you have acquired an extremely musical and flexible Active Crossover which will provide you also the subwoofer application.

Our new ▲LTO DRIVE 2.3 (2 inputs, 4outputs, matrix-like operation X-over) allows the user to work with the quality of the 2/3 by 24×32-bit DSPs, permits extremely precise and fast speakers control and equalization for PA systems with the power of a matrix process allowing each kind of combination in assigning the 2 inputs to the 4 outputs. The ▲LTO DRIVE 2.3 is based on 2/3 extremely powerful, high-speed 24×32-bit DSP and very high quality 20-bit A/D and 24-bit D/A converters, preserving the pureness of analogue sound in your digital applications. The 128×64 graphical display and the 12 buttons and the relative encoder available on the front panel, offer an easy way of editing data, so to create new custom powerful and exciting presets which may then be stored in the unit as user's presets. The integrated MIDI interface permits real-time editing with a powerful pc based SW or a MIDI standard sequencer.

Both input channels feature a digital, high quality filters 5-band parametric equalizer, allowing boost /attenuation of 15 dB in 0.5dB increment's steps. On each output channel is possible to have a 4th order low pass and a high pass filters, limiter /compressor and polarity switchable 0° or 180°.

2.FEATURE LIST

- Single Rack Unit
- Robust and Compact Design
- 24×32-bit High Speed Signal Processor
- Open Architecture for Easy Software Updates
- Windows Editor for Easy to Use and Powerful pc Based MIDI Remote Control
- Band Pass Filter Available (Until −24dB/Oct) for Each Output Channel
- Up to 0.5 sec. of Delay Per Channel by Step from 21 ms to 2ms
- Lock-System for the Editing Functions
- Manufactured Under ISO9001 Certified Management System

3.FRONT AND BACK PANELS DESCRIPTION

## 3.1 The Front Panel
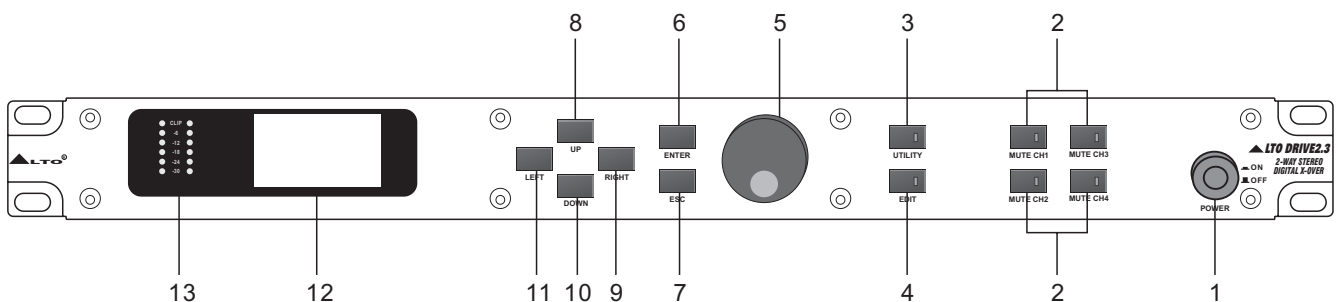
1.Power SW with LED
2.Mute buttons and LEDs for CH1, CH2, CH3, CH4
3.Utility key and LED
4.Edit key and LED
5.Dial knob(encoder)
6.Enter key
7.ESC key
8.Up key
9.Right key
10.Down key
11.Left key
12.Graphic display
13.Vu-meters

- **Power SW with LED (1)**
  Turns the apparatus on and off. Press this SW, the power LED inside the SW will turn on.
- **Dial Control knob (5)**
  Used to change editable values.

3.2 The Rear Panel
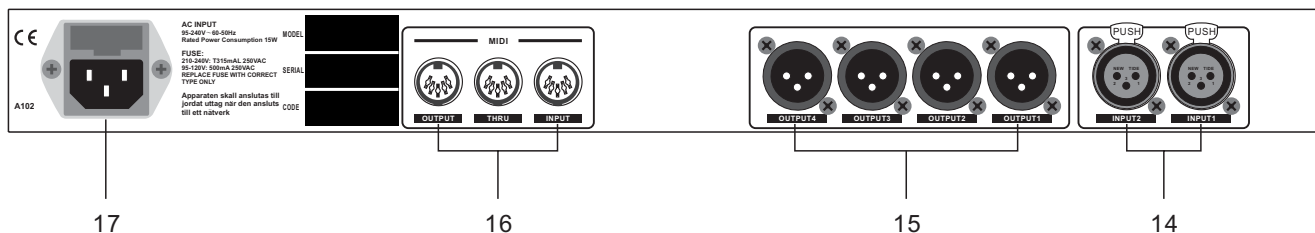
14.Input Connector for Input1 and Input2
15.Output Connector for Output1~Output4
16.MIDI Connector
17.Power Connector

- **Inputs (14)**
  These are XLR balanced connectors which connect to sources such as the channel inserts on mixing consoles. They may be used with nominal input levels from consumer to professional audio.

- **Outputs (15)**
  ▲LTO DRIVE2.3 has 4 outputs, they are XLR balanced connectors which connect to devices such as the channel inserts on mixing console or power amplifier inputs .

- **MIDI Connectors (16)**
  -MIDI in: 5-poles DIN connector for the MIDI input to the ▲LTO DRIVE2.3.
  -MIDI thr: 5-poles DIN connector for the MIDI thr.
  -MIDI out: 5-poles DIN connector for the MIDI output from the ▲LTO DRIVE2.3.

- **Power Connector (17)**
  This is an IEC 3-pole socket for connecting the AC power supply to the ▲LTO DRIVE2.3.

4.INSTALLATION & CONNECTION

4.1 Power Up and Audio Connections

a. Audio Connections

The connections between the ▲LTO DRIVE2.3 and the other audio devices have to be made using high quality cables so to prevent bad performances of the ▲LTO DRIVE2.3 itself. So it should be good to use low-capacitance shielded cables with a flexible internal conductor. Connect the cables to the ▲LTO DRIVE2.3 properly by observing the following precautions:
- Do not bundle audio cables with AC power cords.
- Do not place audio cables and ▲LTO DRIVE2.3 near sources of electromagnetic interference such as transformers, monitors, computers, etc.
- Always unplug cables by firmly grasping the body of the plug and pulling directly outward.
- Do not place cables where they can be stepped on.
- Avoid twisting a cable or having it make sharp, right angle turns.

b. Power Up Setting

Before turning on the ▲LTO DRIVE2.3's power, check if:
- All connections have been made correctly.
- The volume controls of the amplifier or mixer are turned down.

Insert the Power plug into the POWER input on the rear panel of the ▲LTO DRIVE2.3 and plug the power cord into an AC outlet.
Turn on the power of the ▲LTO DRIVE2.3, pushing the ON/OFF button on the front panel.
Turn on the power of the amplifier/mixer, and adjust the volume.

4.2 Operational Overview

At system startup the following splash screens will be shown on the graphic display.

The ▲LTO DRIVE2.3 is booting and initializing its hardware and software, loading the last used preset and the user interface. The process lasts a few seconds, afterwards the system goes to the Utility Menu (Utility Led is ON).
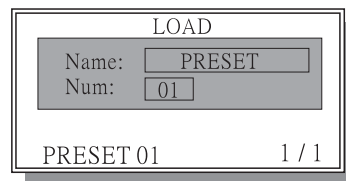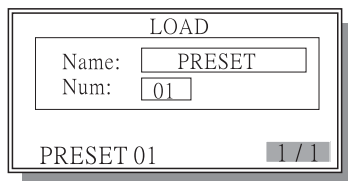
4.2.1 UTILITY MENU

The Utility menu is accessed by means of the Utility key (Utility Led is ON). The display shows as flowing figure:
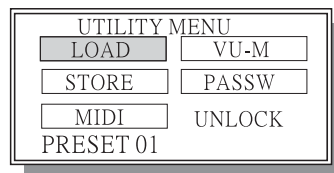
a. Load Preset

With this function it's possible to load one of the 65 available preset.

In this window the user can read the name, number and type of the currently loaded preset. 1/1 indicates the number of page; when it's selected it is possible to get back to the main menu pressing the Esc key. With the Up/Down key it's possible to select the preset or page number fields, selection is high lighted printing the item in reverse color.

To load a preset it is necessary to select the preset item; using the dial it is possible to choose the desired preset, to be confirmed pressing the Enter key.

If the user tries to load an empty preset, an error message (NO LOADING) is shown for some seconds. To go back to main menu, select page number, then press Esc.

b. Store Preset

With this function it's possible to store preset data into one of the 64 user available presets.
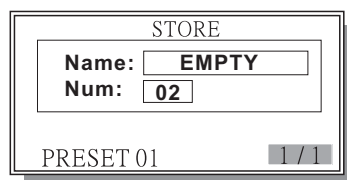
In this window the user can read the number of the location in which to save the current preset data. With the Up/Down key it's possible to select the preset or page number fields, selection is high lighted printing the item in reverse color.

To save a preset it is necessary to select the Preset item; using the dial it is possible to choose the desired preset number, to be confirmed pressing the Enter key.

After data saving, a character string (preset name) will be shown to the user for editing (max 8 chars).

```
                    STORE
        Name:  │    EMPTY    │
        Num:   │    02   │

        PRESET 01           1 / 1
```
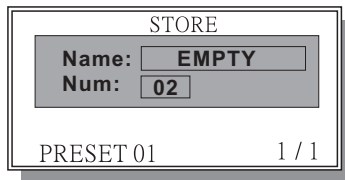
Using Left and Right keys the user can move into the string, with the dial the blinking character can be edited, Enter confirms the choice and Esc cancels operation allowing to maintain the old preset name. Upon confirmation the new preset name will be shown in the lower left corner of the window and in the name field.

```
                    STORE
        Name:  │    PRESET   │
        Num:   │    02   │
             Edit:  _PRESET
        PRESET 01
```
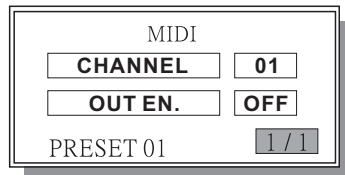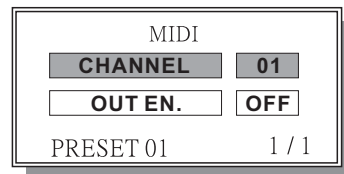
To get back to the main menu, select 1/1 and press the Esc key.

c. MIDI Setup

This function allows a simple MIDI configuration:

```
                    MIDI
        │   CHANNEL   │   │  01  │
        │   OUT EN.   │   │  OFF │
        PRESET 01           1 / 1
```

with the Up/Down key it's possible to select the MIDI channel and/or the output enable; selection is highlighted printing the item in reverse color.

```
            MIDI                          MIDI
    │  CHANNEL  │  │ 01 │          │  CHANNEL  │  │ 01 │
    │  OUT EN.  │  │ OFF │         │  OUT EN.  │  │ OFF │
    PRESET 01      1 / 1           PRESET 01      1 / 1
```
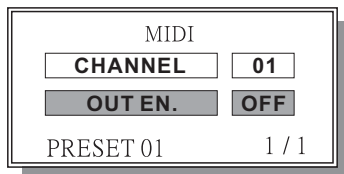
With the dial it is possible to change the value of the parameter, which will be operating immediately (no confirmation needed). To get back to the main menu, select 1/1 and press the Esc key. These two parameters are system settings, ie. They don't belong to a particular preset.

d. VU-Meter

This page shows 4 output volumes and activity of the 4 output limiters. (see)

```
        1 2 3 4    1 2 3 4
        OUT VOL    LIMITER
        PRESET 01           1 / 1
```
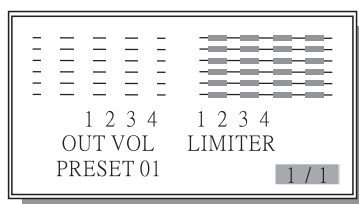
e. Password

With this function the user can decide if the device has to be protected from unauthorized tampering:

```
PASSWORD
        0 0 0 0 0 0
NEW PASSWORD

PRESET 01            1 / 1
```

With the Up/Down key it's possible to select the Password, New Password and page number items; selection is highlighted printing the item in reverse color.

```
PASSWORD
        0 0 0 0 0 0
NEW PASSWORD

PRESET 01            1 / 1
```

To have complete access to the system, the fields PASSWORD and NEW PASSWORD must match. If the user wants to restrict system access, it is sufficient to change the PASSWORD field. In this condition the user is not able to access UTILITY functions, except the PASSWORD screen. If the user wants to restore complete access to all the system functions, it is sufficient to change the PASSWORD field again to match the other field.

If the two fields aren't matched, the NEW PASSWORD field results blank, in order to protect the system password; when the two fields are matched, the NEW PASSWORD content becomes visible and there-fore may be changed, allowing to change the system password; to change a password, select the character string, use Left/Right keys to select a character and change the character using the dial. The default password when the ▲LTO DRIVE is shipped is 000000 (all zeros).

Never forget the system password!
If you forget the system password you will be unable to unlock your ▲LTO DRIVE; a lost password is unrecoverable. Consult your ▲LTO dealer in order to restore and unlock the system.

When the ▲LTO DRIVE is password protected, the LOCK indication appears on screen (see below).

```
      UTILITY MENU
   LOAD        VU-M
   STORE       PASSW
   MIDI        LOCK
PRESET 01
```

4.2.2 EDIT MENU

Edit key gives access to this menu (Edit LED is ON).
Use Up/Down/Left/Right keys to select one of the seven fields. Use Enter to access the selected sub-menu.

```
      EDIT MENU
        ROUTING
  IN L    OUT 1   OUT 3
  IN R    OUT 2   OUT 4
  PRESET 01
```
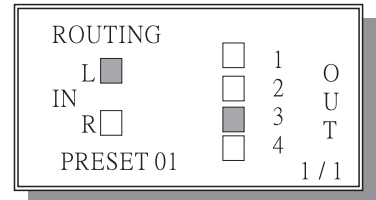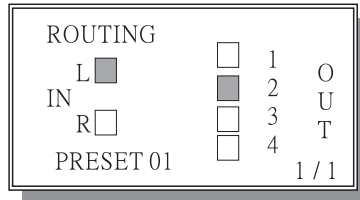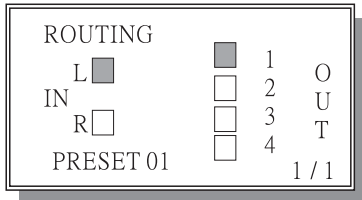
a. Routing

This function allows to configure the signal input/output path:
1/1 indicates the number of page; when it's selected it is possible to get back to the main menu pressing the Esc key.

ROUTING

IN L ☐   ☐ 1   O
    R ☐   ☐ 2   U
           ☐ 3   T
           ☐ 4
PRESET 01   1 / 1
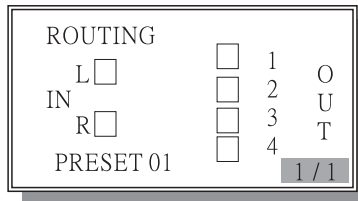
With the Up/Down keys it is possible to select the inputs and the outputs sequentially. In the pictures below the selection sequence is shown.

ROUTING

IN L ■   ☐ 1   O
    R ☐   ☐ 2   U
           ☐ 3   T
           ☐ 4
PRESET 01   1 / 1

ROUTING

IN L ■   ☐ 1   O
    R ☐   ■ 2   U
           ☐ 3   T
           ☐ 4
PRESET 01   1 / 1

ROUTING

IN L ■   ☐ 1   O
    R ☐   ☐ 2   U
           ■ 3   T
           ☐ 4
PRESET 01   1 / 1

The Right/Left keys make/cut the connection between the selected input and output. In the case above, pressing the Right key, the Left channel will be connected to the OUT 3 channel.

ROUTING

IN L ■   ☐ 1   O
    R ☐   ☐ 2   U
           ■ 3   T
           ☐ 4
PRESET 01   1 / 1
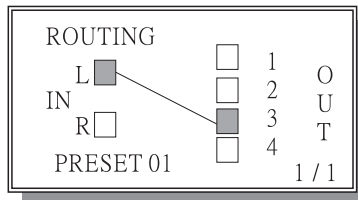
To get back to the main menu, select 1/1 and press the Esc key.

b. IN L / IN R
Here input channels can be configured:
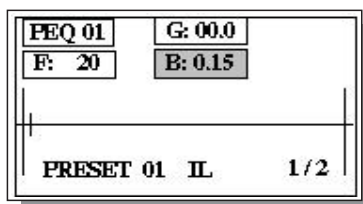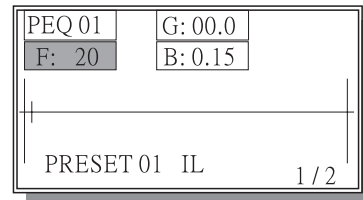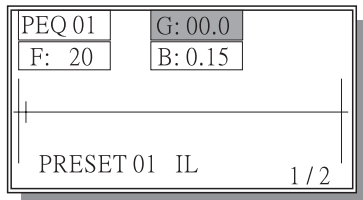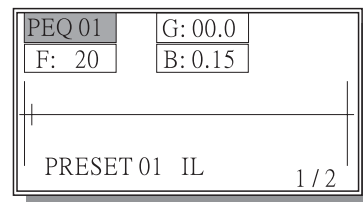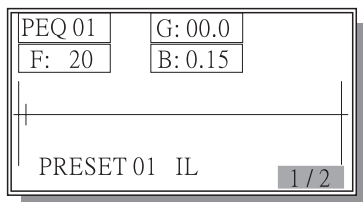
| PEQ 01 | G: 00.0 |
| F: 20 | B: 0.15 |

PRESET 01 IL   1 / 2

| PEQ 01 | G: 00.0 |
| F: 20 | B: 0.15 |

PRESET 01 IL   1 / 2

| PEQ 01 | G: 00.0 |
| F: 20 | B: 0.15 |

PRESET 01 IL   1 / 2

| PEQ 01 | G: 00.0 |
| F: 20 | B: 0.15 |

PRESET 01 IL   1 / 2

| PEQ 01 | G: 00.0 |
| F: 20 | B: 0.15 |

PRESET 01 IL   1 / 2

This graphic screen shows the frequency response of the channel.

Use Up/Down/Left/Right keys to select one of the five fields: Page Number, Filter Number, Gain, Frequency, Bandwidth. The selected value can be changed by means of the dial. The selected filter's frequency will be shown by a vertical segment on the display (see above).

When a filter parameter is modified, the audio signal is processed real-time, while the picture on the display waits briefly to update. During this waiting time, an asterisk is shown in the upper right corner of the window, until the graphic is processed.

To access the following screen select page number and press Enter, to get back press Esc.

```
┌──────────────────────┐      ┌──────────────────────┐
│  ┌────────────────┐  │      │  ┌────────────────┐  │
│  │ DLY. A   000 ms│  │      │  │ DLY. A   000 ms│  │
│  ├────────────────┤  │      │  ├────────────────┤  │
│  │ DLY. F  0000 us│  │      │  │ DLY. F  0000 us│  │
│  ├────────────────┤  │      │  ├────────────────┤  │
│  │ VOL.    0.00 dB│  │      │  │ VOL.    0.00 dB│  │
│  PRESET 01  IL       │      │  PRESET 01  IL       │
│              2 / 2   │      │              2 / 2   │
└──────────────────────┘      └──────────────────────┘

┌──────────────────────┐      ┌──────────────────────┐
│  ┌────────────────┐  │      │  ┌────────────────┐  │
│  │ DLY. A   000 ms│  │      │  │ DLY. A   000 ms│  │
│  ├────────────────┤  │      │  ├────────────────┤  │
│  │ DLY. F  0000 us│  │      │  │ DLY. F  0000 us│  │
│  ├────────────────┤  │      │  ├────────────────┤  │
│  │ VOL.    0.00 dB│  │      │  │ VOL.    0.00 dB│  │
│  PRESET 01  IL       │      │  PRESET 01  IL       │
│              2 / 2   │      │              2 / 2   │
└──────────────────────┘      └──────────────────────┘
```

Use Up/Down/Left/Right keys to select one of the four fields: Page Number, Volume, Delay Fine, Delay Adjust; the selected value can be changed by means of the dial. To access the precedent screen select page number and press Esc.

c. OUT 1 / 2 / 3 / 4

Here output channels can be configured:

• EDIT PARAMETRIC FILTERS (page 1 of 4)

```
┌──────────────────────┐      ┌──────────────────────┐
│ PEQ 01    G: 00.0     │      │ PEQ 01    G: 00.0     │
│ F:  20    B: 0.15     │      │ F:  20    B: 0.15     │
│ ┼──────────────────── │      │ ┼──────────────────── │
│   PRESET 01  O1       │      │   PRESET 01  O1       │
│              1 / 4    │      │              1 / 4    │
└──────────────────────┘      └──────────────────────┘

┌──────────────────────┐      ┌──────────────────────┐
│ PEQ 01    G: 00.0     │      │ PEQ 01    G: 00.0     │
│ F:  20    B: 0.15     │      │ F:  20    B: 0.15     │
│ ┼──────────────────── │      │ ┼──────────────────── │
│   PRESET 01  O1       │      │   PRESET 01  O1       │
│              1 / 4    │      │              1 / 4    │
└──────────────────────┘      └──────────────────────┘

┌──────────────────────┐
│ PEQ 01    G: 00.0     │
│ F:  20    B: 0.15     │
│ ┼──────────────────── │
│   PRESET 01  O1       │
│              1 / 4    │
└──────────────────────┘
```
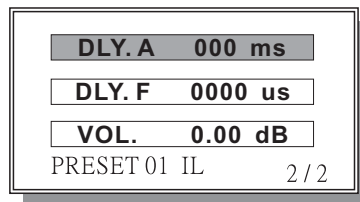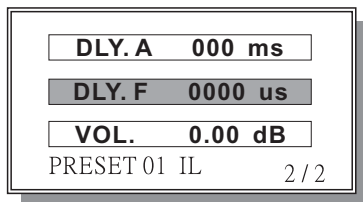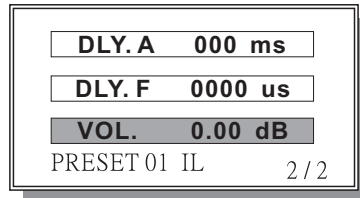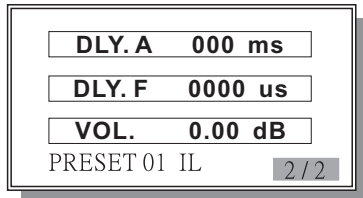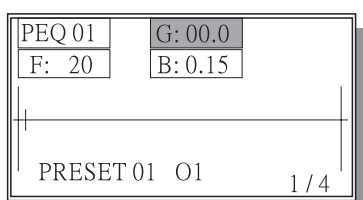
This graphic screen shows the frequency response of the channel.

Use Up/Down/Left/Right keys to select one of the five fields: Page Number, Filter Number, Gain, Frequency, Bandwidth. The selected value can be changed by means of the dial. The selected filter's frequency will be shown by a vertical segment on the display (see above).

When a filter parameter is modified, the audio signal is processed real-time, while the picture on the display waits briefly to update. During this waiting time, an asterisk is shown in the upper right corner of the window, until the graphic is processed.

To access the following page select page number and press Enter, Esc returns to main menu.

• EDIT HP/LP

```
HF:  21      ORD: 0
LF:20K0      ORD: 0



   PRESET 01  O1        2 / 4
```

```
HF:  21      ORD: 0
LF:20K0      ORD: 0



   PRESET 01  O1        2 / 4
```

```
HF:  21      ORD: 0
LF:20K0      ORD: 0



   PRESET 01  O1        2 / 4
```

```
HF:  21      ORD: 0
LF:20K0      ORD: 0



   PRESET 01  O1        2 / 4
```

Use Up/Down/Left/Right keys to select one of the five fields; Page Number, Freq Low Pass, Order Low Pass, Freq High Pass, Order High Pass. Hi Pass and Low Pass filters are of Butter worth type; the selected value can be changed by means of the dial.

When a filter parameter is modified, the audio signal is processed real-time, while the picture on the display waits briefly to update. During this waiting time, an asterisk is shown in the upper right corner of the window, until the graphic is processed.

To access the following page select page number and press Enter, Esc returns to precedent page.

• EDIT PARAMETERS
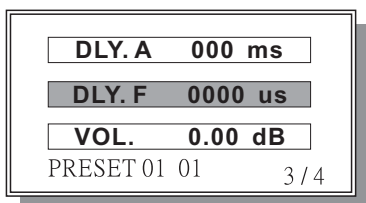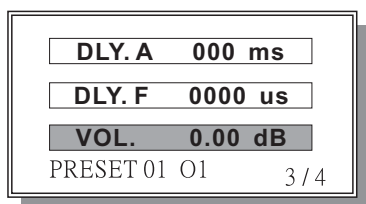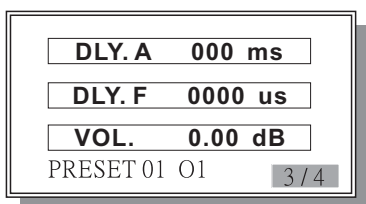
```
DLY. A    000  ms
DLY. F    0000  us
VOL.      0.00  dB
PRESET 01 O1        3 / 4
```

```
DLY. A    000  ms
DLY. F    0000  us
VOL.      0.00  dB
PRESET 01 O1        3 / 4
```

```
DLY. A    000  ms
DLY. F    0000  us
VOL.      0.00  dB
PRESET 01 01        3 / 4
```

```
DLY. A    000  ms
DLY. F    0000  us
VOL.      0.00  dB
PRESET 01 01        3 / 4
```
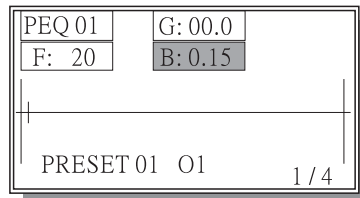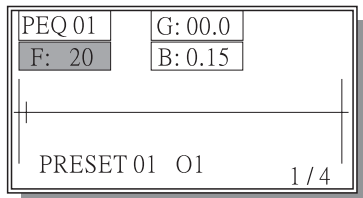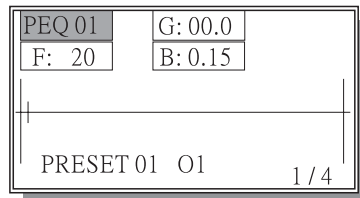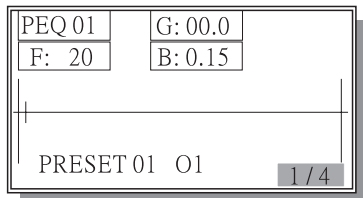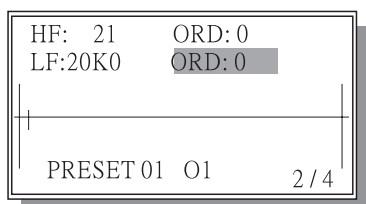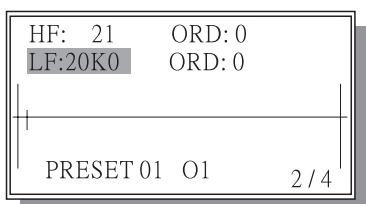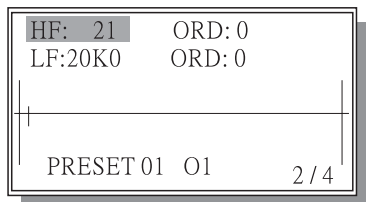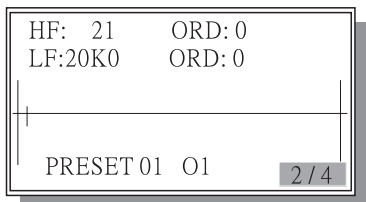
Use Up/Down/Left/Right keys to select one of the four fields: Page Number, Volume, Delay Fine, Delay Adjust; the selected values can be changed by means of the dial.

To access the following screen select page number and press Enter, Esc returns to precedent page.

```
┌─────────────────────┐        ┌─────────────────────┐
│  POL.        DIR    │        │  POL.        DIR    │
│  THR.       00 dB   │        │  THR.       00 dB   │
│  REL.       0.4 S   │        │  REL.       0.4 S   │
│  ATK.      0.05 S   │        │  ATK.      0.05 S   │
│ PRESET 01  O1   4/4 │        │ PRESET 01  O1   4/4 │
└─────────────────────┘        └─────────────────────┘

┌─────────────────────┐        ┌─────────────────────┐
│  POL.        DIR    │        │  POL.        DIR    │
│  THR.       00 dB   │        │  THR.       00 dB   │
│  REL.       0.4 S   │        │  REL.       0.4 S   │
│  ATK.      0.05 S   │        │  ATK.      0.05 S   │
│ PRESET 01  O1   4/4 │        │ PRESET 01  O1   4/4 │
└─────────────────────┘        └─────────────────────┘

┌─────────────────────┐
│  POL.        DIR    │
│  THR.       00 dB   │
│  REL.       0.4 S   │
│  ATK.      0.05 S   │
│ PRESET 01  O1   4/4 │
└─────────────────────┘
```
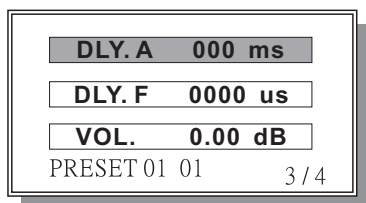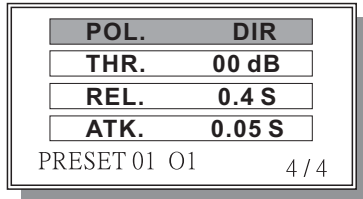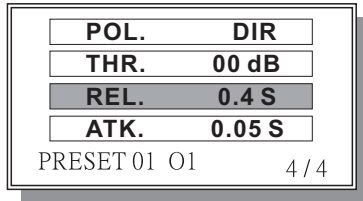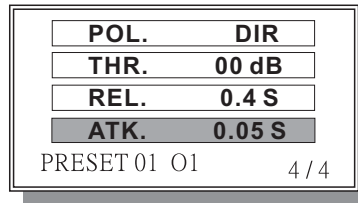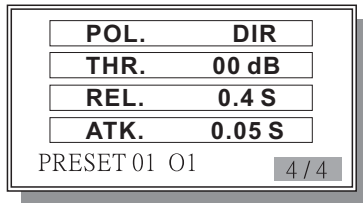
Use Up/Down/Left/Right keys to select one of the five fields: Page Number, Polarity, Limiter Threshold, Limiter Release, Limiter Attack; the selected values can be changed by means of the dial.

To access the precedent page select page number and press Esc.
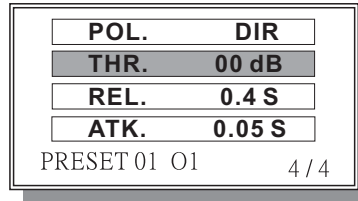
When the current preset has been edited, it is necessary to save this preset by means of the STORE function, otherwise whatever preset loading or power cycle of the system will overwrite and erase completely the edited data.

Up/Down/Right/Left key: These keys are used to navigate the menus and to modify the parameter values.

Enter/Esc key: These keys are used to access or to leave the menus, or to confirm the parameter values.

Edit key: This key allows the user to enter the edit menu (the related LED will light)

When entered the edit menu, the user will be able to access and modify all the parameters related to the process, when the user modifies one parameter value, the LED starts to blink to signal the update. The LED will blink until the storing of the new modified preset in one of the 64 available locations.

Vu-meter: This function allows the user to use the vu-meter to show the input signal level.

Mute keys: ▲LTO DRIVE has 4 mute keys.(each channel has one mute key).

Press the mute key, the related channel is muted.

5.APPLICATION ILLUSTRATION

5.1 ▲LTO DRIVE 2.3 2-Way Input, 4- Way Output (High, Mid, Low, Sub MIXED MONO)

If you want to present your ▲LTO DRIVE 2.3 in a 2-way input, 4-way output (high, mid, low, sub application, please connect your system as the following illustration step by step:

1.Set the input /output path as the following connection:

```
┌──────────────────────┐
│  ROUTING             │
│       L□    □  1      │
│            □  2   O   │
│  IN        □  3   U   │
│       R□    □  4   T  │
│  PRESET 01      1/1   │
└──────────────────────┘
```
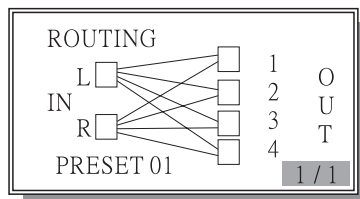
2.Plug the left line-in into INPUT1 and the right line-in into INPUT2

3.Set OUTPUT1, OUTPUT2, OUTPUT3, OUTPUT4 as high、mid、low、subfrequency band OUT separately.

4.Connect the OUTPUT1 to the high frequency amplifier, OUTPUT2 to the mid frequency amplifier, OUTPUT3 to the low frequency amplifier, OUTPUT4 to the sub frequency amplifier.

5.2 ▲LTO DRIVE2.3 2-Way Input, 4- Way Output (High, High, Low, Low STEREO)

If you want to present your ▲LTO DRIVE2.3 in a 2-way input, 4-way output (high, high, low, low, level) application, please connect the unit to your system as the following illustration step by step:

1.Set the input /output path as the following connection:

2.Plug the left line-in into INPUT1and the right line-in into INPUT2.
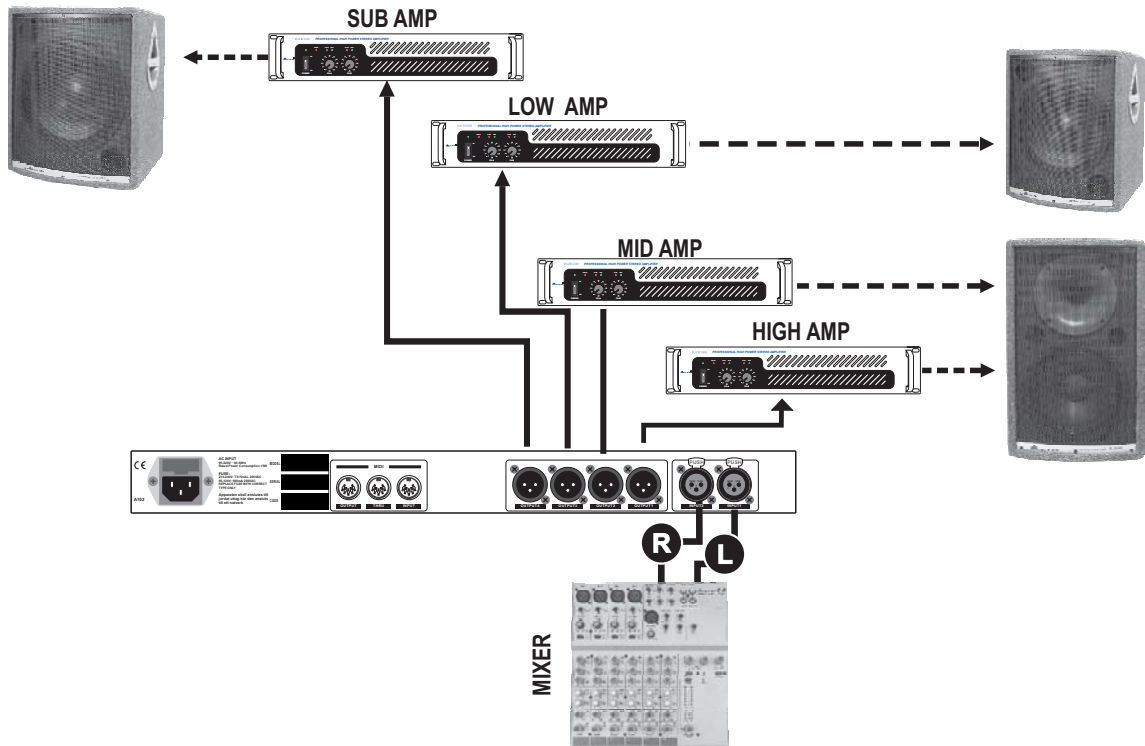
3.Set the OUTPUT1, OUTPUT2, OUTPUT3, OUTPUT4 as high, high, low, low frequency band OUT separately.
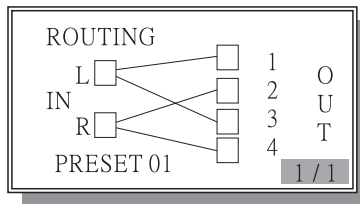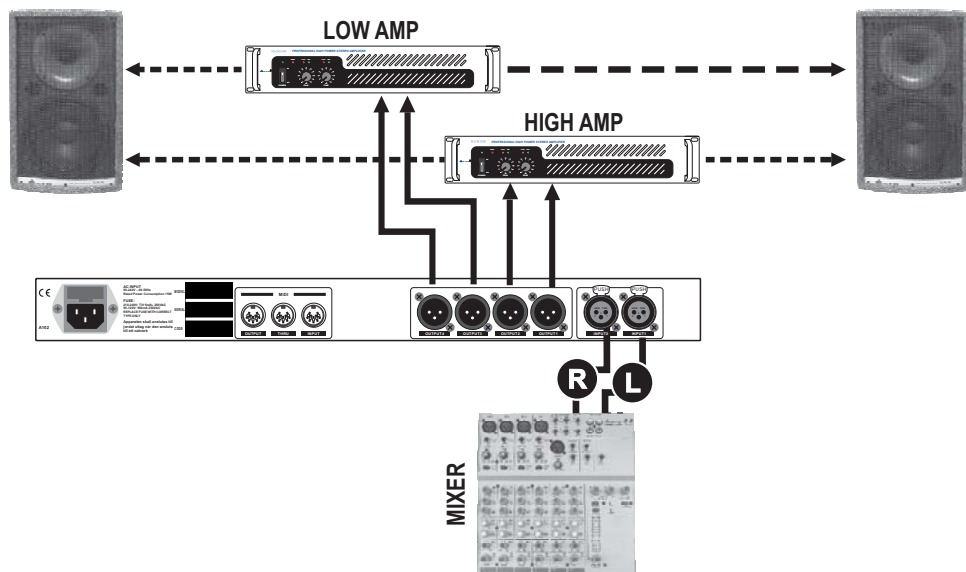
4.Connect the OUTPUT1 to the high frequency amplifier, OUTPUT2 to the high frequency amplifier, OUTPUT3 to the low frequency amplifier, OUTPUT4 to the low frequency amplifier.

6.APPENDIX

▲LTO DRIVE2.3 Midi standard control

PROGRAM CHANGE

Parameter	Value	Legend
Preset 01	0	Factory Preset
Preset 02 to preset 65	1, 2, 3,......, 64	User Preset

CONTROL CHANGE

Parameter	Controller	Value	setting	Legend
Bank	0	0, 1, 2		
Mode Channel	22	0, 1	Input Left, Input Right	
Mode Channel	22	2, 3, 4, 5	Output 1, 2, 3, 4	
Output Volume	7	0,..., 48	Select Mode Channel	−12 / +12 dB
High Pass Filter	17	0,..., 120	Mode Channel = 2, 3, 4, 5 Bank=0	HP Frequency
High Pass Filter	17	0, 1, 2, 3, 4	Mode Channel = 2, 3, 4, 5 Bank=1	HP Order
Low Pass Filter	18	0,..., 120	Mode Channel = 2, 3, 4, 5 Bank=0	LP Frequency
Low Pass Filter	18	0, 1, 2, 3, 4	Mode Channel = 2, 3, 4, 5 Bank=1	LP Order
Delay Line Adj	19	0,..., 127	Mode Channel = 0, 1, 2, 3, 4, 5 Bank=0	508 ms step 4ms
Delay Line Fine	19	0,..., 95	Mode Channel = 0, 1, 2, 3, 4, 5 Bank=1	1995 us step 21us
Limiter Threshold	20	0,..., 29	Mode Channel = 2, 3, 4, 5 Bank=0	0, ..., −55dB
Limiter Release	20	0,..., 3	Mode Channel = 2, 3, 4, 5 Bank=1	0.4s, 0.5s, 0.7s, 1.4s
Limiter Attack	20	0,..., 3	Mode Channel = 2, 3, 4, 5 Bank=2	0.05s, 0.1s, 0.2s, 0.3s
Polarity	21	0	Mode Channel = 2, 3, 4, 5	Direct
Polarity	21	1	Mode Channel = 2, 3, 4, 5	Invers
Filer 01, 02, ..., 04	12, 13, 14, 15	0,..., 120	Only Mode Channel = 0 , 1 (in L,R)	Frequency; Bank=0
Filer 01, 02,..., 04	12, 13, 14, 15	0,..., 60	Only Mode Channel = 0 , 1 (in L,R)	Amplitude; Bank=1
Filer 01, 02,..., 04	12, 13, 14, 15	0,..., 59	Only Mode Channel = 0 ,1 (in L,R)	Band Width; Bank=2
Filer 01, 02,..., 05	12, 13, 14, 15, 16	0,..., 120	Only Mode Channel = 2, 3, 4, 5	Frequency; Bank=0
Filer 01, 02,..., 05	12, 13, 14, 15,16	0,..., 60	Only Mode Channel = 2, 3, 4, 5	Amplitude; Bank=1
Filer 01, 02,..., 05	12, 13, 14, 15, 16	0,..., 59	Only Mode Channel = 2, 3, 4, 5	Band Width; Bank=2
Mute	23	0, 1	Output 1, 2, 3, 4 Mute OFF, ON	ModeCh=2, 3, 4, 5
Routing	24	0, 1	Connect Off/On InputL to Output1	
Routing	25	0, 1	Connect Off/On InputL to Output2	
Routing	26	0, 1	Connect Off/On InputL to Output3	
Routing	27	0, 1	Connect Off/On InputL to Output4	
Routing	28	0, 1	Connect Off/On InputR to Output1	
Routing	29	0, 1	Connect Off/On InputR to Output2	
Routing	30	0, 1	Connect Off/On InputR to Output3	
Routing	31	0, 1	Connect Off/On InputR to Output4	

Note:

• Select the channel to edit by means of the controller 22 (Mode channel).

Warnings:

1. Before starting a MIDI session please set on the ▲LTO DRIVE2.3 the same MIDI channel used by the external controller.
2. During a MIDI control session the unit's graphic display is NOT updated.
3. After MIDI use of ▲LTO DRIVE2.3 it's advisable to run a manual STORE to save preset changes done by means of the external controller. After saving, reboot the ▲LTO DRIVE2.3 to use it as a stand-along unit.
4. When setting and resetting mutes (controller 23) by MIDI, the relative LEDs are NOT actived.

Amplitude −15dB / +15dB step 0.5dB
(Value = d+u)

d \ u	0	1	2	3	4	5	6	7	8	9
0	−15.0dB	−14.5dB	−14.0dB	−13.5dB	−13.0dB	−12.5dB	−12.0dB	−11.5dB	−11.0dB	−10.5dB
10	−10.0dB	−09.5dB	−09.0dB	−08.5dB	−08.0dB	−07.5dB	−07.0dB	−06.5dB	−06.0dB	−05.5dB
20	−05.0dB	−04.5dB	−04.0dB	−03.5dB	−03.0dB	−02.5dB	−2.0dB	−1.5dB	−1.0dB	−00.5dB
30	00.0dB	+00.5dB	+01.0dB	+01.5dB	+02.0dB	+02.5dB	+03.0dB	+03.5dB	+04.0dB	+04.5dB
40	+05.0dB	+05.5dB	+06.0dB	+06.5dB	+07.0dB	+07.5dB	+08.0dB	+08.5dB	+09.0dB	+09.5dB
50	+10.0dB	+10.5dB	+11.0dB	+11.5dB	+12.0dB	+12.5dB	+13.0dB	+13.5dB	+14.0dB	+14.5dB
60	+15.0dB									

Frequency 20Hz - 20KHz step 1/12 oct
(Value = d+u)

d \ u	0	1	2	3	4	5	6	7	8	9
0	20	21,2	22,5	23,7	25	26,6	28,3	29,9	31,5	33,6
10	35,8	37,9	40	42,5	45	47,5	50	53,5	57	59,5
20	63	67	71,5	76	80	85	90	95	100	106,5
30	113	119	125	134	143	151,5	160	170	180	190
40	200	212,5	225	237,5	250	266,5	283	299	315	336,5
50	358	379	400	425	450	475	500	532,5	565	597,5
60	630	672,5	715	757,5	800	850	900	950	1000	1062
70	1125	1187	1250	1337	1425	1512	1600	1700	1800	1900
80	2000	2125	2250	2375	2500	2662	2825	2987	3150	3362
90	3575	3787	4000	4250	4500	4750	5000	5325	5650	5975
100	6300	6725	7150	7575	8000	8500	9000	9500	10000	10625
110	11250	11875	12500	13375	14250	15125	16000	17000	18000	19000
120	20000									

Bandwidth 0.05 oct - 3 oct step 0.05 oct
(Value = d+u)

d \ u	0	1	2	3	4	5	6	7	8	9
0	0,05	0,1	0,15	0,2	0,25	0,3	0,35	0,4	0,45	0,5
10	0,55	0,6	0,65	0,7	0,75	0,8	0,85	0,9	0,95	1
20	1,05	1,1	1,15	1,2	1,25	1,3	1,35	1,4	1,45	1,5
30	1,55	1,6	1,65	1,7	1,75	1,8	1,85	1,9	1,95	2
40	2,05	2,1	2,15	2,2	2,25	2,3	2,35	2,4	2,45	2,5
50	2,55	2,6	2,65	2,7	2,75	2,8	2,85	2,9	2,95	3

Output Volume −12dB / +12dB step 0.5dB
(Value = d+u)

d \ u	0	1	2	3	4	5	6	7	8	9
0	−12.0dB	−11.5dB	−11.0dB	−10.5dB	−10.0dB	−09.5dB	−09.0dB	−08.5dB	−08.0dB	−07.5dB
10	−07.0dB	−06.5dB	−06.0dB	−05.5dB	−05.0dB	−04.5dB	−04.0dB	−03.5dB	−03.0dB	−02.5dB
20	−2.0dB	−1.5dB	−1.0dB	−00.5dB	00.0dB	+00.5dB	+01.0dB	+01.5dB	+02.0dB	+02.5dB
30	+03.0dB	+03.5dB	+04.0dB	+04.5dB	+05.0dB	+05.5dB	+06.0dB	+06.5dB	+07.0dB	+07.5dB
40	+08.0dB	+08.5dB	+09.0dB	+09.5dB	+10.0dB	+10.5dB	+11.0dB	+11.5dB	+12.0dB	

7.TECHNICAL SPECIFICATIONS

Input Channel		
	Digital Input Gain	– /+ 12 dB / step 0.5 dB
	4 Parametric Filters	Gain – /+ 15 dB / step 0.5 dB
		Freq 20 Hz – 20 KHz step 1/12 oct
		BandWidth 0.05 oct – 3 oct / step 0.05 oct
	Delay line	Up to 512 ms minimum step 21us
Output Channel		
	Digital Out Volume	– /+ 12 dB / step 0.5 dB
	Delay line	Up to 512 ms minimum step 21us
	5 Parametric Filters	Gain – /+ 15 dB / step 0.5dB
		Freq 20 Hz - 20 KHz / step 1/12 oct
		BandWidth 0.05 oct - 3 oct step 0.05 oct
	High Pass Filter Type Butterworth	
		Freq: 20 Hz - 20 KHz / step 1/12 oct
		Slope: Bypass, 1^{st}ord, 2^{nd}ord, 3^{rd}ord, 4^{th}ord
	Low Pass Filter Type Butterworth	
		Freq:20 Hz - 20 KHz / step 1/12 oct
		Slope: Bypass, 1^{st}ord, 2^{nd}ord, 3^{rd}ord, 4^{th}ord
	Polarity	Phase 0° or 180°
	Limiter	Threshold – 29 dB up to 0 dB / step 1dB
		Release Time 0.4 s, 0.5 s, 0.7 s, 1.4 s
		Attack Time 0.05 s, 0.10 s, 0.20 s, 0.30 s
The Whole Unit		
Memory		1 Factory Preset
		64 User Preset
Analog		
	Inputs	2 XLR - F (BAL)
	Outputs	4 XLR - M (BAL)
	Input Impedance	>40kΩ
	Output Impedance	<200Ω
	Input MAX Level	12dBv
	Output MAX Level	12dBv
	A/D Converter	20BITS Sigma-Delta
	D/A Converter	24BITS Sigma-Delta
Performance		
	THD+N	0.02%(1KHz – 3dBFS)
	Amplitude Response	20Hz – 20KHz
	S/N Ratio	>97dBa
Digital		
	Processor speed	36 MIPs
	DSP resolution	24×32 bits
	Control	Microprocessor
MIDI section		
	Connections	Input/output/thru
	Sockets	5 – poles DIN(female)
	Mode	Photocoupled

Power Supply		
	Connector type	3 - poles DIN (female)
	Type	Servo controlled, Switching
	Fuse	210 - 240V: T250mAL 250VAC
		95 - 120V: 500mAL 250VAC
	AC input	95 - 240V~60 - 50Hz
	Rated power consumption	15W
User Interface		
	Graphic display	128×64 dots
	Keyboard	6 LEDs/12user's keys
	Vu meter	2×6 LEDs
Physical		
	Size	Standard 19"rack Mounting
	Dimensions	483(W)×232.5(D)×44(H)mm(19"×9.3"×1.7")
	weight	3.5Kg(7.72lb)

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.