

# MAXI-Q PC

## User's Manual

30+30 BAND  
DIGITAL EQUALIZER



[www.altoproaudio.com](http://www.altoproaudio.com)  
Version 1.1 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 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 MAXI-Q PC 30+30 Band Digital Equalizer 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 many 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 MAXI-Q PC 30+30 Band Digital Equalizer is the result of many hours of listening and tests involving common people, area experts, musicians and technicians. The results of this effort is a DSP hi-performance equalizer that can be used in applications as musical performances, Installation and sound reinforcement. Besides we offer to you a number of factory EQ curves that we collected and transformed in presets now available in our small, efficient and easy to use MAXI-Q PC.

Nothing else to add, but that we would like to thank all the people that made the MAXI-Q PC 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

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## 1. INTRODUCTION

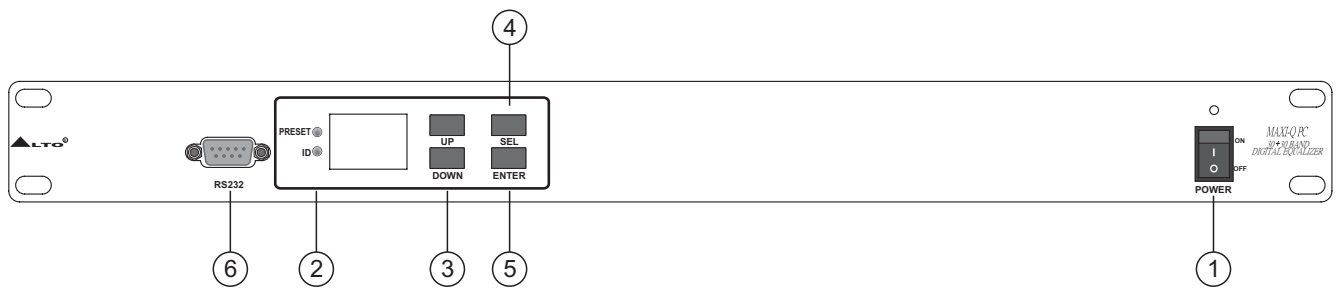
Your MAXI-Q PC is a 30+30 Band Digital Equalizer and it also is a powerful versatile signal processor. you can set the input and output configuration only through recalling one of the presets included in the internal memory or PC Editor software. Thanks to the use of selected and expensive components, the MAXI-Q PC is worth much more than its price.

## 2. FEATURES

- Single rack unit
- 2 COMBO input connectors are compatible with balanced XLR and JACK
- 2 outputs with balanced XLR connector
- A/D and D/A converters for a 117dB dynamic range
- Delay lines up to 2715ms for each channel
- 10 Factory presets and 128 user presets by large memory capacity
- Switching power supply
- Remote control
- Manufactured under QS9000, VDA6.1 certified management system

## 3. CONTROL ELEMENTS

### 3.1 The Front Panel



#### 1. Power Switch

The switch is used to turn the main POWER on and off.

**Note:** Before turning on the unit, please make sure the amplifiers of sound system are off to avoid the annoying and sometimes dangerous signal peaks.

#### 2. LED Display

The both LED indicate the selecting status; one is for PRESET, another for ID.

#### 3. UP/DOWN Keys

There are 10 factory presets, 128 user presets and 32 ID selections. The both keys are used to allow you to turn over the variable presets or ID selections for achieving the proper one.

#### 4. SEL Key

Activate the SEL key to select required PRESET LOAD or SET COMM. ID functions.

#### 5. ENTER Key

The key allows you to access to the selected preset or ID selection.

#### 6. RS232 Serial Communication Port

The RS232 port allows incoming and outgoing communication between the MAXI-Q PC and a PC. Via connecting the MAXI-Q PC to a PC, all the functions are possible to be control remotely by ALTO editing software.

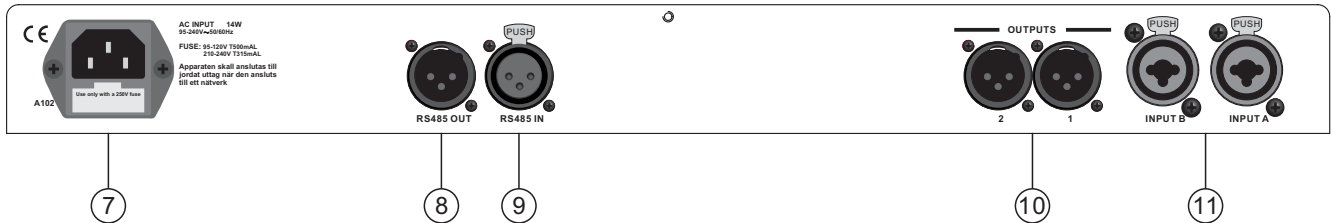
1>.Ensure that power to the MAXI-Q PC and the computer is switched off.

2>.Connect the MAXI-Q PC to the PC's RS232 serial port using a data cable with 9-pin female plugs. The required data cable is known as a 'null modem' (also data transfer) type serial interface cable. Attach the other end to the 9-pin socket situated next to the audio output terminals of the MAXI-Q PC.

3>.Turn on your audio system, including the MAXI-Q PC. Now boot up your computer and run the PC editor (see "Configuration of the system").

**Note:** MAXIEDITOR software, which is used in the unit, accepts these four COM1-COM4 connectors of PC only. So when you use USB port for connecting, please operate it as follows:  
Please go to control section -> system -> DEVICE MANAGER -> advance -> COM connecting number, please select one.  
Then go to the tool bar of MAXIEDITOR -> Choose "OPTION -> USB to COM" and select the right COM.  
Then it should be ok to link.

### 3.2 The Rear Panel



#### 7. AC inlet and fuse holder

Use it to connect your MAXI-Q PC to the supplied AC cord. Please check the voltage in your country and what voltage for your MAXI-Q PC is configured before attempting to connect the unit for the main AC. The fuse can protect the AC supplies circuit of the equipment.

**CAUTION:** If there is something wrong with the fuse or the fuse needs to replace, please refer to a qualified technician. If the fuse continues to blow after replacing, discontinue using this unit before it is repaired.

#### 8. RS485 OUT

This is the standard serial communication interface. It allows outgoing communication between a MAXI-Q PC and other MAXI-Q PC units. The RS485 interface is very suitable for remote control over long distances (difficult with RS232 standard ports) and daisy-chaining several MAXI-Q PC units.

#### 9. RS485 IN

The function of the RS485 IN interface is opposite to RS485 OUT. It allows incoming communication between a MAXI-Q PC and other MAXI-Q PC units. The RS485 interface is very suitable for remote control over long distances (Difficult with RS232 standard ports) and for daisy-chaining several MAXI-Q PC units.

#### 10. OUTPUTS

These (Outputs1~2) are balanced XLR-M connectors. The high quality, low noise, 24 bit converters can make D/A conversion.

#### 11. INPUTS

INPUT A and INPUT B are compatible with balanced XLR and JACK. They are audio connectors of the respective sections. The high quality, low noise, 24 bit converters can make A/D conversion.

### 4. GETTING STARTED

The powerful versatile signal processor MAXI-Q PC is mainly designed for use with audio systems. Its configurations of the input and output can be set only by recalling one of the presets included in the internal memory or PC Editor software. So the user must be very clear about the main function of the unit in order to get a best operation of your MAXI-Q PC. Before you start your operation, please read the following parts carefully:

#### 4.1 Configuration of the system

At first, switch off the equipment, carry out the audio and power connection from the various components of your sound system. Then, connect the main cord and only switch on the MAXI-Q. The display will show the data regarding with the operating system release for a few seconds.

1.0

Meanwhile, the system will restore the exact operating conditions at the time of switching off.

- Click the SEL key to select proper PRESET or ID status.
- When PRESET LED lit, you can use the UP and DOWN keys to select factory preset (1-10) or user preset (1 ~ 128.), then you will find the data on display twinkling all the while.



(Example: Factory PRESET)



(Example: User PRESET)

- When ID LED lit, the display will show the ID number. You can use UP and DOWN keys to set a ID number (1 ~ 32) for this unit, and the data is twinkling all the while.
- Press ENTER, the display shows the PRESET/ID loaded in the units memory.

## 4.2 Memory Initialization

1. To activate the MEMORY PULL function the DOWN, SEL and ENTER must be activated and kept down during turn-on.
2. At turn-on the display shows AL. which indicates that a complete memory initialization is in progress.
3. If a power failure occurred while the machine was saving some data to memory, the memory is partially initialized to avoid inconsistent data that could cause the machine to behave improperly.
4. After one or two minutes, the display will change to show the default preset 01.



## 4.3 Firmware Update

When you use "Maxi-Q Editor" and see the message "Please Update The Program To Maxi-Q PC Version X.0", you have to update its firmware.

### The update steps as follows:

1. Turning on the Maxi-Q PC and press "SEL"+"ENTER"+"UP"keys at the same time, you will see the message "U.P" showing on the segment.
2. Restart the "Maxi-Q Editor" and choose the "On Line" function. You will see the message "Maxi-Q PC VERSION X.0. Do you want to update?" showing on the Maxi-Q Editor. Then press the "OK" button and it will start to update the Firmware.
3. The Maxi-Q PC will show the update procedures on the segment as follows:
  - 1>. Download ("do").
  - 2>. Flash Erase (No show on the segment).
  - 3>. Flash Program ("pg").
  - 4>. Update OK! ("dn").

After finishing firmware update, you must restart the Maxi-Q PC to complete the update procedures.

## 4.4 Communication

- 1>.When the MAXI-Q PC is connected by its RS232 port to a PC running the MAXI-Q PC editor program, the display shows CG (Comm. Gateway).



- 2>.When the MAXI-Q PC is connected by its RS485 port to another MAXI-Q PC running as a gateway, the display shows CS (Comm. Slave).



## 5. REMOTE CONTROL

To operate one or more MAXI-Q PC units that are connected to a PC, you need to download a Windows compatible MAXIQ Editor program from our website. To get a copy, please go to <http://www.altoproaudio.com/html/download.php>

### 5.1 How to set the MAXI-Q PC's ID number

In order to be recognized from the MAXI-PC EDITOR program, each MAXI-Q PC connected to the PC must have an ID number.

- Select the ID status with the SEL key, the display will show the current ID number of the unit.
- Use the UP/DOWN keys to set the ID number.

#### IMPORTANT!

When several MAXI-Q PC units are connected to a PC for remote control, each of units must have an ID number different from all the others. If two or more units have the same ID number, they won't be recognized by the PC.

### 5.2 Connection to the PC

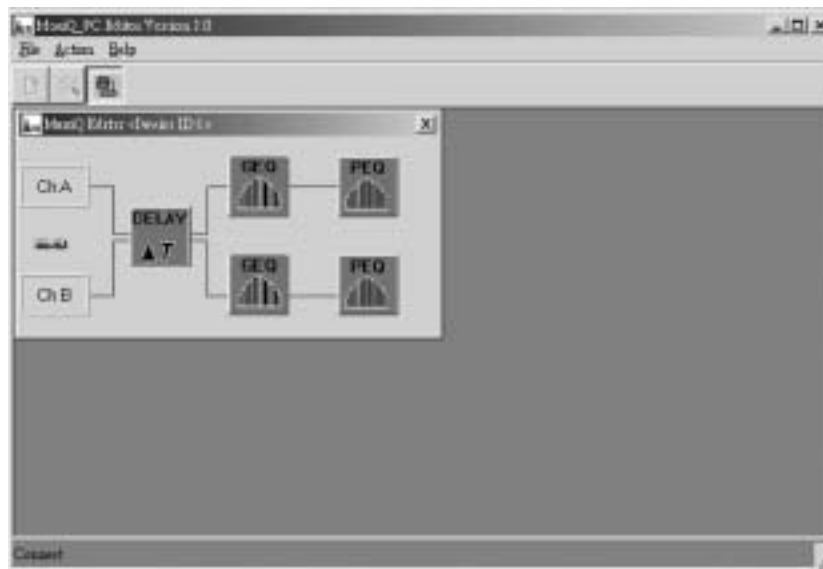
- Connect the First MAXI-Q PC to the PC's RS232 serial port, using a 9-pin female plug connected to the RS232 socket on the rear panel of unit.
- Connect RS485 IN of the Second MAXI-Q PC to the First MAXI-Q PC's RS485 OUT socket, in this way, you can connect up to 32 units for a same PC.

#### IMPORTANT!

If the first unit is placed at a distance to the PC that exceeds 5 meters, RS232 to RS485 converters must be used to reach it. And the first unit connected to the PC thru RS232 must be switched ON and working, otherwise none of the other units can be controlled by the PC.

### 5.3 PC Editor Operation

Run MAXIQ Editor program installed in your computer, then select NEW from the FILE menu, now fill out the right ID number of your MAXI-Q PC that is connected to the PC and press OK button, you will see the opening screen following (later software versions may differ).



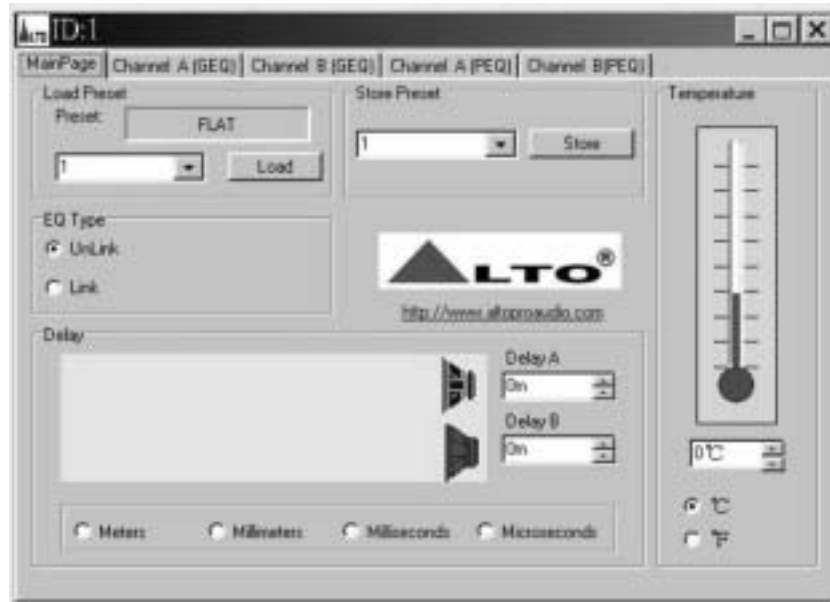
Select OPTION from the FILE menu, then select the right COM port (COM1 and COM2) and proper BOUDRATE (transmitting rate between this unit and your computer).

Now go to ACTION menu and then "ONLINE", the PC will scan its selected COM port to check if there are any MAXI-Q PC units connected. At the lower edge of the PC Editor window will show the search progress and result. "CONNECT" indicates that MAXI-Q PC and your PC are connected, If the COM port you selected is wrong or something wrong with your MAXI-Q PC, it will display "DISCONNECT".

At this step, you can click on one of the icons on the PC Editor, a window will appear showing one of several "pages" where you can set the parameters.



### 5.3.1 Main Page



#### - Load Preset

In this column of "Preset", you can select either a factory preset (1 ~ 10) or a user preset (1. ~ 128.), then press "Load Preset" button and the selected preset will be loaded.

**Factory Presets:** they can be used normally, temporarily modified, but can't be cancelled, overwritten or permanently modified. They contain some specific settings for all the system's usable configurations. For this reason, they are the ideal starting point for creating custom presets.

**User Presets:** they are stored in internal memory areas in which you own personal settings can be saved. They can be permanently modified and saved.

#### - EQ Type

The channel A and B may be "linked" together as stereo pairs, so that changes are simultaneously applied to both channels. However, if you intend to use the channel delay function for speaker "time alignment" then you should NOT use the "linked" mode.

#### - Delay

Delays the signal of input (or the sum of the inputs) before sending it to the EQ processor. In this way, all the outputs fed by that input are delayed by the same length of time. This feature is more applicable to PA applications, where is used to compensate for the distance between blocks of speakers in large concert halls and stadiums. The delay unit can be set in metric unit (millimeter and meter) and time unit (microsecond and Millisecond). You can set the delay parameter either by selecting a value or dragging the speakers simply.

#### - Store Preset

You can save a custom preset in any a user memory area (1. ~ 128.).

#### - Temperature

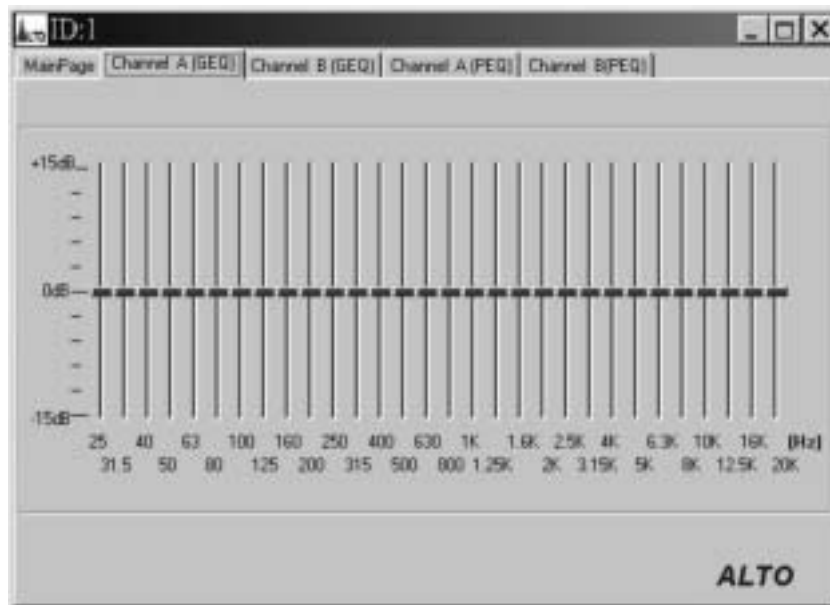
Used to set the value of the environmental temperature of place of installation. The system uses this value to automatically compensate for the differences due to the different speed of sound transmission according to the air temperature

The temperature unit includes: °C = degrees Centigrade, °F = degrees Fahrenheit.

### 5.3.2 GEQ A/B

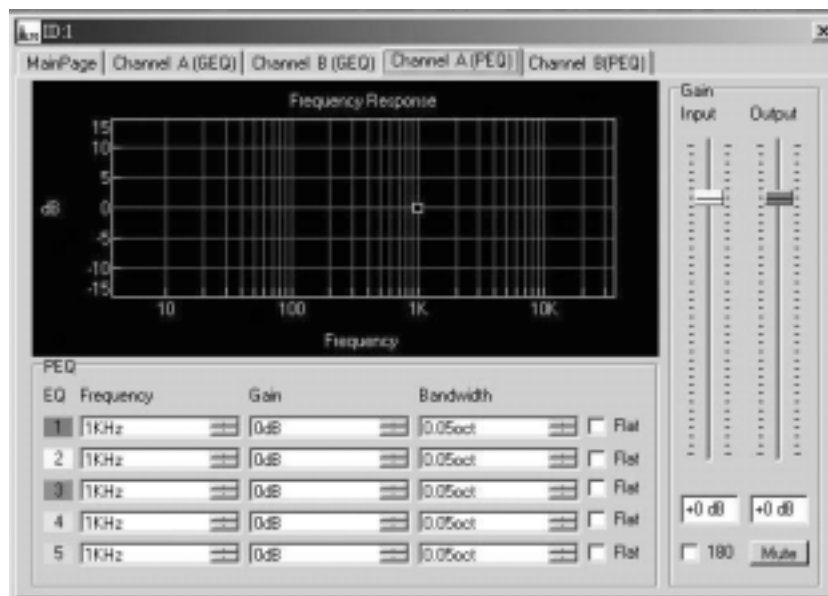
30 band Graphical EQ, it provides up to 24dB boost or cut at 30 frequency points (25Hz ~ 20KHz). The GEQ allows to alter the overall tone of the signal connected to the respective input.

Click on one of the virtual level slider controls with your PC's left mouse button and hold the button down as you move the slider up or down.



### 5.3.3 PEQ A/B

5 band Parametric EQ. It allows to alter the overall tone of the signal connected to the respective input. It is also called Master EQ, the equalization of the input signal effects all the outputs connected to the input and the input Sum. The component's characteristic quality and programmability enable it to be used effectively and flexibly. You can set any of 5 frequency response at flat zero also by using FLAT function.



-The editable parameters of each PEQ: **frequency**, **bandwidth** and **gain**.

#### -Gain

It allows to adjust the volume of Input and Output signal of respective channel, and the text box below slider will display the relative value.

#### -Mute

They are used to mute the signal of the respective outputs. It can avoid signal peaks when switching on and off the sound system and isolate the individual audio sections during testing or checking sound etc.

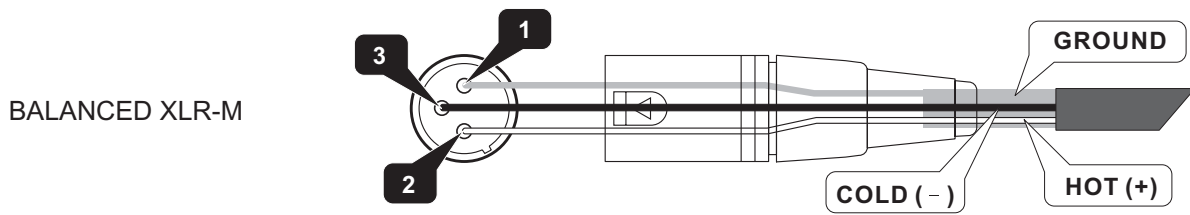
#### - Polarity

Controls the output's polarity. It allows you to invert the 180 degree phase of signal of individual outputs.

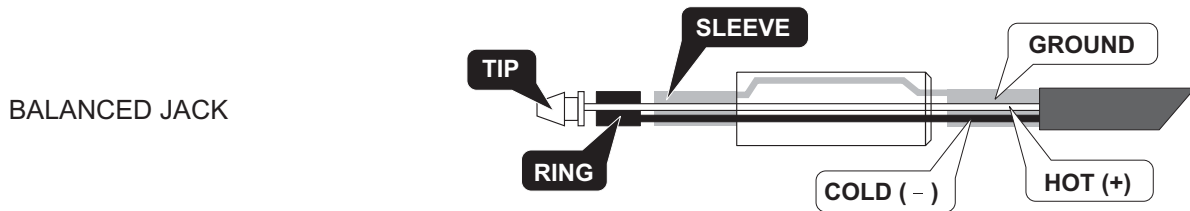
## 6. CONNECTIONS

The following diagrams show the schemes of the recommended cables and some connection examples referred to various system configurations.

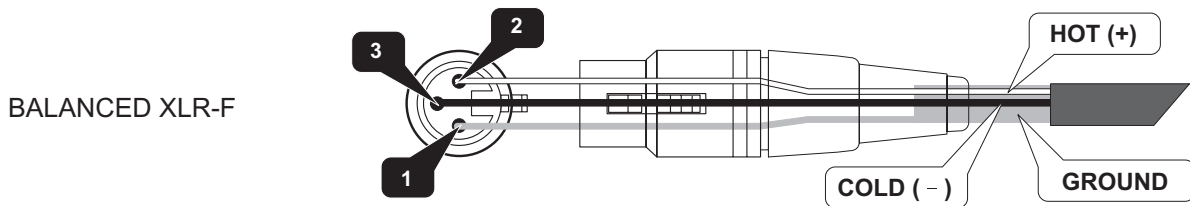
### Inputs A & B, RS485 IN



### Inputs A & B

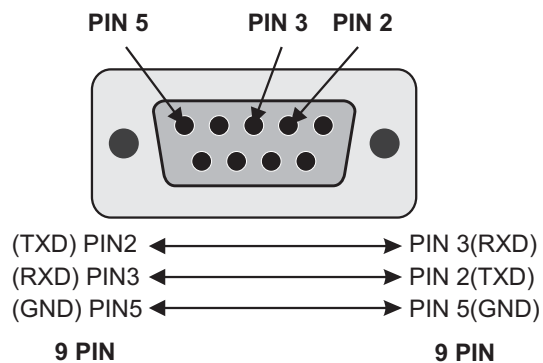


### Outputs 1 ~ 2, RS485 OUT



## RS232

### RS232 (9Pin-F)



The wire must be changed between 2,3 pin.

### Special attentions for RS232 interface:

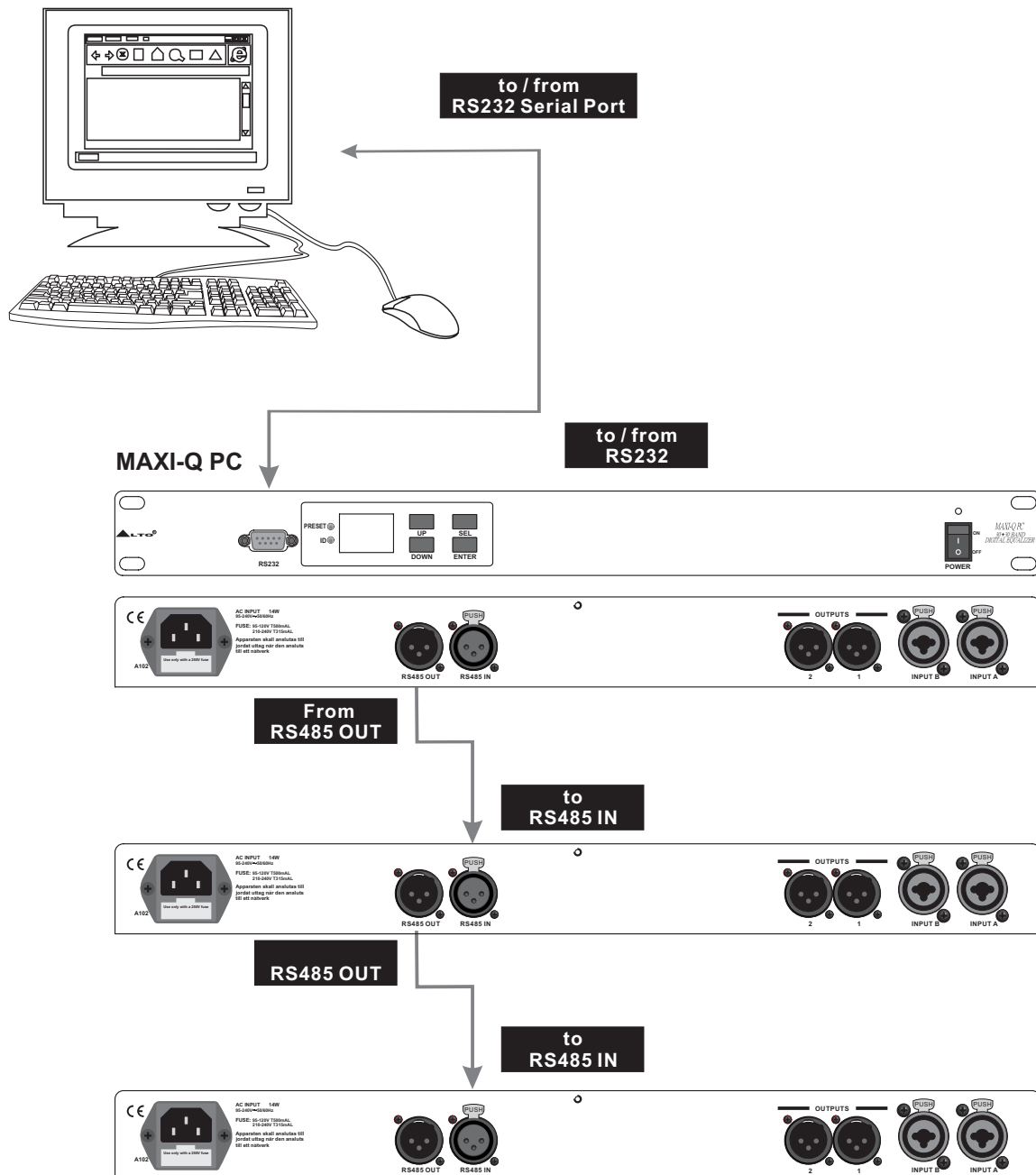
1. Be careful not to use the pin-to-pin cable in the system, it may damage the communication part of this unit.
2. Be sure to use the female connector on both sides of the cable.
3. The length of this cable must not exceed 30 meters, or there would be some unexpected communication errors.
4. If you want to use a long distance remote control, it would be better to use shielding wire for this cable.

## 7. APPLICATION

To operate one or more MAXI-Q PC units that are connected to a PC, you need to download a free Windows compatible MAXI-Q PC program from our website.

To get a copy, please go to [http://www.altomobile.com/html/support\\_forum.html](http://www.altomobile.com/html/support_forum.html) and click "**Data Resources/ Downloads**" and then "**Software Downloads**".

### Communications: PC & one or more MAXI-Q PC connection



## 8. TECHNICAL SPECIFICATIONS

<b>INPUT section</b>	Connectors	2 x COMBO
	Nominal input sensitivity	0 dB (0.775 V)
	Input Impedance	30kOhm, electronically balanced
	Maximum Input Level	+20dBu
	Input Gain	-30 / +6 dB variable in 0.5 dB steps
<b>Output Section</b>	Connectors	2 x XLR-M
	Output Impedance	600 Ohms, electronically balanced
	Nominal Output Level	0 dBu
	Maximum Out put Level	+20 dBu
	Output Gain	-30 / +6 dB variable in 0.5 dB steps
<b>DSP Section</b>	A/D converters	24 bit
	D/A converters	24 bit
	Internal dynamics	40 bit
	Sampling frequency	48 kHz
<b>Features</b>	Delay Step	21 microseconds minimum
	Max Delay time	2715ms
	EQ Gain	+/-15dB, variable in 0.5dB steps
	EQ Bandwidth	0.05 to 3.00 octaves, variable in 0.05 steps
	PEQ freq	15.6 Hz to 16 kHz
	GEQ freq	25 Hz to 20 kHz
	Memories	FACTORY PRESETS are 10 + 128 USER PRESETS
	Communications	9-pin RS232, XLR-F RS485 IN, XLR-M RS485 OUT
<b>General Performance</b>	Frequency Response	20Hz - 20kHz, 0.25dB
	Dynamic range	>117dB 20Hz to 20kHz
	Channel Separation	>100dB 20Hz to 20kHz
	Distortion (THD)	0.05%, 20Hz to 20kHz
	Input Meter	-24dB, -18dB, -12dB, -6dB, CLIP relative to Clip point (+20dBu)
	Output Metering	-24dB, -18dB, -12dB, -6dB, CLIP relative to Clip point (+20dBu)
<b>General</b>	Dimensions	483x44x300 mm
	Weight	4.0 Kg
	Power supply	see label on the unit

## 9. WARRANTY

### 1. WARRANTY REGISTRATION CARD

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

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

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

### 2. RETURN NOTICE

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

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

2.3 A brief description of the defect will be appreciated.

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

### 3. TERMS AND CONDITIONS

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

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

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

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

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

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

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

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

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