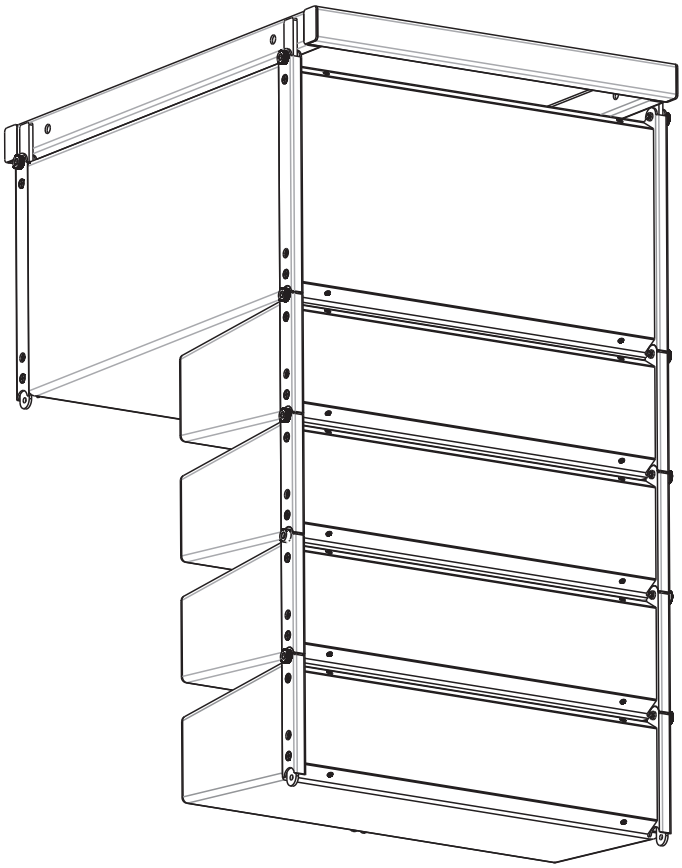
CITRONIC®
ULTIMA

CLA-300

COMPACT LINE ARRAY SOUND REINFORCEMENT SYSTEM



171.227

USERS MANUAL

EK-YG-MA-070629-001

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CITRONIC® ULTIMA

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171.227

COMPACT LINE ARRAY SOUND REINFORCEMENT SYSTEM

Compact design suitable for various application situations

Up to 40KHz frequency range due to adoption of ribbon tweeter

Low distortion due to utilization of unique thin foam surround & specially coated paper cone

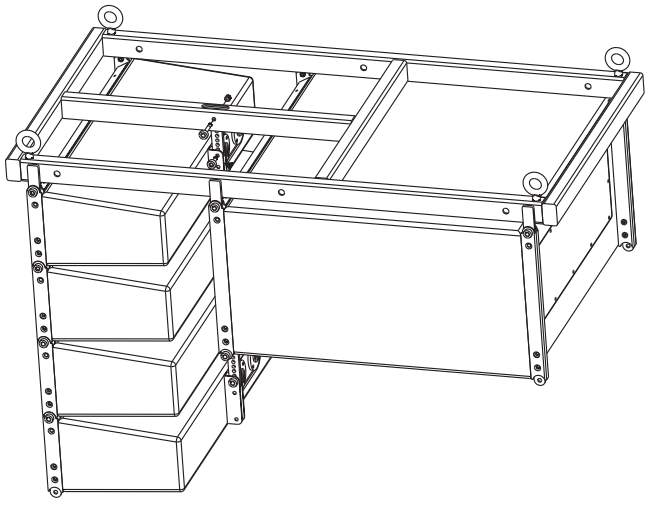
Multi-speaker array configurable for flying in different venues, with splay angle adjustable by 1° increment

600W DSP active amplifier

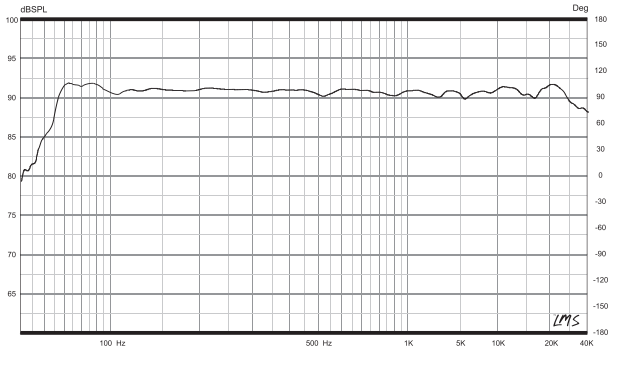
RS232 Port available for system control

DESCRIPTION

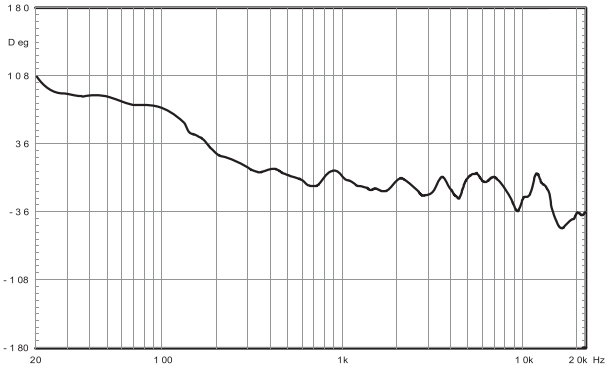
171.227 is specially designed for luxury cinema, large-sized meeting room, multi-functional hall, church and auditorium applications. The system consists of 1 active subwoofer and 4 full range speakers which can form multi-cluster configurations.
171.227 is designed by applying line array concept. It features compact dimensions and easy to handle design. The built-in 600W amplifier and DSP make it available for use at any moment when connected to sound resource. System control over each cluster at frequency response, crossover point & slope, delay, gain and limit protection can be achieved by connecting the speaker system to PC via RS232 port. Adoption of ribbon tweeters offers a wide-range frequency response to up to 40KHz. The tweeter's impedance and phase response curves are nearly ideal horizontal lines. The light moving mass of milligrams ensures excellent impulse response. Utilization of the unique thin foam surround and specially coated cone paper has reduced the distortion rate effectively. The active subwoofer applies Low Distortion, Linear Amplification, and DSP technologies. Input signals are amplified by the built-in pre-amplifier, then processed and distributed by DSP, finally output via power amplifier to the subwoofer and the full-range speakers, which forms an integrated system.
The flying hardware is designed to fit different application situation flexibly with the splay angel adjustable by 1° increment vertically.



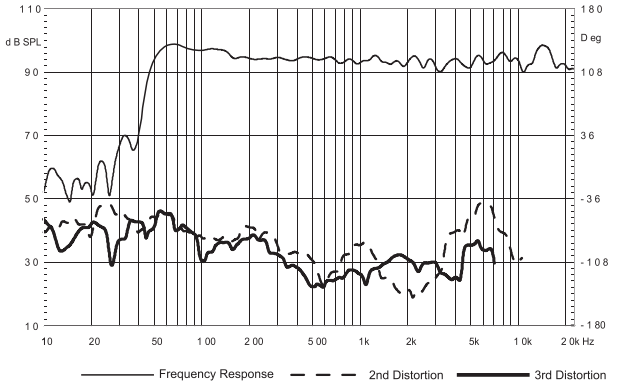
FREQUENCY RESPONSE



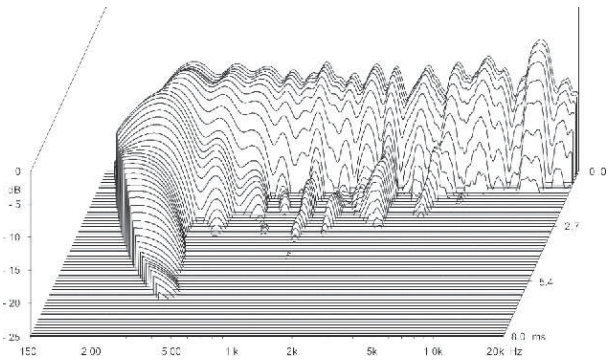
PHASE RESPONSE



THD

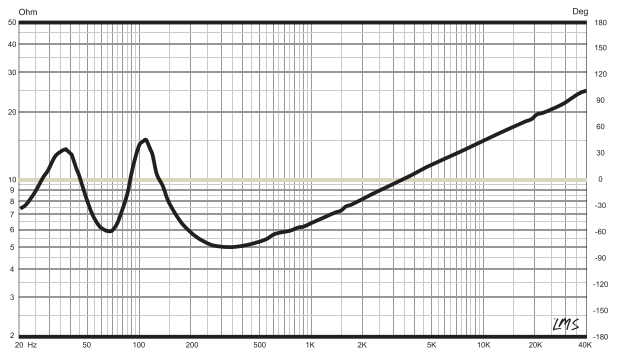


WATERFALL

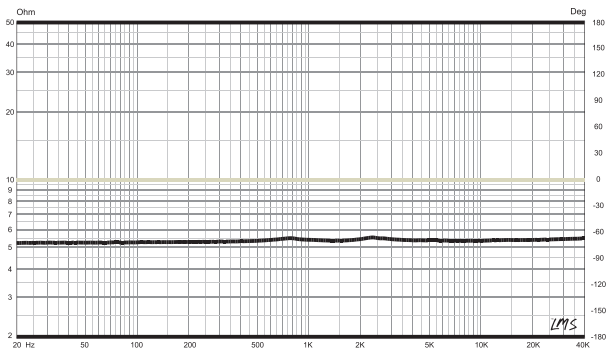


IMPEDANCE CURVE

IMPEDANCE CURVE OF LF

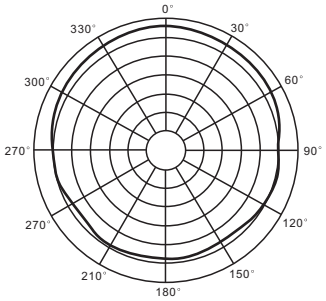


IMPEDANCE CURVE OF RIBBON TWEETER

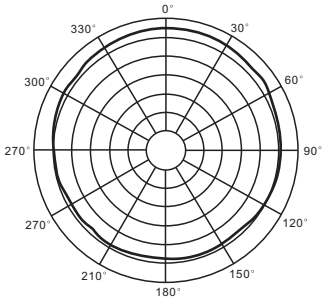


HORIZONTAL DIRECTIVITY

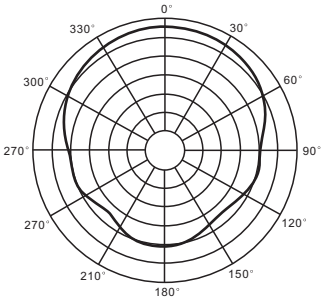
The data of 171.227 horizontal directivity were collected by testing the speaker system in a big anechoic chamber. The distance between the testing microphone and the speaker system is 4 meters.



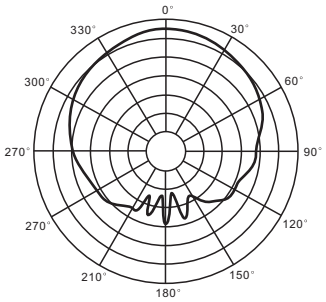
100Hz



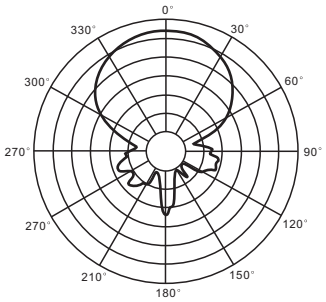
160Hz



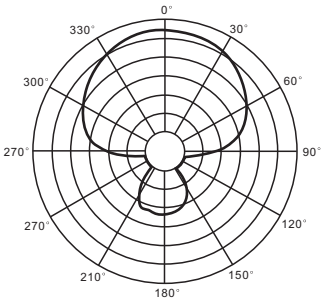
250Hz



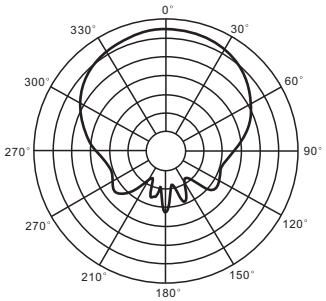
400Hz



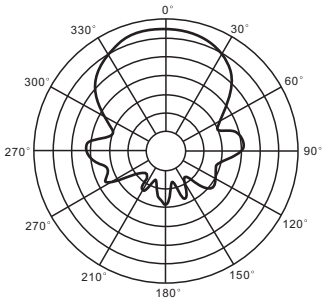
630Hz



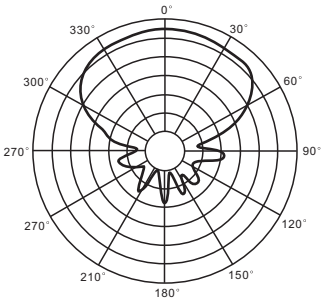
1kHz



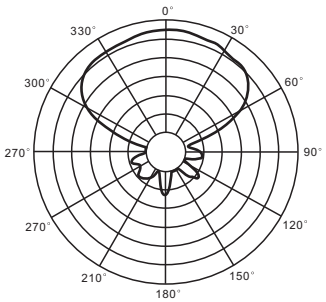
1.6kHz



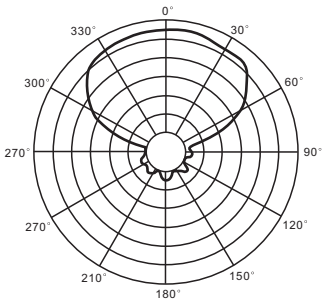
2.5kHz



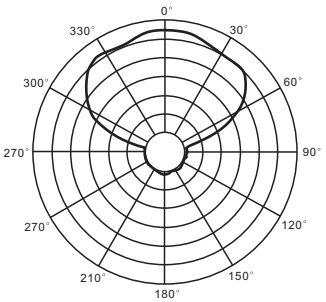
4.0kHz



6.3kHz



10kHz

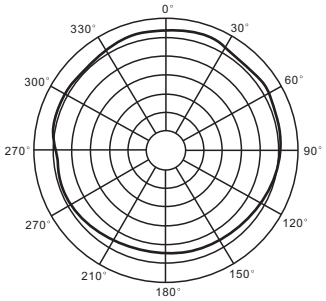


16kHz

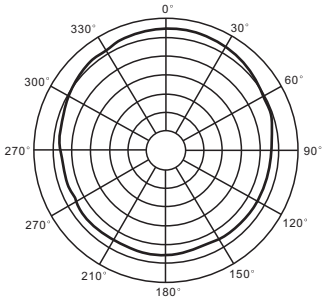
The scale is stepped by 6dB increment.

VERTICAL DIRECTIVITY

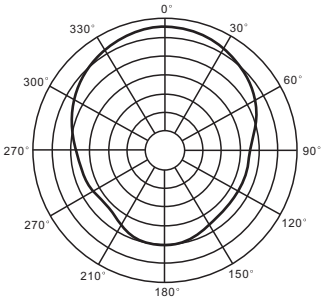
The data of 171.227 vertical directivity were collected by testing the speaker system in a big anechoic chamber. The distance between the testing microphone and the speaker system is 4 meters.



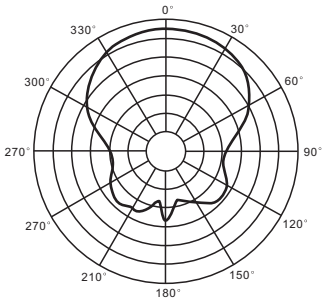
100Hz



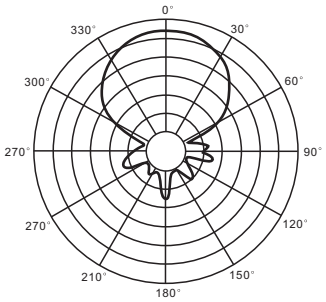
160Hz



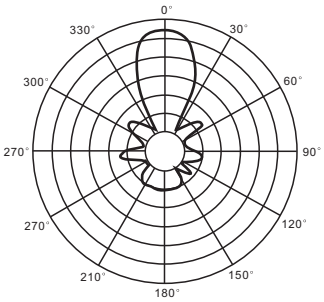
250Hz



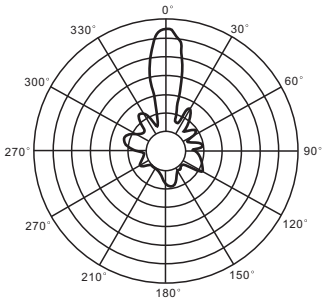
400Hz



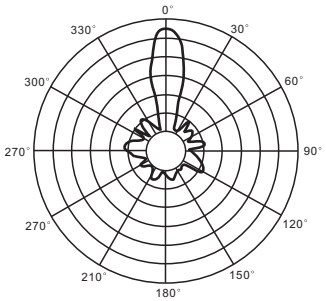
630Hz



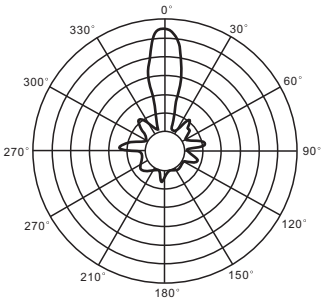
1kHz



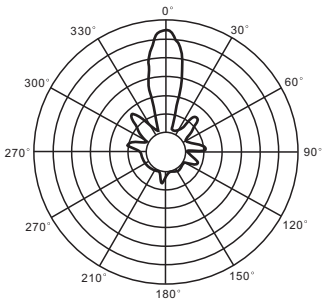
1.6kHz



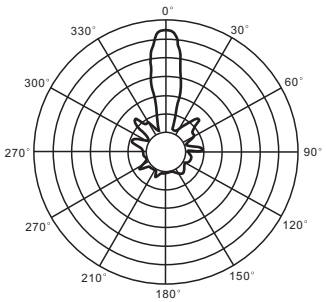
2.5kHz



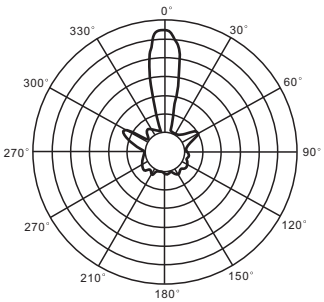
4.0kHz



6.3kHz



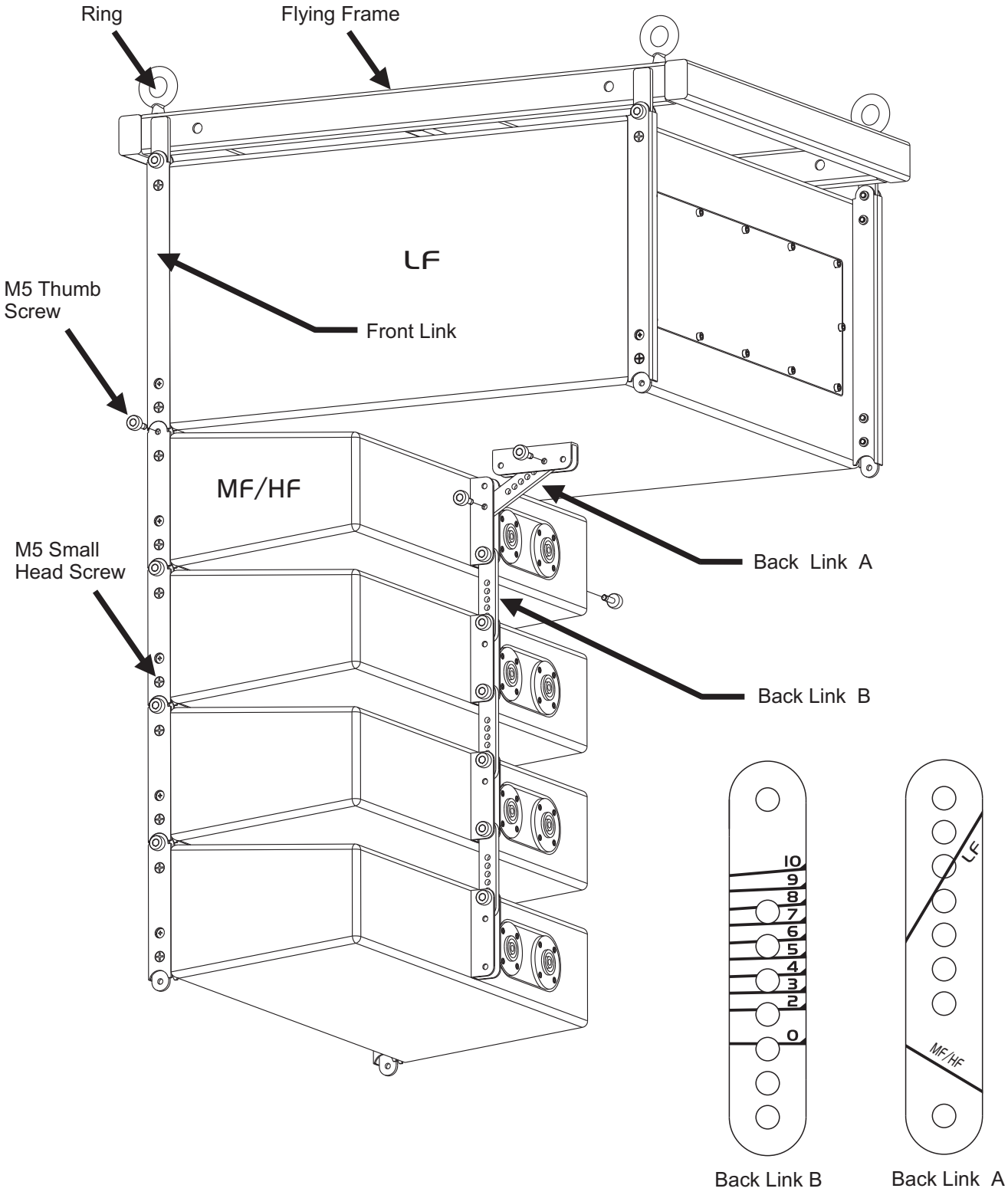
10kHz



16kHz

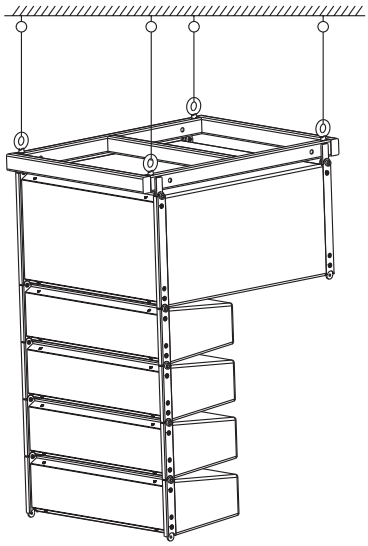
The scale is stepped by 6dB increment.

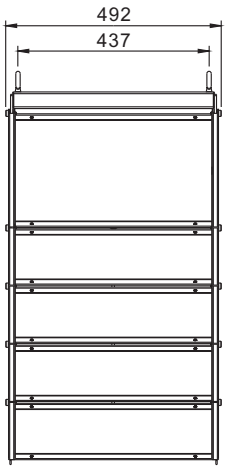
INSTALLATION

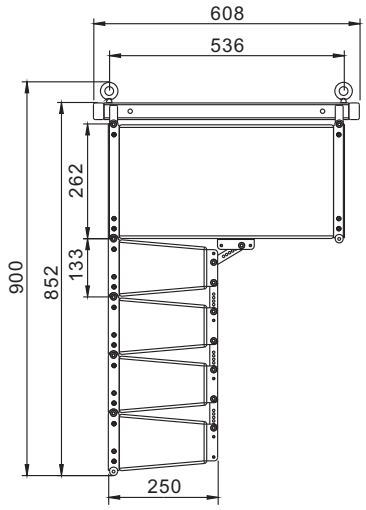


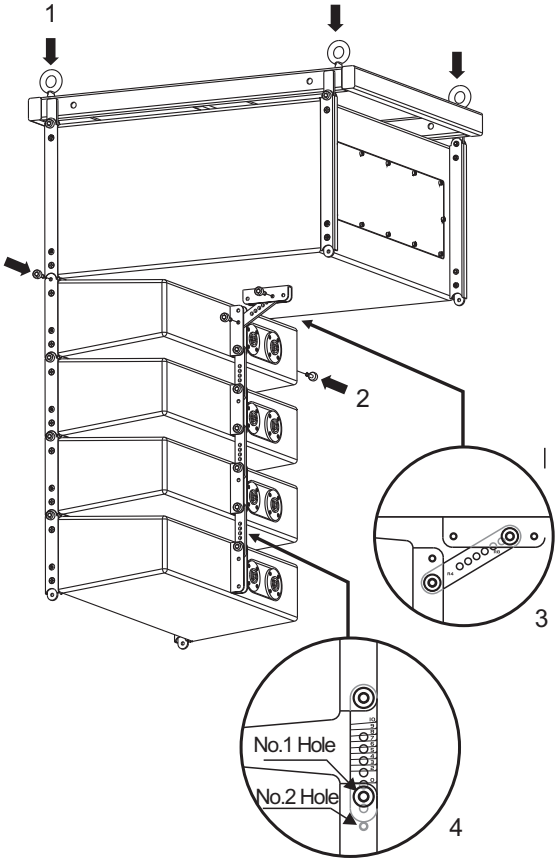
INSTALLATION

INSTALLATION METHOD 1









ONE CLUSTER FLOWN VERTICALLY

(1) Open the package and take out 171.227 speakers and the accessories.

(2) Mount the four M8 rings to the flying frame (see Figure 1).

(3) Demount the two M5 thumb screws at the bottom Of LF, and take out the Back Link A.

(4) Demount the two M5 thumb screws at the top of the front side of MF/HF.

(5) Insert the two LF Front Links into the U grooves along the left & right front edges of MF/HF, make sure the two screw holes on both sides are aligned, and tighten the screws through the holes.

(6) Insert one end of the Back Link A into the U groove on the back of MF/HF and the other end into the U groove on the bottom of LF, make sure the two screw holes at both ends of the link are aligned with the corresponding holes in the U grooves, mount the two M5 thumb screws, and tighten them (see Figure3). Alignment of the white scale lines on the Back Link A with the edges of the two U grooves indicates successful mounting.

SPLAY ANGEL ADJUSTMENT

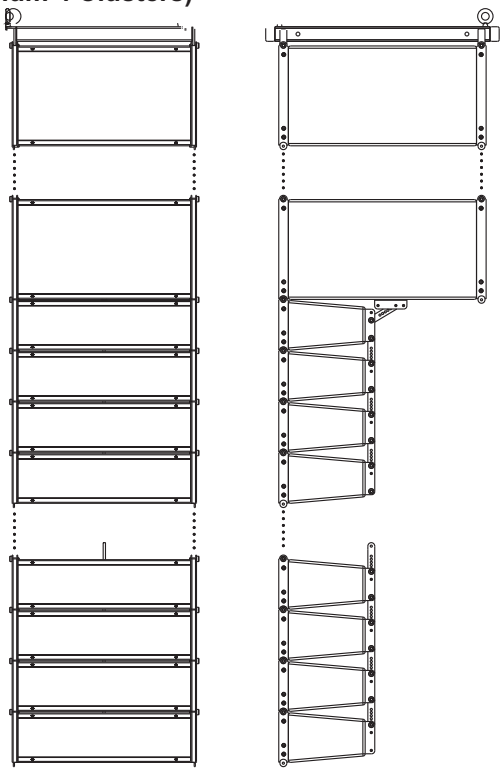
Turn MF/HF speaker together with its Back link Back Link B, make sure the right scale line marked on the Back Link B is aligned with the edge of the U groove at the back Of MF/HF speaker (The numbers marked besides each scale line indicate different splay angles). Then insert the M5 thumb screw through the aligned holes of the Back Link B and the U groove at the back of the speaker (Alignment with Number 1 hole in the groove is required when0° /2° /4° /6° /8° /10° of splay angle is wanted, and alignment with Number 2 hole is required when 3° /5° /7° /9° Of splay angel Is wanted).

For example, if the splay angle between two MF/HF speakers is designed to be 5° , the scale line marked with the number of 5 on the Back Link B must be aligned to the bottom edge of the groove on the back of the top speaker, then a certain hole in the Back Link B will be found to be aligned with Number 2 hole in the groove at the back of the top speaker. Insert a M5 thumb screw through the two aligned holes and tighten it.

INSTALLATION

INSTALLATION METHOD 2

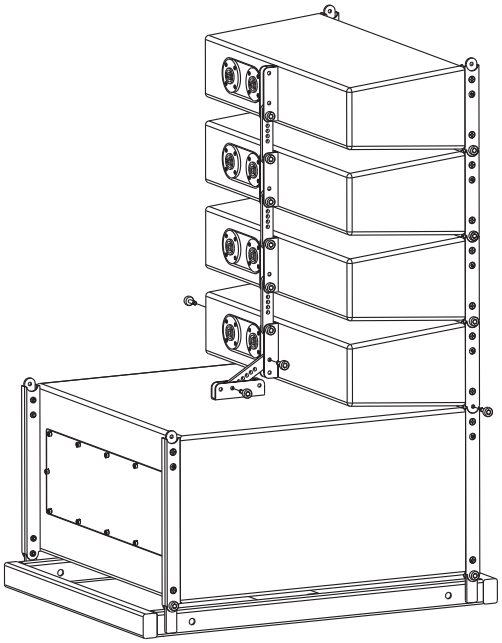
Multi Clusters Flown Vertically (maximum 4 Clusters)



(1) Open the package, and take out 171.227 speakers and the accessories.
(2) Mount the four M8 rings to the flying frame.
(3) Demount the two M5 thumb screws at the bottom of LF, and take out the Back Link A. Disassemble the U grooves and remount the two M5 small head screws in the original holes.
(4) Disassemble the flying frame of another LF, mount this LF to the bottom of the first LF by tightening M5 thumb screws accordingly.
(5) Demount the two M5 thumb screws at the top of the front side of MF/HF.
(6) Insert the two LF Front Links into the U grooves along the left & right front edges of MF/HF, make sure the two screw holes on both sides are aligned, and then tighten the screws through the holes.
(7) Insert one end of the Back Link A into the U groove on the back of MF/HF and the other end into the U groove on the bottom of LF, make sure the two screw holes at both ends of the link are aligned with the corresponding holes in the U grooves, mount the two M5 thumb screws, and tighten them (see Figure3). Alignment of the white scale lines on the Back Link A with the edges of the two U grooves indicates successful mounting.
(8) Attach one or more clusters of MF/HF to the bottom of the installed MF/HF accordingly.

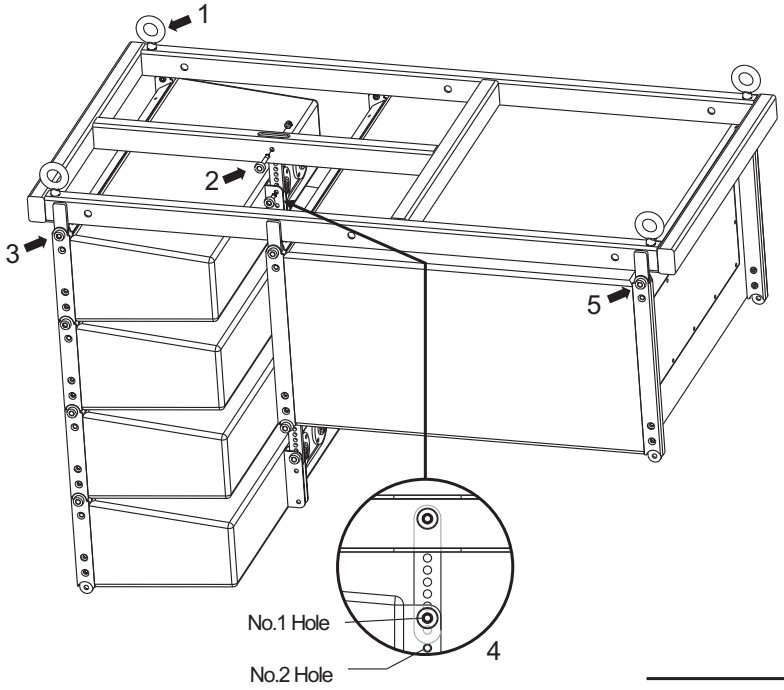
INSTALLATION METHOD 3

Cluster stacked with LF at the bottom.



INSTALLATION

INSTALLATION METHOD 4 (THE LONG FLYING FRAME IS OPTIONAL)

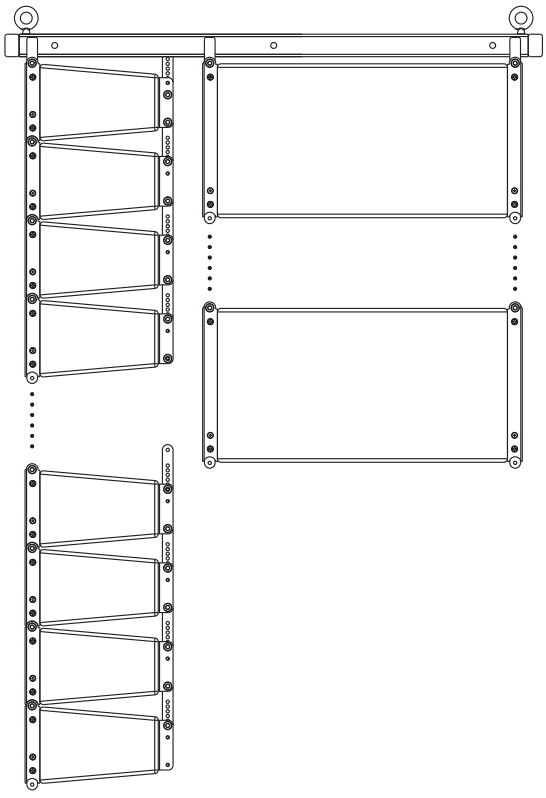


One cluster flown from front to back

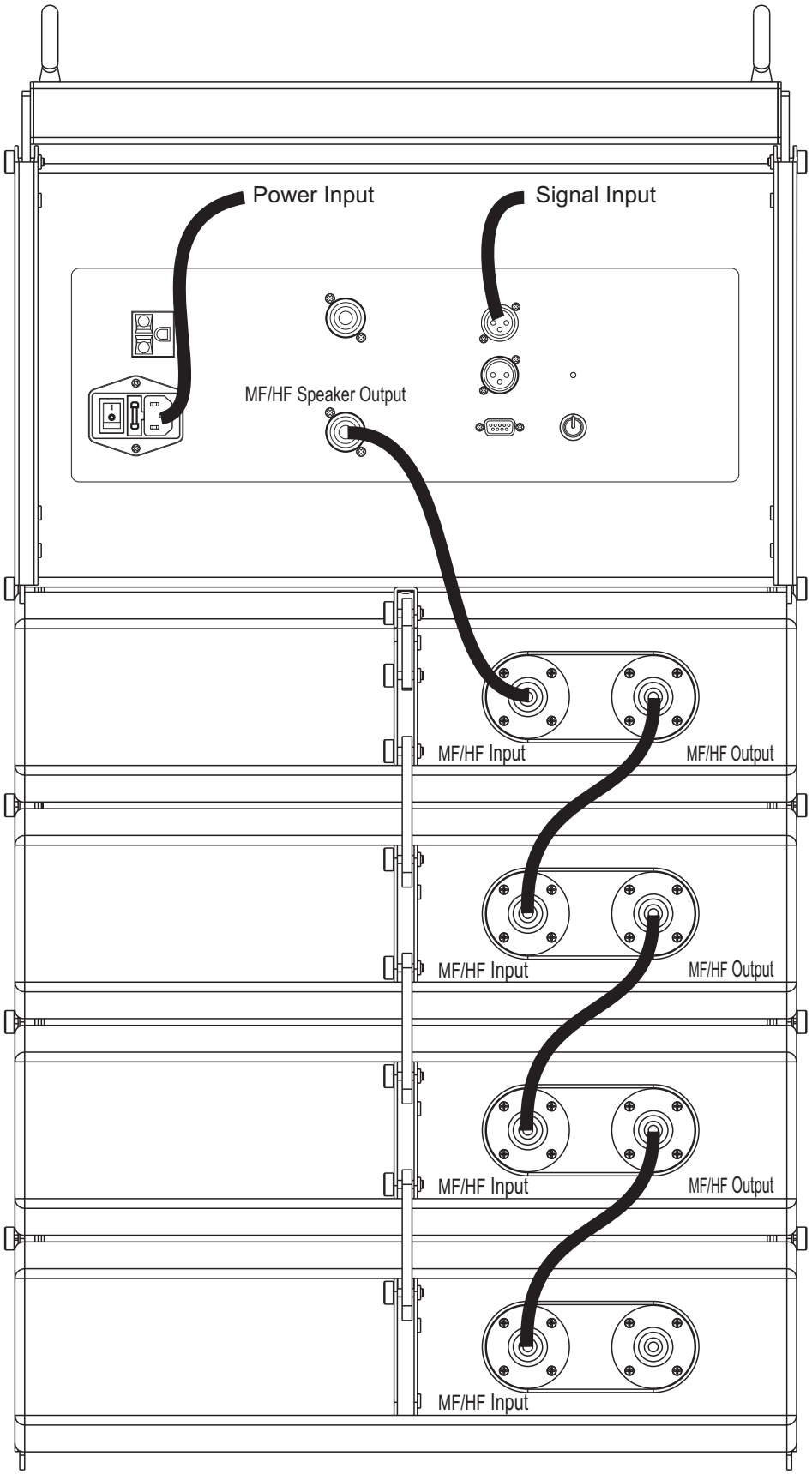
(1) Open the package, take out 171.227 speakers and the accessories.
(2) Open the package of the long flying frame, take out the frame and accessories.
(3) Mount the M8 rings to the long flying frame (see Arrow 1), and insert the Back Link B inside the middle groove of the long flying frame (see Arrow 2).
(4) Put the long flying frame upside down (with the rings downside).
(5) Demount the two M5 thumb screws at the top of the front side of MF/HF.
(6) Put the MF/HF upside down. Insert the Front Links of the long flying frame into the U grooves along the left & right front edges of MF/HF, make sure the two screw holes on both sides are aligned, and then tighten two M5 thumb screws through the holes.
(7) Turn the MF/HF speaker, make the scale line marked with the number of 0 on the Back Link B attached to the long flying frame aligned with the bottom edge of the U groove, then insert a M5 thumb screw through the two aligned holes and tighten it (see figure 4).
(8) Demount the two M5 thumb screws at the bottom of LF, and take out the Back Link A. Then demount the four M5 thumb screws connecting the LF and the short flying frame, and disassemble the short frame.
(9) Put the LF upside down, insert the four links on the back of the long flying frame inside the U grooves of the LF and make sure the screw holes are aligned accordingly. Then mount and tighten two M5 screws through the holes.

INSTALLATION METHOD 5

Multi clusters flown from front to back (maximum 4 clusters)



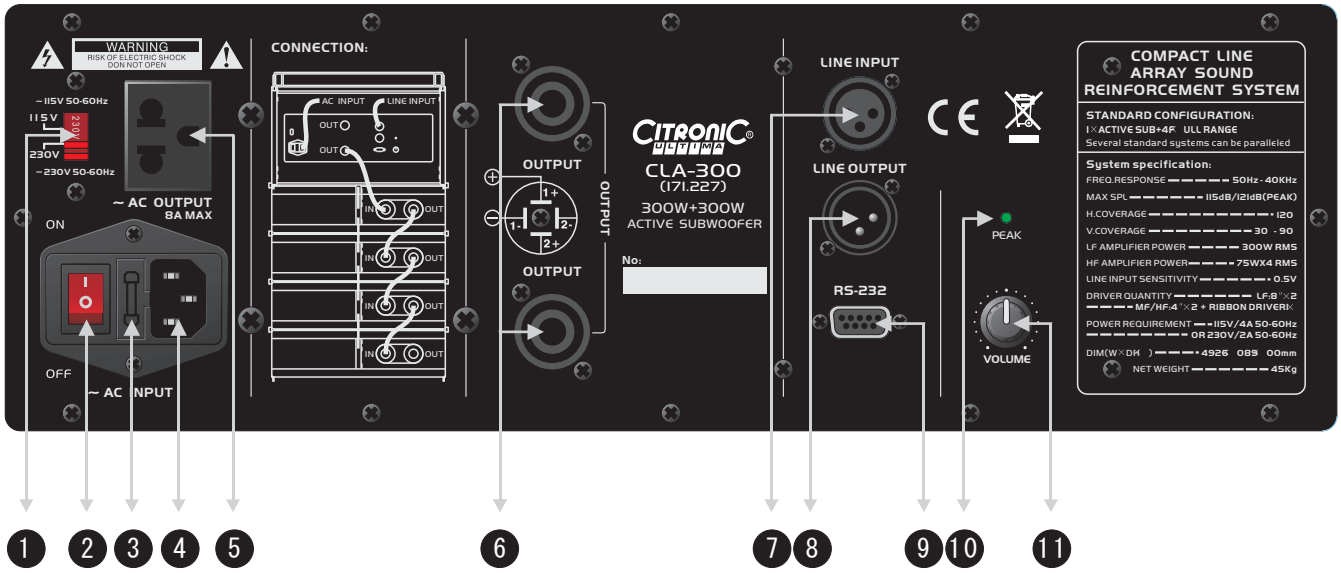
CONNECTION


Power Input
Signal Input
MF/HF Speaker Output
MF/HF Input
MF/HF Output
MF/HF Input
MF/HF Output
MF/HF Input
MF/HF Output
MF/HF Input

AMPLIFICATION MODULE

DSP ACTIVE AMPLIFIER

The LF active amplification module features the integration of DSP and Linear Power Amplification technologies.
With the power capacity of 600W, it can drive a cluster of 5 speakers of 171.227 system. The optimized control software is available to achieve all-around system control at frequency response & compensation, crossover, delay, gain and limit protection by connecting the speaker system to PC via RS232 port.



1. Voltage Switch
2. Power Supply Switch
3. Fuse
4. Power Supply Input
5. AC Outputs
6. Signal Output (NL4 socket)
7. Line In
8. Line Out
9. RS232 Port
10. Signal Indicator
11. Volume

SOFTWARE OPERATION INSTRUCTIONS

HOW TO GET THE CONTROL SOFTWARE

The software is burned into the accessory disk which delivered with unit,or you can download it from our web site.

SOFTWARE SETUP

It requires Windows98 or senior operation system, display solution ratio should be over 800*600, at least with standard RS-232 series interface or one USB interface. The software only include one practical file, you can run this file.

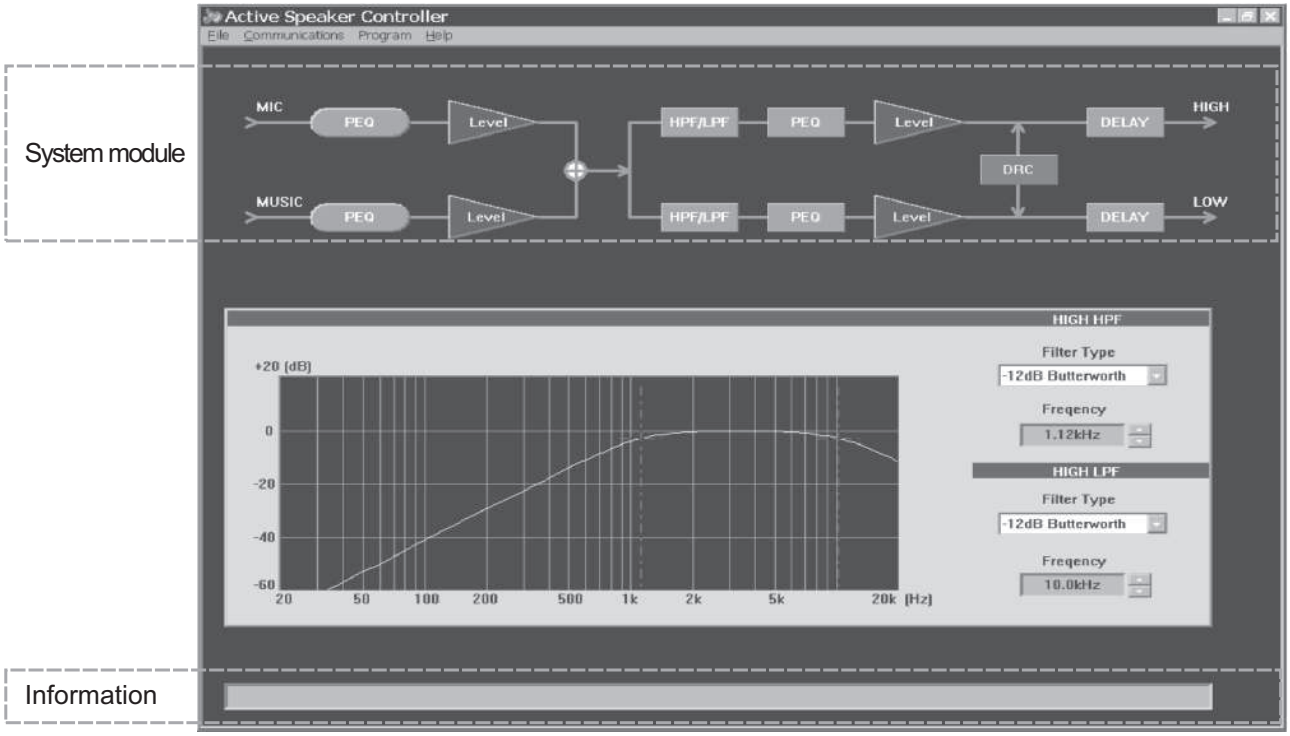
EQUIPMENTS CONNECTING

Connect the unit with PC computer through RS-232. If PC have no RS-232 connector, but have USB interface, you can use "RS-232/USB" transferring cable(optional part) to connecting it.

SOFTWARE OPERATION

1> Software display screen as following interface:

Input signal MIC, MUSIC is available for PEQ, LEVEL adjustment. When the LF and LF overlapped, you can adjust the HPF/LPF, PEQ, LEVEL, Dynamic Range Control and Delay functions perfectly.



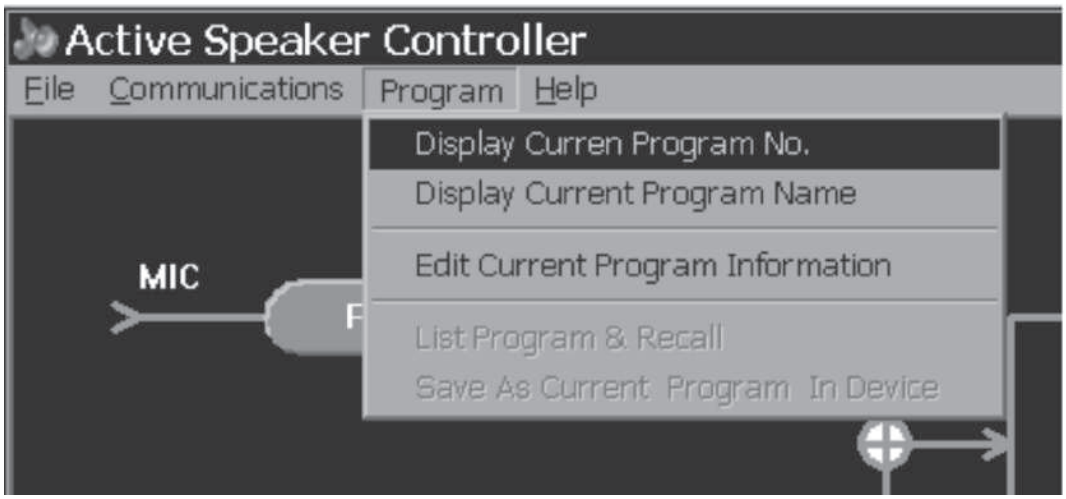
REMARKS:

Before unit connected, you can operate the file(open/edit or store), in order to run and operate when connecting (you can download the data from PC to unit).

SOFTWARE OPERATION INSTRUCTIONS

2> PROGRAM OPERATION MENU

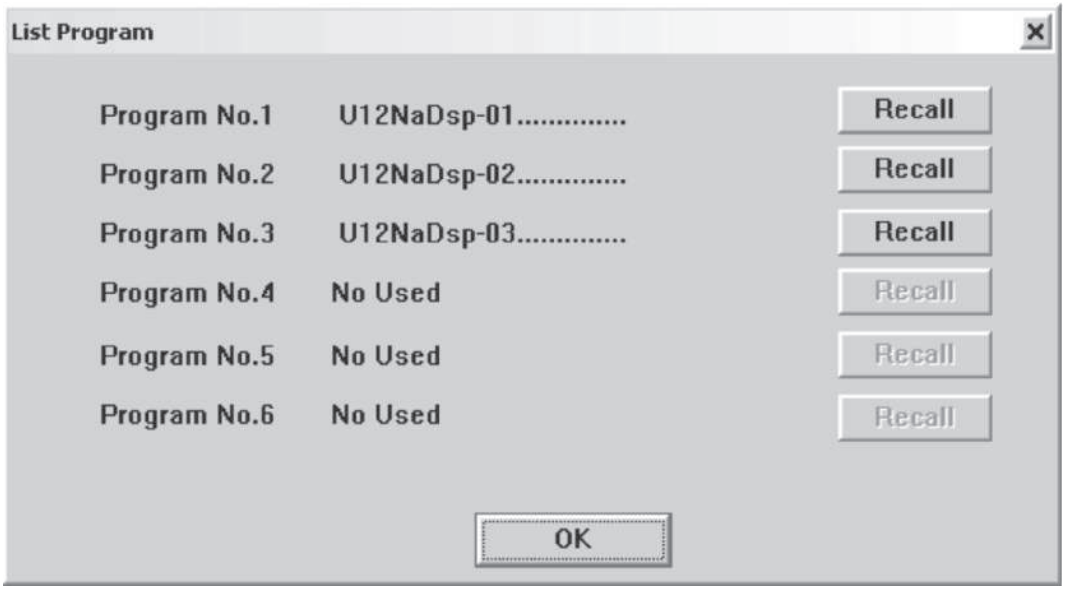
By clicking the correct menu subdirectory, you can adjust the concerned parameters.



You can check present program number, name, edit current program, All information must be under online situation.

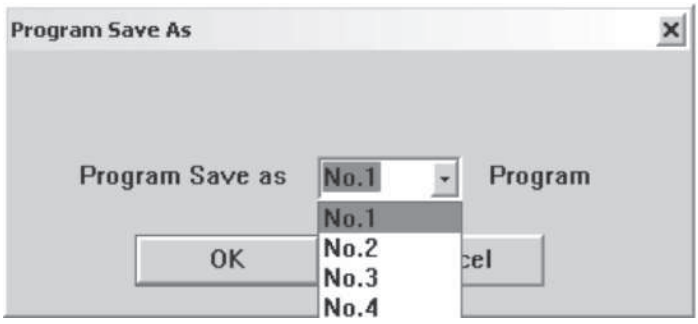
[List Program & Recall]:

6 programs list under connecting which stored into unit to select:



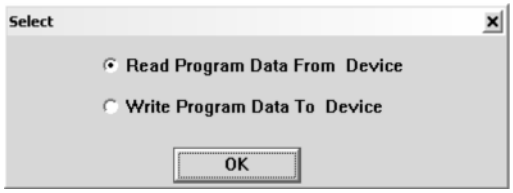
SOFTWARE OPERATION INSTRUCTIONS

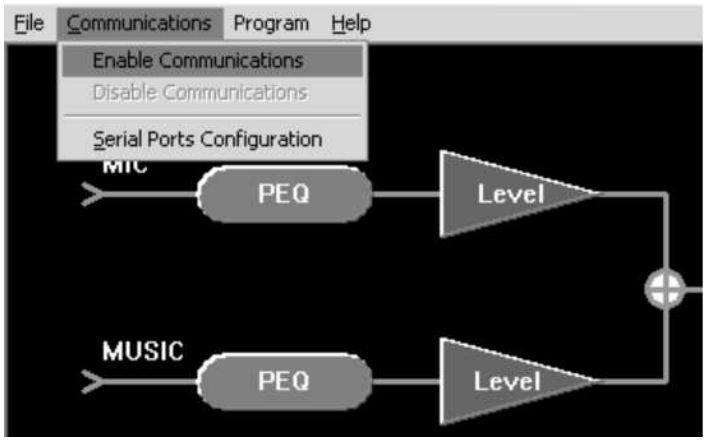
[Save As Current Program In Device]:
Save the parameter you adjusted as a program of unit, then new program can be used as default data when turn on unit. See right:



3> ONLINE OPERATION MENU

[Enable Communications]:
Click this button, it pop-up the following window:

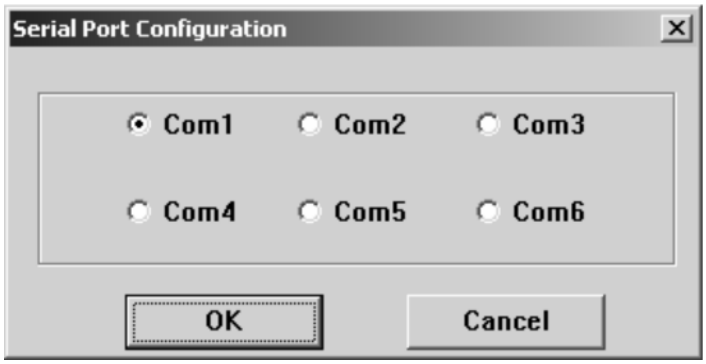




First option: Download current program to PC control program, interface display will update at the same time.
Second option: Upload the PC control program to unit as current program data. When it says connecting or download is success, PC is online with unit.

[Disable Communications]:
Disconnect the PC and speaker unit.

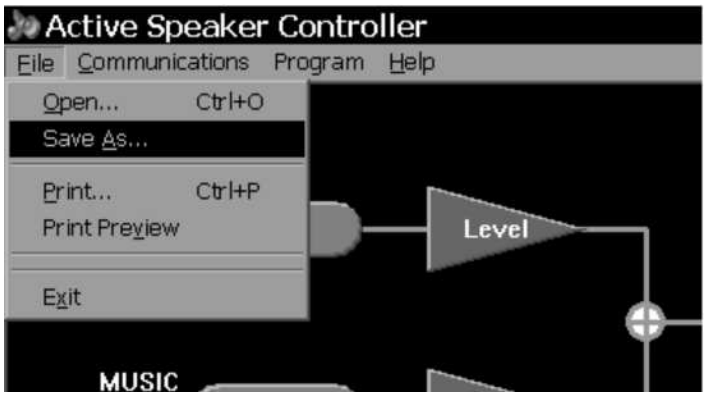
[SerialPort Configuration]:
Open Serial port dialog box, select "Connect to correct PC port connector"



SOFTWARE OPERATION INSTRUCTIONS

4> FILE OPERATION MENU

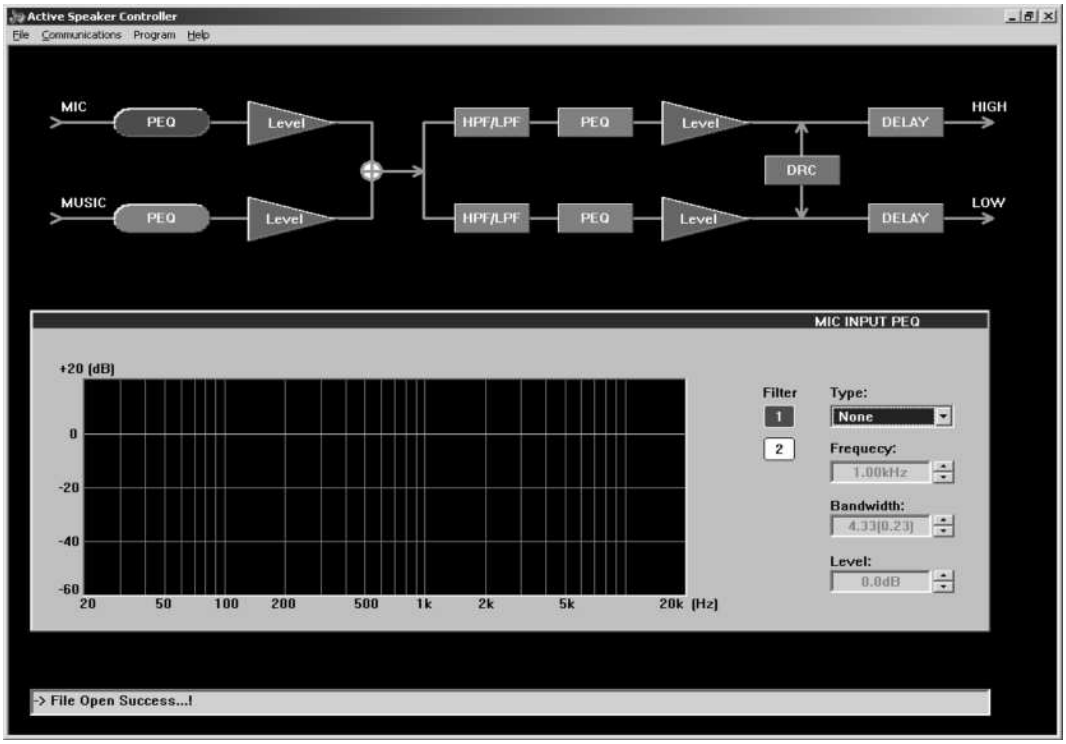
Open and store PC data to appointed disk directory.



5> FUNCTION MODULE OPERATION

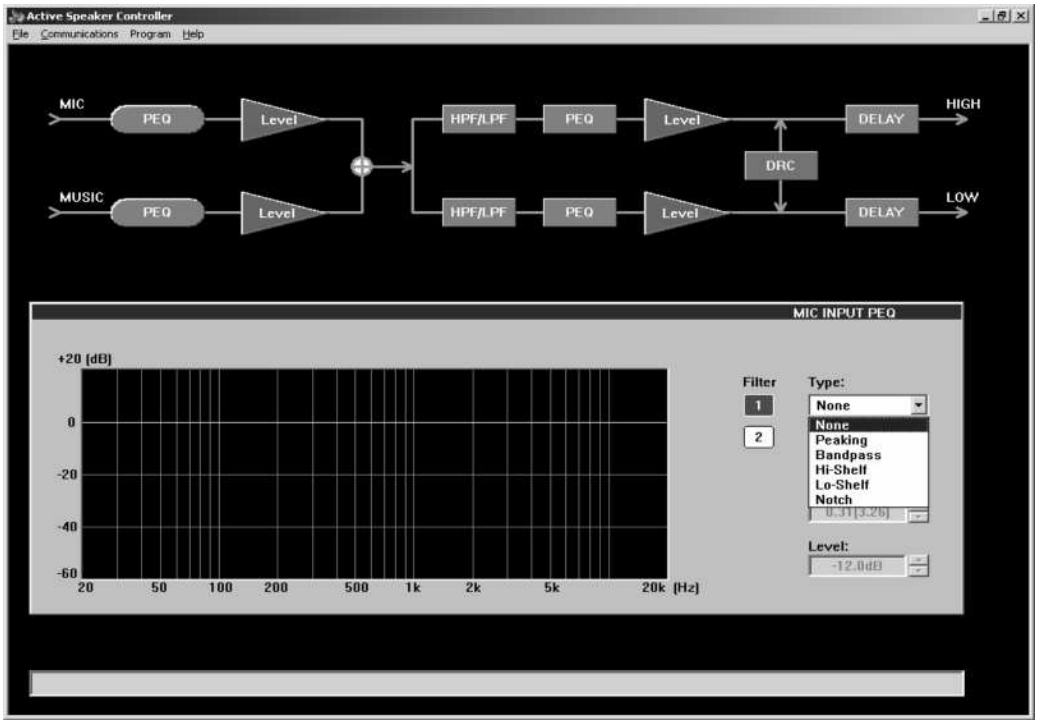
5.1> Input channel parameter configuration (MIC channel for example, LINE channel is same)

5.1.1> MIC input PEG configuration: Use mouse to click the main MIC PEG button into red, display interface: Type, Frequency, Bandwidth, Level . You can adjust them freely.

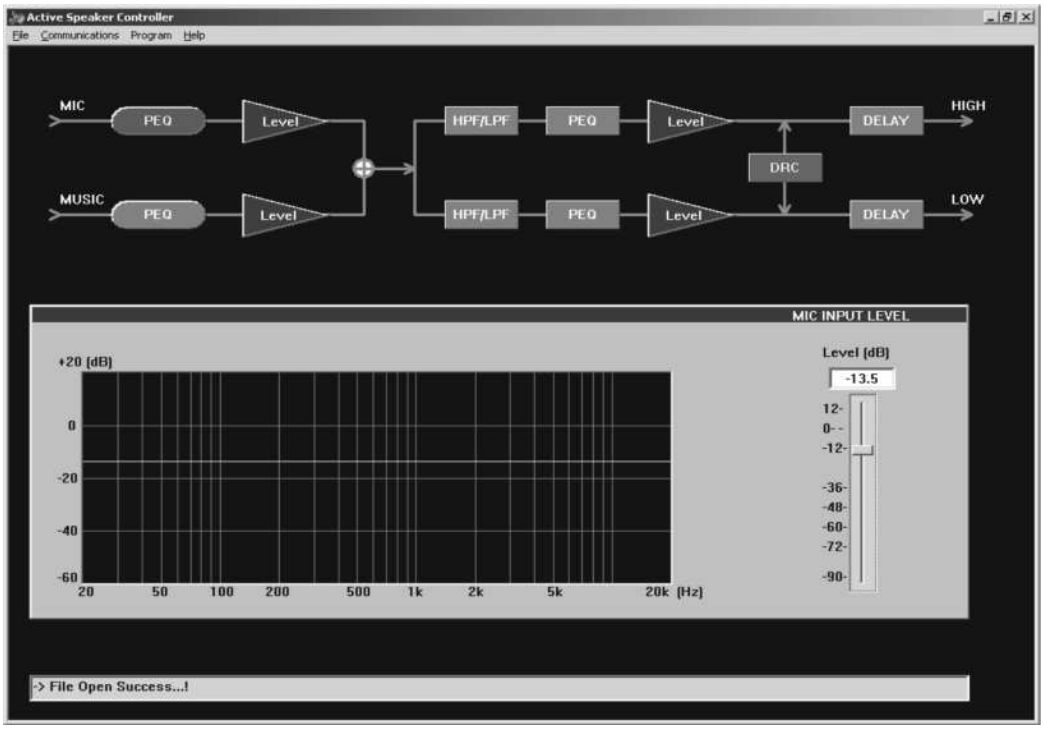


SOFTWARE OPERATION INSTRUCTIONS

Choose filter type: Click filter series number, "1" or "2", then click "Type" pull-down menu,it will shows as following interface. They are: None(No using filter. Direct-pass), Peacking, Bandpass, Hi-shelf, Lo-shelf, Notch 6 filters types to select.Select correct filter type, then select right frequency, bandwidth and level, finally you can get the perfect performance.



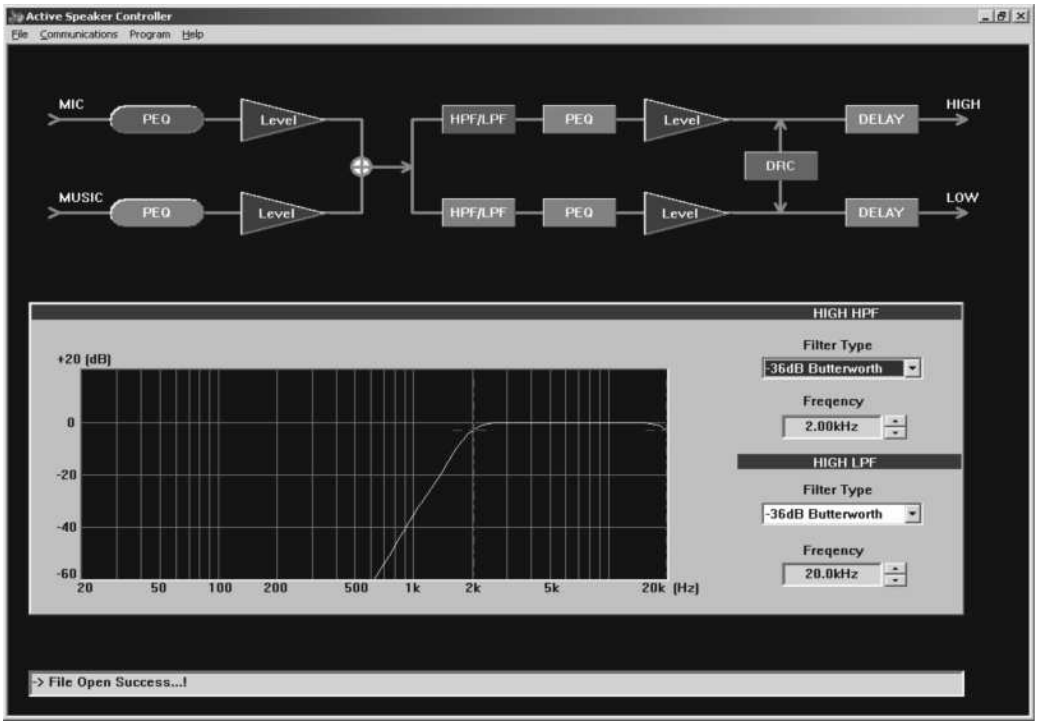
5.1.2> Gain adjust interface is as following, the volume of MIC can be adjusted by dragging the button of gain with mouse.



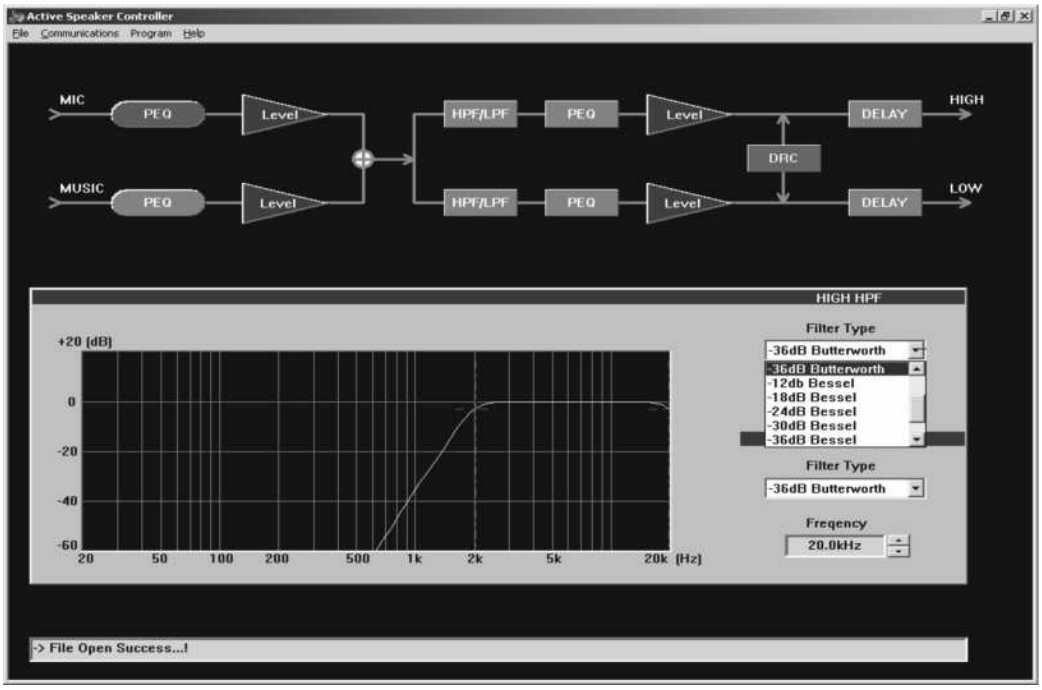
SOFTWARE OPERATION INSTRUCTIONS

5.2> Parameter configuration of output channel(only the HF output channel as a sample, the LF channel is same)

5.2.1> Crossover setting, press the HPF/LPF button, it will be changed to red. The displaying is like the following:

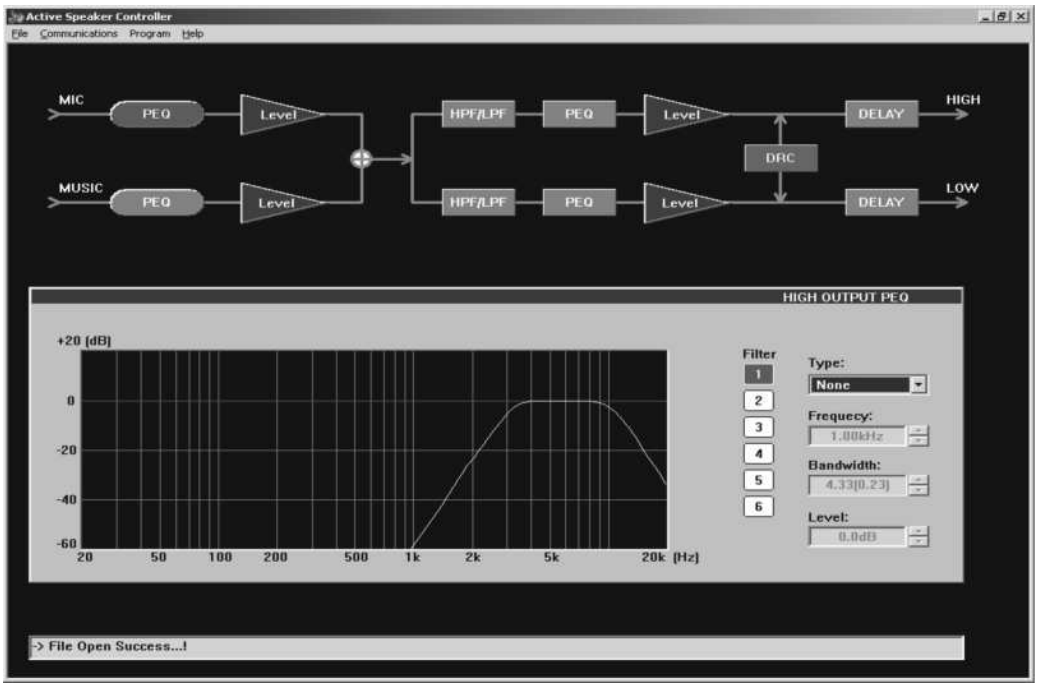


The interface of filter type, BUTTER WORTH,BESSEL.LINKWITZ-RILEY are available for high pass and low pass. -12dB/Oct36dB/Oct slope is optional, HPF/LPF can be set separately. The interface is as following:

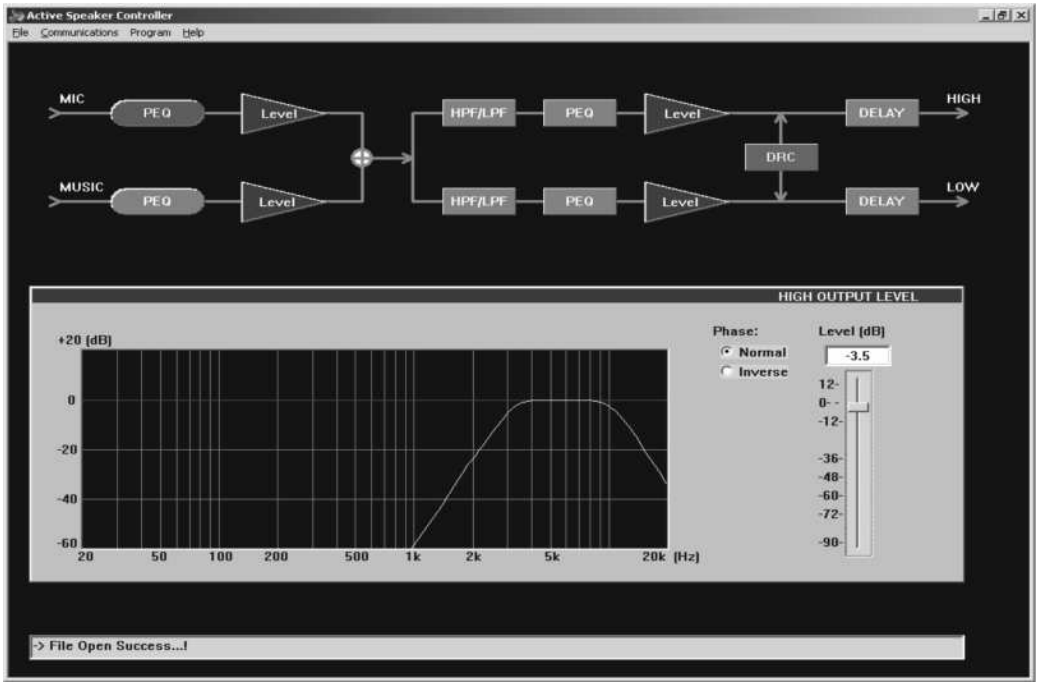


SOFTWARE OPERATION INSTRUCTIONS

5.2.2> PEQ of output setting, press PEQ button of HIGH channel, the following interface will be showed:The setting method is same as the input channel, there is 6 PEQ available to be adjusted.



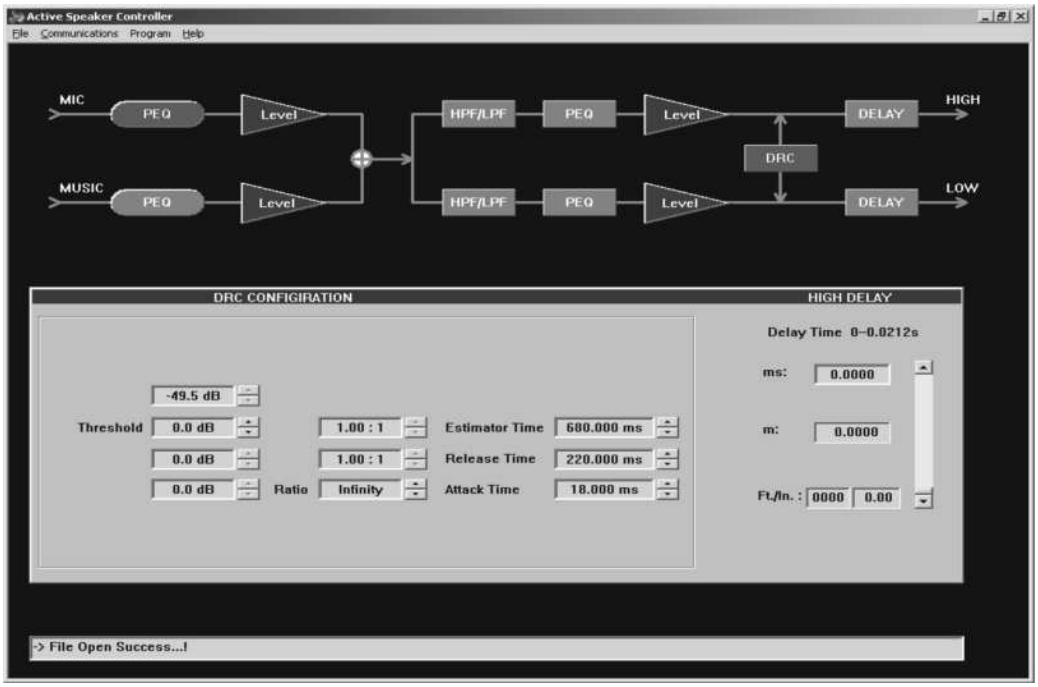
5.2.3> Output gain adjust(including phase), press LEVEL button, the gain interface is as following: Dragging the gain button with mouse can enhance or reduce the channel level, press the phase at the left of gain button can get the INVERSE or Normal.



SOFTWARE OPERATION INSTRUCTIONS

5.2.4> Dynamic range control

Press DRC button(or COMPRESSSION/LIMIT), the interface is as following:This compression just check the HF signal, once the signal reach the limit, it will compress the HF and LF synchronously(synchronous action is for the balance of HF and LF)



Five parameters in the dynamic range table is adjustable(the inner parameter is no name, not adjustable)

Threshold: Is the limit value of compression, adjustable from 0dB to -49.5dB

Ratio: Compression ratio,adjustable from 1:1 to & :1

RMS Estimator Time: The checking time of limit value of compression

Release time: Release compression time after the checking that the signal level is under the limit

Attack time: Start up time after checking that the signal level is above the limit.

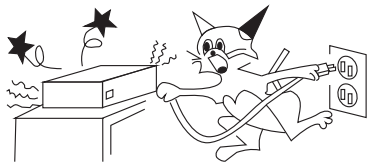
5.2.5> The delay setting of output channel

Mainly adjust the distance of sound center to make sure the sound center is same. Press DELAY with mouse, the 5.2.4 interface will be showed, the right side is the delay adjust range from 0.0208ms to 21.2292ms.

SAFETY INSTRUCTIONS

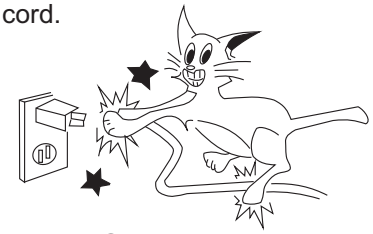
DO NOT OPEN THE COVER:

Do not open the cover to avoid the risk of electric shock caused by high voltage parts in the product. Any problems caused by user's wrong actions are out of warranty.



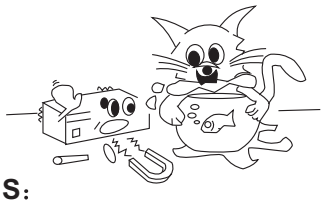
DO NOT DAMAGE THE POWER CORD:

Please hold the plug when pull out or plug in the cord. Do not pull out or touch the cord with wet hand, or it will cause the risk of electric shock. Power supply cords should be routed so they are not likely to be walked upon or pinched by items placed on or again st them. When removing the cord from a power outlet be sure to remove it by holding the plug attachment and not By pulling on the cord.



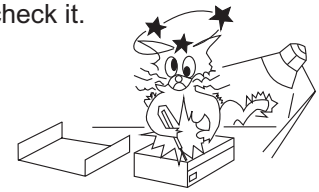
AVOID OBJECT AND LIQUID ENTRY:

Take care that objects do not fall into and that liquids are not spilled into the inside of the product.If the object or liquid enter the product,please ask qualified personnel to check it.



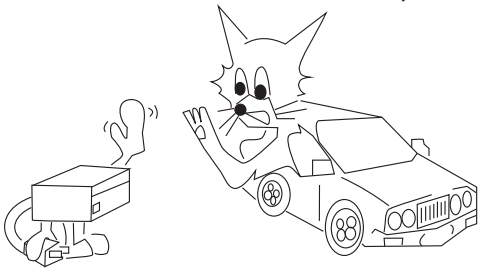
ABNORMAL STATUS:

In the event of abnormal noise and smell, please put off the power supply and pull out the cord, please ask qualified personnel to check it.



NONUSE FOR A LONG TIME:

When nonuse it for a long time, please put off the power supply and pull out the cord to avoid the unexpected dangers.



LIMITED WARRANTY

If malfunction occurs during the specified warranty period from the date of original purchase, the product will be repaired or replaced without charge .

The Limited Warranty does not apply to:

(a) exterior finish or appearance;
(b) certain specific items described in the individual product data sheet or owner's manual;
(c) malfunction resulting from use or operation of the product other than as specified in the individual product data sheet or owner's manual;
(d) malfunction resulting from misuse or abuse of the product;
(e) malfunction occurring at any time after repairs have been made to the product by anyone other than Manufactory Service or any of its autho rized service representatives.

To obtain warranty service, a customer must deliver proof of purchase of the product in the form of a bill of sale or receipt invoice.

171.227 Speakers and Speaker Systems are guaranteed against malfunction due to defects in materials or workmanship for a period of three (3) years from the date of original purchase. The Limited Warranty does not apply to burned voice coils or malfunctions such as cone and/or coil damage resulting from improperly designed enclosures. Additional details are included in the Limited Warranty statement.

171.227 Accessories are guaranteed against malfunction due to defects in materials or workmanship for a period of one (1) year from the date of original purchase. Additional details are included in the Limited Warranty statement.

171.227 Flying Hardware (including enclosure-mounted hardware and rigging accessories) is guaranteed against malfunction due to defects in materials or workmanship for a period of one (1) year from the date of original purchase. Additional details are included in the Limited Warranty statement.

Specifications subject to change without notice.

TECHNICAL SPECIFICATIONS

Frequency Range ---------- 50Hz - 40KHz

Max SLP ---------- 115dB/121dB(PEAK)

Horizontal Dispersion ---------- 120°

Vertical Dispersion ---------- 30° - 90°

Max Constant Power Output For Mid-low Range --- 300W RMS

Max Constant Power Output For Mid-high Range --- 75WX4 RMS

Line In Sensitivity ----------0.5V

Driver ---------- MF/HF:4″×2 + RIBBON DRIVER×1

---------- LF:8″×2

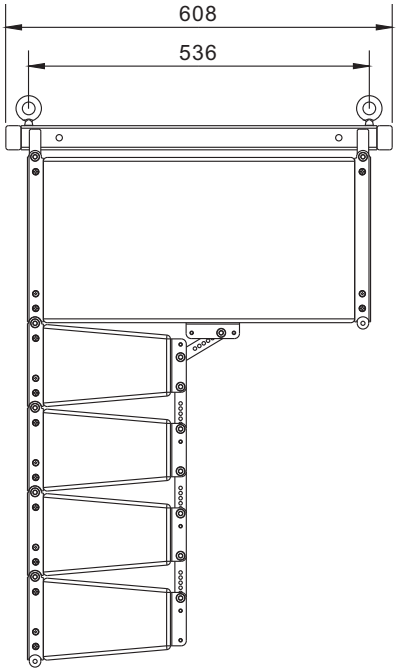
Power Supply ---------- 115V/4A 50-60Hz

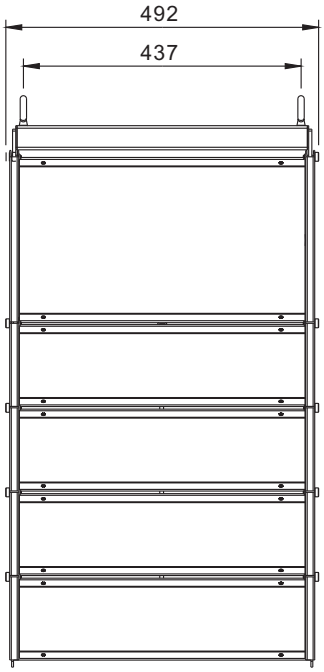
---------- OR 230V/2A 50-60Hz

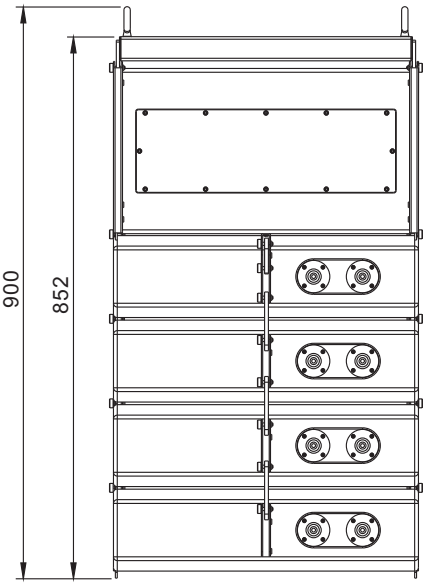
Dimensions (WxDxH) ---------- 492×608×900mm

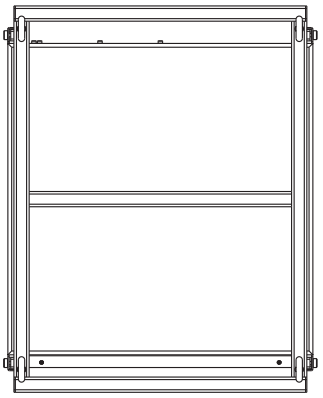
Net Weight ---------- 45Kg

Gross Weight ---------- 50Kg









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