R4/R8

COMPACT LINE ARRAY SOUND REINFORCEMENT SYSTEM

TABLE OF CONTENTS

β ® 3

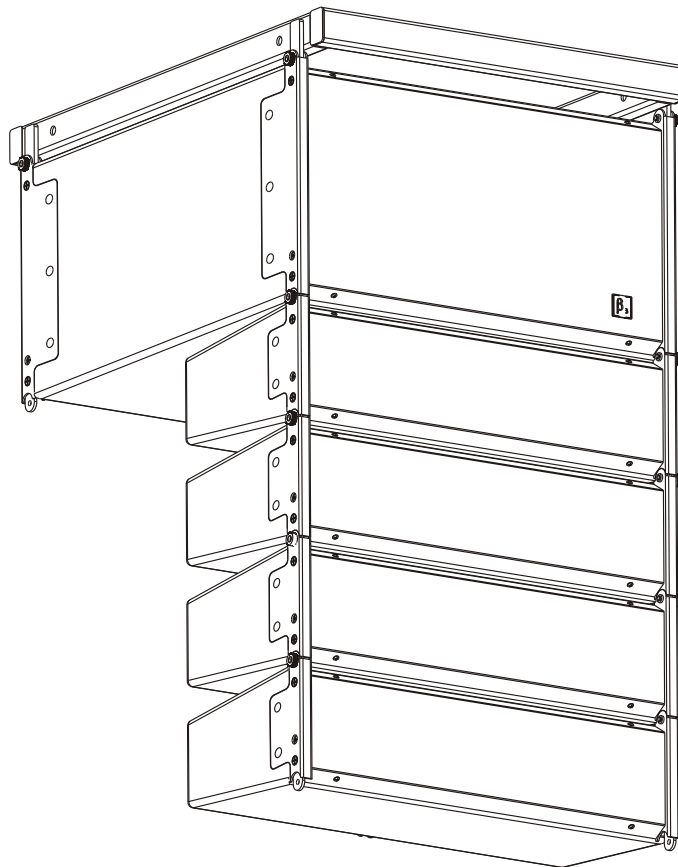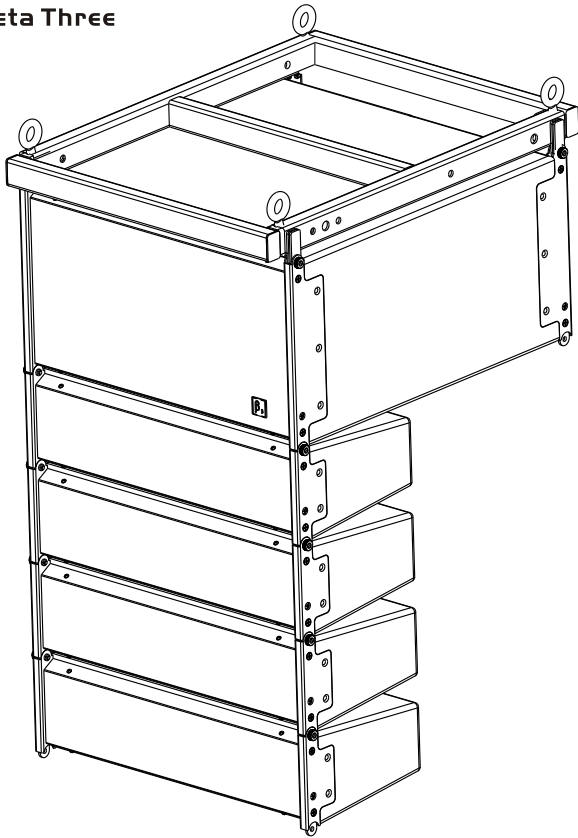Beta Three

R4/R8

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

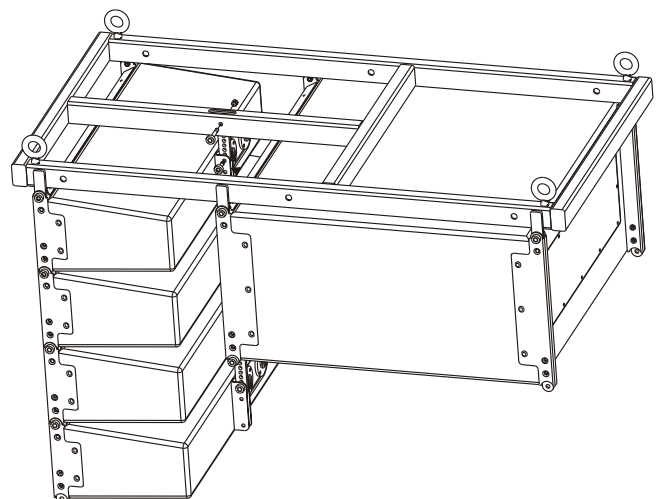● RS-232/USB/RS-485 Portes available for system control

DESCRIPTION

R4/R8 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.
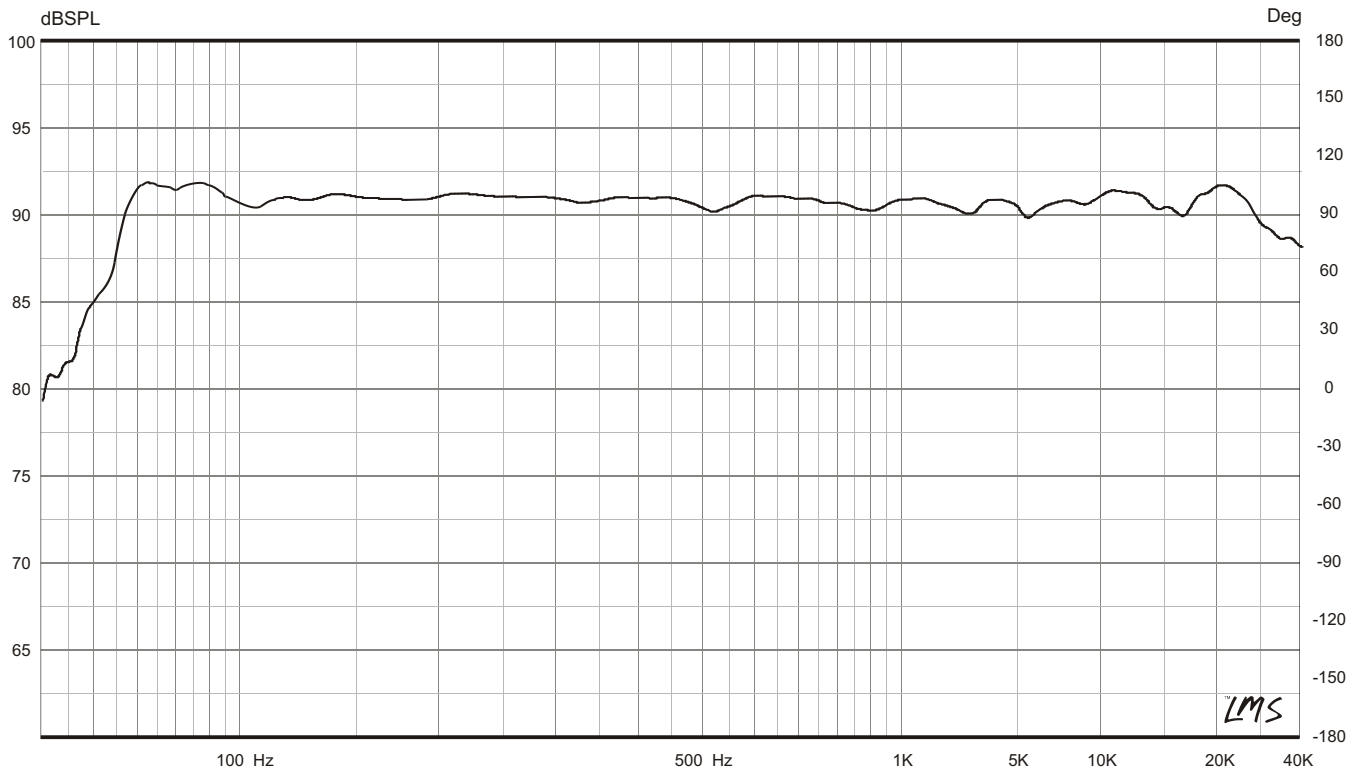
R4/R8 is designed by applying line array concept. It features compact dimensions and easy to handle design. The built-in 600W amplifier and DSP make it available for use at any moment when connected to sound resource. System control over each cluster at frequency response, crossover point & slope, delay, gain and limit protection can be achieved by connecting the speaker system to PC via RS-232 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.
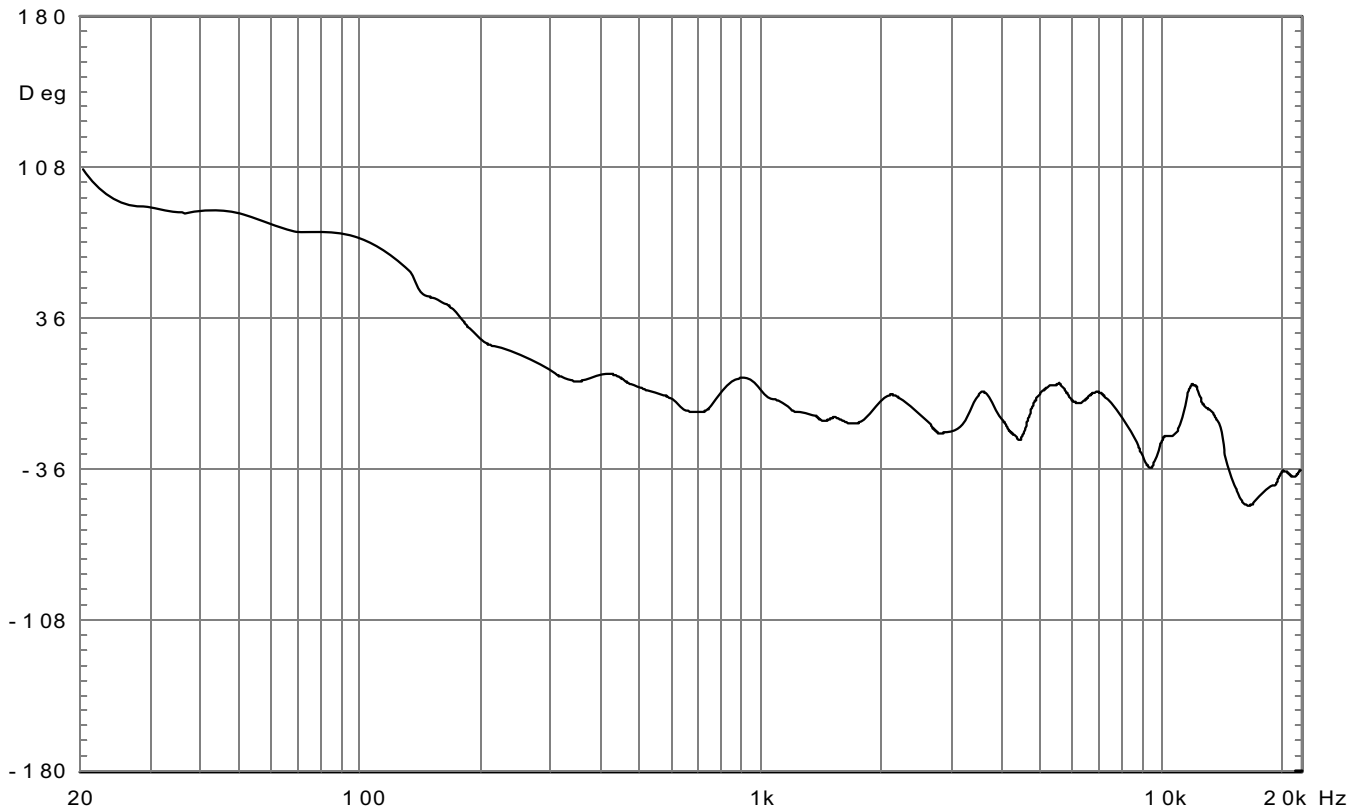
The flying hardware is designed to fit different application situation flexibly with the splay angel adjustable by 1° increment vertically.
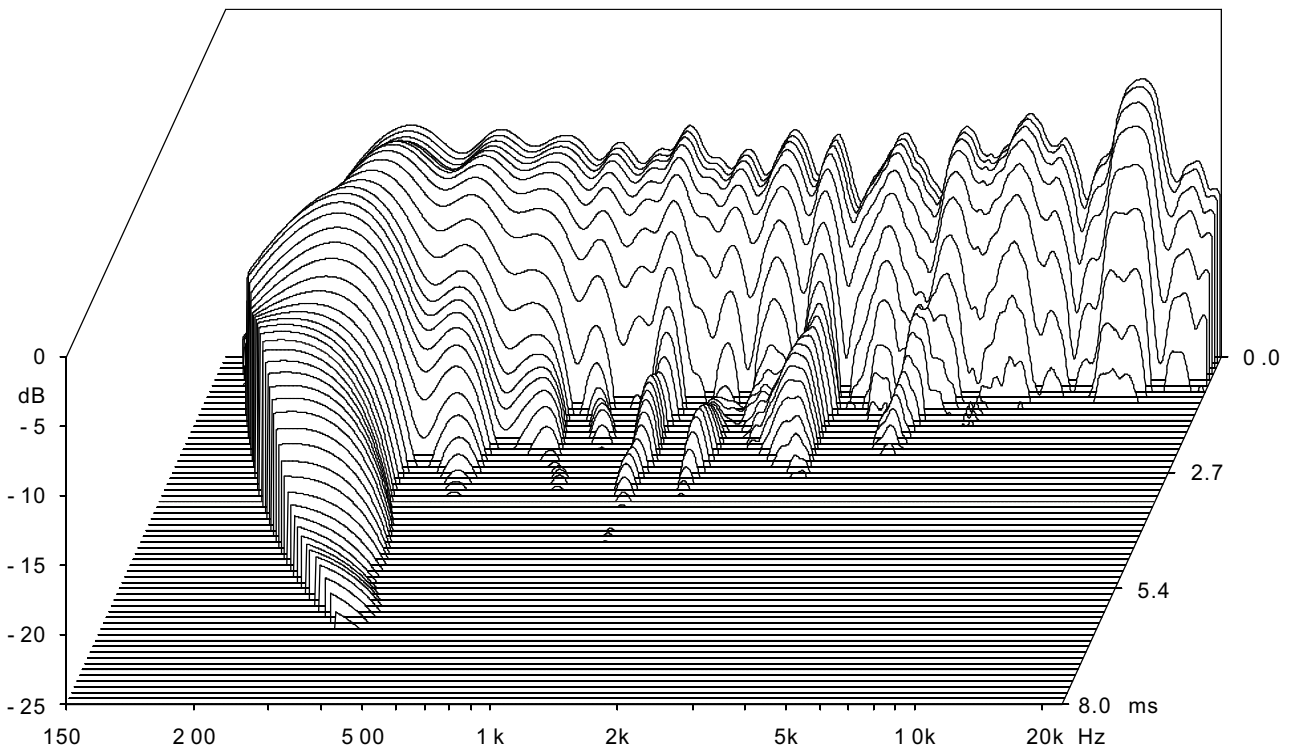
FREQUENCY RESPONSE

dBSPL
Deg

LMS

100 Hz   500 Hz   1K   5K   10K   20K   40K

PHASE RESPONSE

Deg

20   100   1k   10k   20k Hz

WATERFALL

THD

Frequency Response   – – – – – – 2nd Distortion   3rd Distortion
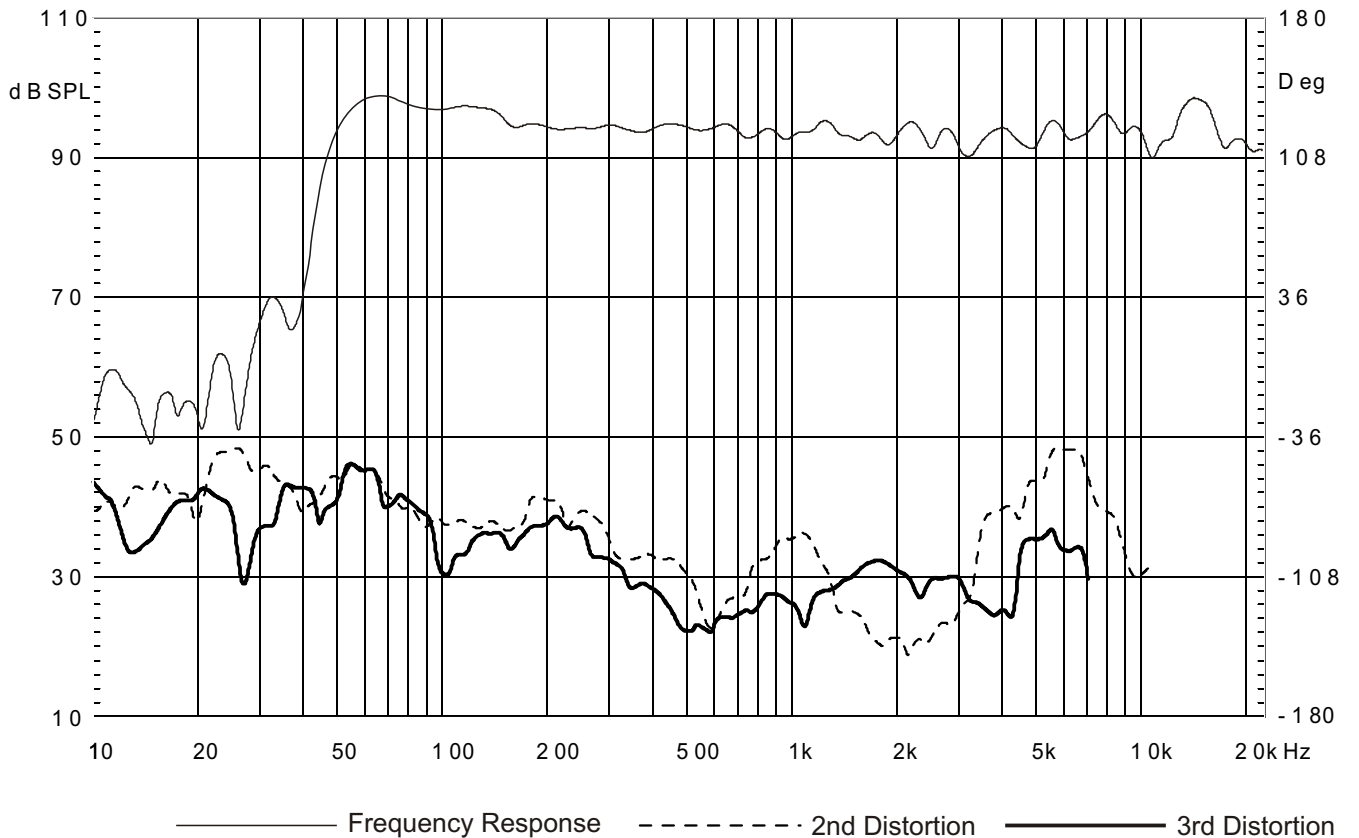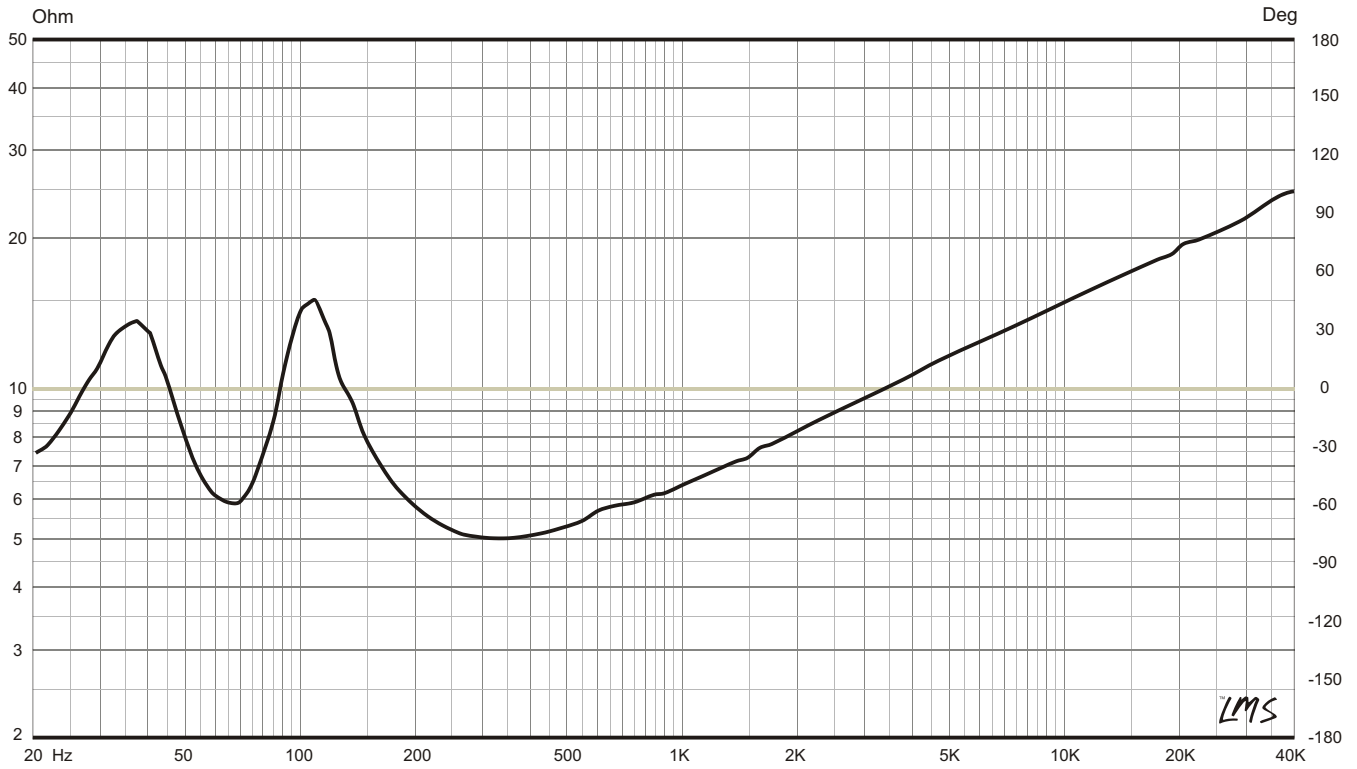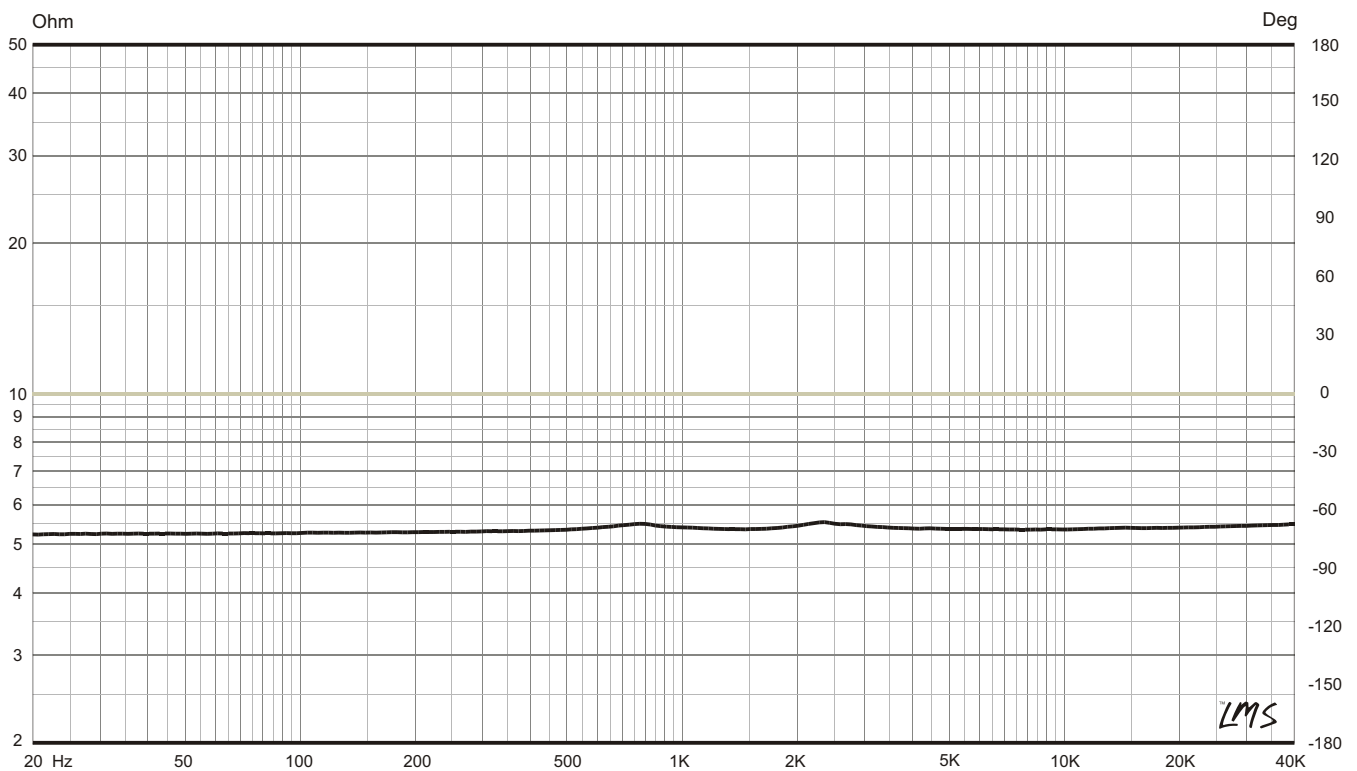
IMPEDANCE CURVE

IMPEDANCE CURVE OF R8

IMPEDANCE CURVE OF THE RIBBON TWEETER
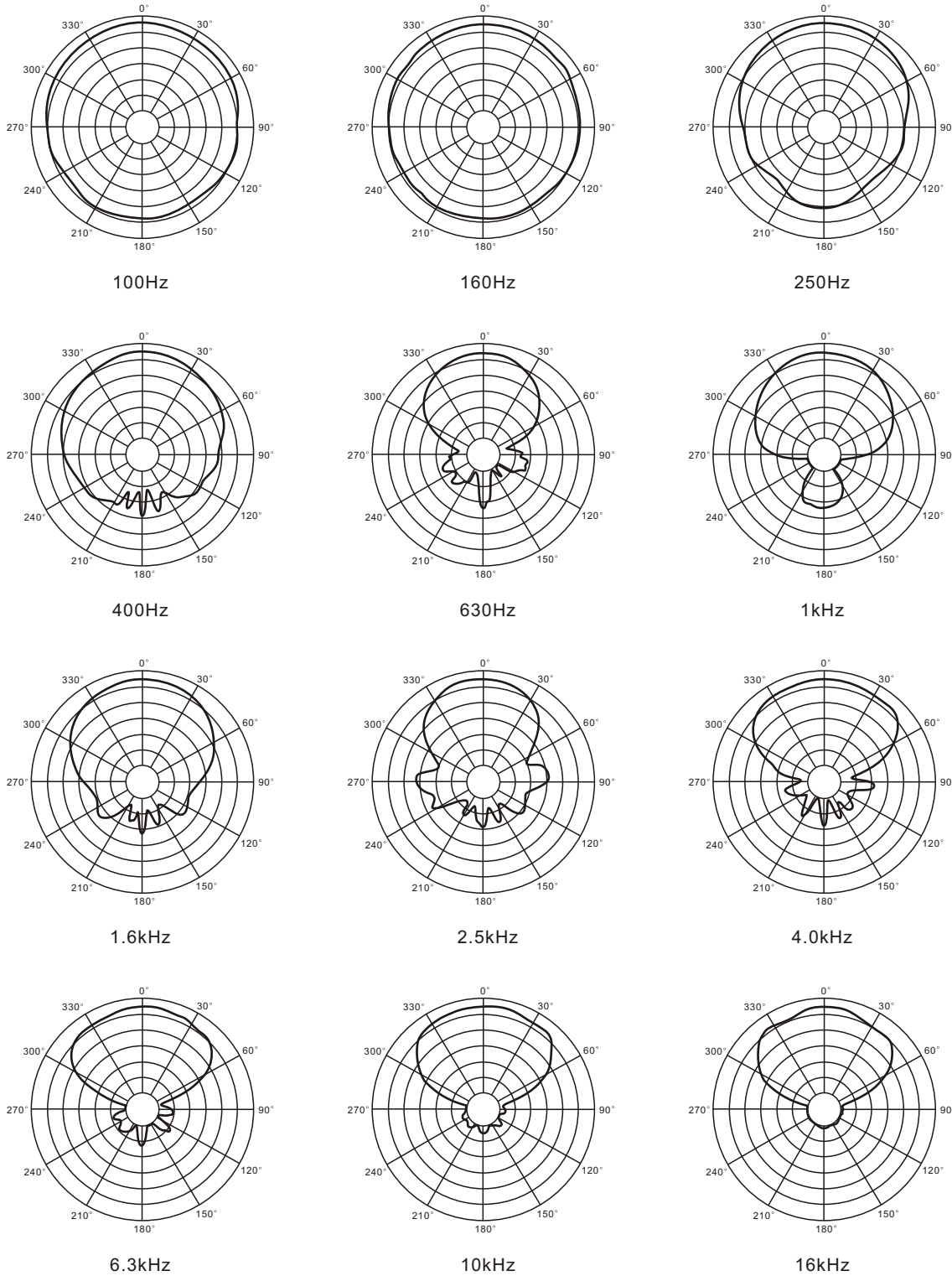
HORIZONTAL DIRECTIVITY

The data of R4/R8 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

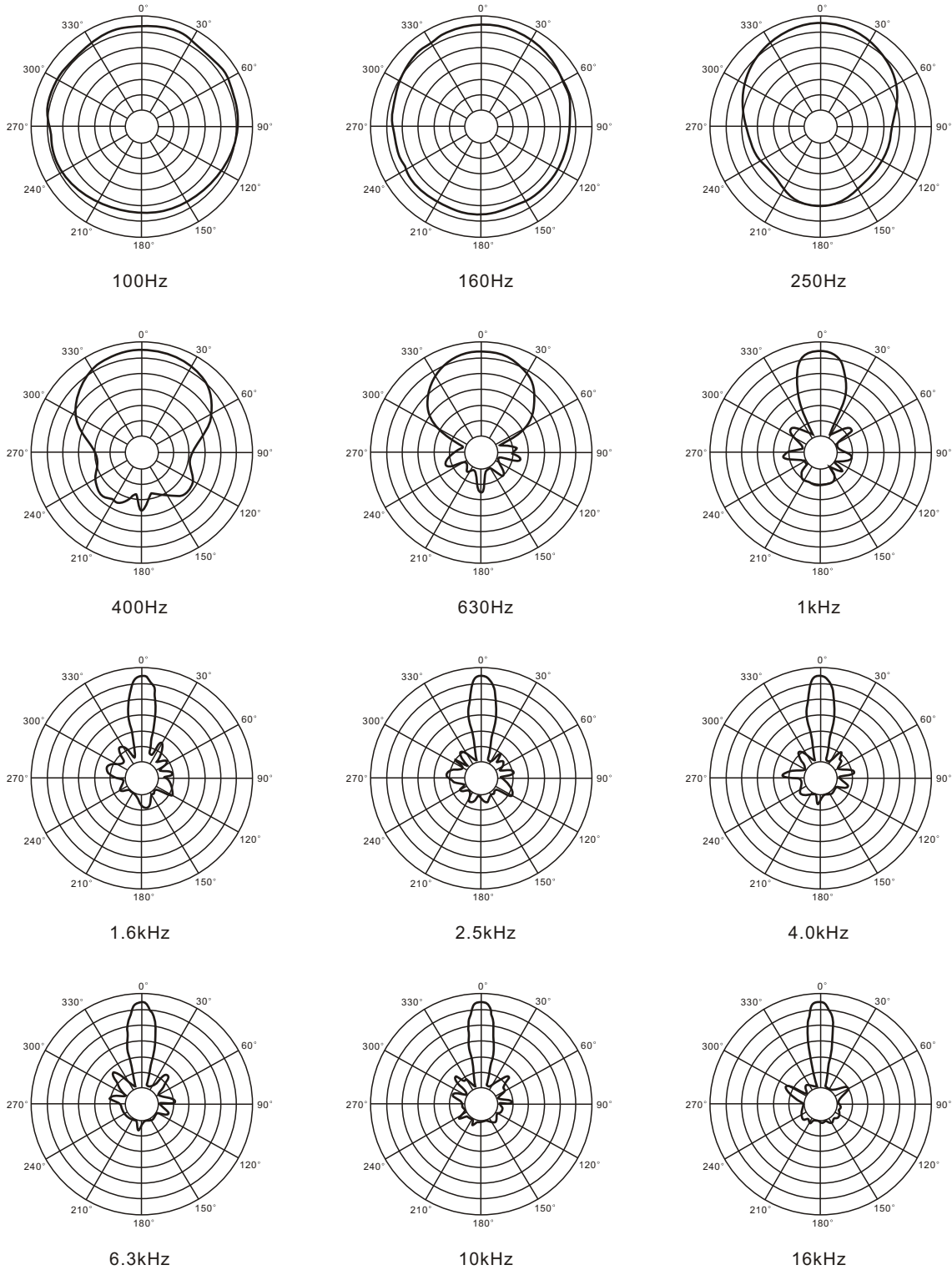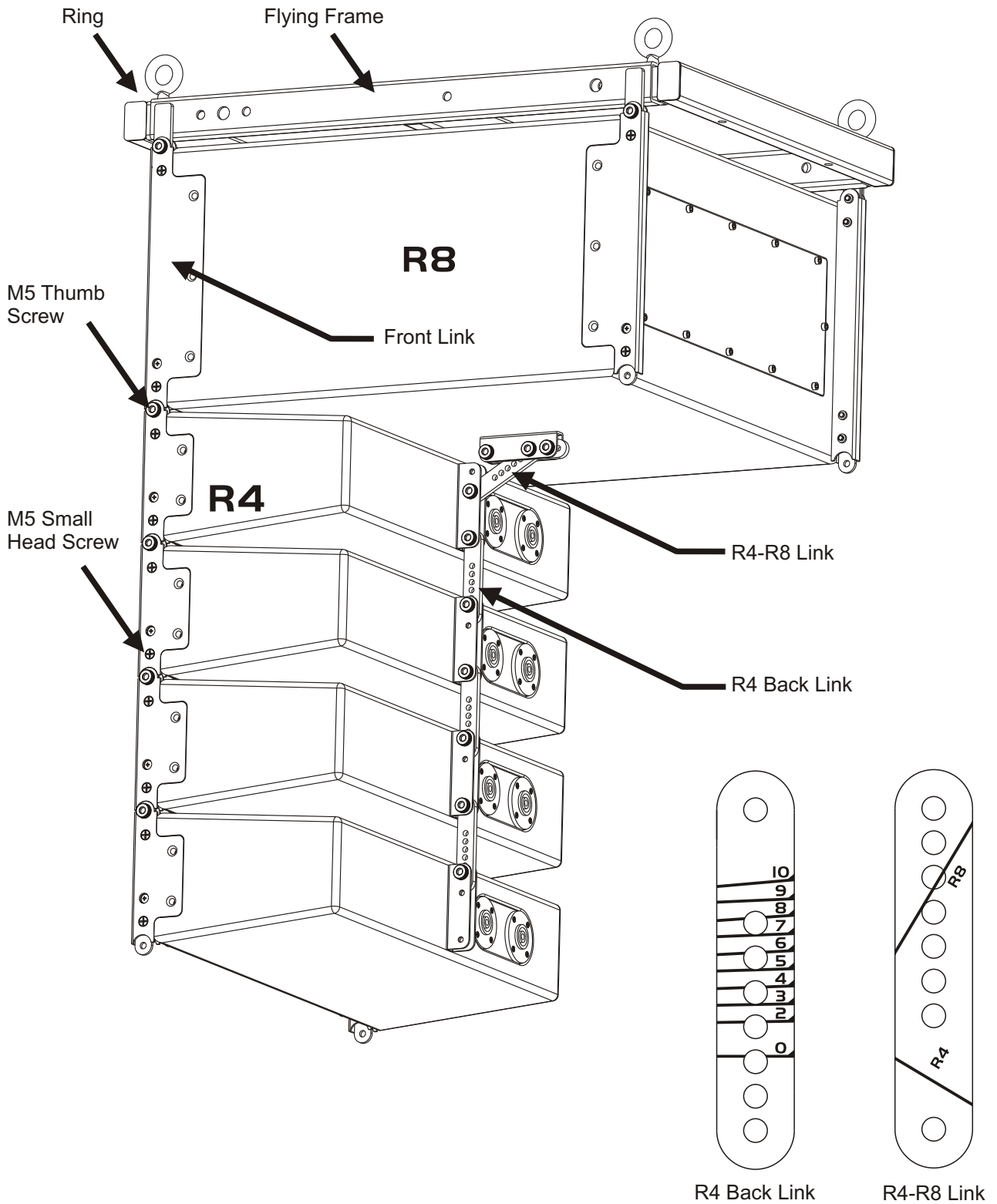The scale is stepped by 6dB increment.

VERTICAL DIRECTIVITY

The data of R4/R8 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

Ring Flying Frame

R8

M5 Thumb
Screw

Front Link

M5 Small
Head Screw

R4

R4-R8 Link

R4 Back Link

R4 Back Link

R4-R8 Link

10
9
8
7
6
5
4
3
2
0

R8

R4

INSTALLATION

INSTALLATION METHOD 1

(4) Demount the two M5 thumb screws at the top of the front side of R4.

(5) Insert the two R8 Front Links into the U grooves along the left & right front edges of R4, make sure the two screw holes on both sides are aligned, and tighten the screws through the holes.

(6) Insert one end of the R4-R8 Link into the U groove on the back of R4 and the other end into the U groove on the bottom of R8, 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 R4-R8 link with the edges of the two U grooves indicates successful mounting.

SPLAY ANGEL ADJUSTMENT

Turn R4 speaker together with its back link (R4 Back Link), make sure the right scale line marked on the R4 Back Link is aligned with the edge of the U groove at the back of R4 speaker (The numbers marked besides each scale line indicate different splay angles). Then insert the M5 thumb screw through the aligned holes of the R4 Back Link and the U groove at the back of the speaker (Alignment with Number 1 hole in the groove is required when 0°/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 R4 speakers is designed to be 5°, the scale line marked with the number of 5 on the R4 Back Link must be aligned to the bottom edge of the groove on the back of the top speaker, then a certain hole in the R4 Back Link 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.

ONE CLUSTER FLOWN VERTICALLY

(1) Open the package and take out R4、R8 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 R8, and take out the R4-R8 Link.

INSTALLATION

INSTALLATION METHOD 2

**Multi Clusters Flown Vertically
(maximum 4 Clusters)**
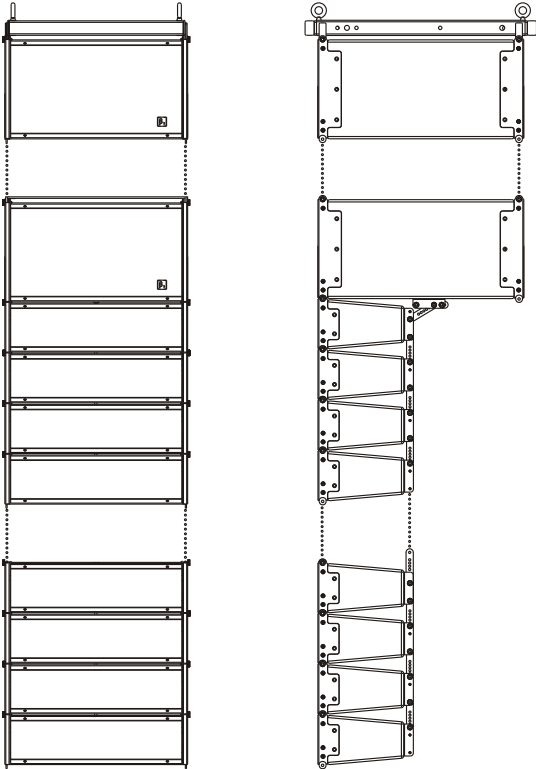
INSTALLATION METHOD 3

Cluster stacked with R8 at the bottom.
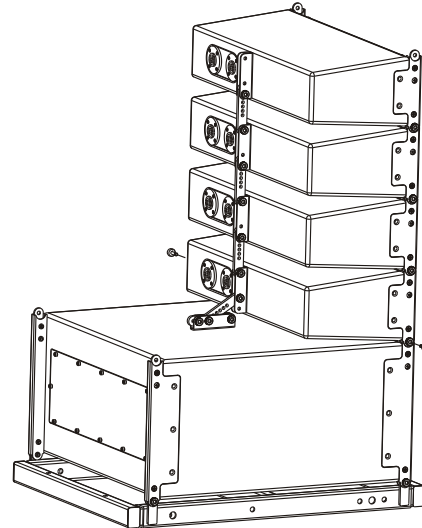
(1) Open the package, and take out R4 、R8 speakers and the accessories.

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

(3) Demount the two M5 thumb screws at the bottom of R8, and take out the R4-R8 Link. Disassemble the U grooves and remount the two M5 small head screws in the original holes.

(4) Disassemble the flying frame of another R8, mount this R8 to the bottom of the first R8 by tightening M5 thumb screws accordingly.

(5) Demount the two M5 thumb screws at the top of the front side of R4.

(6) Insert the two R8 Front Links into the U grooves along the left & right front edges of R4, 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 R4-R8 Link into the U groove on the back of R4 and the other end into the U groove on the bottom of R8, 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 R4-R8 link with the edges of the two U grooves indicates successful mounting.

(8) Attach one or more clusters of R4 to the bottom of the installed R4 accordingly.

INSTALLATION

INSTALLATION METHOD 4 (THE LONG FLYING FRAME IS OPTIONAL)

No.1 Hole

No.2 Hole
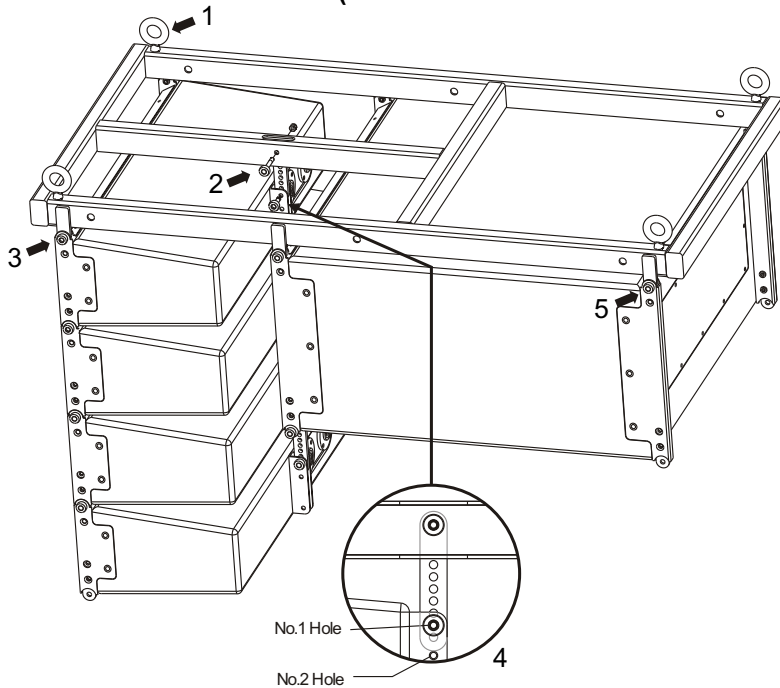
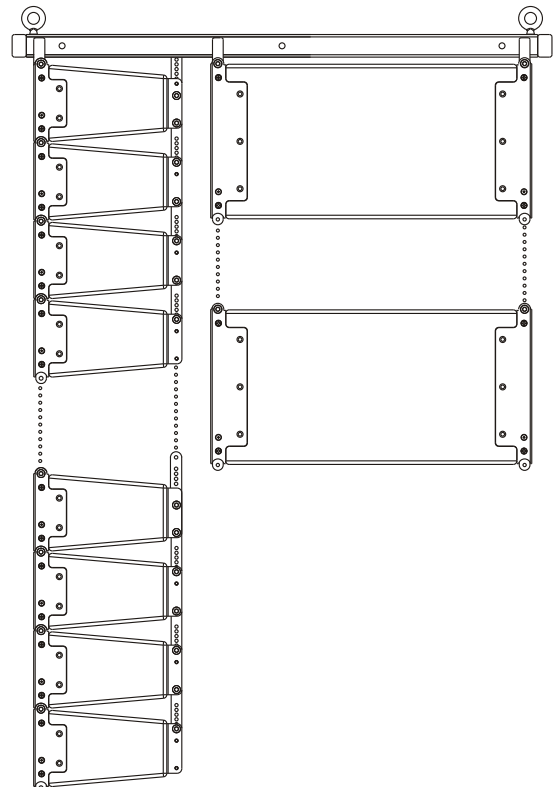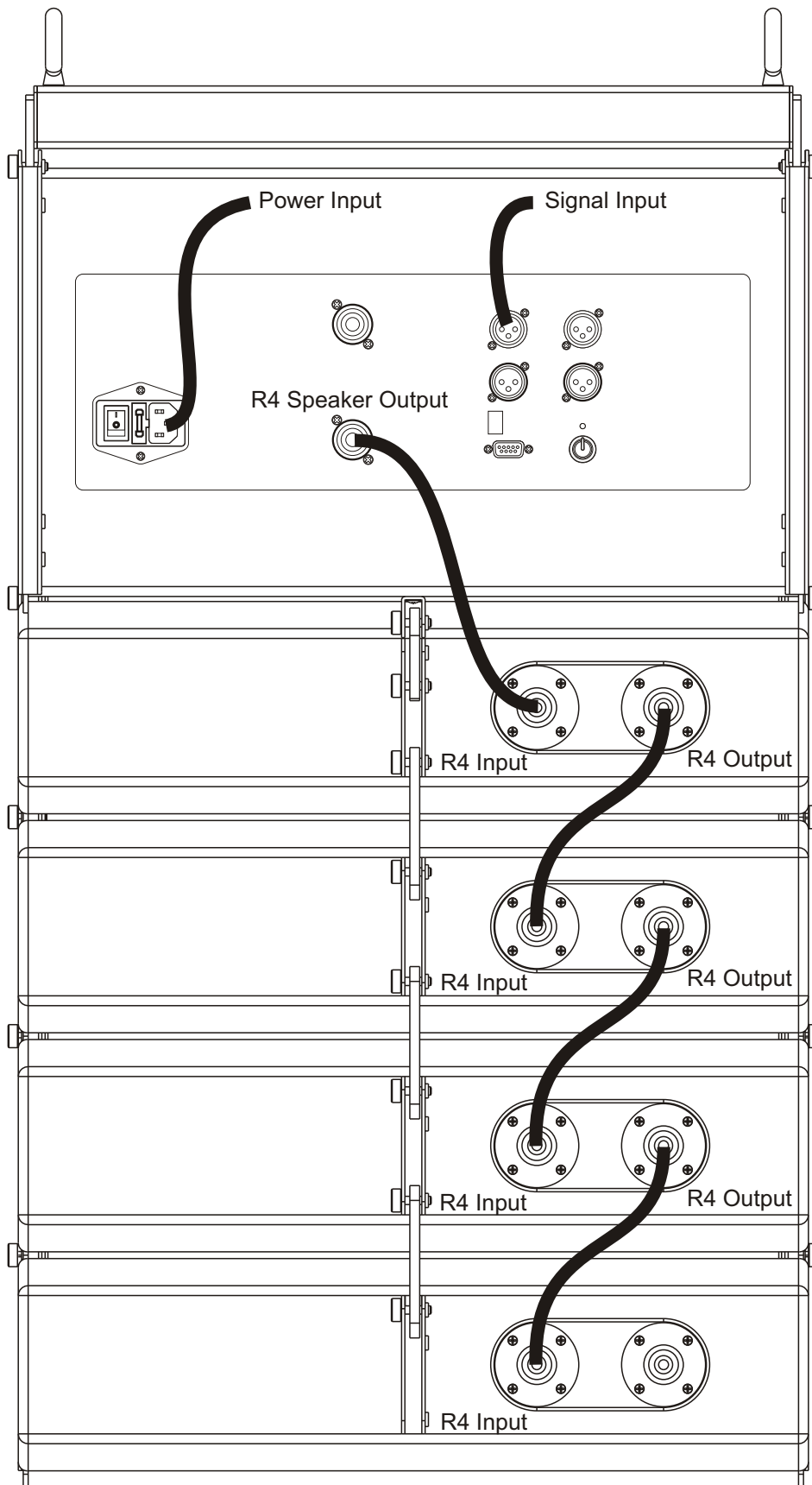#### One cluster flown from front to back

(1) Open the package, take out R4, R8 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 R4 Back Link 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 R4.

(6) Put the R4 upside down. Insert the Front Links of the long flying frame into the U grooves along the left & right front edges of R4, make sure the two screw holes on both sides are aligned, and then tighten two M5 thumb screws through the holes.

(7) Turn the R4 speaker, make the scale line marked with the number of 0 on the R4 link 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 R8, and take out the R4-R8 Link. Then demount the four M5 thumb screws connecting the R8 and the short flying frame, and disassemble the short frame.

(9) Put the R8 upside down, insert the four links on the back of the long flying frame inside the U grooves of the R8 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

R4 Speaker Output

R4 Input
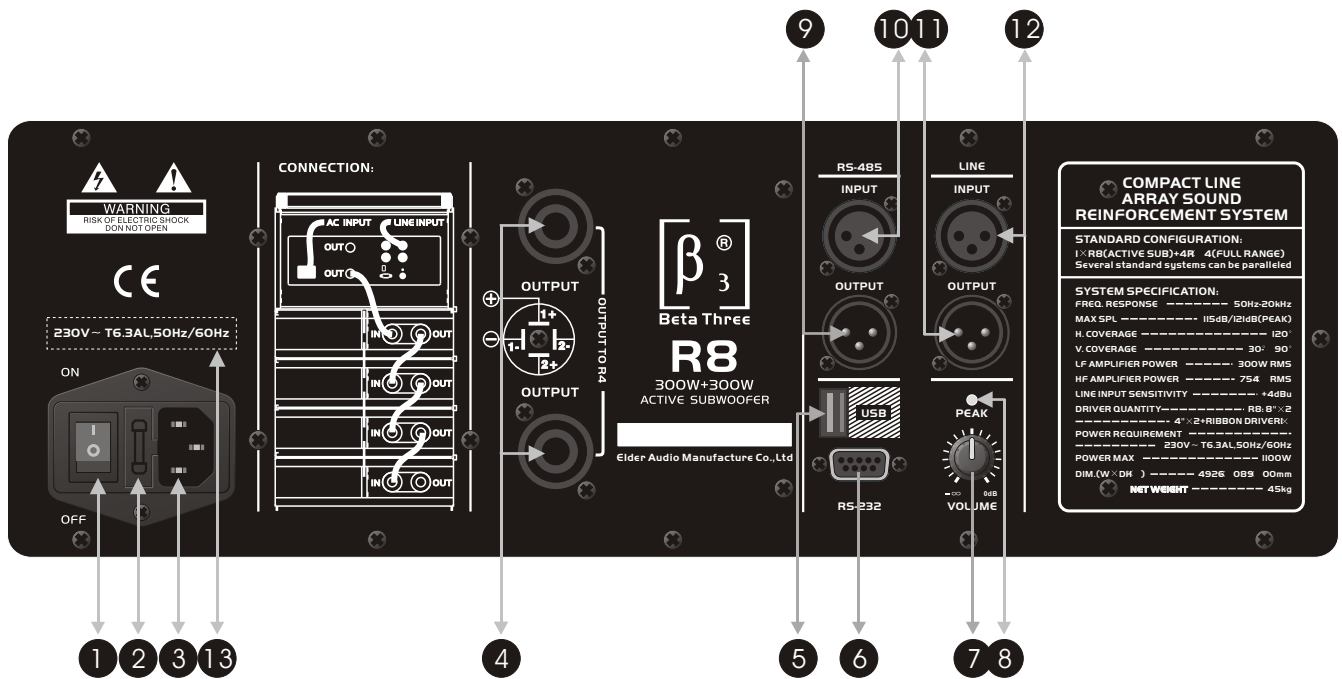
R4 Output

R4 Input

R4 Output

R4 Input

R4 Output

R4 Input

AMPLIFIER MODULE WITH DSP

The amplifier module embedded in the system has been made some optimization based on previous version. RS-485 and USB port are added into it for computer connection, it will be very convenient for user to configurate system parameters by software. Built-in stepless cooling fan(Speed will be changed according to the temperature automatically to make sure system work stably), overload protection, short circuit protection (avoid the damage of amplifier when abnormal loading occurred) and temperature protection(when the temperature is over the normal range, DSP will attenuate the output, if temperature is normal ,then amplifier's output recover to normal status). give the user the complete guarantee. The peak indication function has been improved on R8 , the new version has the AD overload indication and DSP overload indication, it will be very easy for user to control this system. Adopted more advanced IC bring a big progress on Audio performance.

1、Power Supply Switch

2、Fuse

3、Power Supply Input

4、Signal Output (NL4 socket)

5、USB Port

6、RS-232 Port

7、Volume

8、Signal Peak Indicator

9、RS-485 Output

10、RS-485 Input

11、Line Output

12、Line Input

13、Different AC input versions are available for this product,
　　please pay attention to the AC mark on the product.

SOFTWARE APPLICATION GUIDE

How to get the software

The software is stored in the CD with equipment packaging. The latest version also may be downloaded from the company website.

Software installation

System requirement: Microsoft Windows 98/XP or above version. Display resolution should be 1024*768 or above. The computer must have a RS-232 port or USB port. Run the "Active Speaker Controller (V1.34).msi" file, according computer's setup guide to install the control software.

Equipment connection

Connect the equipment to computer by RS-232, if the computer has not the RS-232 interface, you may use USB port (after connection, the computer will indicate that new device is found, then you may install the USB driver located in "driver" directory of the CD.

Software operation guide

1. Run the software(Active Speaker Controller) from program menu in the windows start button, the following interface will be shown, See Figure 1:
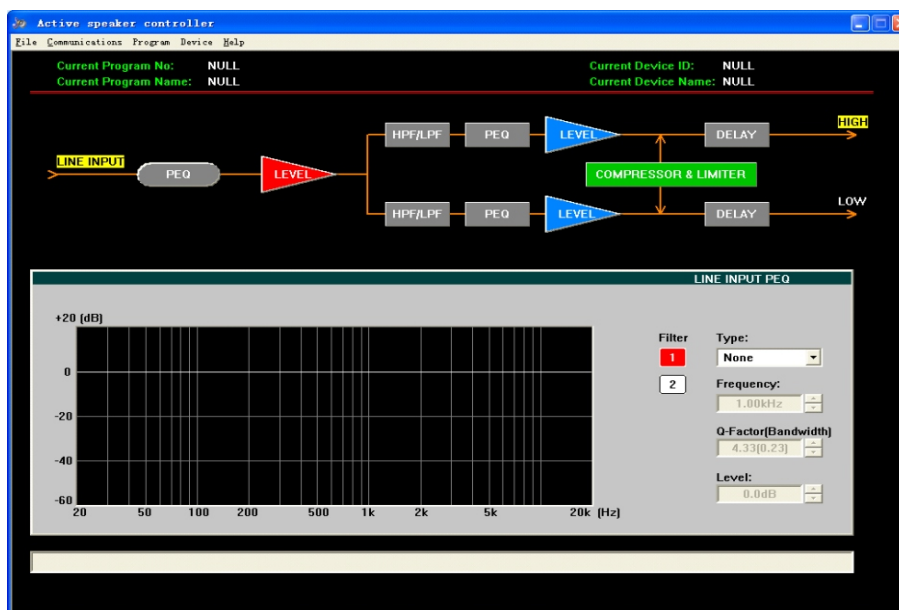

Figure（1）

This interface includes all function modules about the equipment, menu description as following:

1.1> File: **Open** the configuration files, or **Save** current configuration as a file into computer;

1.2> Communications: Connect ("**Enable Communications**") or Disconnect ("**Disable Communications**") the equipment, Operation details refer to following description.

SOFTWARE APPLICATION GUIDE

1.3> Program: Obtain the information of currently used configuration file (Disconnection status),or the information of current program in the equipment(Connection status).

On disconnection status, only "**Display Current Program No**", "**Display Current Program Name**" , "**Edit Current Program Name**" and "**Load Factory Default Configuration**" may be valid. All changes do not affect the equipment internal program settings.

On connection status, all items are valid under the "Program" menu. If selecting the" **Edit Current Program Name**" command, the current program name auto saved in the equipment;

If selecting the "**Load Factory Default Configuration** " command, the current program is overwrite by the default setting automatically (**! Attention Please: this operation will overwrite the current program configuration, before executing this operation, please make sure you really ready to load factory default settings**). Details of other function items (such as"**List Program & Recall**" and "**Save as current program in device**")under the "Program" menu, please refer to following description.

1.4> Device: Modify the device information, and saved in the equipment automatically, only valid on connection status;

1.5> Help: the control software version information.

2.Connecting the device.

2.1> Three hardware connection solution(USB,RS-232,RS-485) are available for your connecting;

2.2> After connected the device with computer port by connector, Click the "Communications", select "E nable Communications" command to start the connecting. See Figure 2:
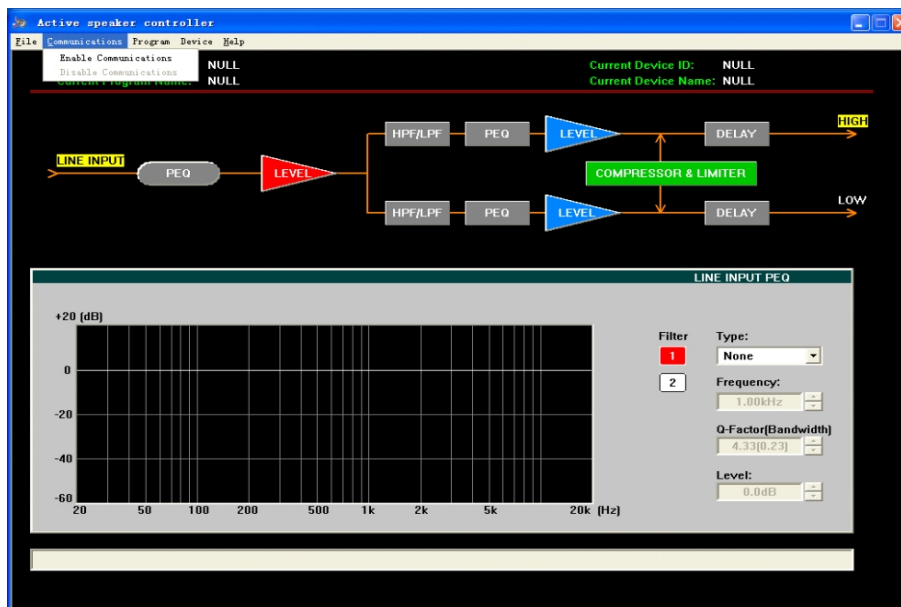

Figure（2）

The software will search the connected (hardware connection) device automatically, "Search Device…" will be shown at the bottom of interface's status bar, see Figure 3:
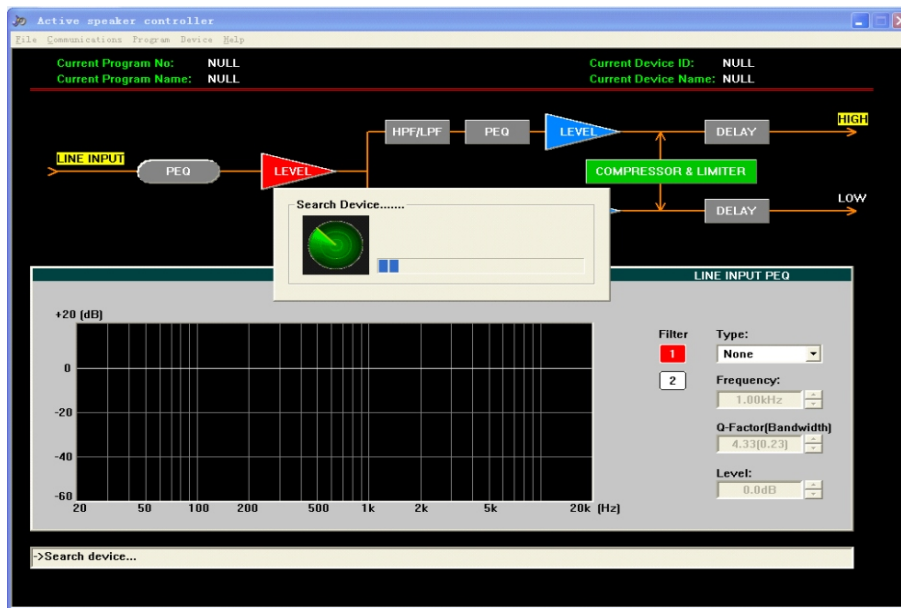
SOFTWARE APPLICATION GUIDE
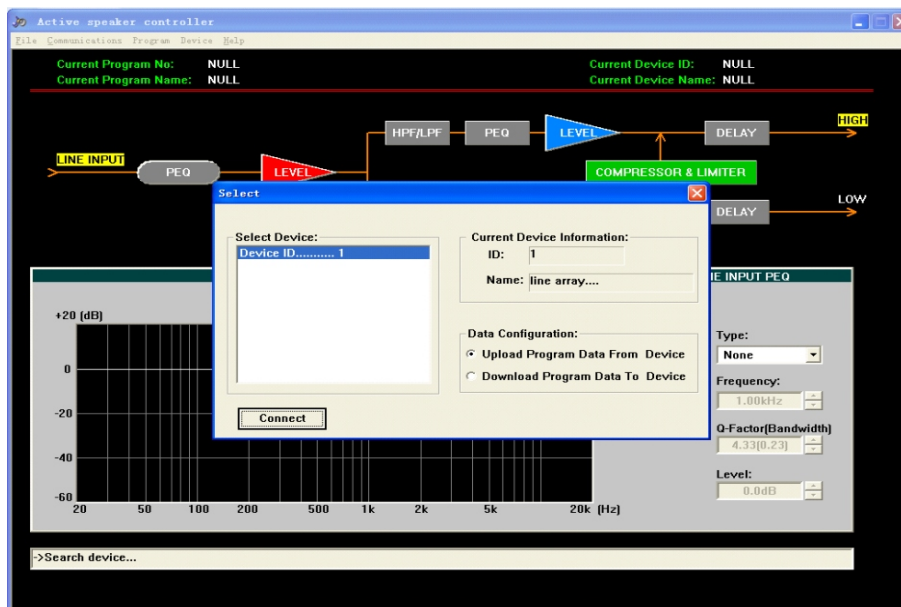

Figure（3）

If found device, shown as Figure 4:

Figure（4）

Devices online are listed at left, the right part shows the information of the device chosen by user. If user want to use the config file that opens from computer,"Download Program Data to Device" must be chosen(the operation execute transmitting the parameters into Device's RAM, if no further save into device operation, the parameters will be lost after the device power off). If user chose "Upload Program Data From Device", it will load the current program that stored in device to PC. Select the left device that you will want to connect, click the "Connect" button to start connecting. (! Attention please: If connect with several devices, each device must a ID number which is exclusive in the system)

15

SOFTWARE APPLICATION GUIDE

After connecting successfully, the software will update the display automatically, and show the information of currently connected device, and current program used by device, see Figure 5:
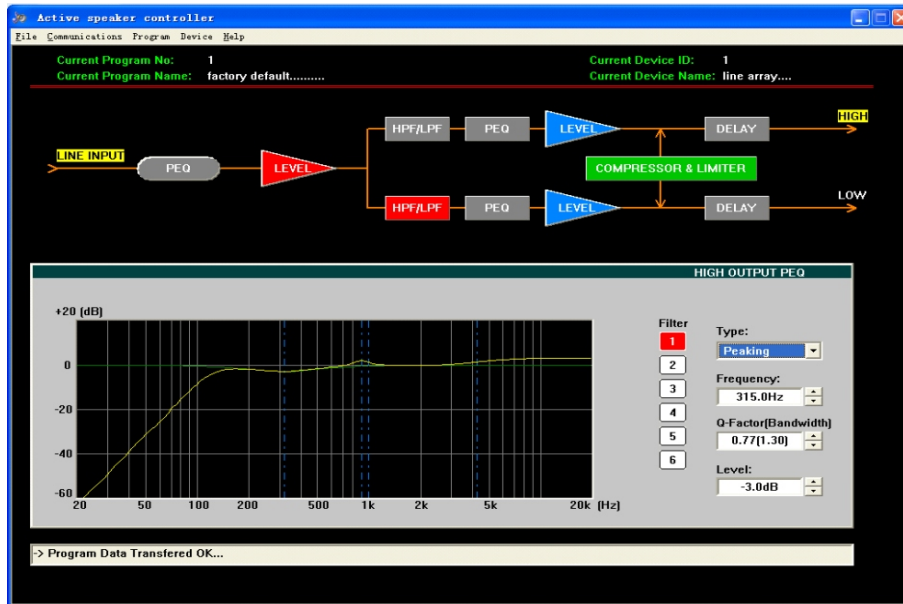
Figure（5）

On above interface, click corresponding function button, and executing those operation that you want.

3. Recall or Save the configuration file.
When the device used in different places, the different configuration file are necessary. Two ways are available for user to recall or save the configuration file.

3.1> Save as a file, When user finish the adjustment, the parameters may be saved as a file into PC through "Save As" in the file menu, see Figure 6:
 When you ready to load the config file for later using on other device, you may open the file under the "File" menu.
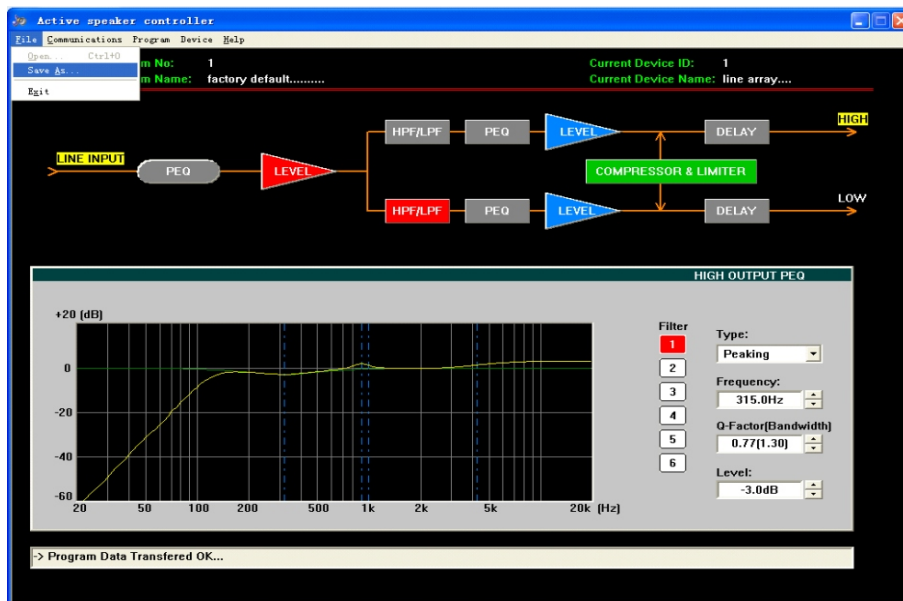
Figure（6）

16

SOFTWARE APPLICATION GUIDE

3.2>User also may save the parameters in the device, total max six programs may be saved through "Save as current program in device" under "program" menu. See Figure 7:
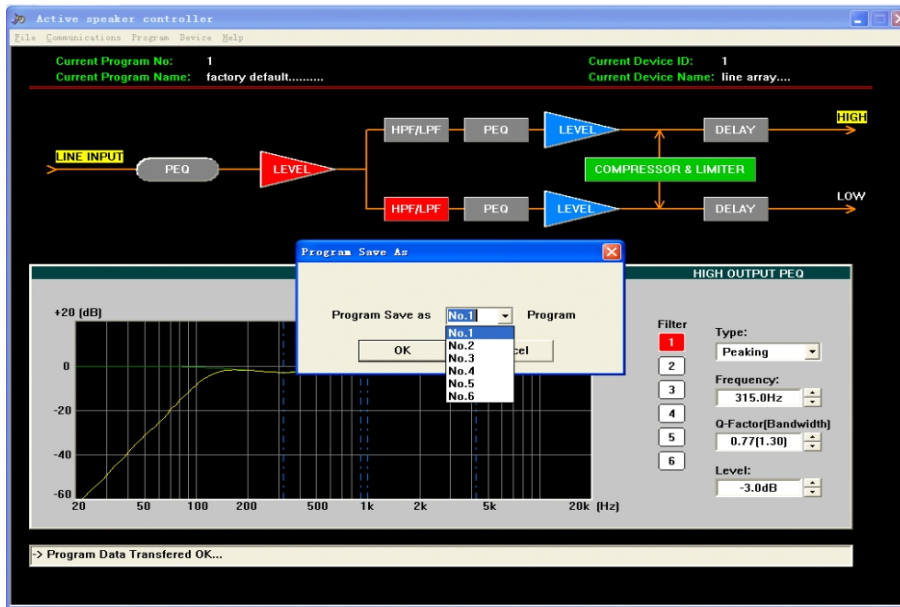

Figure（7）

According to the different file source, the two ways are available for recall the existing configuration file. For the file saved in the computer, it may be recalled from "Open" under "File" menu. Then connect the equipment, choose "Download program data to device" in pop-out dialog box, see Figure 4.

3.3> For the files(or programs) in the device, it may be recalled through "List Program&Recall" in Program menu. See Figure 8
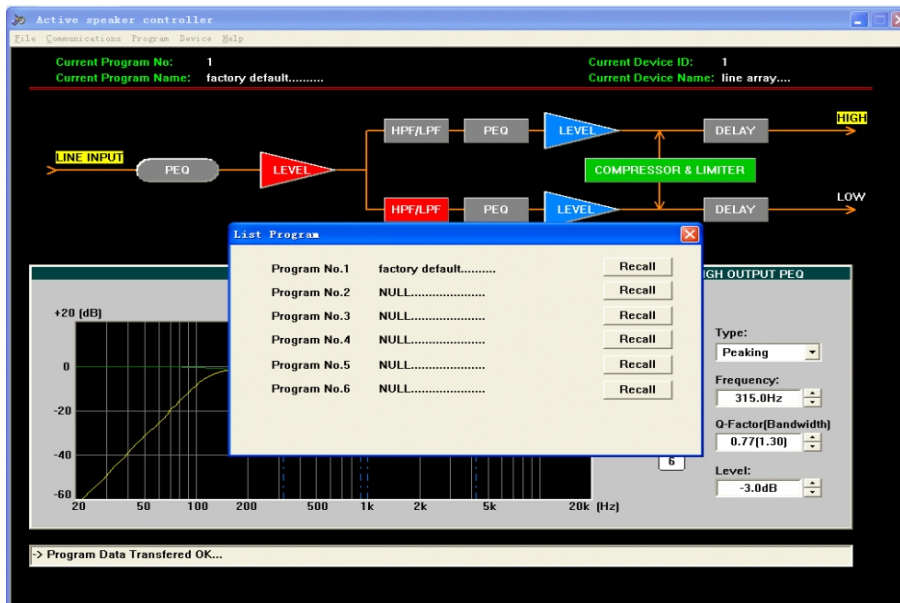
Figure（8）

Select the program you want to use in the pop-out dialog box, then click "Recall" button, the software will update the display automatically, and the device using the program that has been recalled.

17

SOFTWARE APPLICATION GUIDE

4. Change the information of the device that is online.

Device information means the identifier of device, such as the description of device position etc, Include ID and device name. After connecting, it may be changed through clicking"Edit current device information" in device menu, See Figure 9:

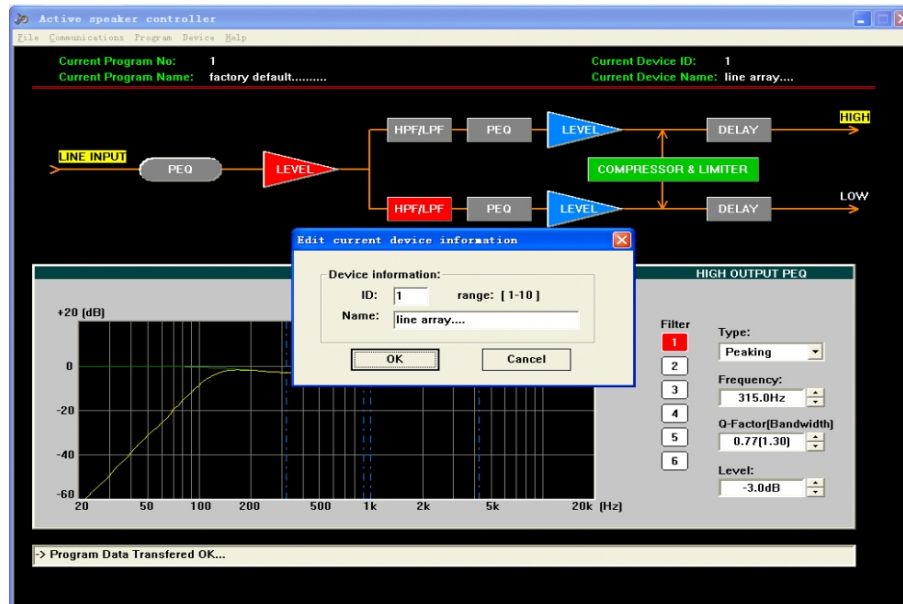**! Attention: ID number is only available for number 1~10, that's to say only max 10 device may be connected one RS-485 Net. The max length of name is 14ASCII characters.**

Figure（9）

5. Change the current program name.

Click "Program" menu, choose "Edit current program name" to change the program name, See Figure 10:

Figure（10）

18
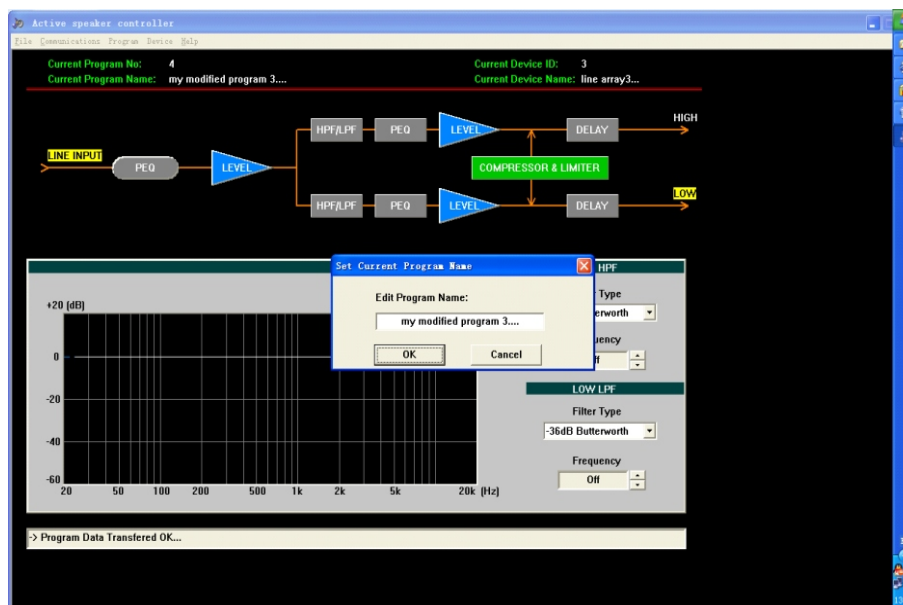
SOFTWARE APPLICATION GUIDE

6. Disconnection.

After finishing the adjustment of parameters, the current parameters may be saved into the device for the next power on operation. If user does not save the program into device, all the changes based on previous parameters will not be saved. Choose "Disable communications" under "communications" menu to disconnection. Please see the figure 11:
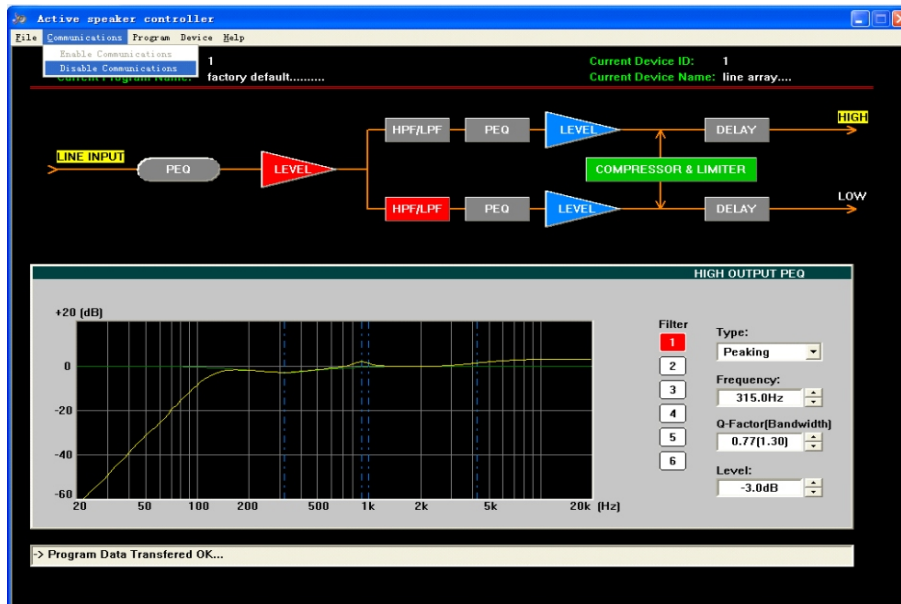

Figure（11）

APPLICATION EXAMPLES

1.Save current program as another program with new name.

If user want to save as another program with new name, user should select "program save as" command first, then select "edit current program name" command.

Please see details as below example.

1）After uploading the Program No.1 from the device to the PC, then modify those parameters that you want, then select the "Save As Current Program In Device" command in "Program" Menu:
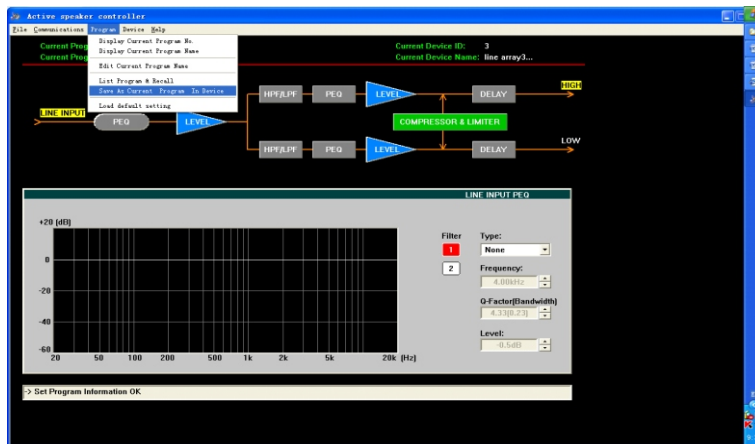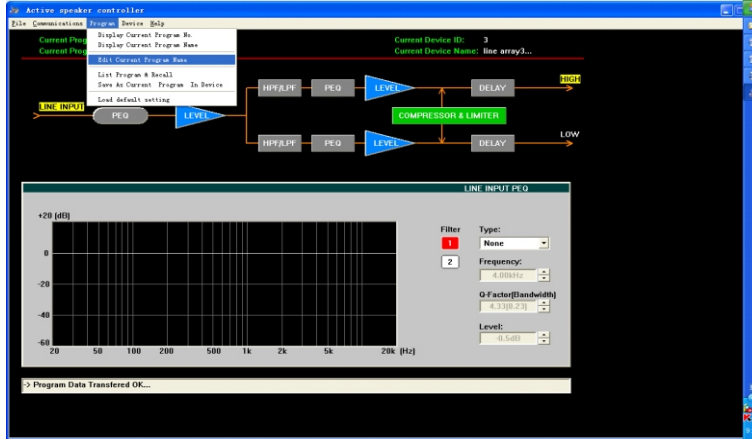

2) Then select the Program Number that will be saved into device:
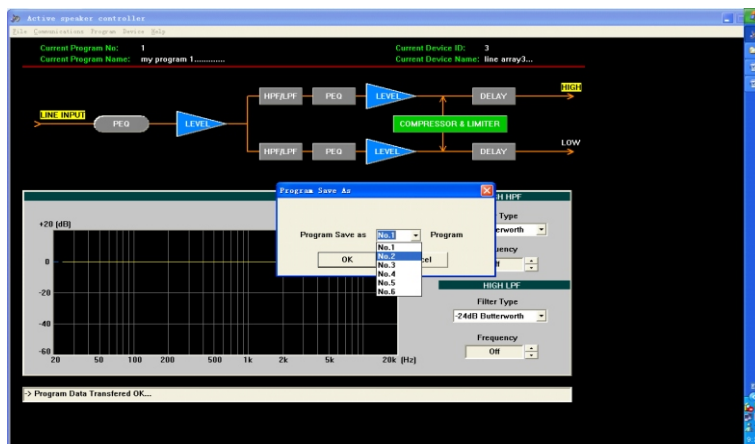
Then click "OK" button, the Program No.1 has been saved as Program No.2,and the current program auto changed to No.2(and the Program No.1 just be uploaded to PC has not been changed)
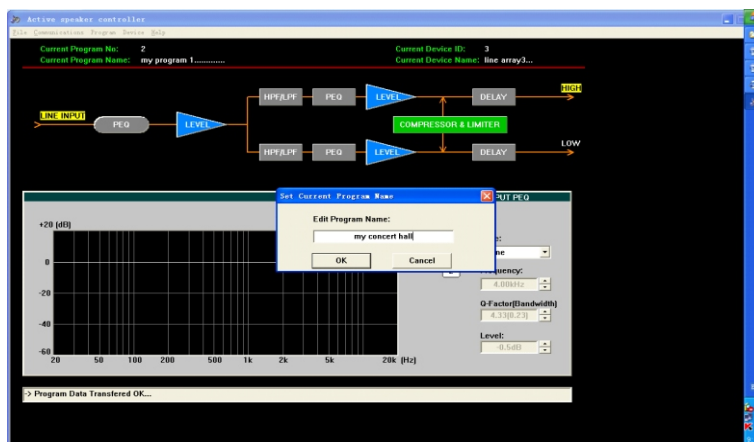
APPLICATION EXAMPLES

3) Then select "Edit Current Program Name" command in "Program" menu:

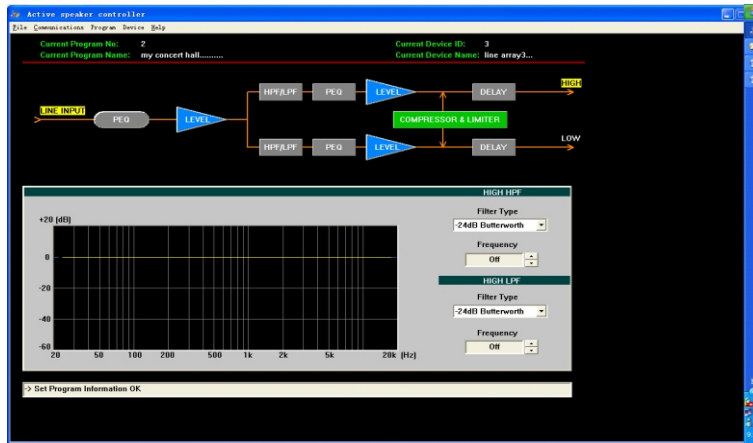4) Then on the "Set Current Program Name " interface, edit the program name as you want:
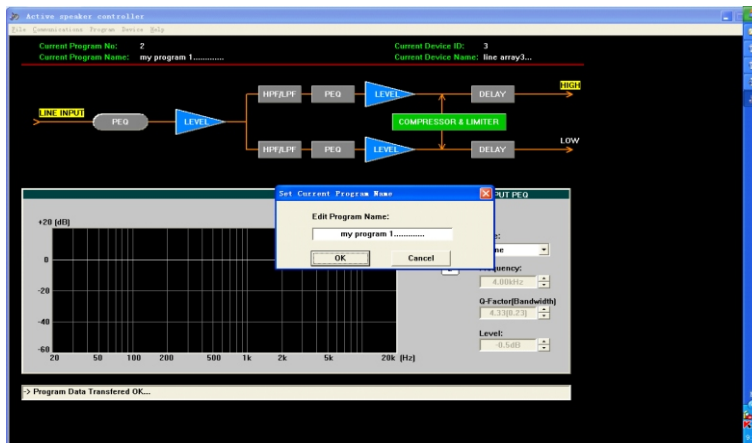
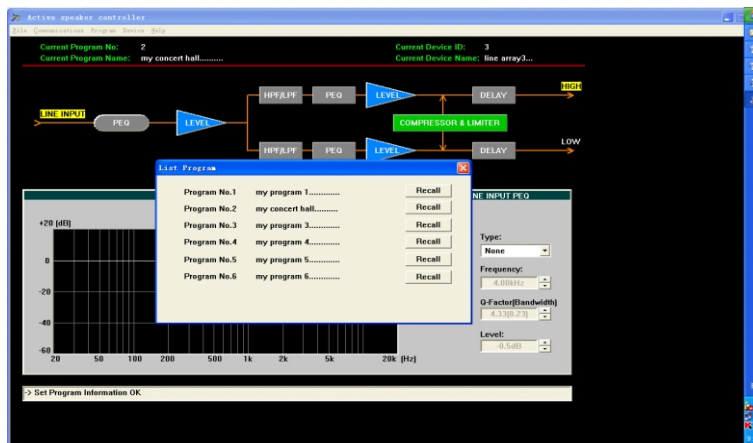Changed to "my concert hall" as the bellow figure

APPLICATION EXAMPLES

5) Click "OK" button, thus the "Current Program Name:" on the main interface has been changed to "my concert hall".

6) Select " List Program & Recall" command in "Program" menu, the result in the program list of the device now as bellow figure:


22

APPLICATION EXAMPLES

2.Save the program which is uploading from device as a file in computer.

Operation for file is only effected on disconnection status. If on connection status, "Edit current program name" is immeditaly valid(auto save into the device). If want to use the config file for later use with another device, You may modify the "program name" on disconnection status.and save as another file. Then download the new config file into device, then "save as" another program or current program into device.

Operation Example Steps:

1) After upload the Program No.3 from the device to the PC, then modify some parameters that user want to do, if adjust OK, then select "Disable Communications" command in "Communications" menu.(on disconnection, those modification does not effect to program in device)
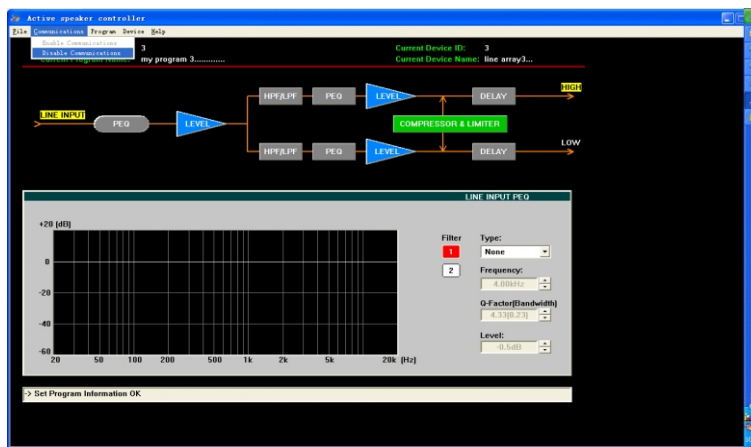
2) If want to change the name, select "Edit Current Program Name" in "Program" menu:
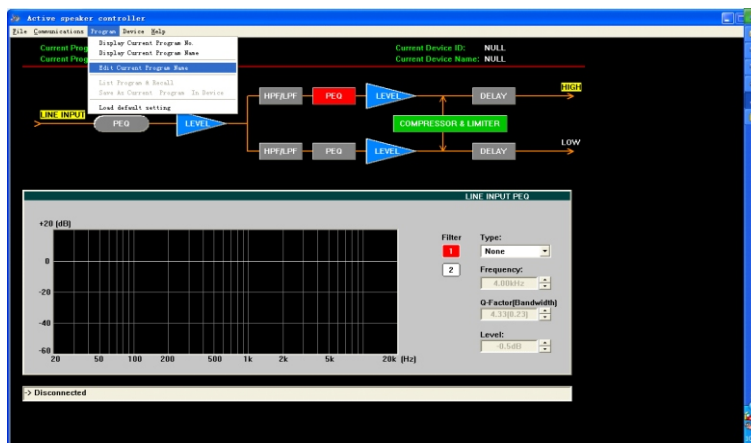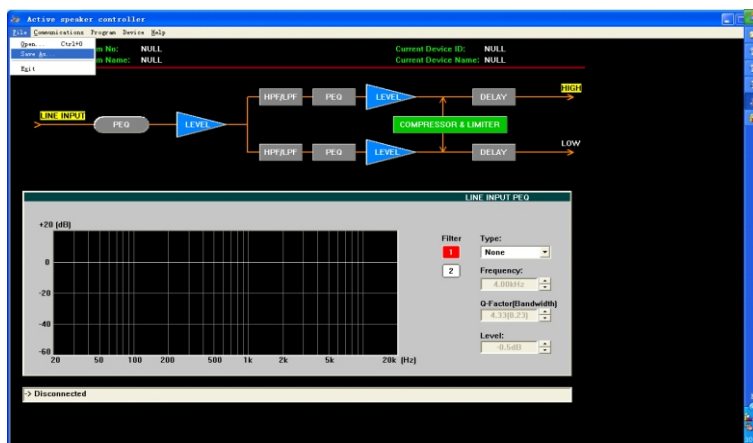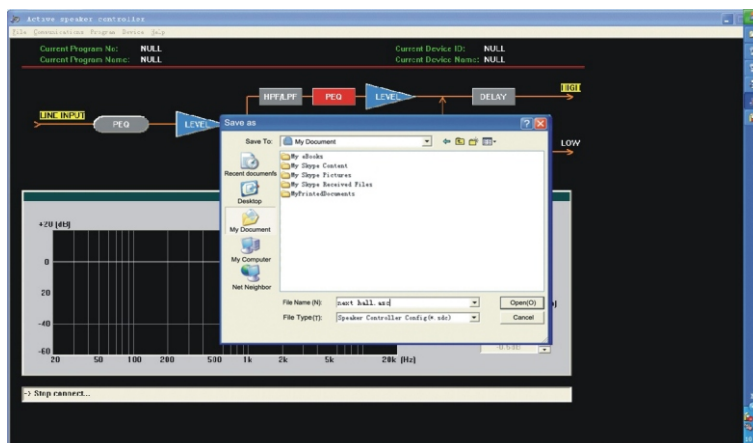
APPLICATION EXAMPLES
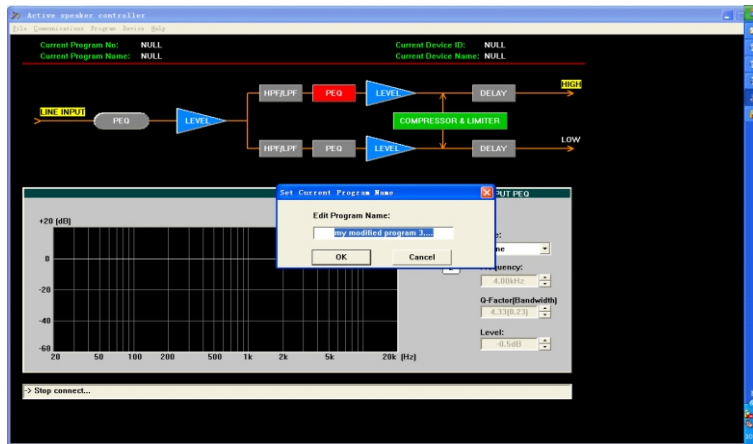
Edit Program Name to "my modified program 3", then click "OK" button.

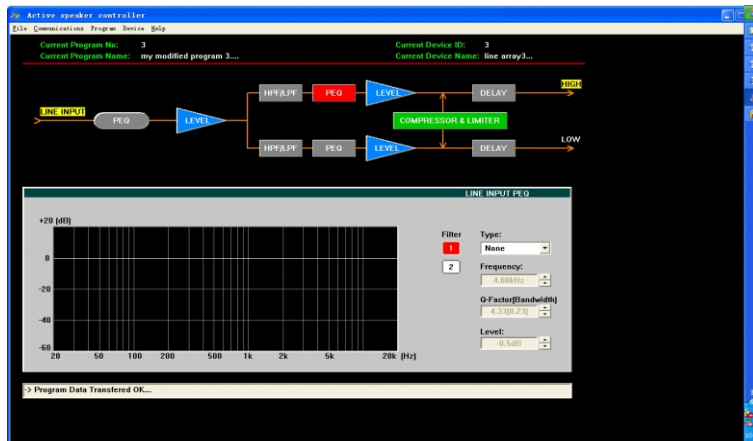3) Then select "Save As" command in "File" menu.

4) In the "File Name(N) " frame, input "next hall.asc ",then click "Save(S) " button.
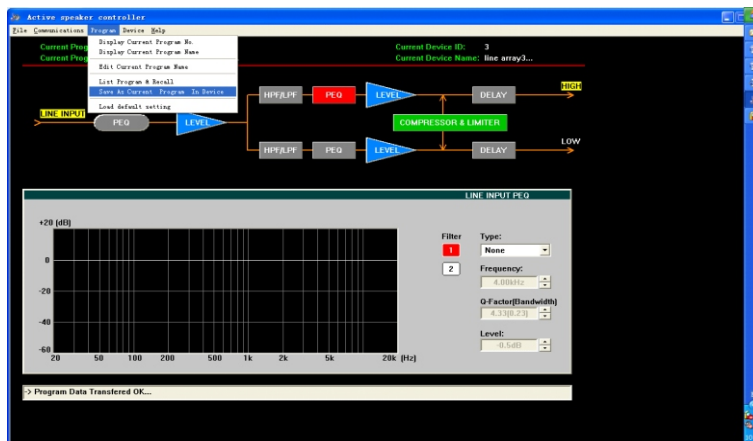
APPLICATION EXAMPLES

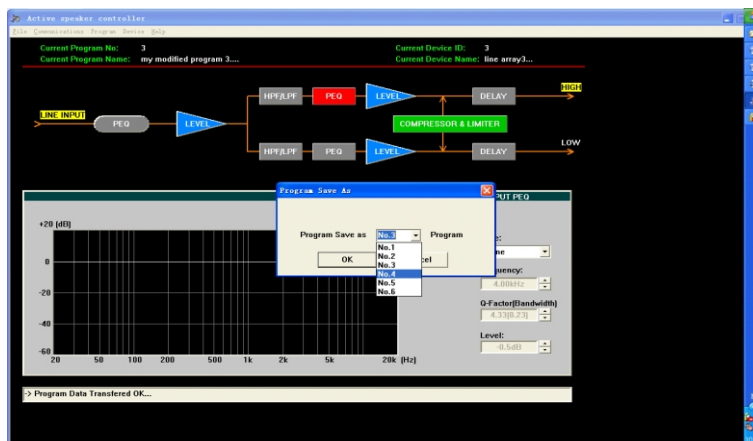**3.Downloading a file into device, and save as program in device.**

1) After downloading the config file into DEVICE(only to RAM, before select "Save As Current Program In Device" command, the parameters have not saved into FLASH ROM!)

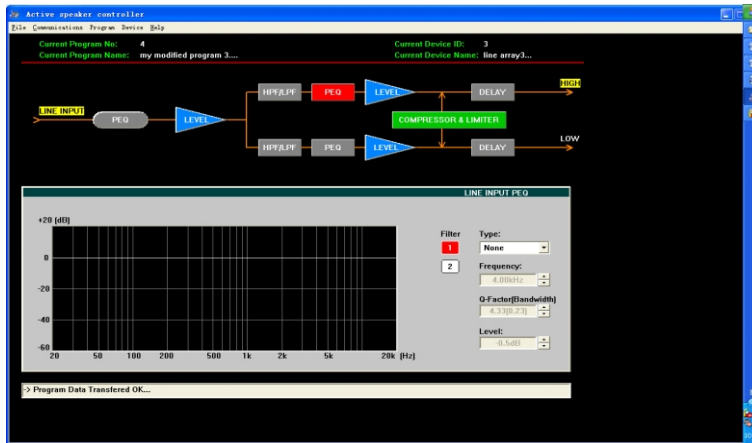2) Select "Save As Current Program In Device" command in "Program" menu:

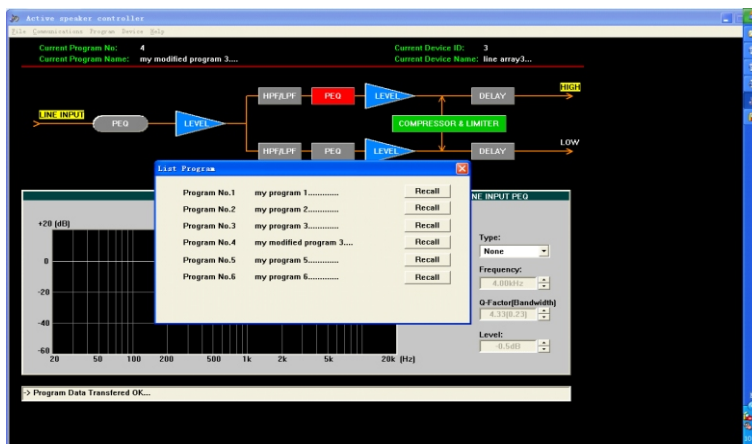3) Then select the No(for example No.4) that you want to save in,

APPLICATION EXAMPLES

Click "OK" button ,then the parameters of config file(next_hall.asc) have been saved as program No.4 in device. The "Current Program No" and the "Current Program Name" are corresponding to File, as bellow figure:
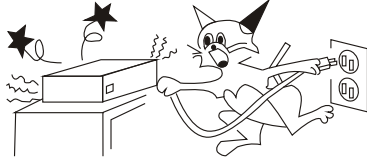

List as below

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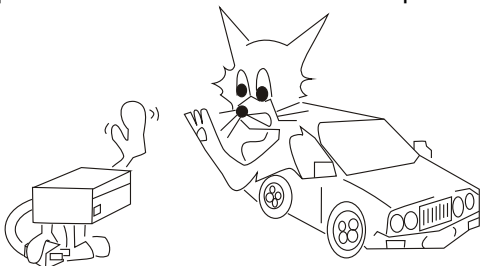
ABNORMAL STATUS：
In the event of abnormal noise and smell, please put off the power supply and pull out the cord, please ask qualified personnel to check it.

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 by Elder Audio.

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 Elder Audio Service or any of its authorized 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.

R4/R8 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.

R4/R8 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.

R4/R8 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.

R4/R8   COMPACT LINE ARRAY SOUND REINFORCEMENT SYSTEM

TECHNICAL SPECIFICATIONS

Frequency Range ———————————— 50Hz - 20kHz

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 — 75W × 4 RMS

Power Max ———————————————————— 1100W

Line In Sensitivity ————————————————— +4dBu

Driver ———————— R4:4″ × 2 + RIBBON DRIVER × 1
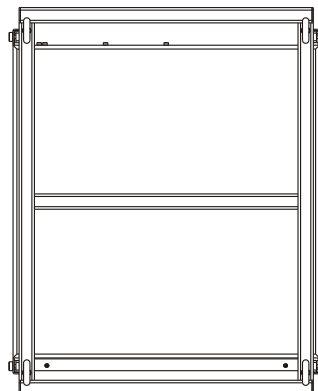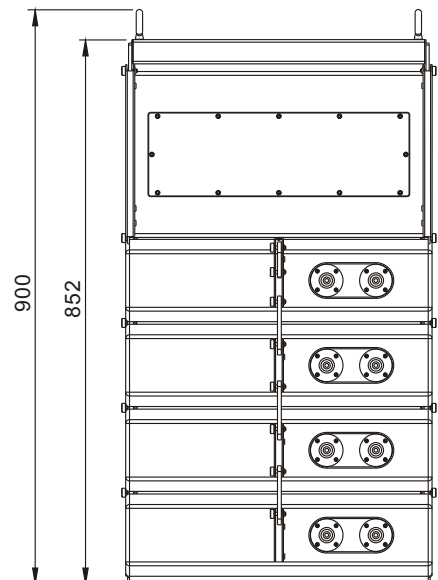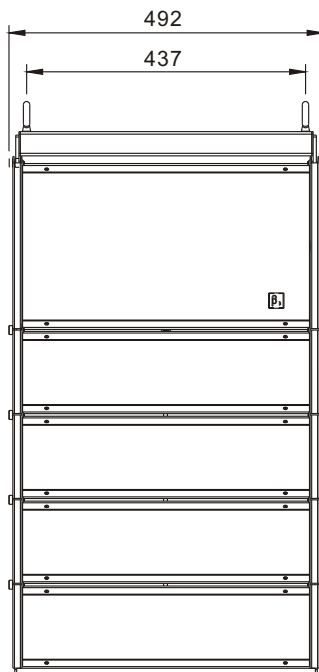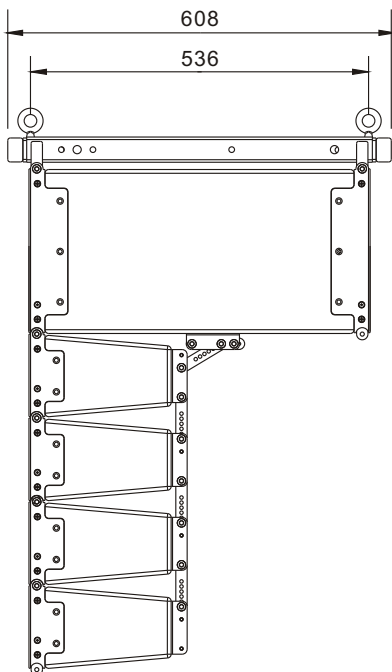
———————————————————————————— R8:8″ × 2

Power Suply (Different AC input versions are available for this product, please pay attention to the AC mark on the product) ————————————————————

————————— 240V/230V/220V~T6.3AL 50Hz/60Hz

————————— 120V/115V/110V/100V~T10AL 50Hz/60Hz

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

Net Weight ———————————————————— 45kg

β³ ®

Beta Three

R4/R8