R6/R12a

Compact Active Line Array Sound Reinforcement System

User Manual
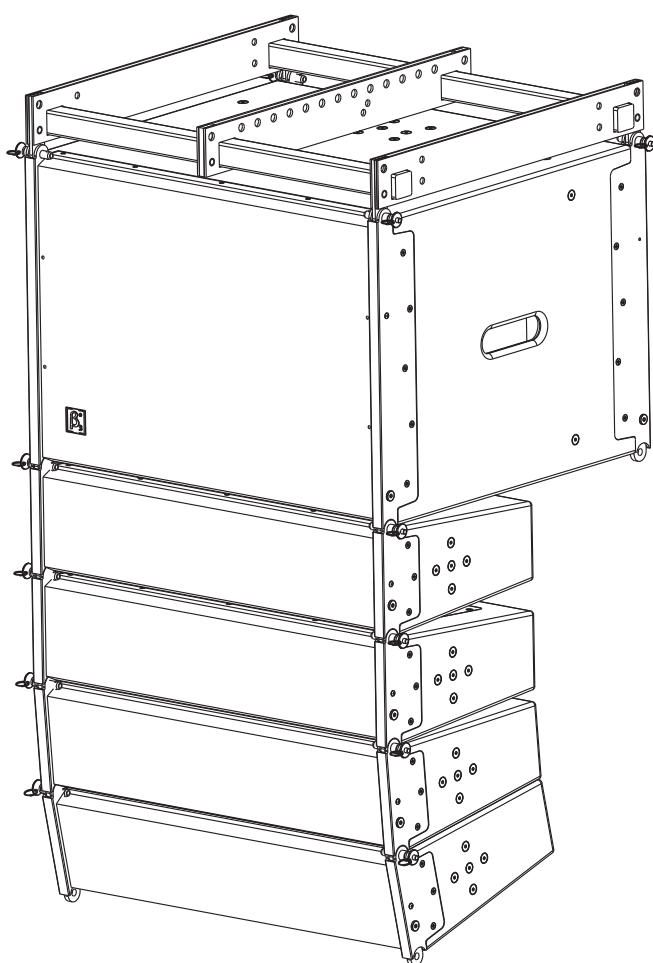
SAFETY INSTRUCTIONS

PLEASE READ THIS MANUAL FIRST

Thank you for a buying β₃ product. Read this manual first as it will help you operate the system properly. Please keep this manual for future reference.

⚠ *WARNING: This product must be installed by professionals. When using hanging brackets or rigging other than those supplied with the product, please ensure they comply with the local safety codes.*

⚡	CAUTION	⚠
	RISK OF ELECTRICAL SHOCK DO NOT OPEN	
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED PERSONNEL.		

⚡	AVIS	⚠
	RISQUE DE CHOC ÉLECTRIQUE NE PAS OUVRIR	
ATTENTION : POUR RÉDUIRE LE RISQUE DE DÉCHARGE ÉLECTRIQUE, NE RETIREZ PAS LE COUVERCLE (OU L'ARRIÈRE). IL NE SE TROUVE À L'INTÉRIEUR AUCUNE PIÈCE POUVANT ÊTRE RÉPARÉE PAR L'USAGER. S'ADRESSER À UN RÉPARATEUR COMPÉTENT.		

⚠ *The exclamation point within an equilateral triangle is intended to alert you to the presence of important operating and servicing instructions.*

⚠ *ATTENTION: Don't refit the system or spare parts without being authorized as this will void the warranty.*

⚠ *WARNING: Don't place naked flames (such as candles) close to the equipment.*

1. Read the instruction manual first before using this product.

2. Please keep this manual for future reference

3. Pay attention to all warnings.

4. Obey all operating instructions.

5. Do not expose this product to rain or moisture.

6. Clean this equipment with a dry cloth.

7. Do not block any ventilation openings. Install according to manufacturer's instructions .

8. Do not install this product near any heat source, such as a, heater, burner, or any other equipment with heat radiation .

9. Only use spare parts supplied by the manufacturer.

10. Pay attention to the safety symbol on the outside of the cover.

CONTENT

⚠ Product information subjects to be updated without notification, please visit www.elderaudio.com for the latest update.

R6/RI2a
Compact Active Line Array Sound Reinforcement System

Main Features

- 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

- 1600W DSP active amplifier

- RS-232/USB/RS-485 Portes available for system control
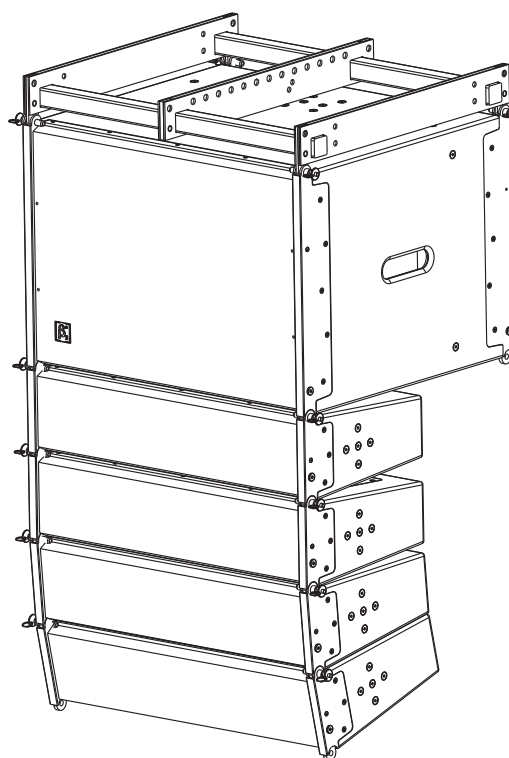
Product Description

β 3 ® R6/R12a 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.

R6/R12a is designed by applying line array concept. It features compact dimensions and easy to handle design.

The built-in 1600W 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 phaseresponse 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.

Applications

- Multi-function hall
- Auditorium
- Religion Place
- All kinds of living performance
- Assembly room
- Theaters

Introduction Of Amplifier Module

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 configure 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.
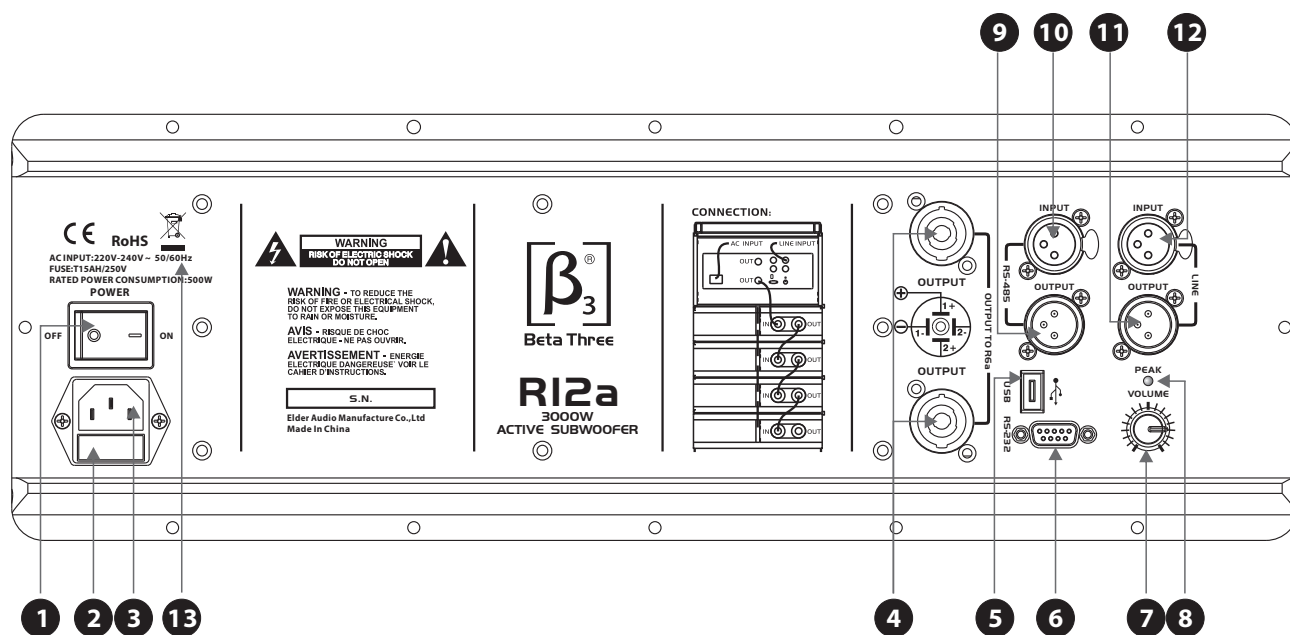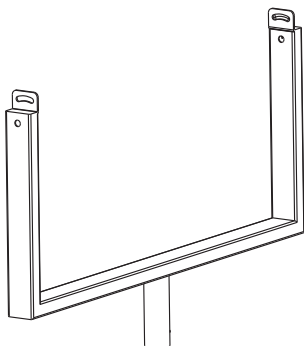

1. Power Supply Switch

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.
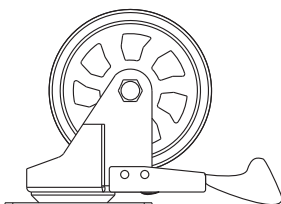
Mounting Accessories(Optional)
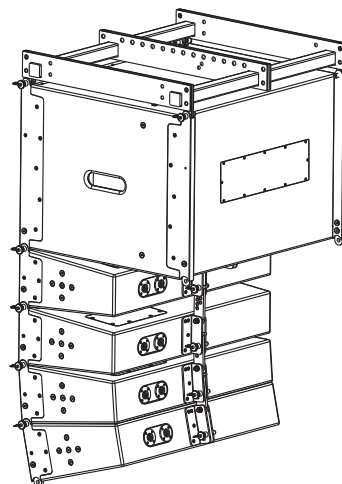
1. Speaker stand
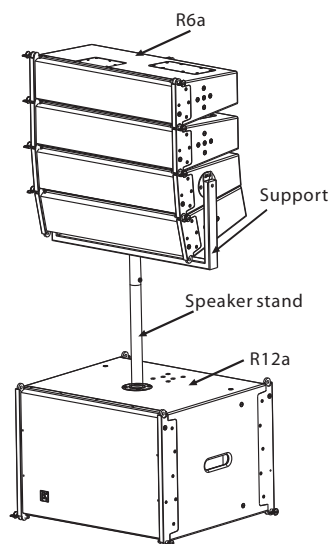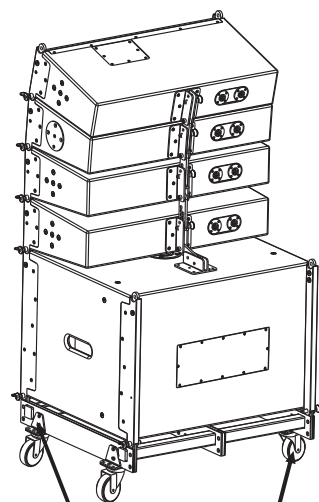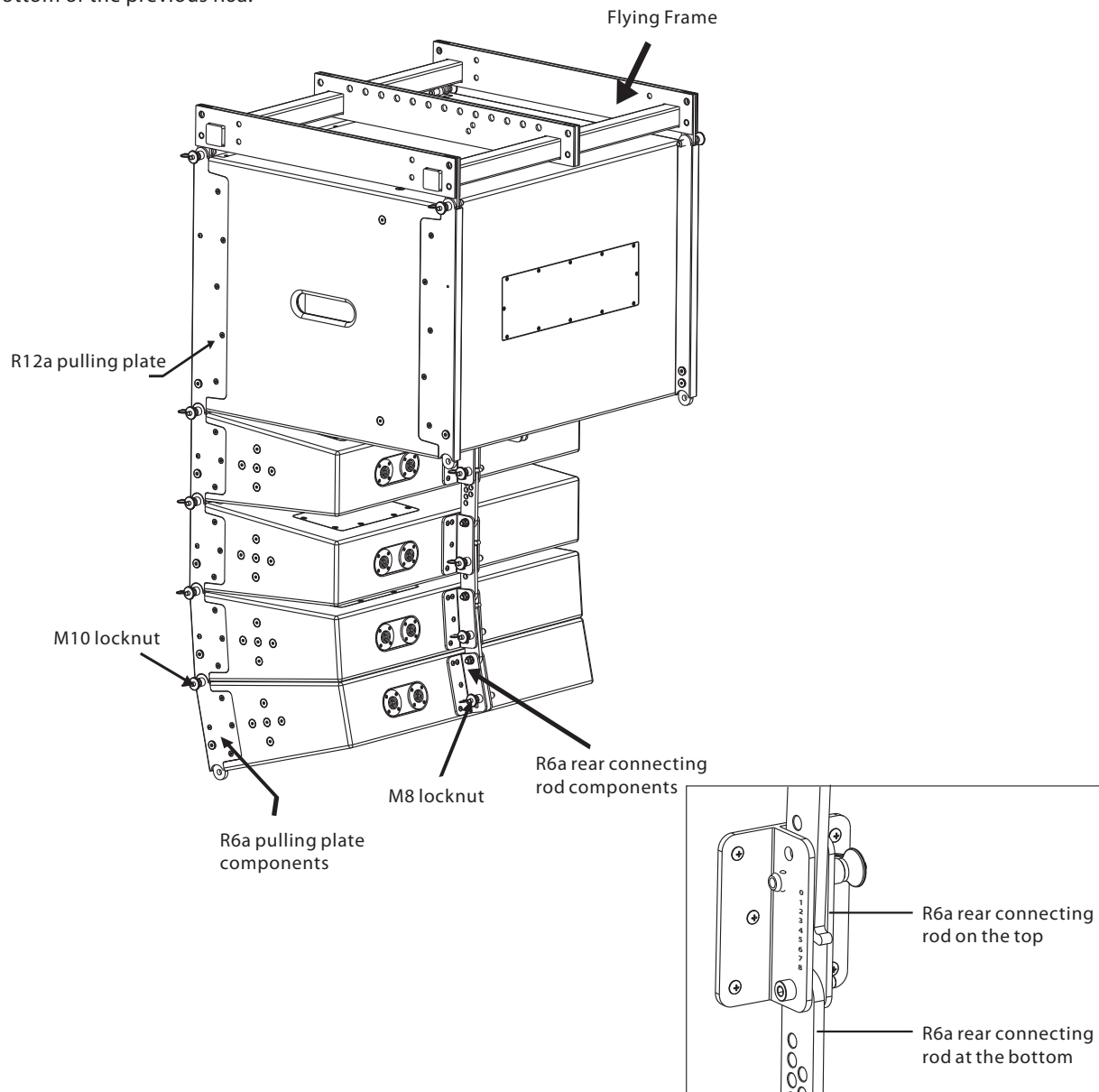

2. Support

3. 4 inch wheel

⚠ **Warning:** Make sure the mounting accessories safety factor not less than 5:1 or meet the local standard during installation .

Installation Reference

1. Hanging

2. Support

R6a

Support

Speaker stand

R12a

3. Push

Wheel bracket   4 inch wheel

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Installation Guidance

(1) Open the package; take out R6a, R12a and the accessories.

(2) Install four U-rings into one flying frame.

(3) Demount the ball-catch bolt from the pulling plate of R6a, place R12a pulling plate lockpin into the slot of R6a pulling plate with holes against each other; put the ball-catch bolt back.

(4) Insert connecting rod into R6a rear and angle-adjustment slot of R12a on the bottom, adjust angle according to practical needs.

(5) Install one or multiple sets of R6a by sequence onto the bottom of the previous R6a.

Flying Frame

R12a pulling plate

M10 locknut

R6a pulling plate components

M8 locknut

R6a rear connecting rod components

R6a rear connecting rod on the top
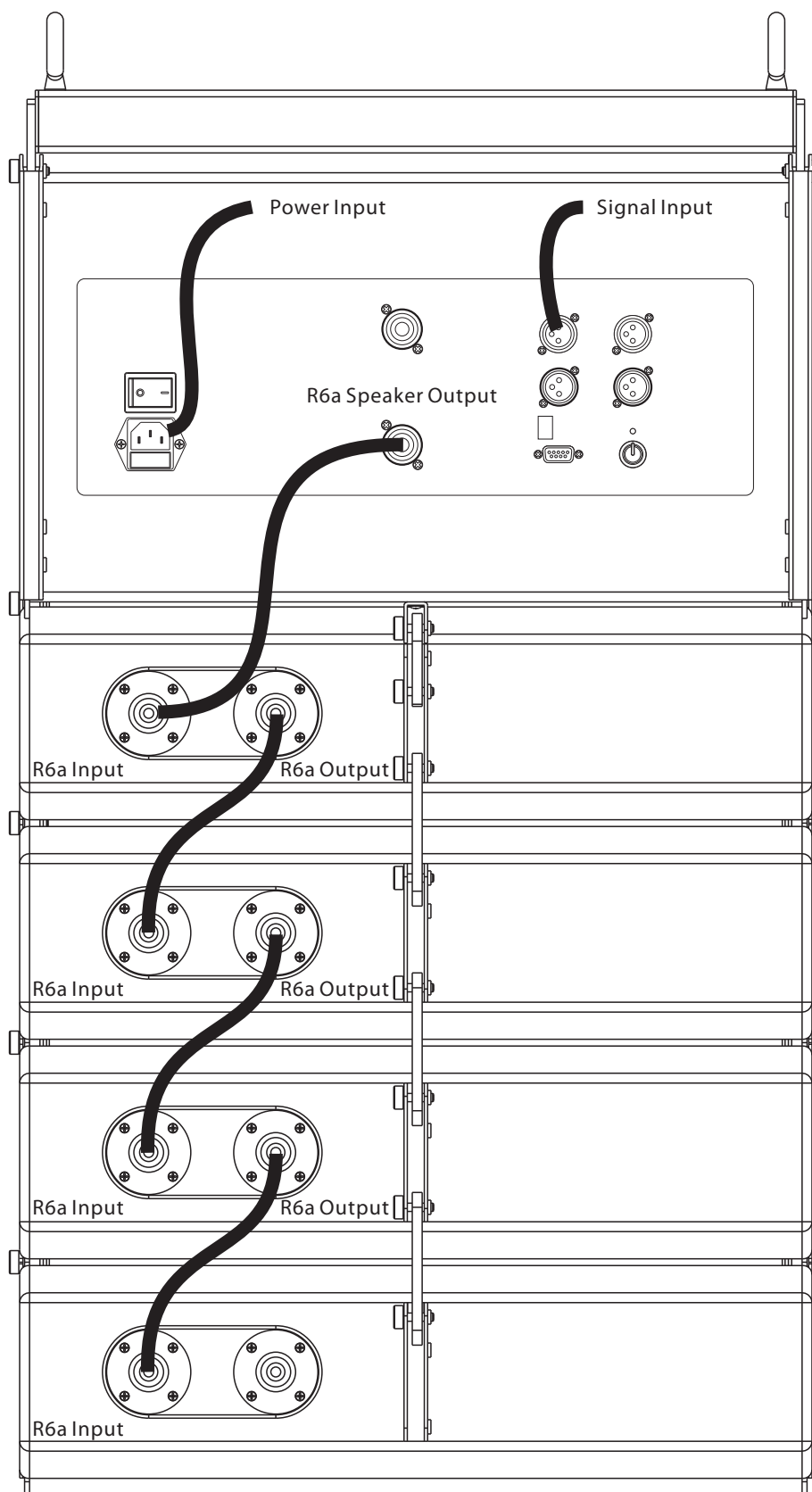
R6a rear connecting rod at the bottom

Method of angle adjustment:

When the angle of hole against the connecting rod hole is 0°, insert the bolt, the vertical binding angle of two cabinets is 0°.

⚠ **Warning:** Make sure the mounting accessories safety factor not less than 5:1 or meet the local standard during installation .

CONNECTION

Power Input   Signal Input

R6a Speaker Output

R6a Input   R6a Output

R6a Input   R6a Output

R6a Input   R6a Output

R6a Input

Specification

|	
Frequency response(-3dB):	40Hz-20kHz
Max.SPL(1m):	124dB/130dB(PEAK)
Dispersion Angle(HxV):	90°×10°
Transducer:	Power:R6a:140W,R12:900W;Rated Impedance:R6a:16 ohms,R12a:4 ohms
Input:	One input and one output.
Connector:	R6a:NL4;R12a:XLR for input, XLR for output
Input impedance(line):	20Kohm balanced input
Input level:	1 V rms Line-50Hz
Input overloading level:	Maximum input level 4 V rms
Control interface:	RS232,RS485,USB
Wire connection:	pin 1: ground; pin2: signal +; pin3: signal -
Heat radiation:	Forced air-cooled drives
Power cable:	PowerCon, three pins
Voltage:	220V-240V ~ 50/60Hz
Power supply consumption power(static) :	38W
Power supply consumption power(dynamic) :	3000W
Cabinet:	Wedge Cabinet,Plywood
Installation:	Special rigging brackets and connection accessories
Painting:	Cabinet coated by Polyurethane paint; grille is powder coated
Cabinet dimension:	R6a: 419×210×736mm(16.5×8.3×29.0in) R12a: 736×667×542mm(29.0×26.3×21.3in) Flying Frame: 659×112×750mm(26.0×4.4×29.5in)
Packing dimension:	R6a: 505×310×876mm(19.9×12.2×34.5in) R12a: 815×656×876mm(32.1×25.8×34.5in) Flying Frame: 779×225×870mm(30.7×8.9×34.3in)
Net weight(pc):	R6a: 17.5kg(38.5 lb),R12a: 52.5kg(115.5 lb), Flying Frame: 12.5kg(27.5 lb)
Gross weight(pc):	R6a: 20.5kg(45.1 lb),R12a: 59.0kg(129.8 lb), Flying Frame: 14.5kg(31.9 lb)

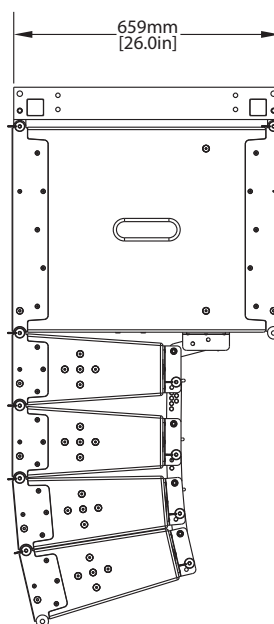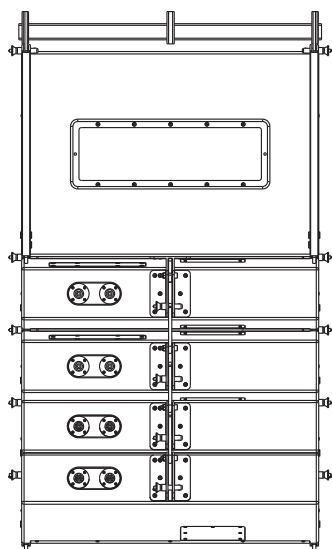## Frequency response curve & Impedance curve
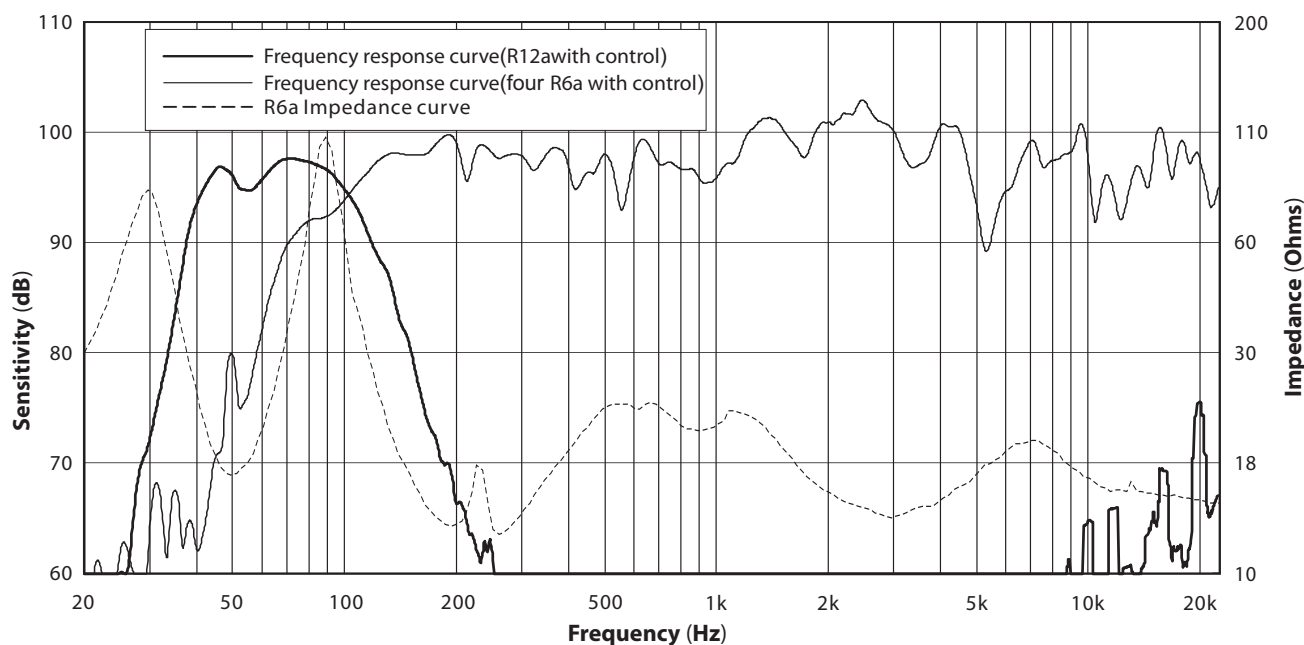
2D Dimension

Top view

Front view

750mm
[29.5in]

1339mm
[52.7in]

Side view

659mm
[26.0in]
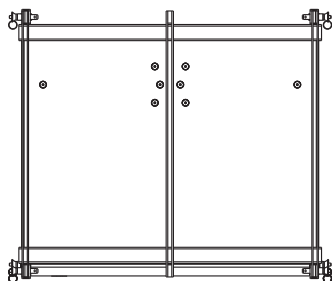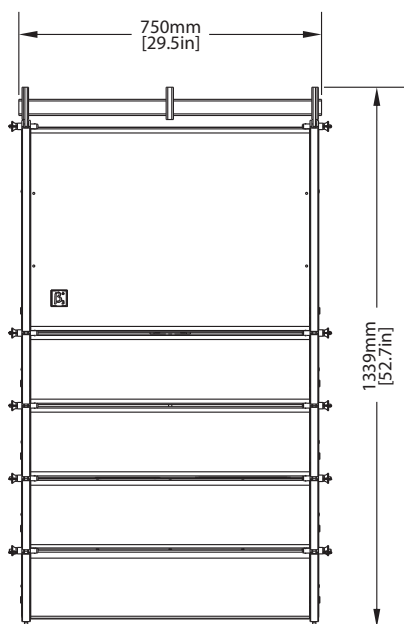
Back view

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 (V2.0).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:
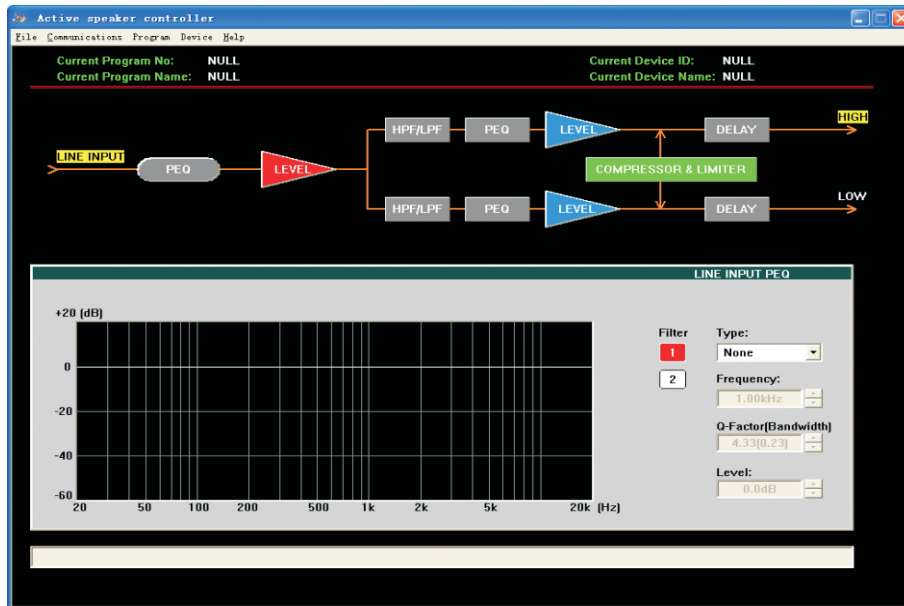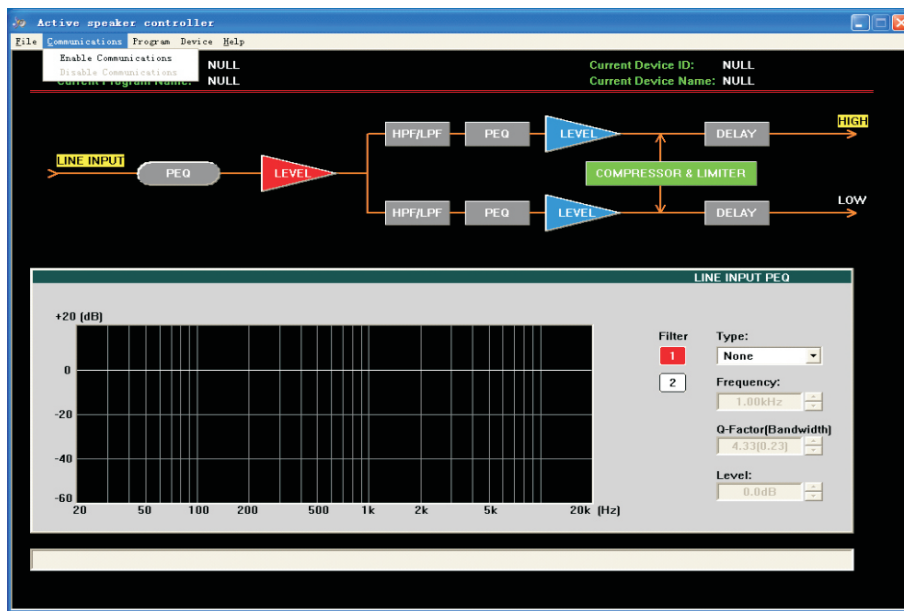

Figure(1)

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.
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.
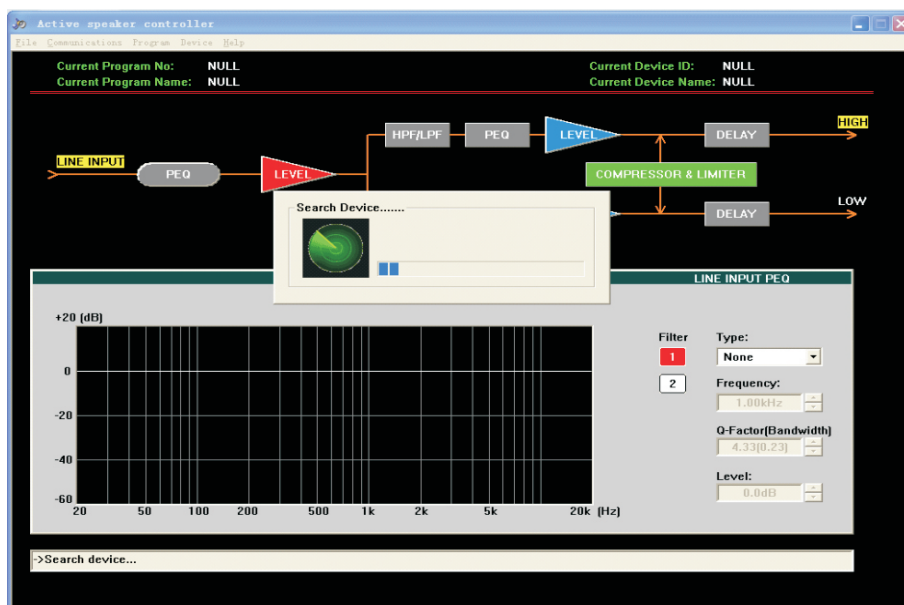
Software Application Guide

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 "**Enable Communications**" command to start the connecting. See Figure 2:
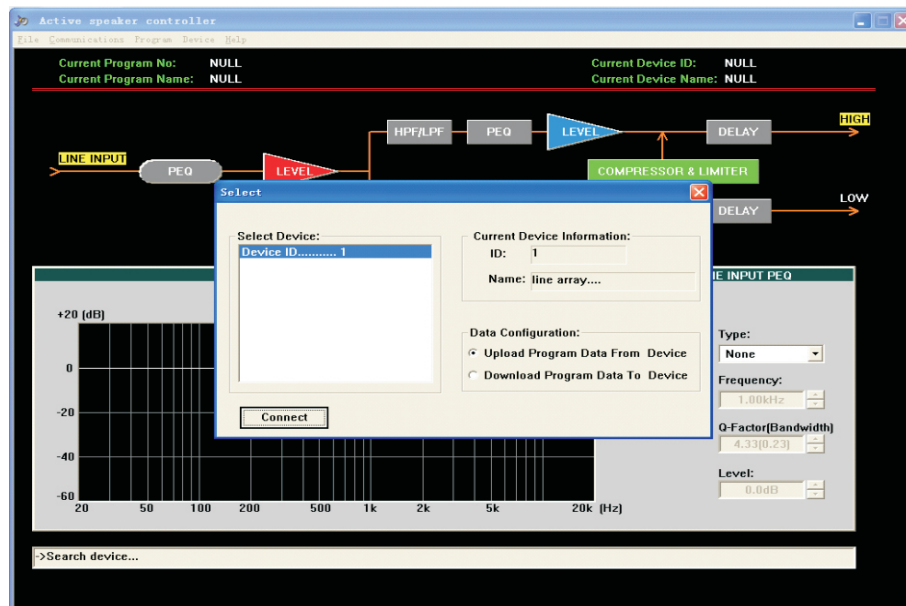

Figure(2)

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:

Figure(3)

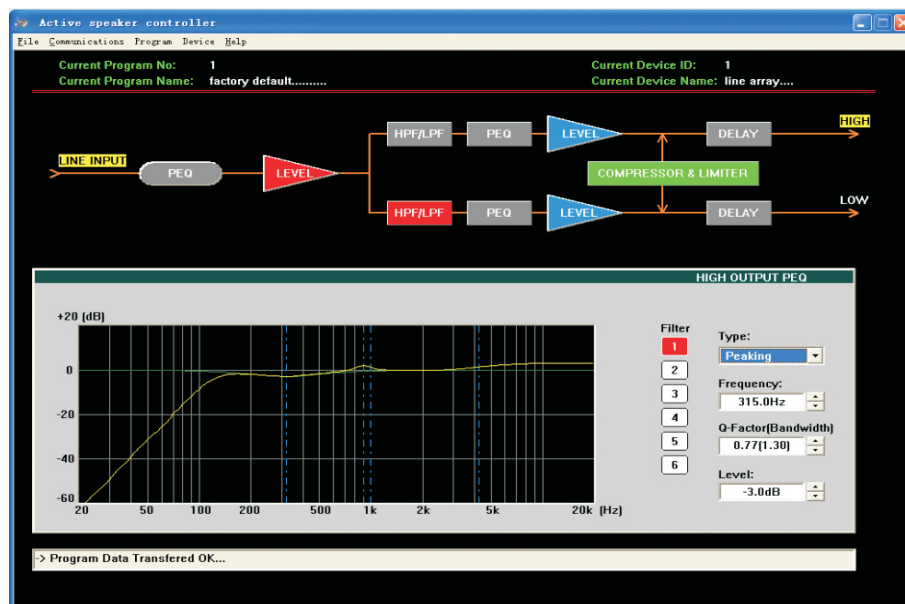## Software Application Guide

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**)

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:
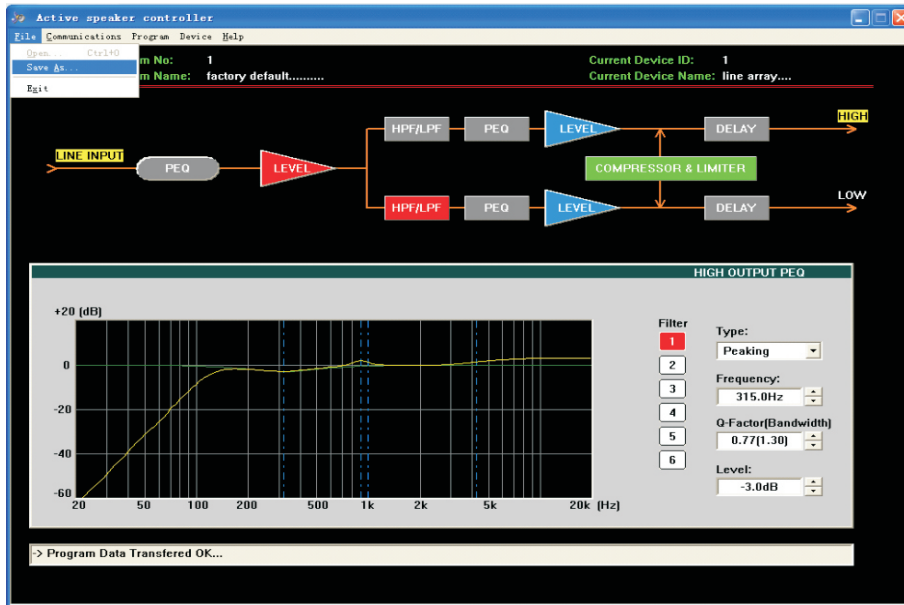

Figure(5)

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

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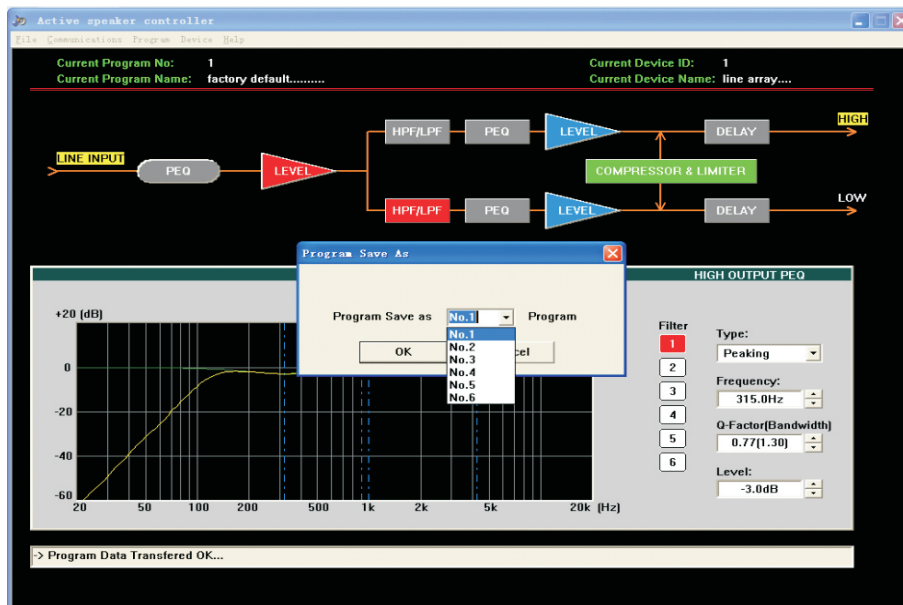
3. Recall or Save the configuration file.
When the device used in different places, the different configuration file are necessary. Two ways are available for user to recall or save the configuration file.

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)

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:
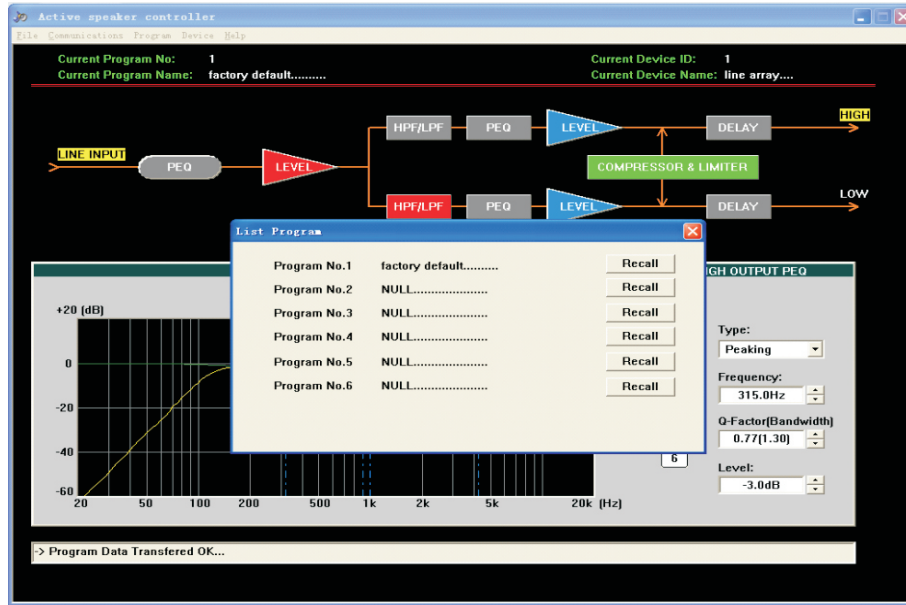

Figure(7)

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.

Software Application Guide

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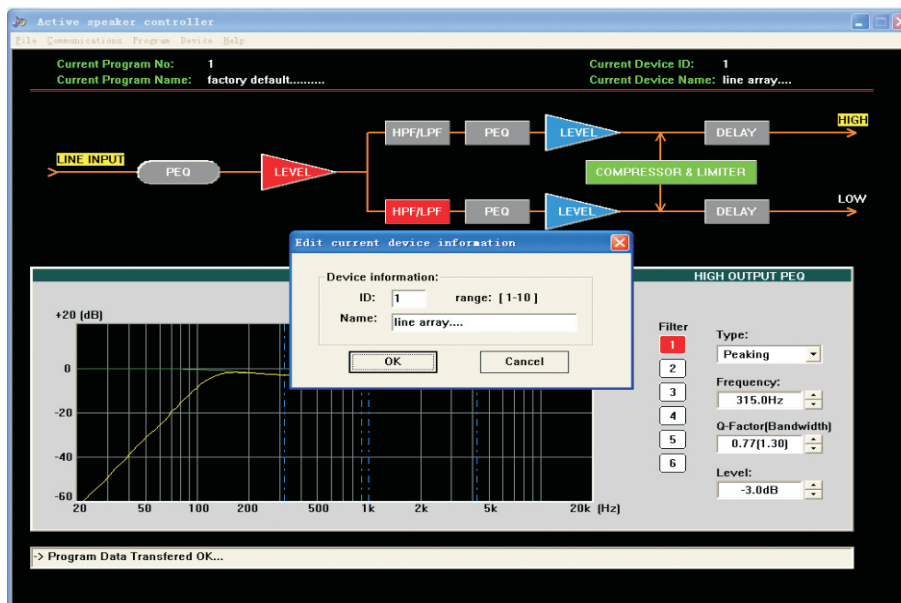

Figure(8)

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.

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.
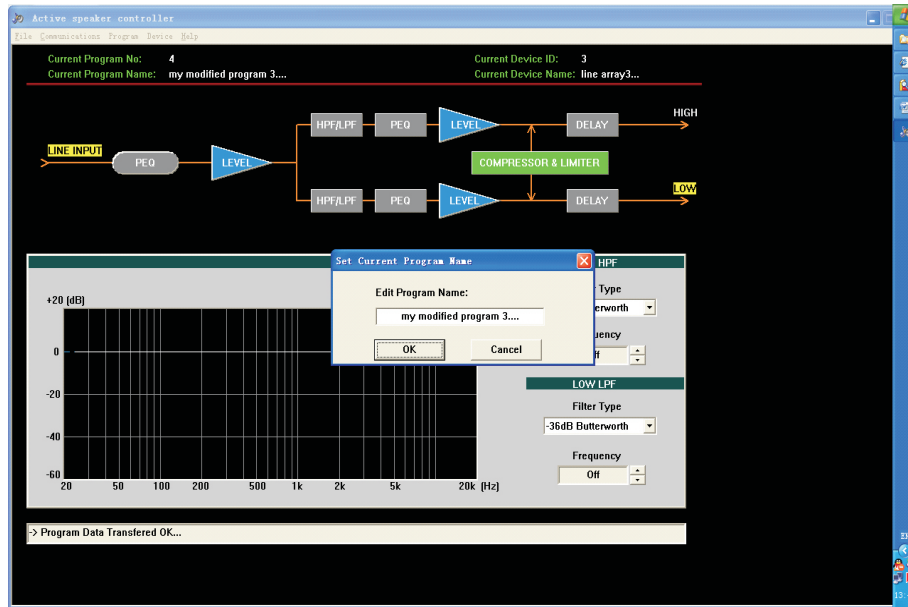

Figure(9)

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Software Application Guide
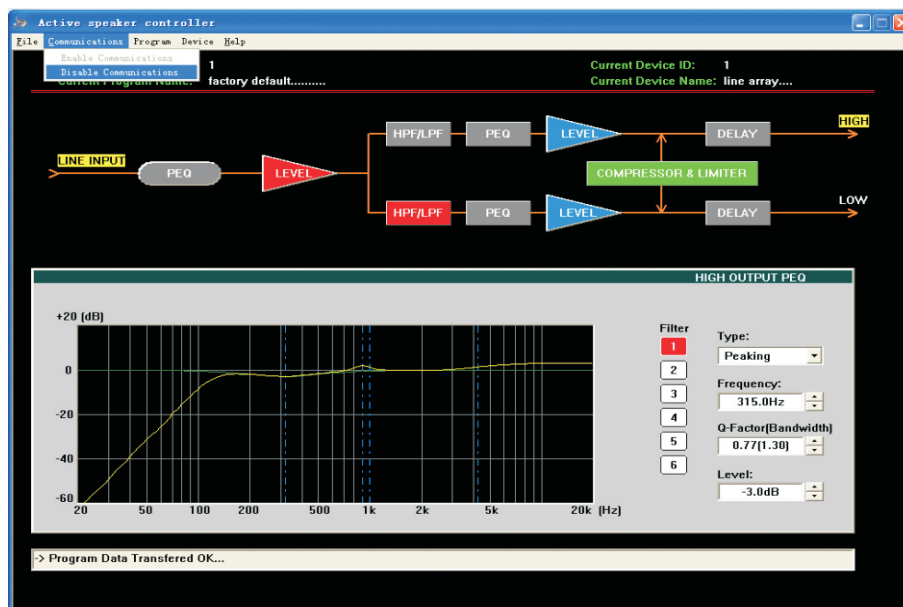
5. Change the current program name.
   Click "**Program**" menu, choose "**Edit current program name**" to change the program name, See Figure 10:

Figure(10)

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)

Notes:

β3

Beta Three