# USER MANUAL

# RS1200 Software

# Table of contents


**1. SOFTWARE INSTALLATION ..... 3**
1.1 System configuration requirements ..... 3
1.2 Installation steps ..... 3
1.3 RS1200 software installation steps ..... 3
**2. SOFTWARE USAGE ..... 6**
2.1 Introduction ..... 6
2.2 Main interface introduction ..... 7
**3. SOFTWARE OPERATION INSTRUCTION ..... 9**
3.1 Configure IP range parameters ..... 9
3.2 Entry and modification of hardware configuration ..... 9
3.2.1 Adding hardware configuration ..... 10
3.2.2 Modifying Channel Configuration ..... 10
3.3.1 Adding devices ..... 12
3.5 Gain adjustment of input channels ..... 16
**4.COMPONENT OBJECTS ..... 17**
4.1 Input/Output ..... 17
4.2 Delay ..... 17
4.3 Router ..... 17
4.4 Mixer ..... 18
4.5 Dynamic ..... 18
4.6 Equalizer ..... 20
4.7 Filter ..... 21
4.8 Crossover ..... 23
4.9 Generator ..... 23
4.10 Meter ..... 24
**5. SYSTEM DESIGN ..... 26**
5.1 Placing component objects ..... 26
5.2 Connecting component objects ..... 26
5.3 System network considerations ..... 26
**6. GLOSSARY ..... 27**


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**www.omnitronic.com**

English

# *USER MANUAL*

# RS1200 Software

## 1. SOFTWARE INSTALLATION

### *1.1 System configuration requirements*

System Configuration
CPU：Pentium III 800 MHz and above

Memory: 256M and above
Operating System: Windows 2000 Professional, Windows 2000 Server, Windows 2000 Advanced Server, Windows XP.

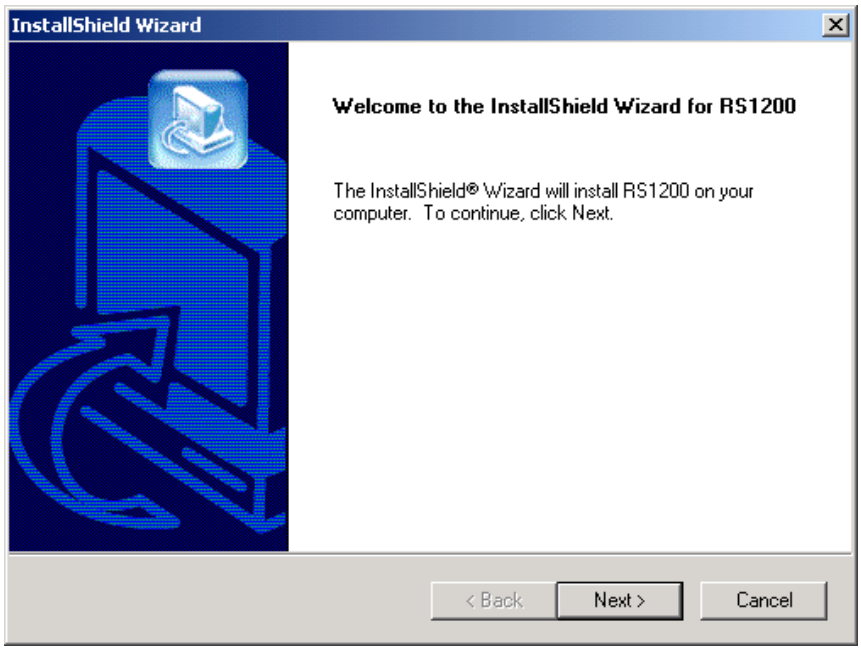
### *1.2 Installation steps*

**Note:**

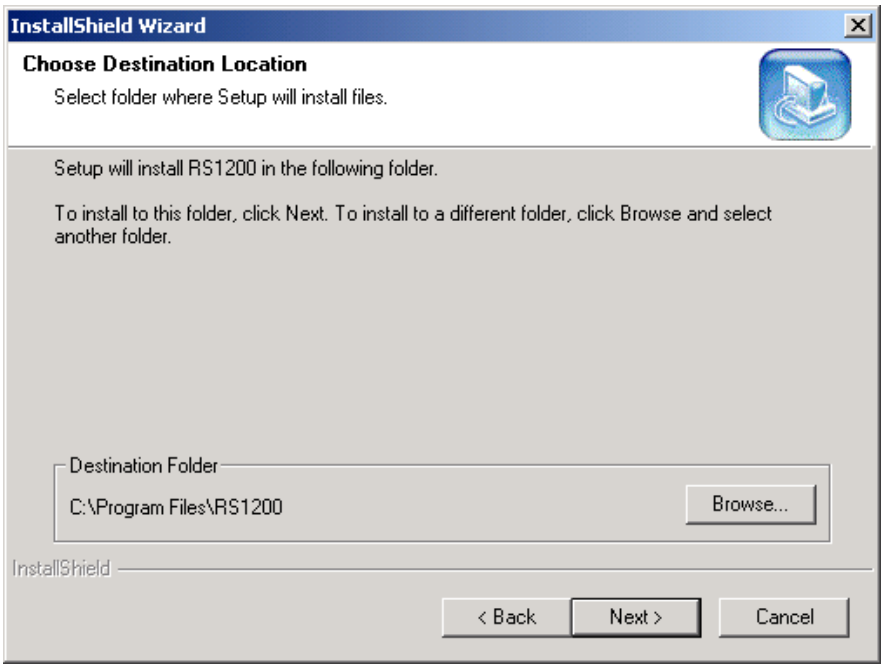
1) **During the installation, log in the server as an administrator.**
2) **CNOT, WinPcap and dotnetfx should be installed in advance prior to the setup of RS1200.**

### *1.3 RS1200 software installation steps*

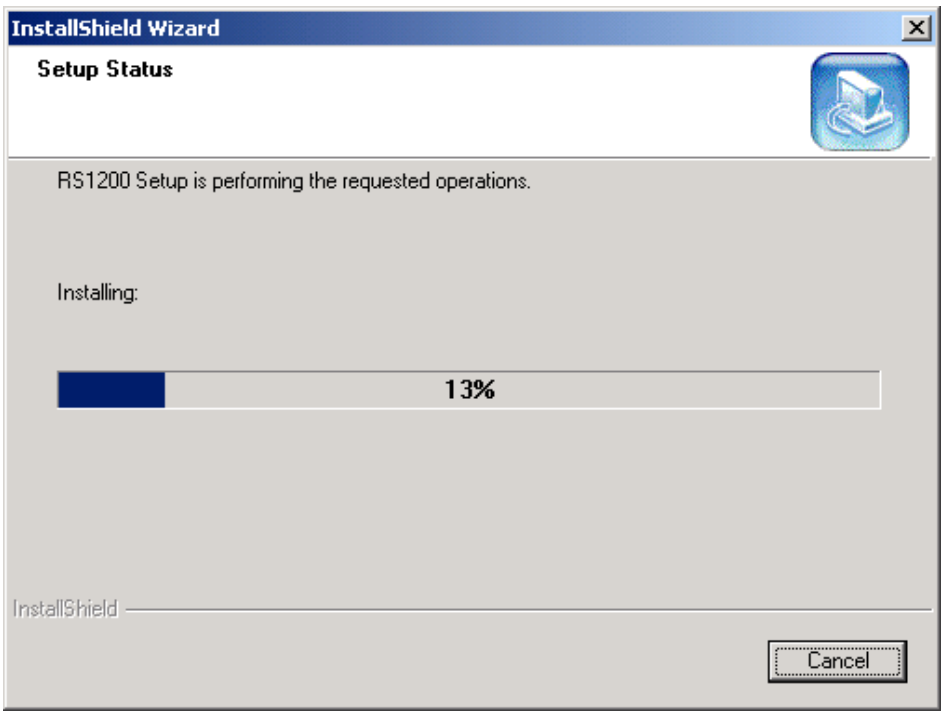
1 **Setup the software of RS1200** and the following Wizard is displayed:



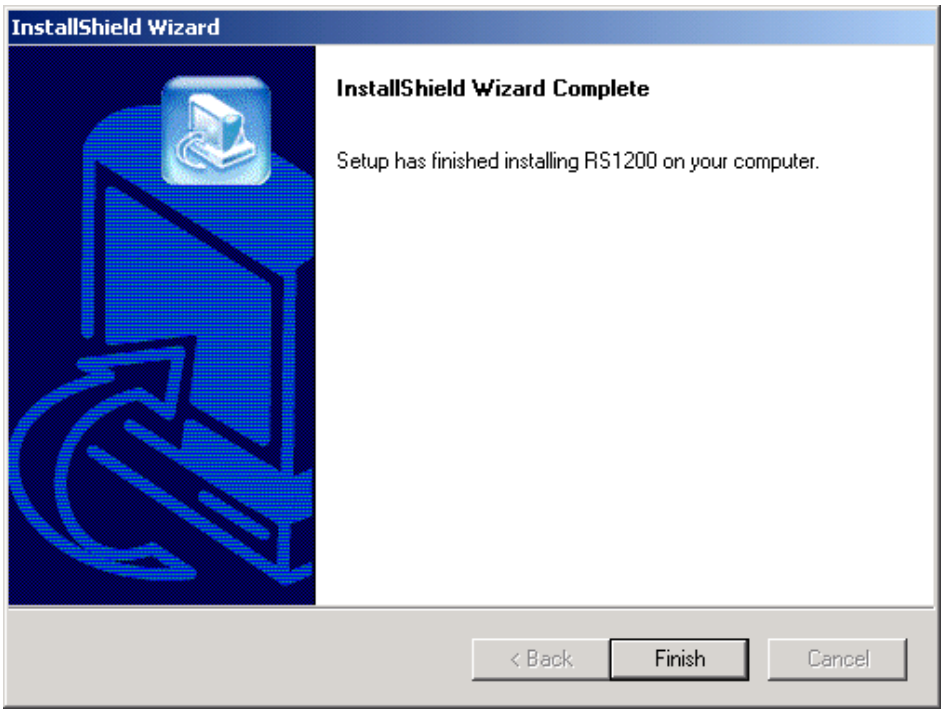
**2 Select the path for installation**:




**3 Wait until the files are copied to the selected path**.



**4 When the copy is completed, the Complete Wizard is displayed**. The installation of RS1200 finishes.



# 2. SOFTWARE USAGE

## *2.1 Introduction*

RS1200 software is a Digital Audio Platform, which provides distributed digital audio, signal processing, and control. RS1200 is a networkable, decentralized audio system, which is easy to configure & program. The program lets you create simple or complex audio signal processing solutions using a simple and intuitive drag-and-drop interface. Download the finished design to the OMNITRONIC "CobraNet device" and you're up and running. This modularity extends past the individual processors because you can link multiple processors together and share audio between them.

**The main function of RS1200 software:**
- The gains adjustment of the Input channel

**The main algorithms of the RS1200 software:**
- Delays: 5ms,10 ms,20 ms,50 ms,100 ms
- Routers:4×4,8×8,16×16
- Mixers:4×1, 4×2,4×4,8×1, 8×2, 8×4,8×8
- Dynamics: Leveler, Compressors, Limiters, Noise Gates, Expanders, Clipper
- Signal Generator: Sine, White noise
- Equalizes: Parametric Equalizes, Graphics Equalizes
- Filters: Highpass, Lowpass, Highpass Shelving, Lowpass Shelving
- Crossovers: 2-way,3-way ,4-way
- Level Meters:1-way, 2-way, 4-way, 8-way

**The usage of RS1200 Control software:**
Step 1: Install relevant equipments
Step 2: Configure relevant equipments
Step 3: Setup virtual routing and edit the DSP algorithms
Step 4: Download and solidify (burn it to the memory) routing scheme and DSP algorithms
Step 5: Adjust gains of the Input channel and control the algorithms

## 2.2 Main interface introduction

Figure 2-1 shows the main interface of RS1200.

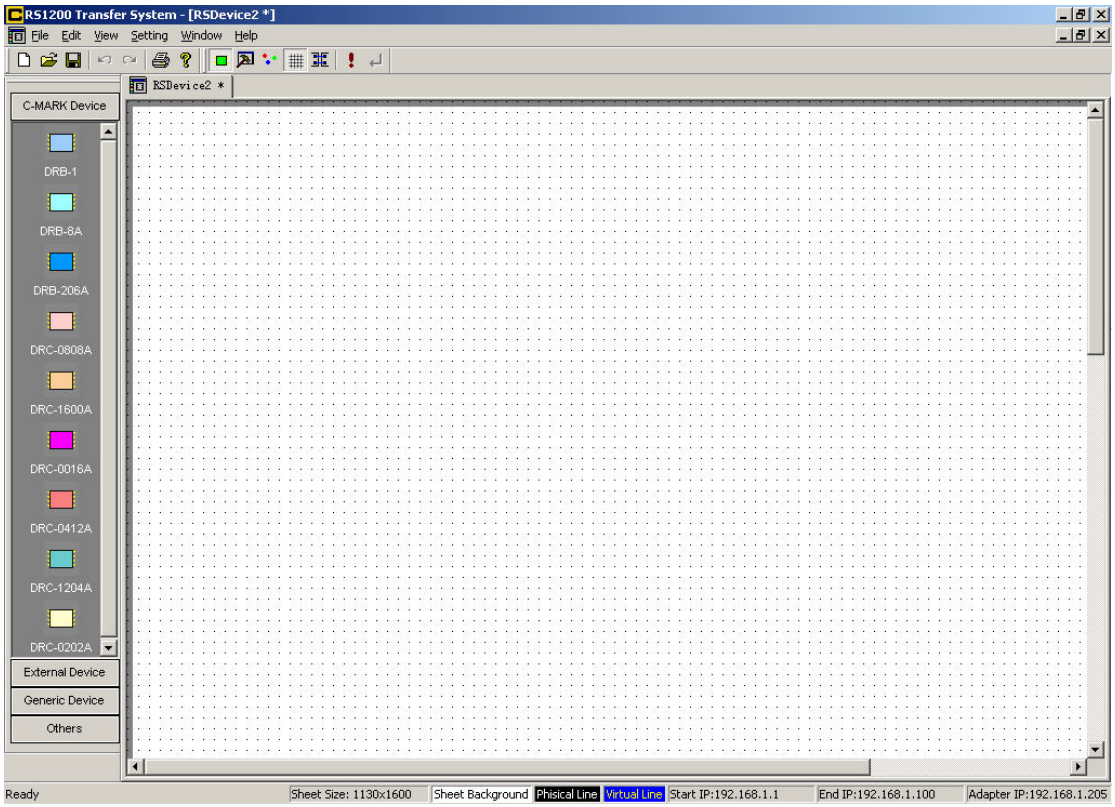



Figure 2-1 Main Interface

There are menu and toolbar on the top of the main interface. Toolbar contains the frequently used menus' shortcuts which are described as follows:

---

**File**

*New*: Build a new file

*Open*: Open a file

*Save*: Save a file

*Save as*: Save a file to other to other paths

*Print*: Print a file

*Print Preview*: Review the print file.

*Print Setup*: Setup the print parameters.

---

**Edit**

*Undo*: Undo the previous operation

*Redo*: After undoing an operation, redo it

---

**View**

Toolbar

>> *Standard*: Show or hide Windows Standard toolbar (new、open、save、undo、redo、print、help)

>> *Special*: Show or hide RS1200's specified toolbar ( In graphic interface Toggle device toolbar, Toggle output window, Color Scheme, Toggle Grid、View Links、Implement、Exit running etc ; In listing interface Toggle output window, Color Scheme, View Links, Device Manager, Compile、Exit running, etc. )

*Device*: Show or hide the device toolbar on the left side of main interface.

*Status Bar*: Show or hide status Bar.

*Out Dialog*: Toggle output window.

*Device Link*: Check the established connection and may print it.

*Router Relations*: = *Device Link*.

*Zoom In*: Zoom in a file to 200% of its original size.

*Zoom Standardl*: Show a file in its original size.

*Zoom Out*: Zoom out a file to 50% of its original size.

*Grid*: Toggle Grid.

---

**Setting**

*Sheet Size*: Setup template size (in pixel).

*Color Setting*: Configure colors for a file.

*IP Config*: Configure the range of IP address of CobraNet devices.

*Language*: Select English or Simplified Chinese (It will be activated after reboot).

*Device Setting*: Check or change the hardware configuration.

*View Device Setting*: View Hardware Configuration

---

**Window**

*Cascade*: Cascade all windows.

*Title*: Overlay activated windows.

**Help**

*About RS1200*: Display the information of the RS1200.

---

# 3. SOFTWARE OPERATION INSTRUCTION

## *3.1 Configure IP range parameters*

When the software is initiated for the first time, a dialog box (see figure 3-1-1) is displayed, requesting you to configure IP range.

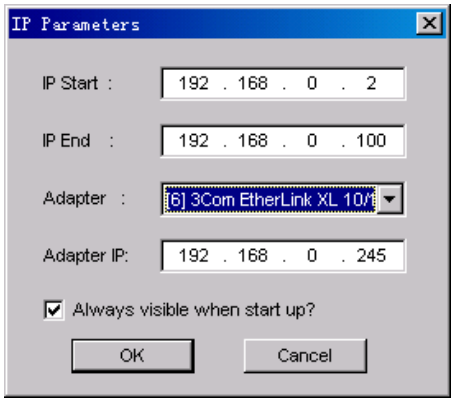



Figure 3-1-1 IP Range Configuration Dialog Box

Select the appropriate adapter in the dropdown menu. Make sure the beginning IP and the end IP are configured within the IP range, of which the first 3 potions of IP address are identical to that of the adapter, otherwise the RS1200 will not be started normally.

Click “OK” to enter the main procedure interface. Select “Menu->IP Parameters” to popup a dialog box and change the beginning IP and end IP. The adapter may only be selected after the procedure starts.

## *3.2 Entry and modification of hardware configuration*

Create a new document. Don’t forget to click the menu of “Settings->Hardware configuration” after the procedure starts for the first time. Popup a dialog box (see figure 3.2.1) for hardware configuration.

**Caution: Access To The Hardware Configuration Requires Password Authentication. The Initial Password Is “1”. Please Be Careful To Modify And Safekeep The Password.**

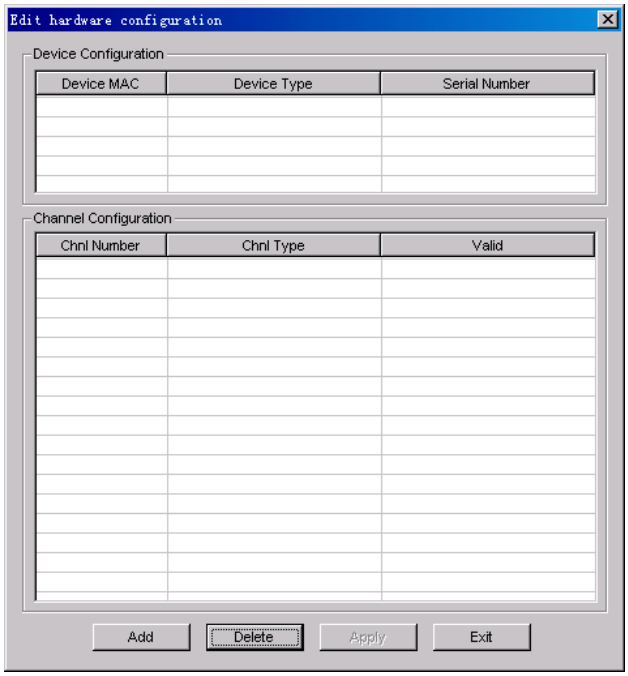



Figure 3.2.1 Hardware Configuration Dialog Box

The Information For Equipments And Channel May Be Entered In The Above Dialog Box. Particular Attention Must Be Taken To Ensure That The Entry Of Hardware Configuration Should Be Identical To The Actual One, Otherwise The Software Will Not Work In Gear With The Hardware.

### *3.2.1 Adding hardware configuration*

Click “Add” button to popup a dialog box (Figure 3.2.1.1):

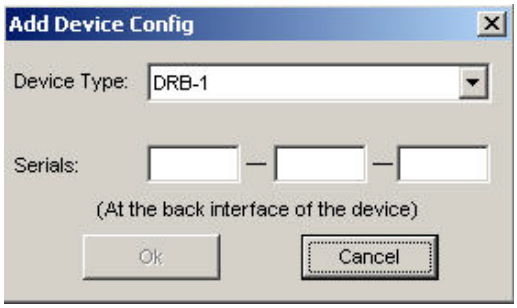



Figure 3.2.1.1 Adding Hardware Configuration Dialog Box

Enter the serial number of CobraNet device and select the correct device type(the serial number is labeled on the rear panel of the CobraNet device). Click “OK” to add the configuration. After several devices are added, the dialog box will be as follows (see Figure 3.2.1.2).

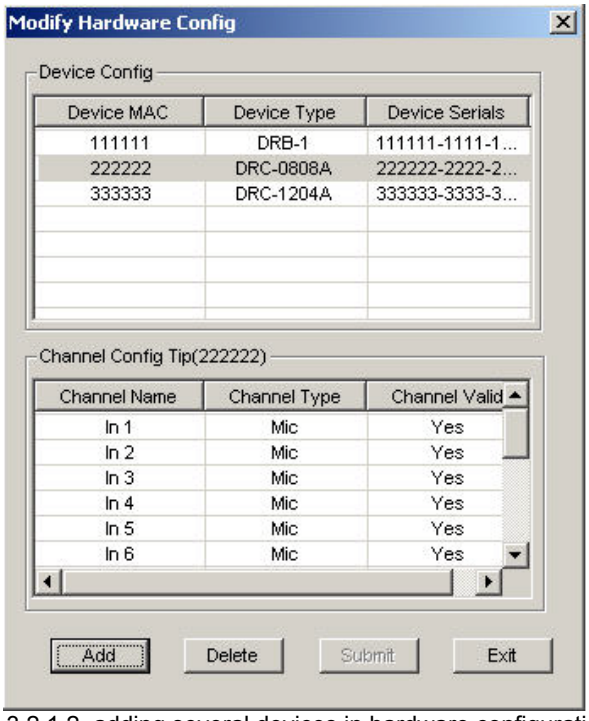



Figure 3.2.1.2 adding several devices in hardware configuration dialog box

### *3.2.2 Modifying Channel Configuration*

Double click the “Channel Type” or “Channel Validity” options from the dropdown list, and change the channel configuration, as shown in Figure 3.2.2.1:

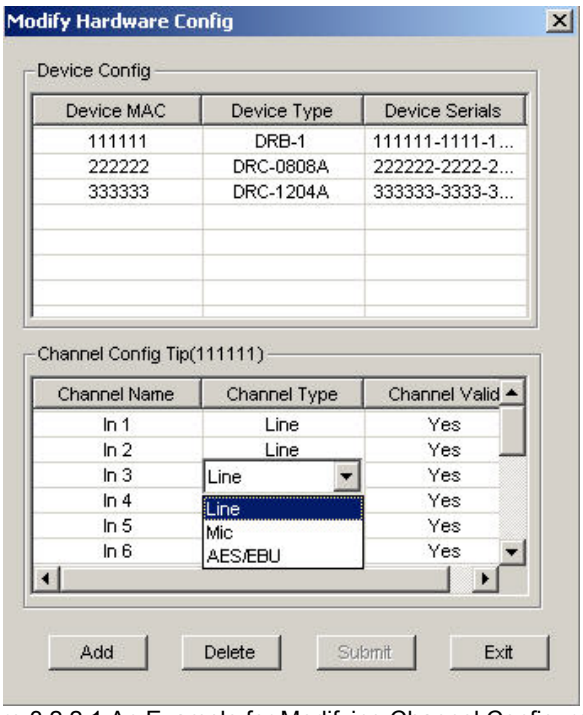



Figure 3.2.2.1 An Example for Modifying Channel Configuration

**Caution: The Above Channel Configuration Will Affect The Adjustability Of Hardware Gains. Ensure That The Channels Configured Are Identical To The Actual Ones.**

### *3.2.3 Additional introduction*

**1** It is a matter of great importance to correctly configure the hardware, so password authentication is required before accessing to the above dialog box, ensuring that no hardware configuration will be changed without permission.

**2** The modification may result in the differences between the designed and actual configurations. In case of that, we recommend you to update the equipment properties in the designing documents through equipment properties dialog box.

## *3.3 Graphic document operation*

Click the menu of “File->New” or the “New” button on standard toolbar to establish a new graphic document, as shown in Figure 3-3-2. Edit the document, then save it for future editing.

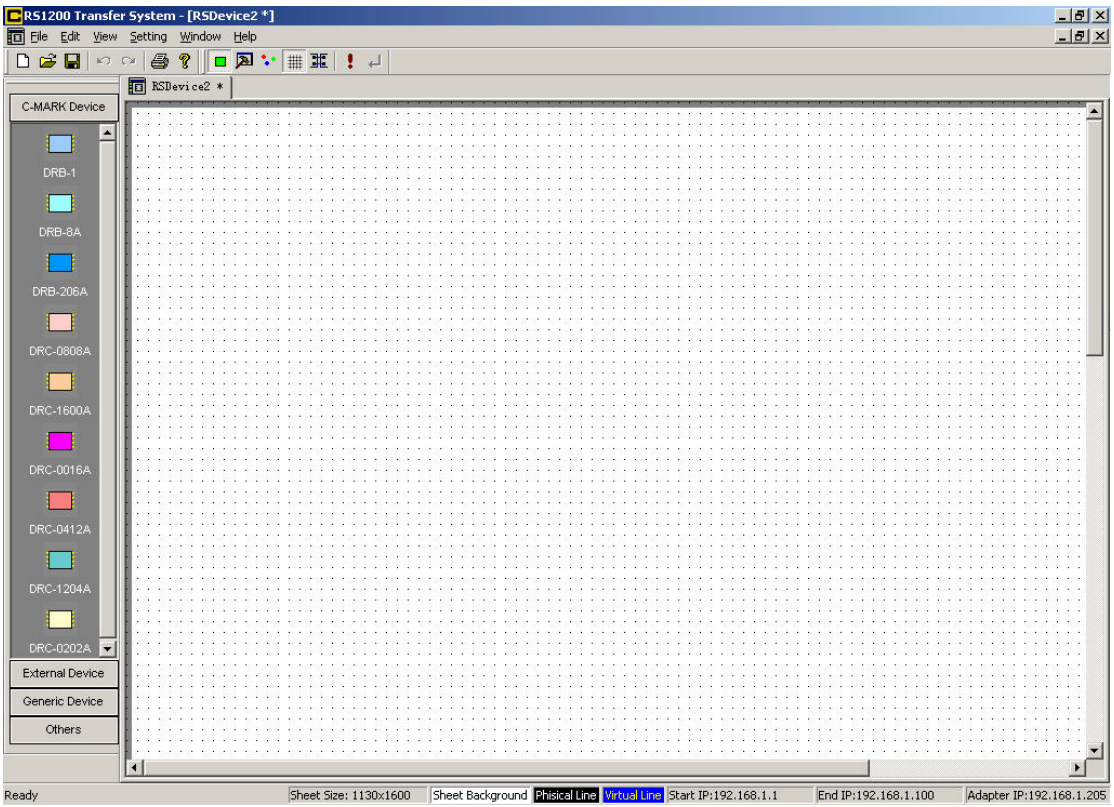



Figure 3-3-2 RS1200 Graphic Document Interface

### *3.3.1 Adding devices*

User may drag the device icons from the toolbar on the left of interface and add them to the document. Only one device may be added for one drag. The interface is shown as Figure 3-3-1-1 after adding several devices.

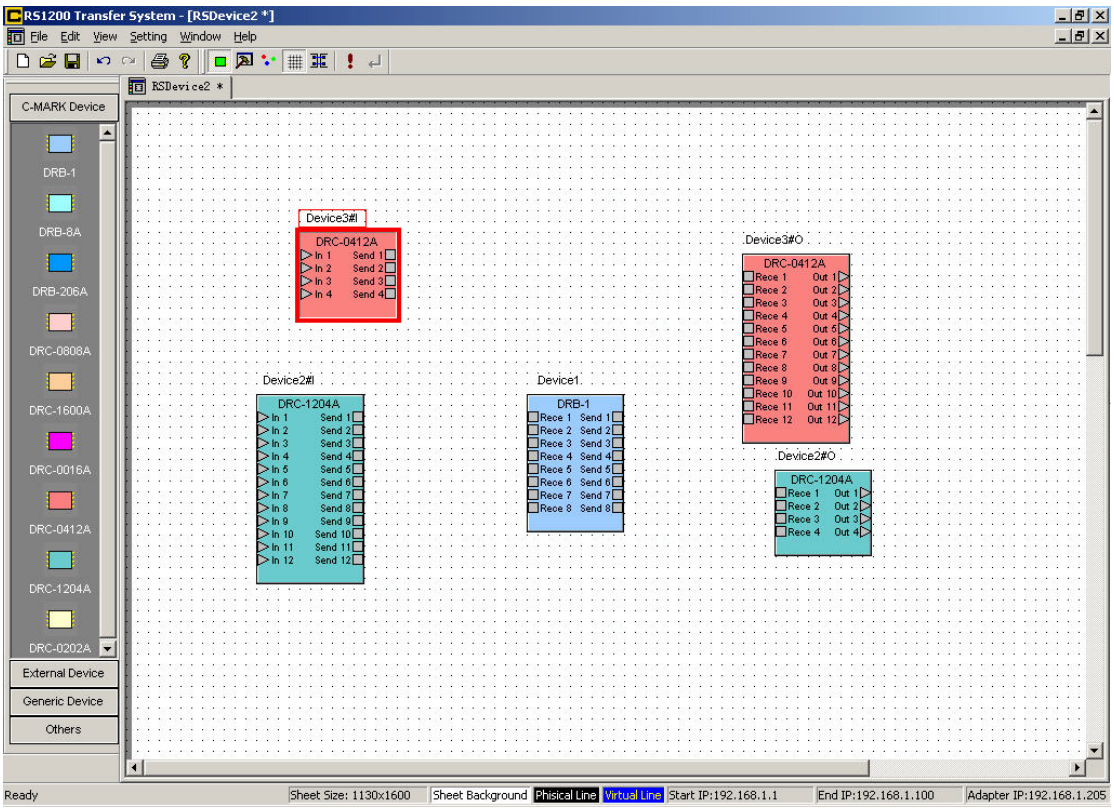



Figure 3-3-1-1 The Document Interface (after adding several devices)

As the above figure shown, each device has several channel ports, among which connections may be made.

It must be clarified that CobraNet device has 2 types of ports: triangle for physical port (other non-CobraNet devices belong to this type) and square for network ports.

OMNITRONIC **series is divided into 4 categories:**

**A. Input-only devices, such as NAT-16IN:**
As the above figure shown, NAT-16IN has 16 physical ports, which have a respective network output port used for transmitting audio data to network

**B. Output-only devices, such as NAT-16OUT:**
As the above figure shown, NAT-16OUT has 16 physical ports, which have a respective network output port used for receiving audio data from network

**C. Devices with input and output ports, such as NAT-88:**
As the above figure shown, NAT-88 has 8 physical input ports and 8 output ports. In software interface, use it both as Input-only and Output-only devices whose properties may be managed together.

**D. Network audio processor device, such as NAP-8CH:**
As the above figure shown, NAP-8CH has 8 network input and 8 network output. It can process 8 audio channels from the CobraNet signal.
The properties should be modified after new CobraNet devices are added. Right click the mouse to select the “properties” menu, then the properties dialog box will appear (see figure 3-3-1-2):

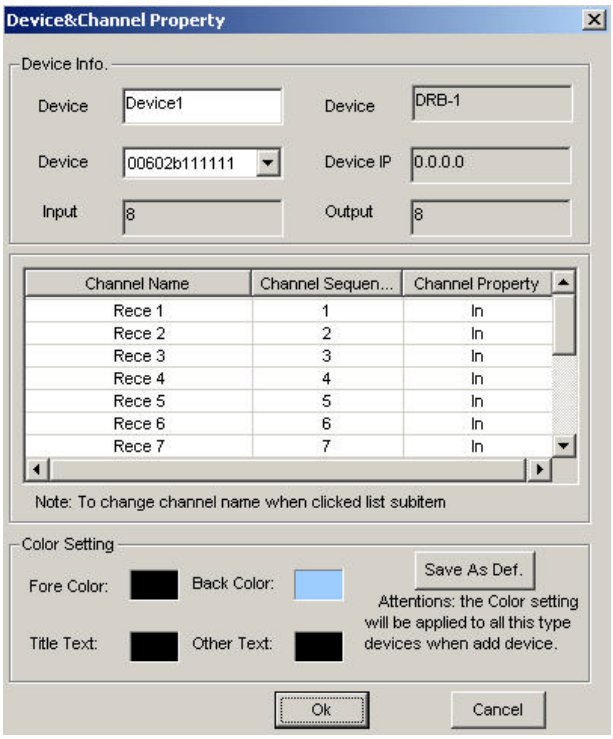


Figure 3-3-1-2 CobraNet Device Properties Dialog Box

Except for MAC address, user may change all the properties of the device, such as devices name, channel name, color etc. Other properties may remain the default values. The MAC address must be selected, otherwise routing scheme can't be downloaded and solidified.
To select the MAC address, user may match the device in the document interface with the actual CobraNet device.
The MAC address presented in the dropdown list is determined by the actual configuration of system, which in turn determines the validity of device ports in the document interface.

### 3.3.2 Establish virtual connection

RS1200's main function is to establish virtual connection. In document interface, the establishment of virtual connection is shown as connecting lines between ports.

Follow the below criteria when making connecting lines between ports:
- Connecting lines should only be made between output and input ports.
- Connecting lines should only be made between the same type of ports.
- Any number of lines may be connected to an output port while only one line may be connected to other ports.

Figure 3-3-2-1 indicates the document interface for establishing connecting lines.

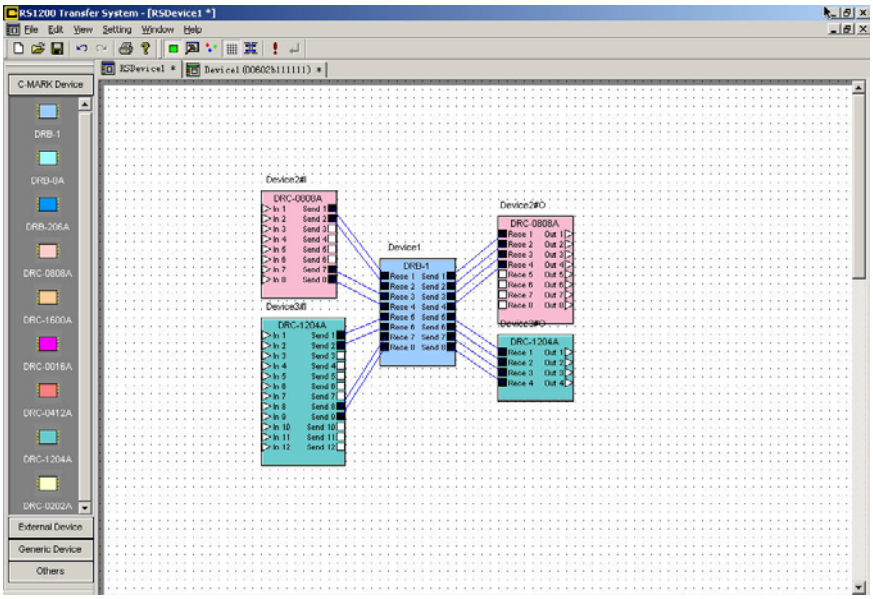



Figure 3-3-2-1 The Document Interface (after adding several devices)

### 3.3.3 Edit the DSP algorithms

Open the DSP edit document by right click the device to select the “DSP edit”. Shown as Figure 3-3-3-1

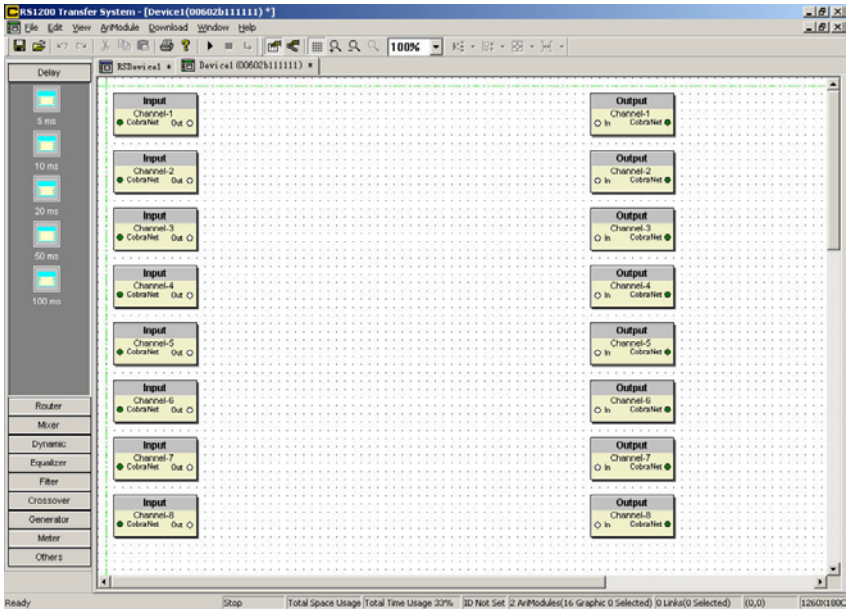



Figure 3-3-2-1 the DSP edit document

In this DSP edit document, you can edit the DSP algorithms. The algorithms component object is introduced in chapter 3.

### *3.3.4 Additional information*

- In case of failure, user may recover the operation through the 15-level “Undo” and “Redo” function of the software.
- Single-page print and print preview functions are provided.
- Despite of 3-level zoom in/out function, we recommend you to make the design in the normal scale.
- Multi-language interfaces are optional.

## *3.4 Compile*

Once the design of routing scheme and DSP algorithms accomplished, click the  button on the toolbar to download the existing active routing document and DSP algorithms document to the corresponding CobraNet device. Warning and failure information may be displayed during the download process. Refer to Figure 3-4-1

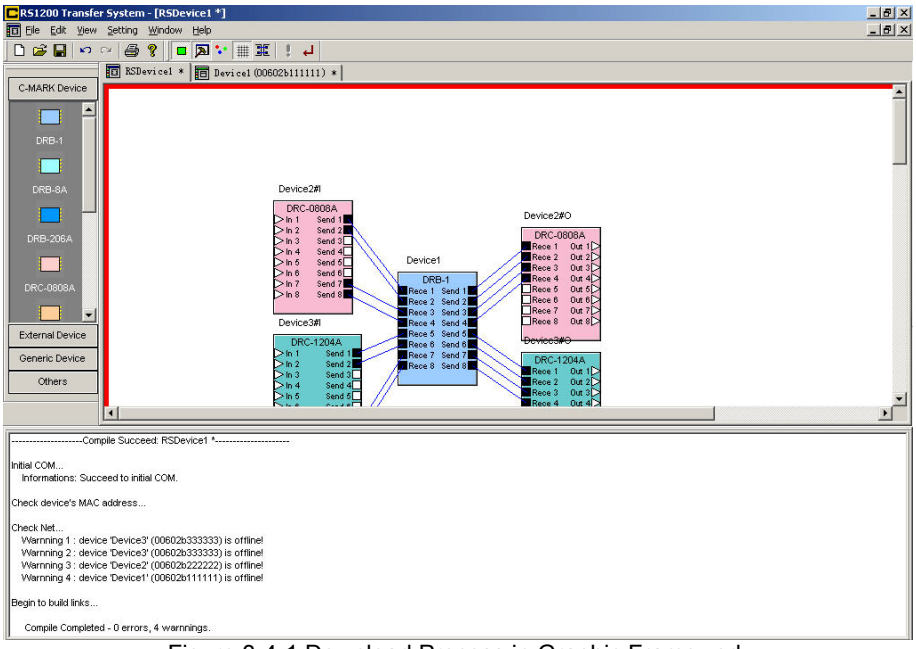



Figure 3-4-1 Download Process in Graphic Framework

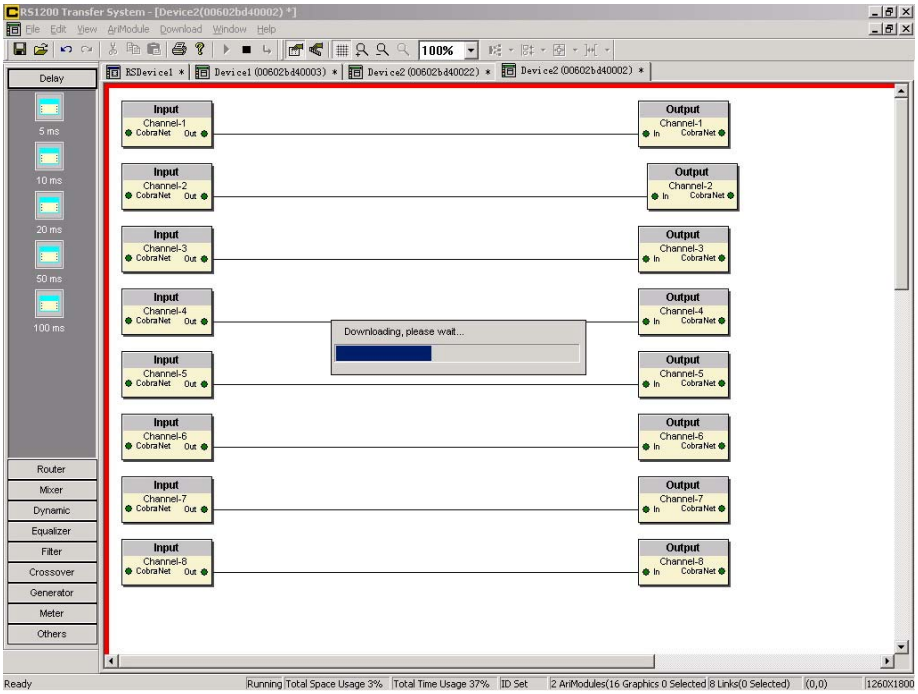



Figure 3-4-2 Download Process in “.dsp” document

After the download completes, the statue of the existing active document will be changed from “Editing” to “Running”. In running status, no connection may be altered. It will be highlighted by red frame in graphic document and grey frame in listing document. Only one document may be in running status at one time. Click menu “File->Exit Running” or button on the toolbar to exit the running status of the document.

Caution: The Download Operation Should Not Be Interrupted Unless There Are Severe Errors (Noted As [Severe] In The Advisory Information). In That Case, You Are Required To Check The Adapter Option, IP Range Parameters, Network Conditions And Hardware According To The Prompts. In Order To Ensure The Normal Download, The Application Procedure Should Be Closed During The Download Process. The Document Related To Routing Scheme Should Not Be Modified Or Closed.

## *3.5 Gain adjustment of input channels*

In running status, gain adjustments may be made to Input Channels of the added devices (The adjustability of the Input channel of some devices depends on their configuration, refer to 3.2 “Entry and Modification of Hardware Configuration” for more information).
When graphic document is in running status, user may double click the device or right click the mouse to select “Gain Adjustment” menu from the shortcut (for listing document, click the “Gain Adjustment” button in “Equipment Management” dialog box), to show the channel adjustment dialog box (see 3-5-1).

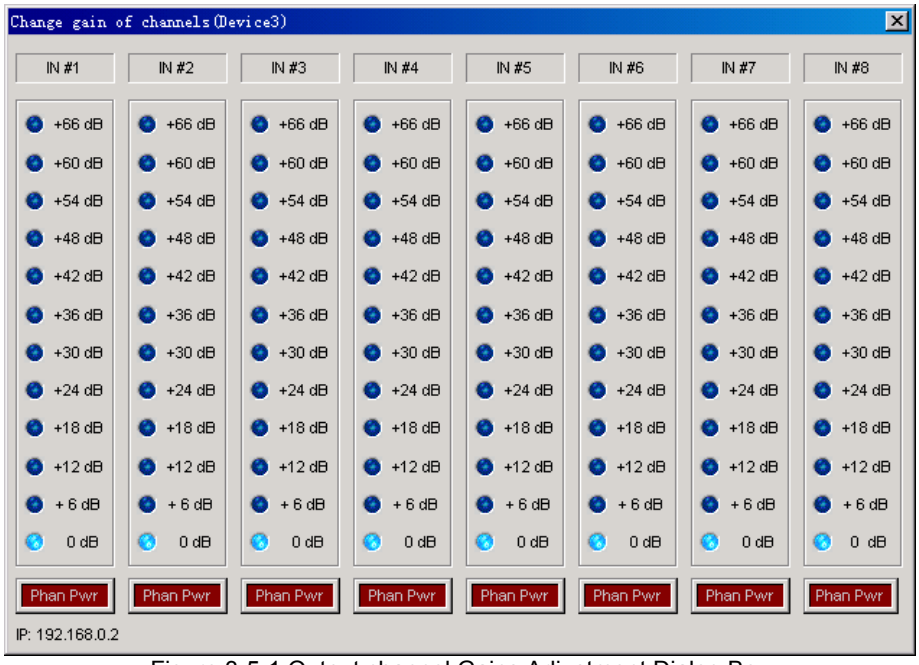


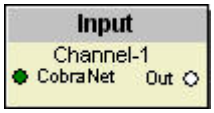

Figure 3-5-1 Output channel Gains Adjustment Dialog Box

If IP address is valid and channel gains adjustable, user may adjust the appropriate gains and phantom power in the dialog box.

**Caution: The Adjustability Of Channel Gains Also Depends On The Actual Configuration Of Mac Address Of The Relevant Hardware.**

# 4.COMPONENT OBJECTS

## *4.1 Input/Output*




These Component Objects provide the audio inputs/outputs (I/O) to the system. Analog and CobraNet I/O are both available, allowing system designs to include A/D & D/A converters which have CobraNet capability. This Component Object is fixed into the DSP edit Layout; all available settings can be accessed by double-clicking over the object. This produces a Control Dialog Box, which displays the component controls in a more conventional user interface.

Input Control Dialog


**Level:** adjust the relative input and output volume.

**Invert:** reverse the polarity of the input and output volume

**Mute:** turn the input and output signal off/on

## *4.2 Delay*

These Component Objects provide typical audio time-delay functions. Delays may be connected between any components within the Layout, for applications which require room delay and/or loudspeaker time-alignment.
Once a Component Object is placed into the Layout, all available settings can be accessed by double-clicking over the object. This produces a Control Dialog Box, which displays the component controls in a more conventional user interface.

Delay Control Dialog

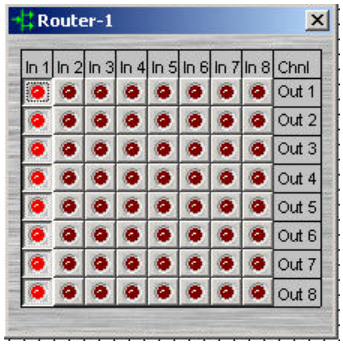

**Bypass:** disables the delay without changing settings.

**Delay Time:** determines the amount of delay.

## *4.3 Router*

These Component Objects provide typical audio routing functions. Routers may be connected between any components within the Layout, for applications which require routing of input signals to various outputs.
Once a Component Object is placed into the Layout, all available settings can be accessed by double-clicking over the object. This produces a Control Dialog Box, which displays the component controls in a more conventional user interface.

Router Control Dialog

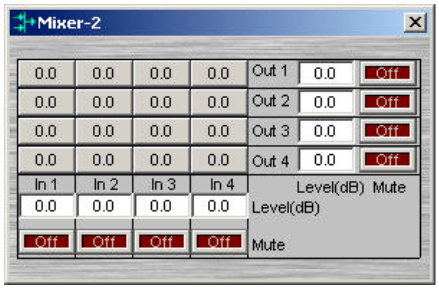



Router allows each input to be assigned to multiple outputs via in/out. However, each output allows only one input assigned in a time. Therefore, Router behaves like a series of individual distribution amplifiers. For increased input/output assignment capability, see Mixer.

## *4.4 Mixer*

These Component Objects provide audio mixing functions,
Once a Component Object is placed into the Layout, all available settings can be accessed by double-clicking over the object. This produces a Control Dialog Box, which displays the component controls in a more conventional user interface.

Mixer Control Dialog




**Mute:** turn the input and output signal off/on

: assigns the input to the specific output

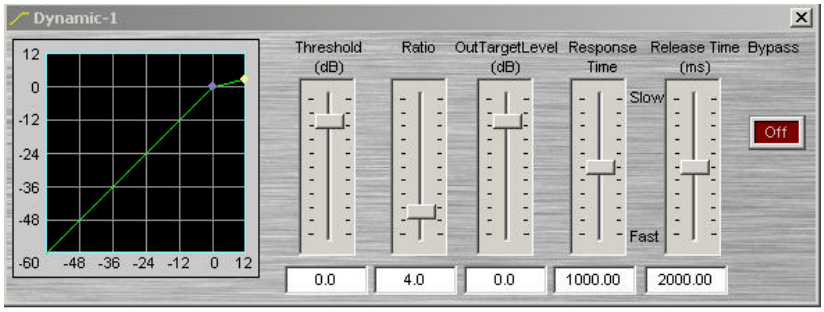
**Level:** adjust the relative input and output volume.

## *4.5 Dynamic*

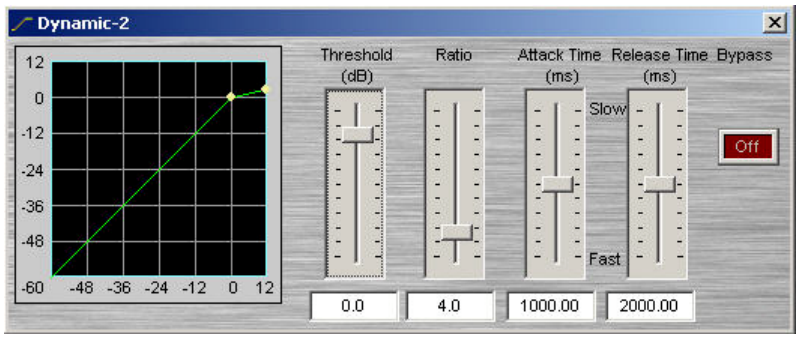
These Component Objects provide Leveler, Comp/Limiter, Noise Gate, clipper functions. Dynamics components may be connected between any other components within the Layout, for applications which require automatic control of volume levels and/or dynamics.

Once a Component Object is placed into the Layout, all available settings can be accessed by double-clicking over the object. This produces a Control Dialog Box, which displays the component controls in a more conventional user interface.

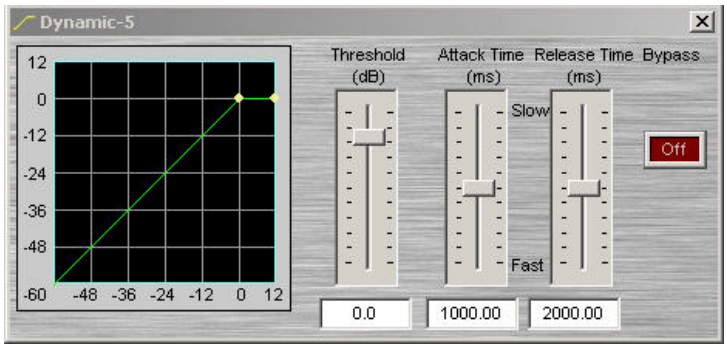
Leveler Control Dialog



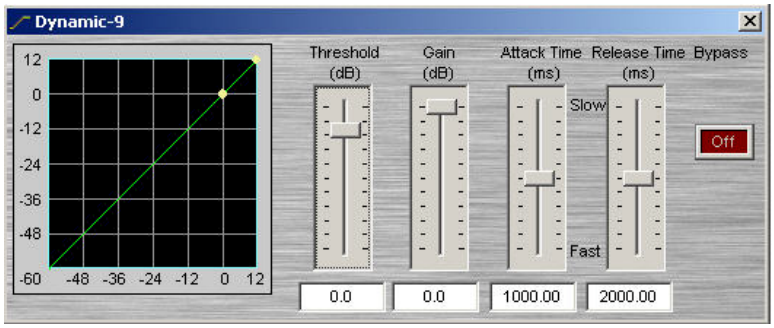

Compressor Control Dialog



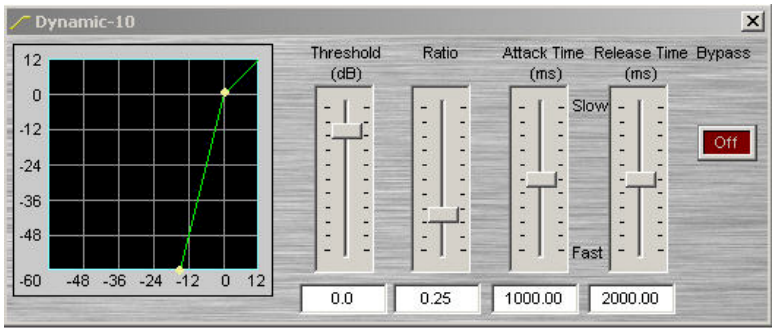

Limiter Control Dialog



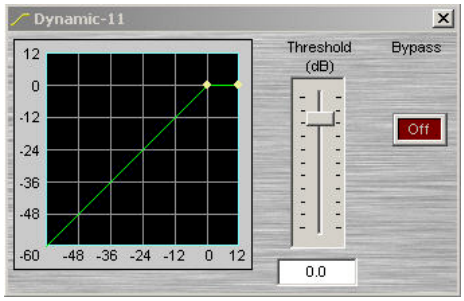

Noise Gate Control Dialog



Expander Control Dialog




Clipper Control Dialog

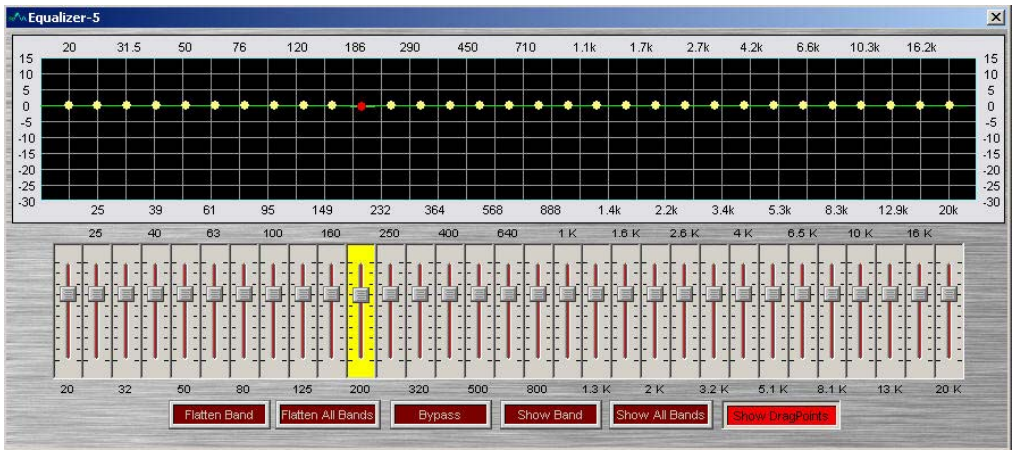



## *4.6 Equalizer*

These Component Objects provide both graphic and parametric equalization, as well as feedback suppression. Equalizers may be connected between any components within the Layout, for applications which require room equalization, tone adjustment, or feedback control.

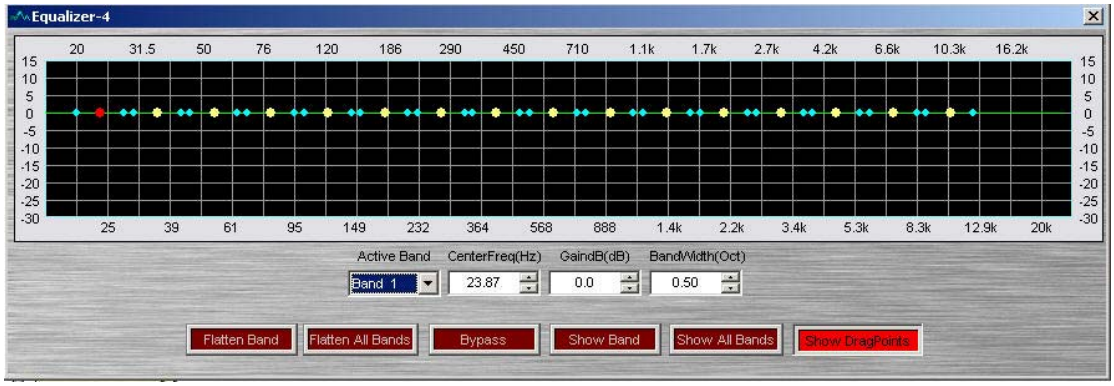
Once a Component Object is placed into the Layout, all available settings can be accessed by double-clicking over the object. This produces a Control Dialog Box, which displays the component controls in a more conventional user interface.

Graphic Control Dialog




**Flatten Band & Flatten All Bands:** change the band(s) Gain to '0' (flat).
Bypass: disable the bands without changing settings.
**Show Band & Show All Bands**
**Show Drag points**

Parametric Control Dialog




**Active Band:** selects the current band to be adjusted.

**Center Freq:** adjusts the center frequency for the current band.

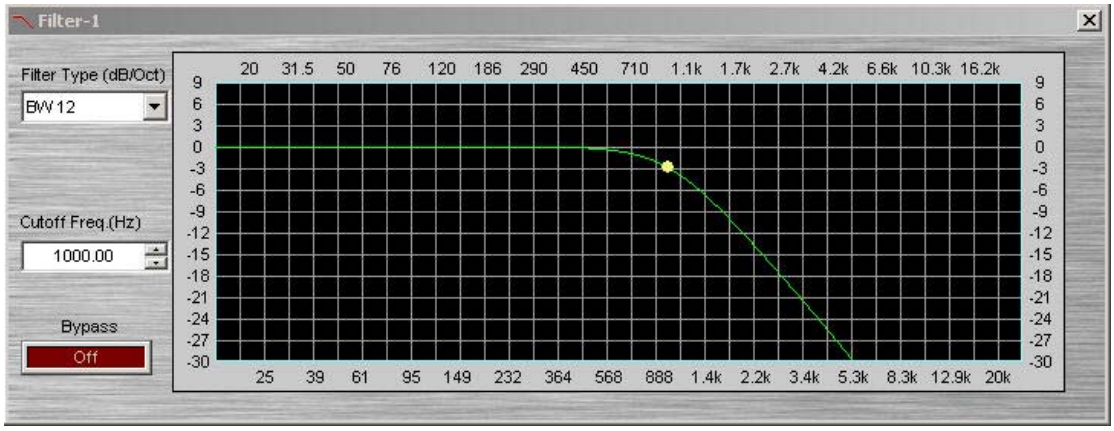
**GaindB:** adjusts the amount of cut or boost applied at the center frequency for the current band.

**Bandwidth:** adjusts the range of frequencies, above & below the center frequency, which are also affected by the current band. These settings may also be adjusted by dragging the band controls shown inside the graph. Dragging the white dot affects both Center Freq. & Gain. Dragging either yellow dot affects Bandwidth.

## *4.7 Filter*

These Component Objects provide High Pass, Low Pass, Highpass Shelving, & Lowpass Shelving filters. Filters may be connected between any components within the Layout, for applications which require 'roll-offs', simple tone controls, or even phase compensation.
Once a Component Object is placed into the Layout, all available settings can be accessed by double-clicking over the object. This produces a Control Dialog Box, which displays the component controls in a more conventional user interface.

Lowpass Control Dialog

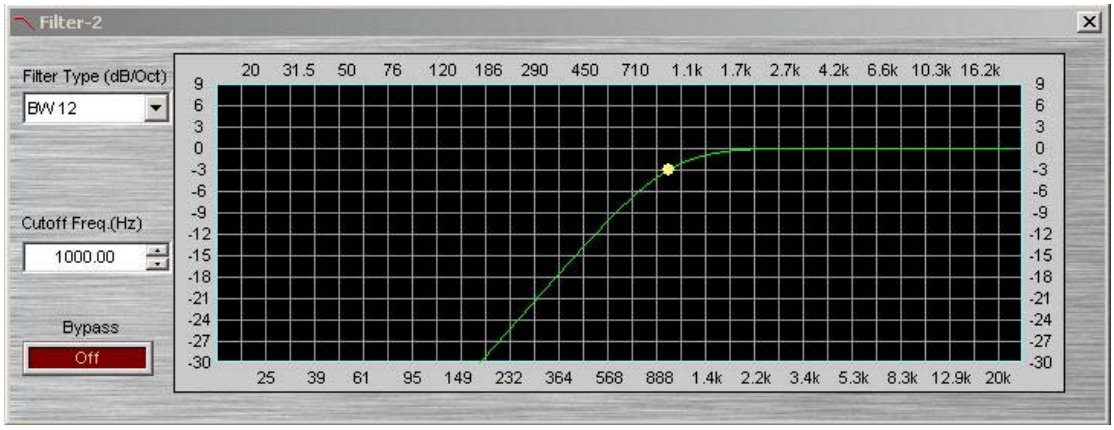



**Filter Type:** select the type or the slope of the filter.

**Cutoff Freq:** select the cutoff frequency for the filter. Cutoff Freq may also be adjusted by dragging the cursor shown inside the graph.

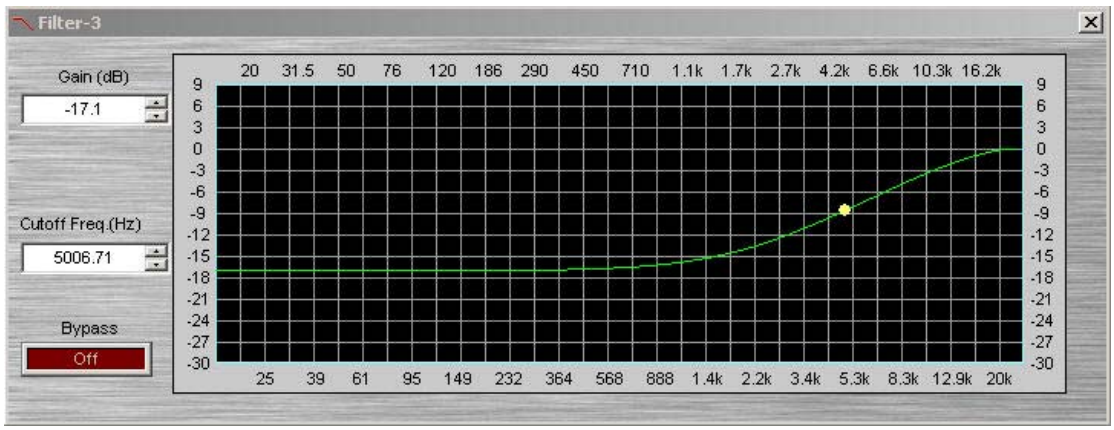
**Bypass:** disables the filter without changing settings.

Highpass Control Dialog




**Filter Type:** select the type or the slope of the filter.
**Cutoff Freq:** select the cutoff frequency for the filter. Cutoff Freq may also be adjusted by dragging the cursor shown inside the graph.
**Bypass:** disables the filter without changing settings.

Lowpass shelving Control Dialog

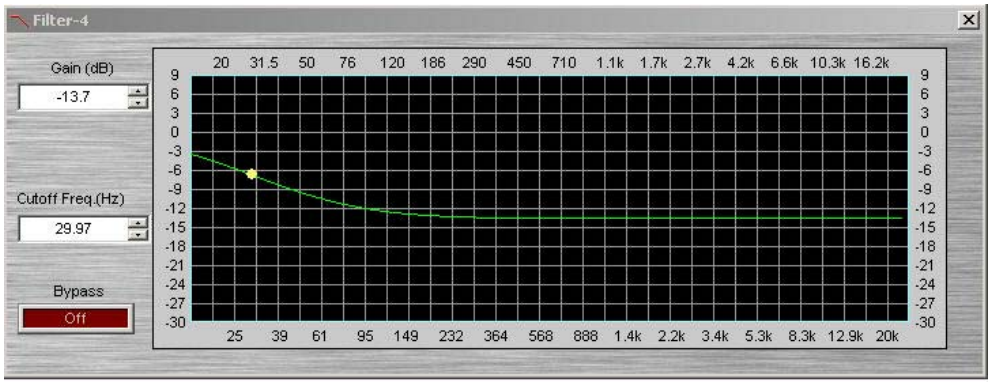



Gain: selects the amount of maximum cut or boost applied by the filter.

Cutoff Freq: selects the cutoff frequency for the filter. These settings may also be adjusted by dragging the cursor shown inside the graph.

Bypass: disables the filter without changing settings.

Highpass shelving Control Dialog




**Gain:** selects the amount of maximum cut or boost applied by the filter.

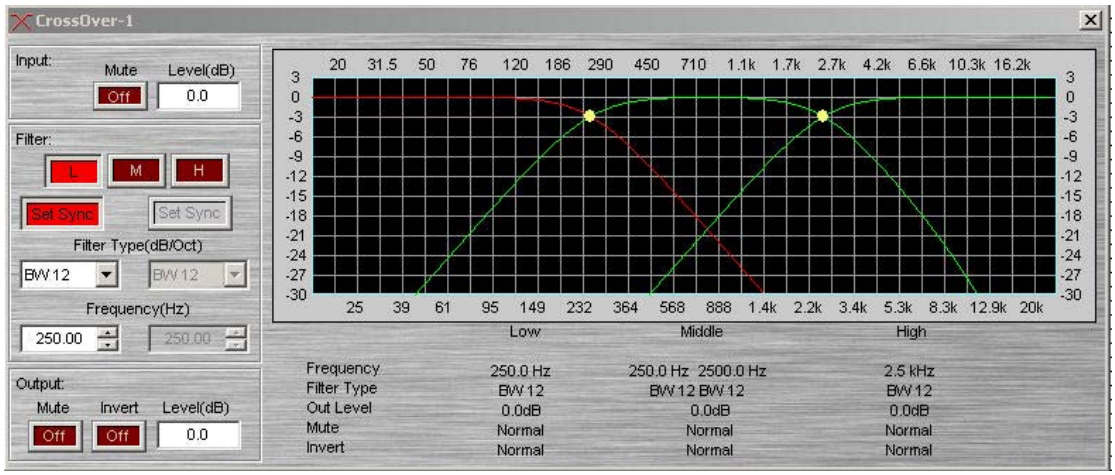
**Cutoff Freq:** selects the cutoff frequency for the filter. These settings may also be adjusted by dragging the cursor shown inside the graph.

**Bypass:** disables the filter without changing settings.

## *4.8 Crossover*

These Component Objects provide 2-way, 3-way, & 4-way crossover functions. Crossovers may be connected between any components within the Layout, for applications which require multiple outputs with specified frequency ranges.
Once a Component Object is placed into the Layout, all available settings can be accessed by double-clicking over the object. This produces a Control Dialog Box, which displays the component controls in a more conventional user interface.

3-way Crossover Control Dialog




**Input:** provides muting and level adjustment for the input.

**Filter:** selects the Low, Mid, or High frequency output.

**Frequency:** selects the filter cutoff frequencies for the selected output. Filter & Frequency may also be selected by dragging the cursors shown inside the graph.

**Filter Type:** selects the type (Linkwitz-Riley or Butterworth) and slope of filter used at the associated Frequency.

**Output:** provides muting, level adjustment, & polarity reversal for the selected output.

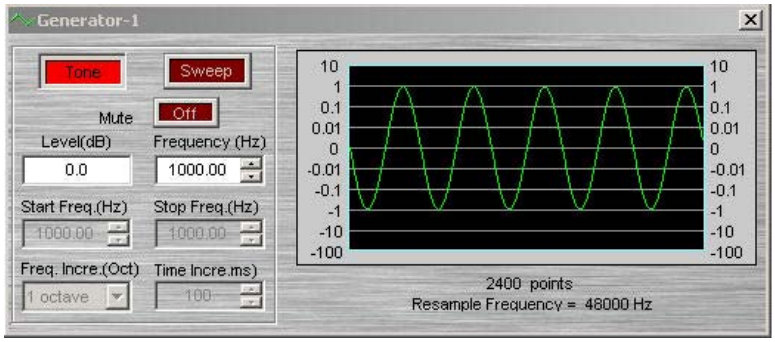
**Sync:** forces filter adjustments on adjacent outputs to be linked. Settings for each output are displayed across the bottom of the dialog box.

## *4.9 Generator*

These Component Objects provide sine-wave, sweep, pink-noise, and white-noise generator functions. Generators may be connected to any component input, and may be used for diagnostic and setup purposes, or for applications which require tones or sound-masking.

Once a Component Object is placed into the Layout, all available settings can be accessed by double-clicking over the object. This produces a Control Dialog Box, which displays the component controls in a more conventional user interface.

Sine Control Dialog




**Tone:** selects a single frequency.

**Sweep:** selects a range of frequencies (instead of single tone).

**Mute:** turns on/off the generator.

**Level:** determines the generator output level.

**Frequency:** determines the frequency for Tone.

**Start Freq & Stop Freq:** determine the range of frequencies for Sweep.

**Freq Incre.:** selects the spacing (and quantity) of individual tones for Sweep.

**Time Incre.:** determines the time each tone is held for Sweep.

White noise Control Dialog


**Mute:** turns on/off the generator.

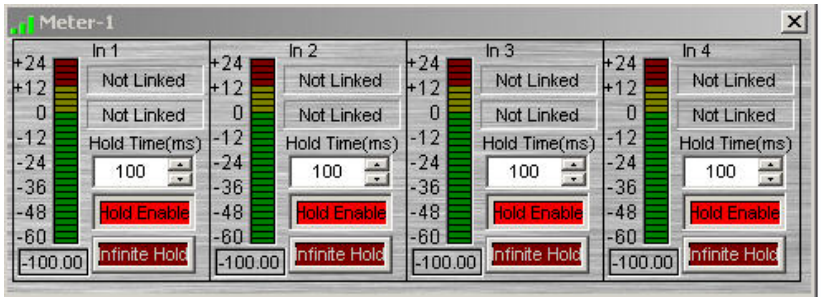
**Level:** determines generator output level.

## *4.10 Meter*

These Component Objects provide signal present, peak, and RMS metering functions. Meters may be connected to any component output, and may be used for diagnostic and setup purposes, or for applications which require real-time metering.

Once a Component Object is placed into the Layout, all available settings can be accessed by double-clicking over the object. This produces a Control Dialog Box, which displays the component controls in a more conventional user interface.

4 channel RMS Control Dialog




**Hold Time:** determines how long the meter will display the most recent level increase.

**Hold Enable:** turns the Hold Time function on/off.

**Indefinite Hold:** causes the Hold function to be continuous, updating the display only when levels increase beyond the current reading.

# 5. SYSTEM DESIGN

## *5.1 Placing component objects*

RS1200 design begins with the placement of Component Objects into the Layout. CobraNet devices are only existed in the ".rs" document and algorithms are only existed in the ".dsp" document. The ".rs" document can be created by click the "new" button and the ".dsp" document can be created by right click the CobarNet device to select the "dsp edit".

## *5.2 Connecting component objects*

Each DSP Component Object includes Nodes for making system wiring connections. Nodes are provided in two types, each with a specific location on the Component Object. Audio input Nodes are always on the left. Audio outputs Nodes are always on the right.
To make a connection, select a Node and drag/drop a Line Object (wire) to a corresponding Node.
An output Node can be connected to multiple input Nodes, but an input Node cannot be connected to multiple output Nodes.

## *5.3 System network considerations*

The computer must have a 10/100 BaseT network card (NIC) installed. A separate switched Ethernet network is strongly recommended for CobraNet, and is mandatory when using multicast bundles. Ethernet switches (not 'hubs') must be 10/100 BaseT compatible, with sufficient ports for connection to each CobraNet device (multiple switches may be used). If Ethernet switches are 'managed', be careful to assign all CobraNet connections to 100 BaseT. These connections also use 'straight-through' CAT5 cables.
Ethernet and CobraNet both have a cable length limitation of 100 meters, between the Ethernet switch and a CobraNet device. However, fiber-optic cable may be used to extend this distance limitation to 2 km. Fiber-optic cable can be used with switches that have fiber-optic ports, or media converters can be used to interface fiber-optic cable with standard RJ-45 ports.
Due to network delay, CobraNet has a limitation of seven (7) 'hops' (one-way transmissions) within a network.
The computer must be assigned an IP address (under Network Card Settings>Properties). Most computers set TCP/IP address automatically, but CobraNet devices require manual assignment. Initially, the computer IP addresses should be assigned as 192.168.1.X (where range of X = 1~254). Each CobraNet device must also be assigned a unique IP address.

# 6. GLOSSARY

■ **CobraNet**
Developed by Peak Audio, CobraNet technology allows real-time uncompressed digital audio distribution over industry standard 100Base-T Ethernet networks. Up to 128 channels, 64 in each direction, can be carried simultaneously over a switched 100Base-T network (64 channels on repeater networks). CobraNet currently supports a 48 kHz sampling rate with 16, 20, or 24-bit resolution. CobraNet devices can happily coexist with networked computers, printers, etc., on a switched 100Base-T Ethernet network, however, a dedicated network infrastructure is strongly recommended.

■ **CobraNet audio channel**
In CobraNetterminology, an audio channel is one 48 kHz digital audio signal with a 16, 20, or 24-bit resolution.

■ **CobraNet primary/secondary ports**
CobraNet interfaces feature built-in redundancy,with primary and secondary ports for connection to primary and secondary networks. If an unrecoverable fault should occur on the primary network,CobraNet automatically switches to the secondary network, providing uninterrupted operation.Both ports are transformer isolated and fully comply with the IEEE 802.3 standard.

■ **Conductor**
The device on a CobraNet network that acts as wordclock master and network arbitrator. Only one device can be Conductor at any one time. If that device is unplugged or fails, another device automatically takes over as Conductor. The conductor ensures that only one device transmits data in eachbundle at any one time. See also Performer.

■ **Ethernet**
The most widely implemented networkprotocol. The first implementation 10Base-T supports data transfer rates of 10 Mbps. The next implementation,100Base-T (or Fast Ethernet) supports 100 Mbps. The newest version, Gigabit Ethernet, supports transfer rates of 1,000 Mbps (i.e., 1 gigabit).

■ **Fast Ethernet**
Also known as 100Base-T, the Ethernet standard that supports data transfer rates of 100 Mbps. CobraNet runs on Fast Ethernet networks.

■ **LAN (Local Area Network)**
A network that exists in the same building or group of buildings. CobraNet is a LAN technology. See also WAN.

■ **RJ-45 connector**
The type of connector used to connect 10 Base-T, 100 Base-T, and 1000 Base-T Ethernet devices.

■ **RS-232**
A serial interface for connecting serial devices, offering a transmission distance of approximately 15 meters, typically using 9- pin or 25-pin D-sub connectors.

■ **Switch**
Switch know the network address of each device on the network and automatically route network traffic accordingly, so each device receives only data addressed to it.

■ **COBRANET device**
A device is designed according to COBRANET technology to receive and transmit audio data.

■ **Channel type**
A classification of input and output audio signals, depending on its type, it can be divided into analog or digital channel

■ **Signal Identity**
The identity of signals transmitted through audio channel, convenient for being identified by system.