

TR800

Product Manual

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TR800 Series

Nov. 2010

P/N:

Version: 1.3



Warning

Thank you for your purchasing TR800 series Audio Transmitter developed by our company. Human and high-tech essences are fused in our products. TR800 series will give you one brand-new application experiences.

Please follow the steps to protect your products, work area and personal safety, in order to avoid the potential danger of damage.

When you are using TR800 equipments:

Please follow the steps when you are using TR800 equipments,



Warning: Don't operate TR800 equipments when you demount the covers (including cover, front panel, and back panel and so on).

- Please make sure the voltage of the TR800 according to local AC voltage standard, in order to avoid to damage TR800 equipments.
 - There are 115V/60Hz in most of countries and districts in South America, North America and Far East, e.g. Japan, Korea and Taiwan.
 - There are 230V/50Hz in most of countries in Europe, Middle East and Far East.
- Please make sure the electrical outlet is unplugged before interior setup of TR800 equipments, in order to avoid to damage main board of TR800 equipments. Some main boards are electrified still when the equipment is plugged.
- Installation and servicing should be performed by qualified and experienced personnel.

- Don't use TR800 equipments in thunderstorm, in order to avoid the potential risk of electrical shock.
- Don't connect or disconnect any cable and don't repair or reconfigure the product in thunderstorm, in order to avoid the potential risk of electrical shock.
- Please make sure the connection of TR800 equipments and electrical outlet is severed before cleaning.
- Make sure that TR800 equipment's power is off when you clean it. Clean your TR800 equipment exterior casing regularly with a soft and dry cloth or a fluff brush. Do not use liquid or aerosol cleaners which maybe include caustic or flammable substance.
- Wait for a period about ten seconds before severing the connection of peripheral equipment and TR800 equipment, in order to avoid damage to the system board.
- Pull out the cable from the network adapter which is on the back of TR800 equipment first and then pull out the cable from the network hole, in order to avoid short circuit when you sever the connection. Plug the cable into network hole first and then plug the cable into network adapter when you reconnect the products.
- Please use surge protective device, circuitry adjuster and UPS, in order to avoid instantaneous high or low voltage damage to TR800 equipment.
- Make sure there are no goods exert pressure on cables. Do not make cables exposure, which will cause trample and stumble.
- Never push objects of any kind through openings of TR800 equipment as that may cause interior short circuit and result in fire, electric shock, or

other hazards.

- Do not use TR800 equipment near a source of heat and don't jam the refrigeration vent. Don't make paper underlie TR800 equipment. Use TR800 equipment in ventilated area and don't locate TR800 equipment on bed, sofa or carpet.
- Never spill food or liquid of any kind on the TR800 equipment.
- Do not use the TR800 near water or other liquids, or in rainy/moist situations. If liquid gets into your TR800, turn it off and take it to your dealer for inspection.
- Water and/or Moisture Do not use this equipment near water or in contact with water.

Technical instructions



Warning: Perhaps there are some mistakes of description and printing in technical instructions

- With the rapid technical development, our products keep on improving and renewing, so there are may some demoded or useless specifications about some standards in this manual.
- We are very conscientious for reorganizing this manual, but we do not guarantee there is no negligence or mistake in this manual, and we can't exclude the possibility that this manual will be renewed again. If there are any revises, we will not give notice any more.
- If there is any revises in this manual, it will be promulgated in Digispider Website:<http://www.digispider.net>

Do not tear up any label



Warning: Please do not voluntarily tear up any label on TR800 equipment; otherwise it will affect to recognize the standard of product maintenance deadline.

- All labels on TR800 equipment show information when the products are manufactured and sold, these labels are very important for technology recognition and maintenance of products.
- All labels on TR800 equipment are belonged to recognized standard of product maintenance deadline. If you voluntarily tear up them, it will affect to recognize the standard of product maintenance deadline.

Looking for help



Warning: Do not attempt to repair this equipment yourself, or it will damage your equipment and result in serious results, e.g. personal injury.

- All TR800 products are manufactured by DigiSpider Inc., All maintenance should be performed only by authorized Units.
- Do not attempt to repair this equipment yourself. Refer all repairs to qualified service personnel.
- If there is any question, please contact the dealer you purchased TR800 equipments from, you also can call Digispider customer service, ask for help.



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ABOUT THIS GUIDE

This manual will help you to be acquainted with the products and functions of TR800 series Audio Transmitter, by presenting the methods of installation, configuration, operations and maintenance. If you encounter any problem, or it is the first time for you to use Digispider's TR800 Series, please read this manual first for relevant information and technical supports. As for its upgrades and updates, some descriptions and illustrations in the manual may be different with your hardware. Please visit <http://www.digispider.net> from time to time for the latest documentation.

HOW TO USE THIS MANUAL

Read it in any order you like.

You may begin with any page and skip to the desired one. It will surely provide you with a complete flowchart if you read it from the beginning to the end.

There are Table of Content and Index in the manual, providing different research methods for various reading habits.

If you encounter any unknown words or expressions, please refer to the attached "Glossary".

For the person who use the system for the first times:

We recommend you read all the content of the manual, especially the information with words of "Note, Caution and Warning". You are required to operate strictly according to the prospectuses in the manual.

During the installation of hardware, frequently read the "Safety Guidelines" section of the manual.

For ordinary users

As for system administrator and operator, they may read the necessary information at their own choice. Please refer to the "General description" section of the manual for specific description. If the manual can't solve the problem, please contact the technical support personnel and trained & qualified engineers for the solution.

For experienced and qualified engineers:

For the reason that our products keep on upgrading and updating, please make attention to the update information of the manual. The specific update information is easily accessible at the all time on our service and support website, which will be incorporated into the last version of manual.

GENERAL DESCRIPTION

Part 1: "TR800 SYNOPSIS" contains the main features, hardware configuration and specifications of TR800 series Audio Transmitter.

Part 2: "APPLICATION" contains the applicable Ethernet mode and operation steps for installing TR800 series Audio Transmitter

Part 3: "Technical Specifications" contains the specifications for various interfaces and their dimension.

Part 4: "Glossary" contains the explanation of some terms used in the manual.

ANNOUNCEMENT AND PROVISIONS

The manual prepared by Digispider Inc. does not provide any form of guarantee, clear or implied, including but not limited to, implied guarantees or a special-purpose commercial reasonableness. In some areas of specific transactions is a clear or implied guarantees, therefore, this statement may not apply to you.

The manual may contain technical inaccuracies or typographical errors terminology. Identify changes and updating information regularly updated content will be updated to version. Digispider Inc may make improvement or updates for the

products and procedures described in this document, at any time as it sees fit.
The manual applies to TR800 Audio Transmitter configured with different channels.

For more technical information, please consult your Digispider Inc sales representative and retailers.

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The power of interpretation of the manual shall be vested in Digispider Inc.

CHAPTER 1 TR800 SYNOPSIS

The TR800 can transmit or receive digital audio signals in real time on a Cobranet Ethernet computer network .The audible delay is less then 5-millisecond .The TR800 can carry and utilize control and monitor data such as Simple Network Management Protocol(SNMP) through the same network connection as the audio.For farther information on CobraNet technology ,please refer to website www.cobranet.info.

The TR800 can be used in Ethernet mode . In Ethernet mode, some TR800 are interconnected by Ethernet switches. The maximum cable length is 100 meters for CAT-5 type wire.

1. THE TR800 FEATURES

- Realize audio transmission in real time on CobraNet Ethernet network
- Configuration flexible
- 2 channels analog balanced input
- 2 channels analog balanced output
- All TR800 setup parameters can be stored in flash memory
- Software updatable via RS232 port
- Easy installation

2. FRONT PANEL

The front panel's map is as figure 1

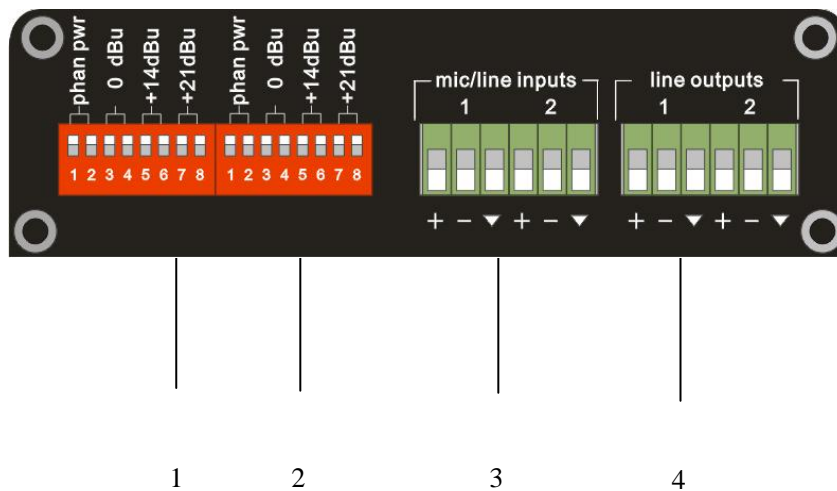


Fig.1 Front Panel

(1) —Input ch1 configure

- 1,2- Phantom power selection. The phantom power(10V-48V) will be on when the 1,2 is turned to on .
- 3,4-Maximum input level selection. The maximum input level will be set to 0dBu when the 3,4 is turned to on.
- 5,6- Maximum input level selection. The maximum input level will be set to 14dBu when the 5,6 is turned to on.
- 7,8- Maximum input level selection. The maximum input level will be set to 21dBu when the 7,8 is turned to on.

(2) —Input ch2 configure

- 1,2- Phantom power selection. The phantom power(10V-48V) will be on when the 1,2 is turned to on .
- 3,4-Maximum input level selection. The maximum input level will be set to 0dBu when the 3,4 is turned to on.
- 5,6- Maximum input level selection. The maximum input level will be set to 14dBu when the 5,6 is turned to on.

7,8- Maximum input level selection. The maximum input level will be set to 21dBu when the 7,8 is turned to on.

(3) —Audio input port

Two channel mic/line input.

(4) —Audio output port

Two channel line output.

3. REAR PANEL

The rear panel's map is as figure 2

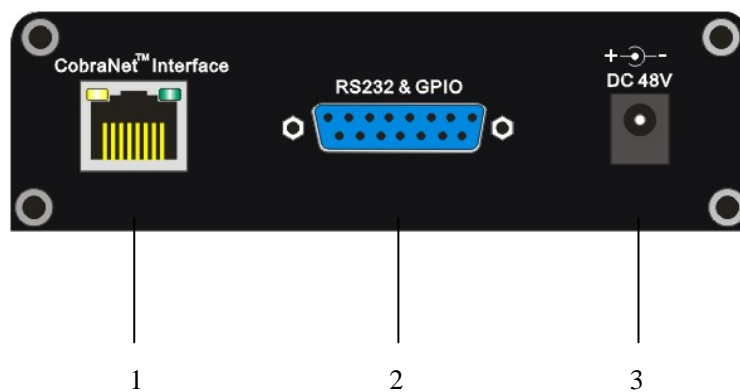


Fig.2 Rear Panel

(1) —CobraNet Interface

These RJ-45 ports are used to connect the TR800 to the CobraNet networks.

Straight 100Base-TX CAT5 Ethernet cables should be used to connect the TR800 to a CobraNet network.

Support the PoE power supply.

(2)—RS232 & GPIO port

1,9 —GPI1

2,10—GPI2

5,13—GPO1

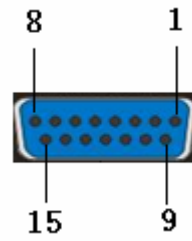
4,11—GPO2

7 —TXD

14—RXD

3,6,12—GND

8,15—NC

**(3)—Power port**

DC +48V

CHAPTER 2 APPLICATION

1. HARDWARE OPERATION

First step:

Connect all TR800 devices through switches with the CAT-5 cable.

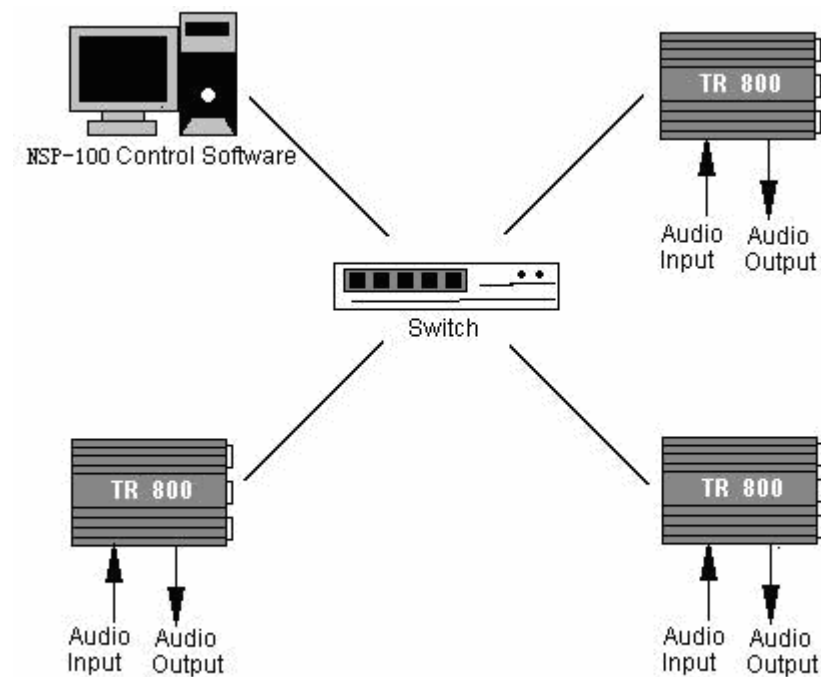


Fig.3 TR800 system

Second step:

Connect audios signal to TR800'S input /output port.

Third step:

Open the power switch.

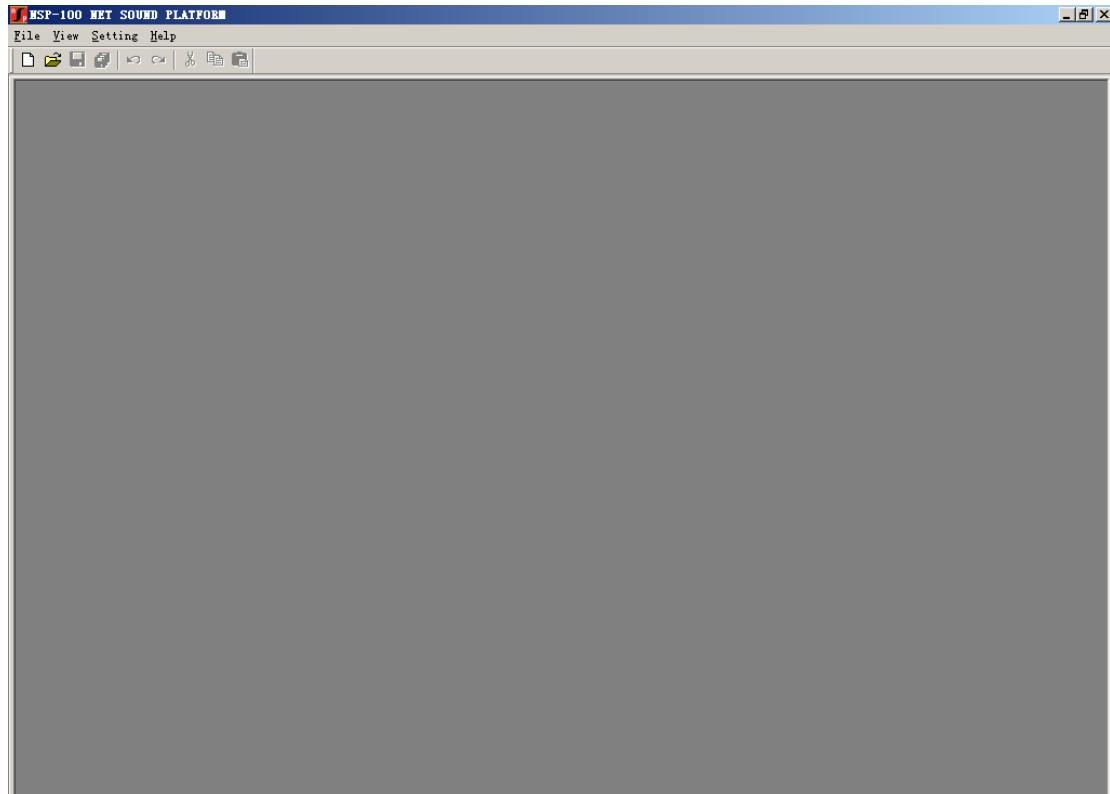
Fourth step:

Use the NSP-100 to configure the audio route parameters and mic gain. (Please refer to software NSP-100 software manual)

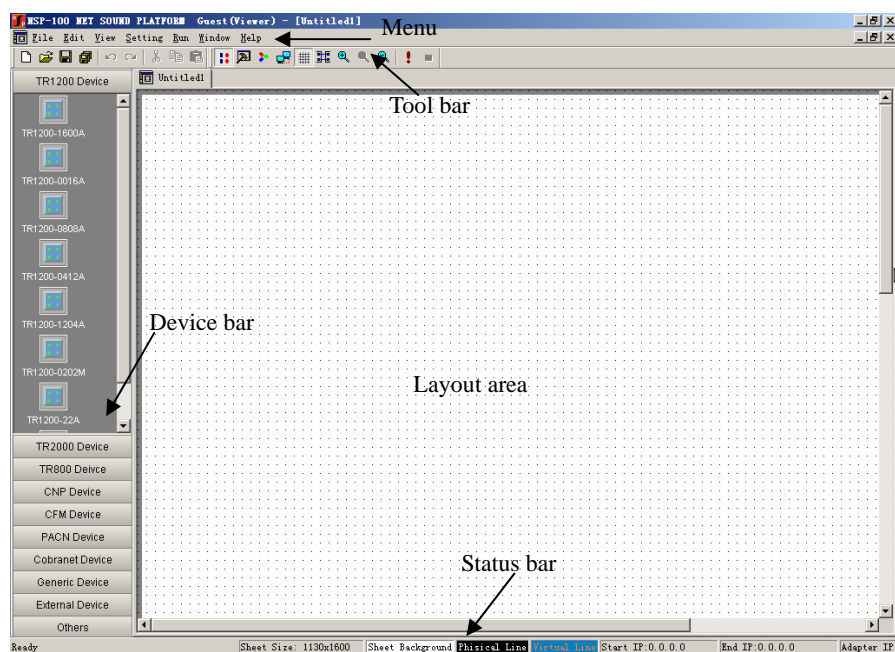
2. SOFTWARE OPERATION

Step 1 Open the NSP-100 software

Click the "File" -> "new" to create a new project.

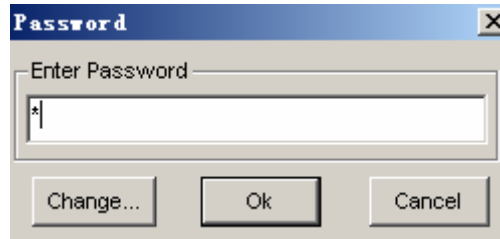


The window of NSP-100 after created a new project.



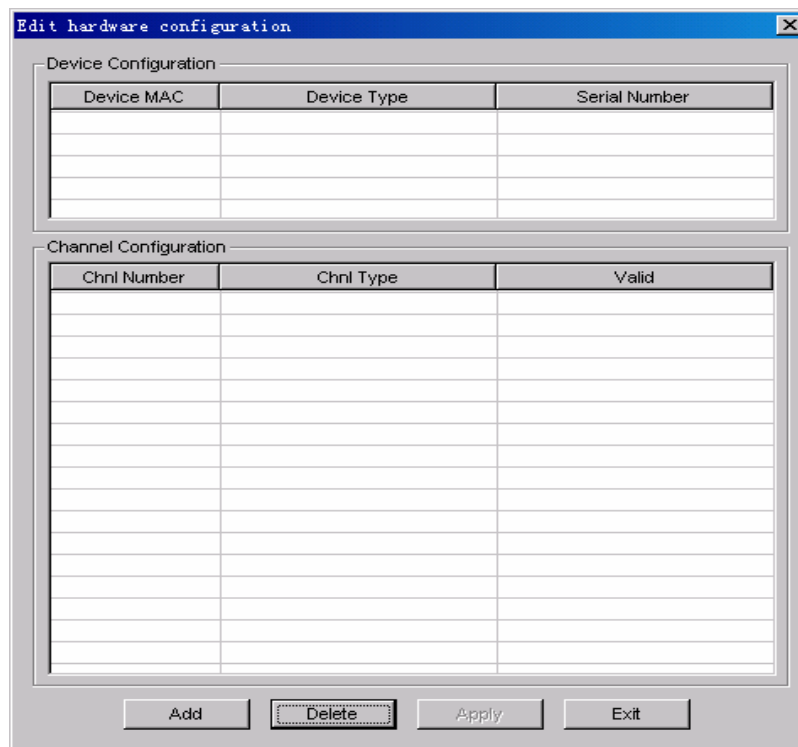
Step 2 Add the TR800 and other CobraNet device to the NSP-100 device library

Click the "Settings->Device Setting"

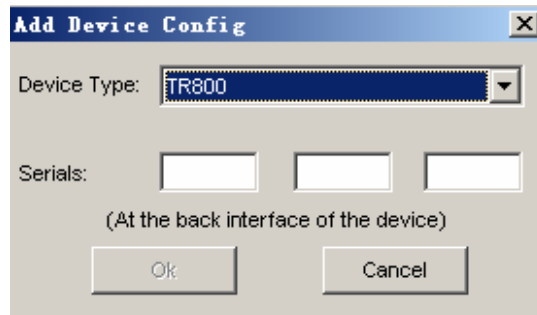


Access to the hardware configuration requires password authentication. The initial password is "1". Please keep the new password safely if you changed the password.

Enter the NSP-100 device library.



Click "Add" to add the TR800 device.



Select the correct device type and enter the serial number of TR800 device (the serial number is labeled on the real panel of the TR800 device). Click "OK" after the configuration have been done.

Serial number description: the serial number is composed by three segments.

Segment 1: include six characters, it is the last six characters of the MAC address, the prefix-six characters of the MAC address are fixed "00602b".

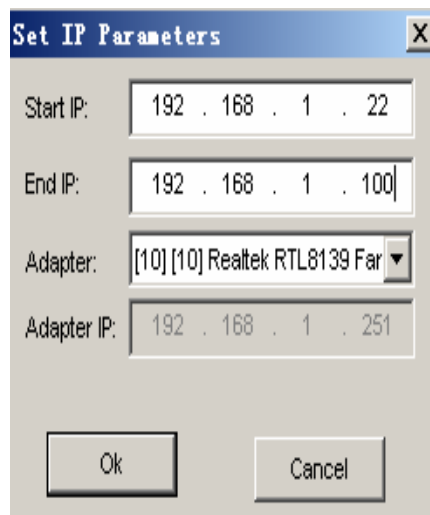
Segment 2: include four characters, it mean the TX1 bundle number (must be Hex. For example TX bundle1= (500) Dec. = (01F4) Hex.) of the CobraNet device. Note: TX2=TX1+1

Segment 3: include eight characters, manufacture information.

Add the other cobranet devices as the same way.

Step 3 Set the network adapter and IP address

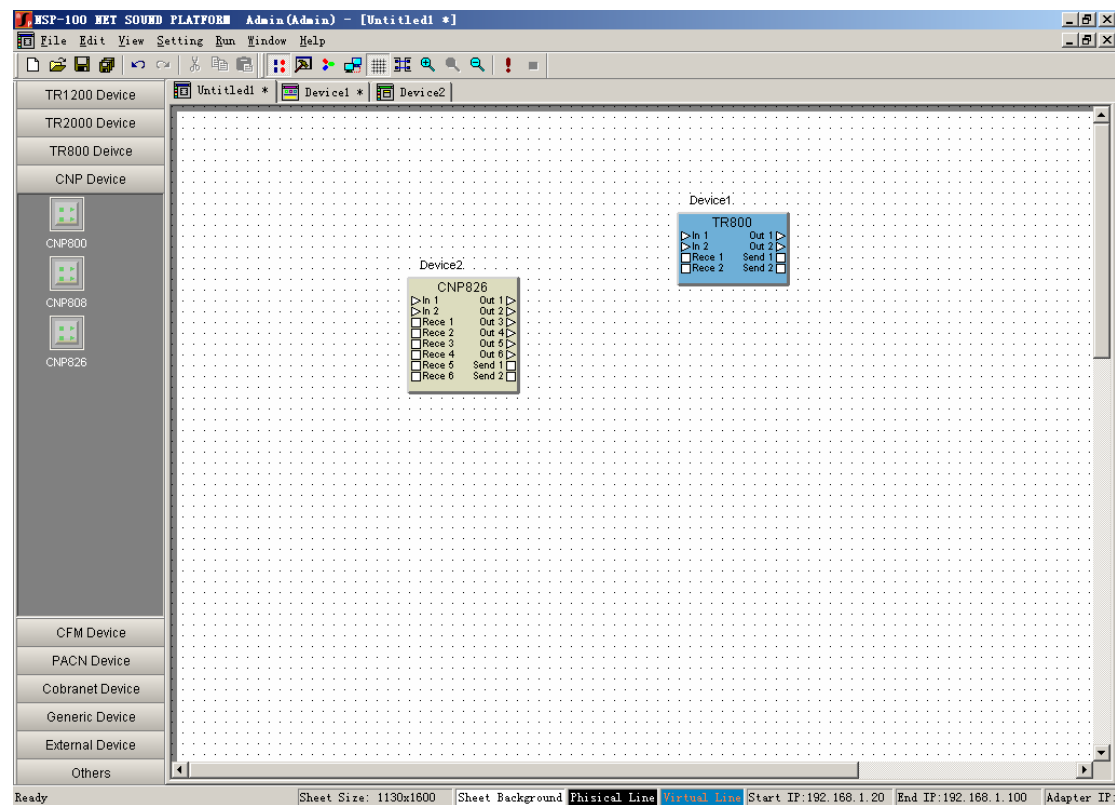
Click the "Settings->IP Config" to set the network adapter and the IP address.



Make sure the beginning IP and the end IP are configured within the same IP range, of which the first 3 segments of IP address are identical to that of the adapter, otherwise the NSP-100 will not compile correctly.

Step 4 Add the TR800 and other CobraNet device to the NSP-100 project design

You can select the TR800 and other device from the device bar on the left side and drag it into the design window. Only one device can be added by one time.



Step 5 Configure the serial number of TR800 and other device

Right click the device, click the property. Then select the right MAC for Cobranet device, click "OK"

Device Info.

Name: Device1 Type: TR-800

MAC: 00602b865545 IP: 0.0.0.0

Input Num: 2 Output Num: 2

| Channel Name | Channel Sequen... | Channel Property |
|--------------|-------------------|------------------|
| In 1 | 1 | In |
| In 2 | 2 | In |
| Send 1 | 1 | Out |
| Send 2 | 2 | Out |
| | | |
| | | |

Note: To change channel name when clicked list subitem

Color Setting

Fore Color: Back Color:

Title Text: Other Text:

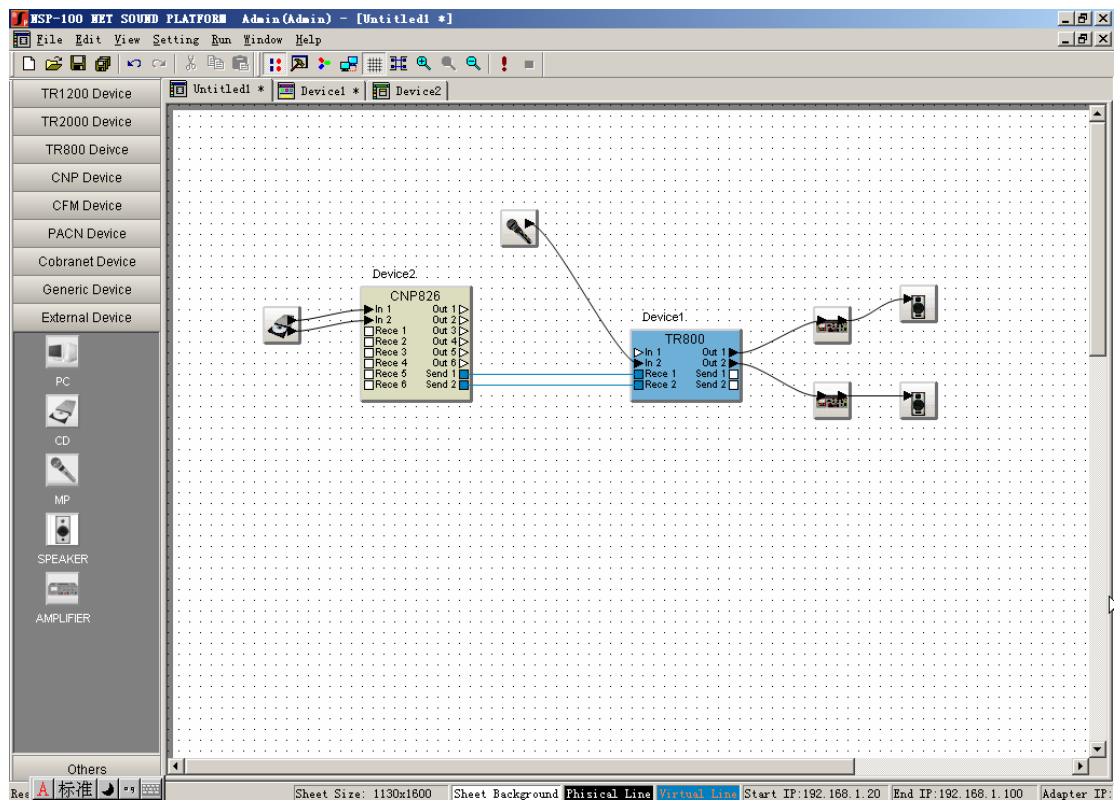
Save As Def.

Attentions: the Color setting will be applied to all this type devices when add device.

Ok Cancel


Step 6 Establish the virtual connection

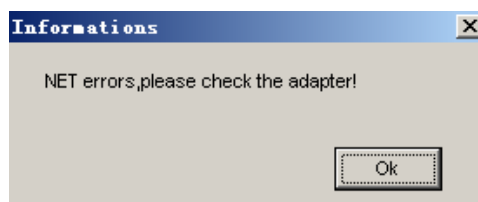
The CobraNet devices have 2 different types of ports: triangle means the physical ports (other non-CobraNet devices belong to this type) and square means the network ports. Only between the same type of the ports could establish the connection. The user could connect the network ports for the virtual connection.



Virtual connection establishment

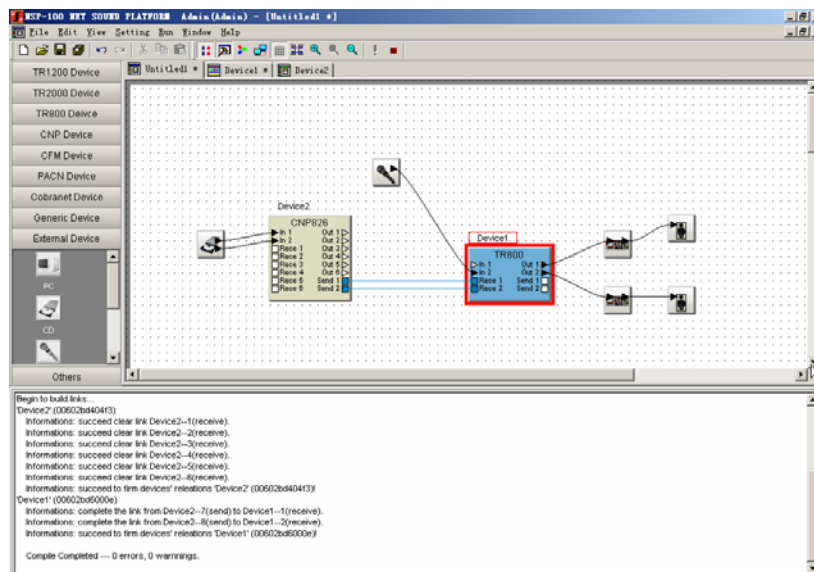
Step 7 Compile

After virtual connection established, user can click the  button on the toolbar to download the existing active routing to the corresponding CobraNet device. The NSP-100 is base on the network adapter to compile the CobraNet device. If the network adapter setting is wrong, the software will pop up a window as follow.

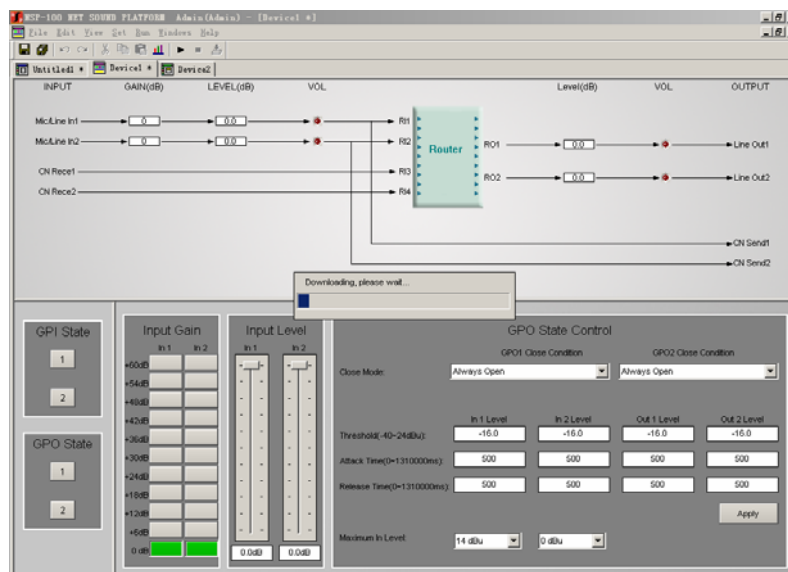


Click "OK" button to check and set the right network adapter again.

After the all configure is done. The NSP-100 could be compiled successfully.




Route download

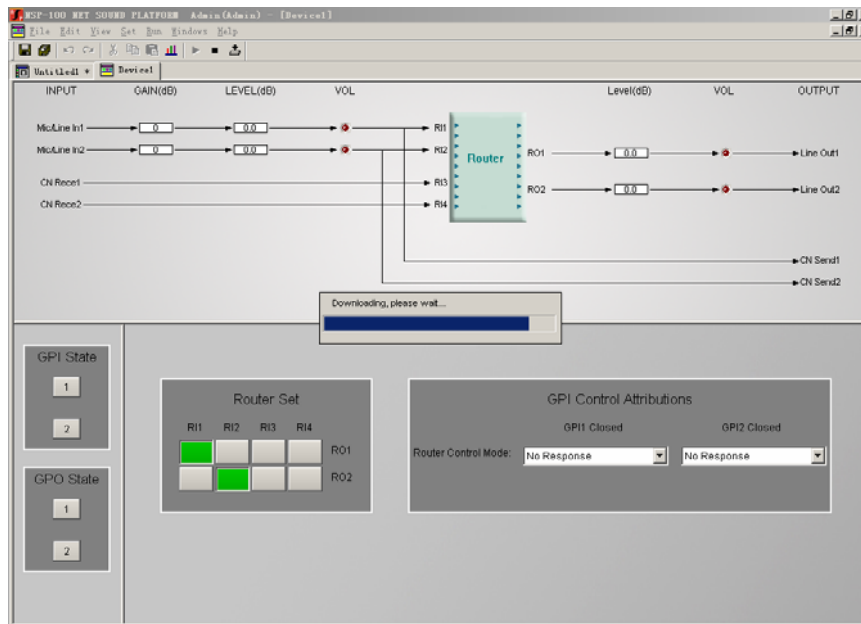


TR800 DSP parameters download

Step8 Set the DSP parameter of the devices

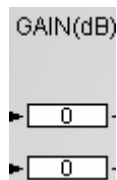
After the compile operation has been done, the devices are in the "DSP running" status. The user can adjust the parameters of the cobranet devices and debug online. The user must to stop the "DSP running" by pressing  if want to add/remove the DSP modules or devices or connections.

Step9 Set the DSP parameter of the TR800

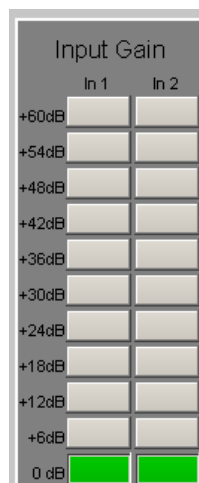


The TR800 have two channels mic/line input, two channels CobraNet signal input, two channels line output and two channels CobraNet signal output.

- **Mic gain adjustment**

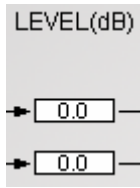


Click the button to pop up the setting tab shows here:

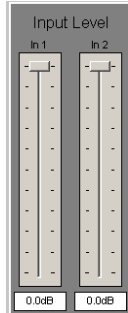


The input mic gain could be adjusted from 0dB to +60dB.

- **Input level adjustment**



Click the button to pop up the setting tab shows as below:

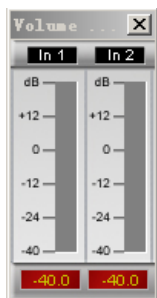


The input level could be adjusted from 0dB to -60dB.

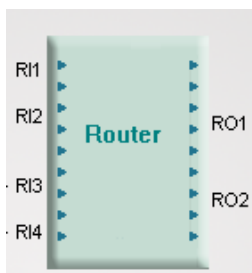
- **Input meter display**



Click the button to pop up the input volume meter shows as below:

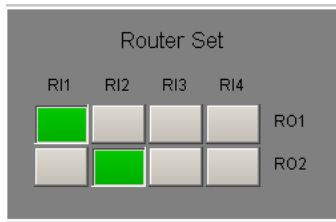


- **4x2 Router**

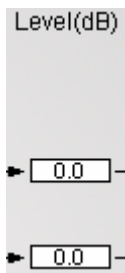


The figure above is a 4x2 router. 2 input channels of mic/line input (RI1&RI2), 2 input channels of CobraNet signal input (RI3&RI4).

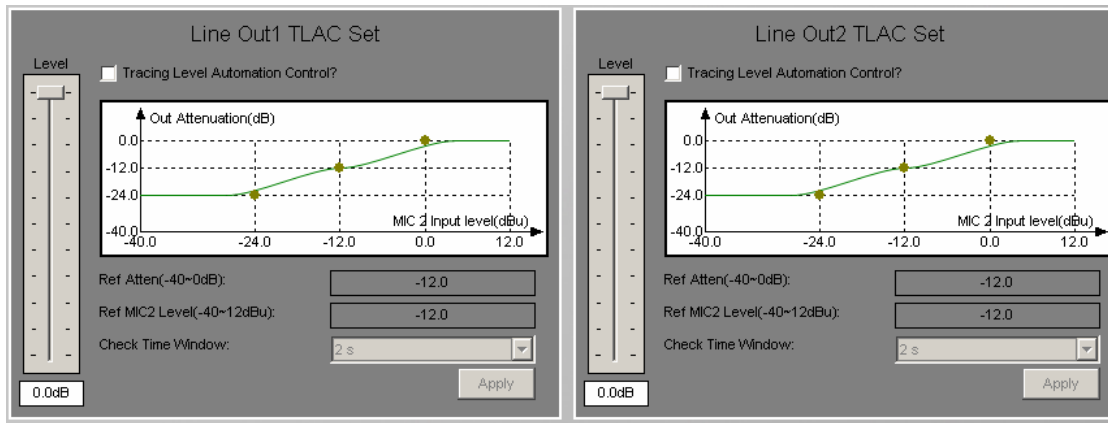
Click the button to pop up the input volume meter shows as below:



● **Output level adjustment**



Click the button to pop up the setting tab shows as below:



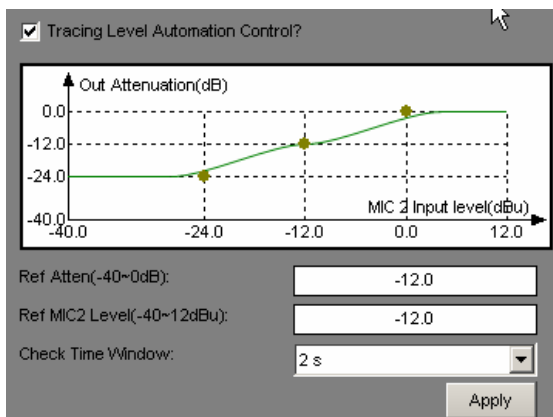
There are two modes for the output level adjustment: Manual adjustment and Tracing Level Automation Control.

Manual adjustment:



The output level can be adjusted from 0dB to -60 dB.

Tracing Level Automation Control



The manual level adjustment will be invalid when the “tracing level automation control” is selected.

Just like the figure shows above. The output level adjust value is according to the mic 2 input level. The “out attenuation to mic 2 input level” diagram can be adjusted with the three point.

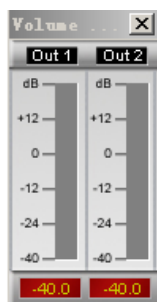


Check time window: The output levels adjust speed can be changed by select this value. The speed of output level adjustment is inversely with the check time.

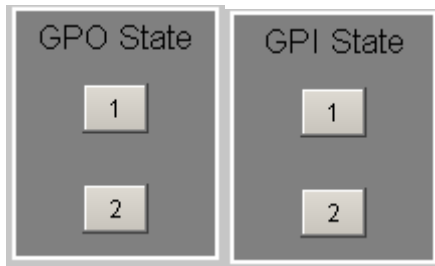
- **Output meter display**



Click the button to pop up the output volume meter as below:



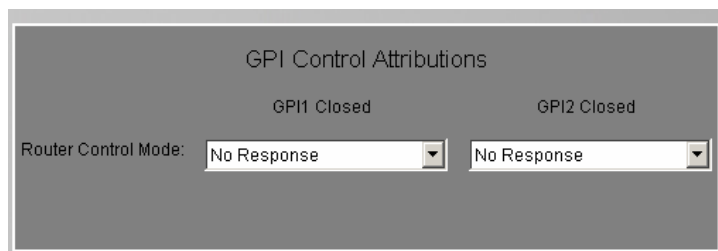
- **GPI and GPO state**



The status button will light on when the output relay or input relay is closed.

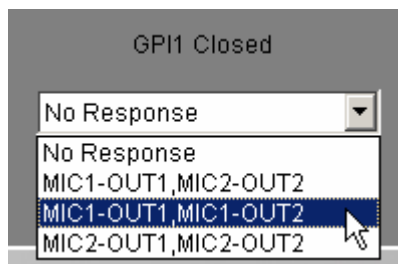
- **GPI function application**

Click the router will turn to the GPI setting interface.



The user could control the router set by using the GPI port

When the GPI port closed, the TR800 change the route set as follow



TR800 DB15 port defined.

1,9—GPI1 2,10—GPI2

5,13—GPO1 4,11—GPO2

- **GPO function application**

Click the input level will turn to the GPO setting interface

GPO State Control

GPO1 Close Condition GPO2 Close Condition

Close Mode: Always Open Always Open

| | In 1 Level | In 2 Level | Out 1 Level | Out 2 Level |
|----------------------------|------------|------------|-------------|-------------|
| Threshold(-40~24dBu): | -16.0 | -16.0 | -16.0 | -16.0 |
| Attack Time(0~1310000ms): | 500 | 500 | 500 | 500 |
| Release Time(0~1310000ms): | 500 | 500 | 500 | 500 |

Serial Bridge Enable: No Brother's MAC: 00602b

Always Open

Always Open

Always Close

Close when In 1 level above threshold

Close when In 2 level above threshold

Close when Out 1 level above threshold

Close when Out 2 level above threshold

Follow Brother's GPI1

Follow Brother's GPI2

If choose the mode of **“Close when in/out 1/2 level above the threshold”**, the GPO output relay's status -open or close, is controlled by the input/output level. When the input/output level is above the threshold level setting and the lasting time exceed the attack time, the GPO will close. When the input/output level is below the threshold level and the lasting time exceed the release time, the GPO will open.

And if choose the mode of **“Follow Brother's GPI 1/2”**, the open or close of the GPO output relay is controlled by the GPI status of the TR800 Brother Device which are connecting together. When uses this mode, please click “Serial Bridge Enable” button to enable it and fill the “Brother's MAC” address. Then click the “Apply”.

- **Maximum input level**

Maximum In Level: 0 dBu 0 dBu


0 dBu

14 dBu

21 dBu

The maximum input level must be consisted with the TR800 hardware maximum input level otherwise the volume meter will be wrong.

Step10 Solidify the DSP parameter of the TR800

After all the DSP parameters have been set and if you want the TR800 keep working as the last status after power off or restart, please solidify the parameters and mode setting to the TR800 device. Click the button  to solidify. It will pop-up the message after solidify successfully.

CHAPTER 3 TECHNICAL SPECIFICATIONS

1. ANALOG AUDIO INPUT SPECIFICATION

- analog input converted to 24-bit ,48khz digital audio
- frequency response +/-0.5dB, 20Hz~20kHz
- THD plus noise : <0.05% @1KHz, maximum level
- Maximum input level: 0dBu,14dBu,21dBu, balanced differential
- Input impedance: >1.4 kOhms

2. ANALOG AUDIO OUT PUT SPECIFICATION

- 24-bit ,48khz digital audio converted to analog output
- frequency response +/-0.5dB, 20Hz~20kHz
- THD plus noise : <0.05% @1KHz, maximum level
- Maximum output level: >0dBu,balanced differential
- Output impedance: 100 Ohms

3. OTHER SPECIFICATION

- Power supply: DC+10V to 48V / PoE
- Power consumption: less than 20W
- Device dimension(L×W×H): 156×148×36 (unit: mm)
- Surrounding temperature : +5-40°C
- Surrounding humidity: 5-85%

CHAPTER 4 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 CobraNet terminology, 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 each bundle at any one time. See also Performer.

Ethernet

The most widely implemented network protocol. 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.

Router

Indicating the path along which audio signals should be forwarded.