itc
IP NETWORK PA SYSTEM

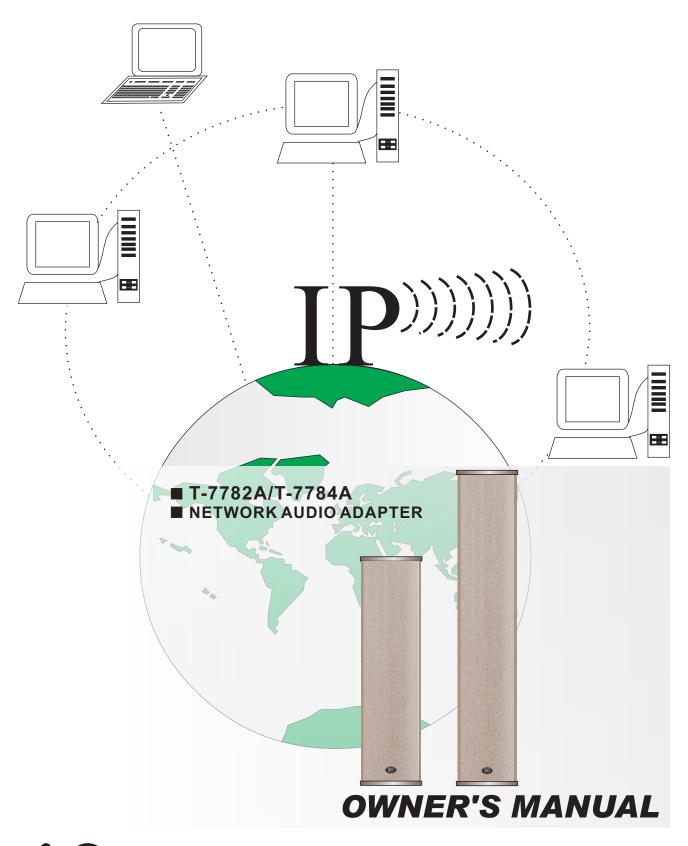## IP

- **T-7782A/T-7784A**
- **NETWORK AUDIO ADAPTER**

OWNER'S MANUAL

itc Please follow the instructions in this manual to obtain the optimum results from this unit.
We also recommend that you keep this manual handy for future reference.

● TABLE OF CONTENTS ●

1. SAFETY PRECAUTIONS

• Be sure to read the instructions in this section carefully before use.
• Make sure to observe the instructions in this manual as the conventions of safety symbols and messages regarded as very important precautions are included.
• We also recommend you keep this instruction manual handy for future reference.

Safety Symbol and Message Conventions

Safety symbols and messages described below are used in this manual to prevent bodily injury and property damage which could result from mishandling. Before operating your product, read this manual first and understand the safety symbols and messages so you are thoroughly aware of the potential safety

⚠ **WARNING** Indicates a potentially hazardous situation which, if mishandled, could result in death or serious personal injury.

⚠ **CAUTION** Indicates a potentially hazardous situation which, if mishandled, could result in moderate or minor personal injury, and/or property damage.

⚠ WARNING

When Installing the Unit

• Do not expose the unit to rain or an environment where it may be splashed by water or other liquids, as doing so may result in fire or electric shock.

• Use the unit only with the voltage specified on the unit. Using a voltage higher than that which is specified may result in fire or electric shock.

• Do not cut, kink, otherwise damage nor modify the power supply cord. In addition, avoid using the power cord in close proximity to heaters, and never place heavy objects -- including the unit itself -- on the power cord, as doing so may result in fire or electric shock.

• Be sure to replace the unit's terminal cover after connection completion. Because high voltage is applied to the speaker terminals, never touch these terminals to avoid electric shock.

• Be sure to ground to the safety ground (earth) terminal to avoid electric shock. Never ground to a gas pipe as a catastrophic disaster may result.

• Avoid installing or mounting the unit in unstable locations, such as on a rickety table or a slanted surface. Doing so may result in the unit falling down, causing personal injury and/or property damage.

When the Unit is in Use

• Should the following irregularity be found during use, immediately switch off the power, disconnect the power supply plug from the AC outlet and contact your nearest ITC dealer. Make no further attempt to operate the unit in this condition as this may cause fire or electric shock.
  · If you detect smoke or a strange smell coming from the unit.
  · If water or any metallic object gets into the unit
  · If the unit falls, or the unit case breaks
  · If the power supply cord is damaged (exposure of the core, disconnection, etc.)
  · If it is malfunctioning (no tone sounds.)

• To prevent a fire or electric shock, never open nor remove the unit case as there are high voltage components inside the unit. Refer all servicing to your nearest ITC dealer.

• Do not place cups, bowls, or other containers of liquid or metallic objects on top of the unit. If they accidentally spill into the unit, this may cause a fire or electric shock.

• Do not insert nor drop metallic objects or flammable materials in the ventilation slots of the unit's cover, as this may result in fire or electric shock.

⚠ CAUTION

When Installing the Unit

- Never plug in nor remove the power supply plug with wet hands, as doing so may cause electric shock.

- When unplugging the power supply cord, be sure to grasp the power supply plug; never pull on the cord itself. Operating the unit with a damaged power supply cord may cause a fire or electric shock.

- When moving the unit, be sure to remove its power supply cord from the wall outlet. Moving the unit with the power cord connected to the outlet may cause damage to the power cord, resulting in fire or electric shock. When removing the power cord, be sure to hold its plug to pull.

- Do not block the ventilation slots in the unit's cover. Doing so may cause heat to build up inside the unit and result in fire.

- Avoid installing the unit in humid or dusty locations, in locations exposed to the direct sunlight, near the heaters, or in locations generating sooty smoke or steam as doing otherwise may result in fire or electric shock.

When the Unit is in Use

- Do not place heavy objects on the unit as this may cause it to fall or break which may result in personal injury and/or property damage. In addition, the object itself may fall off and cause injury and/or damage.

- Make sure that the volume control is set to minimum position before power is switched on. Loud noise produced at high volume when power is switched on can impair hearing.

- Do not operate the unit for an extended period of time with the sound distorting. This is an indication of a malfunction, which in turn can cause heat to generate and result in a fire.

- Contact your ITC dealer as to the cleaning. If dust is allowed to accumulate in the unit over a long period of time, a fire or damage to the unit may result.

- If dust accumulates on the power supply plug or in the wall AC outlet, a fire may result. Clean it periodically. In addition, insert the plug in the wall outlet securely.

- Switch off the power, and unplug the power supply plug from the AC outlet for safety purposes when cleaning or leaving the unit unused for 10 days or more. Doing otherwise may cause a fire or electric shock.

An all-pole mains switch with a contact separation of at least 3 mm in each pole shall be incorporated in the electrical installation of the building.
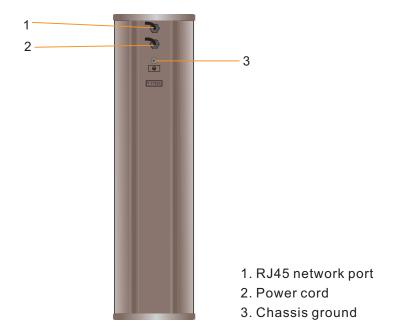
2. GENERAL DESCRIPTION

Digital network decoding module and sound column integrated design, aluminum alloy waterproof rust-proof shell structure; installed in the outdoor broadcast management area of the column, for halls, walkways, outdoor plazas and other regional broadcast and local broadcast
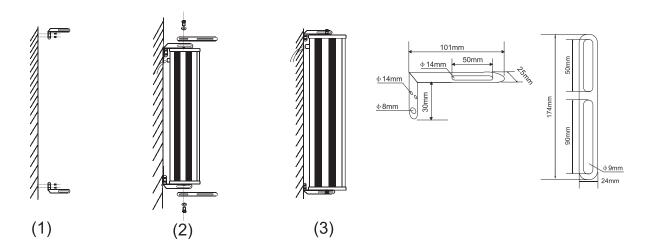
3. FEATURES

1.Professional integrated structural design, good box sealing performance, rapid conduction of all copper nickel plated grounding columns. Meet the use and safety requirements of outdoor harsh environments, and meet the IP54 protection class certification requirements.

2. The device adopts embedded computer technology and DSP audio processing technology design, and is supported by reliable and stable high-speed industrial-grade chip hardware. Start time is less than 1s.

3. Wide operating temperature range of -20 degrees Celsius to 60 degrees Celsius, suitable for working in a variety of disadvantaged environments;

4. Built-in high-efficiency digital amplifier, drive built-in 15W, 30W, 45W, 60W speakers, delicate sound quality, strong power;

5. Built-in 1-channel network hardware audio decoding module, support TCP / IP, UDP, IGMP (multicast) protocol, to achieve the network transmission of 16-bit stereo CD audio quality audio signal;

6. Support 1000 levels of custom audio priority mute control;

7.Support server unified authorization operation management function, unified configuration management user and password;

8. Support LAN and WAN applications, compatible with any network architecture such as routers, switches, bridge gateways, modems, Internet, 2G, 3G, 4G, multicast, and unicast.

9. Support remote network upgrade device firmware, solve the inconvenience of upgrading equipment in remote areas;

10. The device supports software multi-parameter equalizer adjustment, which can personalize the tone of the device;

11. Digital products, easy expansion, without geographical restrictions, no need to increase the equipment room management equipment, the use of a common network from the design concept of line construction, easy installation.

 * 24V DC power supply is optional to meet the demand of Solar battery power supply.

4. NAMES AND FUNCTIONS

1. RJ45 network port
2. Power cord
3. Chassis ground

5. INSTALLATION METHOD

(1)　　　　(2)　　　　(3)

1. Fix the column iron plates on the wall by screws.

(Note: The distance between the two iron plates must be measured according to the column
 speaker height)

2. Fix the column on the iron plates by using screws on the top and the button of the iron plates.

3. Complete the installation of the sound column .

(Note: the sound column with the clamp end of the power supply is always above the level, and
all the lines need to be shielded by the iron pipe).

The terminal needs to be configured before installation, before installation, need make a installation plan including terminal name, terminal IP address, gateway IP address, server IP address, location of terminal installation, and label the information on the terminal to ensure the convenient use of the device. Please save the plan as an electronic document for future maintenance. After the system planning is completed, please configure parameters of each terminal includes "terminal IP address, subnet mask, gateway and server address".
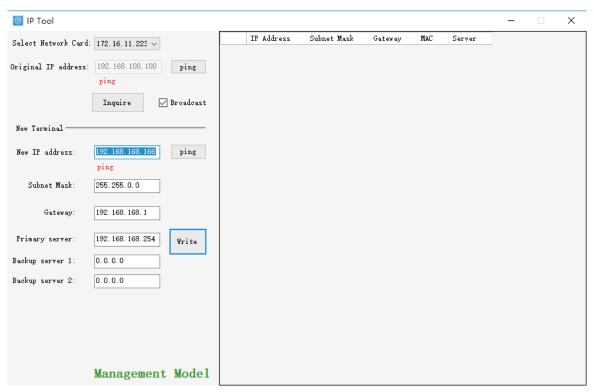
1. Installing software. Find the IP network broadcast system software installation package, double-click to open it, click on the program "terminal configuration tool", after the installation of the program is completed, as shown below:

2. After the program is installed, a icon is generated on the desktop, as shown below:

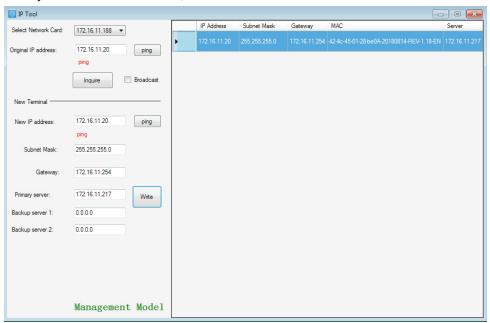3. Double-click the icon to run, and the "terminal configuration tool" window will pop up, as shown below:
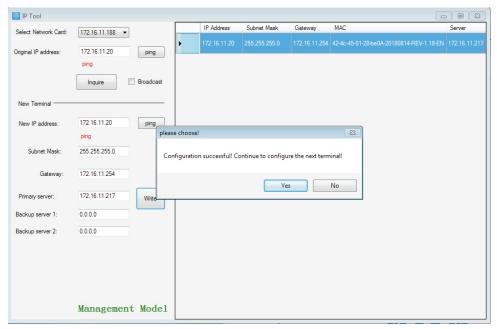
The configuration steps:

Step 1: Connect the terminal and the computer installed with the terminal configuration tool program by the network wire, Plug in the power until the termianl power indicator is on.

Step 2: double-click to open the shortcut icon of " terminal configuration tool", select the network card first, and left-click the "query" button in the window, to query the terminal's original IP address. Please pay attention to: local IP address of the computer should be set in the same network segment as the terminal, because the default IP of terminal is : 192.168.168.166, so the computer's local IP address should also be set to: 192.168.168.X, otherwise it maybe not match the IP terminal address.

Step 3: In the window of "Terminal Configuration Tool" , fill in correct "IP address", "Subnet mask", "Gateway IP" and "Server IP", as below :
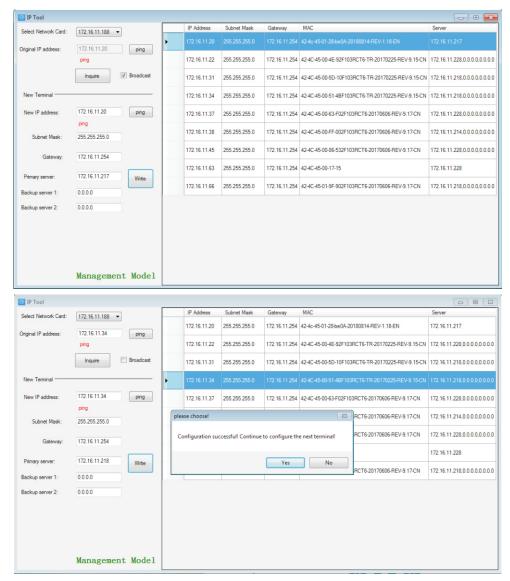

Step 4: left click on the "write" button, there will be a window prompt after the successful configuration; after that, left click on the "query" button, the parameters of the terminal will be re-read by the configuration program, if it display as the same as entered one, means that the configuration was successful.
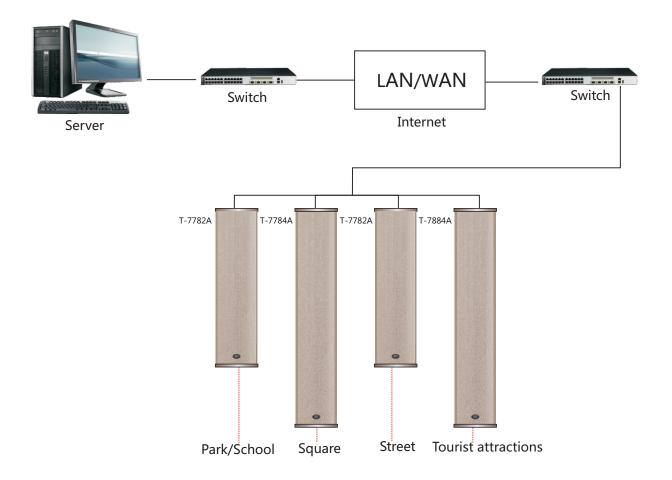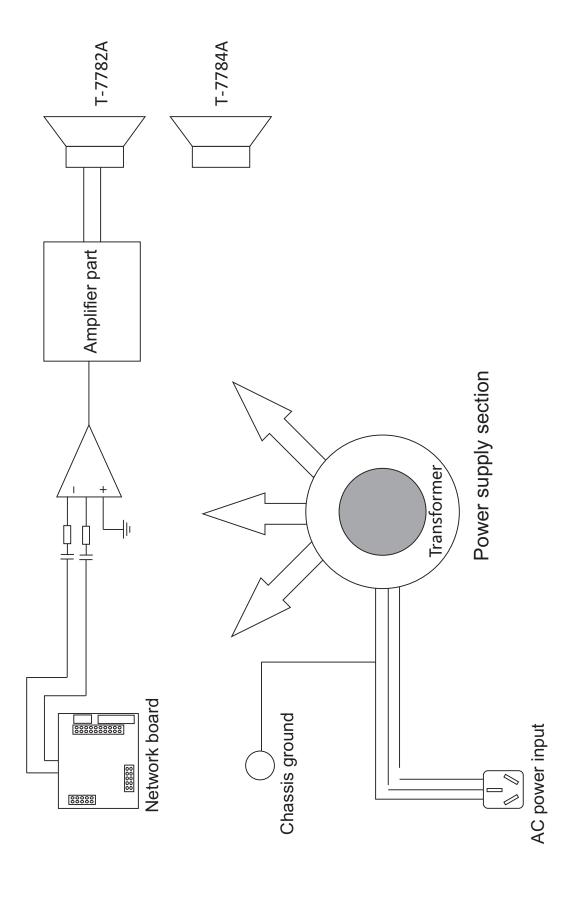
Step 5: If multiple terminals are in the same network segment, you only need to modify the IP address of one terminal, it is needed to click on the terminal in the queried terminals list, then cancel the choice of broadcast on the left interface, modify the IP address and click for configuration.

Notes: If the terminal data can't be queried or the network is blocked, the pop-up window will say Reconfigure the IP address or IP adress writing error. In this case, please reconfigure the network, check the network cable, and turn off the firewall, etc.

LAN/WAN

Internet

Switch

Switch

Server

T-7782A   T-7784A   T-7782A   T-7884A

Park/School   Square   Street   Tourist attractions

T-7782A

T-7784A

Amplifier part

Network board

Chassis ground

Transformer

Power supply section

AC power input

9. SPECIFICATION

Model	T-7782A	T-7784A
Network Interface	30W	60W
Communication protocol	Standard RJ45 input	
Audio Format	TCP/IP,UDP,IGMP(Multicast)	
Sample Rate	MP3	
Transfer Rate	8K~48KHz	
Audio Mode	100Mbps	
Frequency	16-bit stereo CD quality	
THD	80Hz~16KHz +1dB/-3dB	
S/N Ratio	≤1%	
Rated output power	≥65dB	
IP Grade	IP55	
Power Supply	~220V 50Hz	
Speaker unit	4"X2	4"X4
Power Consumption	≤45W	≤95W
Dimensions(mm)	150x145x574	150x145x814
Weight	5.5Kg	7.5Kg

As we all know, lightning is greatly destructive and dangerous. In order to ensure the safe operation of the terminal equipment on the broadcasting pole, the radio pole must be set up lightning protection measures to avoid the economic loss caused by lightning.

First of all, let's learn about the damage path of lightning, which be helpful for us to take lightning protection measures are very helpful:

1. Direct lightning: lightning directly hit the broadcast terminal in the outdoor broadcasting terminal, which causes a equipment damage; and lightning directly hit the aerial cable, the cable is fused.

2. Lightning electric wave intrusion: power cord, signal transmission cord or the metal pipeline to the monitoring room was being lightning or lightning induction, the lightning electric waves intrude to the equipment along the metal wire, resulting in potential damage to the equipment.

3. Lightning induction: When the lightning hit the lightning rod, a strong transient electromagnetic field will caused around the lead wire. Terminal equipment and transmission wire in the electromagnetic field will react a large electromotive force. This phenomenon is called electromagnetic induction. When there is a electriferous thundercloud, in the thunderclouds below the buildings and transmission wire will be reflected out the opposite charge of the thunder. This inductive charge can be up to 100KV in the low-voltage overhead wire, and can reach 40-60KV in the signal wire. This phenomenon is called electrostatic induction. Studies have shown that the surge caused by the electrostatic induction is several times than the surge caused by the electromagnetic induction. Both of electromagnetic induction and electrostatic induction are called induction lightning, also known as secondary lightning.
Its damage to the equipment is not as great as the lightning, but its occurred probability is much greater than the direct lightni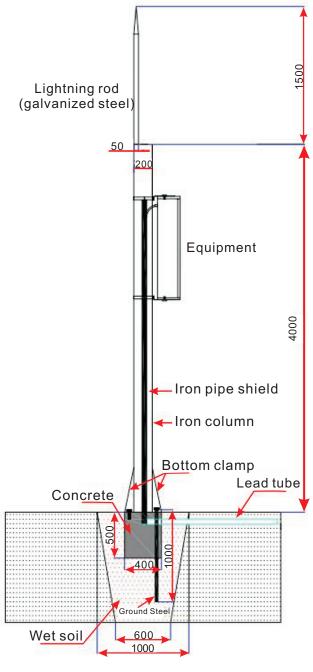ng. According to the previous Post and telecommunications department's statistic, in the lightning accident, the accidents caused by induction lightning is about 80 percent.

After understanding the way of lightning damage, we can set up the corresponding PA lightning protection measures:

The best design is to set up an independent lightning rod at a height of 3 meters away from the broadcast's stand column, and protect the broadcast terminal & monitoring equipment. But this type of independent lightning protection greatly increases the costs. The conventional method is to set up a lightning rod directly on top of the pole. According to the ball rolling method, the effective protection range of the lightning rod is within 30 degrees. The height of the lightning rod must be calculated according to the installation location of the equipment, about 1m~3m length; If it is too long, it will affect the beauty of the radio pole itself, will be affected by the wind more or less. Also please note that the pole is featured with cement, wood, or irons. If the pole is for the cement, wood materials, it must be set off the line, with a copper wire leads to the ground with the grounding copper rods firmly welded. If the pole is for the irons material, you can use the rod directly weld with grounding copper rods firmly through the anchor bolts & flat steel. But no matter if it is cement, wood or iron pole. Signal lines, control lines, power lines should be shielded with iron pipe, while the two ends of the iron pipe should be have a reliable grounding. The device can not be in the same pipe together with the signal line lightning line, control lines and power lines.

We take the irons as an example, the installation method is described specifically: the base of the ground is roughly 400 square mm, 2000 mm pit deep, the bottom fine soil or wet soil ratio is of 85%, in which filled the fine soil, and then buried in a vertical Root 1000mm×12mm steel bar as a grounding rod. According to the specification, the grounding resistance should be less than 4 ohms. The pole is embedded in 500mm deep and then poured into concrete, grounded concrete went to the surface through the bottom of the wet soil, then embedded in the fixed bolt and flat steel. One of the four pliers of the pillars should be connected to the flat steel to form a complete grounded network. When the lightning attacks, strong power will be quickly released through the lightning rod, rod, grounding rods, to avoid the wire and cable, terminal equipment being attacked. The diagram is as follows:

Lightning rod (galvanized steel)

1500

50

200

Equipment

4000

Iron pipe shield

Iron column

Bottom clamp

Lead tube

Concrete

500

400

1000

Ground Steel

Wet soil

600

1000

● The picture is for reference only, please prevail in kind.

IP NETWORK PA SYSTEM

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