Honeywell

X-618 Public Address and Voice Alarm System

Installation Manual

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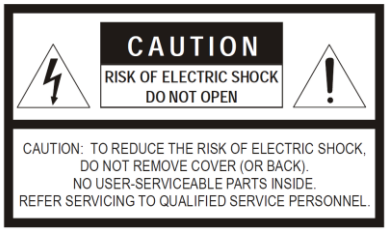
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Safety Guidelines



	**Danger** This sign reminds users of “dangerous voltage” on the product.
	**Caution** This sign reminds users of important instructions attached to the product.
Safety guideline	In order to prevent electric shock, this equipment plug shall not be used as conductor to extend power supply line. Do not block the equipment’s ventilation opening or put other equipment on it.
Safety guideline	Protect this equipment against rainwater or moisture so as to avoid fire or electric shock.

Safety Precautions

Please carefully read and observe the following precautions before installing, operating or using this product.

Electricity Utilization Safety

- Local electrical safety regulations must be observed for product installation and operation.
- The Company shall not be liable for fire or electric shock accidents caused by incorrect installation and mistake.

Transportation Safety

- The product shall be protected against impact, violent vibration or liquid erosion during transportation, storage and installation.

Environmental Requirements

- Do not install the product within the environment of extreme temperature or dust and mechanical vibration.
- This equipment shall be well ventilated and protected against dust, moisture, direct sunshine and violent during the use. It shall be kept away from radiating objects or heat sources and well ventilated. The optimum working environment temperature is 5-28ºC and relative humidity <95%. If the equipment is in operation for a long time and ambient temperature is too high, it is recommended that effective measures should be taken to reduce temperature.
- Requirements on grid power supply voltage by the equipment: AC 100V~ 220V (-15% ~ +10%) 50 ~ 60 Hz or DC 12V/24V. In case of too high, too low voltage or that fluctuating greatly, it is recommended that AC regulated power supply should be installed.

- As the product is not waterproof, do not expose it to rainwater or liquid environment so as to avoid damaging it.
- Put the equipment on solid level plane or install it on a rack.
- Do not put other articles on the equipment top.

Safe Use Precautions

- The equipment shall be installed under the direction of professionals.
- Please carefully check power supply lines for damage prior to use. The lines must be connected to the equipment in strict accordance with identifications.
- Power supply plugs and sockets shall match each other. Otherwise, suitable sockets must be provided. Human damage to the sockets shall be prohibited.
- Power supply for the equipment shall be provided with sufficient capacity and independent and reliable grounding lines.
- Please ensure the equipment power supply grounding lines interconnected and connected with the ground. Otherwise, it will cause it abnormal, even damaged.
- There are HV lines within it. When turn on the power, do not open the equipment cover without permission so as to prevent electric shock.
- Prior to the first energization to start equipment, please check its external wiring for correctness so as to avoid damage.
- During the energization, please do not touch wiring terminals identified with “lightning” at random so as to avoid electric shock.
- Please do not change equipment connection circuits at random during energization so as to avoid damage.
- In case of failure to the equipment, please ask professional repair personnel to repair it. Otherwise, the Company shall neither dispose of any problems nor undertake relevant responsibilities.

Label and User’s Manual

- Please pay attention to information on the product label such as type and power supply.
- Please carefully read the user’s manual and operate according to the instructions. The user’s manual is for reference for operation of products of different types. Specific operations of products of different types are not listed herein. In case of any problem, please contact the Company.
- Please maintain this Manual for future reference.

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Preface

Thank you for purchasing the X-618 Public Address and Voice Alarm System. Please carefully read this manual prior to system use so as to ensure correct use of the system.

Brief Introduction

This manual describes the appearance, installation, and wiring of the X-618 Public Address and Voice Alarm System equipment. The manual includes the following chapters:

Chapter 1: System Overview

Describes the X-618 Public Address and Voice Alarm System structure and product assembly

Chapter 2: Preparation for Installation

Describes preparing to install the X-618 Public Address and Voice Alarm System

Chapter 3: System Installation

Describes installing the X-618 Public Address and Voice Alarm System along with related precautions

Chapter 4: Installation Inspection

Describes inspecting the installation of the X-618 Public Address and Voice Alarm System and system commissioning

Intended Reader

This manual is mainly for personnel who are to install, operate, and maintain the X-618 Broadcasting and Voice Alarm System.

Relevant Documents

The following documents can be used as a reference when reading this manual:

- X-618 Public Address and Voice Alarm System Product Description
- X-618 Public Address and Voice Alarm System Configuration Manual
- X-618 Public Address and Voice Alarm System Operation Manual

Use Instructions

- All content including figures in this manual are to be used only for reference.
- The product may be subject to change from time to time without notice.
- Users of this product are recommended to carefully read all warnings and precautions in this manual.
- Carefully read this manual before using the product and keep it as a reference for future use.
- This manual has been reviewed with its accuracy is ensured. In case of any doubt or dispute of the product description, the final interpretation given by Life Safety A/V (Guangzhou) Co., Ltd. shall prevail.

  Life Safety A/V (Guangzhou) Co., Ltd. is not liable for any consequences caused by user mistakes when using the product or user misunderstandings of the manual content.

1 System Overview

The X-618 Public Address and Voice Alarm System provides a complete multiple sound source public audio management solution. Centralized network management is achieved through the system software, and all system states are monitored. The X-618 Public Address and Voice Alarm System is hereby referred to as the “X-618” throughout the remainder of this manual.

The X-618 includes the following product components:

- X-DCS2000/EN/X-DCS3000 Digital Integrated System Manager

  The X- DCS2000/X-DCS3000 Digital Integrated System Manager is hereinafter referred to as the “DCS”. When describe specific installation requirement, we mention X-DCS2000/EN or X-DCS3000.

  The DCS is X-618 control equipment designed for expanding the number of loudspeaker zones, and can support multiple sound source files for broadcasting. The system integrates with functions such as the sound source file storage system, the network audio broadcasting system, the loudspeaker zone control system, and the system for monitoring and diagnosing faults.

- X-DA1500/DA2250/DA4125/DA4060 High Efficiency Power Amplifier

  The X-DA1500/DA2250/DA4125/DA4060 High Efficiency Power Amplifier is hereinafter referred to as the “DA” or “X-DA1500/DA2250/DA4125/DA4060”.

  In the X-618 system, the DA is used to amplify audio signal power and drive many broadcasting loudspeakers.

- X-NDA1300 Network High Efficiency Power Amplifier

  X-NDA1300 is used to amplify audio signal power and drive many broadcasting loudspeakers.

- X-NPMI Configurable Network Paging Console

  The X-NPMI Programmable Network Paging Console is used to page zones and control broadcasts for the X-618 on an Ethernet network.

- X-NPMS Configurable Network Paging Console

  The X-NPMS Programmable Network Paging Console is used to page zones and control broadcasts for the X-618 on an Ethernet network.

- X-NRI Network Resource Interface

  The X-NRI Network Resource Interface is hereinafter referred to as the “NRI” or “X-NRI”.

  X-NRI is external interface expansion control equipment in X-618. It has many kinds of audio interfaces and control ports, so it can send the audio and control signal which from the peripheral equipment through the Ethernet network to the X-618 system.

X-DCS3000 can connect with 8 main amplifier channels and 2 standby amplifier channels. Following is the connection way of 4 amplifier channels:

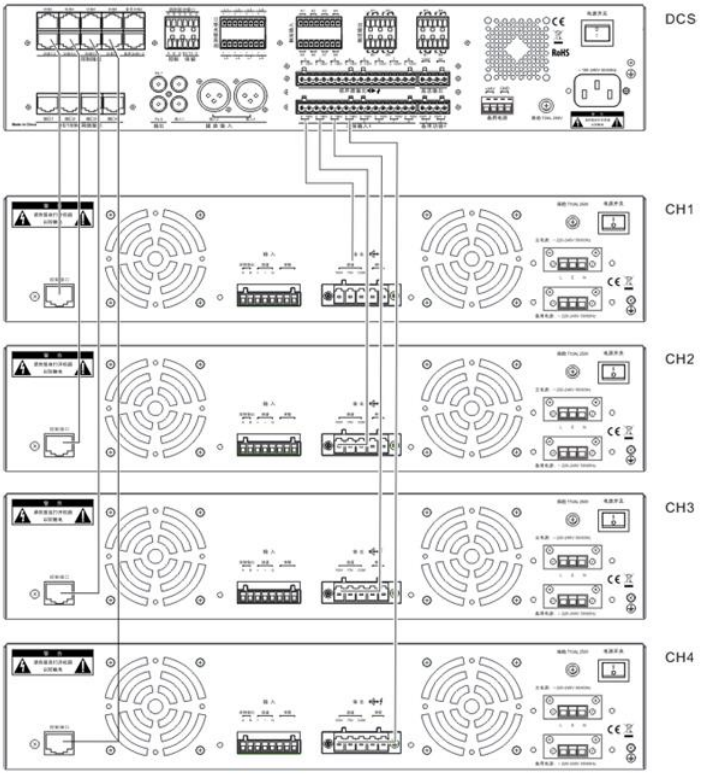


Figure 1 Connection Schematic Diagram of DCS and X-DA1500

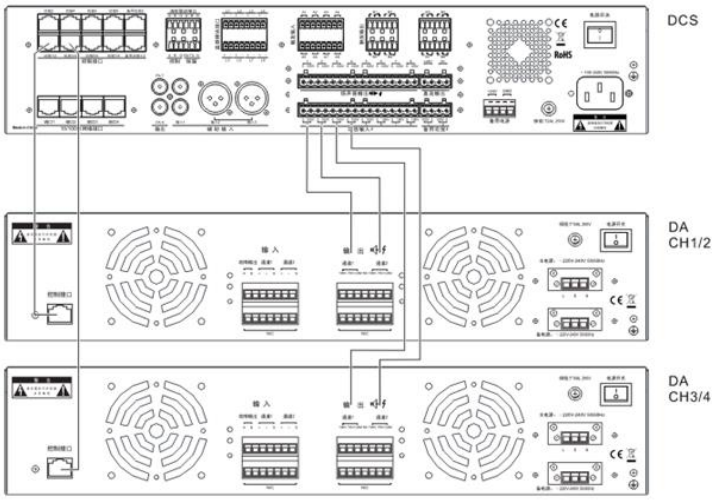


Figure 2 Connection Schematic Diagram of DCS and X-DA2250

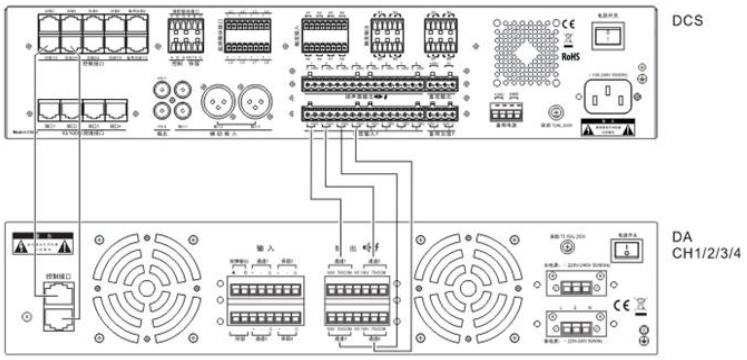


Figure 3 Connection Schematic Diagram of DCS and X-DA4125/X-DA4060

2 Preparation for Installation

Before installing the system, appropriate preparation is required to ensure a smooth installation process.

- Gathering Information
- Preparing Tools
- Preparing Auxiliary Materials
- Preparing Cables and Auxiliary Equipment
- Packing List Inspection

Gathering Information

Installation personnel are required to be familiar with functional components of the X-618 product equipment. It is recommended to first read the product information found in the X-618 Public Address and Voice Alarm System Product Description.

Preparing Tools

Prepare the following tools before installing the system equipment:

- Electrostatic proof wrist band
- Electrostatic proof gloves
- Wire stripping pliers
- Wire cutting pliers
- RJ45 crimp tool
- Slotted screwdriver (M2)
- Phillips screwdriver (P1)

Preparing Auxiliary Materials

Prepare the following auxiliary materials before installing the system equipment:

- Insulating tape
- Wire buckles
- Cable labels
- Plastic ties

Preparing Cables and Auxiliary Equipment

Note:

It is recommended to select high quality and professional-grade transmission cables for large scale loudspeaker systems.

The longer the distance, the thicker the cable must be used, as more power is required to transmit. Please select appropriate cables according to the distances involved.

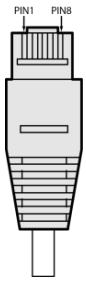
Prepare the following cables and auxiliary equipments before installing the system equipment:

- CAT-5 Ethernet cable

  Cables are required to be no longer than 100m with diameters of 0.51mm (wire gauge of 24AWG). Shielded twisted pair cables are recommended. If the distance between devices is less than 30 meter, the cable can be straight through or cross. If the distance between devices is more than 30 meter, the cable must be cross.

  Refer to below table for the Ethernet pin types.

Table 1 RJ45 Cable Pin Definition Descriptions

PIN	Type	Legend
1	TX+	
2	TX-	
3	RX+	
4	No pin	
5	No pin	
6	RX-	
7	No pin	
8	No pin	

- 100V audio connection cable

  This cable is used to connect the DCS to the DA as well as the DCS to the loudspeakers in the broadcasting zones. Shielded cables with a cross-section of 1.3mm2 (wire gauge of 16AWG) are recommended to connect the external sound source devices, such as CD/DVD players and tuners.

- DA standby power supply cable

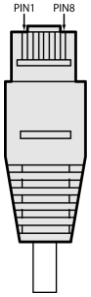
  The DA standby power supply cable specification is required to be the same as that of the main power supply line.

- Power amplifier audio input cable

  Audio input cables are provided in the package containing the DA, but the lengths of these cables are limited. If these cables cannot meet the requirements of the system wiring situation, users need to obtain or create appropriate cables themselves. Please prepare such audio input cables with the specifications as listed in below table. This cable should be direct connection.

Table 2 Power Amplifier Input Cable Pin Definition Descriptions

PIN	Type	Legend
1	Balanced positive input of CH2	
2	Balanced negative input of CH2	
3	DA fault information output • When the DA is working properly, the output voltage is VCC(12V-24V) • When the DA faults, is protected, or undergoes self-testing, the output voltage is GND(0V)	
4	Balanced positive input of CH1	
5	Balanced negative input of CH1	

PIN	Type	Legend
6	GND(0V)	
7	VCC(12V-24V, powered by an external device)	
8	Self-test port • When the DA output voltage is VCC (12V-24V), the DA is being self-tested. • When the DA has no input voltage, the DA is working normally.	

- Power amplifier output cables

  Unshielded cables with a cross-section of 1.3mm^2 (wire gauge of 16AWG) are recommended for the power amplifier output.

- XLR audio input cable

  Shielded pair cables with a cross-section of 0.3~0.5mm^2 are recommended for connecting external audio resource.

Table 3 X-DCS3000 XLR Input Terminal Pin Definition Descriptions

PIN	Type	Legend
1	Grounding wire(Shielded layer of cable)	
2	Hot end (Positive)	
3	Cold end (Negative)	

- Dry contact input/output cables and related external equipment (optional)

  The necessity of dry contact connections depends on the system situation. If the DCS and external equipment, such as 3-wire volume controllers and 4-wire volume controllers, must be connected through dry contacts, this equipment and the appropriate cables must be prepared beforehand.

- Noise detector (optional)

  When needing to collect environmental noise and automatically regulate the volume of broadcasts, a noise detector and appropriate cables must be prepared. For connecting X-DCS2000/ X-DCS3000 with X-ND100, the maximum cable distance between the DCS and noise detector is required to be no more than 1000m, and twisted pair cables with a cross-section of 1.3mm^2 (wire gauge of 16AWG) must be used.

Packing List Inspection

Please check the external packages for intactness before unpacking them for content inspection. Use the “Packing list” to check the package contents. Contact the carrier or supplier promptly in case of any package or package content problems.

3 System Installation

This chapter describes the system equipment installation, cable connections, and relevant precautions.

- Installation Requirements of Cabinet
- Installing the Devices in the Appliance Cabinet
- Connecting the X-618 System Components
- Connecting the Power Supply

Note:

- The electricity and power sources must be turned off when performing the following tasks to avoid electric shocks and damage to the equipment.
- Turn off all equipment power supply switches prior to wiring.
- Correctly connect the wiring terminals and tighten the screws.
- The power supply cables and signal data lines must be separated, and cannot be laid in the same slot or piping.
- For avoiding interfere, speaker lines and power should be separated.
- Control signal cables must be positioned away from 100V audio or power supply cables to avoid signal interference.
- Appropriate materials, such as plastic ties, must be used for all connection cables for reinforcement to avoid looseness. When moving the cables, prevent the power supply cables from coming in contact with the signal data cables.
- Install appropriate electrical cables bushings at the cabinet opening before installing the cables in the appliance cabinets.
- Appropriate materials must be used to block the spaces reserved for the cables at the cabinet opening if these spaces are not used.

Installation Requirements of Cabinet

Generally, X-618 system needs to be installed in standard 19’ cabinet for use. Grounding wire inside the cabinet should be well connected to keep system work normally. There are specialized earth wires at the door and the bottom of cabinet. Please refer to following steps:

The cabinet door shaft contains one yellow screw as shown in identified with marker ①. and marker ②, represents another grounding terminal in the same position in the cabinet. Connect the two terminals with a wire.

Connect the grounding screw of all devices in the cabinet to the grounding terminal. For safety reason, it is recommended to connect an external specified grounding terminal to the one on the cabinet.

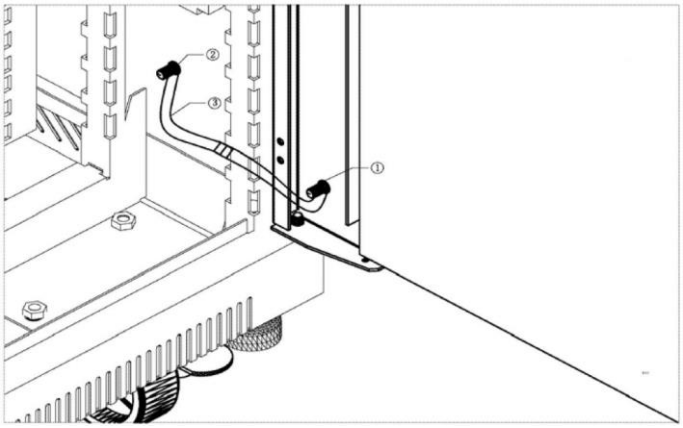


Figure 4 Schematic Diagram of Cabinet Grounding

All the devices of this system are equipped with a specialized grounding screw, marked with the icon ⏚. After installing in the cabinet, cabinet grounding and device grounding should be connected by a soft cable with a cross-section of 1.5mm^2.

Caution:

To prevent a grounding loop, be careful to not let a short circuit occur over the grounding wires.

During the installation of amplifier, for make sure a better cooling performance, 1U blind disk is recommended between the amplifier and device.

Before installation, inner space of cabinet should be well arranged based on the actual number and types of devices. The bottom plate is also need to install, and the rest space can be filled with blind disk.

Spare list of X-618 includes foot, which is used for desktop installation. Make sure there is no foot at the bottom of device before installation.

Installing the Devices in the Appliance Cabinet

Install the DCS, NRI and DA into the Appliance Cabinet

This process is described in the following steps:

1. Install the side brackets of DCS, as shown below:

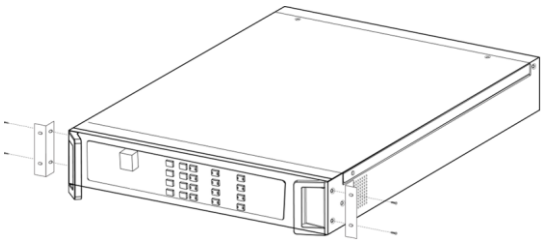


Figure 5 DCS Installation Diagram

2. Put the DCS into the cabinet and fasten it with screws.

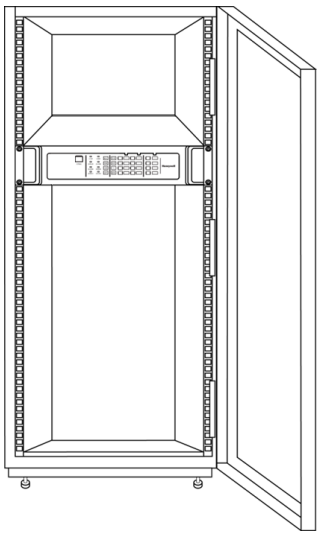


Figure 6 Schematic Diagram of the DCS Bracket Installation

3. Install the side brackets of X-NRI and follow above steps to install in cabinet.
4. Install the side brackets of DA and follow above steps to install in cabinet.
5. Finally fasten them to the cabinet with screws.

Installing the X-NPMS in a Cabinet (Optional)

X-NPMS Configurable Network Paging Console and extend key module X-K4 or X-K8 can be installed in the cabinet according to customer's requirements. Before installation, X-NPMS and extend key module should be installed together first.

The process is described in the following steps:

1. Put the bottom of X-NPMS, extend key module X-K4 and X-K8 up on the clean desk, and avoid scratch from the sharp items.
2. Use flat cables to connect the devices. Pay attention to the direction.
3. Put the bracket among the devices as shown in below figure, and fix it with standard configuration screws.

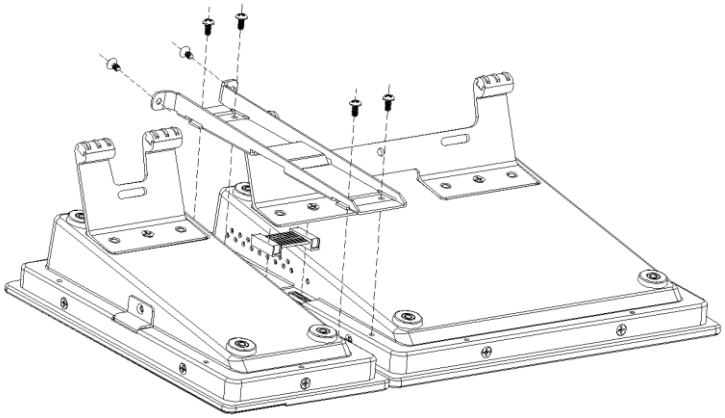


Figure 7 Installation Diagram of X-NPM and Extend Key Module

HN-PTT (Optional) has to be selected instead of removable gooseneck microphone.

Caution:

- Space of 1U (1U=44.45mm) should be reserved for cooling.
- Blind disks are recommended to seal up the space in the front of cabinet.

Connecting the X-618 System Components

This section describes the connections between the following X-618 system components:

- Connecting the Sound Source Equipment to the DCS or NRI
- Connecting the DCS to the DA
- Connecting the Dry Contacts (Optional)
- Connecting the Noise Detector(Optional)
- Connecting the loudspeaker
- Connecting DCS, NRI and NPM

Connecting the Sound Source Equipment to the DCS or NRI

Connect the external sound source equipment to the DCS or NRI appliance as necessary.

The sound source connected to the DCS will be used for broadcasting in this device zones .The sound source connected to the NRI will be used for broadcasting in the all zones of the X-618 system.

X-DCS2000/X-DCS3000 Connecting to the Sound Source Equipment

For DCS Digital Integrated System Manager, there are 3 local auxiliary audio input interfaces, in which interface 1 uses RCA port, and interface 2 and 3 use XLR port to input balance or non-balance signal, like microphone and sound console etc. For audio input 1, use cable to connect audio output and X-DCS3000 input 1. When connecting input 2 and 3 to the external audio source, pay attention to the connection of interface pin. If it is necessary to use these 2 ports to input non-balance signal, short circuit the cool end with grounding wire.

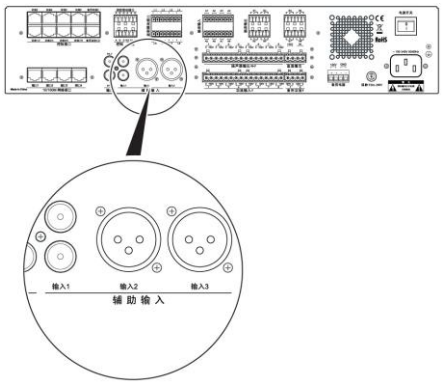


Figure 8 Diagram of DCS Connecting to the Sound Source Equipment

X-NRI Connecting the Sound Source Equipment

There are 4 auxiliary audio source input interfaces (RCA ports) and 4 balance input interfaces for X-NRI. Auxiliary audio source input interfaces can connect external audio devices directly. The operation is the same as operation on DCS. The polarity of signal cable, such as hot end H, cool end C and grounding G should comply with the one of input audio device when connect balance input interface with external audio source.

Connecting the DCS to the DA

Two signal cables need to be used when connect DCS and amplifier. Twisted pair cable is used to connect audio output interface of DCS and audio input interface of amplifier. 100V output interface of amplifier should connect to 100V input interface of DCS.

There are 2 rows interfaces of audio output interface (control interface) of DCS. Lower interfaces include 2 audio signals, and upper interfaces include 1 audio signal. The upper interfaces correspond the even channel of lower interfaces. For example, if the lower channels are 1 and 2, the upper channel should be 2.

Note:

The DCS can be connected to the power amplifier in the following configurations:

- Connect the **PA1/2** and **PA2** port of the single-channel power amplifier to the DCS control port using two twisted-pair cables.
- Connect the **PA1/2** port of the two-channel power amplifier to the DCS control port using one network cable.
- Connect the **PA1/2** and **PA3/4** port of the four-channel power amplifier to the DCS control port using two network cables.

The operation steps of connecting DCS to amplifier are as below:

1. Connect control port of amplifier

   Connect the DA RJ45 port to the DCS control port using the audio input lines that are included in the package containing the DA.

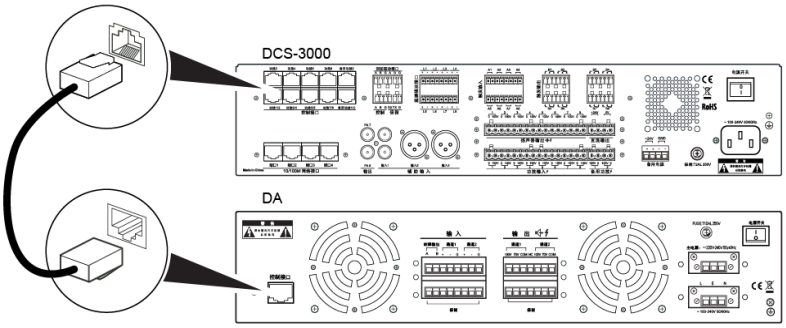


Figure 9 Connection Diagram of Amplifier and Control Port of DCS

2. Connecting the DA audio output to the DCS

   a. Strip one end of the prepared audio output cable jacket by 10mm, and feed the cable through the protective cover of the power amplifier.

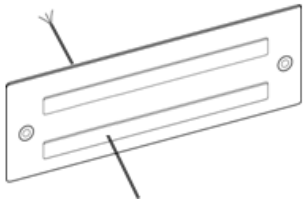


Figure 10 Schematic Diagram of a Feeding the Audio Output Cable through the Protective Terminal Cover

   b. Take the end of the cable that was fed through the protective cover of the power amplifier wiring terminal connect the cable to the power amplifier output wiring terminal (7P green phoenix tail seating 5.08mm), and tighten the screws. Refer to 0 .

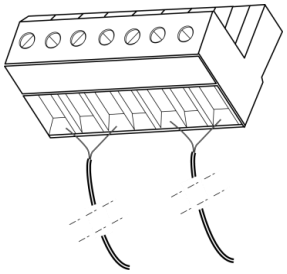


Figure 11 Connecting the Audio Output Cable to the Power Amplifier Input Wiring Terminal

   c. Feed the other end of the audio output cable through the DCS protective cover of the terminal.

   d. Connect the end of the cable that was fed through the protective cover of the DCS to the power amplifier input wiring terminal (4P green phoenix tail seating 5.08mm), and tighten the screws. Refer to 0.

e. Insert the power amplifier audio output wiring terminal of the installed audio output cable into the DA audio output port.

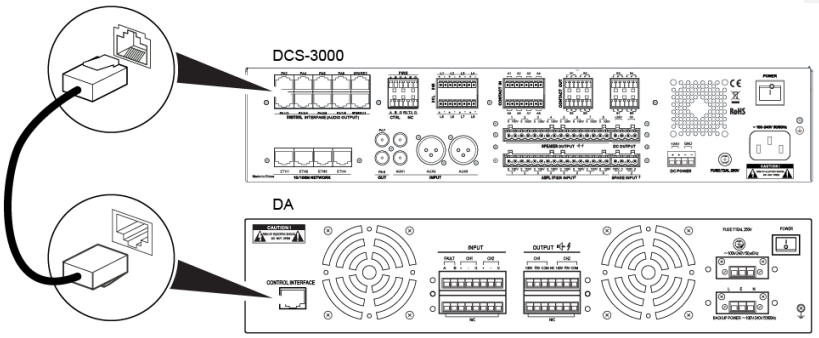


Figure 12 Schematic Diagram of the Audio Output Wiring Terminal Installation

f. Insert the power amplifier input wiring terminal of the installed audio output cable into the DCS PA audio input port.

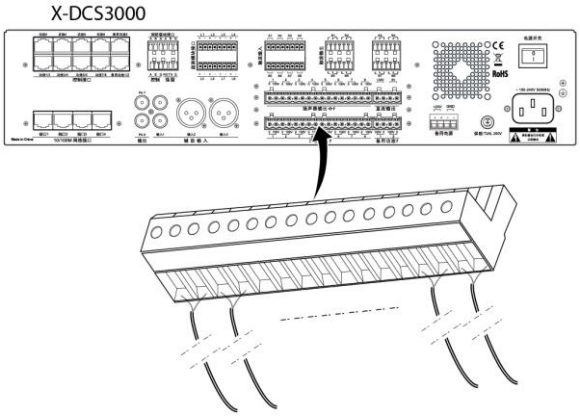


Figure 13 Schematic Diagram of X-DCS3000 100V Audio Input Wiring Terminal Installation

g. Carefully check the input and output cables of DCS that connect to amplifier, ensuring the channels are correct.

h. Cover the power amplifier terminal with the protective terminal cover and tighten the screws. This same operation applies to the DCS terminal and related protective cover.

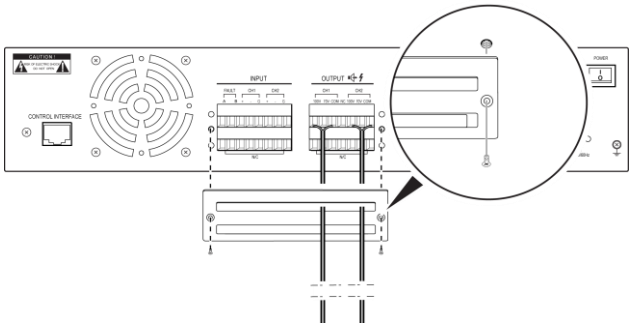
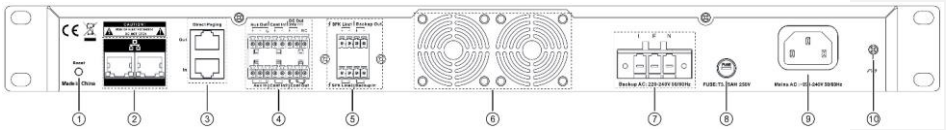


Figure 14 Schematic Diagram of the Protective Audio Input Terminal Cover

The way that connects to standby amplifier is similar with the one to main amplifier. Control interfaces of standby amplifier should connect to standby ports of DCS. If use the “single standby amplifier” mode, the control interface of amplifier should connect to standby PA1/2 port of DCS, and 100V output interface of standby amplifier should connect to standby PA input 1 and 2 ports (parallel connection) of DCS. If use “double standby amplifier” mode and the standby channels are 2 channels or 4 channels, the control interface of amplifier should connect to standby PA1/2 port of DCS. When the standby channel is single channel, the control interface of 2 amplifiers should separately connect to standby PA1/2 port and standby PA 2 port. The output ports of standby amplifier should connect to standby PA input port of DCS, and the control interface should also correspond to each other.

Connecting X-NDA1300

The rear panel of X-NDA1300 is illustrated as follows:



Components on X-NDA1300 rear panel are listed in the following table:

Number	Component	Description
①	Reset Button	The button inside the housing. Long press 5s to reset IP address of the device. All LED will flash to indicate the reset is successful.
②	Ethernet 1/2	2 × Ethernet ports, Ethernet 1/2.
③	Direct Paging	2 x RJ45 plugs, when the system encounters system or network failures, this port can be used to connect microphone for direct paging. The Direct Paging Module is required for this connection. Connect the NPM output to the Direct Paging Module, which is connected to this interface.
④	Aux Input/Output Contact Input/Output	Aux Input: 3.81-3P, difference input to connect external audio source.
		Aux Output: 3.81-3P, difference output to connect external device.
		Contact Input: 2x3.81-2P, the monitoring can be enabled or disabled.
		Contact Output: 5.08-3P, including NO, NC and COM.

⑤	Line 1/2, Backup Input/Output	Line 1/2: Speaker line terminals Backup Input/Output.: Used for device-level backup. To backup amplifiers, do the following: 1. Connect the backup input of the main amplifier to line 1 of the backup amplifier. 2. Connect the backup output of the main amplifier to backup input of another amplifier, which is now also backed up by the backup amplifier. For example, three X-NDA1300 A, B and C. A is the backup amplifier, B is the main amplifier, C is the second amplifier. Connect line 1 of A to backup input of B, and connect backup output to backup input of C. Then A is the backup amplifier for both B and C. One X-NDA1300 device can be the backup device for 64 devices of a kind at most.
⑥	Cooling Fans	Two cooling fans for forced cooling.
⑦	Backup Power Socket	Backup power socket, AC 220V.
⑧	Fuse	3.15A/250V fuse to protect AC power supply against internal short-circuit faults.
⑨	Mains Power Socket	AC 220V mains power via IEC power socket.
⑩	Grounding Screw	Grounding screw to connect the housing of the device and ground.

Caution!

When the overall power of speak lines connected to a X-NDA1300 is lower than 30W, connecting a false load of 20W and 1000Ω to the X-NDA1300 is recommended for better speaker line monitoring.

Connecting the Dry Contacts (Optional)

This section describes connecting the external equipment or switch through the dry contacts.

DCS Dry Contact Input Preparation

1. Connect the dry contact cable to the dry contact input terminal.

   Strip the wire jacket off one end of the prepared dry contact connection cable by about 10mm, insert the wires into the dry contact wiring terminal (8P green phoenix tail seating 3.81mm), and tighten the screws. Refer to 0 for more information.

2. Insert the dry contact input wiring terminal of the installed input cable into the DCS dry contact port.

3. Connect the external dry contact equipment or switch to the other end of the dry contact input cable.

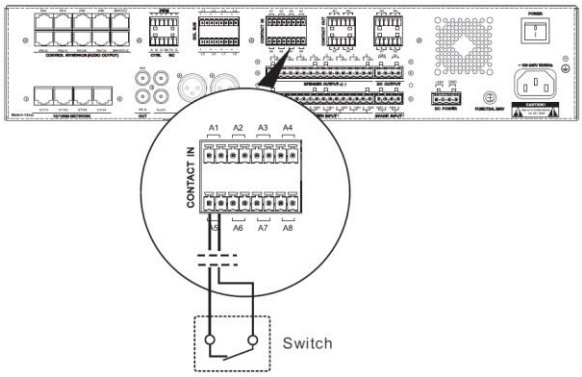


Figure 15 External Dry Contact or Switch

Dry contact input port of X-DCS2000/X-DCS3000 has the function of line supervision, it can connect to fire alarm system or other the third party system. The connection way is the same as above when disable the function of dry contact supervision, and if this function is enabled, the output port of the third party device should be installed resistances, which is shown as below figure.

NRI Dry Contact Input Preparation

NRI dry contact inputs are mainly used to connect the fire alarm system, realize the fire fighting linkage. The connection mode of dry contact cable is similar to DCS, but in order to meet the dry contact cable supervision need, the resistance has to be increased in the third party equipment, the connection diagram as follows:

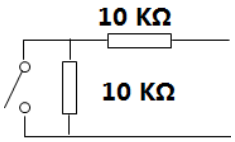


Figure 16 Schematic Diagram of Dry Contact Input Connecting to Resistance

The detailed setting of the fire alarm relation that is triggered through NRI dry contact input, please refer to X-618 Public Address and Voice Alarm System Configuration Manual.

DCS Dry Contact Output Preparation

1. Strip off the wire jacket of one end of prepared dry contact output cable by about 10mm, insert dry contact wiring terminal (8P green phoenix tail seating 3.81mm), and tighten the screws.
2. Insert the dry contact output wiring terminal of the installed output cable into the DCS dry contact port.
3. Connect the external equipment or switch to the other end of the dry contact output cable. 0 is schematic diagram of the DCS and three-line volume controller connection. 0 is schematic diagram of the DCS and four-line volume controller connection.

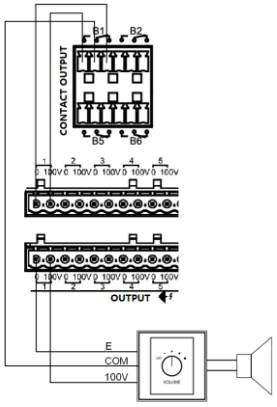


Figure 17 Schematic Diagram of the DCS and Three-Line Volume controller Connection

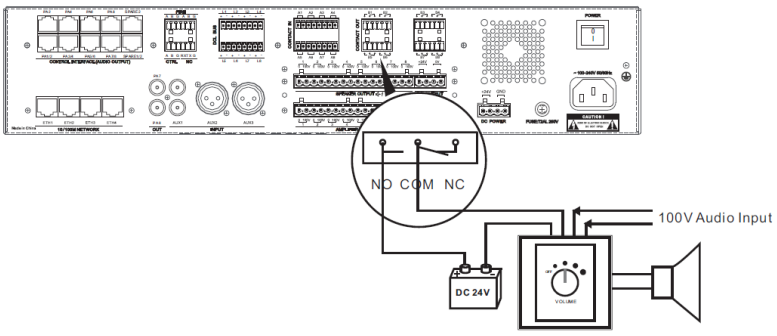


Figure 18 Schematic Diagram of the DCS and Four-Line Volume controller Connection

NRI Dry Contact Output Preparation

The dry contact output of NRI can be configured as fault signal output which will be connected with fire alarm system, and delivery the system fault status. The NO and COM of a dry contact output will be used.

1. Strip off the wire jacket of one end of prepared dry contact output cable by about 10mm, insert dry contact wiring terminal (6P green phoenix tail seating 3.5mm), and tighten the screws.
2. Insert the dry contact output wiring terminal of the installed output cable into the NRI dry contact port.
3. Connect the fire alarm system. 0 is schematic diagram of the NRI and fire alarm system connection.

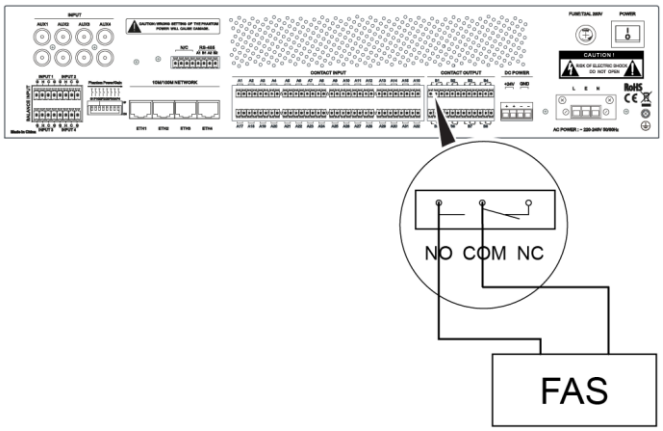


Figure 19 Schematic Diagram of the NRI and fire alarm system Connection

Caution!

DC24V voltage is in dry contact input interface of DCS and NRI, therefore, only connect to the power or relay to output. Do not connect to external voltage signal, and confirm the port types when connect to the third party system. If the output of third party system is voltage signal, please use relay to switch the signal.

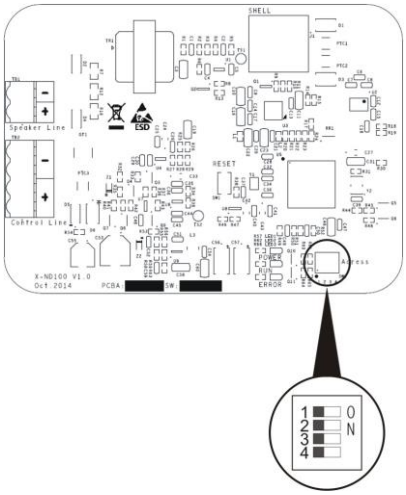
Connecting the Noise Detector (Optional)

If detecting the environmental noise is required, the noise detector can be connected through the AVC port.

Connecting the Noise Detector X-ND100

X-DCS2000/X-DCS3000 can only connect to the noise detector X-ND100. Shielded twisted pair cables are used to supply power as well as transfer noise data signal. The steps are as follows:

1. Open the rear cover of noise detector, and set the module address 1~5 according to binary system. Switch to ON position as shown below:



DIP Switch Setting(Black dots show the switch positions):

Address	1	2	3	4	5
DIP Switch					

2. Insert the prepared noise detector connection cable into the corresponding input wiring terminal (8P) and tighten the screws.
3. Insert the wiring terminal of the installed cable into the DCS supervision port.
4. Connect the Speaker Line of noise detector to the area.
5. Fix the noise detector and if there are many detectors in a same line, please follow the connection way shown in below figure.
6. Choose a fixed way based on the surrounding situation. It can be embedded in ceiling or install it though hanging.
7. If the appearance of noise detector is similar with the end-of-line supervision module, installation can be conducted according to corresponding method.

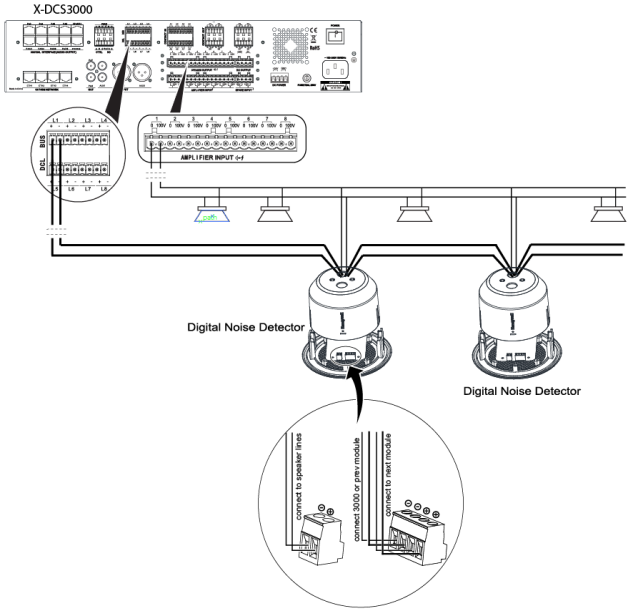


Figure 20 Schematic Diagram of the X-DCS3000 Connecting to Noise Detector Connection

Note:

Each DCL bus can be connected with up to 5 digital noise detectors.

Connecting the Loudspeakers

The DCS can be directly connected to loudspeakers. The following steps describe this process:

1. Strip off the wire jacket of one end of the prepared audio cable by about 10mm, insert the loudspeaker wiring terminal, and tighten the screws.
2. Insert the loudspeaker wiring terminal of the installed audio cable into the DCS loudspeaker port.
3. Connect the loudspeaker to the other end of the audio cable, and if there are many speakers in a same line, please follow the connection way shown in below figure.

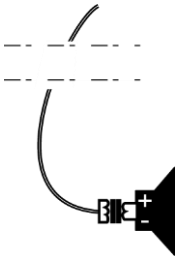


Figure 21 Schematic Diagram of the Loudspeaker and Audio Cable Connection

Connecting the DCS and NRI to the NPM

In X-618 system, DCS, X-NDA1300, NRI and NPM (including X-ETCS) form a complete system through the Ethernet.

The DCS and NRI can be connected to the NPM in the following two ways:

- Directly connecting the DCS and NRI to the NPM
- Connecting the DCS and NRI to the NPM through a network switch

Directly Connecting the DCS and NRI to the NPM

Use twisted pair cables to connect the network ports of DCS, NRI and NPM.

Following are the steps:

Insert one end of the prepared twisted-pair cable into the network port located on the rear panel of the DCS, and the other end of the cable into the RJ45 port located on the rear panel of the X-NPMS, and connect the network port of DCS to the NRI's network port using another twisted-pair cable.

Connecting the DCS and NRI to the NPM through a Network Switch

Connect the DCS and NRI to the NPM through a network switch. The DCS and network switch must be on the same network.

Connecting the Power Supply Cables

The power supply cables for the main X-618 system components include the following items:

- Connecting DCS and NRI Main and Standby Power Supply Cables
- Connecting DA Main and Standby Power Supply Cables
- Connecting NPM Power Supply Cable

Connecting DCS and NRI Main and Standby Power Supply Cables

Connecting AC Power Supply Cables

The AC power interfaces of X-NRI use phoenix sockets. Generally, the main power supply cables are equipped when leaving the factory, but manually connecting AC power to the device also needed under some circumstances. Here are the steps:

1. Strip off the wire jacket of one end of the AC power supply cable by 20mm and connect the cable to the main power supply wiring terminal.

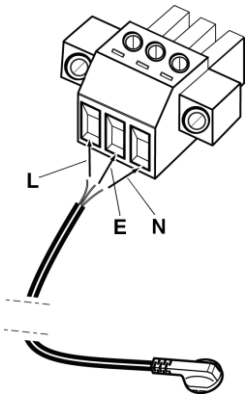


Figure 22 Schematic Diagram of Connection of AC Power Supply Cables

Caution!

When install the power cables to the socket, please pay special attention to make sure the polarity of cables should comply with the port of device. The wires are identified as L (Live wire), N (Null wire), and E (Earth wire), or connecting the AC main and standby power will cause a short circuit.

2. Tighten the screws to prevent the power supply cable from coming loose, and cover the power supply interface set.
3. Insert the wiring terminal of the installed power supply cable into the AC power supply input port of the X-NRI or amplifier, and tighten the screws at both ends.
4. Insert the other end of the power supply cable into the main power supply equipment.

Standard socket is used in X-DCS2000/X-DCS3000 AC power supply, and insert the power cables into the device and power ports directly.

Connecting DC Power Supply Cables

24V power supply is used as the standby power for DCS and NRI. Connect one end of prepared standby power cable to the standby power input ports of DCS or NRI, and the other end to the standby power supply. DC 24V of voltage is required, and pay attention to connecting the right polarity. Below figures are the schematic diagrams of connecting DCS to standby power of NRI.

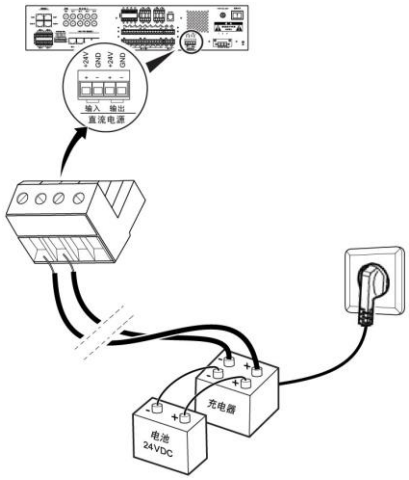


Figure 23 Schematic Diagram of the DCS Standby Power Supply Cable Connection

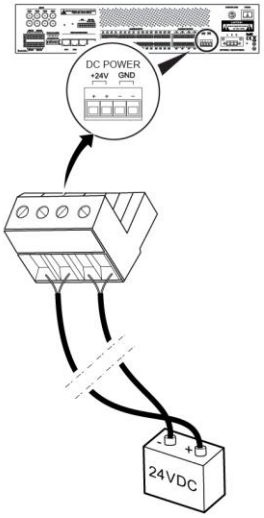


Figure 24 Schematic Diagram of the NRI Standby Power Supply Cable Connection

Connecting DA Main and Standby Power Supply Cables

Connecting the Main Power Supply Cable

1. Strip off the wire jacket of one end of the prepared standby power supply cable by 20mm and connect the cable to the main power supply wiring terminal.
2. Tighten the screws to prevent the power supply cable from coming loose, and cover the power supply interface set.
3. Insert the wiring terminal of the installed power supply cable into the main power supply input port of the DA, and tighten the screws at both ends.
4. Insert the other end of the main power supply cable into the main power supply equipment.

Connecting the Standby Power Supply Cable

1. Strip off the wire jacket of one end of the prepared standby power supply cable by 20mm and connect the cable to the standby power supply wiring terminal.
2. Tighten the screws to prevent the power supply cable from coming loose, and cover the power supply interface set.
3. Insert the wiring terminal of the installed power supply cable into the standby power supply input port of the DA, and tighten the screws at both ends.
4. Insert the other end of the standby power supply cable into the standby power supply equipment, such as the Uninterrupted Power Supply (UPS).
5. When there is not a standby power supply, main and standby power supply can be connected to each other according to requirements.

Connecting NPM Power Supply Cable

Connecting Power Adapter

X-NPMS can be powered by power adapter. Insert one end of the power supply adapter into the device power supply input port, and connect the other end of the power supply adapter cable to the power supply equipment.

Connecting External Power Supply

X-NPMI and X-NPMS can be powered by external equipment, such as X-DCS2000 and X-DCS3000. Insert one end of the power supply adapter into the NPM power supply input port, and connect the other end of the power supply adapter cable to the power supply equipment.

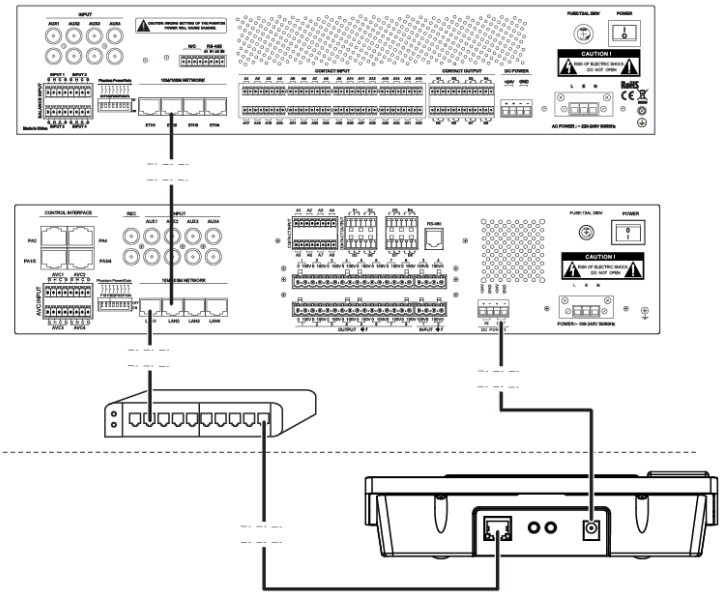


Figure 25 DC Output Schematic Diagram of X-NPMI and X-DCS2000/EN Connection

Connecting POE Power Supply

X-NPMS can be powered by POE. Use twisted pair cables to connect X-NPMS with POE switcher. There is no need to connect to power supply cables or power adapter.

Caution!

When X-NPMS is connected to many key extend modules and powered by POE, we recommend to use POE switcher, which support IEEE802.3 to satisfy the power supply needs.

Connection to Fire Alarm Control Panel

X-618 system can be connected with fire alarm control panel by dry contact or LPI-Modbus. Dry contact is used for third party FAS without any protocol, LPI-ModBus is only used for Notifier's fire alarm control panel. Here we introduce LPI-ModBus mostly.

Either DCS or NRI can be connected with FAS through LPI-ModBus module, to realize the fire alarm broadcasting function. This connection mode, that DCS is directly connected with the FAS through LPI-ModBus module, is more suitable for the situation that the devices are concentratedly positioned. The reason is: Because the devices has to connect with each other by RS-485, the limited distance RS-485 bus, when the equipment adopts distributed installation, using this method can lead to difficult wiring. If NRI is connected with FAS through LPI-ModBus module, can satisfy the application demands in the distributed system. Only make sure NRI and DCS are in the same network. NRI can receive the fire alarm signal automatically, and trigger DCS emergency broadcast according to the linkages which are set in the Config software. This method can realize flexible linkage alarm function, and support 2 types emergency broadcast: evacuation and alert.

X-618 system can be connected with Notifier's fire alarm control panel, and be compatible with:

- N-6000
- NFS2-3030

Connecting DCS with Fire Alarm Control Panel through LPI-ModBus

LPI-ModBus(Loop Peripherals Interface) is a SLC-ModBus converter. X-618 is compatible with the V2.0 and V3.0 version of the LPI-ModBus module. The Converter provides a communication link between FAS and the third party system that use the modbus/RTU communication protocol. Each module supports max 6 DCS, 48 zones. The module power will be provided by the fire alarm control panel. Please refer <LPI-ModBus converter User's Manual > to get more detail.

LPI-ModBus is master, DCS is slave, and the slave address can be set in the Config software. It is necessary that DCS, LPI-ModBus and FAS must be set respectively before working.

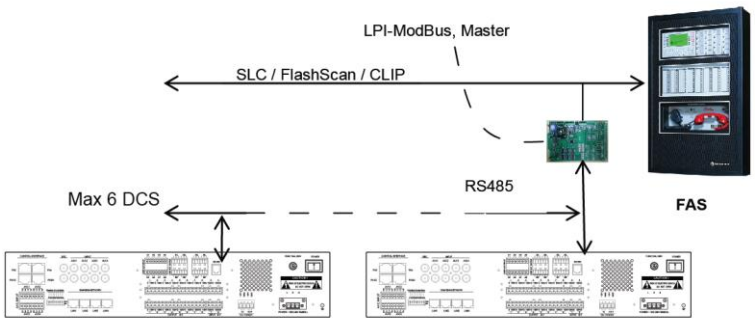
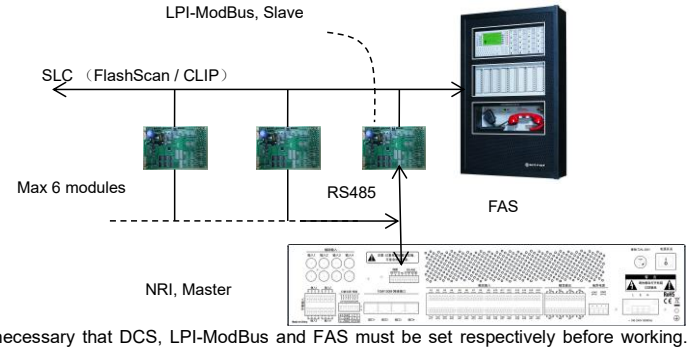


Figure 26 Schematic Diagram of Connecting DCS with Fire Alarm Control Panel through LPI-ModBus

Connecting NRI with the Fire Alarm Control Panel through LPI-ModBus

If NRI is connected with the fire alarm control panel through the LPI-ModBus module, this communication mode can achieve the fire alarm linkage between 32 DCS at most. In this communication mode, NRI is master, LPI-ModBus module is slave; NRI supports up to 6 LPI-ModBus module. The RS-485 interface of LPI-ModBus module will be linked with NRI's RS-485 interface (A1/B1) directly. If need to connect with multiple LPI-ModBus modules, RS-485 bus wiring need to comply with the relevant standards, such as not star connection, ensure the communication quality. The schematic diagram of connecting NRI with the fire alarm control panel through LPI-ModBus module is shown as below.



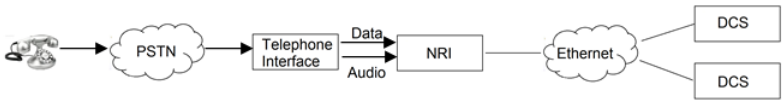
It is necessary that DCS, LPI-ModBus and FAS must be set respectively before working. Before setting, please refer:

- X-618 Public Address and Voice Alarm System Configuration Manual
- LPI-ModBus converter User's Manual

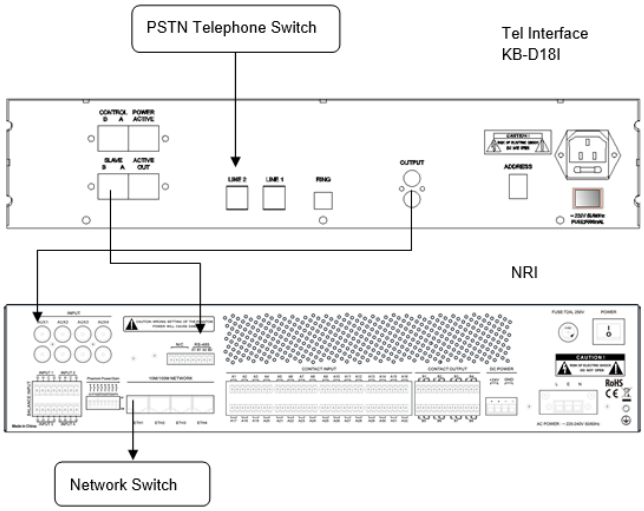
Connecting NRI with Telephone Interface

If users want to enable the telephone interface function, the telephone interface device has to connect to audio input interface (auxiliary input) and communication control port of NRI. The step as described as below:

- Connect the audio output of the telephone interface (ET-D18I) to one external audio input of NRI, make sure that auxiliary input has been configured a telephone task in the Cofig software.
- Connect RS-485 (A2/B2 port) of NRI to SLAVE port (A/B port) of ET-D18I directly, through port A2 connects with port A; port B2 connect with port B.
- Connect the telephone interface device RJ-11 port to the PSTN switch or VoIP gateway, to enable the connection between X-618 system and telephone network interface.



The device connection is shown as below:


PSTN Telephone Switch
Tel Interface
KB-D18I
NRI
Network Switch

4 Installation Inspection

This section describes conducting a series of inspections after completing the system installation procedure so as to ensure that the installation was done correctly.

Inspection

Inspect the following items after installing the X-618 system and before turning the system on:

- Check if sufficient heat ventilation space is left above the DA appliance.
- Check the protective grounding cables to make sure they were correctly connected.
- Check the connections of the power supply to which the power supply cables are connected.
- Check the connection between system components

After inspection, set the functions according to customers' requirements.

Manual Setting

Inquiring the device IP

Through operation, device can display the IP address in the monitoring speakers to confirm the IP address of DCS.

- Press the buttons in order (not release): "Fn" and "CLOSE" one by one, then follow the reverse order to release button. Please release "CLOSE" button first, then release "Fn".
- If you hear the device sounded "beep……", setting successfully.
- The speaker inside the DCS will play the ID voice.
- Inquiry fails when conducted during the broadcast. Inquiring during no broadcast is recommended.

Impedance Calibration

If the system need supervise the speaker circuits, after installation, please calibrate the speaker circuit impedance.

- Press the buttons in order: "Fn", "MONITOR", and "ACK" one by one, then release "ACK" first, and then release others.
- Press the buttons in order (not release): "Fn", "MONITOR", and "ACK" one by one, then follow the reverse order to release button. Please release "ACK" first, then release "MONITOR", finally release "Fn".
- If you hear the device sounded "Beep……" setting successfully.

Commented [YZ1]: Fault to ACK

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