



# **DNA2404CL / DNA2404CH DNA2404DL / DNA2404DH**

**Installation Instructions  
Digital Network 4-ch Power Amplifier**

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## TABLE OF CONTENTS

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<b>COPYRIGHT INFORMATION.....</b>	<b>3</b>
<b>IMPORTANT SAFETY INSTRUCTIONS .....</b>	<b>4</b>
SAFETY SYMBOLS.....	4
<b>SAFETY CONSIDERATIONS .....</b>	<b>5</b>
SAFETY PRECAUTIONS .....	5
GENERAL PRECAUTIONS .....	5
PRECAUTIONS.....	6
PRECAUTIONS WHEN MEASURING HIGH VOLTAGE POTENTIALS.....	6
PRECAUTIONS WHEN WORKING ON ENERGIZED EQUIPMENT .....	6
AC POWER CIRCUITS.....	7
RESUSCITATION .....	7
<b>DESCRIPTION .....</b>	<b>7</b>
<b>CONNECTIONS .....</b>	<b>8</b>
<b>DNA2404 INSTALLATION.....</b>	<b>12</b>
INSTALL UNIT INTO A RACK .....	12
CONNECT LOUDSPEAKERS .....	12
ATTACH FERRITE CORES .....	13
CONNECT NETWORK CABLES.....	13
OPTIONAL - CONNECT FAULT RELAY .....	14
OPTIONAL - CONNECT AMBIENT SENSORS .....	15
CONNECT POWER PLUG.....	15
COMPLETE UNIT CONFIGURATION .....	16
<b>SYSTEM USAGE EXAMPLE .....</b>	<b>17</b>
<b>SPECIFICATIONS.....</b>	<b>18</b>
<b>FCC NOTICE.....</b>	<b>19</b>
<b>WARRANTY AND SERVICE.....</b>	<b>19</b>

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# IMPORTANT SAFETY INSTRUCTIONS

<ol style="list-style-type: none"><li>1. Read these instructions.</li><li>2. Keep these instructions.</li><li>3. Heed all warnings.</li><li>4. Follow all instructions.</li><li>5. Do not use this apparatus near water.</li><li>6. Clean only with dry cloth.</li><li>7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.</li><li>8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.</li><li>9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.</li><li>10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.</li><li>11. Only use attachments/accessories specified by the manufacturer.</li></ol>	<ol style="list-style-type: none"><li>12.  Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.</li><li>13. Unplug this apparatus during lightning storms or when unused for long periods of time.</li><li>14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.</li></ol> <div data-bbox="889 604 1399 844"><div><div><b>CAUTION</b> RISK OF ELECTRIC SHOCK DO NOT OPEN RISQUE DE CHOC ELECTRIQUE NE PAS OUVRIR</div></div><div>TO REDUCE THE RISK OF ELECTRIC SHOCK DO NOT REMOVE COVER (OR BACK) NO USER SERVICEABLE PARTS INSIDE REFER SERVICING TO QUALIFIED PERSONNEL</div></div>
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**WARNING:** To reduce the risk of fire or electric shock, do not expose this apparatus to rain, moisture, dripping, splashing, or place objects filled with liquids on the equipment.

**AVERTISSEMENT:** Afin de réduire le risque d'incendie ou de choc électrique, n'exposez pas cet appareil à la pluie, à l'humidité, à l'égouttement, aux éclaboussures, et ne posez pas des objets remplis de liquide sur l'appareil.

**WARNING:** If apparatus is equipped with Class I grounding plugs for safety purposes, it must be connected to MAINS that employ a protective earth ground connection.

**AVERTISSEMENT:** si l'appareil est équipé de prises de terre classe I, pour des raisons de sécurité, il doit être branché sur un réseau ayant une prise de terre de protection.

**WARNING:** The MAINS plug on this device may be used as the DISCONNECT DEVICE for MAINS power and must remain readily operable.

**AVERTISSEMENT:** La prise principale de cet appareil peut être utilisé comme DISPOSITIF de DECONNEXION du courant principal et doit rester facilement accessible.

**WARNING:** Installation and maintenance of IED equipment is to be made by trained/qualified personnel and must conform to all applicable local codes.

**AVERTISSEMENT:** l'installation et la maintenance des équipements IED doit être faite par du personnel formé / qualifié et doivent être conformes à toutes les réglementations locales en vigueur.

**WARNING:** If unit contains a lithium battery, there is a danger of explosion. Replace only with the same or equivalent type.

**AVERTISSEMENT:** Si l'unité contient une pile au lithium, il y a un danger d'explosion. Remplacez-la uniquement avec un modèle identique ou équivalent.

## SAFETY SYMBOLS

Labeling on products and the *Installation Instructions & User Manual* may use safety related graphical symbols as shown below to note safety requirements.



**Lightning Bolt:** The lightning flash with arrowhead symbol, within an equilateral triangle, WARNING symbol, is intended to alert the user to the presence of uninsulated **dangerous voltage** within the product's enclosure that may be sufficient in magnitude to constitute a risk of electric shock to persons or domestic animals.



**Exclamation Point:** The exclamation point within an equilateral triangle, CAUTION symbol, is intended to alert the user to the presence of important operating and maintenance (servicing) instructions, or a hazard that can damage equipment.



Do not proceed beyond a WARNING or CAUTION notice until you have understood the hazardous condition and have taken appropriate steps.

Ne continuez pas avant d'avoir pris connaissance du danger et prendre les mesures appropriées.

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## SAFETY CONSIDERATIONS

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### SAFETY PRECAUTIONS

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Personnel properly qualified in the application and use of life safety equipment ("qualified personnel") shall read this manual carefully before performing any actions to specify, apply, install, maintain and perform operational tests of IED systems, and associated products in accordance with the instructions in this manual. This manual shall be made available to all qualified personnel who operate, test, maintain, or service IED systems, and associated products. It is strongly recommend that such personnel read and understand the entire manual.

**WARNING: IF SAFETY PRECAUTIONS, INSTALLATION AND TESTING ARE NOT PERFORMED PROPERLY, CONDITIONS COULD EXIST IN WHICH THE IED SYSTEM MAY NOT OPERATE, OR MAY OPERATE IMPROPERLY. THIS COULD RESULT IN PROPERTY DAMAGE AND SERIOUS INJURY OR DEATH TO YOU AND/OR OTHERS.**

**AVERTISSEMENT: SI LES MESURES DE SECURITE, L'INSTALLATION ET LES ESSAIS NE SONT PAS EFFECTUES CORRECTEMENT, CELA POURRAIT EMPECHER LE SYSTÈME IED DE FONCTIONNER, OU DE FONCTIONNER CORRECTEMENT. CELA POURRAIT PROVOQUER DES DEGATS MATERIELS ET DES BLESSURES GRAVES, OU LA MORT POUR LES AUTRES ET/OU VOUS-MEMES.**

It is very important that only responsible, trained personnel are allowed to operate and maintain these systems, and that they use only appropriate equipment and tools. If a person is not trained, they shall contact the IED factory for direction on how to operate and maintain an IED system.

**Unauthorized personnel and equipment must be restricted from the areas of operation.**

All operations should be performed carefully, methodically, and without hurrying. Greater effectiveness will be developed by increased familiarity of personnel with their assignments. During any maintenance operation, if a malfunction occurs or an incorrect indication appears, stop the operation and determine whether or not it is safe to proceed. Before performing any step in a procedure, be sure that the preceding step has been properly executed and correct results obtained. Cleanliness and good housekeeping in all installation areas are major factors in effective accident prevention. Tools and equipment should be maintained in good working order and should always be returned to their proper storage place after usage. Cleaning agents and other cleaning aids should be removed from the equipment areas immediately upon completing the task at hand.

### GENERAL PRECAUTIONS

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Changes, modifications, or additions in connection with the IED system equipment shall not be made without explicit authorization of IED.

Safety devices found on mechanical, and electrical and electronic equipment are put there for the protection of personnel and equipment. These devices must be maintained in good working order and operative at all times. Safety devices shall never be removed or bypassed unless specifically authorized by the IED factory. Where safety devices have been rendered inoperable by proper and specific authorization, adequate notices shall be posted to warn personnel of the potential hazard.

Avoid the use of flammable or toxic cleaning fluids, and the use of carbon tetrachloride is prohibited. Maintenance of the equipment shall be at least what is specified in the IED manuals and literature, and performed only by qualified personnel. Whenever operation and maintenance is ongoing, personnel in the equipment areas shall have effective communications among these areas in order to protect people if any accident occurs.

## PRECAUTIONS

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Precautions which are applicable to general electrical or electronic maintenance are as follows:

- a. Check yourself. Wear no article that might catch on equipment or that might act as a conductor.
- b. Check the working area. The equipment area shall be clean and dry. If possible, stand on a special insulator such as a rubber mat. There should be ample working space and good lighting.
- c. Check the tools. Always use proper tools and check them for their safe condition. Use screwdrivers with plastic handles. Check test equipment periodically and examine test leads carefully as the slightest break in insulation is dangerous.
- d. Check the procedures. Study the entire procedure before taking the first step. Consult the circuit diagram frequently to obtain an understanding of what is accomplished at each step. Know what is in the equipment and how it differs from others on which you have worked.
- e. Be aware that high voltages may be present across terminals that are normally low voltage, due to equipment breakdown. Be careful when measuring low voltages in equipment containing high voltage circuits.
- f. Do not make resistance measurements with power on.
- g. Do not work within the equipment without the presence of a person who is capable of rendering aid, and who is familiar with the procedure for emergency shutdown of the equipment.

## PRECAUTIONS WHEN MEASURING HIGH VOLTAGE POTENTIALS

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Observe the following precautions when measurements must be performed on circuits with potentials over 48 volts.

- a. Do not measure potentials over 48 volts without the presence or assistance of a person who is capable of rendering aid, and who is familiar with the procedure for emergency shutdown of the equipment.
- b. Be sure you are not grounded when you are adjusting equipment or using measuring equipment. Stand on a rubber mat or other insulator if possible. Be sure the equipment area is clean and dry. In general, use only one hand when servicing live equipment.
- c. If a test meter must be held or adjusted while voltage is applied, ground the case of the meter before starting a measurement. Do not touch the live equipment or personnel working on live equipment while holding the meter. The “common” terminal on some A/C electronic voltmeters is at ground potential; never connect the “common” terminal to any point above ground potential.
- d. High-voltage, high-capacitance capacitors should be discharged before servicing is started.



**WARNING!** Discharging must be done carefully and judiciously. First ascertain whether there is a built-in bleeder network. If so, wait a minute or two for the capacitor to discharge through the network. Otherwise, use an external discharge network. This is most important in the case of high voltage or high capacitance capacitors. If one terminal is connected to ground, connect the discharge network between the other terminal and ground. If neither terminal of the capacitor is grounded, connect the network across the capacitor terminals. Connecting a short circuit across the terminals is not recommended. Doing so can produce extremely high currents and a flash which can injure the eyes, vaporize metals, and cause burns.



**AVERTISSEMENT:** La décharge doit être faite soigneusement et judicieusement. Vérifier d'abord si il y a un réseau de purgeur incorporé. Si c'est le cas, attendez une minute ou deux pour que le condensateur se décharge par le réseau. Sinon, utilisez un réseau de décharge externe. Ceci est très important en cas de haute tension ou des condensateurs à haute capacité. Si un terminal est relié à la terre, connecter le réseau de décharge entre l'autre terminal et la terre. Si aucun terminal de condensateur est fondé, relier le réseau au terminal du condensateur. La connexion d'un court-circuit entre les terminaux n'est pas recommandée. Cela peut créer des courants très élevés où des étincelles pourrait blesser les yeux, fondre les métaux et causer des brûlures.

## PRECAUTIONS WHEN WORKING ON ENERGIZED EQUIPMENT

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When it is necessary to work on energized equipment, think ahead and anticipate every hazard. Never work alone on energized equipment.

Interlock switches are installed on some of the doors and panels to break the power circuits when the enclosure is entered. When it is necessary to work within such an enclosure on energized equipment, the interlock may be bypassed. Extreme caution should then be exercised, as dangerous voltages are present within the unit.

## AC POWER CIRCUITS

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Equipment obtaining power from a secondary distribution system should be grounded at all times by means of a third grounding wire on the power lines. Equipment permanently wired to a secondary distribution system should also be grounded separately by connection to a grounding bus or ground rod with a sufficiently large conductor to handle the current expected if the secondary source is accidentally shorted to the equipment.

The ground wire should be protected from mechanical damage and periodically inspected for good physical condition.

Personnel should never depend on a switch to remove power from equipment. If the equipment is connected to the secondary distribution system by means of a power cable, detach the cable from the receptacle before attempting any repairs or removal of chassis.

If the equipment is permanently wired to the secondary distribution system, remove the main fuses or open the power switch. Attach a suitable warning tag to the switch which will warn personnel not to operate the equipment; only the person who originally attaches the warning tag should be authorized to remove it.

## RESUSCITATION

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Personnel working with or near high voltage should be familiar with modern methods of resuscitation. Such information and training is available from the Red Cross or local emergency response personnel such as the police and fire departments.

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## DESCRIPTION

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The DNA2404 series of amplifiers are an integral part of the IED GLOBALCOM Communications System, allowing a few audio zones to be added where necessary when a full 16-zone T9160 amplifier frame is not required. The amplifiers feature CobraNet® or Dante™ digital audio input and four channels of output. The DNA2404 amplifiers are controlled with network commands for selecting input routing and configuring EQ, delay, output levels, and ambient noise level compensation. Amplifiers may be controlled by a stand-alone GLOBALCOM configuration utility or through the GLOBALCOM System Management Center.

The internal amplifier cards are Class D (switching mode) dual channel amplifiers.

Class D operation, combined with an integral switching mode power supply, offers many advantages, and the unique IED design makes full use of these benefits. They include higher efficiency, increased reliability, improved performance, and lower operating cost. Switching mode operation combined with high voltage power MOSFET devices make it possible to eliminate the heavy, costly, bulky transformers. IED's design is stable under all load conditions (phase angles of 0 to 360 degrees). The amplifier card has 34 dB of gain from its analog input to the loudspeaker output. Attenuation is handled ahead of the power amplifier by DSP controls through software.

Inputs are provided for connecting up to eight (8) 540S ambient noise sensors (2 sensors for each output channel). This allows the output of each channel to be automatically adjusted in real time based on the measured ambient noise level in the zone.

The power amplifier has built-in voltage limiting to protect the loudspeakers being driven. In addition, a temperature sensor on the heatsink will automatically shut down an amplifier that becomes too hot, such as due to cooling fan blockage or failure, so as to protect the electronics.

The DNA2404 series amplifiers feature LED indicators for power, audio signals and fault status. A Form C relay is also included that will indicate that a fault is present.

The DNA2400CL/DL amplifiers provide 70.7 volts for transformer-distributed loudspeaker systems. The DNA2404CH/DH amplifier provides 100 volts for transformer-distributed loudspeaker systems.

The model DNA2404CL/DL operates from a 120 VAC power source. The DNA2404CH/DH model operate from a 240 VAC power source.

# CONNECTIONS

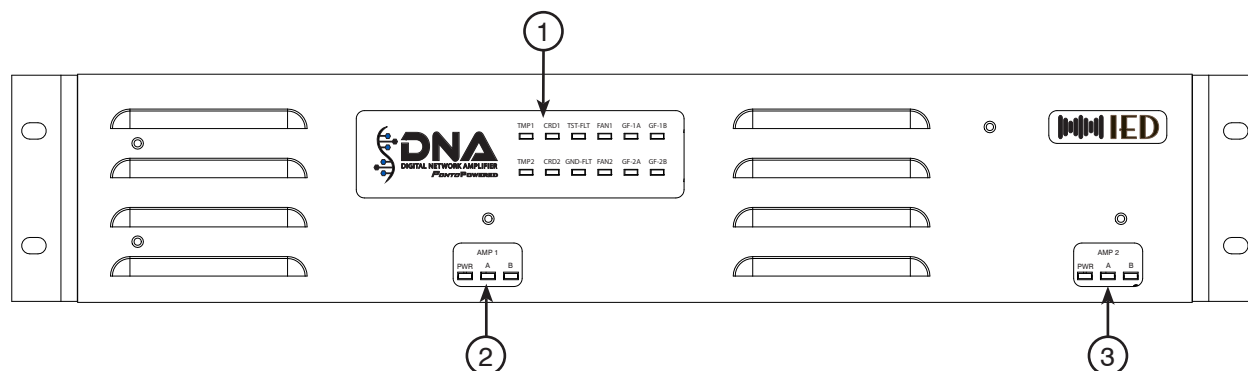


Figure 5 - DNA2404 Front View

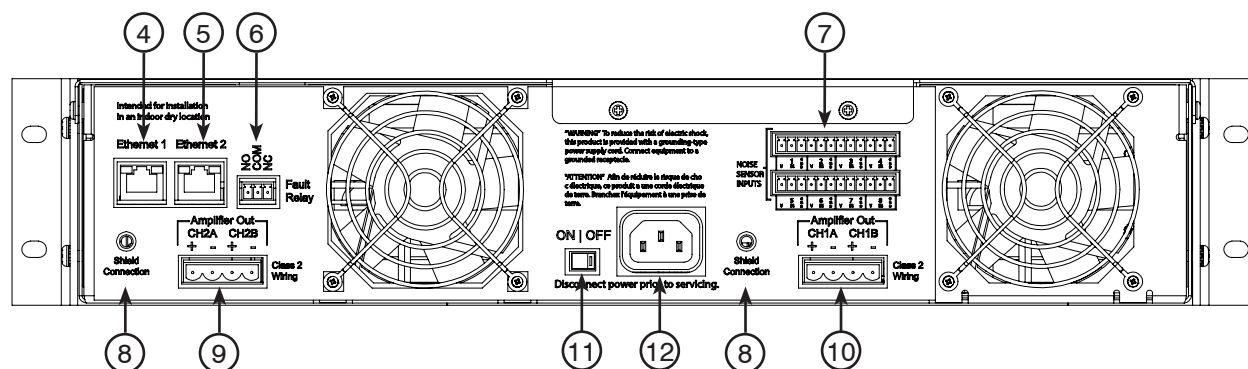


Figure 6 - DNA2404 Rear View

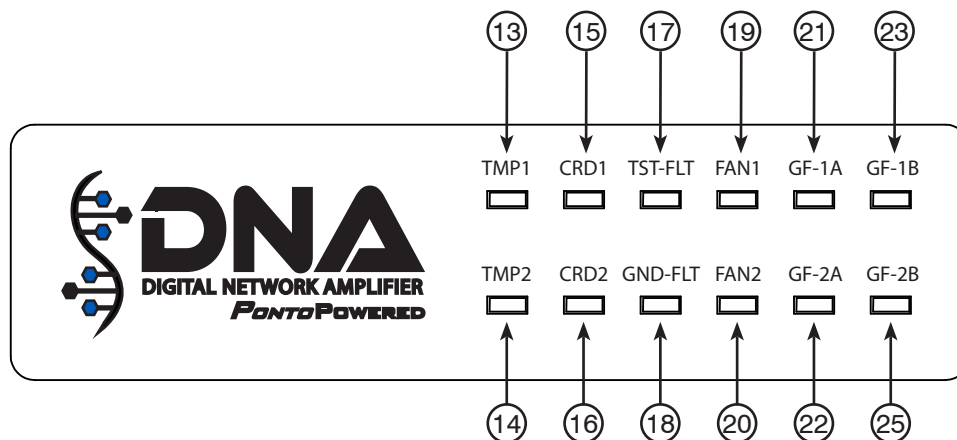


Figure 7 - DNA2404 CPU Status Panel

## 1. CPU Status Panel

This group of LEDs is used to display status information for the amplifier mainframe. Refer to Figure 7 for more detail.

## 2. Amplifier Card 1 Indicator

The device contains two separate internal power amplifier cards, each with two output channels. This LED panel indicates the status of amplifier card 1.

A	<b>Green</b> – Indicates signal present on channel A (–39dBu) <b>Yellow</b> – Indicates signal clipping on channel A (+5dBu)
B	<b>Green</b> – Indicates signal present on channel B (–39dBu) <b>Yellow</b> – Indicates signal clipping on channel B (+5dBu)
PWR	Illuminates to indicate that the card is powered on

## 3. Amplifier Card 2 Indicator

The device contains two separate internal power amplifier cards, each with two output channels. This LED panel indicates the status of amplifier card 2.

A	<b>Green</b> – Indicates signal present on channel A (–39dBu) <b>Yellow</b> – Indicates signal clipping on channel A (+5dBu)
B	<b>Green</b> – Indicates signal present on channel B (–39dBu) <b>Yellow</b> – Indicates signal clipping on channel B (+5dBu)
PWR	Illuminates to indicate that the card is powered on

## 4. Ethernet 1 (Primary)

This 100 Mbps/sec Ethernet LAN port is used to connect the control and digital audio channels of the device to the network using a standard RJ45 connector. Two LEDs are provided to indicate the status as shown in the table below.

This is the primary port and should be used in all applications.

Condition	Left LED	Right LED
Conductor	Flashing Orange	Flashing Green
Performer	Solid Orange	Flashing Green
Fault	Flashing Orange	Flashing Orange

## 5. Ethernet 2 (Secondary)

This 100 Mbps/sec Ethernet LAN port is used to connect the control and digital audio channels of the device to the network using a standard RJ45 connector. Two LEDs are provided to indicate the status as shown in the table below.

This is the secondary port and should only be used in applications that utilize a redundant network topology. It is critical that the primary and secondary Ethernet ports are **never connected to the same the same network or vLAN.**

Condition	Left LED	Right LED
Conductor	Flashing Orange	Flashing Green
Performer	Solid Orange	Flashing Green
Fault	Flashing Orange	Flashing Orange

## 6. Fault Relay

This connector utilizes a 3-pin Phoenix plug with 3.8mm spacing to access the status of the fault relay. The relay is energized when no fault condition is present and the contact is closed between the NC and C terminals. The relay will de-energize when a power supply fault is present and the contact is closed between the NO and C terminals.

Nominal switching capacity	1A 30 V DC, 0.3A 125 V AC (resistive load)
Max. switching power	30 W (DC), 37.5 V A (AC) (resistive load)
Max. switching voltage	110 V DC @ 0.27A, 125 V AC @ 0.3A

## 7. Ambient Sensor Inputs

These connectors utilize 3-pin Phoenix plugs with 3.88mm spacing to connect up to eight (8) 540S ambient sensors. The following connections are required for each sensor.

V	+27 VDC to power 540S sensor
IN	Input signal from 540S sensor
GND	Ground for 540S sensor

Up to two (2) sensors can be used to control each amplifier output channel. When two sensors are used, the signals from both sensors are averaged to provide a signal to adjust the associated output channel. Sensors must be configured and calibrated in the system software in order to operate properly. Sensors are assigned to output channels as shown below.

Sensor Input	Amplifier Channels Controlled
1 and 2	1A
3 and 4	1B
5 and 6	2A

Sensor Input	Amplifier Channels Controlled
7 and 8	2B

## 8. Ground Terminal

This connection is provided for the shield if shielded speaker wire is used.

## 9. Amplifier Card 2 Outputs

This socket provides the outputs for both channels on amplifier card 2. Use the provided 4-pin Phoenix plug to connect the loudspeaker lines to the device. Use stranded 2-conductor unshielded wire of the appropriate gauge for loudspeaker connections.

## 10. Amplifier Card 1 Outputs

This socket provides the outputs for both channels on amplifier card 1. Use the provided 4-pin Phoenix plug to connect the loudspeaker lines to the device. Use stranded 2-conductor unshielded wire of the appropriate gauge for loudspeaker connections.

## 11. Power Switch

Use this switch to turn power on or off to the device. It is a recessed switch to prevent accidental movement and will require the use of a tool to operate.

## 12. AC Power Connector


This socket is used to provide AC power to the device using the supplied power cord. The DNA2404CL/DL uses a Volex 17504 power cord for 120VAC operation. The DNA2404CH/DH use a Volex 17850 for 240VAC operation.


## 13. TMP1

This LED will illuminate when the internal temperature of amplifier card 1 has reached 70°C and indicates an over-heating condition on the amplifier card. Any temperature beyond this threshold will cause the card to go into thermal overload shutdown mode and it will remain in this condition until it has cooled to a temperature below the threshold.

## 14. TMP2

This LED will illuminate when the internal temperature of amplifier card 2 has reached 70°C and indicates an over-heating condition on the amplifier card. Any temperature beyond this threshold will cause the card to go into thermal overload shutdown mode and it will remain in this condition until it has cooled to a temperature below the threshold.

 **CAUTION!** If either amplifier card repeatedly registers a temperature fault, then you should investigate the cause of the high temperatures in order to prevent any damage to the equipment.

 **ATTENTION!** Si l'une des cartes de l'amplificateur à plusieurs reprises enregistre un défaut de la température, alors vous devriez enquêter sur la cause des hautes températures afin d'éviter tout dommage à l'équipement.

#### 15. CRD1

This LED will illuminate when amplifier card 1 has faulted and is no longer operating.

#### 16. CRD2

This LED will illuminate when amplifier card 2 has faulted and is no longer operating.

#### 17. TST-FLT

This LED will illuminate when a fault is detected by the internal audio supervision system. The unit monitors output current on each channel to provide fault indications if there are any changes detected in the loudspeaker load from when it was calibrated.

#### 18. GEN-FLT

This LED will illuminate when any of the available fault conditions are present. It coincides with the activation of the fault relay on the back of the unit.

#### 19. FAN1

This LED will illuminate when the internal cooling fan on amplifier card 1 has failed.

#### 20. FAN2

This LED will illuminate when the internal cooling fan on amplifier card 2 has failed.



**CAUTION!** The cooling fans are required for proper operation. If any of the internal cooling fans have failed, immediately remove the unit and return it to the factory for service. Failure to do so may result in equipment damage.



**ATTENTION!** Les ventilateurs de refroidissement sont nécessaires pour un bon fonctionnement. Si l'un des ventilateurs de refroidissement internes ont échoué, retirez immédiatement l'appareil et le retourner à l'usine pour réparation. Ne pas le faire peut entraîner des dommages matériels.

#### 21. GF-1A

This LED will illuminate when a ground fault is present on the A channel of amplifier card 1. A ground fault condition exists when either the + or – sides of the loudspeaker line are shorted to ground.

#### 22. GF-2A

This LED will illuminate when a ground fault is present on the A channel of amplifier card 2. A ground fault condition exists when either the + or – sides of the loudspeaker line are shorted to ground.

#### 23. GF-1B

This LED will illuminate when a ground fault is present on the B channel of amplifier card 1. A ground fault condition exists when either the + or – sides of the loudspeaker line are shorted to ground.

#### 24. GF-2B

This LED will illuminate when a ground fault is present on the B channel of amplifier card 2. A ground fault condition exists when either the + or – sides of the loudspeaker line are shorted to ground.

# DNA2404 INSTALLATION

**NOTE:** This equipment is intended for installation in a restricted access location.

## INSTALL UNIT INTO A RACK

The DNA2404 requires two rack units (2 RU) of available space and a recommended mounting depth of 19.4" to allow adequate clearance for cabling and ventilation. Mount the unit using suitable screws for the rack being used, two per rack mount ear. It can be mounted above or below other equipment that does not generate excessive heat. Although the unit's chassis is shielded against radio frequency and electromagnetic interference, extremely high fields of RFI or EMI should be avoided.

The unit must be situated so that its location or position does not interfere with proper ventilation. Air is drawn in through the front of the unit and exhausted out the back.

Turn off all equipment before making connections. Please refer to any safety and installation instructions that came with the rack prior to assembly.

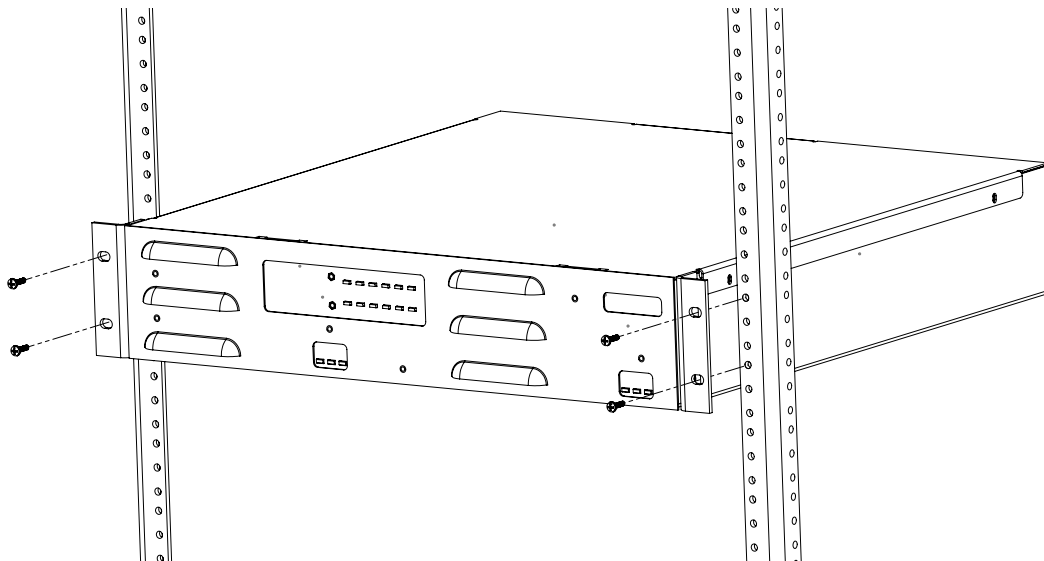


Figure 8 - Mounting Unit in a Rack

## CONNECT LOUDSPEAKERS

Loudspeaker cables are connected using the supplied 4-position Phoenix plugs. Ensure that the proper polarity is maintained throughout all terminations. Use a stranded 2-conductor unshielded wire of a gauge appropriate to the loudspeaker load and wire length.

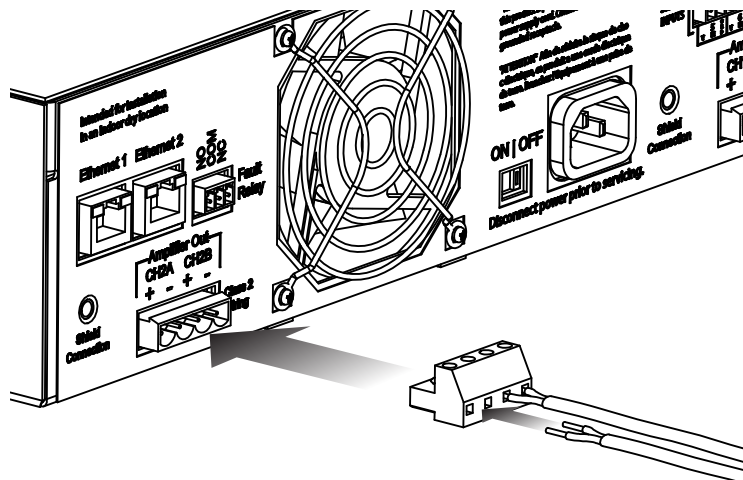


Figure 9 - Connecting Loudspeakers

## ATTACH FERRITE CORES

The included ferrite cores must be installed as shown in Figure 10 in order for this device to comply with Part 15 of the FCC rules.

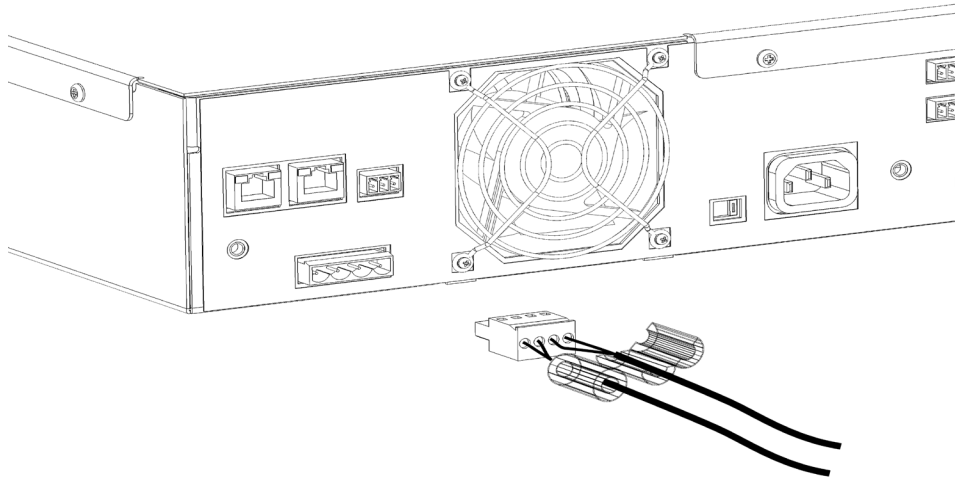


Figure 10 - Ferrite Core Installation

## CONNECT NETWORK CABLES

The unit has two Ethernet ports located on the rear of the unit. Only one is required for proper system operation. The second should only be used for installations that utilize a redundant Ethernet network. It is important that both ports are **never** plugged into the same network or vLAN. Connect the port or ports to available Ethernet switch ports using a suitable Cat-5e or Cat-6 jumper cable. The switch ports should be configured for auto-negotiation 10/100 or 10/100/1000.

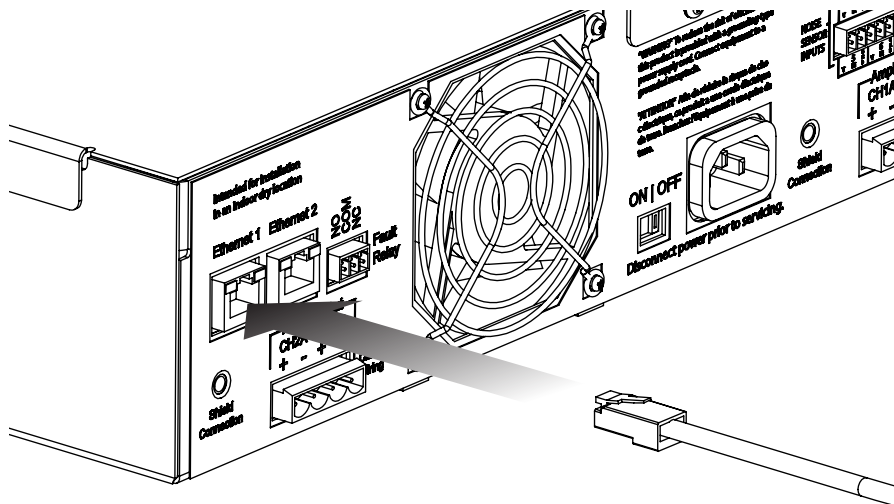


Figure 11 - Primary Network Cable Connection

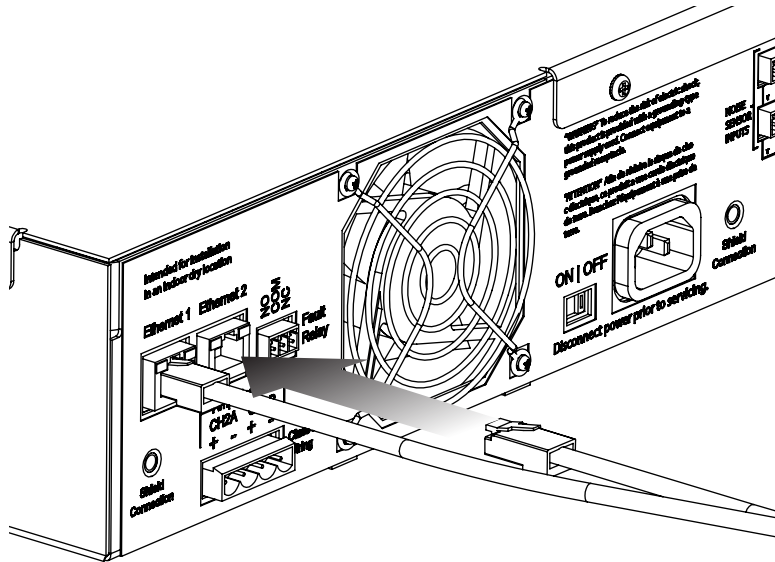


Figure 12 - Secondary Network Cable Connection

## OPTIONAL - CONNECT FAULT RELAY

The fault relay is located on the back of the unit and can be used to signal a fault condition to an external supervision system. Connect to either the normally open (NO) or normally closed (NC) and common (C) terminal of the relay using a wire of the appropriate gauge and the supplied 3-position Phoenix plug. The labeling on the back of the unit represent the state of the relay when a fault condition is not present.

**NOTE:** When used in a system required to meet the UL 1711 standard, this relay must be connected to the master annunciator panel to provide audible fault indication.

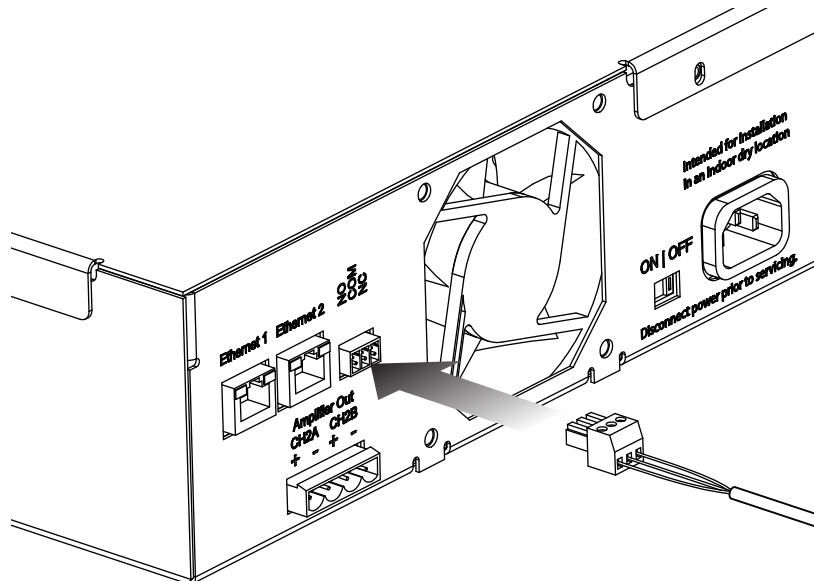


Figure 13 - Connecting the Fault Relay

## OPTIONAL - CONNECT AMBIENT SENSORS

Connect 540S ambient sensors using the supplied 3-position Phoenix plug. Ensure that the connections are made to match the terminals on the 540S sensor. The following wiring scheme is recommended if using 3-conductor shielded audio cable.

Terminal	Wire	Function
V	Red	+27 VDC to power 540S sensor
IN	Black	Input signal from 540S sensor
GND	Shield	Ground for 540S sensor

**Note:** Ambient sensors must be configured and calibrated properly in software before use.

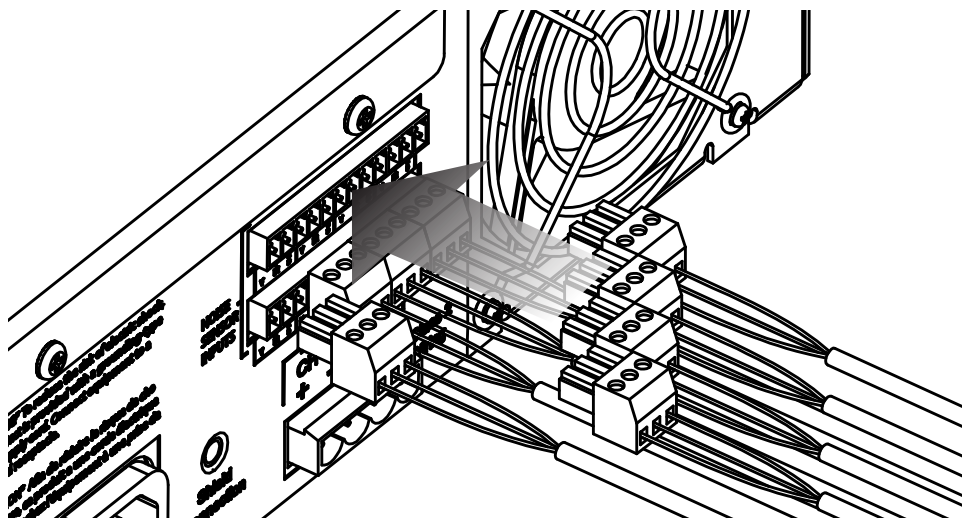


Figure 14 - Ambient Sensor Connections

## CONNECT POWER PLUG

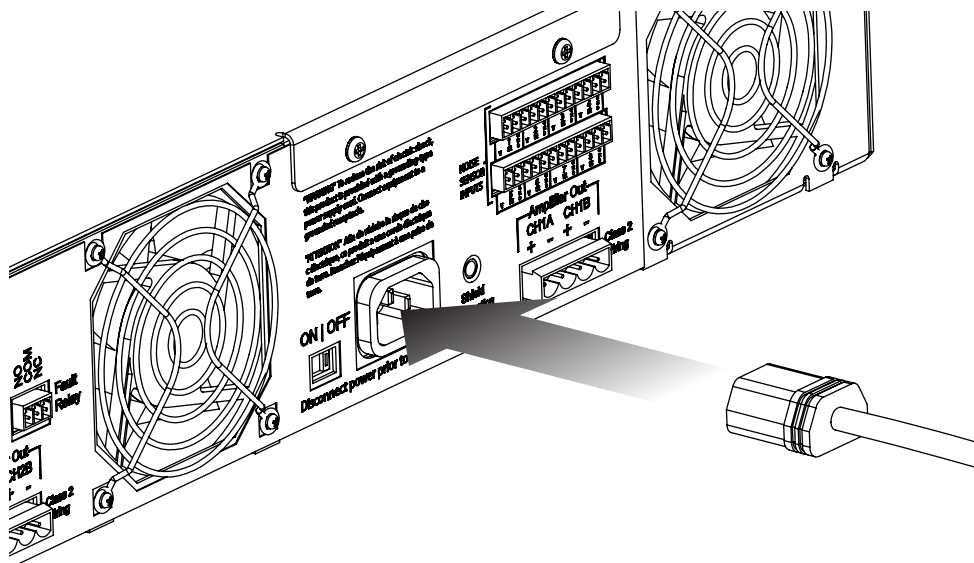
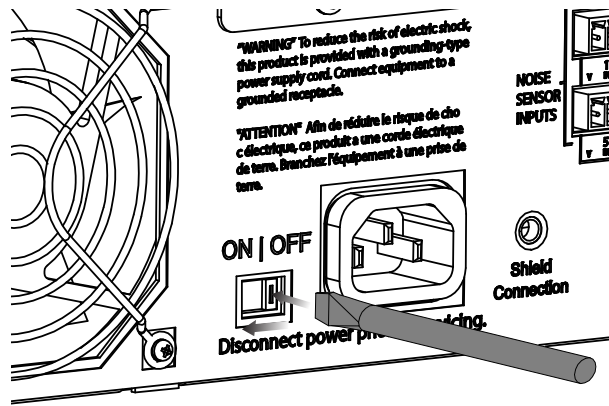


Figure 15 - Connect AC Power Plug

Connect the supplied AC power cable to the back of the unit as shown in Figure 15. Connect the other end of the cable to a suitable power outlet on a circuit of sufficient power capacity.



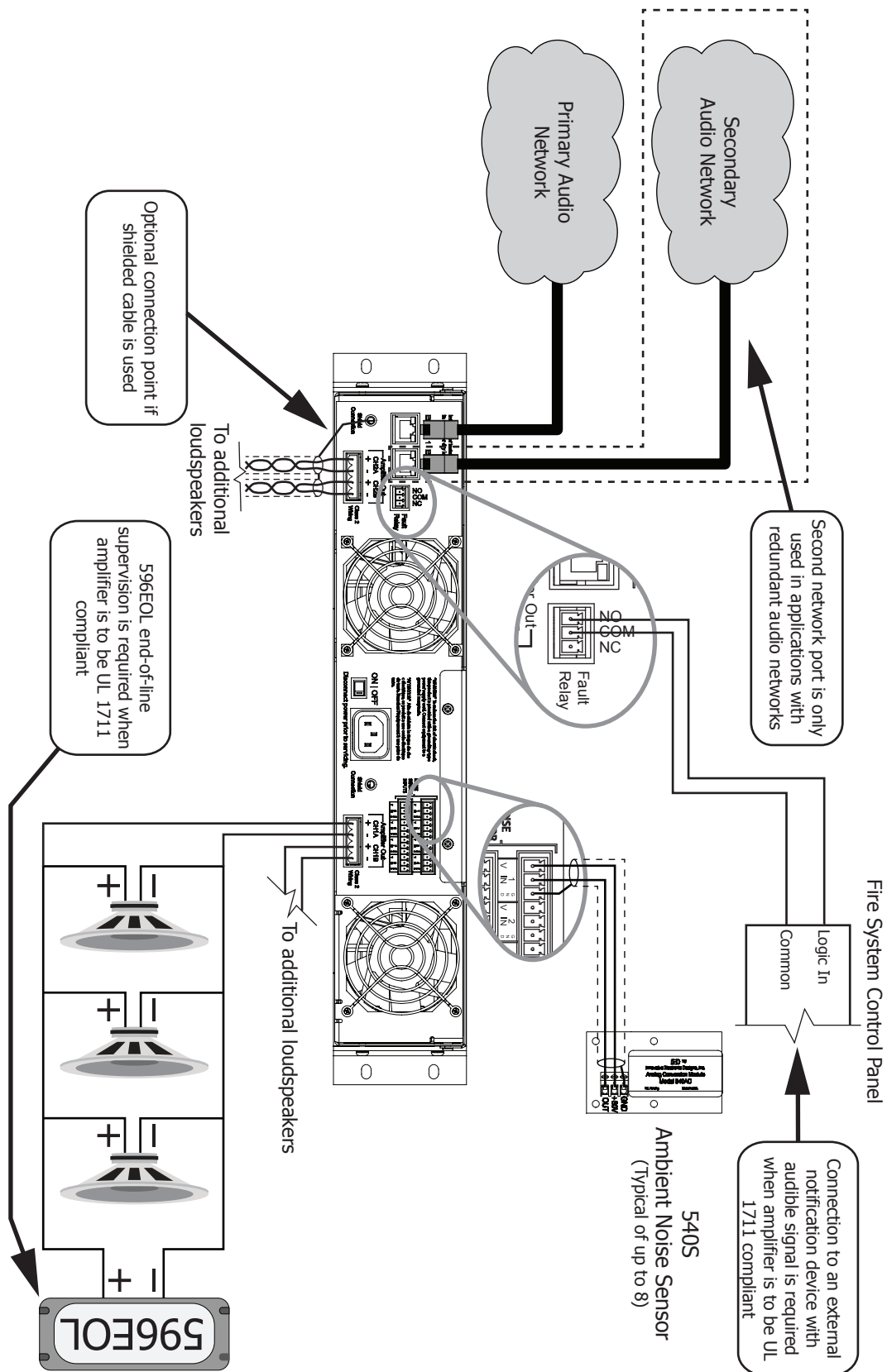
**Figure 16 - Power Switch**

Turn the unit on using the power switch located on the rear of the unit. It is a recessed switch to prevent accidental movement and will require a tool to activate.

### **COMPLETE UNIT CONFIGURATION**

Once the unit is booted up, complete the system configuration using the supplied configuration software. Refer to the appropriate user guides for the specific model configuration to complete the unit setup.

# SYSTEM USAGE EXAMPLE



# SPECIFICATIONS

Max. Number. of audio Inputs ..... 4 BGM / 4 Program  
Number of Amplifier Outputs ..... 4

## Connectors

Ethernet (2) ..... Control and Digital Audio (100 Mbps)  
Speaker (2) ..... 4-pin Phoenix (2ch per block)  
Fault Relay (1) ..... 3-pin Phoenix, 3.81mm spacing  
Ambient Sensors (8) ..... 3-pin Phoenix, 3.81mm spacing  
AC Power  
    DNA2404CL/DL (120VAC) ..... Volex 17504  
    DNA2404CH/DH (240VAC) ..... Volex 17850

## Controls and Indicators

AC Power ..... Rear panel switch  
Power On (2, 1 per internal card) ..... Green LED  
Audio Present/Clipping (4, 1 per channel) ..... Green/Yellow LED  
Card Fault (2, 1 per internal card) ..... Yellow LED  
Temperature Fault (2, 1 per internal card) ..... Yellow LED  
Ground Fault (4, 1 per channel) ..... Yellow LED  
Fan Fault (2, 1 per fan) ..... Yellow LED

## AC Power Requirements

Quiescent Power ..... 95 Watts  
Full Power – Speech/Voice Announcement (all channels driven) ..... 215 Watts  
Full Power – Sine Wave (all channels driven) ..... 1050 Watts

## Electrical, Analog (All Measurements at 120VAC unless noted otherwise)

Power Output (UL 1711 Limitation per channel)  
    DNA2404CL/DL ( $R_L = 25 \Omega$ ) ..... 200 W (70.7V)  
    DNA2404CH/DH ( $R_L = 50 \Omega$ ) ..... 200 W (100V)  
Efficiency  
    Power Output = 200 W ..... 79%  
    Power Output = 100 W ..... 74%  
Output Clipping Level  
    DNA2404CL/DL ..... 70 V RMS  
    DNA2404CH/DH ..... 100 V RMS  
Frequency Response ( $P_O = 50 \text{ W}$ , 20 Hz - 20 kHz) .....  $\pm 1 \text{ dB}$   
Power Bandwidth ..... 20 Hz – 20 kHz,  $\pm 3 \text{ dB}$   
Signal-to-Noise Ratio (Unweighted, 20 Hz – 20 kHz ref) .....  $> 85 \text{ dB}$   
Total Harmonic Distortion, THD ( $P_O = 200 \text{ W}$ ) .....  $< 0.2\% @ 2 \text{ kHz}$   
Output Impedance,  $Z_O$   
    DNA2404CL/DL ..... 0.67 ohms  
    DNA2404CH/DH ..... 0.6 ohms  
Output Loading (20 Hz – 20 kHz) ..... Stable for any load 0W to  $\infty$

## Fault Relay

Nominal switching capacity ..... 1A 30 V DC, 0.3A 125 V AC (resistive load)  
Max. switching power ..... 30 W (DC), 37.5 V A (AC) (resistive load)  
Max. switching voltage ..... 110 V DC @ 0.27A, 125 V AC @ 0.3A

## Mechanical

Width (with rack-mount ears) ..... (48.3 cm) 19"  
Height ..... (8.9 cm) 3.5"  
Depth ..... (43.2 cm) 17"  
Note: For proper fan operation add a minimum of (5.1 cm) 2" clearance.  
Weight ..... (8.7 kg) 19.2 lb

## Environmental Specifications

Operating Temperature Range..... (0 °C – +40 °C) +32 °F – +104 °F

Applicable for typical voice paging and background music applications.

Storage Temperature Range ..... (–40 °C – +70 °C) –40 °F – +158 °F

## COMPLIANCE

### SAFETY:

UL 60065

UL 1711 (DNA2404CL/DL Only)

CAN/CSA C22.2 No. 60065

IEC 60065

EN 60065

CB Certificate

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## FCC NOTICE

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause an undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment under FCC rules.

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## WARRANTY AND SERVICE

This product is covered by a limited factory warranty. Use of any IED software is considered an agreement to the terms outlined in the **Software End User License Agreement**. The terms of both policies can be found at the following web address:

<http://www.iedaudio.com/support/Policy.aspx>

Should your unit require service, please contact IED at 502-267-7436 to obtain a Return Authorization (RA) number.