



Operating Manual

Network Enabled Multi-Channel Power Amplifiers



ne8250, ne8250.25, ne8250.70, ne8250.10



ne4250, ne4250.25, ne4250.70, ne4250.10

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Important Safety Instructions

Consignes de sécurité à lire attentivement



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons. The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance instructions in the literature accompanying the device.

Le symbole de la foudre dans un triangle équilatéral symbolisant la foudre est prévu pour sensibiliser l'utilisateur à la présence de tension de voltage non isolée à l'intérieur de l'appareil. Elle pourrait constituer un danger de risque de décharge électrique pour les utilisateurs. Le point d'exclamation dans le triangle équilatérale alerte l'utilisateur de la présence de consignes qu'il doit d'abord consulter avant d'utiliser l'appareil.

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.
6. Do not use this apparatus near water.
7. Clean only with dry cloth.
8. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
9. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus.
10. 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 are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
11. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
12. Only use attachments/accessories specified by the manufacturer.
13. 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.
14. Unplug this apparatus during lightning storms or when unused for long periods of time.
15. 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.

1. Lisez ces instructions.
2. Conservez ces instructions.
3. Observez les avertissements.
4. Suivez ces instructions.
5. Pour réduire le risque de feu ou la décharge électrique, ne pas exposer cet appareil pour pleuvoir ou l'humidité.
6. Ne pas utiliser l'appareil près de l'eau.
7. Le nettoyer à l'aide d'un tissu sec.
8. Ne pas bloquer les ouvertures de ventilation, installer selon les consignes du fabricant.
9. Eloigner des sources de chaleur tel: radiateurs, fourneaux ou autres appareils qui produisent de la chaleur.
10. Ne pas modifier ou amputer le système de la mise à terre. Une prise avec mise à terre comprend deux lames dont une plus large ainsi qu'une mise à terre: ne pas la couper ou la modifier. Si la prise murale n'accepte pas la fiche, consulter un électricien pour qu'il remplace la prise désuète.
11. Protéger le cordon de secteur contre tous bris ou pincement qui pourraient l'endommager, soit à la fiche murale ou à l'appareil.
12. N'employer que les accessoires recommandés par le fabricant.
13. N'utiliser qu'avec les systèmes de fixation, chariots, trépied ou autres, approuvés par le fabricant ou vendus avec l'appareil.
14. Débrancher l'appareil lors des orages électriques ou si inutilisé pendant une longue période de temps.
15. Un entretien effectué par un centre de service accrédité est exigé si l'appareil a été endommagé de quelque façon: si il a été exposé à la pluie,, l'humidité ou s'il ne fonctionne pas normalement ou qu'il a été échappé.

FCC Compliance

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

1. This device may not cause harmful interference
2. This device must accept any interference received, including interference that may cause undesired operation

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in both a commercial and residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help..

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WARNING:
THIS APPARATUS MUST BE EARTHED

1. INTRODUCTION

Thank you for your purchase of this NE (network enabled) multi channel power amplifier. NE power amplifiers combine light-weight, state of the art, high efficiency switching technology with integrated Ethernet control, and offer optional factory installed expansion cards to provide comprehensive internal DSP processing, AES/EBU input, and networked digital audio input. Please read the entire manual to fully understand the features and capabilities of this product.

About Ashly

Ashly Audio was founded in 1974 by a group of recording engineers, concert sound professionals, and electronics designers. The first products were elaborate custom consoles for friends and associates, but business quickly spread to new clients and the business grew. The philosophy we established from the very beginning holds true today: to offer only the highest quality audio tools at an affordable cost to the professional user – ensuring reliability and long life. Many years later, Ashly remains committed to these principles.

Ashly's exclusive Five Year, Worry- Free Warranty remains one of the most liberal policies available on any commercial- grade product. The warranty covers every product with the Ashly brand name, and is offered at no extra cost.

FCC Compliance

This device complies with part 15 of the FCC Rules for Class B operation, subject to the following two conditions:

1. This device may not cause harmful interference
2. This device must accept any interference received, including interference that may cause undesired operation.

2. UNPACKING

As a part of our system of quality control, every Ashly product is carefully inspected before leaving the factory to ensure flawless appearance. After unpacking, please inspect for any physical damage. Save the shipping carton and all packing materials, as they were carefully designed to reduce to minimum the possibility of transportation damage should the unit again require packing and shipping. In the event that damage has occurred, immediately notify your dealer so that a written claim to cover the damages can be initiated.

The right to any claim against a public carrier can be forfeited if the carrier is not notified promptly and if the shipping carton and packing materials are not available for inspection by the carrier. Save all packing materials until the claim has been settled.

3. THE NE MULTICHANNEL AMP SERIES

Models:

ne4250 - Four Channels, Low-Z, 250W per channel into 4 ohms

ne8250 - Eight Channels, Low-Z, 250W per channel into 4 ohms

ne4250.70 - Four Channels, 70 volt output, 250W per channel (must be ordered as 70V)

ne8250.70 - Eight Channels, 70 volt output, 250W per channel (must be ordered as 70V)

ne4250.25 - Four Channels, 25 volt output, 250W per channel (must be ordered as 25V)

ne8250.25 - Eight Channels, 25 volt output, 250W per channel (must be ordered as 25V)

ne4250.10 - Four Channels, 100 volt output, 250W per channel (must be ordered as 100V)

ne8250.10 - Eight Channels, 100 volt output, 250W per channel (must be ordered as 100V)

The basic NE multichannel amplifiers come in either four channel or eight channel configurations with Euroblock input and output connectors. Standard features on all models include balanced inputs, bridge mono mode, and Ethernet control using **Protea^{ne}** software. Remote control functions include standby, contact closure preset recall, and DC level control. Programmable remotes for NE amplifiers with DSP include Ashly's WR-5 or neWR-5 button controllers, RD-8C or FR-8/16 fader controllers, third party RS-232 control, or Ashly Remote app for iPad®.

Factory Installed Options

Factory installed hardware options for NE multichannel power amplifiers include the following:

1) Internal DSP - With Protea DSP installed, each input channel benefits from pluggable DSP blocks for dynamics control, gain functions, graphic and/or parametric EQ, Hi-pass/Lo-pass filters, time delay, metering, and test signal generator. A mixer section with assignable routing allows any input to drive any or all amplifier outputs. Output channels have the same DSP functions as inputs, with the addition of automated crossover setup and FIR filter capability. Both inputs and outputs can copy/paste their settings to other channels, or can link with one or more other channels to track their settings.

Presets store and retrieve parameters of an entire amplifier control surface and DSP settings. In addition, Sub Presets allow for a collection of individual DSP parameters within and across multiple channels of an amplifier to be stored and recalled as a set, affecting only those parameters and channels which have been tagged. Up to 35 presets/subpresets can be stored within the amplifier and can be recalled in real time from a computer, by a programmable remote control, or by on-board contact closure switch connections on the back panel.

2) AES3 Input - With a four or eight channel AES3 option installed, AES3 outputs can plug directly into the amplifier. Using AES3, 2 channels of digital audio are sent over a single mic cable, maintaining a completely digital signal path until just before the power amplification stage. 48kHz & 96kHz data rates are supported. AES3 can be installed with or without DSP.

3) Network Audio - Dante® or CobraNet® network audio modules can be factory installed, with or without installed DSP. Note that amplifiers without DSP must have a factory installed OPDAC4 module to use network audio.

Dante®, created by [Audinate](http://audinate.com), is an Ethernet based digital AV network technology that uses existing 100MB or 1GB network infrastructure for delivery of high performance, high channel count audio signals. Ashly products with network audio capability can be integrated into a Dante™ digital audio system by purchasing our OPTDante module as a factory installed option, and controlled using Protea^{ne} software.

CobraNet® is a technology developed and supported by Cirrus Logic (www.cirrus.com). It is a combination of software, hardware and network protocol which allows distribution of multiple channels of real-time, high quality digital audio over a standard Ethernet Network. For detailed information about CobraNet or its implementation or installation please visit www.cobranet.info.

Protection

NE multichannel amplifiers use the following protection schemes:

Over Current Protection - Is controlled in the output stage.

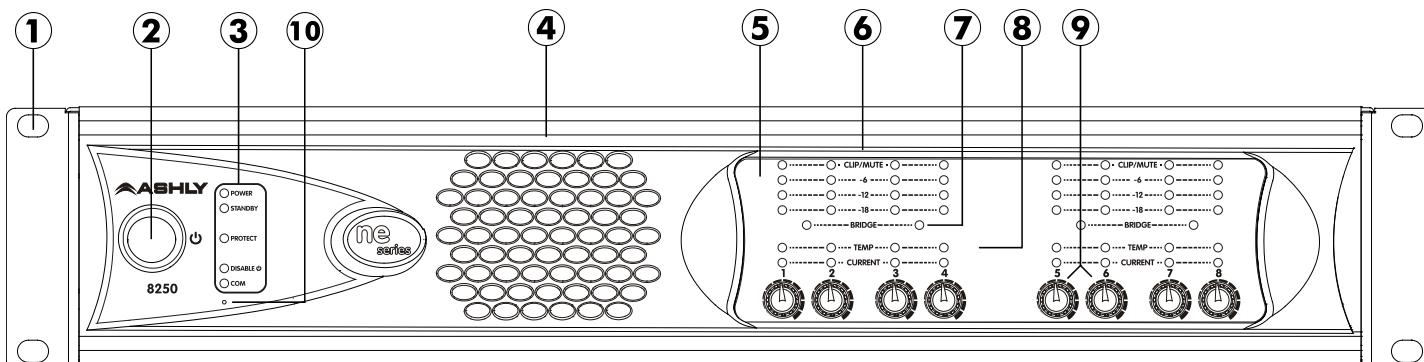
Thermal Protection - The amplifier senses output device temperature and adjusts a two-speed fan to keep the operating temperature within acceptable limits. If device temperatures exceed that limit, the input to that channel is first reduced, and as a last resort the power supply will be switched off while the fan continues to run.

Mains Protections – Protection within the power supply includes: Inrush Current Limitation during power up, Mains Over Voltage Detection, and internal Mains Fuse Protection. To protect the Mains fuse against AC overcurrent due to excessive audio output current, there is also a protection scheme indicated on the amplifier front panel and software control surface which reduces audio output level until the overcurrent condition is no longer present.

Physical Description

Each model in the NE Multichannel series is 2RU. The model number is indicated in the lower left corner of the front panel.

Amplifier Front Panel



1. Mounting Holes – For rack mounting

2. Power Switch – Switches the unit on or off. *Note: The power switch can be disabled from software.*

3. Status LEDs – Indicates status of Power, Standby, Protect, Power Switch Disable, and Ethernet activity.

4. Air Vents – Cool air enters the sides and is blown out the front.

5. Channel Controls – Channel control area.

6. Signal LEDs – The lowest LED will begin to light when the output voltage is -18dBu below rated output. The Clip LEDs will begin to flash when output voltage is 1/2 volt below the rated output power supply voltage.

7. Bridge – This LED indicates that the channel pair is selected to BRIDGE mode from the back panel switch, and that only the odd input channel level control is active.

8. Temp and Current LEDs – The Temp LED indicates an excessively high operating temperature and that countermeasures are being used to cool the amplifier. The Current LED confirms that the amplifier output is delivered to a speaker load.

9. Channel Attenuators – These control the input signal level to the amplifier. They can be disabled from software.

10. Factory Reset – To reset all internal configurations (including passwords) back to their original factory settings, press and hold this recessed front panel momentary switch during power up until all channel LEDs are lit. Upon reset completion, the LEDs will turn off and the amp will resume normal operating mode.

Amplifier Rear Panel (illustration on next page)

1. Optional Network Audio – This factory option allows connection to a Dante or Cobranet audio network.

2. Optional AES3 - This slot is for factory installation of an AES3 digital audio input module.

3. Ethernet Port - This RJ45 jack is for connecting to an Ethernet network for software control.

4. Input Connector - This is used for a three wire (G, +, -) balanced input on Euroblock connectors.

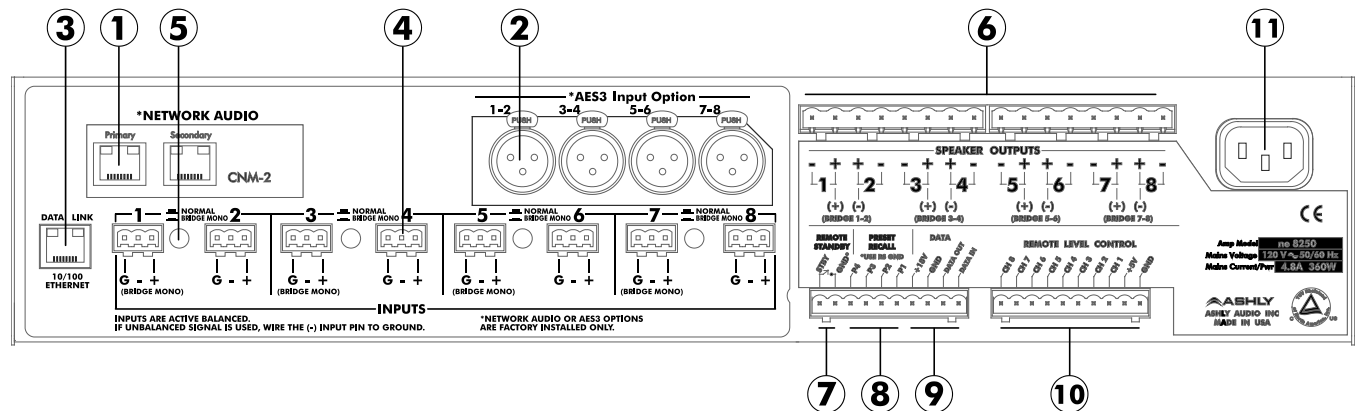
5. Normal/Bridge Switch - This switches the channel pair to Bridge Mode.

6. Euroblock Speaker Connectors - Used to connect speakers to individual output channels or in bridged mode.

7. Remote Standby - These two contact closure pins are wired to a switch to remotely place the amp in standby.

8. Preset Recall - These four pins (and GND) can be wired to remote switches to recall up to four amplifier presets.

Amplifier Rear Panel (continued)



9. Data - These four pins can be wired to remote serial data controllers such as the Ashly WR-5 or RD-8C.

10. Remote Level Control - These pins are wired to potentiometers such as the WR-1 for level control of individual channels

11. AC Inlet - Used for the detachable AC cord supplied with the amplifier.

WARNING: Do not remove or lift the mains connector ground pin.

Installation

Before connecting to mains power, make sure that the switches and wiring are all set to the configuration needed for your particular application. Failure to do so could result in damage to the unit or to other components in your system.

CAUTION: Before mounting or connecting the amplifier, always disconnect it from AC. Use four screws with lockwashers when mounting the amplifier to the front rack rails. Rear support is also recommended, especially for mobile or touring use. To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.

Requirements

NE multichannel amplifiers have specific physical, electrical and signal requirements for proper operation. These requirements will vary depending on your specific application, setup, and settings on the amplifier. When setting up and testing your system, please take special care to double check all connections and settings. Refer to the specifications section of this manual for specific input, output and other figures.

Constant Voltage Models (25V, 70V, and 100V) and High Pass Filters

Amplifiers that are factory configured as constant voltage models (25V, 70V, or 100V) come standard with High Pass Filter (HPF) hardware installed, allowing for software selectable 80Hz or 400Hz filters on each channel. High pass filters prevent low frequency energy from saturating the iron core of low cost speaker tap transformers typically used in distributed constant voltage systems. Available filters are 80Hz @12dB/oct, 400Hz @ 6dB/oct, and OFF. The 400Hz setting is commonly used in paging systems with horn speakers. *Note that with just the standard HPF hardware installed, DSP, network audio, or AES3 input are unavailable.*

NE amplifiers shipped with AES3 or network audio, but without DSP, also come with an Ashly OpDAC A/D converter card installed. This OpDAC converter card offers the same software controlled HPF options as the standard amp.

Note: Constant voltage amplifiers that ship with Protea DSP *do not* have the standard 80Hz/400Hz HPF circuitry installed, and as such must have High Pass filters manually set in the software DSP section.

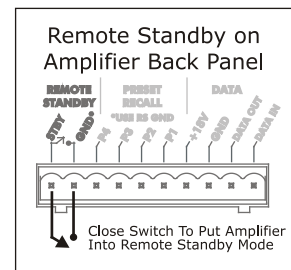
4. REMOTE AMPLIFIER CONTROL

ON/OFF/Remote Standby

The NE multichannel amplifiers have three possible states, OFF, ON, and STANDBY, each with a status LED on the front panel. Control for these three states is managed by the following:

1) **Power Switch** - When the power switch is turned off the amplifier is completely off, UNLESS the power switch has been disabled from software, in which case the power switch on the amplifier has no effect at all. If the power switch has been disabled, the front panel DISABLE LED will be lit. *Even if the AC power is removed, the amplifier's internal memory will retain the <power switch disabled> status until changed again from software. Performing a factory reset will clear and restore all internal amplifier memory to original factory settings.*

2) **Remote Standby Contact Closure** - When these two pins are wired to a switch and connected closed, the amp will go into standby mode, whereby the amp is active but in a reduced power state. For remote standby to work, the power switch must be turned on or on but disabled in software.



3) **Software On/Standby** - On/standby in software functions the same as the remote standby contact closure on the back panel. Clicking on STANDBY places the amp into standby mode. Software on/standby does not override the hardware Remote Standby, they both remain active.

4) **Software Power Switch Enable/Disable** - This feature disables the front panel power switch. If the power switch is disabled from software, the front panel DISABLE LED is lit. The power switch remains disabled until enabled again from software, even after the amp is unplugged from AC.

Preset Recall

The preset recall connections on the back panel allow different presets to be loaded from amplifier memory when one of the contacts is closed to the provided ground pin. Device presets are configured from software and can include gain settings, mute status, polarity, and DSP functions if the amp has DSP installed.

The NE amplifier stores up to 35 internal device presets. A device preset stores the most commonly used control data for that amplifier. *A device preset (saved to amplifier) differs from a computer preset file in that a computer preset file stores all information associated with the amplifier and its software settings, while the device preset only stores the most commonly used and relevant audio settings.* Changes to an individual preset can be saved to the amplifier in software using <Preset Options/Save Preset To Device>, or saved to a PC using <Preset Options/Save Preset To File>. Sub Presets (collections of DSP parameters individually selected from software) are saved in a similar fashion. Individual preset files use the extension (*.pne).

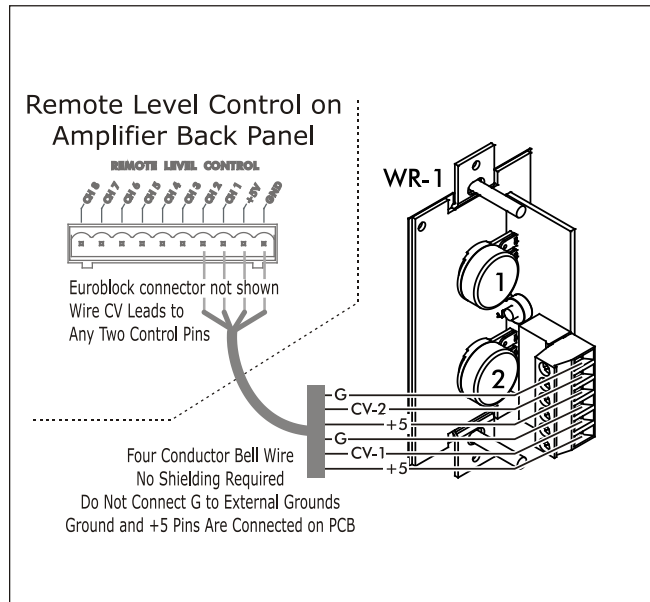
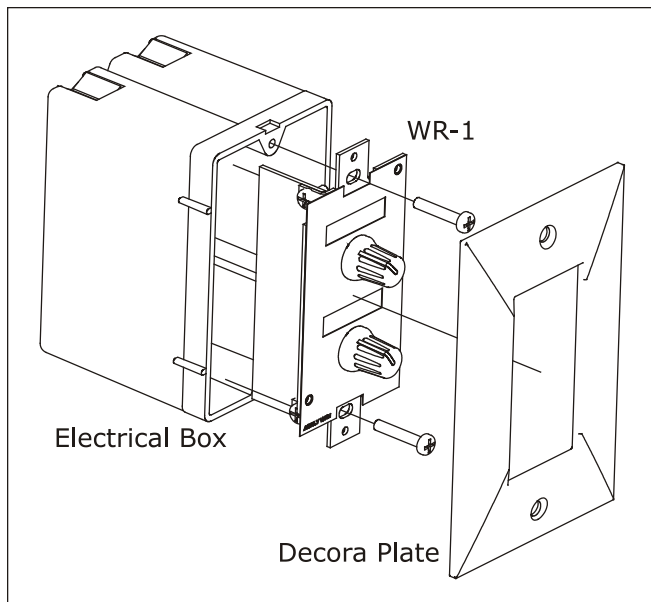
Loading a preset can be done using software, using preset recall contact closure connections on the back panel, using an Ashly programmable remote button controller, or using the Ashly Remote iPad® app. Contact closure pins P1 through P4 load device presets 1-4 from the amplifier memory.

Caution: A new preset may have dramatically different settings capable of damaging sound system components. Be careful not to recall the wrong preset while the system is on.

Data Control

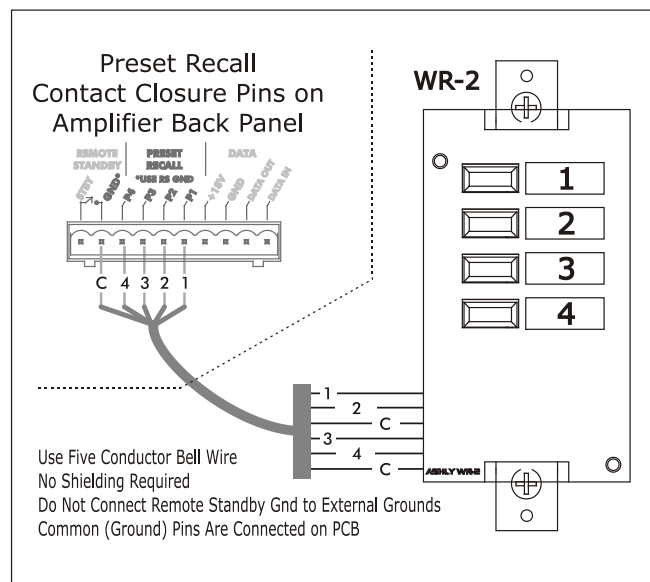
The data euroblock on the back of the amplifier is used for connecting an Ashly WR-5 programmable zone controller or RD-8C remote level controller. The data interface provides data and phantom power for these devices using four conductor bell wire.

WR-1 Remote Level Control - The WR-1 is a dual potentiometer remote volume control designed to mount in a standard single US electrical wall box, and is wired to the amplifier back panel Euroblock connector labeled “Remote Level Control” using four conductor wire. Installed DSP is not required for WR-1 remote level control. If wiring a custom potentiometer assembly other than the WR-1, connect +5V from the Remote Level Control Euroblock connector to the potentiometer’s CW pin, GND to the CCW pin, and the channel under control to the wiper. *Do not connect the WR-1 remote level control ground to any other external grounds.*

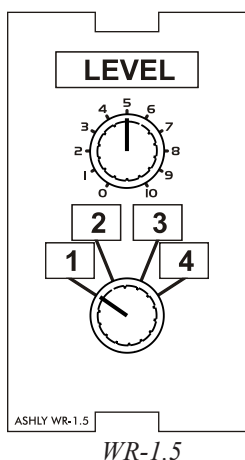


WR-1 Remote Level Control

WR-2 Remote Preset Recall Switches - The WR-2 (shown at right) allows selection of one of four presets via interlocking pushbutton switches. Each pushbutton switch can be connected to a Preset Recall Pin on the back panel of the amplifier. The terminal numbers correspond to the first 4 device presets stored in the amplifier. Pressing any button will select the corresponding preset. Windows are provided by each switch for a user-generated label.



WR-2 Remote Preset Recall Switches

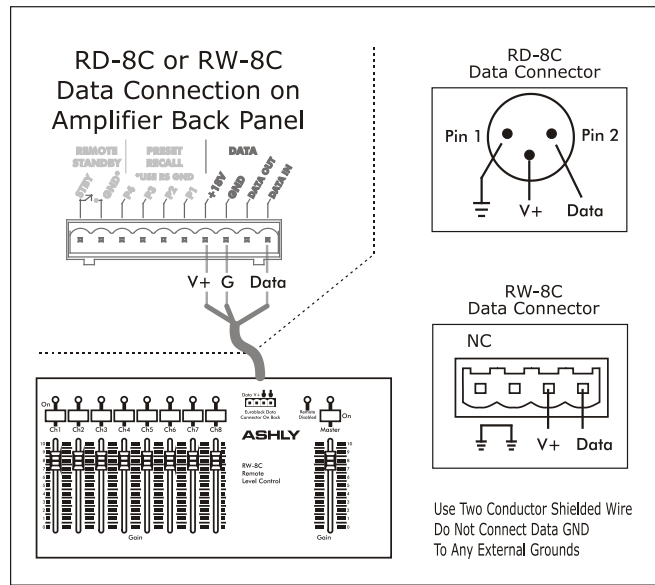


WR-1.5

WR-1.5 Remote Level Control and Preset Recall Switch - The WR-1.5 (shown at left) combines one potentiometer for remote level control with a four position rotary switch for preset recall.

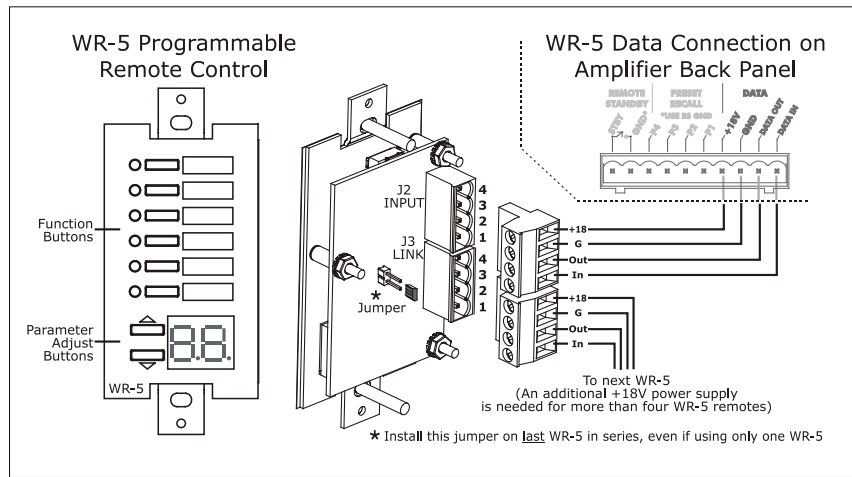
RD-8C or RW-8C Remote Level Control - The RD-8C and RW-8C are remote level controllers which are connected to the amplifier's Data Port, and are phantom powered from the amplifier. They can only be used in NE amplifiers which have DSP installed, and are used in conjunction with the "Remote Gain" pluggable DSP tool placed in an input or output in software.

Maximum cable length is 1000 ft using #24 gauge twisted pair. The RD-8C is a desktop controller, while the RW-8C is electronically the same but mounts as a wall plate using a standard North American 4-gang electrical box and connects using a Euroblock. There are eight channels and a master, each with a fader control and an on/off button. *Note: Only one RD-8C can be used per amplifier, and use of an RD-8C will exclude the use of the data port for a WR-5. One or the other remote control device may be connected, but not both*



RD-8C or RW-8C Remote Level Control

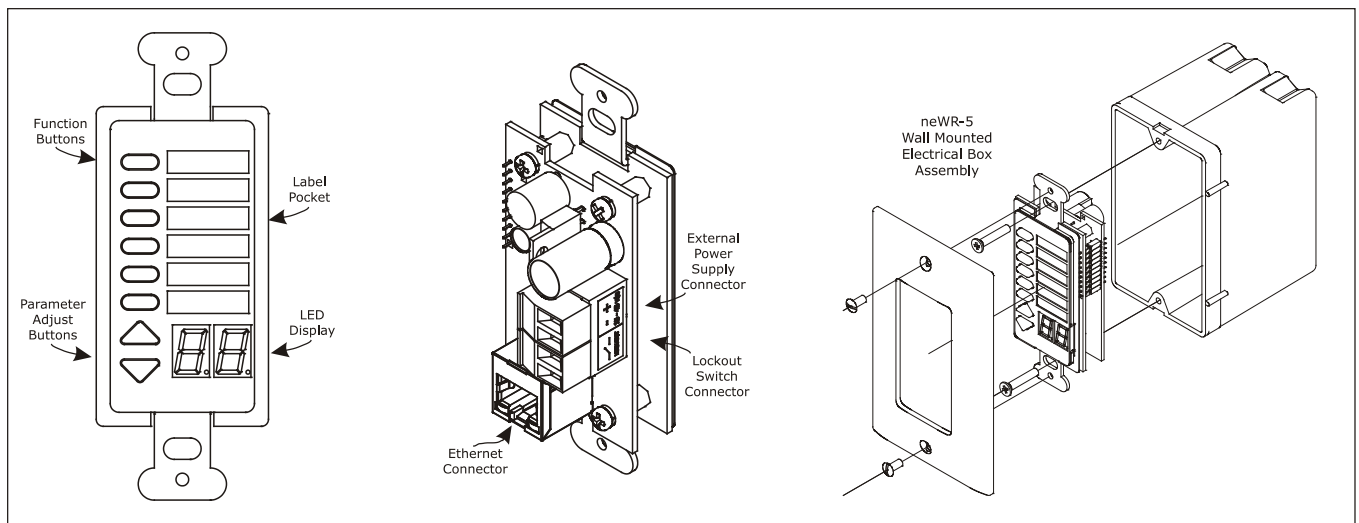
WR-5 Programmable Button Controller - The WR-5 is a programmable button remote control which mounts into a standard US electrical wall box and connects to an amplifier data port using four conductor wire. Maximum cable length is 1000 ft using #24 gauge twisted pair. A decora cover plate (not included) can be purchased at hardware stores to cover the WR-5 electrical box and satisfy the aesthetic needs of the installation. The WR-5 is phantom powered from the amplifier. Up to four different WR-5 remotes can be phantom powered from one amplifier, and more can be added by purchasing an Ashly RPS-18 remote power supply.



WR-5 Programmable Button Controller

WR-5 buttons are programmed from software, *after* the WR-5 is wired to an amplifier and assigned a unique ID number in the WR-5 device window associated with that amplifier in software. Each WR-5 button has a status LED. Standard control functions include preset recall/scroll and mute, and in amplifiers with DSP installed the functions also include gain control, zone source selection, individual channel and matrix point level control. *Note: To use the WR-5 as a remote level control, a (ne)WR-5 Remote Gain tool must be placed in one of the DSP processing blocks of the channel(s) to be controlled. A windowed mylar pocket is available to insert custom button labels. A WR-5 label template is available on the Ashly web site.*

INA-1 Inline RS-232 Adapter (not shown) - The amplifier Data Port uses a proprietary serial communications protocol which can be converted to RS-232 by purchasing the Ashly INA-1 RS-232 adapter. This allows the use of custom designed third party RS-232 controllers.



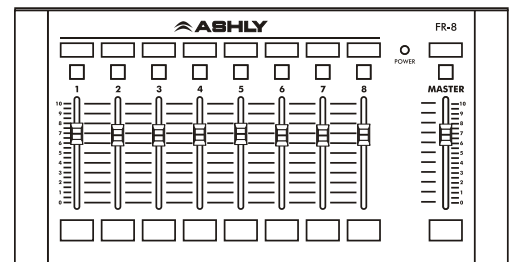
neWR-5 Networked Programmable Button Controller

neWR-5 Networked Programmable Button Controller - The neWR-5 remote control is a networked version of the WR-5, using Ethernet instead of the data port to communicate with the amplifier. Connecting and powering the neWR-5 is done using Cat-5 Ethernet cable and a Class 1 IEEE 802.3af Power over Ethernet (PoE) switch, hub, or in-line PoE injector. If PoE is unavailable, the Ashly RPS-18 (sold separately) is a 15-48VDC power supply capable of at least 2 watts per neWR-5 and can be hard wired to the back of the neWR-5. PoE current draw is 38mA @48VDC and 80mA@15VDC. A decora cover plate (not included) can be purchased at hardware stores to cover the neWR-5 electrical box and satisfy the aesthetic needs of the installation.

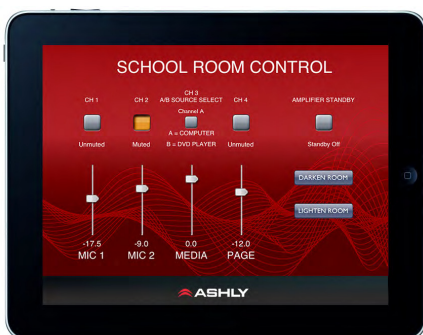
The neWR-5 appears in the software device menu tree and must be assigned within it's device window to a specific amplifier. The neWR-5 has six programmable function buttons which can light up green, red, or amber to display status. Further information on LED status is found in the neWR-5 owner's manual, available on the Ashly website. To the right of the function buttons is a pocket in the mylar overlay for a printed function label to be inserted, also available as a template on the website. The two other buttons are used to adjust function parameters such as gain or preset number, and are indicated by the LED display. Without DSP installed in the amplifier, neWR-5 functions are limited to preset recall and mute. *Note: To use the neWR-5 as a remote level control, a (ne)WR-5 Remote Gain tool must be placed in one of the DSP processing blocks of the channel(s).*

There is also a hard-wired Lock-Out feature on the neWR-5, where the closing of a switch wired to the lockout Euroblock renders all buttons inactive.

FR-8 and FR-16 Networked Fader Controller - The FR-8 (shown at right) and FR-16 are Ethernet based remote fader control units, with the ability to assign each fader control of one or more input or output DSP gain stages or level control for a DSP matrix mixer point. The button LEDs for each fader



FR-8 Networked Fader Controller



Ashly Remote App for iPad®

are normally used to indicate assignable signal level/clip or mute status, but can alternately select A/B signal source for that fader. The FR remotes can be wall mounted to electrical box, panel mounted, or freestanding, and have a back panel contact closure for full front panel lockout. See further details in the FR-8/16 owner's manual on the Ashly website.

Ashly Remote App for iPad® - A custom and secure touch-screen control surface for the iPad® can be designed using the <Ashly Remote> application, available free on iTunes® or via the Ashly website. Controls, labels, and images are combined to manage key amplifier functions over a wireless network connection.

5. PROTEA^{ne} SOFTWARE

Protea^{ne} software offers a comprehensive suite of tools for controlling Ashly NE multichannel amplifiers. The standard amplifiers allow for Ethernet control and monitoring of power functions, mute, and preset control. With the DSP option installed, software control and monitoring of audio functions can be custom configured on a per channel basis, as well as through linked channels. *More in depth discussion of software features can be found in the Protea^{ne} software online help.*

The base amplifier interface includes a main control surface, password protected security functions, and network property management. Link Group Configuration and Power On Delay* can be set up under the Device Options menu tab. In addition, provisions for implementing DSP functions, AES/EBU Inputs, and network audio inputs are available, presuming the necessary hardware options have been installed in the amplifier. Protea^{ne} software will auto-detect any installed hardware options and display the resulting menu items once it recognizes the amplifier on the network.

**Note - Power On Delay does not work when standby mode is activated via contact closure.*

Link Group Configuration - Linking allows the controls for multiple DSP function blocks to track each other. For example, if two different graphic equalizer blocks are assigned to a link group, any change made to a control within either of the equalizers will result in an identical change to the other. Blocks may be linked across channels.

Each device will support up to 16 link groups. DSP function blocks can be individually assigned to these link groups. Once assigned to a group, all similar functions within that group will track parameter changes. More than one function type may be assigned to a group. Each link group can be assigned a name by the user, and can also be assigned a color for easy identification. For further details about linking, see the software online help.

Preset Options - The preset options menu allows amplifier setups to be saved to or recalled from an amplifier or a computer. *File presets* are the complete amplifier and software settings, whereas *device presets* are limited to commonly used functions.

Sub Presets - Sub Presets are user defined groups of DSP functions within one channel or across multiple channels. Sub Presets allow the user to instantly recall a pre-determined set of DSP parameters to quickly address changing environmental conditions, without the risk of making undesirable or irrecoverable system changes.

The Amplifier Control Surface Tab

The control surface tab is the main software interface for the amplifier. Key features of this window include:

- 1) Channel and Offset Link Group Faders - The main level control provides up to 40dB of analog input attenuation. More than 40dB of cumulative attenuation causes the channel to mute. If a channel has been assigned to an offset link group, a colored triangular marker appears on the left side of the fader graticule for secondary level control of all channels in that group. The main level control faders can not be linked to a group.
- 2) Mute button - This mutes the input channel
- 3) Polarity button - This inverts the phase of the input channel
- 4) Offset link group - Up to 16 groups are available for the purpose of linking similar function parameters across multiple channels. In addition to the control surface secondary level control (not the main fader), most DSP functions have a link group check box in their work window to assign a specific parameter to one of the eight link groups if desired. Link groups can be renamed by clicking on any group name and entering the new name then pressing <enter> on the keyboard.
- 5) Attenuators - These two dials indicate the physical position of hardware controls on either the amp front panel or remote DC level control (if present). Note that these will display the position of attenuators even when they are disabled by software.
- 6) Total Attenuation - This indicates the total amount of attenuation being applied to the channel. This is the sum of the following attenuators: main fader, offset link group attenuation, front panel and remote attenuators.
- 7) Meters - Input and Output meters display the real time activity per channel, in dB below rated output. Also, the amplifier's operating temperature and output current are shown. Output current shows that the amplifier channel is actually delivering output to a connected speaker load.

The Amplifier DSP Tab

If the amplifier has DSP installed, the DSP tab automatically appears. The DSP tab includes an input side and an output side, with a cross linking matrix mixer in between. Key features of the DSP window include:

Input Channel Number - Right click on this to bring up Clear, Copy/Paste, Link, and Sub Preset for that input channel.

Input Channel Name - The user can name each input channel.

Input Mute Button - Mutes the input.

Pluggable DSP Tools - Six blocks are available on both inputs and outputs for custom configuration of pluggable DSP processing blocks. Total DSP usage for the four input and output channel groups is indicated as a percentage at the bottom of each input section in the DSP tab. Increasing the number and complexity of applied DSP tools increases the DSP usage. **Note:** *The total DSP usage per group of four channels is limited, and cannot exceed 100%.* Available DSP tools include:

1) **Dynamics controls** - Brick Wall Limiter, Compressor, Autoleveler, Ducker, Noise Gate

2) **Gain functions** - Gain, Gain with VCA, Remote Gain, (ne)WR-5 Remote Gain

3) **Equalization** - 31 band Graphic Equalizer, 10/6/4/2 Band Parametric Equalizers, FIR filter (outputs only)

4) **Crossover functions** - Four Way, Three Way, and Two Way Crossovers are available on outputs only.

HPF and LPF filters are available on both inputs and outputs.

5) **Delay** - Speaker Delay at 48kHz sampling rate is 21mS, and Delay is 682mS. At 96kHz, 10.6mS and 341ms.

6) **Metering** - -60dBu to +20dBu display

7) **Signal Generator** - Pink noise, White Noise, Sine Wave from 20Hz to 12kHz.

Extensive online help information is available for all DSP blocks within the software. From within any DSP tool, simply press <F1> on the keyboard for online help for that tool. Also look in the Protea^{ne} Software Help Menu/Contents and Index/Contents/Protea NE Products/PE Multichannel Amplifiers/DSP Control for details of all DSP functions.

Input/Output Matrix Router - Any input can be routed to any or all outputs. Click and drag from the input to output to assign routing. For faster routing of a single input or output to multiple channels, highlight its node and then press Ctrl+Click over the desired nodes to connect to. To delete a route or clear the matrix, right click on the routing line or node. Also, right click anywhere in the matrix area to bring up a menu of common routing choices.

Output Mute Button - Mutes the output.

Output Channel Name - The user can name each output channel.

Output Channel Number - Right click on this to bring up Clear, Copy, Link, and Sub Preset functions for that output.

6. SPECIFICATIONS

General Power Amplifier Specifications

0dBu = 0.775V rms

Base Model	4250		8250	
	120VAC	230VAC	120VAC	230VAC
<i>Continuous Average Power Output Per Channel</i>				
<i>Low Z models, Stereo Mode, all channels driven</i>				
8Ω, 20Hz-20kHz 1%THD	150W	150W	150W	150W
4Ω, 20Hz-20kHz 1%THD	250W	250W	250W	250W
<i>Low Z models, Bridge Mode, all channels driven</i>				
8Ω, 20Hz-20kHz 1%THD	500W	500W	500W	500W
<i>Hi Z models, 25V, 70V, or 100V distributed output</i>				
20Hz-20kHz 1%THD, per channel	250W	250W	250W	250W
<i>Line Current Draw (all channels driven)</i>				
Standby mode	190mA	95mA	290mA	145mA
Idle (no signal)	540mA	270mA	565mA	283mA
Typical (1/8 power pink noise)	2.85A	1.43A	5.00A	2.50A
Maximum (1/3 power sine wave)	6.00A	3.00A	11.0A	5.50A
<i>Thermal Dissipation (BTU/hr, all channels driven)</i>				
Standby mode	46.7	46.7	63.8	63.8
Idle (no signal)	123	123	187	187
Typ (1/8 power pink noise)	341	341	700	700
Max (1/3 power sine wave)	378	378	775	775
Signal to Noise (20Hz-20KHz, unweighted)	>105dB			
Distortion (SMPTE, typical) - 8 ohm load, 10dB below rated power:	<0.5%			
Distortion (THD-N, typical) - 8 ohm load, 10dB below rated power, 20Hz-20kHz:	<0.5%			
Frequency Response	20Hz-20kHz, +/-1dB			
Damping Factor (8 ohm load, <1kHz)	>250			
Input Impedance	20K Ohm, balanced			
Maximum Input Level	+21dB			
Cooling	temperature controlled fan, cool air is drawn in from the sides and blown out the front			
Control Network	Standard 100MB Ethernet			
Front Panel Indicators	per channel: Clip/Mute, -6dB, -12dB, -18dB, Temp, Current, Bridge (per pair) overall: Power, Standby, Protect, Power Switch Disable, Comm Control Surface and Amp LEDs: Level meters are in dB below rated output			
Attenuators	per channel: front panel, software, offset link group, and remote			
Input/Remote Connectors	Euroblock (5.08mm)			
Output Connectors	Euroblock (7.62mm)			
Amplifier Protection	inrush current limitation, temperature monitoring, output over-current protection, mains fuses			
Power Requirements	120VAC or 240VAC (factory set) ±10%, 50/60Hz			
Power Cable Connector	15A Edison			
Unit Dimensions	19"W x 3.5"H x 16.84"D (483 x 89 x 428mm)			
Unit Weight	ne4250: 23 lbs (10.4kg), ne8250: 24.7 lbs (11.2kg)			
Shipping Weight	ne4250: 29.1 lbs (13.2kg), ne8250: 30.8 lbs (13.9kg)			
Environmental	40°-120°F, (4°-49°C), noncondensing			
Safety/Compliance	cTUVus, FCC Class B, CE, RoHS			

Operating Manual - NE Multi Channel Power Amplifier

DSP Specifications

Input Active Balanced, 10 kohms
Max Input Level +21 dBu

Dynamics

Brick Wall Limiter

Threshold -20dBu to +20dBu
Ratio infinite
Attack 0.2ms/dB to 50 ms/dB
Release 5ms/dB to 1000ms/dB

Compressor

Threshold -20dBu to +20dBu
Ratio 1.2:1 to infinite
Attack 0.2 to 50ms
Release 5ms/dB to 1000ms/dB
Detector Peak/Average

Autoleveler

Target Level -40dBu to +20dBu
Action gentle, normal, aggressive, user defined
Maximum Gain 0dB to +15dB
Ratio 1.2:1 to 10:1
Threshold Below Target -30dB to 0dB
Gain Increase Rate 5ms/dB to 1000ms/dB
Hold Time 0-6 sec

Ducker

Ducking Type high/low priority, trigger, filibuster,
ducked program
Trigger Threshold -80dBu to +20 dBu
Ducking Release 5ms/dB to 1000ms/dB
Ducking Depth 0dB to -30dB

Gate

Threshold -80dBu to +20dBu
Range off, 100dB to 0dB
Attack 0.2ms/dB to 50 ms/dB
Release 5ms/dB to 1000ms/dB

Gain

Gain off, -50dB to +12dB
Gain w/VCA off, -50dB to +12dB
WR-5 Remote Gain off, -50dB to +12dB

Equalization

FIR Filter (Output only, 48kHz only, 2-384 Taps)
File types *.csv, *.fir

31 Band Graphic

Filter Type constant Q or proportional
Bandwidth 0.499oct to 0.25oct

2, 4, 6, or 10 Band Parametric

Filter Types

Parametric:

Frequency 20-20kHz
Level -30dB to +15dB
Q Value 0.016oct to 4oct

Hi/Low Shelf 6/12 dB

Frequency 20Hz-20kHz
Level -15dB to +15dB

All Pass

Frequency 20Hz-20kHz

Variable Q HP/LP

Frequency 20Hz-20kHz
Q Value 3.047 to 0.267

Notch/Bandpass

Frequency 20Hz-20kHz
Q Value 92.436 to 0.267

Crossover

2 Way, 3 Way, 4 Way Crossover

High Pass/Low Pass Filters

Filter Types:

Bessel 12/18/24/48 dB/oct
Butterworth 12/18/24/48 dB/oct
Linkwitz 12/24/48 dB/oct
Frequency off, 20Hz-20KHz

Delay

@ 48kHz Sampling Rate
Speaker Delay 0-21ms
Delay 0-682ms
@ 96kHz Sampling Rate
Speaker Delay 0-10.6ms
Delay 0-341ms

Tools

Audio Meter

Range -60dBu to +20dBu
Increments 1dB
Peak Hold Indicator yes

Signal Generator

Sine Wave Frequency 20Hz-12kHz
Signal Level off, -50dBu to +20dBu

Cross Point Mixer

Gain Off., -50dB to +12dB
0.5dB increments with Mute at -50dB

Linking

All functions can be linked to 1 of 16 link groups

Processors

Input A/D 24 bit (Burr Brown PCM4204)
Output D/A 24 bit (Burr Brown PCM4104)
DSP Processors 32-bit floating point (Sharc ADSP-21262)
Sample Rates 48kHz, 96kHz
Propagation Delay @ 48kHz 1.42 ms
Propagation Delay @ 96kHz 0.71 ms

Four or Eight Channel AES3 Digital Audio Input Option

Type 110 ohm transformer balanced XLR
Sample Rates 48kHz, 96kHz
Max Cable Length 100 meters

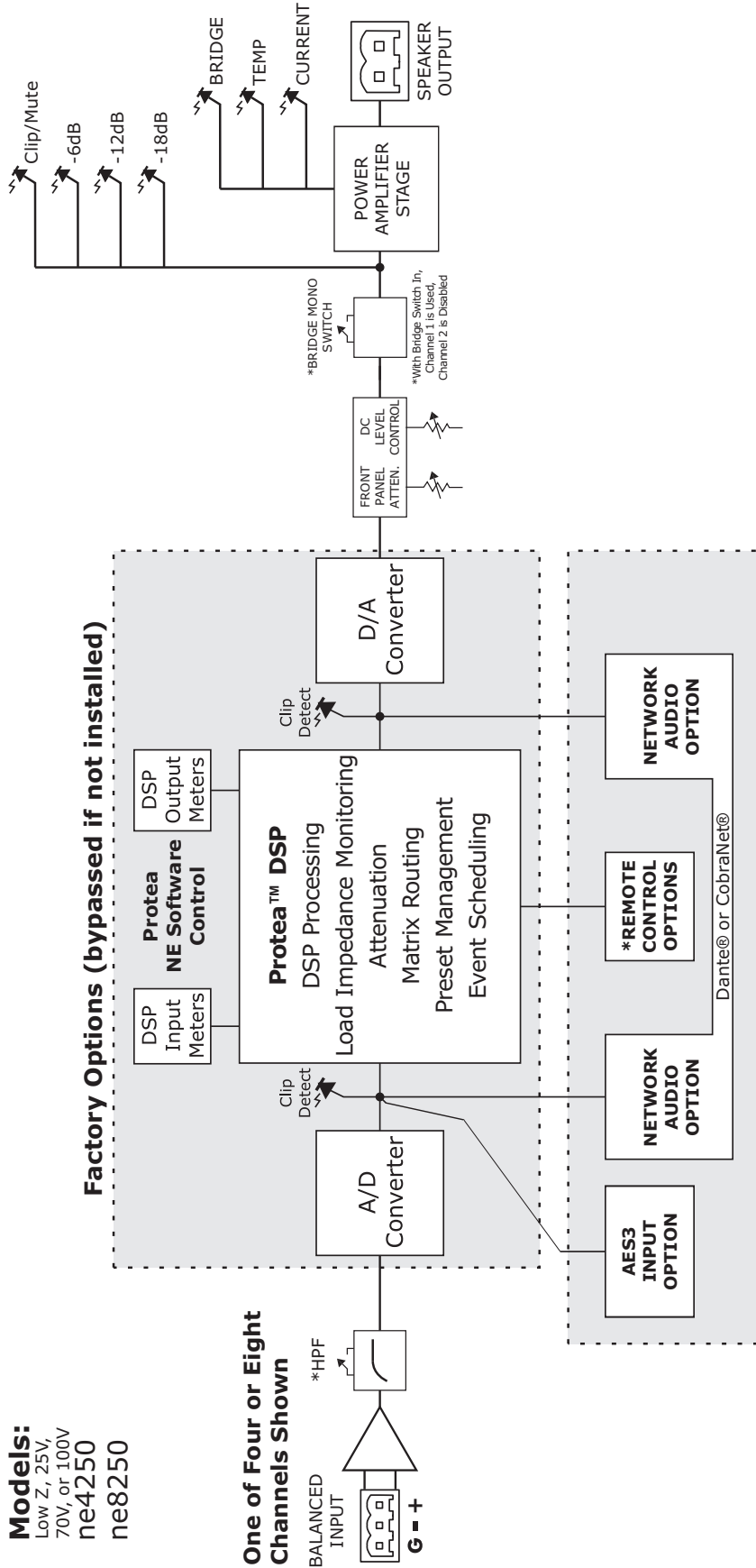
Network Audio Option

Available Types Dante®, CobraNet®

NE Multi-Channel Power Amplifier - Block Diagram

Models:
 Low Z, 25V,
 70V, or 100V
 ne4250
 ne8250

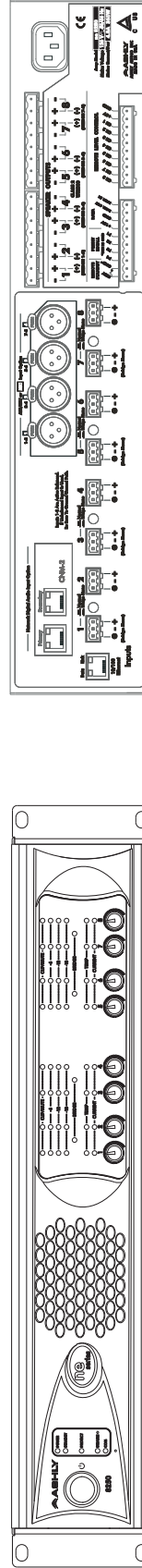
One of Four or Eight Channels Shown



Factory Options (bypassed if not installed)

Available Factory Option Configurations:

- 1) Standard - Without Protea DSP or Network Audio
 - 2) With Protea DSP
 - 3) With Protea DSP and Network Audio or AES3 Input
 - 4) With Network Audio or AES3 Input but Without DSP (factory installed DAC converter required)
- *Remote Control Options Vary With Configuration, DSP is Required for Most Programmable Remote Control Functions



LIMITED WARRANTY (USA ONLY)

(Other countries please contact your respective distributor or dealer.)

For units purchased in the USA, warranty service for this unit shall be provided by ASHLY AUDIO, INC. in accordance with the following warranty statement.

ASHLY AUDIO, INC. warrants to the owner of this product that it will be free from defects in workmanship and materials for a period of FIVE years from the original-date-of-purchase. ASHLY AUDIO INC. will without charge, repair or replace at its discretion, any defective product or component parts upon prepaid delivery of the product to the ASHLY AUDIO, INC. factory service department, accompanied with a proof of original-date-of-purchase in the form of a valid sales receipt. This warranty gives you specific legal rights, and you may also have other rights, which vary from state to state.

EXCLUSIONS: This warranty does not apply in the event of misuse, neglect, or as a result of unauthorized alterations or repairs made to the product. This warranty is void if the serial number is altered, defaced, or removed. ASHLY AUDIO, INC. reserves the right to make changes in design, or make additions to, or improvements upon, this product without any obligation to install the same on products previously manufactured.

Any implied warranties, which may arise under the operation of state law, shall be effective only for FIVE years from the original-date-of-purchase of the product. ASHLY AUDIO, INC. shall be obligated to only correct defects in the product itself. ASHLY AUDIO, INC. is not liable for any damage or injury, which may result from, or be incidental to, or a consequence of, such defects. Some states do not allow limitations on how long an implied warranty lasts, or the exclusion, or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

OBTAINING WARRANTY SERVICE:

For warranty service in the United States, please follow this procedure:

1) Return the product to ASHLY AUDIO, INC. freight prepaid, with a written statement describing the defect and application that the product is used in. ASHLY AUDIO, INC. will examine the product and perform any necessary service, including replacement of defective parts, at no further cost to you.

2) Ship your product to:

ASHLY AUDIO, INC.

Attention: Service Department

847 Holt Road

Webster, NY 14580-9103

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