

# 4-Channel AMPLIFIER - 4x300W at 4 Ohms



## WA-4x3

## USER GUIDE

9066 - December 2007 - Version 1.0

## 1 - Safety information

### Important safety information



This unit is intended for indoor use only. Do not use it in a wet, or extremely cold/hot locations. Failure to follow these safety instructions could result in fire, electric shock, injury, or damage to this product or other property.



Any maintenance procedure must be performed by a CONTEST authorised technical service. Basic cleaning operations must thoroughly follow our safety instructions.



This product contains non-isolated electrical components. Do not undertake any maintenance operation when it is switched on as it may result in electric shock.

### Symbols used



This symbol signals an important safety precaution.



The WARNING symbol signals a risk to the user's physical integrity. The product may also be damaged.



The CAUTION symbol signals a risk of product deterioration.

## Instructions and recommendations

### 1 - Please read carefully :

We strongly recommend to read carefully and understand the safety instructions before attempting to operate this unit.

### 2 - Please keep this manual :

We strongly recommend to keep this manual with the unit for future reference.

### 3 - Operate carefully this product :

We strongly recommend to take into consideration every safety instruction.

### 4 - Follow the instructions:

Please carefully follow each safety instruction to avoid any physical harm or property damage.

### 5 - Avoid water and wet locations :

Do not use this product in rain, or near washbasins or other wet locations.

### 6 - Installation :

We strongly encourage you to only use a fixation system or support recommended by the manufacturer or supplied with this product. Carefully follow the installation instructions and use the adequate tools.

Always ensure this unit is firmly fixed to avoid vibration and slipping while operating as it may result in physical injury.

### 7 - Ceiling or wall installation :

Please contact your local dealer before attempting any ceiling or wall installation.

### 8 - Ventilation :

The cooling vents ensure a safe use of this product, and avoid any overheating risk. Do not obstruct or cover these vents as it may result in overheating and potential physical injury or product damage. This product should never be operated in a closed non-ventilated area such as a flight case or a rack, unless cooling vents are provided for the purpose .

### 9 - Heat exposure :

Sustained contact or proximity with warm surfaces may cause overheating and product damages. Please keep this product away from any heat source such as a heaters, amplifiers, hot plates, etc...

**CAUTION**

**RISK OF ELECTRIC SHOCK**

**DO NOT OPEN**

**WARNING :** This unit contains no user-serviceable parts. Do not open the housing or attempt any maintenance by yourself. In the unlikely even your unit may require service, please contact your nearest dealer.

In order to avoid any electrical malfunction, please do not use any multi-socket, power cord extension or connecting system without making sure they are perfectly isolated and present no defect.

**Sound levels**

Our audio solutions deliver important sound pressure levels (SPL) that can be harmful to human health when exposed during long periods. Please do not stay in close proximity of operating speakers.

**Recycling your device**

- As HITMUSIC is really involved in the environmental cause, we only commercialise clean, ROHS compliant products.
- When this product reaches its end of life, take it to a collection point designated by local authorities. The separate collection and recycling of your product at the time of disposal will help conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment.

### 10 - Electric power supply :

This product can only be operated according to a very specific voltage. These information are specified on the label located at the rear of the product.

### 11 - Power cords protection:

Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at lugs, convenience receptacles and the point where they exit from the fixture.

### 12 - Cleaning precautions :

Unplug the product before attempting any cleaning operation. This product should be cleaned only with accessories recommended by the manufacturer. Use a damp cloth to clean the surface. Do not wash this product.

### 13 - Long periods of non use :

Disconnect the unit's main power during long periods of non use.

### 14 - Liquids or objects penetration :

Do not let any object penetrate this product as it may result in electric shock or fire. Never spill any liquid on this product as it may infiltrate the electronic components and result in electric shock or fire.

### 15 - This product should be serviced when :

Please contact the qualified service personnel if :

- The power cord or the plug has been damaged.
- Objects have fallen or liquid has been spilled into the appliance.
- The appliance has been exposed to rain or water.
- The product does not appear to operate normally.
- The product has been damaged.

### 16 - Inspection/maintenance :

Please do not attempt any inspection or maintenance by yourself. Refer all servicing to qualified personnel.

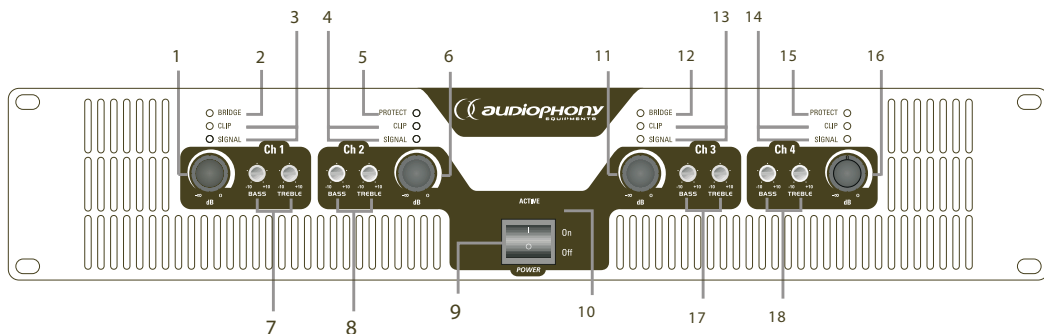
### 17 - Operating environment :

Ambient temperature and humidity: +5 - +35°C, relative humidity must be less than 85% (when cooling vents are not obstructed).

Do not operate this product in a non-ventilated, very humid or warm place.

### 3 - Description

#### - Front panel



#### [1] - Input 1 attenuator

Each channel features its own input attenuator allowing you to limit the incoming signal level. Both attenuators must be set to the same level and affect the same channel when the mono-bridged mode is activated.

#### [2] - Inputs 1 and 2 Bridge LED

Indicate the Bridge mode is activated for inputs 1 and 2.

#### [3] - Input 1 Signal LED

Lights up to indicate a signal has been detected via input 1 and is now amplified.

#### Input 1 Clip LED

Lights up to indicate the clip threshold has been reached. Remains lit to indicate the ACL (Active Clip Limiting) protection is activated.

#### [4] - Input 1 Signal LED

Lights up to indicate a signal has been detected via input 1 and is now amplified.

#### Input 2 Clip LED

Lights up to indicate the clip threshold has been reached. Remains lit to indicate the ACL (Active Clip Limiting) protection is activated.

#### [5] - Inputs 1 and 2 Protect LED

Lights up to indicate the Protect mode is activated and all outputs are disconnected.

#### [6] - Input 2 attenuator

#### [7] - Input 1 control knobs

Allow you to adjust input 1 basses and trebles.

#### [8] - Input 2 control knobs

#### [9] - Power button

Features two functions: activation/deactivation of your device and protection of the power circuit via its circuit-breaker. When OFF while the amplifier is activated, try positioning it onto ON. If this switch does not remain onto ON, please as a qualified technician as it may indicate a breakdown.

#### [10] - Power LED

Lights up to indicate your amplifier is activated.

#### [11] - Input 3 attenuator

#### [12] - Inputs 3 and 4 bridge LED

Indicate the Bridge mode is activated for inputs 3 and 4.

#### [13] - Input 3 Signal LED

Lights up to indicate a signal has been detected via input 3 and is now amplified.

### Input 3 Clip LED

Lights up to indicate the clip threshold has been reached. Remains lit to indicate the ACL (Active Clip Limiting) protection is activated.

### [14] - Input 1 Signal LED

Lights up to indicate a signal has been detected via input 4 and is now amplified.

### Input 3 Clip LED

Lights up to indicate the clip threshold has been reached. Remains lit to indicate the ACL (Active Clip Limiting) protection is activated.

### [15] - Inputs 3 and 4 Protect LED

Lights up to indicate the Protect mode is activated and all outputs are disconnected.

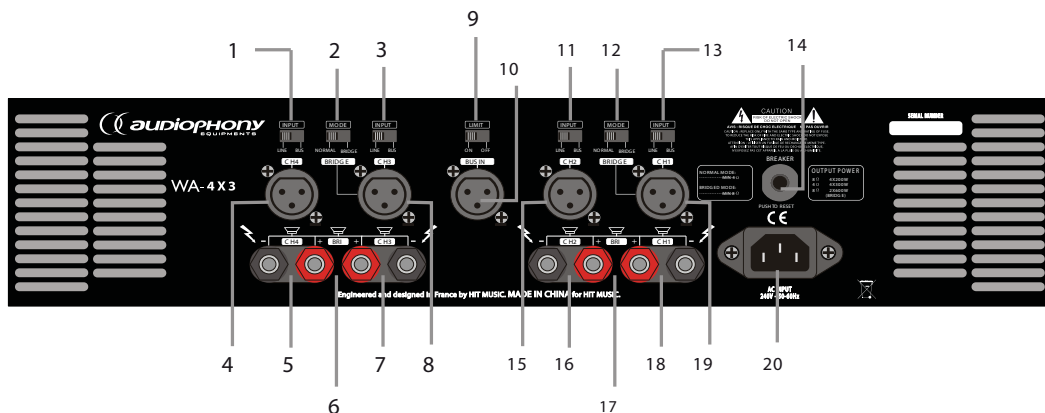
### [16] - Input 4 attenuator

### [17] - Input 3 control knob

Allow you to adjust input 3 basses and trebles.

### [18] - Input 4 control knob

## - Rear panel



### [1] - Channel 4 BUS or Line mode selector

Allows you to switch between two modes:

- Line: This channel is independent
- Bus: Channel 4 signal is amplified by the 4 output channels.

Volume settings via the attenuators.

### [2] - Channels 4 and 3 Bridge mode selector

Allows you to select the amplification mode: bridge or normal.

### [3] - Channel 3 BUS or LINE mode selector

### [4] - Channel 4 XLR inputs

Connect here the incoming signal via male XLR plug. These inputs are balanced, please refer to next chapters for more information.

### [5] - Channel 4 banana output

### [6] - Channels 3 and 4 BRIDGE banana output

### [7] - Channel 3 banana output

### [8] - Channel 3 and Bridge XLR inputs

Connect here the incoming signal via male XLR socket.

**[9] - LIMITER Selector**

Allow you to limit the incoming signals level.

**[10] - XLR Bus inputs****[11] - Channel 2 BUS or LINE mode selector**

Allows you to switch between two modes:

- Line: This channel is independent
- Bus: Channel 4 signal is amplified by the 4 output channels.

Volume settings via the attenuators.

**[12] - Bridge 2 mode selector**

Allows you to select the amplification mode: bridge or normal.

**[13] - Channel 1 BUS or LINE mode selector****[14] - Circuit-breaker****[15] - Channel 2 XLR inputs**

Connect here the incoming signal via male XLR socket.

**[16] - Channel 2 banana output****[17] - BRIDGE 1 banana output****[18] - Channel 1 banana output****[19] - Channel 1 and Bridge XLR inputs**

Connect here the incoming signal via male XLR socket.

**[20] - Power input socket**

Please make sure the voltage delivered by the electrical outlet is compatible with your device, then connect the supplied power cord.

## 4 - Getting started

### 4 - 1 - Mode selection

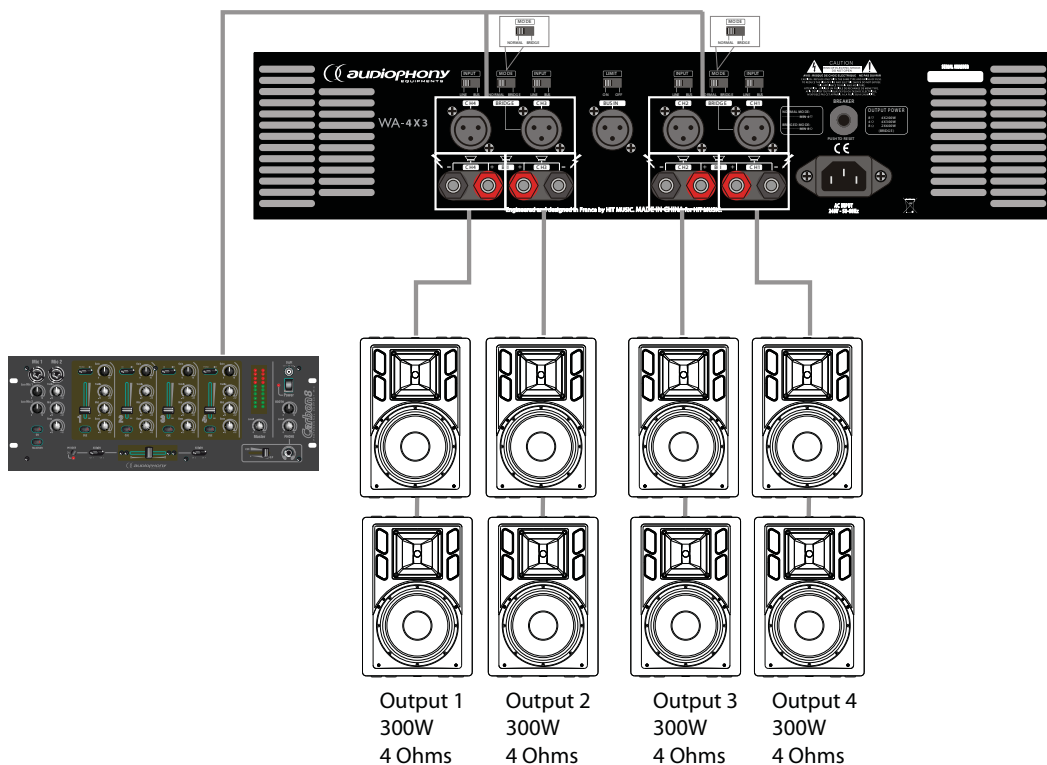
Three-position selectors are located at the rear of your amplifier, allowing you to switch between three modes: Stereo, Parallel and Bridge. The default configuration is Stereo.

#### - 4x4 Ohms Mode (line):

Both channels are amplified independently. The 4 attenuators (front panel) also act independently. In stereo mode, the minimum load impedance is **4 Ohms (4x300W)**.

Connect your mixing desk to XLR inputs 1, 2, 3 and 4 of your WA-4x3 amplifier, while your speaker will be connected to the 4 banana outputs

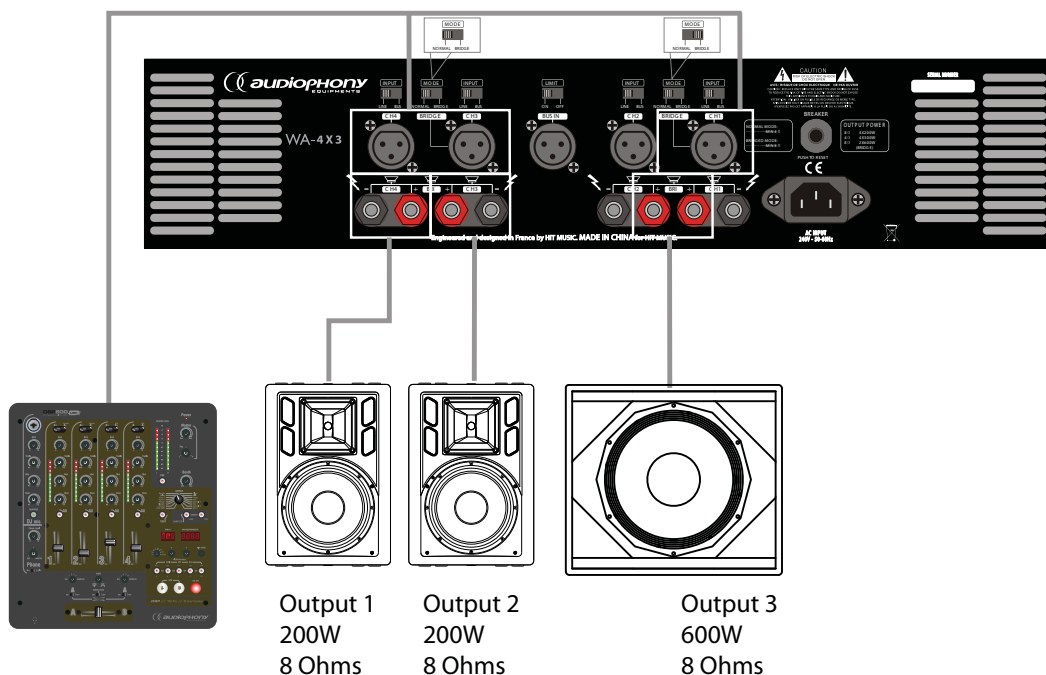
Diagram:



## - Stereo + Sub mode:

In this mode, channels 3 and 4 signal is stereo while channel 1 is bridged-mono amplified. The minimum impedance load is **2x8 Ohms (2x200W) + 1x8 Ohms mono (1x600W)**. Connect your mixing desk to stereo inputs of your amplifiers and to the bridge input. Connect your speakers to the 3 banana outputs as described below.

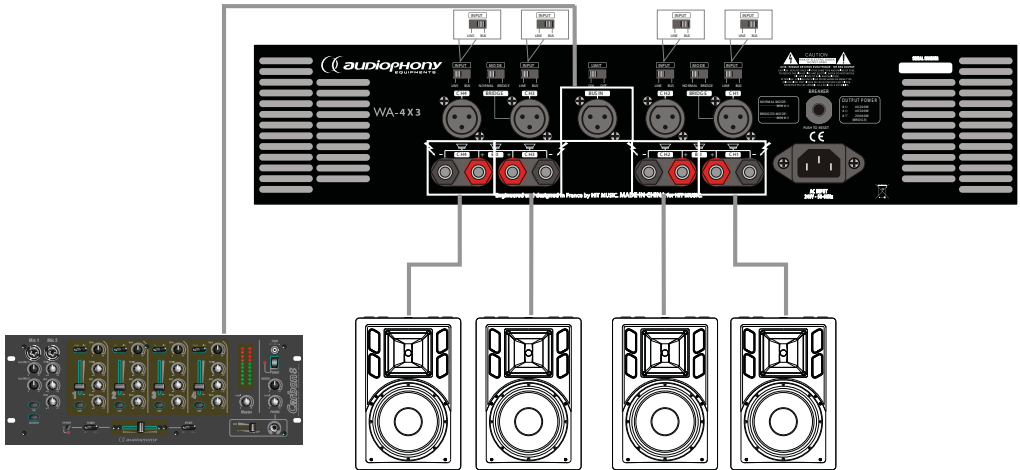
Diagram:



## - Bus Mode:

In this mode, the signal sent to the Bus input is amplified by all 4 output channels. The minimum impedance load is **8 Ohms (4x200W)**. Connect your mixing desk to the bus input of your amplifier, while your speakers will be connected to the 4 banana outputs.

Diagram:

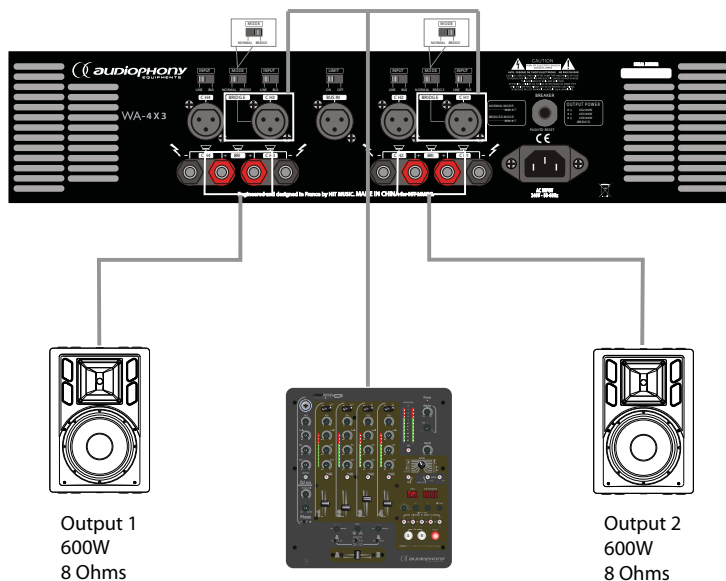




## - Bridge mode:

This mode adds up the amplification channels to get the maximum possible power. The incoming signal must be received via channel 1 and 3 but the attenuators must also be configured identically for the two channels to operate properly. In this mode, the minimum impedance load is **8 Ohms**. Connect your mixing desk to the XLR input 1 and/or 3 of your amplifier while your speakers will be connected to the bridged banana outputs.

Diagram:



## 4 - 2 Protection systems

Because Audiophony knows what sound professionals need, your WA-4x3 are equipped with many protection systems to guarantee the best possible lifespan for the internal components of your amplifiers and all devices connected to their outputs.

### - ACL (Active Clip Limiting)

The ACL system triggers when the amplifier has reached its full capacity or when the Clip threshold has been reached. The Clip LED is lit continuously to indicate the ACL is activated. The gain of each channel is automatically reduced to protect the speakers from excessive sound levels which may result in severe damages. The ACL activates during uncontrolled microphone feedbacks, incorrect gain settings or failure of your amplifier internal components. Only excessive sound levels will trigger this protection system.

### - IGM (Instantaneous Gain Modulation)

The IGM system allows the amplifier to operate safely with load impedances close or equal to 2 Ohms. In case of excessively low load impedances, the IGM system will automatically adapt the gain to a safe value. The IGM system is similar to the ACL: it is totally transparent most of the time and only triggers in some situations. If the load impedance remains too low, the output relays will deactivate the rear connectors.

### - SoftStart system

Upon activation of your amplifier or activation of one of the protection system, the Softstart system will slowly increase the output so the speakers will not have to deal with sudden peaks.

### - Thermal protection

The thermal protection circuit will open output relays in case of excessively high temperature. The Protect LED lights up during this process. In the power transformer temperature gets too high, its temperature sensor will disconnect all power outputs. The Protect and Clip LEDs will light up while the ON LED lights off. Cooling fans will continue operating at low speed and your amplifier will be fully functional again once an acceptable temperature has been reached.

### - Short-circuits

This protection takes effect upon detection of a short-circuit via one of the output (defective loudspeaker, poorly isolated speaker cable, etc.).

This system detects short-circuits such as excessively low impedances and reduce the voltage output of your amplifier to prevent the destruction of power transistors.

Affected outputs will be disconnected by the thermal protection system if the short-circuit continues.

### - DC Offset protection

The output relays will open automatically to prevent damage to your speakers if one of the channels detects direct current via one of its output connectors.

### - Ultra-low frequencies (<20 Hz)

The internal high-pass filter gets rid off ultra-low frequencies. However, if such frequencies were to be detected, a relay will eliminate them.

## 5 - Technical specifications

|   |   |
|---|---|
| Power output: RMS at 8 Ohms   | 4 x 200 W   |
| Power output: RMS at 4 Ohms   | 4 x 300W  |
| Power output: RMS stereo-bridged at 8 Ohms  | 2 x 600W  |
| Power output: RMS 1 bridged et 2 stereo at 8 Ohms   | 1x 600 + 2x200 W  |
| Sensitivity at 8 Ohms rated power   | 0,775mV   |
| Frequency response (1W)   | 20Hz - 25KHz (+0dB, -0,5dB)                                     |
| Frequency response  | 20Hz at 20 KHz  |
| Phase response (1W)   | 20Hz - 20KHz (+10°, -20°)                                       |
| Signal to noise ratio below rated power A-weighted  | > 100 dB  |
| THD (20Hz - 20KHz)  | < 0,1%  |
| Intermodulation Distortion (IMD) at 60 Hz and 7 kHz at 4:1, from full rated output to -35dB | < 0,05%   |
| Damping factor at 8 Ohms from 20Hz to 400Hz   | > 200   |
| Input impedance (nominally balanced)  | 20 KOhms  |
| Input impedance (nominally unbalanced)  | 10 KOhms  |
| Max load impedance, 4 channels  | 4 and 8 Ohms  |
| Max. load impedance, stereo bridged   | 8 Ohms  |
| Power supply  | 220 - 240V ; 50 - 60Hz  |
| AC line current   | 8A (both amplifiers do not consume more than 90W when inactive) |
| Cooling system  | Front to rear forced ventilation                                |
| Fans  | Proportional speed  |
| Dimensions  | 483 x 375 x 89 mm   |
| Net weight  | 16 Kg   |
| Shipping weight   | 19 Kg   |

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