

# AMP20

## User Manual



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# Introduction

## Mini Stereo Power Amplifier

The AMP20 is a Mini Stereo Power Amplifier with a power rating of 2 x 15 Watt, which lends itself perfectly to small speaker systems requiring compact and economical audio solutions. It offers the ideal solution for applications such as classrooms, offices and meeting rooms where a small amount of speakers are required.

The compact size and very high efficiency makes it perfectly suited to be hidden in a closet, on a false ceiling or mounted under a desk or table.

The combination of the stereo balanced line and microphone input make it perfectly suited for applications where it should be used in combination with projection screens and video sources while a microphone is connected. Two gain potentiometers make it possible to control the sensitivity and balance between music and speech, while a switch allows bridging of the output channels to obtain one channel with merged output power.

A remote wall mixer can be connected for applications where local mixing of the inputs is desirable, while large distances can be covered between the source and amplifier using simple CAT5 twisted pair cabling. The volume controller input allows connection of an additional wall controller for overall volume control.

The Class-D Amplifier technology, standby mode and included switching power supply makes this device compliant to Energy Star 3.0 and other strict energy efficiency and environmental requirements.



# Precautions

## READ FOLLOWING INSTRUCTIONS FOR YOUR OWN SAFETY

- ALWAYS KEEP THESE INSTRUCTIONS FOR FUTURE REFERENCE. NEVER THROW THEM AWAY
- ALWAYS HANDLE THIS UNIT WITH CARE
- CLEAN ONLY WITH DRY CLOTH
- HEED ALL WARNINGS AND FOLLOW ALL INSTRUCTIONS
- NEVER EXPOSE THIS EQUIPMENT TO RAIN, MOISTURE, ANY DRIPPING OR SPLASHING LIQUID. NEVER PLACE AN OBJECT FILLED WITH LIQUID ON TOP OF THIS DEVICE
- DO NOT INSTALL THIS UNIT NEAR ANY HEAT SOURCES SUCH AS RADIATORS OR OTHER APPARATUS THAT PRODUCE HEAT
- DO NOT PLACE THIS UNIT IN ENVIRONMENTS WITH A HIGH LEVEL OF DUST, HEAT, MOISTURE OR VIBRATION
- THIS UNIT IS DEVELOPED FOR INDOOR USE ONLY. DO NOT USE IT OUTDOORS
- PLACE THE UNIT ON A STABLE BASE OR MOUNT IT IN A STABLE RACK
- ONLY USE ATTACHMENTS & ACCESSORIES SPECIFIED BY THE MANUFACTURER.
- UNPLUG THIS APPARATUS DURING LIGHTNING STORMS OR WHEN UNUSED FOR LONG PERIODS OF TIME
- CAREFULLY CHECK THE UNIT'S CONDITION AFTER UNPACKING. IF THERE IS ANY DAMAGE TO THE CARTON BOX OR THE UNIT ITSELF, INFORM YOUR VENDOR IMMEDIATELY.
- ONLY CONNECT THIS UNIT TO A MAINS SOCKET OUTLET WITH PROTECTIVE EARTHING CONNECTION
- THE INSTALLATION, CONNECTION AND CONFIGURATION OF THE DEVICE SHOULD BE DONE BY QUALIFIED TECHNICIANS

## CAUTION

- USE CABLES OF THE RIGHT GAUGE FOR CONNECTING LOUDSPEAKERS TO THE AMPLIFIED OUTPUTS
- USE CABLES WITH CLEAR COLOUR CODING INDICATING THE POLARITY AND MAINTAIN THE SAME POLARITY THROUGHOUT THE WHOLE SYSTEM.
- ONLY USE THE CORRECT LOAD IMPEDANCE (MIN 4 OHM) WHEN CONNECTING LOUDSPEAKERS TO THE AMPLIFIED OUTPUTS. EXCEEDING THESE LIMITS COULD CAUSE FIRE OR OTHER FAILURES.
- DO NOT CONNECT INDUCTIVE LOADS DIRECTLY TO THE AMPLIFIED OUTPUTS
- AVOID ELECTRIC SHOCKS: SWITCH OFF THE AMPLIFIER WHEN CONNECTING



### CAUTION – SERVICING

This product contains no user serviceable parts. Refer all servicing to qualified service personnel. Do not perform any servicing (unless you are qualified to do so.)



### EC DECLARATION OF CONFORMITY

This product conforms to all the essential requirements and further relevant specifications described in following directives: 2004/108/EC (EMC) and 2006/95/EC (LVD)



### WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT (WEEE)

The WEEE marking indicates that this product should not be disposed with regular household waste at the end of its product life. This regulation is created to protect both the environment and human health.

This product is developed and manufactured with high quality materials and components which can be recycled and/or reused. Please dispose of this product at your local collection point or recycling centre for electrical and electronic waste. Do this to make sure that the product is recycled in an environmental friendly way, and help to protect the environment in which we all live.



# Chapter 1

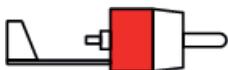
## Connections and connectors

### CONNECTION STANDARDS

The in- and output connections for AUDAC audio equipment are performed corresponding to international wiring standards for professional audio equipment.

#### Cinch (RCA):

For unbalanced line input connections

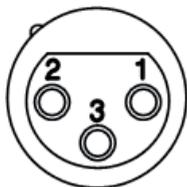


**Tip:** Signal  
**White:** Left

**Sleeve:** Ground  
**Red:** Right

#### XLR:

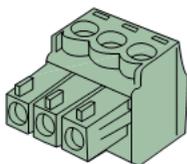
For balanced input connections



**Pin 1:** Ground  
**Pin 2:** Signal +  
**Pin 3:** Signal -

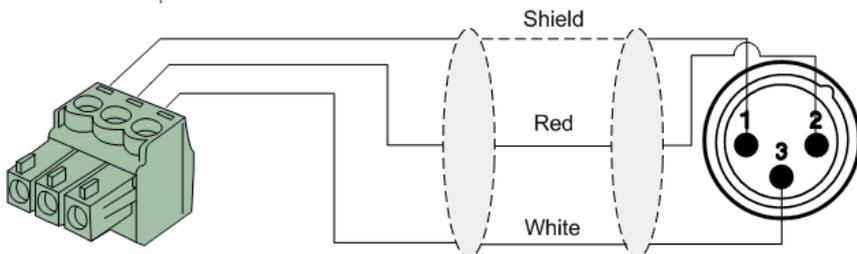
#### 3-Pin Euro-Terminal Block:

For balanced input connections

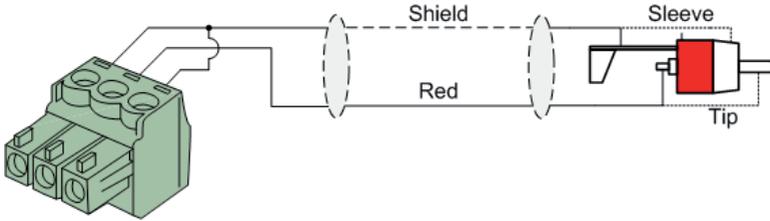


**Left:** Signal - (XLR Pin 3)  
**Center:** Signal + (XLR Pin 2)  
**Right:** Ground (XLR Pin 1)

For balanced input connections:

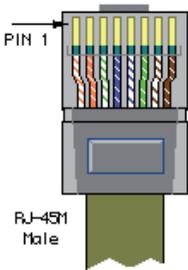


For unbalanced input connections:



### REMOTE WALL MIXER RJ45 (Audio, +8V DC, -8V DC):

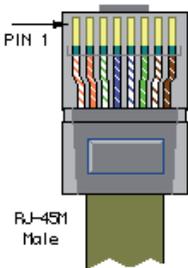
For connection to Remote Wall Mixers (Audio Input & Mixing)



|       |              |               |
|-------|--------------|---------------|
| Pin 1 | White-Orange | AUDIO Left +  |
| Pin 2 | Orange       | AUDIO Left -  |
| Pin 3 | White-Green  | + 8V DC       |
| Pin 4 | Blue         | - 8V DC       |
| Pin 5 | White-Blue   | GND           |
| Pin 6 | Green        | GND           |
| Pin 7 | White-Brown  | AUDIO Right + |
| Pin 8 | Brown        | AUDIO Right - |

### VOLUME CONTROLLER RJ45:

For connection to wall mounted volume controllers (Overall volume control)



|       |              |                      |
|-------|--------------|----------------------|
| Pin 1 | White-Orange | N/C                  |
| Pin 2 | Orange       | N/C                  |
| Pin 3 | White-Green  | - 8 V DC             |
| Pin 4 | Blue         | 0 ~ - 8V Variable in |
| Pin 5 | White-Blue   | GND                  |
| Pin 6 | Green        | GND                  |
| Pin 7 | White-Brown  | N/C                  |
| Pin 8 | Brown        | N/C                  |



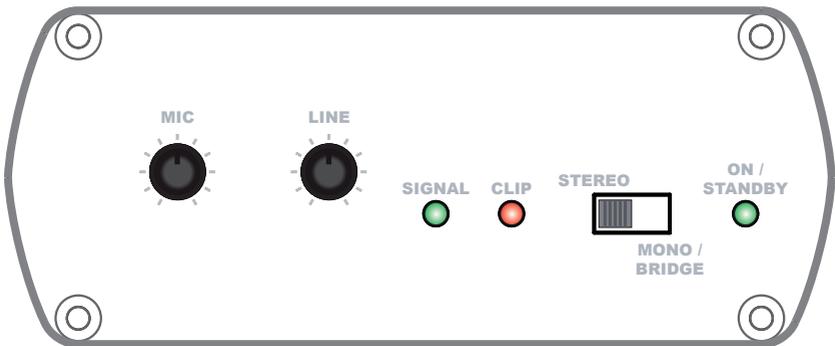
### ATTENTION

The twisted pair cabling must always be 'straight'. In case of self made cabling, it must be wired as described above, to make the system work properly.

# Chapter 2

## Overview AMP20

### Front panel



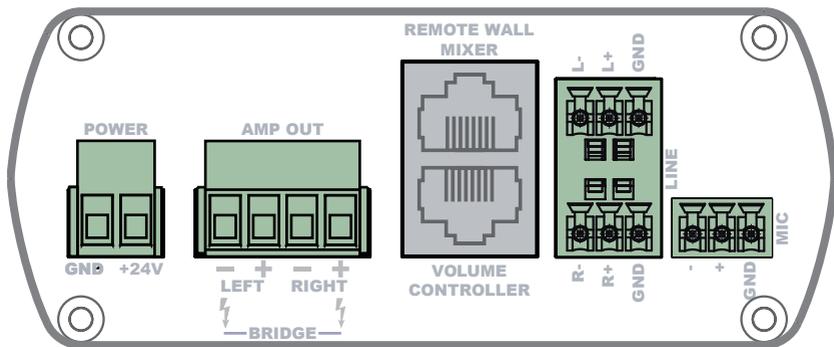
The front panel of the AMP20 contains all the control and indicator functions.

Two gain control potentiometers are provided with which the gain of the line and microphone inputs can be regulated separately and the balance between the music and speech can be set.

A slide switch provides the possibility to switch the amplifier between Stereo and Mono / Bridge mode. If this switch is set to stereo, the output will be stereo. If its set to Mono / Bridge, the Left and Right channels will be summed to a dual–mono output.

Three indication LED's for 'ON / STANDBY', 'SIGNAL' and 'CLIP' indicate the operation mode of the amplifier. The 'ON / STANDBY' LED will turn green when the device is switched ON and running. When no signal with a sufficiently high level is detected for a certain period of time, it will switch to standby mode and this LED will turn orange. The 'SIGNAL' LED will turn green when a signal with a sufficiently high level is detected and the 'CLIP' LED will start blinking when the signal reached the clipping level and the internal limiter starts working.

# Rear panel



All necessary connections of the AMP20 are provided at the backside of the device. An overview and explanation of all the connectors and possibilities is given below.

## 1) 24 Volts power connector:

The 24 Volts power supply connection is provided on the left side of the AMP20's rear panel. The included power supply (PSD241) should be connected to the terminal block connectors. Pay attention to the polarity when connecting the power supply.

## 2) Loudspeaker output:

The loudspeakers should be connected to the 4-pins 'AMP OUT' Terminal Block connector. Depending on the position of the Stereo and Mono / Bridge switch on the front panel, the corresponding audio output will be available here. When used in Stereo mode, the left loudspeaker(s) should be connected to the two leftmost terminals and the right loudspeaker(s) should be connected to the two rightmost terminals. When used in Bridge mode, the loudspeaker(s) should be connected to the two outer terminals.

## 3) Remote wall mixer and Volume controller connections:

Two RJ45 connectors are provided for connecting Remote wall mixers and external overall volume controllers. The connections on these extension ports should be made by using a simple CAT5 twisted pair (or better) cable in a straight pinout configuration. The pinout and colour coding is described on Chapter 1 of this instruction manual.

The remote wall mixer connection carries the supply voltage to the wall input unit and a stereo differential audio signal from the wall input unit to the amplifier.

The audio signal coming from the remote wall mixer will be proportionally mixed with the direct line and microphone inputs.

The volume controller connection carries a negative supply voltage to the external volume controller and has an input for a variable negative voltage. Depending on this voltage, the overall volume will be regulated. When no external volume controller is connected, the overall volume of the device will be defaulted to its maximum.

#### **4) Balanced Stereo Line and Microphone inputs:**

The balanced stereo line and microphone input are performed using 3–pins terminal block connectors.

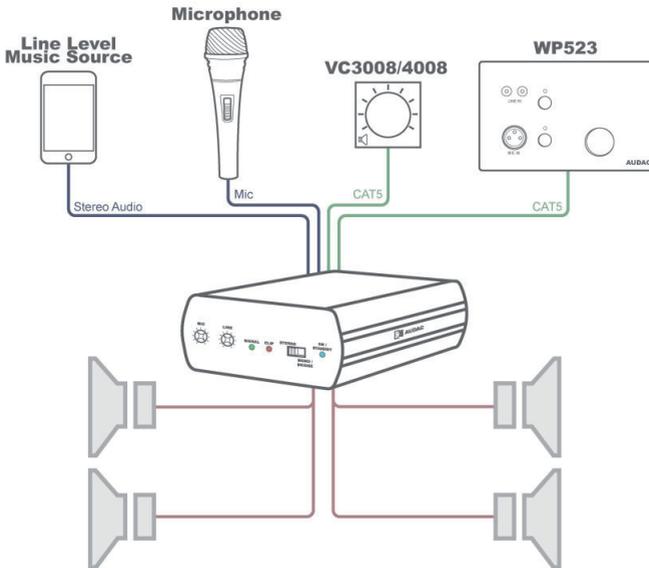
All different kinds of balanced and unbalanced line level audio sources can be connected to the line inputs. Some examples are CD & MP3 players, Tuners, Laptops, DVD players, ...

The microphone input provides the possibility of connecting any kind of microphone without phantom power requirement.

# Chapter 3

## AMP20 Quick start guide

This chapter guides you through the setup process for a basic AMP20 project where to a line level audio source and a microphone are connected directly . An external volume controller and remote wall mixer are installed remotely.



*Overview of the AMP20 setup*

## Connecting the AMP20

### 1) Connecting audio inputs

Connect all your audio sources (CD & MP3 players, tuners, microphones, ... ) to the audio inputs of the AMP20. All the direct audio inputs are performed using 3-pins terminal block connectors. For more information about the connections and wiring pinout, check Chapter 1 of this manual.

## 2) Connecting audio outputs

This suggested application uses a total of four loudspeakers. The AMP20 contains two speaker outputs (stereo) meaning that two speakers should be connected on every amplified output. The speakers must be connected in parallel and the load on each amplifier output channel should be 4 Ohm or higher.

## 3) Connecting the external units

The external (optional) wall volume controllers and remote wall mixers should be connected to the corresponding RJ45 connector ports. The connections should be made by using simple CAT5 twisted pair (or better) cabling in a straight pinout configuration. The maximum cable length between the external units and the AMP20 may not exceed a total cable length of 100 meters.

## 4) Connecting the power supply

The included power supply should be connected to the 2–pins Euro Terminal block connector. Watch the polarity when connecting the power supply.

# Configuring the AMP20

## 1) Adjusting the input sensitivity & volume

The configuration of the AMP20 only includes the sensitivity adjustment of the inputs and the overall volume regulation. The sensitivity of the inputs can be regulated by the two potentiometers on the front panel of the AMP20. The correct regulation depends on the signal level of the connected sources and the requirements for each specific application. The regulation should be done experimentally, making a good balance between the music signal from the audio source and the speech from the microphone.

The line and microphone level signal coming from the remote wall mixer is mixed locally and the balance can be set using both push–lock potentiometers. The output level can be set using the big volume dial. This signal is mixed with the direct line and microphone inputs at equal levels.

After all sensitivity settings have been made, the overall volume control can be done using the VC3008/4008 volume controller.

# Ready

Your system is now ready for use.

# Chapter 4

## Technical specifications

|                      |                                  |   |
|----------------------|----------------------------------|---|
| Inputs               | Type                             | <b>Stereo Balanced Line</b>   |
|                      | Connectors                       | 2 x 3–pins Euro Terminal Block ~ 3.81 mm  |
|                      | Impedance                        | 20 k Ohm  |
|                      | Sensitivity                      | – 12 dBV ~ +10 dBV  |
|                      | Type                             | <b>Balanced Microphone</b>  |
|                      | Connectors                       | 3–pins Euro Terminal Block ~ 3.81 mm  |
|                      | Impedance                        | 47 k Ohm  |
|                      | Sensitivity                      | – 34 dBV ~ –18 dBV  |
| Output               | Type                             | <b>Stereo Loudspeaker Output</b>  |
|                      | Connectors                       | 4–pins Euro Terminal Block ~ 5.08 mm  |
|                      | Impedance                        | Min Load of 4 Ohm   |
|                      | Power                            | 2 x 7.5 Watt @ 8 Ohm Stereo<br>2 x 15 Watt @ 4 Ohm Stereo<br>1 x 30 Watt @ 8 Ohm Bridge |
| THD+N                |                                  | < 0.1 %   |
| Crosstalk            |                                  | – 75 dB   |
| Signal / Noise ratio |                                  | > 95 dB   |
| Power consumption    | Standby                          | 0.8 Watt  |
|                      | Nominal <small>(1/8 MUP)</small> | 5.3 Watt  |
|                      | Absolute Max                     | 35 Watt   |
| Efficiency           | 1/8 MUP                          | 70%   |
|                      | MUP                              | 87%   |
| Cooling              |                                  | Passive   |
| Protection           |                                  | Over–Heat<br>Short circuit<br>Limiter   |
| Auto Power Down      | Minimum signal                   | –46 dB  |
|                      | Timing                           | Max 90 Seconds  |

|  |                      |  |
|--|----------------------|--|
| Power supply                                     | 24V DC               | PSD241 switching power supply included<br>100 ~ 240V AC / 47~63 Hz |
| NOTE: 'MUP' stands for Maximum Undistorted Power |                      |  |
| Dimensions (W x H x D)                           | 108 x 44 x 164 mm    |  |
| Weight   | 0.80 Kg              |  |
| Packaging  | Carton box           |  |
| Shipping weight & Volume                         | 1.12 Kg – 0.0078 Cbm |  |
| Optional Accessories                             | VC3008/4008          | Remote Volume controller   |
|  | WP523                | Remote Wall Mixer  |
|  | MBS200               | Mounting Bracket   |
|  | CLA832               | RCA / Cinch to Terminal Block cable                                |
|  | CLA835               | XLR Female to Terminal Block cable                                 |
|  | TR3030               | 100V Line Transformer 30 Watt                                      |





