

AMP523 MK2

User Manual



www.audac.eu

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Introduction

Web-based mini stereo amplifier

The AMP523MK2 is a mini stereo amplifier with an integrated web based control unit featuring four stereo line inputs and one balanced microphone input with phantom power. It has an output power of 2 x 15 Watt.

The simple and compact but versatile functionalities makes it perfectly suited for small speaker systems requiring compact and economical audio solutions which are comprehensive and easily controllable. Some typical applications are classrooms where the audio system will be used in combination with a smartboard, offices and meeting rooms where the music should switch automatically from background music to speech or playback when the presentation starts, and many other similar applications.

The compact size and very high efficiency even makes it possible to hide it in a closet, on a false ceiling or mount it under a desk or table. The various stereo line inputs allow simultaneous connections for different sources such as computers, laptops, smartphones and tablets while having a microphone connected.

The switching between the inputs, volume regulation and other function controls can be done in multiple ways: an integrated website makes it possible to control all the functions from any computer with a web browser without requiring additional software while the RS232 connection makes it possible to control the AMP523MK2 with any device supporting serial communication such as a computer or even a home or industrial automation system. Using the freely available AUDAC Touch™ application for smart devices guarantees total system control and configuration from any device on any location and at any time.

To make the installation even more complete, an optional MWX45 wall panel can be installed to control the signal routing and volume level from one or multiple fixed locations. The Class-D amplifier technology, standby mode and included switching power supply makes this device compliant to the highest 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
- NO NAKED FLAME SOURCES, SUCH AS LIGHTED CANDLES, SHOULD BE PLACED ON THE APPARATUS
- 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
- THE MAINS PLUG OR APPLIANCE COUPLER IS USED AS THE DISCONNECT DEVICE, SO THE DISCONNECT DEVICE SHALL BE READILY OPERABLE
- USE THE APPARATUS ONLY IN MODERATE CLIMATES

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: 2014/30/EU (EMC) and 2014/35/EU (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

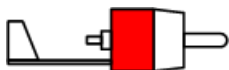
Connections and connectors

CONNECTION STANDARDS

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

RCA:

For unbalanced line input connections

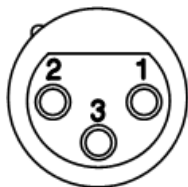


Tip: Signal
White: Left

Sleeve: Ground
Red: Right

XLR:

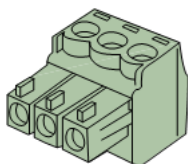
For balanced input connections



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

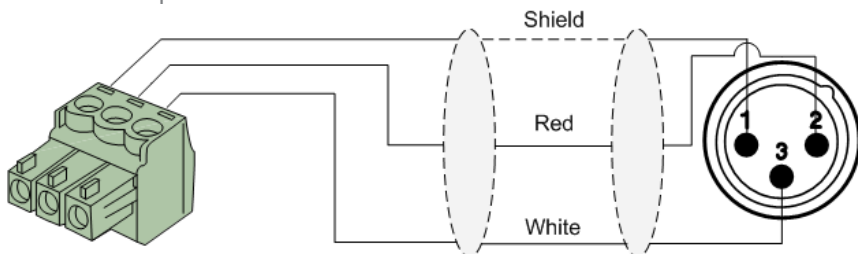
3-Pin terminal block:

For balanced input connections

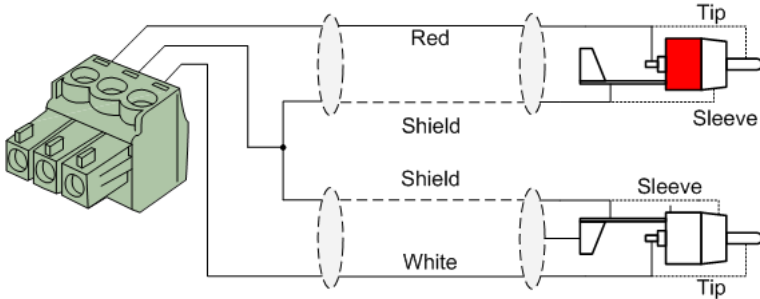


Left: Signal - (XLR Pin 3)
Center: Signal + (XLR Pin 2)
Right: Ground (XLR Pin 1)

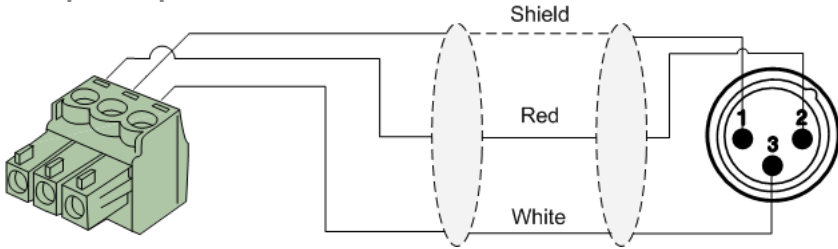
For balanced input connections:



Line in- or output

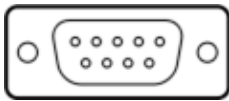


Microphone input



RS232 (serial connection interface):

For connection with home automation systems, or other remote control equipment



Connection

PIN 2

PIN 3

PIN 5

Standard RS232
AMP523MK2 TX
AMP523MK2 RX
GND

Settings

19200 Baud
8 Bit
1 Stop bit
No parity
No Handshaking

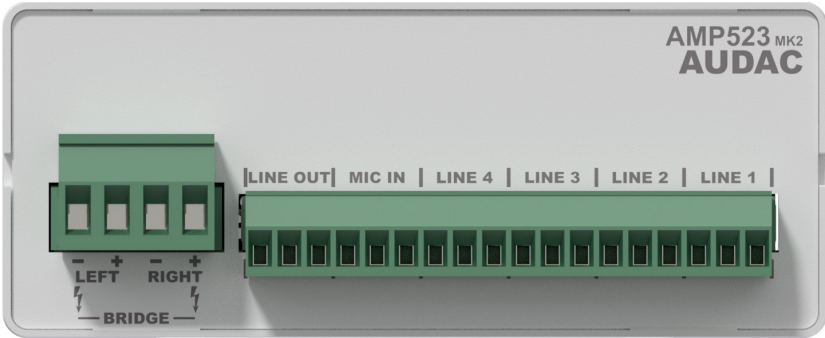
RS232 & TCP/IP

The AMP523MK2 RS232 and TCP/IP ports accept the same commands. The complete command set is available in the AMP523MK2 commands user manual which is freely available on www.audac.eu

Chapter 2

Overview AMP523_{MK2}

Front panel



The front panel of the AMP523MK2 contains the audio in– and output connections.

The available inputs are 4 unbalanced line–level inputs and one balanced microphone input (with phantom power). These all are performed using an 18–pins terminal block connector (combined with the line–level audio output). All audio sources such as computers, smartphones, tablets, ... shall be connected to the line–level inputs, while microphones can be connected to the microphone connection. When using condenser microphones, phantom power possibility should be enabled (by software).

Two audio outputs are implemented, both carrying the identical audio signal but with various output levels. The output on the left side (4–pin terminal block) marked with ‘AMP OUT’ connects the internal class D amplifier with an output power of 2 x 15 Watt, which allows direct connection of loudspeakers.

The audio output marked as ‘LINE OUT’ connected on the 18–pin terminal block connector is a standard line level output allowing connection of the AMP523 to any device with a line–level input, such as amplifier, pre–amplifier, active speaker system, ...

Rear panel



All the control and configuration ports are located on the rear panel of the AMP523MK2, including the 24 Volts power connection.

1) 24 Volts power connector:

The 24 Volts power supply connection is provided on the left side of the AMP523 MK2'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) Run LED:

This LED shows the operation mode of the device. When the device is running in normal mode, this LED will blink at a constant frequency.

3) RS485 + audio RJ45 connector:

An additional wall panel controller (MWX45) and Wall Line or Wall Microphone input (WMI and WLI units) can be connected to this input. This way, the volume and the signal routing can be adjusted by means of a wall panel and additional local Line and Microphone inputs can be connected.

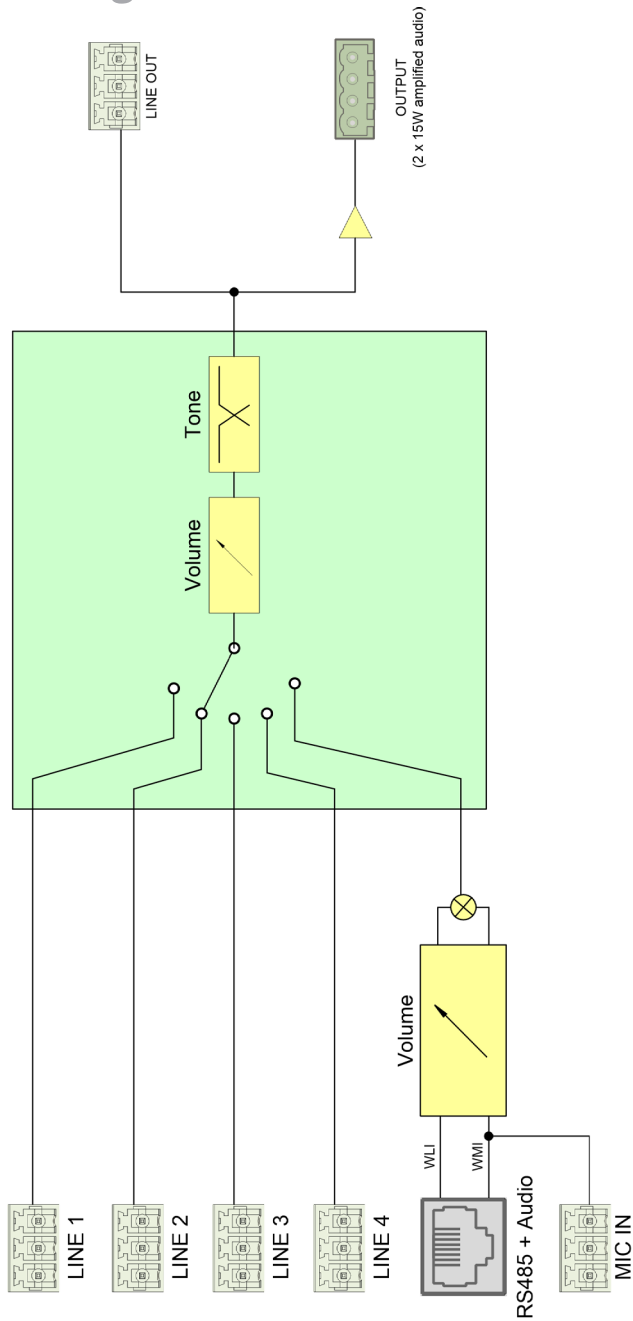
4) RS232 control port:

With this connector, the AMP523MK2 can be connected to external control hardware using RS232. This makes it possible to control the AMP523MK2 by means of an home automation system.

5) Ethernet connection:

The AMP523MK2 can be connected to an Ethernet network with this RJ45 connector. This makes it possible to control the AMP523MK2 functions over ethernet, by simply using any device with a web browser such as computer, smartphone, ...

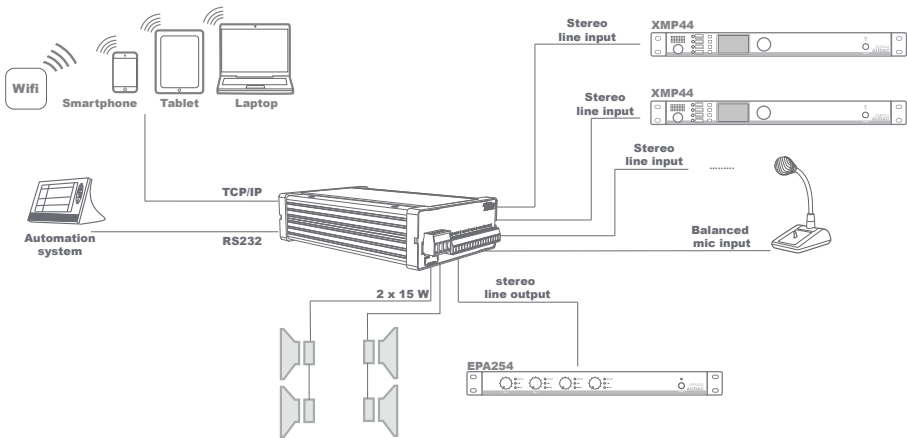
Block diagram



Chapter 3

AMP523_{MK2} Quick start guide

This chapter guides you through the setup process for a basic AMP523_{MK2} 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 AMP523_{MK2} setup

Connecting the AMP523_{MK2}

1) Connecting audio inputs

Connect all your audio sources (CD-players, tuners, mp3 players, microphones, ...) to the audio inputs of the AMP523_{MK2}. All the direct audio inputs are connected through the 18-pins terminal block. The pin layout for the 18-pins connector is shown at the front panel overview at page 11 of this user manual. The wiring diagram for connecting stereo line sources and microphones is shown at page 10 of this user manual.

2) Connecting audio outputs

Two different audio outputs are implemented. Depending of your application requirements, the line level output, speaker level output, or both shall get connected. If an external amplifier or pre-amplifier is used, connect it to the corresponding 'LINE OUT' terminals of the 18-pin terminal block connector. When using the internal amplifier, connect the speakers to the 'AMP OUT' 4-pin terminal block connector.

3) Connecting the power supply

The included power supply should be connected to the 2-pin terminal block connector. Mind the polarity when connecting the power supply.

4) Connecting a computer

A computer can be connected to the AMP523MK2 through ethernet connection. This shall be connected to UTP CAT5E (or better) cabling, connected to the RJ45 connector marked with 'Ethernet'. When connected directly to the AMP523MK2, a crosslink network cable is required. When connected to a local LAN network (connected to a router / switch / hub) a straight network cable is necessary. Ask your IT administrator for help. To get access to the user interface, enter the following address in your internet browser address bar: "http://192.168.0.193" (This is the factory default IP address of the AMP523MK2 and can be changed in the user interface). The default password for the AMP523MK2 is: 'AMP523'.

Configuring the AMP523MK2

1) Changing the IP address

This step can be skipped when the default IP address "192.168.0.193" is not in use by another device in your network, and is OK for you. When the IP address needs to get changed go to the "Setup" menu (click the icon in the upper right corner of the main screen) and click "Network Settings". Now the IP address can get changed. Click OK to apply the changes and save. Afterwards, your browser will be automatically redirected to the new IP address of the AMP523MK2, and the default IP address is not longer valid.

2) Changing the password

You can skip this step if the default password is OK for you, but we always recommend to change the password, especially when your device is connected to a public network which external users have access to. If you like to change the password, go to the "Setup" menu and click "Password settings". Here you can change the password. First, the old password needs to be entered, and subsequently the new password needs to be entered twice (Max 10 characters). Press the "OK" button to save the new password. Now, you always need to log in with the new password and the default password is no longer valid.

Ready

Your system is now ready for use. Go to the main screen of the AMP523MK2 and you are in full control of all the functions.

Chapter 4

User interface & configuration

To get access to the control and configuration settings, the AMP523MK2 should be connected to a computer or an Ethernet LAN network. For more information about network connections and settings, see IP basics in chapter 6.

For using the remote flash control or Audac–Touch interface, the AMP523MK2 shall be connected to an ethernet LAN network and accessed by its IP address. The standard (factory default) IP address of the AMP523MK2 is 192.168.0.193, make sure this address is within the IP range of the connected ethernet LAN network (subnetmask 255.255.255.0).

Any device (computer, laptop, ...) with a web browser and flash plugin installed can be used to control the web based user interface.

When application specific or total system control is required, the AMP523MK2 can be controlled using the Audac Touch™ application. This application allows to custom configure your control panel (Dashboard) according to project or user specific requirements.

User interface & configuration

Start your default web browser and enter the IP address of the embedded web server of the AMP523MK2 in the address bar. (The factory default IP address is <http://192.168.0.193>)

Login screen

First the login screen will be displayed.

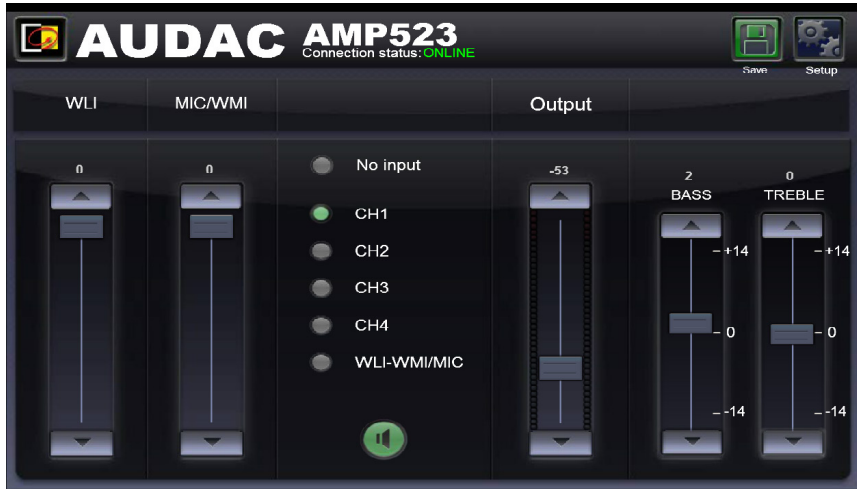
A password should be entered to get access to the web interface. Once the correct password is entered, click the “OK” button, and you will be redirected to the main screen of the AMP523MK2. (The factory default password for the AMP523MK2 is ‘AMP523’.

NOTE

The passwords can be changed in the Configuration >> Password settings menu

Main screen

After the correct password has been entered, the main screen of the user interface will be loaded and indicated as shown below.



Main screen for AMP523MK2

This window shows the selection buttons for all 5 inputs (CH1 – CH4 and WLI–WMI/ MIC) combined with a mute button in the center position. Left side includes mixing faders for the WLI and MIC/WMI channels, while a master volume control combined with two band tone control faders are located on right side.

Connection status

The connection status is shown on top center position. The indicated status should show 'ONLINE' in a green colour when the connection is live and active.

Input channel selection

The input channel routing can be selected using the selection buttons in center position of the main screen. Various selection buttons including 'No input', direct line inputs channel 1 to channel 4 (indicated as 'CH1' to 'CH4'), and the microphone input mixed with the remote input units (WLI and WMI). Simply click the corresponding button to adjust the routing.

Mute button

Underneath the input selection buttons is a MUTE button located, allowing complete suppression of the output signal. When muted, this button will be indicated in red colour. Toggling between mute and unmute is done by clicking this button again.

Volume control

The output volume can be set by moving the master fader (indicated by 'Output') up and down. The volume can also be raised and lowered in steps of 1 dB using both buttons on top and bottom of the fader.

Mixing faders for WLI and MIC/WMI

The left side of the main screen includes two mixing faders for mixing the microphone input and the remote inputs. The mixing with WLI and MIC/WMI channels is 50% and the level can be adjusted with both faders between 0 dB and $-\infty$ dB. This can be easily done by sliding the faders up and down or by pressing the arrowed buttons on top and bottom of the faders.

Two band tone control

The right side of the main screen includes two faders ('Bass' and 'Treble') for two-band tone control adjustment. The adjustment for both treble and bass is possible in steps of 1 dB within a range of +14 dB and -14 dB.

Configuration menu

The top right corner indicates a setup button which redirects you to the general configuration menu of the AMP523MK2.

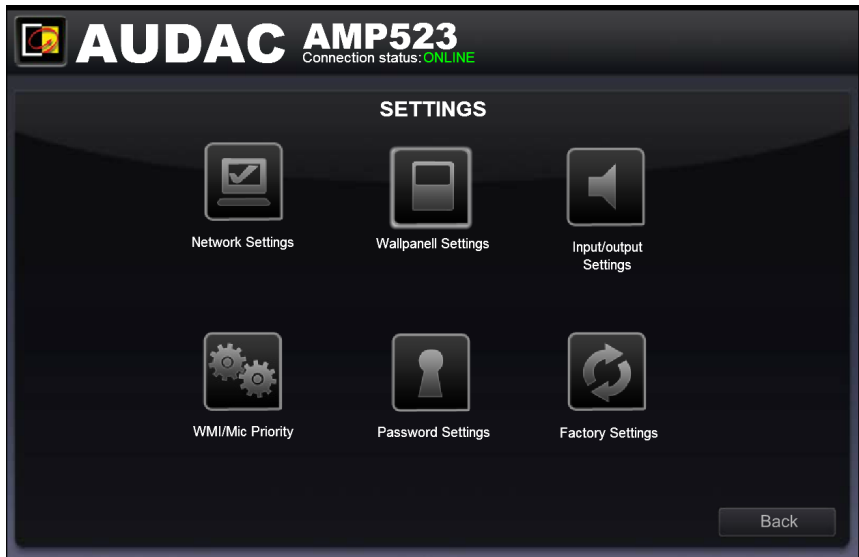
Save

Use the 'Save' button in the top right corner when made any changes to the main screen configuration. Default configuration will be re-loaded when rebooting the AMP523MK2, if not saved.

Configuration screen

The settings control panel comes up after clicking the “Setup” button in the top right corner of the main screen.

In this window, all settings for the AMP523MK2 can be configured, including network settings, wall panel address settings (optional), input gain, phantom power and priority for the microphone input and password settings.



Configuration screen for AMP523MK2

Press the corresponding icon for redirecting to the desired settings screen.

Back

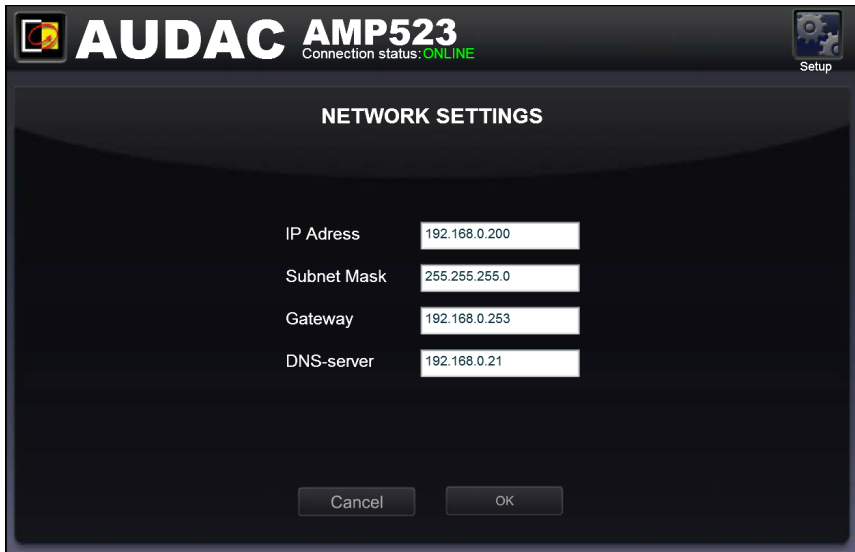
Click the “Back” button to return back to the main screen.

Configuration >> Network settings

This window allows you to adjust the network settings of the AMP523MK2. The IP address is default set to 192.168.0.193 and the subnetmask is default set to 255.255.255.0.

The settings can be changed by adjusting the parameters in the shown fields. To confirm the settings, press the OK button. The changed settings will take effect immediately.

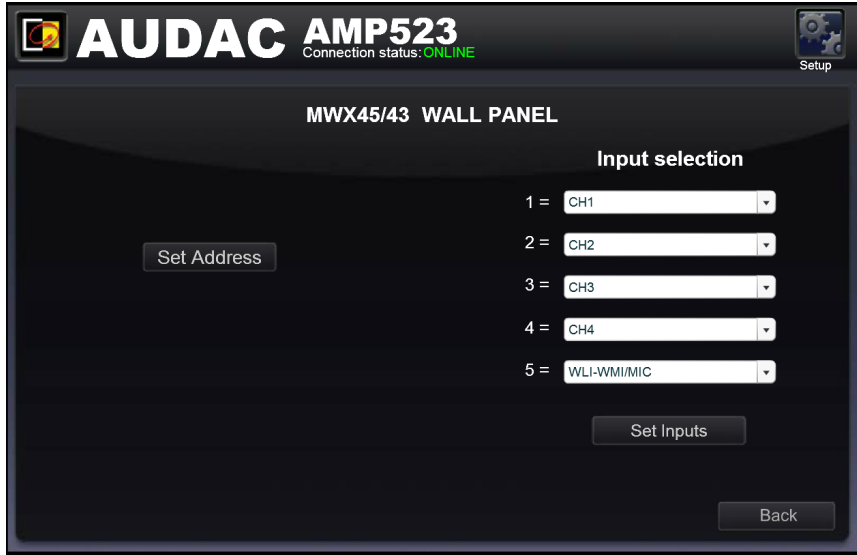
For more information about network connections and settings, see IP basics in Chapter 6.



Network settings screen for AMP523MK2

Configuration >> Wall panel settings

This window allows you to adjust the address and input selection settings for the (optionally) connected MWX45 wall panels.



Wall panel settings screen for AMP523MK2

Factory default, the wall panel address is always set correctly and doesn't need to get changed. This step only needs to be done when the wall panel has been used in another application with a different configuration. When experiencing any problems when connecting and configuring wall panels, we recommend to follow wall panel configuration procedure as below.

Set Address AMP523MK2

Connect the MWX45 wall panel to the "RS485 + AUDIO" RJ45 input on the AMP523MK2. Once connected, press the 'Set address' button on the wall panel settings menu. The message 'Push the upper button on the wall panel to confirm the address' will appear and the LED's on the wall panel will start blinking. Once pressed the upper button on the wall panel, the correct address will be assigned and the message will disappear. The wall panel is ready for controlling.

Input selection

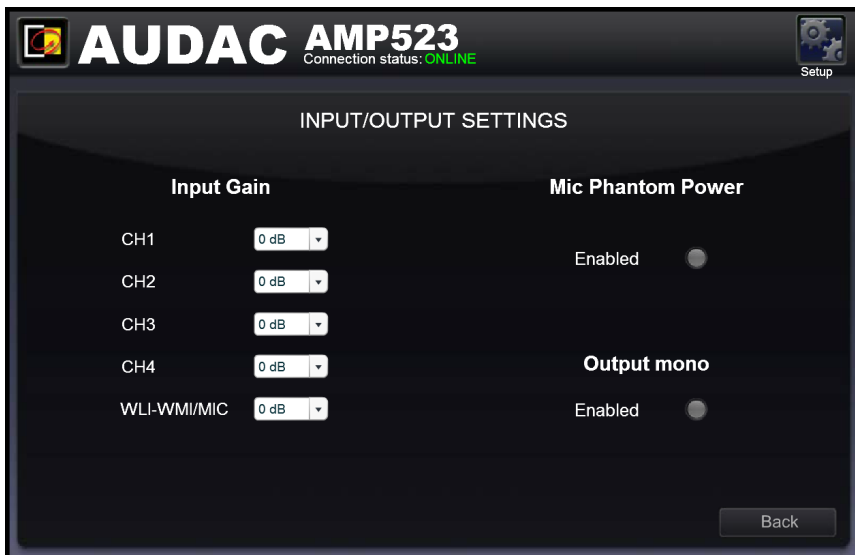
The configured wall panel can be used for controlling the input routing on the AMP523MK2. In default configuration, all channels are selected. If not all inputs shall be selectable through the wall panel, the corresponding input can be disabled from the wall panel by selecting the 'Off' option in the matching dropdown list. When disabled, the corresponding input will disappear from the wall panel selection possibilities.

Back

Click the "Back" button to return back to the settings screen.

Configuration >> Input settings

This window, input settings such as input gain adjustment and phantom power enabling can be made.



Input/Output for AMP523MK2

Input gain

The left side shows all input channels combined with a dropdown list whereby the input gain can get adjusted. Default gain for every input is set to 0 dB. It can be adjusted within a range of -4 dB and $+10$ dB, in steps of 2 dB. This is done by clicking the dropdown list and selecting the desired gain adjustment factor. When selected, changes will take effect immediately.

Phantom power

The right side shows a button for enabling phantom power to the microphone channel. When enabled, the button will be indicated in green colour and applies 15 V DC phantom power on the microphone input (Only on the direct microphone input and not on the WMI input).

Output mono

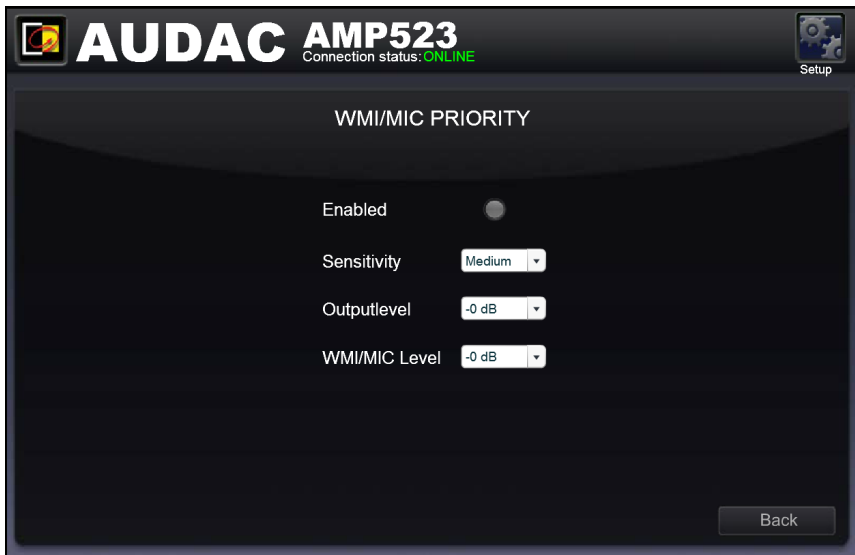
The output can be switched between mono and stereo through pressing this button. When indicated in green colour, the output is switched to mono. When mono is enabled, an identical signal will be available on both left & right outputs, which is a mix of the left & right input signals.

Back

Click the “Back” button to return back to the settings screen.

Configuration >> Priority settings

In this window you can make priority settings such as sensitivity and level adjustment for the microphone inputs. When applying a signal to the microphone input (when someone is talking in the microphone), all other signal sources will be suppressed.



Priority settings screen for AMP523MK2

Enabled

The priority can be enabled by clicking the “Enabled” button on top. This button will turn green when priority is enabled.

Sensitivity

The sensitivity for the priority channel can be put on “High”, “Medium” or “Low”. Hereby, the trigger level for switching to the priority channel can be set. When it’s set to “High”, it will switch to the microphone channel when only a small signal is applied to the microphone input (when the talker is speaking very softly). When it’s set to “Low”, it will switch to the microphone input when a large signal is applied to the microphone input (when the talker is speaking very loud). The “Medium” setting is in between “High” and “Low”. The correct setting for your application depends on the microphone being used, the background noise, the person who’s talking, ...

Output Level

The sound level of the priority signal can be adjusted with this dropdown list. This way, the volume can change when a priority announcement is made. For example, to make sure a priority message is always heard at the maximum volume, ...

The default output level for priority messages is set to 0 dB and can be adjusted between 0 dB and $-\infty$ dB, in steps of 1 dB.

WMI/MIC Level

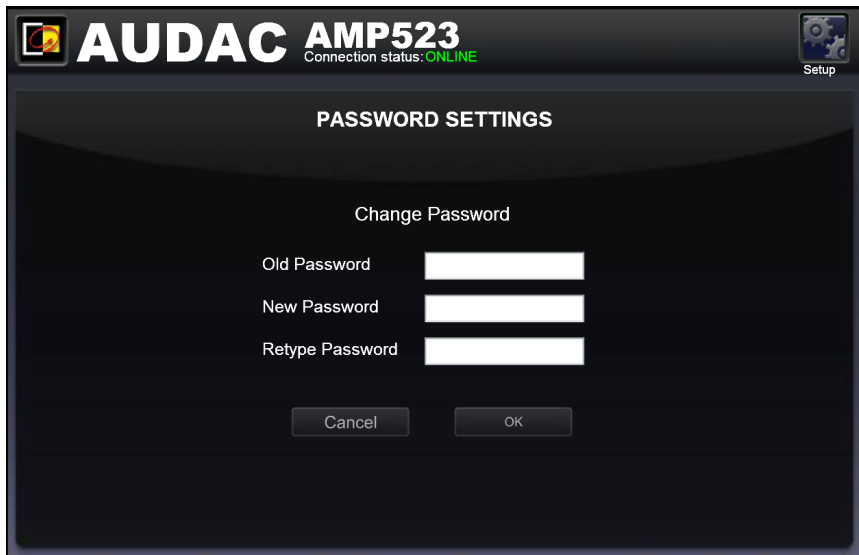
The level of the priority input can be set through this dropdown list. The correct level depends of the used microphone, and should be set correctly so the microphone signal is not overdriven.

Back

Click the “Back” button to return back to the settings screen.

Configuration >> Password settings

In this window the password for the AMP523MK2 can be changed.



Password settings screen for AMP523MK2

To change the password, enter the old password in the provided field and enter the new password twice in the fields below. After this is entered, push the “OK button. If the old password is correct, and the new password filled in both fields match, the old password will be changed into the new password.

The factory default password is “**AMP523**”.

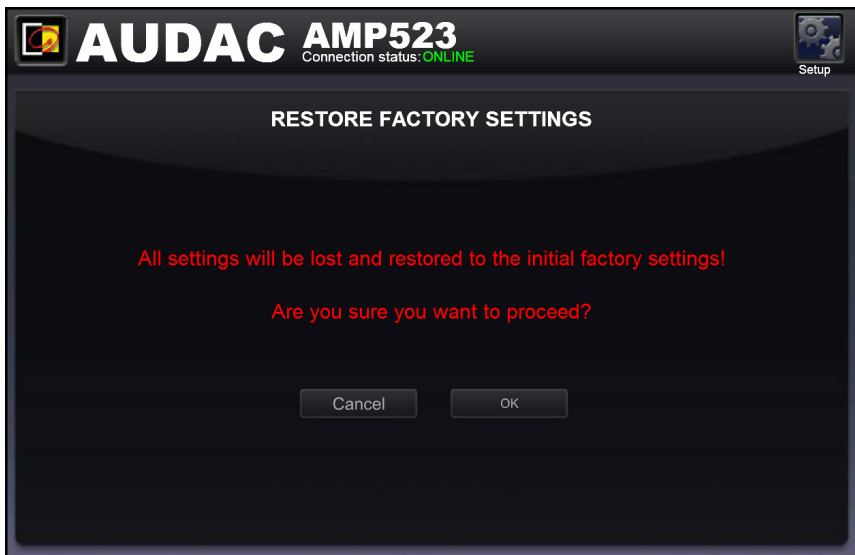
Configuration >> Factory settings

ATTENTION

BE CAREFUL to press this button. It really will recall the ORIGINAL factory settings !!!

It does not recall the previously saved settings, but it recalls the original factory setting and the previously made settings will be lost.

Click the “OK” button to reset the settings to factory default.



Factory settings screen for AMP523MK2

Chapter 5

Peripheral connections

In addition to the direct line and microphone inputs on the AMP523MK2, additional wall line and microphone inputs can be connected. It provides the possibility for connecting one additional wall line input unit (WLI) and one additional wall microphone input unit (WMI). For controlling the standard functions like input selection and general volume control, an additional MWX45 wall panel can get added to the system.

The additional units must be connected to the “RS485 + AUDIO” RJ45 input connection. The data transfer between both audio input units and the control units is done over a single CAT5 (or better) cable. The wiring should be straight, according to the wire colour coding as shown in “Chapter 1: Pin connections and connectors” of this user manual.

The signal coming from the wall microphone input is combined with the direct microphone input and priority settings also affect the wall microphone input signal. Both inputs are mixed and the volume for each channel can be set separately by using the fader on the web-based user interface.

The wiring between the different units simply needs to be linked-through. An example diagram of how the system including the additional wall audio inputs and control panel should be connected is shown in the diagram below.



Chapter 6

Additional information

IP Basics

Many AUDAC products are controllable by Ethernet. The Ethernet connection which is used on the AUDAC products is TCP/IP based, like 99% of the computer networks. There are some basics which you need to know to successfully make a TCP/IP Ethernet connection.

The data in TCP/IP networks is always sent in packages, all these packages must be delivered at a unique address, just like the mailman delivers mail at your home mailbox. In TCP/IP networks, this address is called the “IP address”. The IP address is always a number in the following format “192.168.000.001”. As you can see, this address consists of 4 separate numbers ranging from “000” to “255”.

In simple terms, only the latest number of an IP address can be different within a network, so there is a maximum of 254 unique addresses within a network, ranging from “xxx.xxx.xxx.001” to “xxx.xxx.xxx.254”. The first three numbers must be the same to make communication between several devices possible, else the devices can not communicate with each other.

Example:

Device 1:	IP address:	192.168.000.001
Device 2:	IP address:	192.168.000.002
Device 3:	IP address:	192.168.001.003

In this example, Device 1 can communicate with Device 2, but not with Device 3, because the first three numbers must be the same. These first three parts are called the “IP range”, so the devices must be in the same “IP range” to communicate with each other.

The “IP range” of home and office networks are defined by the network administrator, this means that the IP range of your home or office network can be different from another network. AUDAC products have the following IP address as default: “192.168.0.xxx”, this means the standard IP range of AUDAC products is “192.168.000.xxx”. If your network is using a different IP range, the AUDAC products will not be accessible from your network. You can change the IP address of the AUDAC products to make them work properly in your network. This can be done in the settings menu, and is described extensively in the “Settings” chapter of this user manual.

Of course, to make changes to the settings menu of the AUDAC products, you need to have access to the user interface on the product’s webpage. This can be done by temporarily giving your computer an IP address within the IP range of the AUDAC product, for example “192.168.0.193”. After the IP address of your computer is within the IP range of the product, the user interface is accessible and the IP address of the product can be changed to an IP address within the IP range of your network. If the IP address of the product is within the IP range of your network, you can change the IP address of your computer to it’s former IP address and the product should work properly in your home or office network. Ask your network administrator for help if you are not familiar with networks.

Ask your network administrator for help if you are not familiar with networks.

Summary

- All devices must have an unique IP address
- All devices must be within the same IP range

Chapter 4

Technical specifications

Inputs	Type	4 x Stereo balanced line
	Connectors	12-pin terminal block ~ 3.81 mm
	Impedance	20 k Ohm
	Sensitivity	- 10 dBV ~ + 4dBV
	Type	Balanced microphone
	Connectors	3-pin terminal block ~ 3.81 mm
	Impedance	47 k Ohm
	Sensitivity	- 34 dBV ~ -18 dBV
Outputs	Type	Stereo unbalanced line
	Connectors	3-pin terminal block ~ 3.81 mm
	Output level	-∞ dBV ~ 0 dBV
	Type	Stereo loudspeaker Output
	Connectors	4-pins terminal block ~ 5.08 mm
	Impedance	Min load of 4 Ohm
	Power	2 x 7.5 Watt @ 8 Ohm Stereo 2 x 15 Watt @ 4 Ohm Stereo 1 x 30 Watt @ 8 Ohm Bridge
THD+N		< 0.1 %
Crosstalk		- 75 dB
Signal / Noise ratio		> 95 dB
Power consumption	Standby	2.6 Watt
	Idle	3.7 Watt
	Nominal <small>(1/8 MUP)</small>	7.1 Watt
	1/8 MUP	36.8 Watt
Efficiency	1/8 MUP	70%
	MUP	87%
Auto Power Down	Minimum signal	-46 dB
	Timing	Max 90 Seconds

Power supply 24V DC
PSD241 switching power supply included
100 ~ 240V AC / 47~63 Hz

Cooling Passive

Protection Over-Heat
Short circuit
Limiter

NOTE: 'MUP' stands for Maximum Undistorted Power

Dimensions (W x H x D) 108 x 44 x 164 mm
Weight 0.40 Kg

Packaging Carton box
Shipping weight & Volume 1.00 Kg – 0.0072 Cbm

Compatible devices MWX45 Digital wall controller
WLI18 Wall line input unit
WMI18 Wall microphone input unit

Optional Accessories MBS1xx Mounting brackets
TR3030 100V Line Transformer 30 Watt

