MTX48/88

Index

Introduction

Multi-zone matrix

The MTX is AUDAC's series of very cost efficient audio matrix systems for a wide range of Multi-Zone audio applications, offering two different models with the same features and possibilities, but with different zone capacities.

The MTX88 is the eight-zone version, and the MTX48 is the four-zone version.

Both containing two balanced microphone inputs with priority and phantom power possibility and three-band tone control.

Four stereo line inputs are provided, where any music source can be connected, such as a smartphone, laptop, tablet,... The other two inputs of the matrix can be used for additional wall panel inputs for both line and microphone signals.

What makes the MTX system superior to all other matrix systems is its extensive control options. The MTX can be controlled from additional wall panels for each specific zone, with or without additional audio inputs. The MTX is also compatible with the Audac touch™2 app for smart devices. The RS232 port makes it possible to control it from external home & industrial automation systems that support RS232.

The front panel of the MTX contains for every zone a rotary push button with indication LED's whereby all the controls and settings can be done. A built-in PFL loudspeaker makes it possible to pre-listen every channel without requiring headphones.

The balanced line-level zone outputs are performed using 3-pin Euro-terminal block connectors, each of them accompanied with an RJ45 connector for connecting additional wall panels to that zone.

A 24 volts power connection makes it possible to keep the MTX running on emergency power, even if the mains power is shut down.

An EXT MUTE connection allows overall system muting. This is extremely useful in case of fire-alarms or other priority systems overruling the system settings.

MTX Block Diagram
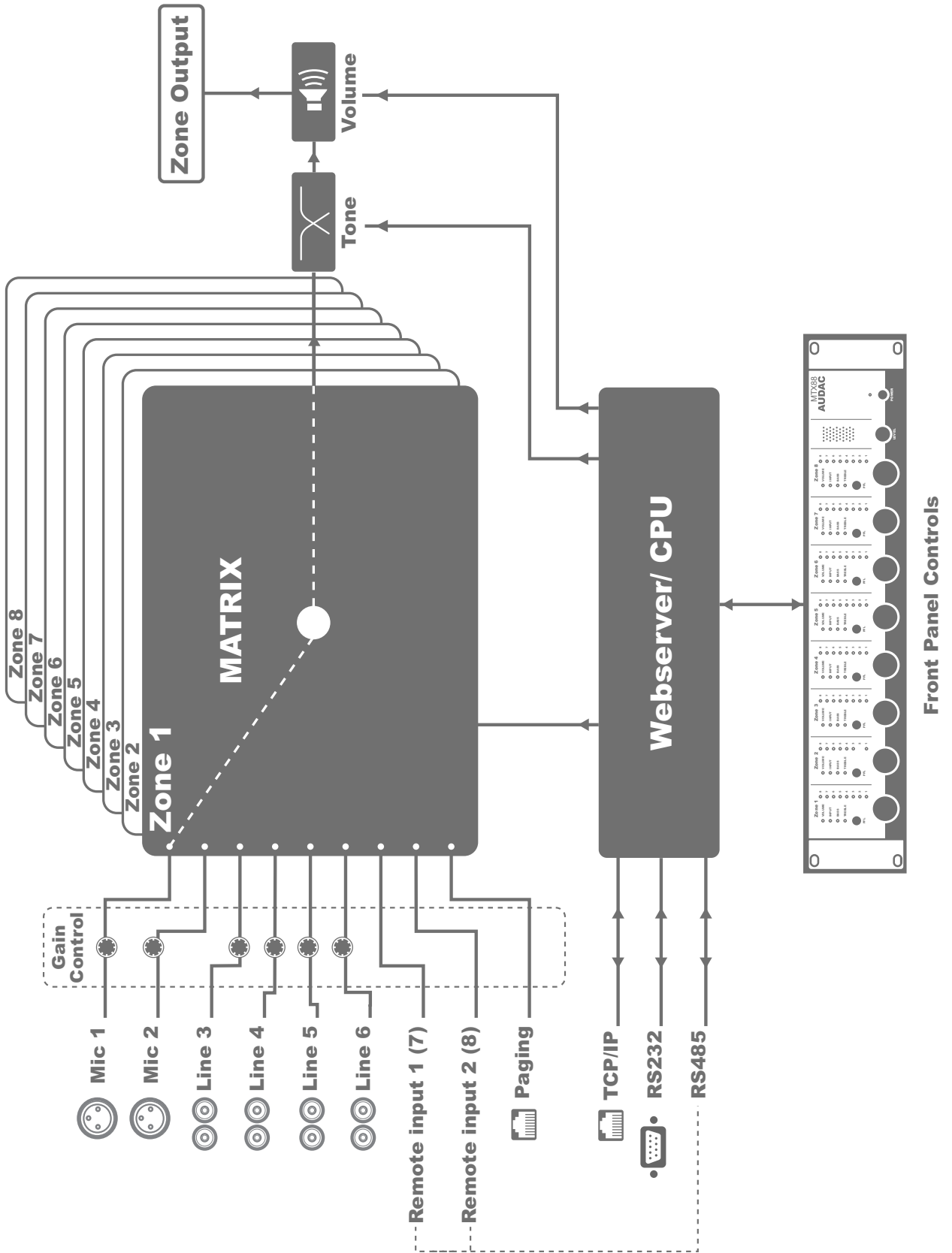
Block diagram shown for MTX88 - 8 Zone Matrix

Precautions

READ FOLLOWING INSTRUCTIONS FOR YOUR OWN SAFETY

ALWAYS KEEP THESE INSTRUCTIONS. NEVER THROW THEM AWAY

ALWAYS HANDLE THIS UNIT WITH CARE

HEED ALL WARNINGS

FOLLOW ALL INSTRUCTIONS

NEVER EXPOSE THIS EQUIPMENT TO RAIN, MOISTURE, ANY DRIPPING OR SPLASHING LIQUID. AND 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 WHICH CONTAIN HIGH LEVELS 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

ONLY CONNECT THIS UNIT TO A MAINS SOCKET OUTLET WITH PROTECTIVE EARTHING CONNECTION

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)

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 life cycle. This regulation is created to prevent any possible harm to the environment or human health.

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

CAUTION

The symbols shown are internationally recognized symbols that warn about potential hazards of electrical products. The lightning flash with arrow point in an equilateral triangle means that the unit contains dangerous voltages. The exclamation point in an equilateral triangle indicates that it is necessary for the user to refer to the users manual.

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

These symbols warn that there are no user serviceable parts inside the unit. Do not open the unit. Do not attempt to service the unit yourself. Refer all servicing to qualified personnel. Opening the chassis for any reason will void the manufacturer's warranty. Do not get the unit wet. If liquid is spilled on the unit, shut it off immediately and take it to a dealer for service. Disconnect the unit during storms to prevent damage.

POWER SUPPLY AND POWER CORD REQUIREMENTS

Power supply class I grounding requirements:

For protection from fault currents, the equipment shall be connected to a grounding terminal. Plug the system power cord into an AC outlet that provides a ground connection. Substitute cords may not provide adequate fault protection. Only use the power cord supplied with this product or an authorized/equivalent replacement.

Safety notices:

Denmark:

Apparatets stikprop skal tilsluttes en stikkontakt med jord, som giver forbindelse til stikproppens jord.

Finland:

Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan.

Norway:

Apparatet må tilkoples jordet stikkontakt.

Sweden:

Apparaten skall anslutas till jordat uttag.

ATTENTION

The fuse (T500mAL/250V) provides a safeguard function to the device. When replacing the fuse, make sure that the value of the replacement matches the value of the original fuse. Identification of a suitable replacement component or substitute shall be done by qualified technicians.

Chapter 1

Pin 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 (COAXIAL):

For unbalanced line input connections.
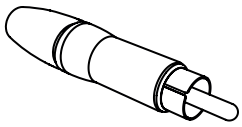
Tip: Signal
Sleeve: Ground

XLR

For balanced microphone input connections.

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

3-Pin Terminal block:

For balanced line output connections.

Left: Signal -

Center: Signal +

Right: Ground

For balanced line output connections.

For unbalanced line input connections.

RJ45 (RS485, Audio, +24V DC):

For connection to wall panels

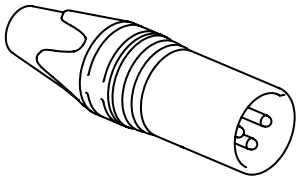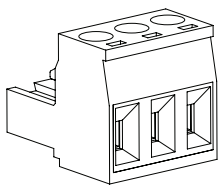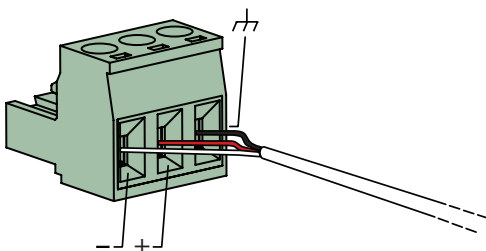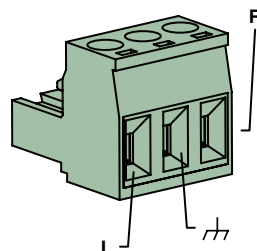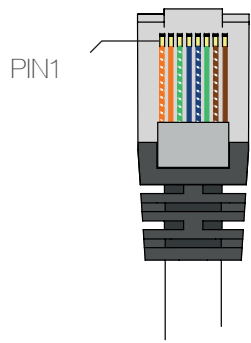|			
Pin 1	White-orange	Remote Input 1+
Pin 2	Orange	Remote Input 1-
Pin 3	White-green	+24V DC
Pin 4	Blue	RS485 A
Pin 5	White-blue	RS485 B
Pin 6	Green	GND
Pin 7	White-brown	Remote Input 2+
Pin 8	Brown	Remote Input 2-
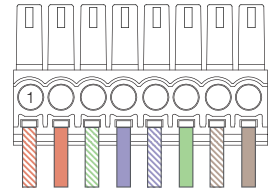
PIN1

For connection to paging consoles
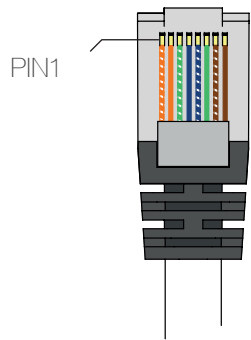
Pin 1	White-Orange	Not used
Pin 2	Orange	Not used
Pin 3	White-Green	+24V DC
Pin 4	Blue	RS485 A
Pin 5	White-Blue	RS485 B
Pin 6	Green	GND
Pin 7	White-Brown	Paging audio +
Pin 8	Brown	Paging audio -

PIN1
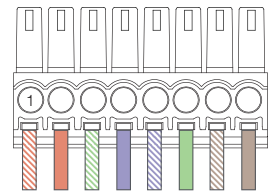
ATTENTION

The twisted pair cabling must always be 'straight'. In case of self-made cabling it must be wired as described above, to ensure a proper functioning of the system.

RS232 (serial connection interface):

For connection with home automation systems, or other remote control equipment
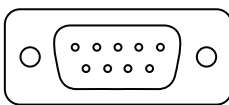
Connection	Standard RS232
PIN 2	MTX TX
PIN 3	MTX RX
PIN 5	GND

Settings	19200 Baud
	8 Bit
	1 Stop bit
	No parity
	No Handshaking

RS232 & RS485 & TCP/IP

The MTX has RS232, RS485 and TCP/IP ports which all accept the same commands. The complete command set to control the MTX is available in the MTX commands user manual which is freely downloadable on www.audac.eu

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Wire up the system

The wiring of the system must be done according to the following rules, to guarantee a proper functioning of the system in all circumstances.

1.   Wall Mounted Input & Control units:
        MWX45   UTP/FTP Cat5e cable or better
        MWX65   UTP/FTP Cat5e cable or better
        MPX48/88   UTP/FTP Cat5e cable or better
        WLI18/WMI16   UTP/FTP Cat5e cable or better
        APM1xxMkII   UTP/FTP Cat5e cable or better

2.   Speaker cable for amplified zone outputs:
        Minimum 2 x 1.5 mm$_2$
        If distance > 15 m: 2 x 2.5 mm$_2$)

3.   Music sources and zone outputs:
        Must be connected with high-quality audio cable and high-quality connectors

4.   Ethernet connection:
        UTP/FTP Cat5e cable or better

Chapter 2

Panel overview

Front panel overview

MTX48
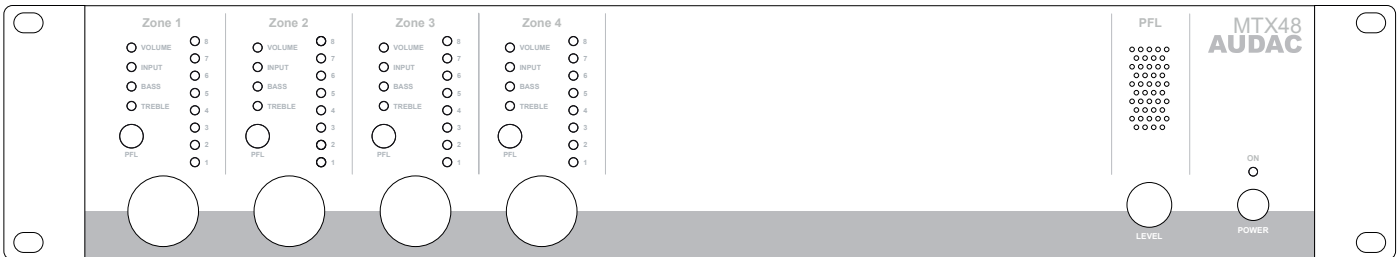
MTX88
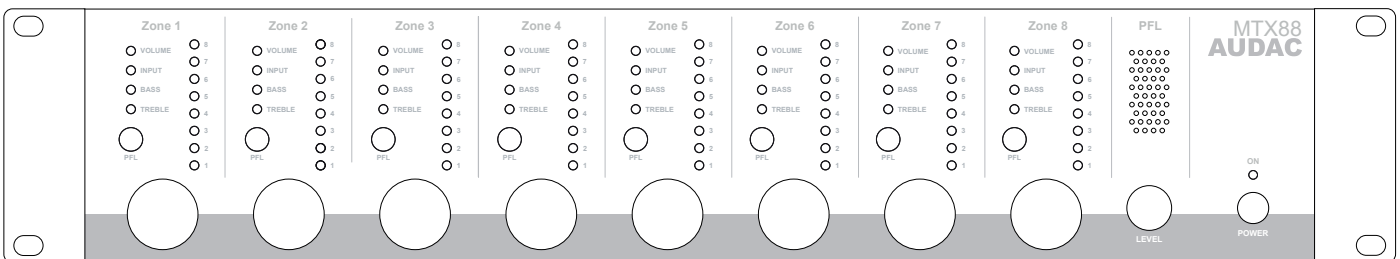
The front panel of the MTX enables you to fully control and configure the settings of every output zone. Every output zone contains its own specific control section, including one rotary function dial, four function indication LED's, and eight level / selection indication LED's.

A built-in pre-listening loudspeaker makes it possible to pre-listen every output channel without requiring additional headphones. The channel which is currently playing through the built-in pre-listening loudspeaker can be selected by means of the PFL selection switches which are provided with each zone control section. The level of the PFL loudspeaker can be controlled by using the PFL potentiometer.

On the right side there is a power button provided. Simply push this button to power-up the system.

Front panel functions

The control section for every zone contains one rotary function dial, four function indication LED's and eight level / selection indication LED's.
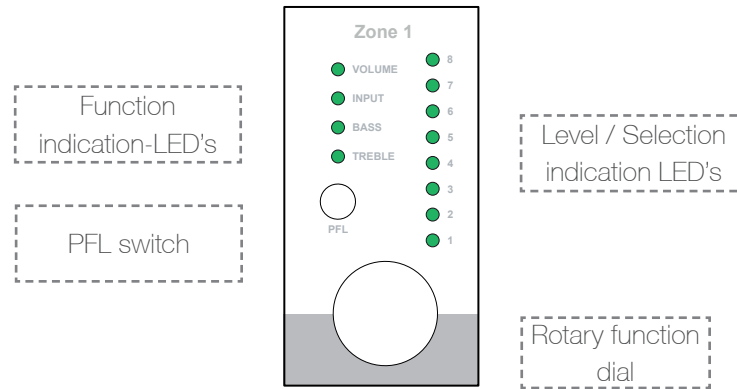
By means of the function indication LED's, the current operating function will be indicated. The upper LED stands for volume adjustment, the second LED stands for input channel selection, the third LED will blink when Bass tone adjustment is enabled, and the fourth LED will blink when Treble tone adjustment is enabled.

The selection of which function has to be controlled can be done by pressing the rotary function dial. When pressing the rotary function dial, the 'Volume' LED will illuminate. Changing to the desired function can be done by rotating the function dial. The currently set level / selection will appear when the function is selected. When any change needs to be made to the level / selection, the rotary button should be pressed a second time. The LED of the selected function will start blinking now, and any rotation to the function dial will affect the set level / selection.

When the level / selection is changed to the desired level and any other change needs to be made, you can return to function selection by pressing the rotary button again. The settings menu will be quit automatically when the rotary dial is not operated for about 6 seconds.

Volume adjustment:
When no function is selected (MTX in idle status) and the function dial is rotated, the volume adjustment function will be automatically activated. The volume LED will start blinking and the current volume level will illuminate on the level / selection LED's. Manual switching to volume mode can also be done, by the procedure as described above. The level / selection LED's will indicate the currently set volume level. Only a few illuminated LED's correspond with a low volume level, and many illuminated LED's correspond with a high volume level. Rotating the rotary function dial in clockwise direction results in an increasing volume level and rotating in counter-clockwise direction results in a decreasing volume level.

**Input selection:**
The desired input channel for every zone can be selected. Every LED corresponds with an input channel, and the corresponding LED for the selected input channel will illuminate when selected. Switching between the different input channels can be done by rotating the function dial. The table shown below gives an overview of which number corresponds with which input channel.

Input number	Corresponding channel
1	Microphone Input 1
2	Microphone Input 2
3	Line input 3
4	Line input 4
5	Line input 5
6	Line input 6
7	Remote input 1
8	Remote input 2

Bass en Treble adjustment:

The Bass and Treble adjustment can be done on a similar way. When the desired function is selected, the corresponding function LED will start blinking. The adjustment can be done by rotating the function dial. Similar to the volume adjustment, clockwise rotation results in a level increase while counter-clockwise rotation results in a level decrease. When the level is set in neutral position (0 dB), no LED's of the level / selection LED's will illuminate. When an amplification (dB +) is selected, the upper four LED's will illuminate from out the centre, depending on the selected level. When an attenuation is selected (dB -), the lower four LED's will illuminate from out the centre, depending of the selected level.
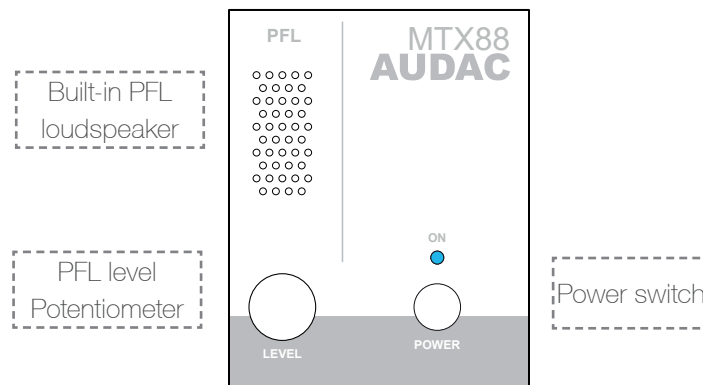
Built-in PFL loudspeaker and potentiometer:

The built-in pre-listening loudspeaker makes it possible to pre-listen every output channel without the need for an additional headphone. The channel which is currently playing through the built-in pre-listening loudspeaker can be selected by means of the PFL selection switches which are provided with each zone control section. The level of the PFL loudspeaker can be controlled by using the PFL potentiometer.

Power switch:

By means of the power switch, the device can be turned ON and OFF. When the device is switched on, the blue LED above the power button will illuminate.

Functions overview

Operating functions	
Change volume	- Set function LED to 'Volume' - Push rotary dial once - Rotate function dial to desired volume level -> The indication LED's show the selected volume level - Push rotary dial once to return back to main menu
Change routing	- Set function LED to 'Routing' - Push rotary dial once - Rotate function dial to desired input channel -> The indication LED's show the selected input channel (1-8) - Push rotary dial once to return back to main menu

Change bass	- Set function LED to 'Bass'
	- Push rotary dial once
	- Rotate function dial to desired bass level
	  -> The indication LED's show the selected level
	    - In neutral position, all LED's are off
	    - Increased level causes upper LED's to illuminate
	    - Decreased level causes lower LED's to illuminate
	- Push rotary dial once to return back to main menu

Change treble	- Set function LED to 'Treble'
	- Push rotary dial once
	- Rotate function dial to desired treble level
	  -> The indication LED's show the selected level
	    - In neutral position, all LED's are off
	    - Increased level causes upper LED's to illuminate
	    - Decreased level causes lower LED's to illuminate
	- Push rotary dial once to return back to main menu

Pre-fade listen	- Press PFL button -> Selected channel now plays through the built-in loudspeaker
Save settings	- Hold rotary button for Zone 1 and Zone 2 for 3 seconds -> Saved settings will be recalled after MTX restart

Configuration functions	

Priority 1 Enable / Volume (per zone)	Priority message from Microphone Input 1 will be announced to priority enabled zones.
	- Set LED for corresponding zone to 'Volume'
	- Hold rotary button for corresponding channel down for 3 seconds
	  (Volume LED starts blinking)
	- Priority can be enabled and volume can be set by rotating the button
	  (Priority is disabled when volume is set to zero)
	- Press rotary button once again to return back to main menu

Configuration functions	

Priority 2 Enable / Volume (per zone)	Priority message from Microphone Input 2 will be announced to priority enabled zones.
	- Set LED for corresponding zone to 'Routing'
	- Hold rotary button for corresponding channel down for 3 seconds
	  (Routing LED starts blinking)
	- Priority can be enabled and volume can be set by rotating the button
	  (Priority is disabled when volume is set to zero)
	- Press rotary button once again to return back to main menu

Paging Volume (per zone)	Paging volume for message from External Paging Console can be set.
	- Set LED for corresponding zone to 'Bass'
	- Hold rotary button for corresponding channel down for 3 seconds
	  (Bass LED starts blinking)
	- Paging volume can be set by rotating the button
	  (Paging is disabled when volume is set to zero)
	- Press rotary button once again to return back to main menu

Mono / Stereo output (per zone)	Output signal for each zone can be switched between Mono and Stereo
	- While powering-up the device, hold the rotary button for Zone 1.
	  The Mono / Stereo settings menu will be displayed
	- Toggling between Stereo or Mono mode can be done by using each zones' rotary button
	  - LED 1: Zone set to Mono
	  - LED 2: Zone set to Stereo
	- Power off and Power on the device again to go back to normal operation mode.

Set wall panel address	Connected wall panels can be assigned to one zone. - Set LED for corresponding zone to 'Treble' - Hold rotary button for corresponding channel down for 3 seconds (All connected wall panels will start blinking) - Press upper button from the wall panel to assign this wall panel to the corresponding zone - Repeat this action to assign multiple wall panels to this zone

Rear panel overview

MTX48
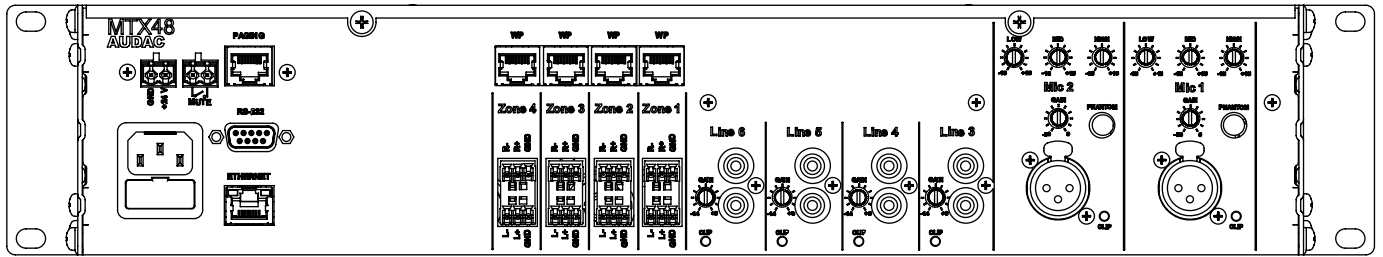
MTX88
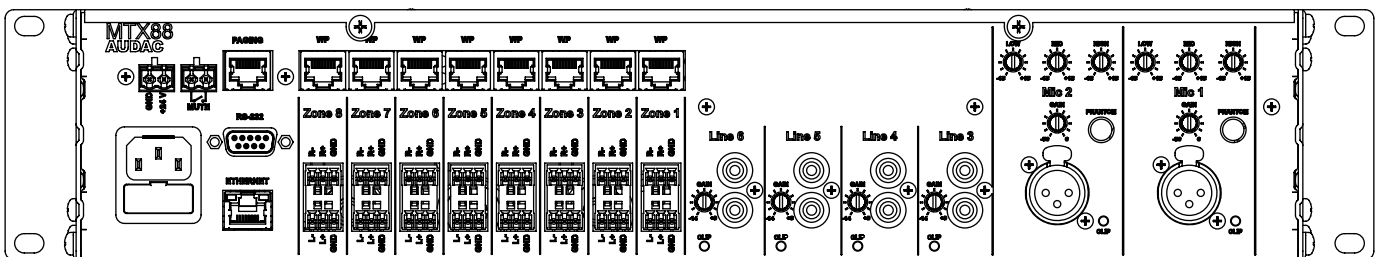
The rear side of the MTX contains all different kinds connectors which are necessary to connect the device.

Power, Mute, RS232, Ethernet & Paging connectors:
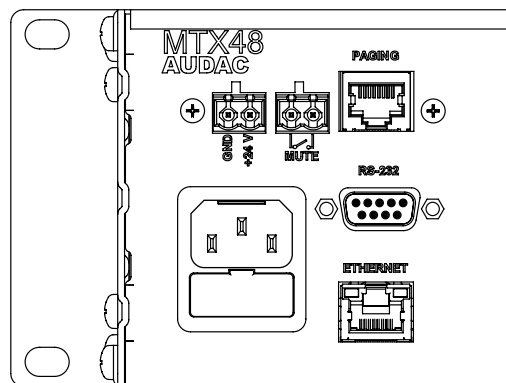
Power inlet:
The mains power supply (110~240V AC / 50~60 Hz) has to be applied to this AC power inlet. The connection is made by an IEC power connector and is fitted with a fuse. When replacing the fuse, make sure that the value of the replacement fuse matches the value of the original fuse. (T1AL/250V)

Emergency power inlet (24 Volt):
A 24 Volts emergency power supply can be connected to this 2-pin Terminal block connector for keeping the MTX running on emergency power when the mains power is shut down. When the MTX is running on 24 Volt emergency power, the function of the power switch on the front panel is bypassed and can't switch the MTX off.

Mute connection:

A priority mute contact connection is present which allows complete muting of background music at presence of a contact closure between both 'MUTE' contacts.

This Contact is convenient for situations where a for example a separate emergency system is installed and complete background music muting is required. For example at the occasion of a fire alarm. The emergency system output contacts can be linked to this contact input.

RS232 connection:

The RS232 connection can be used to control the MTX from external hardware such as a home automation system or computer. Connect your external control hardware to this port. The pinout and communication settings are described earlier in this user manual. The complete RS232 control commands and configuration information can be downloaded from www.audac.eu.

Ethernet RJ45 connector:

This connector should be connected to a LAN network. This makes it possible to control the MTX via the internet. The control is possible by sending commands via TCP/IP using a specially developed app, AUDAC Touch™2, which is designed to be used with smartphones or tablets. See 'Chapter 4: User interface & configuration' and 'Chapter 6: IP basics' for more information on the Ethernet configuration of this device.

Paging RJ45 connector:

The (optional) MPX paging consoles must be connected to the 'PAGING' RJ45 connector. This allows to announce messages through the microphone of the paging console to all the zones of the MTX. The selection of which announcements should be made in which zone can be done on the control panel of the MPX paging consoles. (MPX48-4 zone for MTX48 and MPX88-8 zone for MTX88)

Wall panel & zone exit connectors:
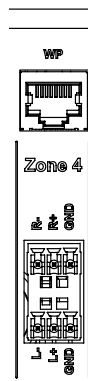
Wall panel RJ45 connector:

Every zone has its specific Wall Panel (WP) RJ45 connector where additional wall panels can be connected to. Every zone has the possibility to connect an additional Line and Microphone input unit and multiple wall panel controllers. On these ports are both digital RS485 control signals as well as differential audio signals transmitted.

Zone outputs (Terminal Block):

The zone outputs of the MTX are stereo (switchable to mono) balanced line-level outputs. Depending on the requirements for each specific application, the suitable amplifiers should be connected to these output connectors. The used connectors are 3-pin Terminal-Block connectors.

Input connectors:
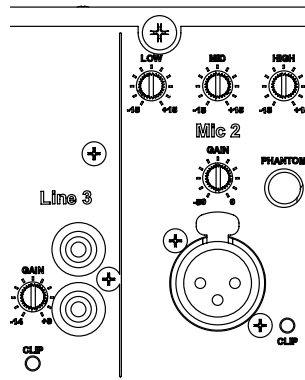
RCA / Cinch line inputs:

Unbalanced Line-Level input sources (E.g. smartphones, Tuners, laptops, ...) should be connected to the Line level inputs Line 3 to Line 6. These are standard line-level stereo inputs performed with RCA connectors. All of them have a gain control potentiometer whereby the level of the input signal can be controlled within a range of -14 dB ~ +9 dB.
The clipping LED illuminates when the signal reaches the clipping level.

Balanced microphone inputs:

Balanced mono sources (E.g. Microphones) should be connected to inputs Mic 1 and Mic 2. Both channels are performed with Female XLR connector provided with gain control potentiometer whereby the level of the input signal can be controlled within a range of -50 dB ~ 0 dB. This makes it possible to connect both Line level input sources as well as Microphone level input sources. The clipping LED illuminates when the signal reaches the clipping level.

In addition, both channels have a three-band tone control, whereby specific frequency ranges can be adjusted within a range of ± 15 dB and a phantom power switch, whereby the 15 Volts phantom power can be enabled for powering condenser microphones.

Chapter 3

MTX Quick start guide

This chapter guides you through the setup process of a basic project with one MTX audio matrix and 8 standard MWX45 wall panels, two All-In-One MWX65 wall panels and some regular Line & Microphone input sources.
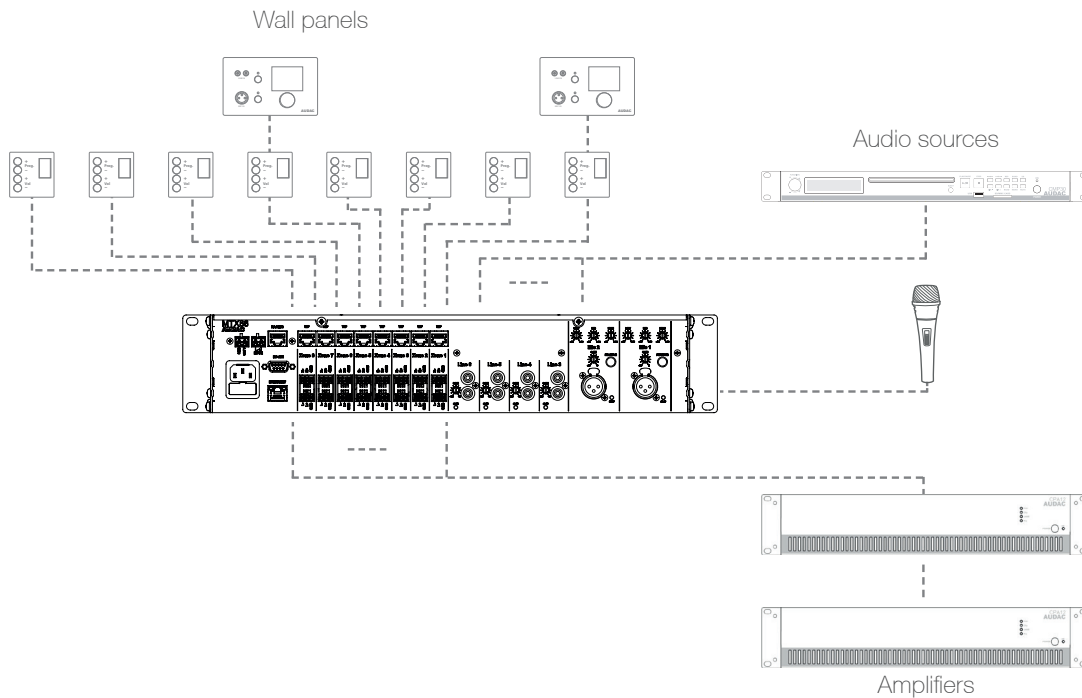
Connecting the MTX

ATTENTION
Make sure the power of the device is turned OFF before any connections or wiring adjustments are made. Disregarding this rule can lead to permanent damage of the equipment

1) Connecting audio sources

Connect all the Microphones to the XLR connectors on the rear side of the MTX. When using condenser microphones, make sure the phantom power switch is turned ON. Connect all the Line-Level audio sources (Smartphones, laptops, Tuners, ...) to the RCA connectors on the rear side of the MTX. Adjust all input gains to the appropriate level so no input clipping occurs.

2) Connecting amplifiers and/or speakers

Connect amplifiers (100V or Low impedance) to the balanced outputs of the MTX (Three-pin Euro-Terminal Block). The amplifier configuration (100V or Low impedance) and power needs to be chosen according to the requirements for each specific application. In its standard configuration, the MTX has Balanced Stereo outputs, which can be switched to Balanced Mono outputs. (See configuration functions)

3) Connecting wall panels

Connect the wall panels to the Wall-Panel (WP) inputs (RJ45 connectors) for each zone. Multiple MWX45 wall panels can be connected to one single WP input by using bus cabling (connecting all the wall panels in parallel). Two WP2xx can be connected per WP input if placed in mono. The assignment of which wall panel is controlling which zone can be done by software configuration (See configuration functions). Only one All-In-One Wall Panel with additional audio input can be connected to one WP input.

4) Connecting a computer

A computer can be connected to the MTX via Ethernet. If the computer is connected directly to the MTX, a crossover network cable is required. If the MTX is connected to a local LAN network (connected to a router / switch / hub), a straight network cable should be used. Please ask your network administrator for assistance. Download the AUDAC Touch™2 application from the website: https://audac.eu/touch/. The MTX can be controlled via the application. The default administrator password (access to all functions) is "MTX" and the default user password (access to basic functions) is "user". If you want to make changes to the settings, you must log in with the administrator password.

Configuring the MTX

1) Changing the IP address

You can skip this step when the default IP address "192.168.0.192" is not used by another device in your network, and is OK for you. If you like to change the IP address, go to the "Settings" menu (click the icon in the upper right corner of the main screen) and click "Network". Now you can change the IP address, and click "SAVE" to apply the changes and save.

2) Changing the password

This step can be skipped if the default password "MTX" as the administrator password and "user" as the user password is OK for you. If the unit is connected to a public network, it is recommended to change the default passwords. If you want to change the passwords, go to the "SETTINGS" menu and click "Device". Here the passwords can be changed. First you have to enter the old passwords, then you have to enter the new password twice (max 8 characters). Click on "SAVE" to save the new password. Now you can always log in with the new passwords, and the old passwords are invalid.

3) Configuring wall panels and sources

Go to the "SETTINGS" menu and click "PERIPHERALS". Now you have the possibility to choose between "ADD WALLPANEL" and "ADD ALL-IN-ONE WALLPANEL".

To configure the settings of the MWX45 wall panels, click on the 'ADD WALLPANEL' button. In the drop down list you can choose the zone to which a wall panel should be assigned. Once the zone is selected, click on the 'ADD WALLPANEL' button. The displays of the connected wall panels will now light up with the selected zone number. Press the upper "Program +" button on the wall panel to be assigned to this zone. After pressing the "Program +" button, this wall panel will be connected to this zone and the display will stop flashing. Repeat this process for all wall panels until each wall panel is assigned to a zone.

To configure the settings of the MWX65 wall panels, go back to the "SETTINGS" > "PERIPHERALS" menu, and click the "ADD ALL-IN-ONE WALLPANEL" button.

After pressing this button, a window will be shown in which all the configuration settings of the MWX65 can be made. A drop down list will be displayed to select the address of the MWX65. The address can be selected from "W001" to "W008". Logically this starts with "W001" for the first wall panel and increases with each wall panel. After the desired address has been selected, click the "ADD ALL-IN-ONE WALLPANEL" button and the display of the MWX65 will start flashing. Confirm the address on the wall panel by pressing the rotary button.

Once this is done, the zone to be controlled by this wall panel can be selected via the drop down list shown one position to the right.

The inputs that are selectable on the wall panel can be chosen from the "Selectable inputs" drop down list. After clicking on the inputs, all selected inputs will appear in the listbox below.

Certain actions such as Volume control, input selection, Mute, tone control and settings can be disabled from the wall panel and the phantom power on the microphone input can be enabled by clicking the checkboxes.

Finally, the display backlight level and screensaver settings can be adjusted.

Once all settings have been made, click the "Save to wallpanel" button and all your settings will be saved to the selected MWX65 wall panel. Repeat this action for all connected MWX65 wall panels.

Ready

Your system is now completely configured and ready to be used.

Chapter 4

User interface & configuration

The Audac Touch 2 is the main platform we are offering for application specific or total system configuration and control. The app is available on the Apple App-store, Google Play or audac.eu/touch for IOS, Android and PC.

To access the configuration and control settings, the device must be connected to a computer or an Ethernet LAN network using the TCP/IP port labeled as Ethernet on the rear panel. For detailed information on network connections and settings, see "Basic IP" in Chapter 6.

The factory default IP address of the MTX is 192.168.0.192 and subnet mask is 255.255.255.0 - make sure that the factory default IP address is within the IP range of connected network.
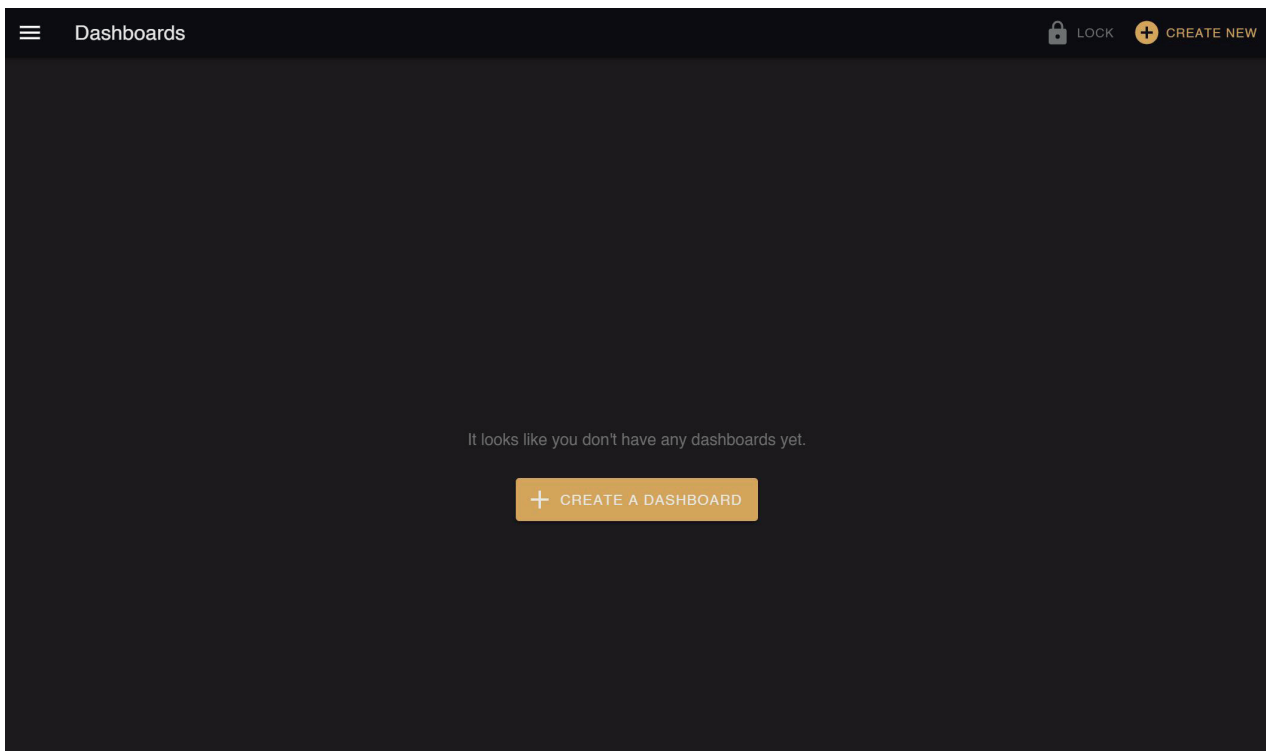
AUDAC TOUCH™2

First, Dashboards screen welcomes you when the Audac Touch 2 application is opened. Here new dashboards can be created for full system control and this user interface can be personalized using widgets.

On the top left side, icon with three parallel lines allows access to the app menu where you can navigate between Dashboards, Devices, WaveDynamics,User and Settings.
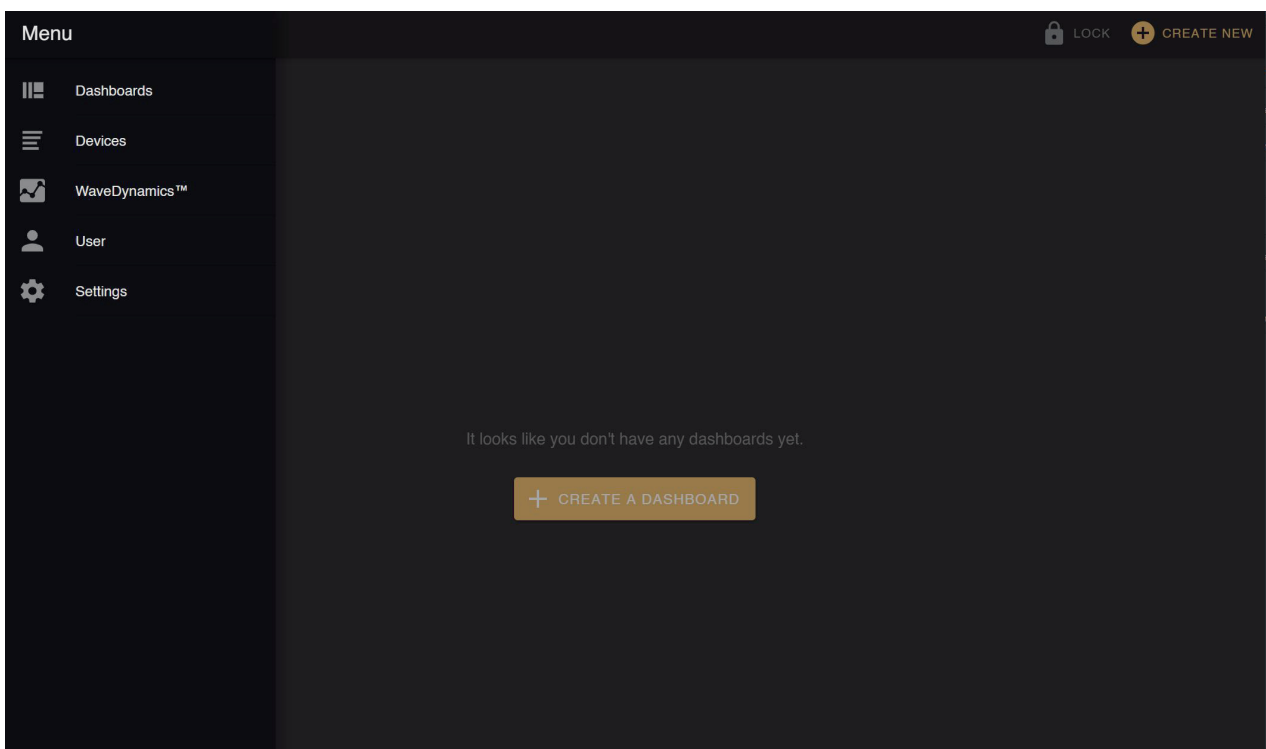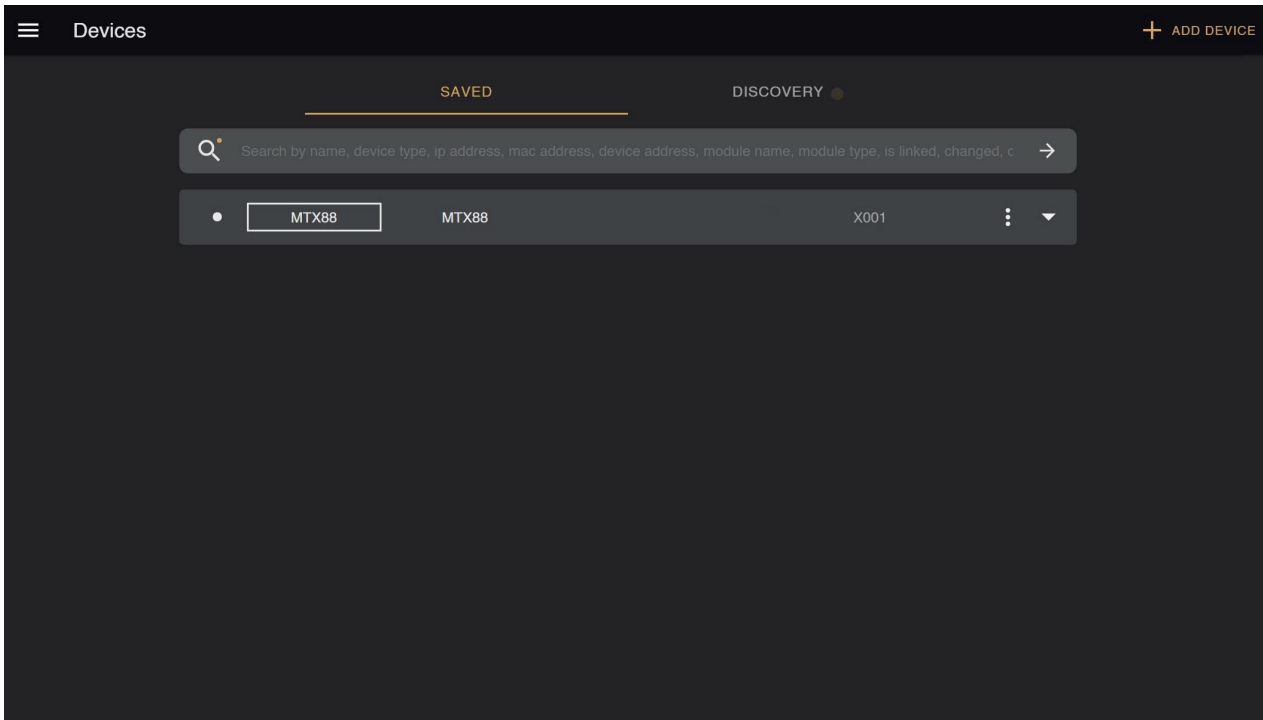
Second on the menu list is Devices, where you can see saved devices, or discover connected devices on the network, or add devices using the "Add Device" button on the top right of the screen by choosing the device type.

When the device is added, white dot next to device type turns orange if the device is offline or not connected. Please check IP and network settings, if the device is connected but appears as offline. When the connection is successful, orange dot should turn green to indicate the device is online.

On the "Saved" item list, features like model name, IP,device name and number of linked items can be seen. Control panel of the device you wish to control can be reached when you click on the item. The item should be in online status to access control panel.

Login screen

For safety reasons, the device interface is password protected. The default username is "User" and the default password is "MTX". The default username and password can be changed in "Settings" menu.

NOTE
The password can be changed in the device menu in the app >> Settings >> Device

Main screen

The main screen gives an overview of all the outputs, with a fader for volume control, a mute button and a drop-down list for input selection for each zone. At the administrator level, some additional functions are available, such as an 'INPUTS' button for each output and a 'Settings' button to access the general settings menu.

MTX Main screen

Volume control
The volume of each output channel can be controlled by moving the fader of the corresponding channel up or down. At the top and bottom of each fader is a button with an arrow, with which the volume can be increased or decreased in 1 dB steps. At the bottom there is a 'Mute' button to mute the volume of the corresponding output channel with one click. When the volume is muted, the button turns red. To unmute, press the button again.

Assigning zone names

For a better overview of all output channels, each fader can be assigned a specific output name. The output name can be changed in the settings. The settings can be reached by pressing the 'Settings' button on the top right. In this menu, the output name can be changed from 'Outputs' section. After the changes has been done, the save icon must be clicked to make the change permanent.

Input channel / scene selection

The desired input signal for a particular output can be selected from the drop-down list under the output name. This selection list shows 8 input signals or scenes that can be selected as default settings in the output configuration menu under 'Settings' (if all 8 are enabled). When no input signal is selected, the 'OFF' option will appear. When another input is selected that is not listed as one of the standard inputs, the "Other" option will appear.

At ADMINISTRATOR level, the "INPUTS" button is visible. All INPUTS can be found below, even if they are deactivated in 'SETTINGS'.

Save

Whenever significant changes (such as output names) are made to the MTX settings, press the 'SAVE ZONE SETTINGS' button at the top of the screen to save these new settings. If the settings have been saved, they will be recalled after a restart. If not saved, these settings will be lost after a restart.

Device settings

After clicking on the 'SETTINGS' button in the top right corner, you will enter the settings menu of the MTX.
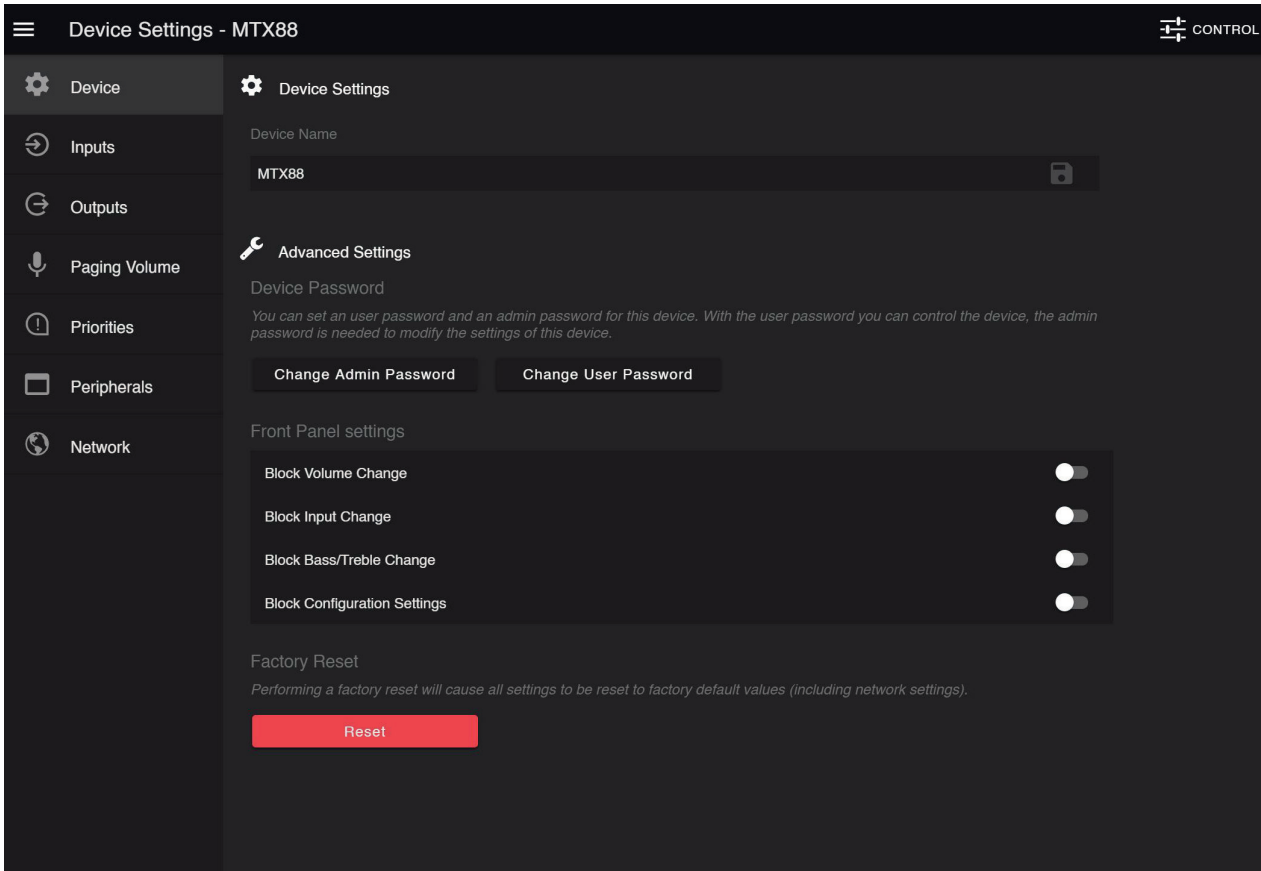
Control Panel of MTX

Return to main screen
Click the "CONTROL" button to return to the main screen.

Automatic saving
Unlike zone settings, the changes in the configuration settings are automatically saved and set as default on the device.

Device Settings >> Password Settings

In the "Device" section, the default admin and user passwords can be changed. Please select the the default password you want to change. The default password is "MTX".

Then, first enter the old/existing password and then the new password twice for consistency reasons. After these has been entered, press the "OK" button. If the old password is correct, and the new password matches in both lines, the old password will be changed to the new password.
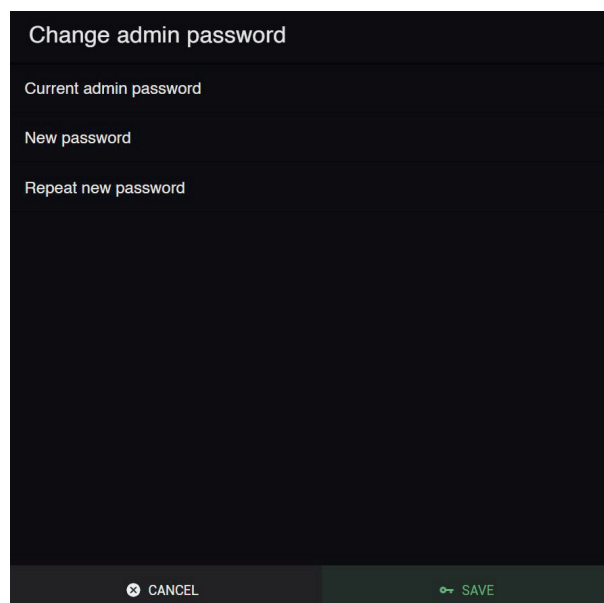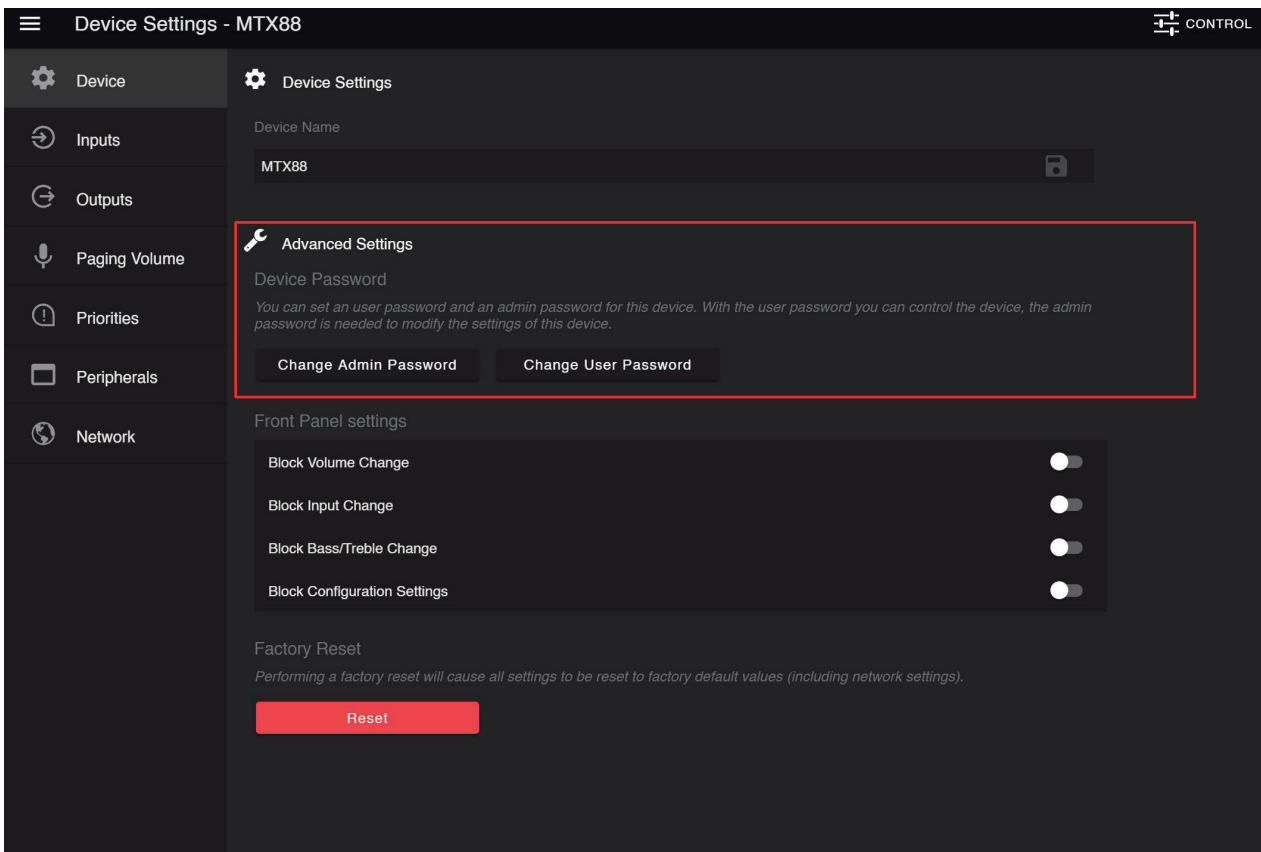
Device Settings >> Front Panel Settings

Below the "Device Password" section, there is "Front Panel Settings" where it is possible to limit the certain setting changes that can be accessed from the front panel. Four checkboxes are given for the corresponding settings: "Block volume change", "Block input change", "Block bass / treble change" and "Block configuration settings". Selecting the checkboxes will limit the access to those settings from the front panel. It is recommended that the configuration settings on the front panel be disabled if the unit is used by unqualified persons.

Device Settings >> Factory Defaults

ATTENTION
Be careful when pressing this button. It will really bring back the factory **DEFAULT** settings!

It will not recall the previously saved settings but it will recall the factory default setting and the previously made settings will be lost.

Click the "OK" button to reset the settings to the factory defaults.
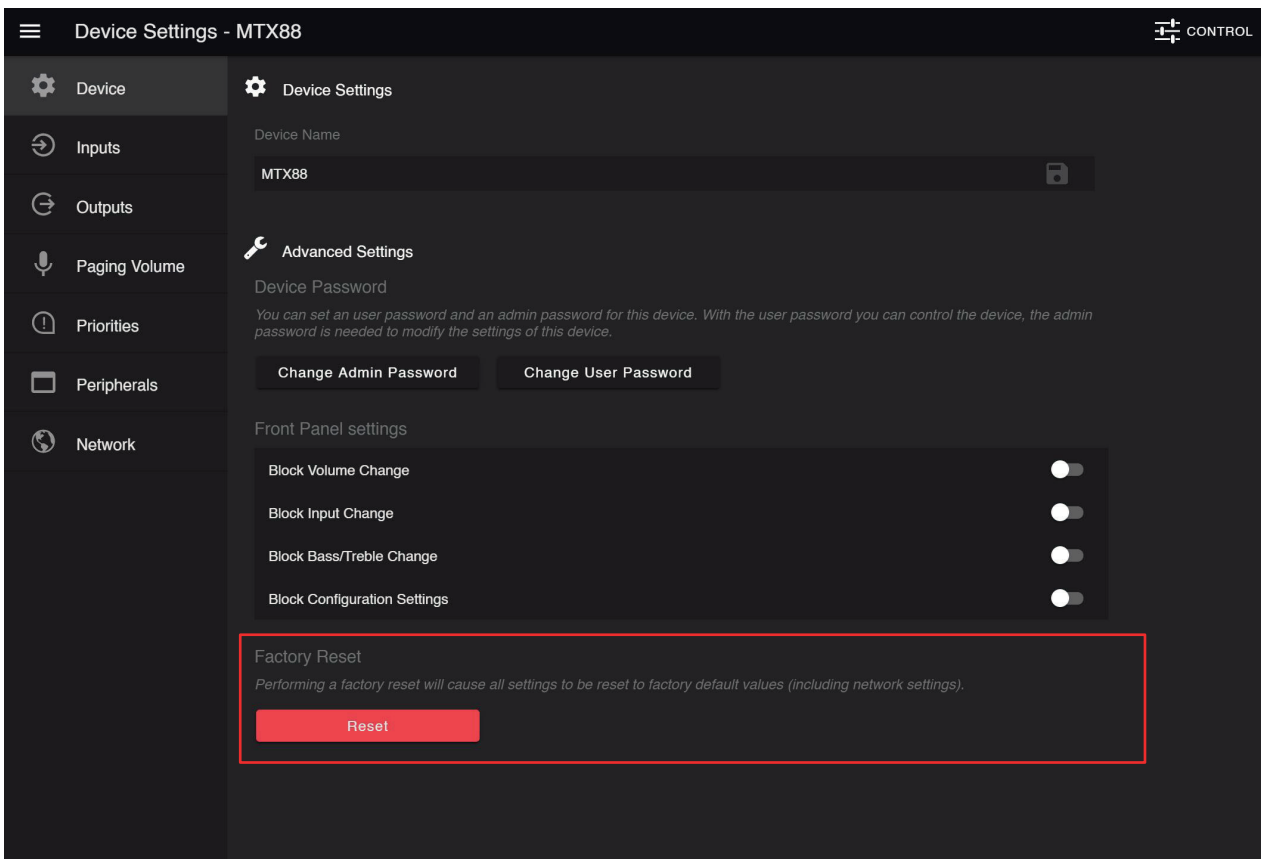
Input settings

"Inputs" section gives an overview of all available inputs. Input channel names for each channel can be changed by pressing the setting icon next to channel name.
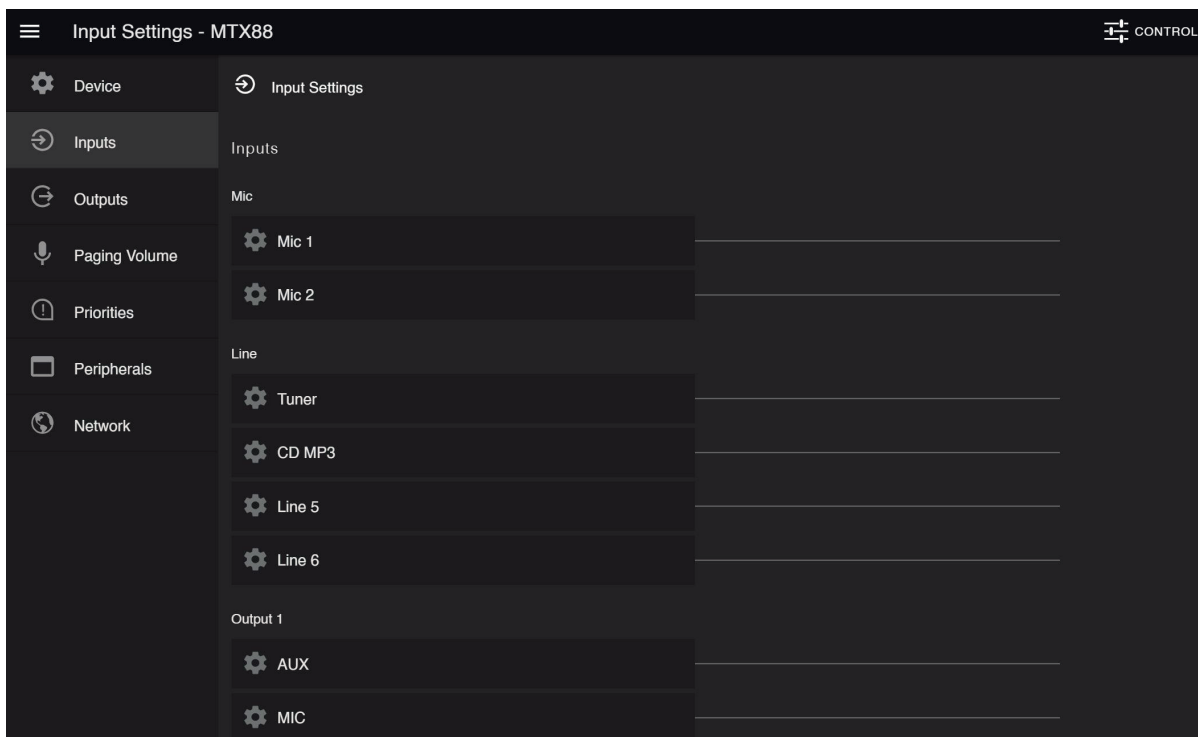
Input settings for MTX
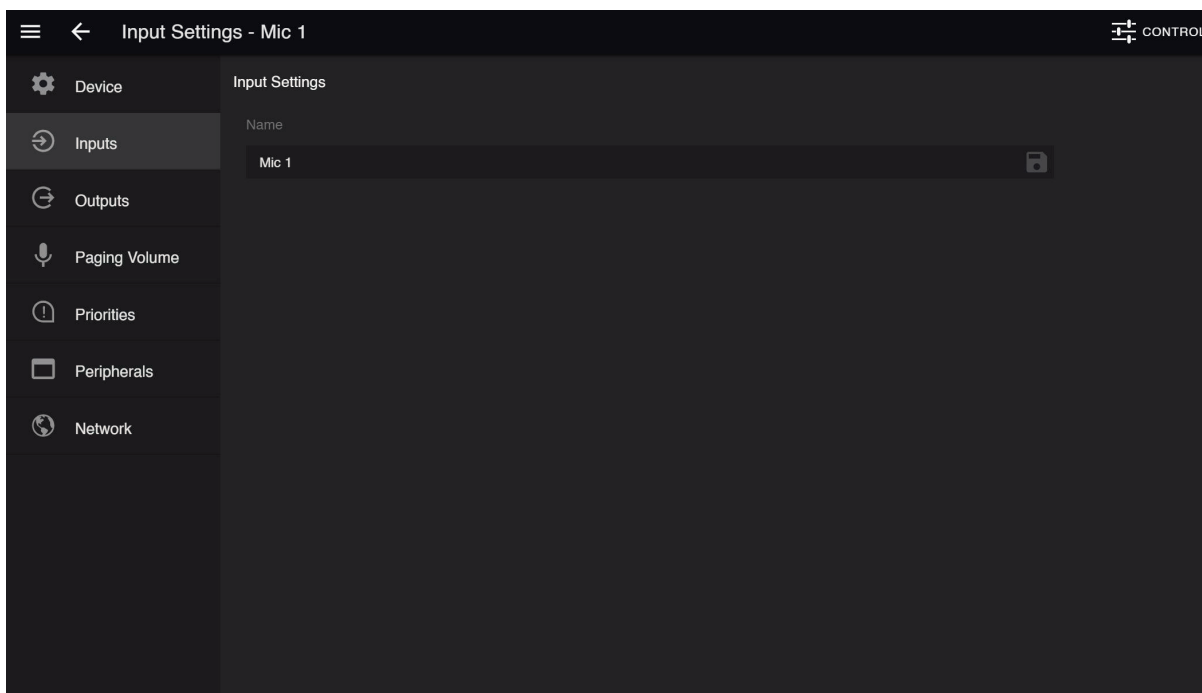
Output settings

"Outputs" section gives an overview of all available outputs. Output channel names, mono/stereo setting and selectable inputs for each channel can be changed by pressing the setting icon next to channel name.
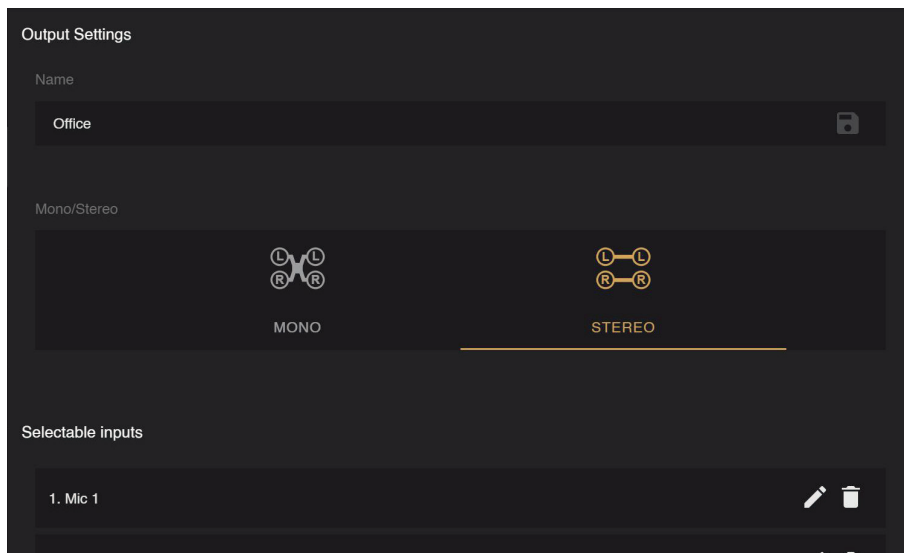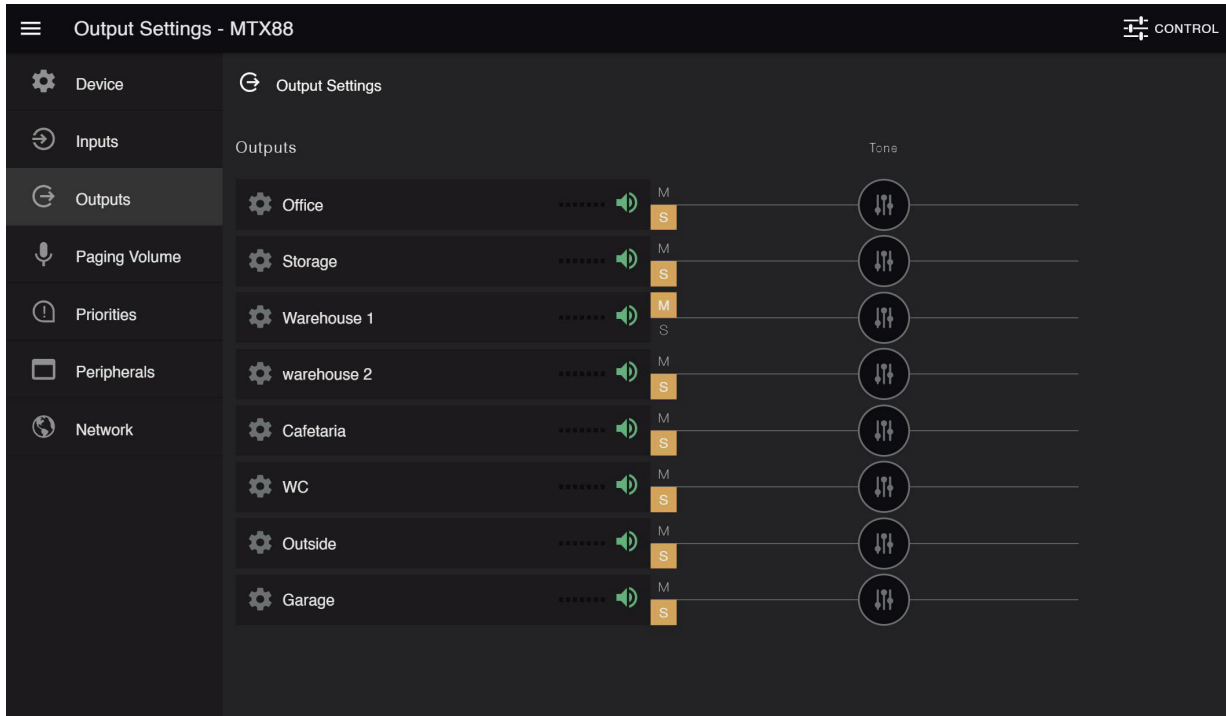
Mono /stereo

All outputs can be switched between Mono and Stereo. When switching to mono, a summed signal (Left + Right) will be available on both (Left & Right) line outputs and the indicator on the "Outputs" page will change.

Selectable inputs

Certain inputs can be selected for each output. These can be added by pressing the plus button. The desired input can be chosen from the pop-up menu. The input can be changed by pressing the 'edit' icon and deleted by pressing the 'delete' icon.

Mute

Pressing the speaker icon mutes the signal. When the sound is muted, the icon turns red.

Tone

To obtain the two-band tone control, click on the icon under "Tone". This will open a window with two faders (Bass and Treble) for setting the two-band tone control. The setting for both treble and bass is possible in 1 dB steps within a range of +9 dB and -9 dB.

Paging volume
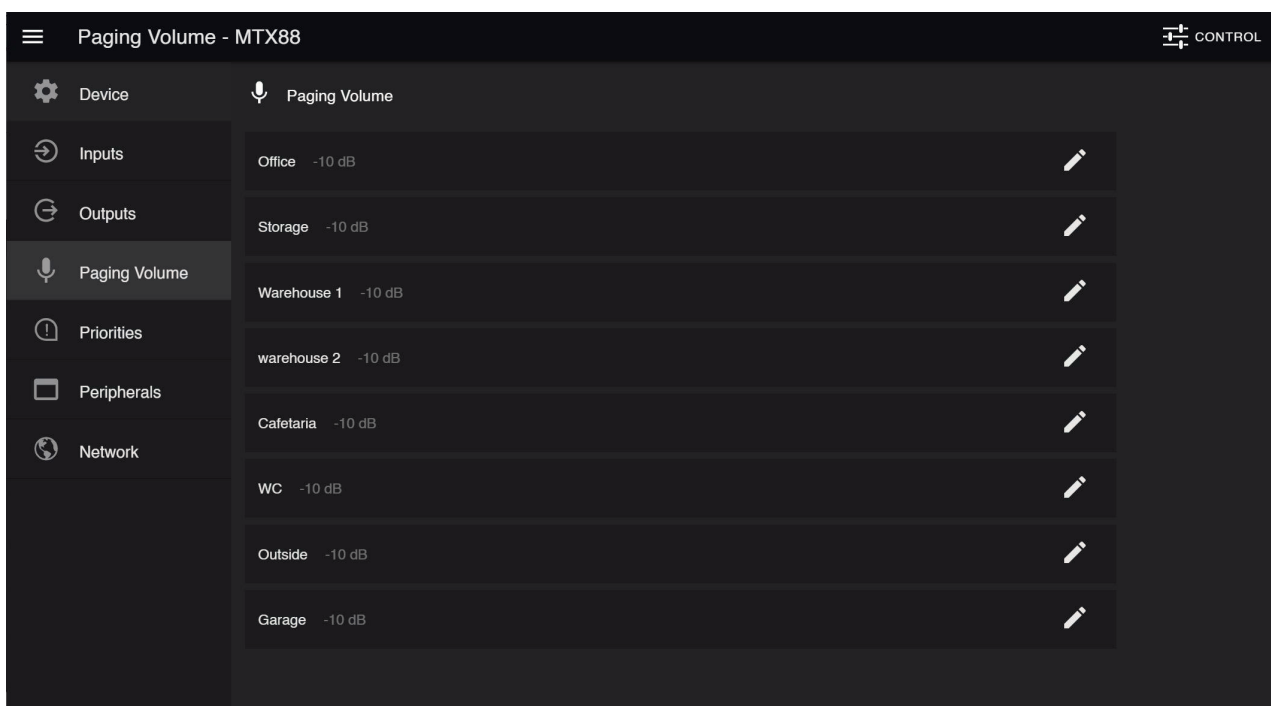
In the 'Paging Volume' window, the paging volume for each individual output can be set using the edit button displayed next to the output names. The paging volume can be set in -1 dB increments, starting at 0 dB, decreasing to -70. If the volume is set to 0 dB, the announcements for the respective outputs will be output at maximum volume.

Priorities
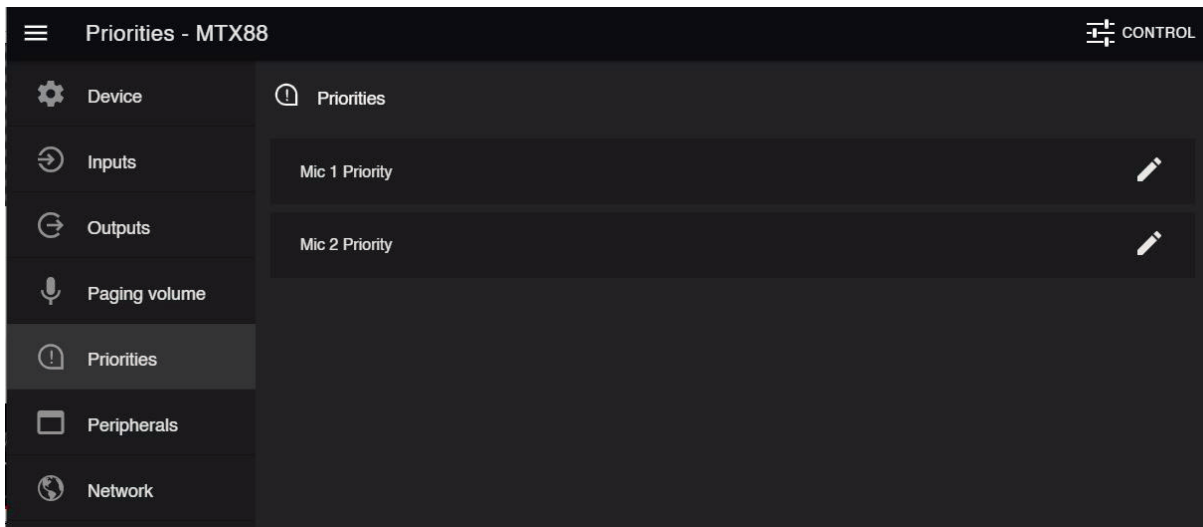
The Priority settings menu allows you to set the priority for Mic 1 and Mic 2 direct microphone inputs. When a microphone input has priority in a specific zone, when there is a signal on one of the priority inputs, all other audio sources for that zone are muted. When both mic inputs are assigned to the same zone, Mic 1 has higher priority over Mic 2 in the simultaneous priority input.

Pressing the edit icon next to Mic 1 or Mic 2 displays the sensitivity, hold time and output volume options.

The sensitivity setting allows you to configure how strong the input signal should be for the MTX to activate the priority. If sensitivity is set to high, a low input signal (low volume) on a priority input is enough to activate priority mode. If the sensitivity is set to low, you need a relatively high input signal (e.g. speak relatively loudly) to activate the priority mode.

The hold menu sets the time that the audio sources are still suppressed when the priority procedure is over. This value can be set from 1 second to 5 seconds.

Network settings

In this section the network settings of the MTX can be adjusted. The IP address can be set manually.

By default the IP address is set to 192.168.0.192 and the subnet mask is set to 255.255.255.0.

The IP address can be changed simply by typing one of the available IP addresses on the LAN to the corresponding line.

Click "SAVE" to confirm the network settings.
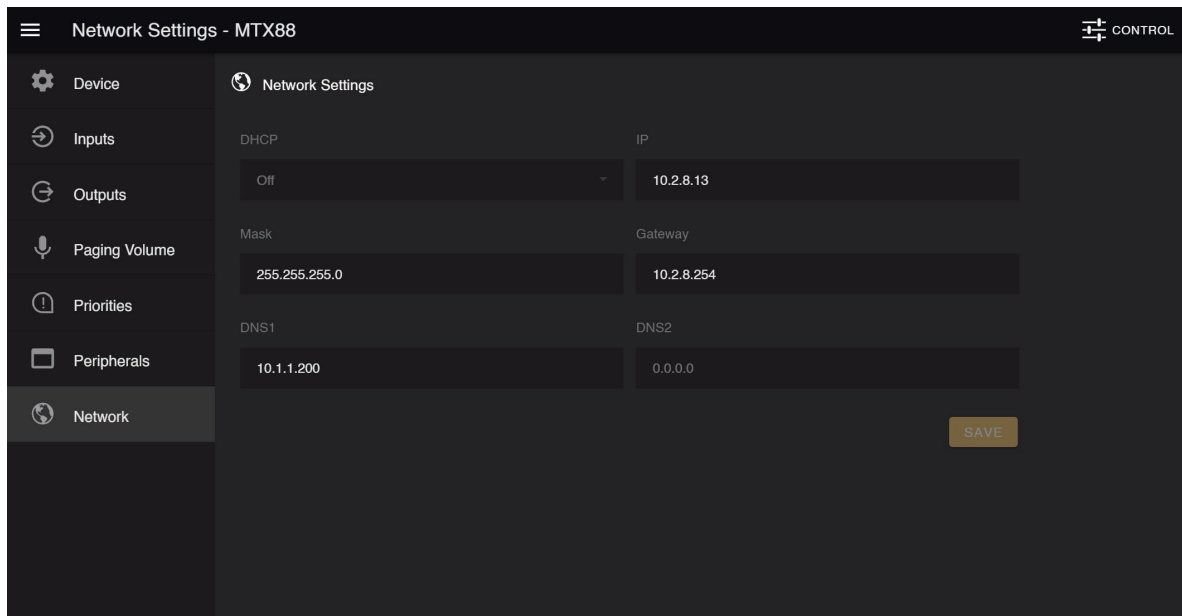
STANDARD NETWORK SETTINGS
IP Adres: **192.168.0.192**
Subnet Mask: **255.255.255.0**
Gateway: **192.168.0.253**
DNS Server: **192.168.0.21**
DHCP State: **Off**

Wall panels

The MTX offers the possibility to connect input and control units in addition to the standard line and microphone inputs.

The connections of these additional units must be made using the Wall Panel (WP) ports provided on the back of the MTX. Described further in this User Manual, the peripheral interface ports are denoted by the letters "WP" followed by the corresponding zone number indicated below' which are implemented using an RJ45 connector. WP port of each zone can transport audio and data.

Available peripheral devices for MTX:

MWX45 Basic wall panel with routing and volume control
The MWX45 is a basic wall-mounted panel that can control the routing and volume for one specific output. This wall panel can be connected in a bus structure, where multiple MWX45 wall panels are connected to one WP input. The assignment of the wall panel to a specific zone can be done in AUDAC Touch™2.

MWX65 All-In-One wall panel with graphics display, Line & Microphone input
The MWX65 wall panel can be used to control the volume and routing for one output, but also offers some additional functions such as mute, tone control and phantom power control. The most important additional feature of the MWX65 is that it includes an additional Line and Microphone input that is mixed locally and can be used as an additional local input for the MTX. The signal coming from the MWX65 is transferred analogue and can only be selected in the corresponding zone that it is connected to. Up to two MWX65 wall panels can be connected to one wall panel (WP) input, while multiple basic (MWX45) wall panels can be added to the bus structure of the MWX65.

APM Paging consoles
The APM paging consoles can be used for broadcasting messages to the outputs of the MTX or for controlling some special functions (e.g. switching relays, ...). Depending on the required number of functions / outputs, corresponding paging consoles with 1, 4, 8 or 16 buttons are available. Several APM paging consoles can be connected to Paging port, using a bus structure. When connected in a bus structure, only one APM can make announcements at a time. In this case, paging is based on priority.

MPX Paging consoles

The MPX paging consoles can be used for broadcasting messages to the selected zones of MTX. Depending on the used MTX model, MPX48 can be used in combination with MTX48 or MPX88 can be used in combination with MTX88. Connection to the matrix system is done through a fixed connection cable with a length of 2 meters to the Paging port. This distance can be extended to a maximum length of 300m using standard CAT5E (or better) twisted pair cabling. Cascading multiple paging stations is possible using the priority-based (user-configurable) data bus, when using the additional junction box ARJ03P.

| **ATTENTION HOT PLUGGING** |
| --- |
| Connecting the peripherals while MTX is powered on, may damage the PI board and/or the peripherals. Damage caused by hot plugging will not be covered under warranty.

 In case of an analogue signal needs to be transferred through WP or Paging ports (MWX65 or APM connected), UTP CAT5E cabling or better should be used. |

Wall panel

The MTX installation can be expanded with additional wall control panels. Different types of different wall panels are available, MTX-exclusive the MWX45 control wall panel, the MWX65 All-In-One wall panel and WP2xx series universal audio input wall panels.
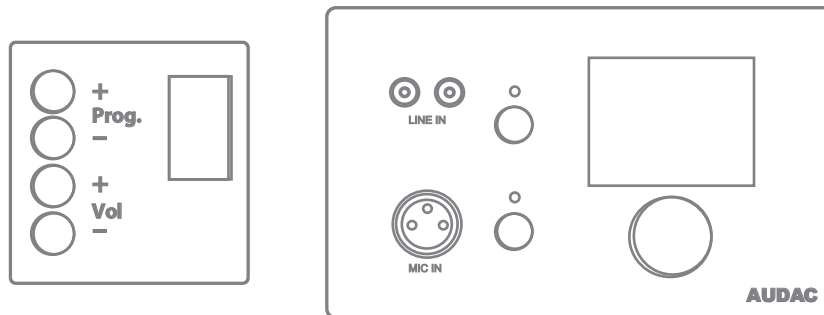
MWX45 (left) & MWX65 (right) wall panel
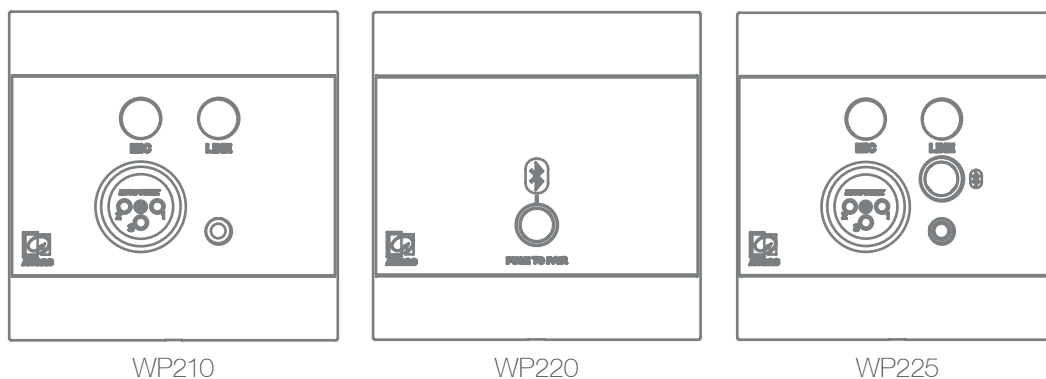
| WP210 | WP220 | WP225 |

These wall panels must be connected to the WP (Wall Panel) ports on the back of the MTX. Using UTP/FTP CAT5 (or better) cabling for MWX45 Wall Panels and for MWX65 Wall Panels.

Multiple MWX45 Wall Panels can be connected to a single WP Port (maximum 32 Wall Panels according to RS485 specification). But only two MWX65 All-In-One wall panels with audio inputs can be connected to each WP port.

For WP210/220/225 universal audio input wall panels, when put in mono-mode, maximum two units per port or one unit per port can be wired depending on the twisted pair combination.

MWX45 basic wall panel

Functions
The MWX45 is the basic wall panel for controlling routing and volume. The MWX45 wall panel can be used to select up to 8 signals / presets. The inputs that can be selected with the wall panel can be configured in the AUDAC Touch™2 application under 'Settings >> Inputs'. How this works is described in detail in a previous chapter of this user manual. Please read the WP connection principles in the beginning of this chapter before making any connections.

Change routing
The display of the MWX45 indicates the current routing for the configured output, by showing the number between 1 and 8 on the display. Pressing the "Prog +" button selects the next input, pressing the "Prog -" button selects the previous input.

Change volume

The volume in the corresponding output zone can be changed by pressing the "Vol +" and "Vol -" buttons. The volume will increase after pressing the "Vol +" button and will decrease after pressing the "Vol -" button. When the volume is changed, the display will indicate the currently set level for two seconds, and after those two seconds, the routing will be displayed again.

Configuration

Before the MWX45 wall panels can be used, the wall panels must be configured and assigned to a particular output. Perform the procedure described below to make sure this is done correctly.

Go to the 'Settings' menu and click 'Peripheral'. Then click on the "Add wallpanel" button. A configuration window is displayed with all outputs from 'Output 1' to 'Output 8'. Select the output to which the wall panel should be assigned. Follow the on-screen instructions to connect the wall panel.
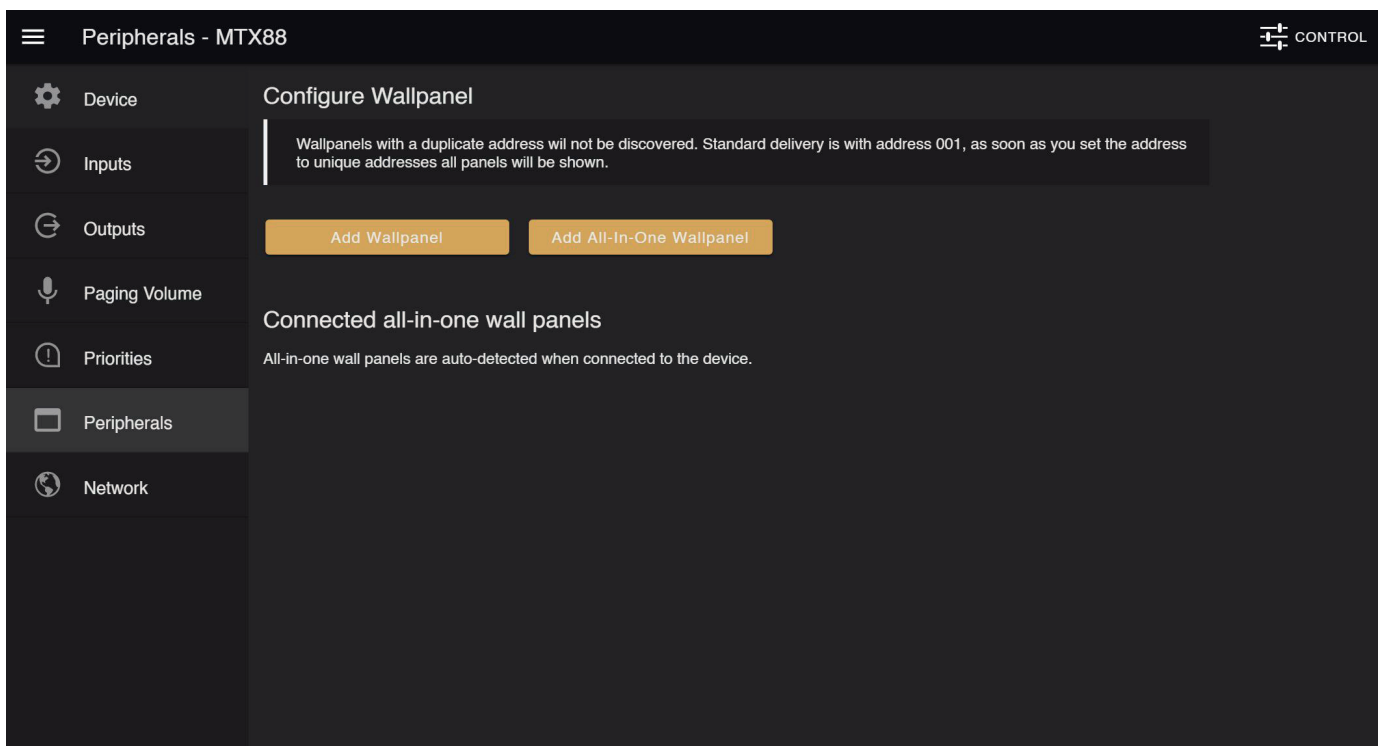
Maximum cable length

The maximum cable length depends on the number of connected wall panels. When only one wall panel is connected, a maximum cable length of 600 meters can be reached. The table below gives an overview of the maximum cable length, depending on the connected wall panels.

No. of MWX45 wall panels	Maximum cable length
1	600 meter
2	500 meter
3	400 meter
4	300 meter
5	200 meter
6	150 meter
7	120 meter
8	100 meter

MWX65 All-in-one wall panel

Functions

The MWX65 is the advanced all-in-one wall panel for the MTX. This wall panel includes a display and can control routing, volume, bass, treble and mute for one zone of MTX.. In addition to these control functions, it also offers the possibility of connecting a microphone and a stereo line input source. The MWX65 wall panel must be connected to the MTX using UTP CAT5 (or better) cable. Please read the WP connection principles in the beginning of this chapter before making any connections.

The following functions of multiple zones of the MTX can be controlled:

     - Volume within a range of 0 dB to -70 dB
     - All inputs can be selected - Mute can be activated
     - Bass within a range of -9 dB to +9 dB
     - Treble within a range of -9 dB to +9 dB

Configuration

Before the MWX65 wall panels can be used, the wall panels must be configured and an address need to be assigned. Perform the procedure described below to make sure this is done correctly.

1) Go to the "Setup" menu and click "System configuration". To configure the settings for the MWX65 wall panels, click the corresponding button. After this button is clicked, a window will be shown where all the configuration settings for the MWX65 can be made. On the left side, a drop down list is shown whereby the address for the MWX65 can be selected. The address can be selected between "W001" to "W008". Logically is started with the address "W001" for the first wall panel and increases the address for every subsequent wall panel. After the desired address is selected, click the "Set Address" button and the display on the MWX65 will start blinking. Confirm the address of the wall panel by pushing the big rotary button on the wall panel and the selected address will be ssigned to the wall panel.

2) The zone which should be controlled by this wall panel can be selected by the drop-down list which is shown one position to the right.

3) The inputs which are selectable with the wall panel can be chosen in the "Selectable inputs" drop-down list. After the inputs are clicked, they will appear in the list box shown below. They can be removed again from this list box by selecting them and clicking the "Remove Input" button. Those selectable inputs are not linked with the "Quick selection menu" like the inputs on the MWX43/45 are.

4) Certain actions such as Volume Change, Input change, Mute, Tone control, and settings can be disabled from the wall panel by ticking the checkboxes.

5) The microphone input has the possibility to provide +12V phantom power for powering condenser microphones. The phantom power can be switched ON and OFF by clicking the "Enable Mic Phantom" checkbox. This setting can also be changed in the MWX65 settings menu. (If "Block settings menu" is not checked)

6) The Backlight level, screensaver, and screensaver delay can be set by means of three drop-down boxes. This setting can also be changed in the MWX65 settings menu. (If "Block settings menu" is not checked)

7) When the settings are made, press the "Save to Wall panel" button and the settings will be sent to the selected MWX65 wall panel.

Maximum cable length for MWX65

The maximum cable length for the MWX65 wall panel is 300 meters.

WP2xx series universal wall panels

Functions

The WP2xx series offers microphone and line input with WP210, and Bluetooth receiver functionality with WP 220, and both features are available in the WP225 wall panel. In addition to these offered input options, mono/stereo setting, input signal level (+12dBV), low-cut and phantom power are available controls as a DIP switch on the rear of the wall panels. The WP2xx universal wall panels must be connected to the MTX using CAT5e (or better) cable.

Configuration

Before the WP2xx wall panels can be used, the wall panels must be set as mono from the DIP switch on the rear panel because WP2xx wall panels are stereo output by default, but the MTX WP ports are mono input. Second, as the signal level of the MTX and the WP2xx are matching (+12dBV and 24V DC), the WP2xx signal level must be left as default.

If PIN1-PIN8 and PIN2-PIN7 of a single CAT5e cable come from a single WP2xx, then a maximum of one WP2xx can be connected per port. If PIN1-PIN8 and PIN2-PIN7 of a single CAT5e cable come from separate WP2xx, then a maximum of two WP2xx can be connected per port.

|		
Pin 1	White-Orange	Left +
Pin 2	Orange	Left -
Pin 3	White-Green	+24V DC
Pin 4	Blue	Not connected
Pin 5	White-Blue	Not connected
Pin 6	Green	GND
Pin 7	White-Brown	Right +
Pin 8	Brown	Right -

Maximum Cable length for WP2xx is 300 meters.

MTX wall panel connection possibilities

This section gives an overview of the possibilities to connect wall panels to the MTX. In reality, many more combinations are possible than described here. These examples and their brief descriptions should give a clear idea of the possible connections and of those that are not possible and why this is the case.
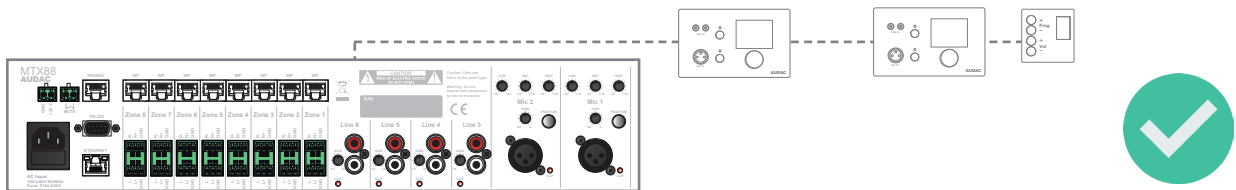
Multiple MWX45 wall panels can be connected to one input. They can be configured to control the zone it is plugged into or a different zone.
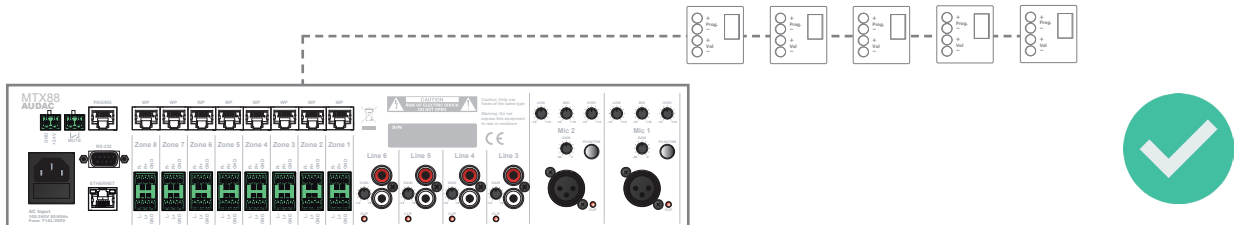
Multiple MWX45 and one MWX65 can be connected to one input. They can be configured to control the same zone or different zones. The audio input of the MWX65 can only be linked to the zone it is connected to.
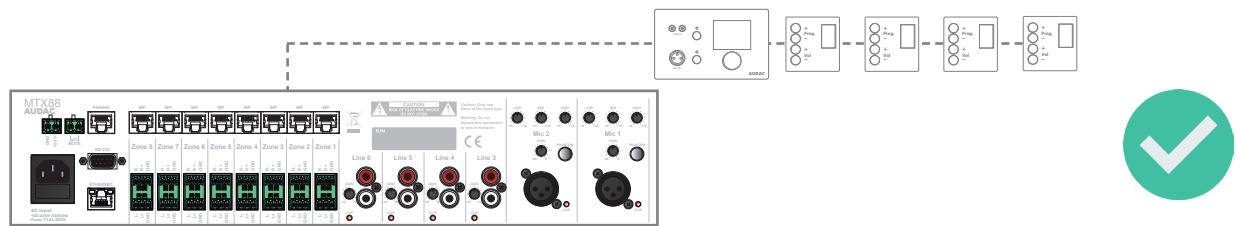
Up to two MWX65 wall panels can be connected to one wall panel input with one (or more) MWX45

One WLI (Wall Line Input) and one WMI (Wall Microphone Input) and one (or more) MWX45 can be connected to one wall panel input.
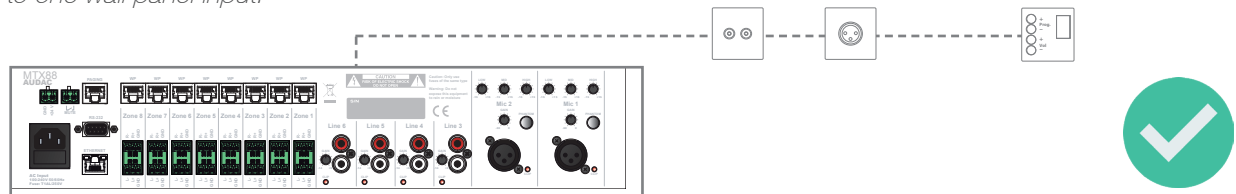
One WMI (Wall Microphone) and one MWX65 wall microphone can be connected to one wall panel input. (The WMI audio input and the MWX65 audio input both use different input pairs)

Two WP2xx wall panels can be connected to one wall panel input with (or without) one (or more) MWX45 as shown. The WP2xx wall panels shall be switched to mono, and the WP2xx wall panels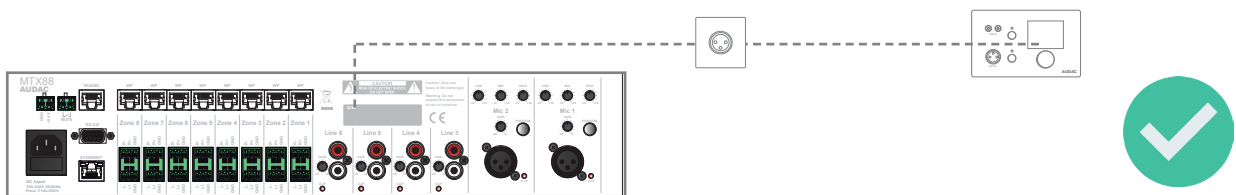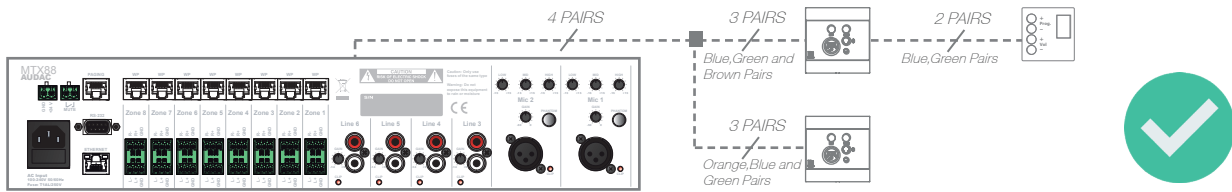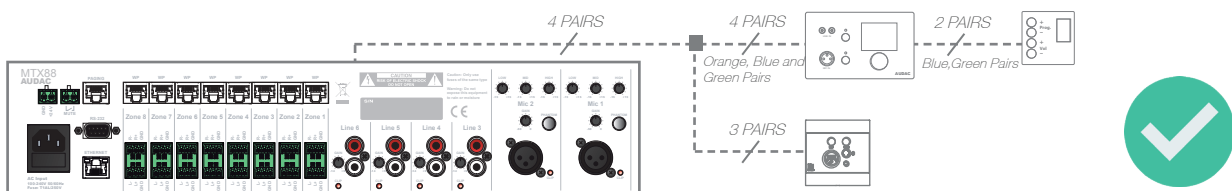 shall be connected as pairs of three: orange pair (remote input 1)-blue pair (data)-green pair (power), and blue pair (data)-green pair (power)- brown pair (remote input 2). The following MWX45 shall be connected using only the blue pair (data) and green pair (power).

One MWX65 wall panel and one WP2xx wall panel can be connected to one wall panel input with (or without) one (or more) MWX45. The WP2xx wall panels shall be switched to mono, and the WP2xx wall panel shall be connected as pairs of three: orange pair (remote input 1)-blue pair (data)-green pair (power). On the other hand, the MWX65 wall panel shall be connected as pairs of four: blue pair (data)-green pair (power)- brown pair (remote input 2). The following MWX45 shall be connected using only the blue pair (data) and green pair (power).

One MWX65 wall panel and one WP2xx wall panel can be connected to one wall panel input with (or without) one (or more) MWX45 in series. The MWX65 wall panel shall be connected as pairs of four with a standard configuration. The WP2xx wall panels shall be switched to mono, and the WP2xx wall panel shall be connected as pairs of three: orange pair (remote input 1)-blue pair (data)-green pair (power). The following MWX45 shall be connected using only the blue pair (data) and green pair (power).
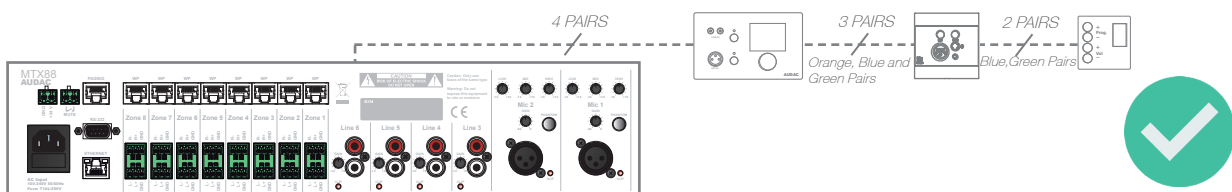

NOTE:

In setups with specific wiring requirements, such when using WP2xx wall panels, it is recommended to use ARJ03P or CTA845 accessories as node, to make convenient and reliable connections as shown in the above diagrams.
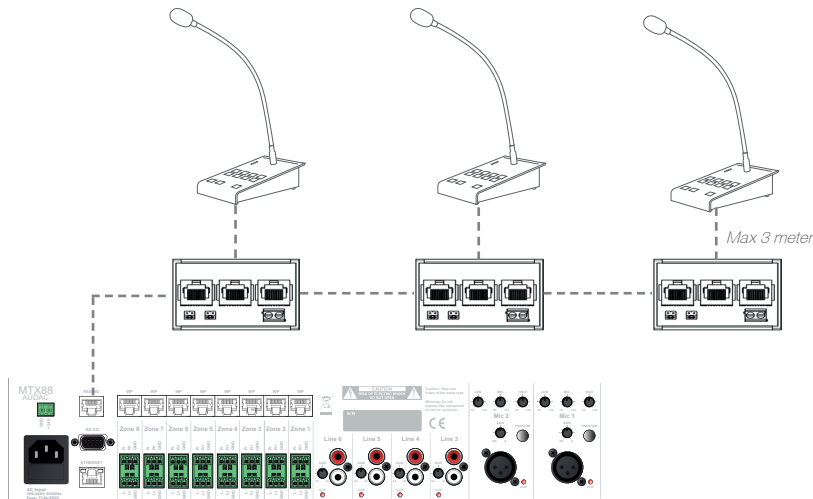
Paging

Functions

The APM and MPX are optional paging systems that can be used to broadcast messages to the different zones of the MTX. These paging systems contain a base with different zone selection buttons. Depending on the number of zones (MTX48 or MTX88), corresponding paging consoles with 4 and 8 buttons are available. With the buttons on the base of the paging consoles, zones can be selected to which the paging messages should be sent.
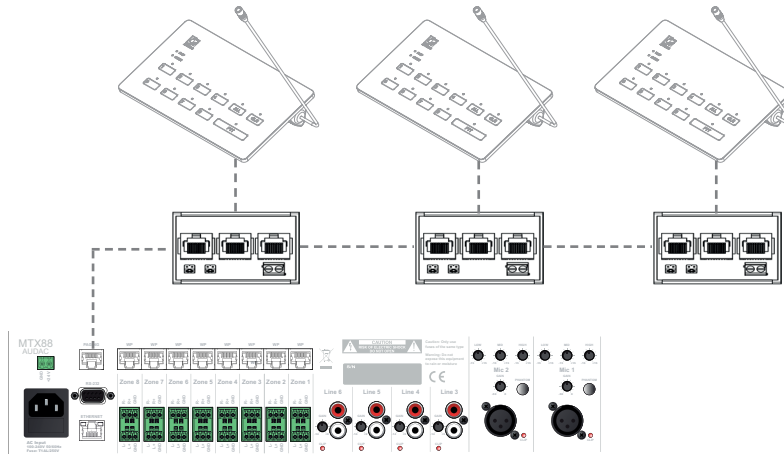
Example of MTX paging system with multiple MPX paging console

In contrast to the connectivity of the wall panel, where no more than one identical unit can be connected to the same data bus, it is possible to connect several identical paging consoles to the "PAGING" data bus. When several paging consoles are connected in parallel to the "PAGING" data bus, paging is based on priority.

Example of MTX paging system with multiple APM paging consoles in analogue mode

The priority of the APM and MPX can be adjusted in the AUDAC System Manager. The AUDAC System Manager is a free application which can be downloaded from the following link:

https://audac.eu/software/d/audac-system-manager

If the paging consoles are connected to the MTX, they can be found under 'Discover Peripherals' on the MTX page in the AUDAC System Manager. Under 'Priority' you can enter a value. The lowest value gets the highest priority.

Peripheral connection limits

The number of peripheral devices which can be connected to the MTX is depending of the current which should be delivered from the MTX side. Every peripheral device connected to the MTX has a certain power consumption which must be taken into account. The total current which should be delivered from the MTX side may never exceed the 1.5 Ampere limit. This includes the current for all wall panel inputs for every zone added with the current of the devices connected to the PAGING input. The table shown below gives an overview of the current consumption for every device which can be connected to the MTX.

Peripherals	Current consumption
WLI Wall Line input	40 mA
WMI Wall Microphone input	40 mA
MWX45 Wall panel	14 mA
MWX65 All In One Wall panel	75 mA
MPX48 Paging console	75 mA
MPX88 Paging console	75 mA
APM101/ 104 / 108 / 116 Digital Paging Microphone	300mA
WP2xx Universal Wall panel	60mA maximum

ATTENTION
Make sure the current consumption of all connected peripheral devices added together never exceeds the 1.5 Ampere limit

Chapter 6

Additional information

IP Basics

Many AUDAC products can be controlled via Ethernet. The Ethernet connection used on the AUDAC products is based on TCP/IP, just like 99% of computer networks. There are some basic principles you should know to successfully establish a TCP/IP Ethernet connection.

The data in TCP/IP networks is always sent in packets, and all these packets must be delivered to a unique address, just like the postman delivers the mail to your house. 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".

Simply put, only the last number of an IP address can be different within the same network, so there is a maximum of 254 unique addresses within a network, ranging from "xxx.xxx.xxx.001" to "xxx.xxx.254". The first three numbers must be the same to allow communication between different devices, otherwise the devices cannot 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 is determined by the network administrator, this means that the IP range of your home or office network may be different from that of another network.

AUDAC products have the following IP address by default: "192.168.0.xxx", this means that the default IP range of AUDAC products is "192.168.000.xxx". If your network uses a different IP range, the AUDAC products cannot be accessed from your network. You can change the IP address of the AUDAC products so that they work properly in your network. This can be done in the settings menu, and is described in detail in the chapter "NETWORK SETTINGS" of this user manual.

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

Updating the MTX

New features and improvements are constantly being added to the MTX's software.

It is therefore recommended that you always run your MTX on the latest software version for optimal performance and the most reliable experience under all circumstances.

For more information on the latest available updates and the step-by-step procedure on how to perform this software update, please visit our website.

The easiest way to keep your MTX device up-to-date is via the Audac System Manager.

The Audac System Manager (ASM) is a windows compatible software application that detects all 'smart' devices with their peripherals in your system and enables extensive configuration, update and backup functions for the devices.

It will automatically detect and download the latest firmware updates from the AUDAC server.

For more information about the Audac system manager, please visit our website @ www.AUDAC.eu.

Technical specifications

Inputs	Balanced microphone	Type		2 x balanced microphone
		Connector		XLR
		Sensitivity (1W/1m)		0 dBV ~ 50 dBV
		Phantom power		15 V DC
		Signal / Noise		> 80 dB
		THD+N (@ 1 kHz)		< 0.05 dB
		EQ	High	± 15 dB (12.5 kHz)
			Mid	± 15 dB (2.5 kHz)
			Low	± 15 dB (80 Hz)
	Unbalanced Stereo	Type		4 x stereo unbalanced line
		Connector		RCA
		Sensitivity (1W/1m)		-14 dB ~ +9dB
		Signal / Noise		> 100 dB
		THD+N (@ 1 kHz)		> 0.01 dB
	Wall panel	Type		4/8 x wall panel input
		Connector		RJ45
	Other	Type		Priority mute contact
Output	Balanced stereo	Type		3-pin euro terminal block
				(pitch-3.81mm)
		Impedance		51 Ω
		Level		-70 dB ~ 0 dB
		EQ	Treble	± 14 dB (2.5~20 kHz)
			Bass	± 14 dB (100 Hz)
Frequency	Response (± 3dB)			20 Hz - 20 kHz
Crosstalk (@ 1 kHz)				-85 dB
Control				Front panel
				RS-232
				TCP/IP (RJ45)
				Wall panel (RS-485)
				AUDAC TOUCH™2
Power	Consumption	MTX48		9W
		MTX88		12W
	Supply			100 ~ 240 V AC / 50 ~ 60 HZ
				24 VDC (emergency power)
Dimensions				482 x 88 x 335 mm (W x H x D)
Weight				4.750 kg
Mounting				19" Rack
Unit height				2HE

Note

Note

Note