

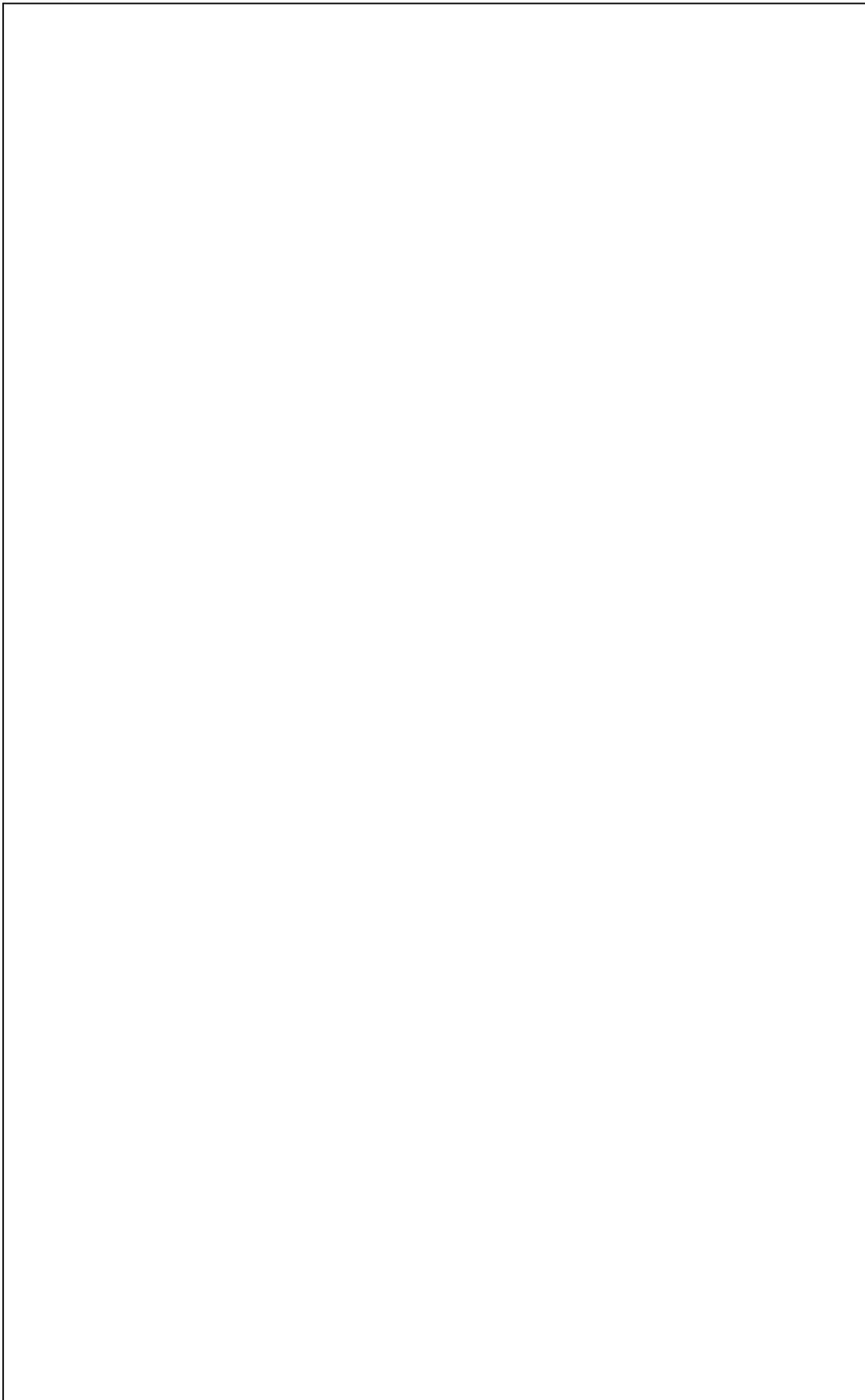
MusiCall

Installation
manual

MAX 8.8 – MAX8.8D
MAX8.16 – MAX8.16D



Notes



Safety instructions

- 1 All safety instructions, warnings and operating instructions must be read first.
- 2 All warnings on the equipment must be heeded.
- 3 The operating instructions must be followed.
- 4 Keep the operating instructions for future reference.
- 5 The equipment may never be used in the immediate vicinity of water; make sure that water and damp cannot get into the equipment.
- 6 The equipment may only be installed or fitted in accordance with the manufacturers recommendations.
- 7 The equipment must be installed or fitted such that good ventilation is not obstructed in any way.
- 8 The equipment may never be installed in the immediate vicinity of sources of heat, such as parts of heating units, boilers, and other equipment which generates heat (including amplifiers).
- 9 Connect the equipment to a power supply of the correct voltage, using only the cables recommended by the manufacturer, as specified in the operating instructions and/or shown on the connection side of the equipment.
- 10 The equipment may only be connected to a legally approved earthed mains power supply.
- 11 The power cable or power cord must be positioned such that it cannot be walked on in normal use, and objects which might damage the cable or cord cannot be placed on it or against it. Special attention must be paid to the point at which the cable is attached to the equipment and where the cable is connected to the power supply.
- 12 Ensure that foreign objects and liquids cannot get into the equipment.
- 13 The equipment must be cleaned using the method recommended by the manufacturer.
- 14 If the equipment is not being used for a prolonged period, the power cable or power cord should be disconnected from the power supply.
- 15 In all cases where there is a risk, following an incident, that the equipment could be unsafe, such as:
 - * if the power cable or power cord has been damaged
 - * if foreign objects or liquids (including water) have entered the equipment
 - * if the equipment has suffered a fall or the casing has been damaged
 - * if a change in the performance of the equipment is noticed
it must be checked by appropriately qualified technical staff.
- 16 The user may not carry out any work on the equipment other than that specified in the operating instructions.



Introduction

MusiCall central matrix



The MusiCall paging system is an audio distribution system, capable of distributing multiple sources into 8 or up to 16 independent zones. Using the control units (MRC) or the internal webpage, each zone can remotely select its own audio source and volume setting.

Matrix models

The MAX series matrices are available in four models.

The MAX8.8 is the standard central matrix. Model with 8 stereo/mono zones, 8 stereo/16 mono RCA inputs and optional 8 local audio inputs. Each can be equipped with its own MRC wall controller and MRA local audio input. Configuration and control possible using the internal webserver.



MusiCall MAX8.8

The MAX8.8D is the DAB+ central matrix equipped with a quadruple DAB+/FM and WEB tuner.

Model with 8 stereo/mono zones, 3 stereo/6 mono RCA inputs and optional 8 local audio inputs. Each can be equipped with its own MRC wall controller and MRA local audio input. Configuration and control possible using the internal webserver.



MusiCall MAX8.8D

The MAX8.16 is the standard central matrix. Model with 8 stereo/16mono zones, 8 stereo/16 mono RCA inputs and optional 16 local audio inputs. Each can be equipped with its own MRC wall controller and MRA local audio input. Configuration and control possible using the internal webserver.



MusiCall MAX8.16

De MAX8.16D is the DAB+ central matrix equipped with a quadruple DAB+/FM and WEB tuner.

Model with 8 stereo/16mono zones, 3 stereo/6 mono RCA inputs and optional 16 local audio inputs. Each can be equipped with its own MRC wall controller and MRA local audio input. Configuration and control possible using the internal webserver.



MusiCall MAX8.16D

Matrix connections



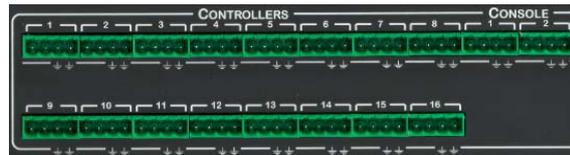
Audio inputs

The Matrix allows to connect several audio inputs like CD players, MP3 players, computers or satellite receivers.



Zone control

To control the different audio zones wall controllers can be connected to the matrix. Using these controllers each zone can select an audio source and set its desired volume. Further more two paging consoles can be connected.



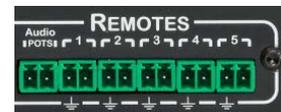
Audio outputs

The audio outputs are standard unbalanced line level signal. These outputs can be used to connect the (distribution) amplifiers for each zone. Using 100 volt amplifiers multiple speakers can be connected to a single zone.



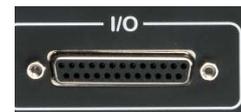
Remote inputs

Each matrix has five remote connections and a priority telephone/audio input. Three inputs can be used to activate room combining. One input can be used to activate the priority audio input. The last input can be used to connect an external system mute for fire alert and evacuation purposes. The telephone/audio input can be configured to auto answer or audio detect.



Logic IO

Using the logic IO paging can be remotely activated. The logic output scan be configured to externally activate signals or relays. The I/O connection can be set to groups 1...8 or 9...16.



Configuration

The matrix can easily be configured and controlled using a computer or tablet. For this the MAX matrix must be connected to the local LAN network (Ethernet). Using the RS232 communication port external home automation can be connected. The USB connection is available for service purposes only.



Link

Through the link interface multiple MAX8.16 and MAX8.16D matrices can be connected making paging possible through out the complete system.



Connecting the system

Connecting audio sources

Several standard line level RCA audio sources can be connected to the MusiCall Matrix.

The Musical matrix handles both mono and stereo sources. Connecting a stereo source to a mono output will result in a summed mono signal.

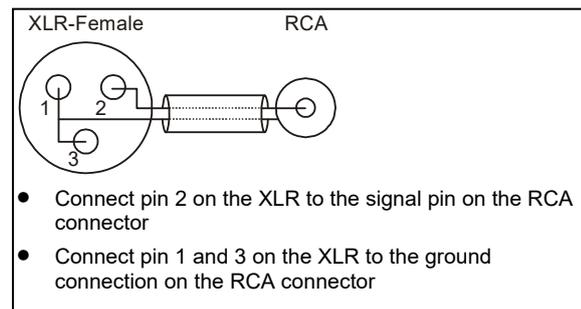
Differences between independent audio sources can be adjusted within the configuration. For this check the 'configuration' part in the manual.



Connecting balanced output audio sources

Devices using a balanced audio output can be connected using a converter cable.

The converter cable needs to be connected like this:



Connecting amplifiers

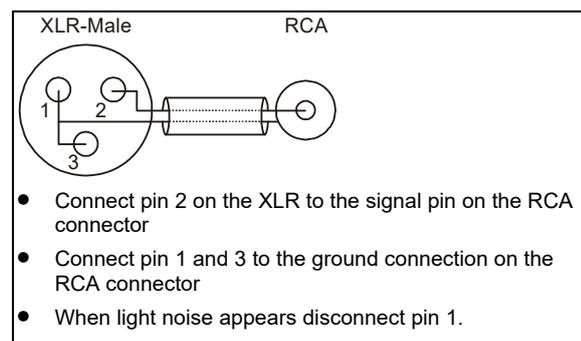
The amplifiers are connected to the outputs on the MusiCall matrix. These outputs are standard line level RCA and can be switched between stereo and mono. How to connect your amplifier can be found in the amplifier manual.



Devices using balanced inputs

Devices using balanced audio input can be connected using a converter cable.

These cables can be made using the following schematic:



Antenna

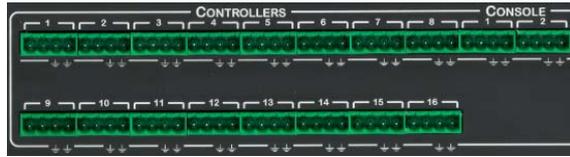
To be able to use the internal tuners on the MAX8.8D and MAX8.16D an antenna needs to be connected. This antenna can be a CAI (Central Antenna Installation) or external outdoor antenna. For the use of DAB+ check your CAI distributor if DAB+ is supported. If DAB+ is not supported an external DAB+ / FM antenna needs to be connected. The antenna is connected to the F-connector on the back of the MAX matrix.



When using the WEB stream encoder the MAX matrix needs to be connected to a local (Ethernet) network with internet access.

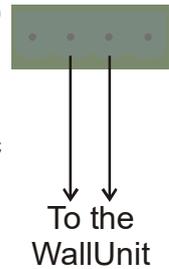
Connecting Wallunits

Connect the Wallunits to the matrix using a two wire cable. The two wires supply both power and data. Commonly unshielded cable can be used. When installed in a high distorted area shielded cable is recommended.



The wallunits are connected to the green connectors on the back of the matrix. For each zone one connector is available.

Wallunits are not polarity sensitive. Each zone can be equipped with two parallel connected wallunits. Both wallunits control and act in the same way. This especially can be useful when a room has more entrances.

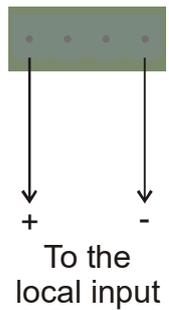


Controlling the zone is also possible using the user webpage for that specific zone. Each zone can be independently controlled adjusting volume, EQ and source settings.

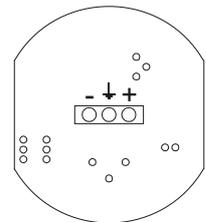
Connecting local audio inputs

The local audio inputs are connected to the two outer pins on the green connector. Each zone can be equipped with one local audio input.

In contrast to the wallunits, the local audio inputs are polarity sensitive. Connecting swapping the + and - will not result in damage to the system. When not connected in the right way no audio will be fed through. The MRA1 is equipped with an internal gain trimmer to adjust input sensitivity.



To avoid distortion the local audio inputs must be connected using shielded cable. Best is to use standard shielded microphone cable. The cable shield can be connected to the ground on the local audio input. If needed the shield can also be connected to the ground on the matrix.



Rear view local audio input

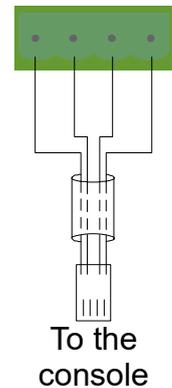


Isolate local audio input cables from speaker and power cables. Do not put them in the same cable tray or cable bundle. Isolate cables for local audio inputs and wallunit cables. Do not use a single multipair cable for audio and data.

Connecting Consoles

Two paging consoles can be connected to the matrix. The paging consoles are connected using a four wire cable. Two wires for data and two for audio. Normally unshielded cable can be used however shielded cable is advisable.

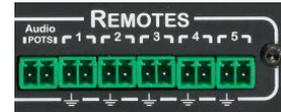
One pair needs to be connected to the central connections, the other pair to the outer connections. Both pairs are polarity insensitive. When using the supplied connector cable the red and green wire are connected to the inner connections, the black and yellow are connected to the two outer connections.



Connecting remote inputs

Telephone

The Audio/Pots connection allows to connect a Pots line to call paging to selected zones. The Pots input automatically answers calls and starts paging to the selected zones. On call drop the zones return to their previous state. Connect A and B from the Pots line to the Audio/Pots connection



Roomcombining

Remote connections 1, 2 and 3 are assigned to the roomcombining groups 1, 2 and 3. By shorting the two contacts, the logic becomes active. Configuring the roomcombining groups can be found in the configuration chapter.

Priority audio

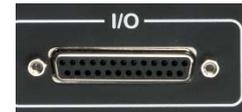
Priority audio can be connected to the Audio/Pots input. When using a logic trigger remote input 4 must be connected. By shorting remote input 4 the audio input becomes active. The audio input can also be activated by audio detections. How to configure this can be found in the configuration chapter..

System mute

Remote input 5 can be connected to act as system mute for emergency use. The input can be set to normal open or normal close.

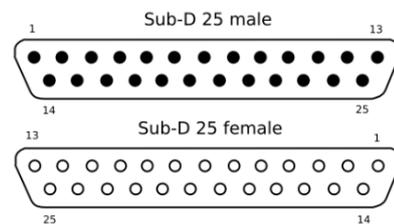
Logic IO

Through the logic I/O paging can be externally activated or read out. This making external signalling or external paging possible. The I/O can be set to act on paging groups 1...8 or 9...16.



SUB-D 25 aansluitingen:

1	Gnd		
2	Gnd	14	Gnd
3	In 1	15	Out 1
4	In 2	16	Out 2
5	In 3	17	Out 3
6	In 4	18	Out 4
7	+24V in	19	+24V in
8	In 5	20	+24V in
9	In 6	21	Out 5
10	In 7	22	Out 6
11	In 8	23	Out 7
12	Gnd	24	Out 8
13	Gnd	25	Gnd



Frequently asked questions

- After connecting the Wallunit the text 'Musical Please wait...', and after some time 'No data from host...' appears?

→ Check the voltage on the wallunits connector with the wallunit connected.

In a normal situation this should be approximately 24Vdc. On a very long cable length this could be slightly lower because of the voltage drop over the cable. The wallunits will work up to 13Vdc.

When the voltage without the wallunit is 15Vdc, it is very likely that the cable is connected to the outermost pins at the matrix side. These two pins are to be used by the MRA instead!

- When I select the local input, and adjust the volume I can hear a high-pitch buzzing sound?

→ When the MRA and wallunit cable are in parallel they will interfere with each other. It is recommended to use a shielded cable for the MRA and a separate cable for the wallunit.

- What are the maximum cable lengths?

→ The maximum cable length for connecting the MRC wallunit is 1500 meter.

→ The maximum cable length for connecting the MPC console is 200 meter.

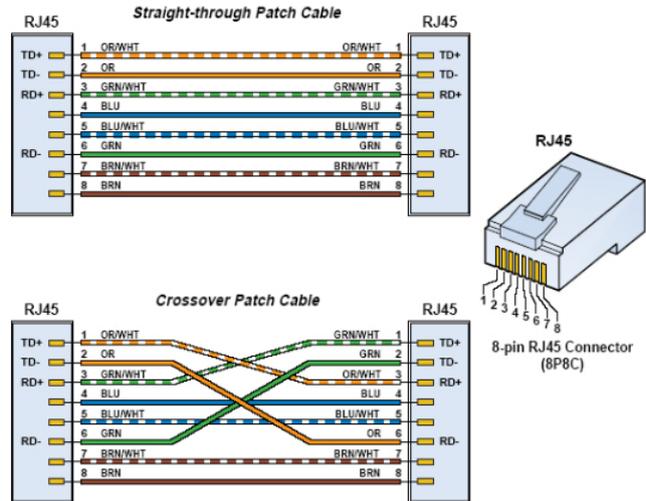
→ The maximum cable length for connecting the audio input is 200 meter.

Configuring the system

This part of the manual explains how to configure the matrices. Normally these settings are made once and adjusted when needed. A backup for all settings can be made. If needed a system restore can be done to factory default or previous saved settings.

Connecting a computer

The computer must be connected to the matrix using a UTP patchcable. The matrix can also be connected to an existing network by connecting the network to the Ethernet port on the matrix. Connected directly to a computer both normal and cross patch cables can be used.



When directly connected to the matrix an IP address must be manually assigned to the computer.

The MAX matrix can be configured using <http://musicalcall/config.html>. It can also be reached using [http://\[matrix IP address\]/config.html](http://[matrix IP address]/config.html). If the IP address of the matrix is unknown the matrix can be found using the Musicalcall_lookup program. The IP address can also be found by connecting an MRC wallunit. The MRC wallunit will display the matrix IP address on startup.

Supported browsers for configuring the matrix are:

- ✓ Firefox 25 and up
- ✓ Google Chrome 17 and up
- Internet Explorer is no longer supported.

Make sure to keep your browser up to date. Always use the latest version.



General

The general tab sets the general matrix settings. First is to select the preferred language. One of four languages can be selected:

- ✓ Dutch
- ✓ English
- ✓ German
- ✓ French



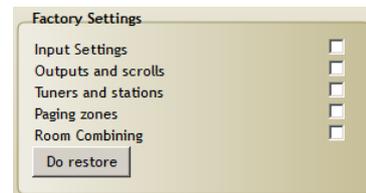
Use the computer mouse to select the preferred language. The matrix will reload the configuration page into the selected language.

The matrix settings are stored onto the internal SD card. Also a backup can be made to the computer for later use or copying them into another matrix.

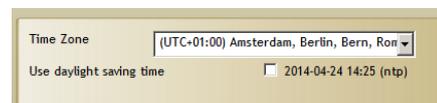


Click 'save' to store the backup on your computer. Select a backup file and click 'restore' to restore settings from a backup file.

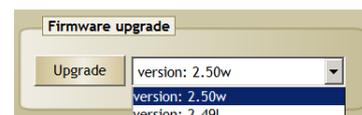
Restoring the settings can be done for each specific function. The unselected settings will not be affected by this restore. Select the desired function or functions and click 'do restore'.



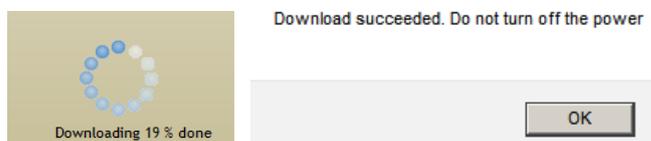
When connected to the internet the MAX matrix will automatically use the NTP internet time. Select the desired timezone to adjust. DST can be enabled where needed. If no internet access is available the MAX8.8D and 8.16D can also link to the local RDS time.



When connected to the internet the MAX systems can download the latest release firmware from the MusiCall servers.

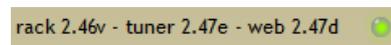


During the update process the matrix will show the following messages:



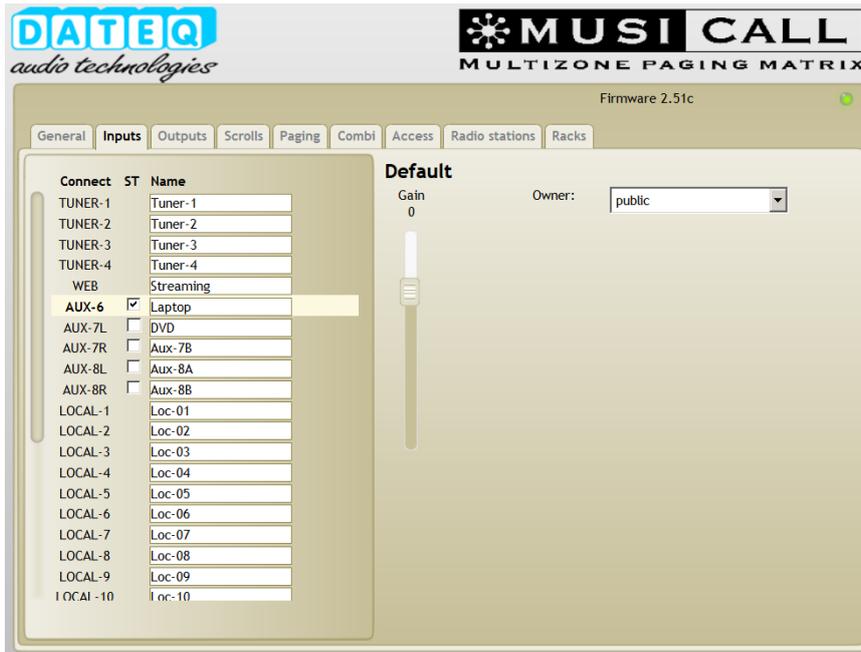
CAREFULL!! Do NOT switch off power during the update process!!

In the top right area on the configuration page the current state of the matrix is visible. It shows the current firmware version for all internal systems. The round indicator shows the communication status between the browser and the matrix.



- ✓ Green: communication okay
- ✓ Orange: communication delayed but workable
- ✓ Red: no communication

Inputs



The name of each input can be changed as desired using 12 characters maximum. The preferred name will be visible on the wallunit and within the user webpages.

Click on the textbox of the input and type the preferred name.

Type	ST
AUX-1	<input checked="" type="checkbox"/>
AUX-2L	<input type="checkbox"/>
AUX-2R	<input type="checkbox"/>
AUX-3	<input checked="" type="checkbox"/>

Each auxiliary input can be selected mono or stereo. The checkbox 'ST' shows whether the input is used mono or stereo. The auxiliary name also indicates whether the input is used mono or stereo. A mono input will show in AUX2-L and AUX2-R. This corresponding to rear of the matrix.

! On the MAX8.8D and MAX8.16D the first five auxiliary inputs are used for tuner 1...4 and the web encoder (aux 5). The auxiliary inputs now function as direct outputs from the tuners and encoder.

Owner:	<input type="text" value="public"/>
Tuner:	<ul style="list-style-type: none"> public Output 1A Output 1B Output 2A Output 2B Output 3A

Each input can be assigned to be used global trough out the matrix or can be assigned to a specific zone. When assigned to a specific zone the input is not available to other zones. On page 14 the scroll list is explained.

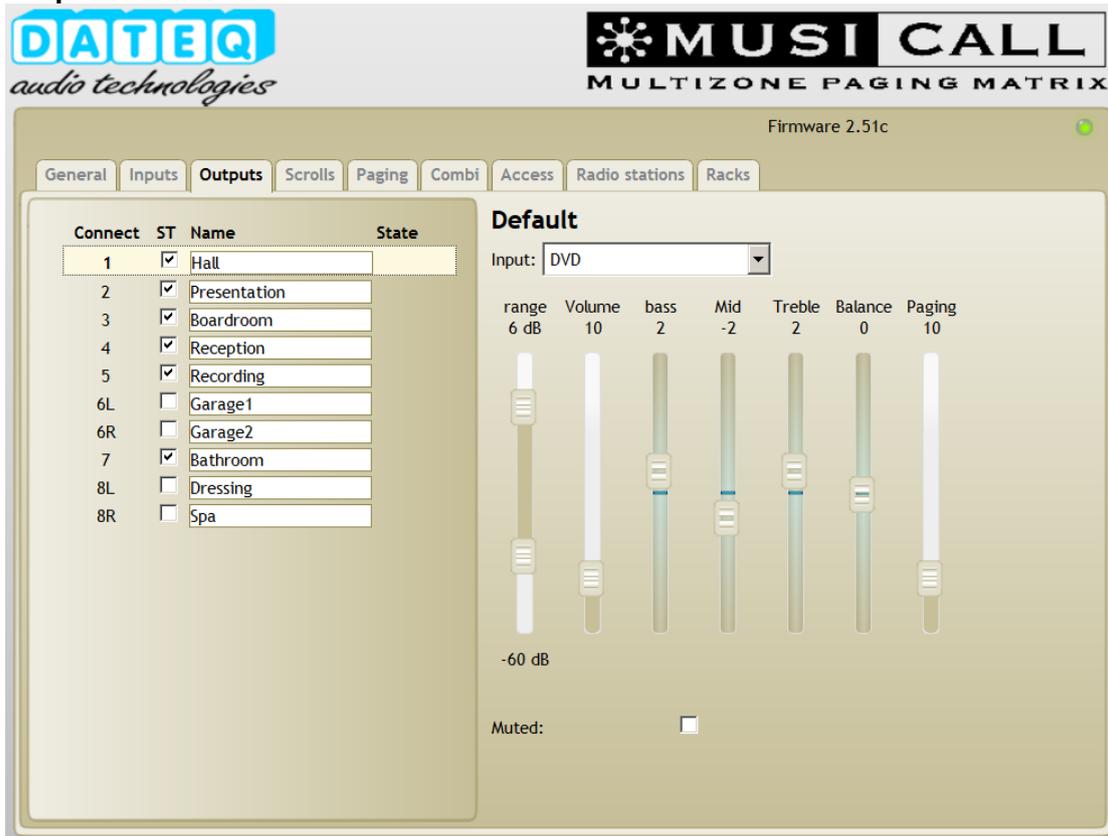
Gain
0

It can occur input levels from different sources are slightly different. These differences can be corrected using the input gain. Each input can be independently corrected from -33 to +12dB.

Use the Mouse to adjust the input gain.

! It is important to adjust all input signals to the same level. Otherwise steps in audio level can be heard on switching sources.

Outputs / zones



Each zone can be assigned it's independent name with a maximum of 12 characters. The names are visible both on the wallunit and web interface.

Select the textbox to change the output name.

Type	ST	Naam
1	<input checked="" type="checkbox"/>	Output 1
2L	<input type="checkbox"/>	Output 2A
2R	<input type="checkbox"/>	Output 2B

Each output can be selected mono or stereo. The checkbox 'ST' shows whether the output is used mono or stereo. The output name also indicates whether the input is used mono or stereo. A mono output will show in Output2-A and Output2-B. This corresponding to rear of the matrix.



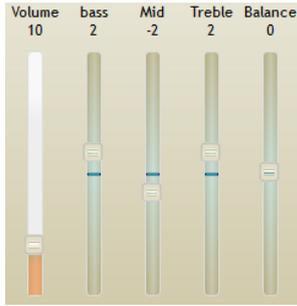
The MAX8.8 and MAX8.8D have the MIX option. When selecting MIX the output becomes dual mono.

The MAX8.16 and MAX8.16D have the ST option. With this 8 stereo up to 16 mono zones can be selected.

For each output a default source can be selected. From boot up the output will start using the assigned source. The available list corresponds with the assigned source list.

A volume range can be set for each output. This way the minimum and maximum volume are divided for the user into 50 volume steps. These steps can be controlled using the wall unit or the user part of internal webserver. The maximum level also allows to protect the speaker system overshooting it's maximum power.





The default values for each output can be independently set. Volume, EQ and balance. These values will be set during after a power cycle. Balance is only available for stereo selected zones. The EQ settings have a range of + and - 12dB. The volume setting has a range of 50 steps within the set minimum and maximum range.

The main paging is set global for all or not to page the page 15 in the



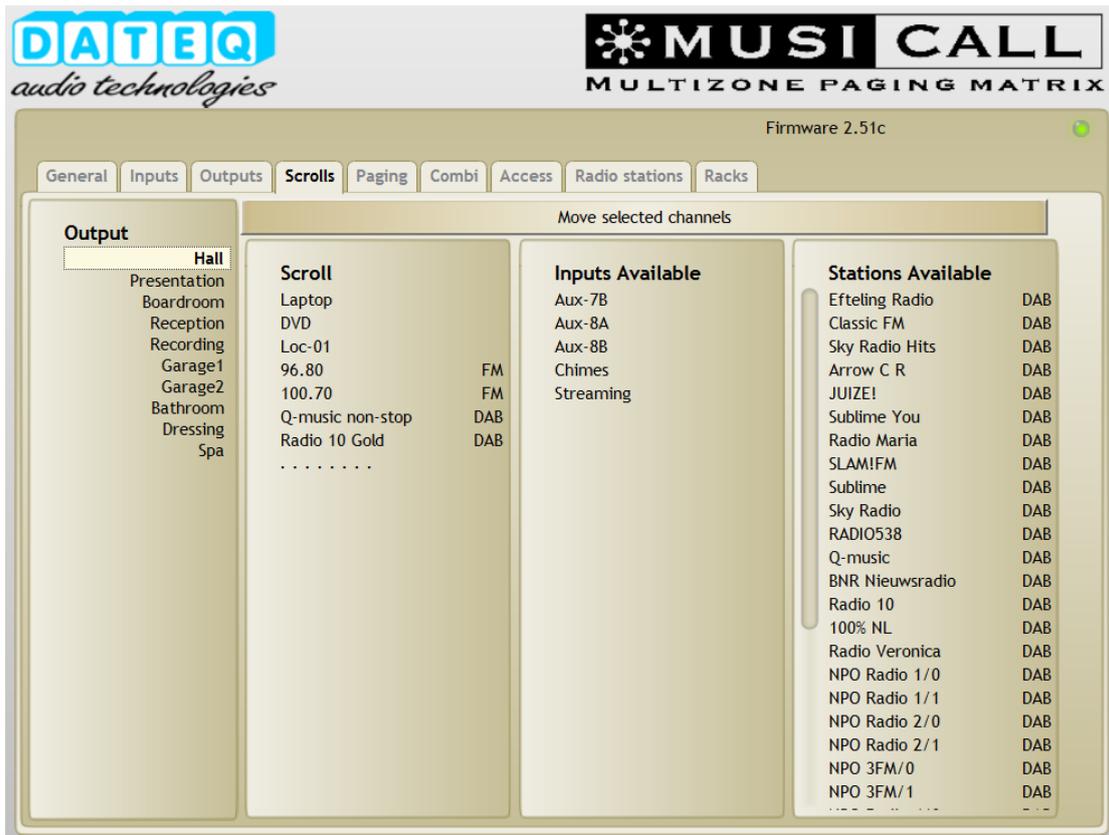
volume for each output can be set. This volume setting paging calls including priority audio. Selecting whether independent zones can be set in the paging tab. See manual.

Muted:

default set volume.

By selecting Muted the output will default be set to mute. When pressing 'volume +' or 'volume -' the output will return to it's

Sourcelist



For each output a list of user selectable audio sources can be made. Each output uses it's own list.



Select an output to adjust the sourcelist



Select the desired inputs to move and click on the move button to add them to the sourcelist. 'Drag and drop' also works.



When a tuner is fixed to an output it is possible to add frequency presets to the sourcelist. Adding these presets is done in the same way as an input by selecting or 'drag and drop'.

Removing a single source is done in the same way as adding them. Select the source that needs to be removed and click on move. 'Drag and drop' also works.



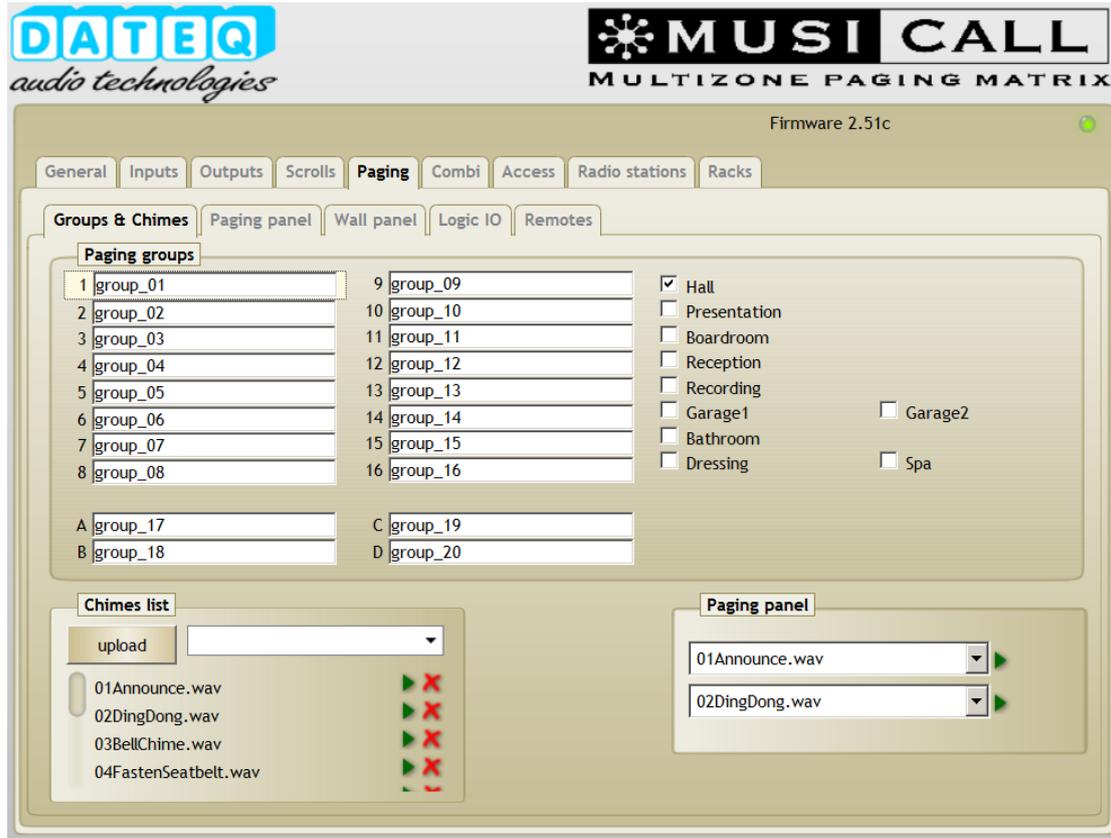
When a tuner is fixed to an output it is possible to add frequency presets to a sourcelist. Then a tuner is selected as public source the tuner works on a single frequency. This frequency can be changed in the configuration webserver.



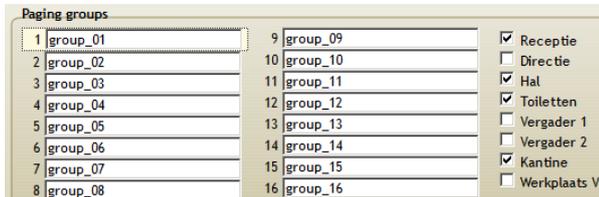
When the webstream encoder is fixed to an output it is possible to add webstream presets to a sourcelist. Then the webstream encoder is selected as public source the encoder works on a single webstream. This webstream source can be changed in the configuration webserver.

Paging

The matrix has twenty different paging groups where different zones can be added.



Adding zones to a Group is done by selecting the zone's checkbox. Factory default all groups 1...16 are equal to the zones 1...16.

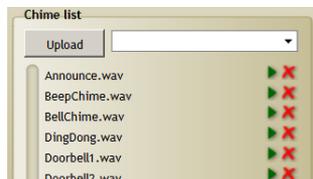
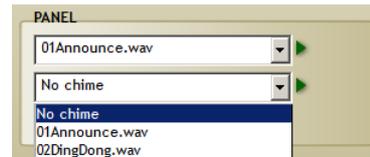


All paging groups can be set using the configuration page. Using the Paging console only groups A...D can be set. Groups 1...16 are locked for the paging panel.

Paging chimes

The paging option includes a play out of a recorded file like a 'ding-dong'. This short audio file will be played after closing the GPI contact. After the file has finished playing the paging microphone will be switched to all selected outputs. Paging chimes are stored onto the internal storage of the matrix. Supported audio formats are: mp3, wav en flac.

To enable the chime play out, select the desired file in the drop down box. The upper for paging panel 1 and the lower for paging panel 2.



It is possible to upload user custom audio files. Supported file formats are: MP3, WAV and FLAC.

-  Press to listen to the file.
-  Press to remove the file.

Configuring consoles

The paging console default texts can be changed. Select the drop down box to view different fields. Select the text field to change the default text.

Paging while muted

Paging can be active during a system mute. Select the checkbox to activate. Note not all installations allow paging while muted.

Backlight settings

Using the slider the backlight time can be set. After a button press the backlight will stay on for a set number of seconds.



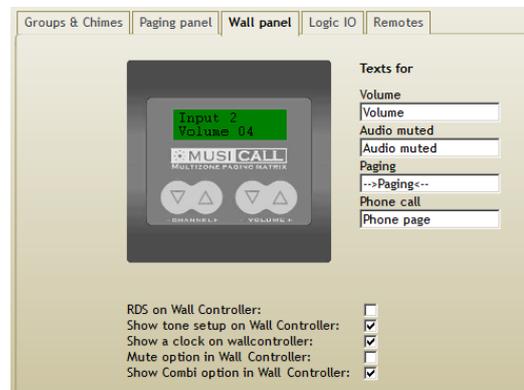
Configuring WallUnits

The different wallunit texts can be changed. These texts are valid for all zones.

RDS on Wall Controller:	<input type="checkbox"/>
Show tone setup on Wall Controller:	<input checked="" type="checkbox"/>
Show a clock on wallcontroller:	<input checked="" type="checkbox"/>
Mute option in Wall Controller:	<input type="checkbox"/>
Show Combi option in Wall Controller:	<input checked="" type="checkbox"/>

RDS information

RDS information can be displayed on the wallunit when a tuner is selected. By default it is deselected and the tuner name or preset will be visible.



EQ setting

When this checkbox is enabled it allows users to change the EQ settings for their zone. By pressing 'channel -' and 'volume +' the user enters the settings menu.

Clock

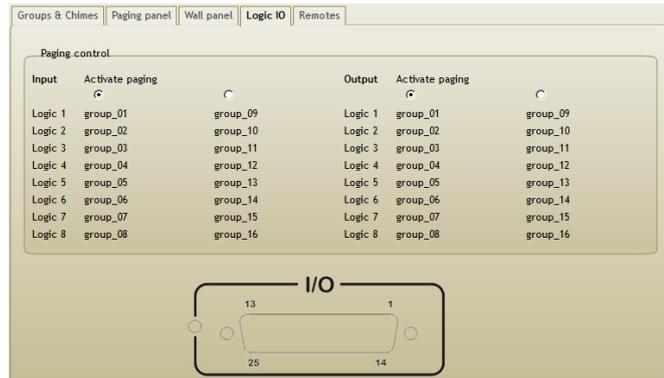
The display will show a small clock when enabled. On changing the volume settings the clock will disappear and volume settings will show. After a while the clock will reappear.

Mute and roomcombining

Mute and Roomcombining can be enabled to be added into the scroll list. When disabled both can not be controlled using the wallunit.

Logic I/O

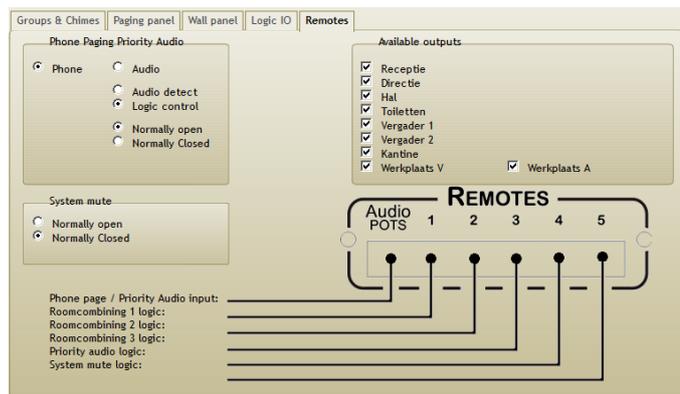
Using the logic I/O connection paging can be externally activated or paging can be signalled. Both the inputs and outputs can be selected between groups 1...8 or 9...16.



Remote inputs

Telephone

The Audio/Pots connection allows to connect a Pots line to call paging to selected zones. The Pots input automatically answers calls and starts paging to the selected zones. On call drop the zones return to their previous state. The Telephone call will be active in all selected zones.



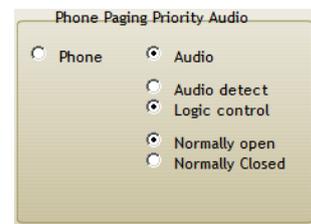
Roomcombining

Remotes 1, 2 and 3 are assigned to the roomcombining groups 1, 2 and 3. Configuring them can be found in the next chapter on page 18.

Priority audio

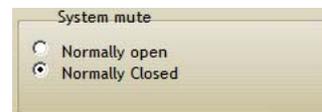
Priority audio can be connected to the Audio/Pots input. When using a logic trigger remote input 4 must be connected. By shorting remote input 4 the audio input becomes active.

The audio input can also be activated by audio detection. On detecting an audio signal like commercial playout or alarm 36dB and up the system will switch over to the priority input on all selected outputs. The system returns to it's previous stat as soon as the signal level drops below 40dB.



System mute

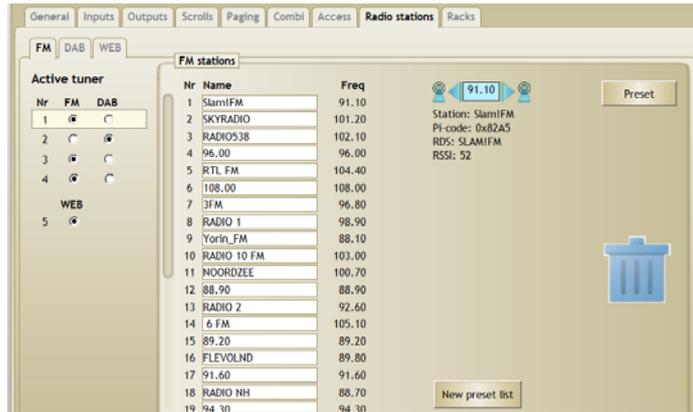
The system mute function allows to mute the complete matrix using one logic input. This making a link with fire alert or evac systems possible. The logic can be set to normal open or normal closed.



Tuners FM

The MAX8.8D and MAX8.16D are equipped with 50 user presets shared through out all four tuners. Within the 'Radio stations' tab these presets can set.

The FM stations list shows all available FM presets. A maximum of 50 presets is available.



The button 'new preset list' activates an automatic search on all tuners. All available FM stations will automatically be added to the preset list.



The MAX8.8D and MAX8.16D are equipped with a pre defined PI list. This PI list allows to automatically add the stations name to the preset list. This name will be visible within the scroll list and user display. It is also possible to adapt the preset name. This adapted name will also be used within the scroll list and user display. Like all in- and outputs the name can contain 12 characters maximum.

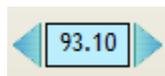
Besides the automatic search presets can be manually added.



Frequency up/down.



Previous or next station (automatic search)



Current FM frequency. By double clicking the current frequency the value can be adjusted.



Add the selected frequency to the preset list.



Select a preset and drag and drop into the trashcan to remove from the list.

Tuners DAB

The MAX8.8D and MAX8.16D are equipped with user presets. These user presets are shared on all four tuners. Adding or editing the presets is done within the 'Radio stations' tab.

On the right side all available stations are set to the list. A maximum of 50 presets (FM and DAB+) can be made.

Using the FM/DAB+ radio button tuners can be set to either FM or DAB+.



By default all tuners are set to FM. For use of DAB+ reception, each tuner can independently be set to DAB+. After changing FM to DAB+ the DAB+ preset list is automatically loaded containing all available DAB+ channels.

Note it can take up to 30 seconds before all stations are loaded depending on signal strength.



Radio 1

The tuner will automatically add names to the DAB+ stations. These names are collected from the channel data. Same as inputs and FM presets these names are visible within the user control panel and wall unit display's.



Previous or next DAB+ station.

Tuner WEB

The Web tuner enables the matrix to receive and play online audio streams.



The 'Name' field shows the current stream name with a maximum of 12 characters.

Within the 'URL' field the source of the stream can be added or changed.

Nr	Name	Url http://...
1	Jazz concert	streams.greenhost.nl:8080/jazz
2	Radio Klara	www.listenlive.eu/vrtklara-high.m3u
3	World music	streams.greenhost.nl:8080/wereldmuziek
4	Studio Brussel	www.listenlive.eu/vrtstubru-high.m3u
5		

Supported stream formats:

- ✓ MP3
- ✓ WAV
- ✓ FLAC

All formats are supported on 44.1KHz (mono or stereo)

▶ Press play to start the stream. Note this can take some seconds.



When the Web tuner is fixed to an output it is possible to add webstream presets to a sourcelist. Then the Web tuner is selected as public source the encoder works on a single webstream.

Network settings

By default the MAX Matrix is set to DHCP*. In a regular DHCP network that supports DNS** the MAX Matrix can be reached through:

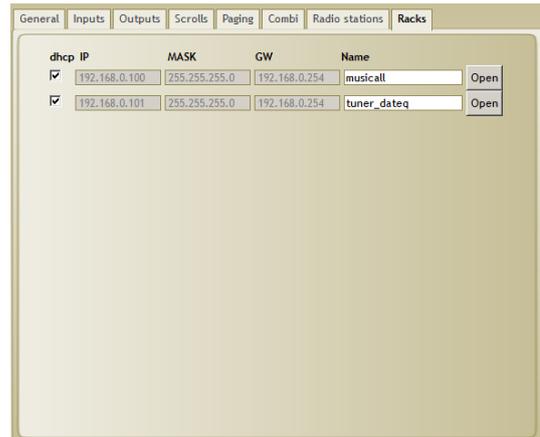
- ✓ Webserver user interface:
<http://musical/>
- ✓ Webserver configuration interface:
<http://musical/config.html>

Where needed, the DHCP client can be deactivated and a static address can be entered.

dhcp	IP	MASK	GW	Name	
<input type="checkbox"/>	192.168.0.161	255.255.255.0	192.168.0.254	mac808	Open

In a network that holds more than one MAC808 or MusiCall system, each system will be displayed in the IP tab. To access these systems, click 'open' and the internal webserver will be accessed.

dhcp	IP	MASK	GW	Name	
<input type="checkbox"/>	192.168.0.161	255.255.255.0	192.168.0.254	Main office	Open
<input checked="" type="checkbox"/>	192.168.0.108	255.255.255.0	192.168.0.254	building A	Open
<input type="checkbox"/>	192.168.0.164	255.255.255.0	192.168.0.254	C-Tower	Open



*DHCP: protocol to supply IP addresses. DHCP offers an automatic network configuration.

**DNS: Resolves an IP address from a domain name. example: <http://musical> is resolved to 192.168.0.101

Technical Specifications

AUDIO INPUTS INPUT 1...8

Signal level	0 dBu
Impedance	10 kOhm
Input noise	< -78 dB (IHF-A)
Crosstalk between inputs.....	< -72 dB @ 1kHz
Input attenuators.....	-32 dB
Headroom	44 dB

AUDIO OUTPUTS OUTPUT 1...16

Signal level	0 dBu
Impedance	150 Ohm
Main volume adjust.....	+12...-60 dB
Output volume adjustment.....	+12...-60 dB
THD+N.....	0.08% (CCIR-RMS) @ 0dBu

FREQUENCY RESPONSE

Input to output.....	25 Hz...20 kHz (-1 dB)
----------------------	------------------------

WALL UNIT CONNECTION

Output voltage	24V
Maximum output current.....	20mA, automatic fuse

CONSOLE CONNECTORS

Output voltage	24V
Maximum output current.....	200mA, automatic fuse

COMMUNICATION

Baudrate RS232	14kbps
USB	USB2
Ethernet	10/100MBit auto select

GENERAL

Mains supply	
Input voltage	110 - 230 VAC +/-10%/ 50 Hz
Power.....	70 W

DIMENSIONS

Central unit

Front (max.)	483 x 132 mm (Bx H)= 19", 3HE
Depth	215 mm
Weight.....	5.3 kg Netto

Product ondersteuning

Voor vragen over het MusiCall systeem, accessoires en andere producten kunt u contact opnemen met:

Dateq Audio Technologies B.V.

De Paal 37
1351 JG Almere
Nederland

Telefoon: (036) 54 72 222
Fax: (036) 53 17 776
E-mail: info@musicall.nl
Internet: www.musicall.nl
