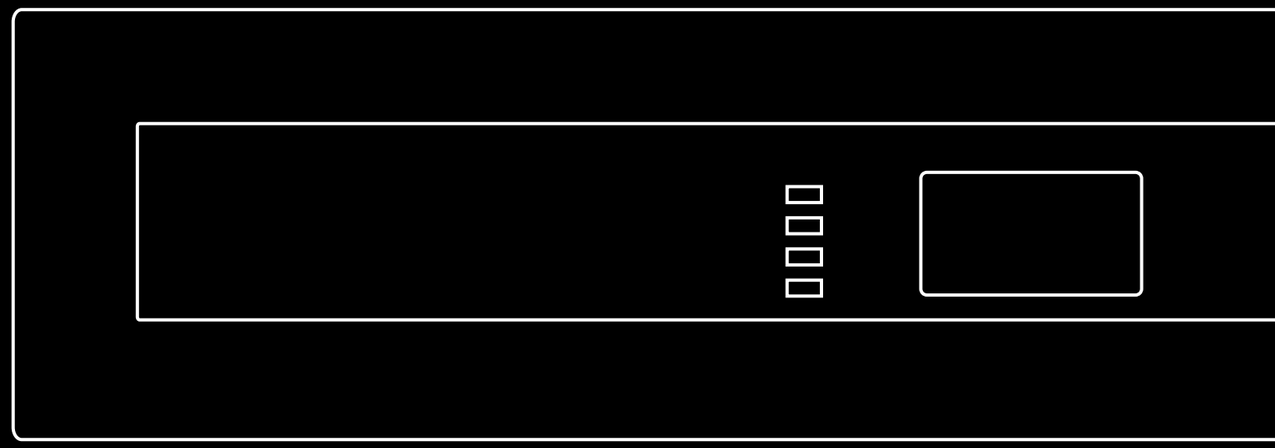
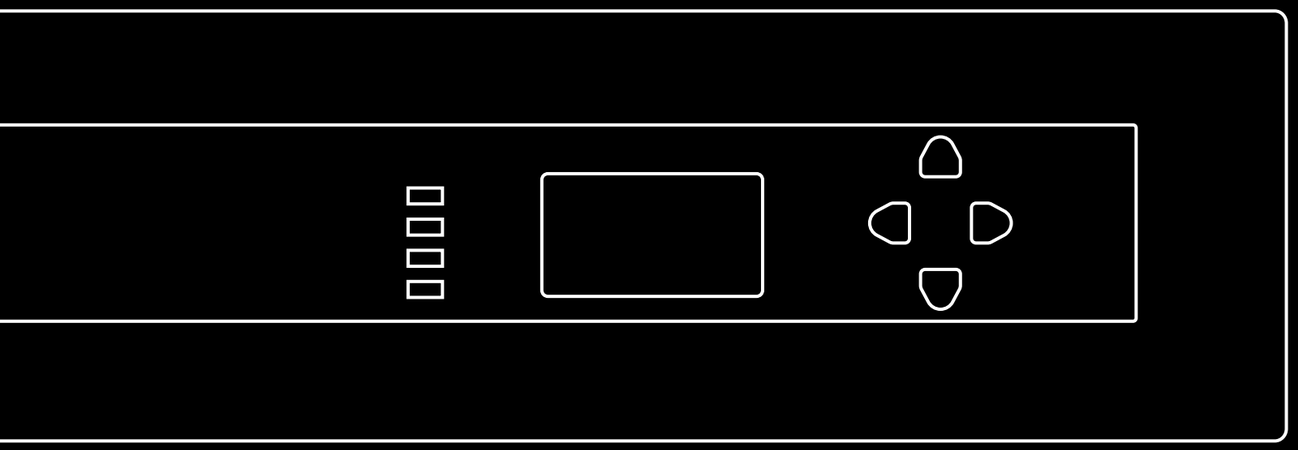
INTEGRAL-M88

Users manual





SOUND WITH SOUL

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The Integral Series is the heart and brain of our installation solutions. It comprises of a series of devices that in addition to feeding and processing the signal of our speakers, allow an absolute control to our users, guaranteeing the protection and quality of the equipment.

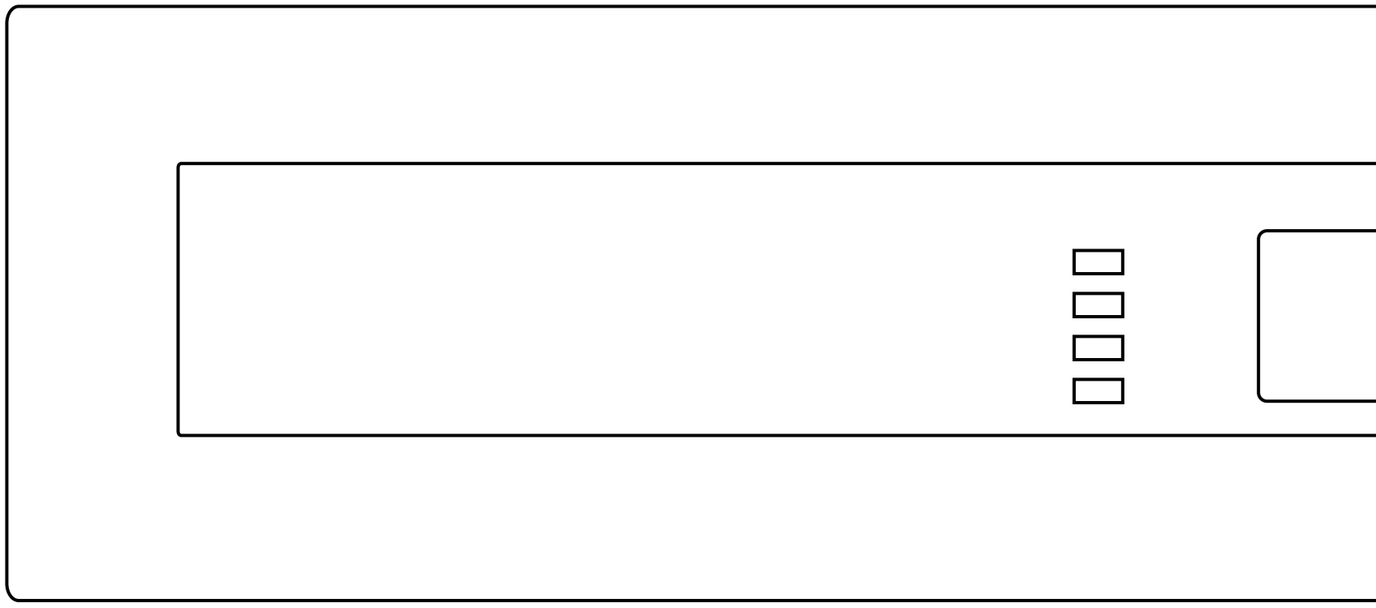
You are about to discover what it means to work with our brand, and this is just the beginning. You will have access to quality training materials on our website, where you will discover specific business solutions and learn how to use them: *dasaudio.com/en/training/*

This user manual is designed to guide you, swiftly and smoothly, during the installation of our equipment, but in case you have any questions or doubts, do not hesitate to contact our technical support team by writing directly to support@dasaudio.com or, if you prefer, through our website, contacting your nearest office at *dasaudio.com/contact*

INTEGRAL
Description

INTEGRAL-M88 is a 1U, half-rack rack matrix intended for permanent installation with integrated processing capabilities. Includes 4 analog inputs, 8 analog outputs and DANTE (4x4) digital Audio. Control, configuration and management of the matrix shall be done via ALMA software over IP or using Open Sound Control (OSC) protocol. DANTE audio channels can be processed and injected back into the network if needed.

Priority capabilities, full matrix and routing options make this unit essential as the ”brain” of any type of installation. The internal memory resources allow to store 64 “global memory presets” and 128 user + 128 factory “output channel presets” (speaker presets). A bank of 128 output channel presets with specific processing parameters for all DAS Audio speakers is included allowing the users to configure each channel independently. For instance, it would be possible to recall for amp 1 the preset of Q-23T, for amp 2 the preset of Arco-4T, for amp 3 the preset of Q-10 etc.



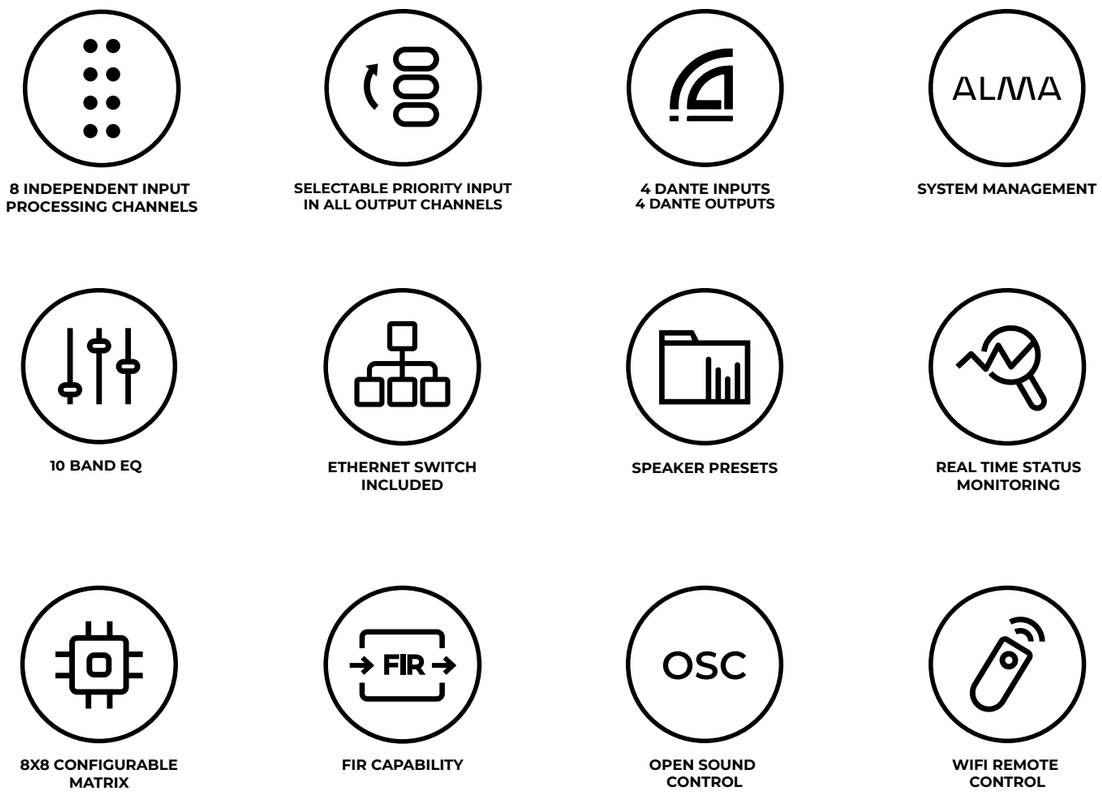
INTEGRAL
Description

The unit includes an OLED display (1.54”) with control knobs for intuitive and easy navigation as well meters to monitor signal levels. Basic parameters can be accessible via front panel control knobs; input and output levels, global preset recall, output channel preset recall, mute, source selection, link manager functions, priority enabling etc.

Two of the analogue inputs can be switched to microphone with 12V Phantom power if needed. The unit also Integrates an Ethernet Switch for daisy-chain connections. No external switch is needed.

Includes ethernet switch for daisy chain connections.

- 8 CH Matrix with high-performance integrated DSP
- 4 Independent balanced analog audio inputs
- 2 Analog inputs with selectable MIC/Line option and phantom power
- 8 Independent balanced analog audio outputs
- 4 x 4 CH DANTE Digital Audio; DANTE Channels can be processed and injected in the network
- ALMA management, control and load / meters monitoring
- 2 Selectable Priority Levels per Output
- Matrix Routing with flexible configuration



INTEGRAL
Front Panel

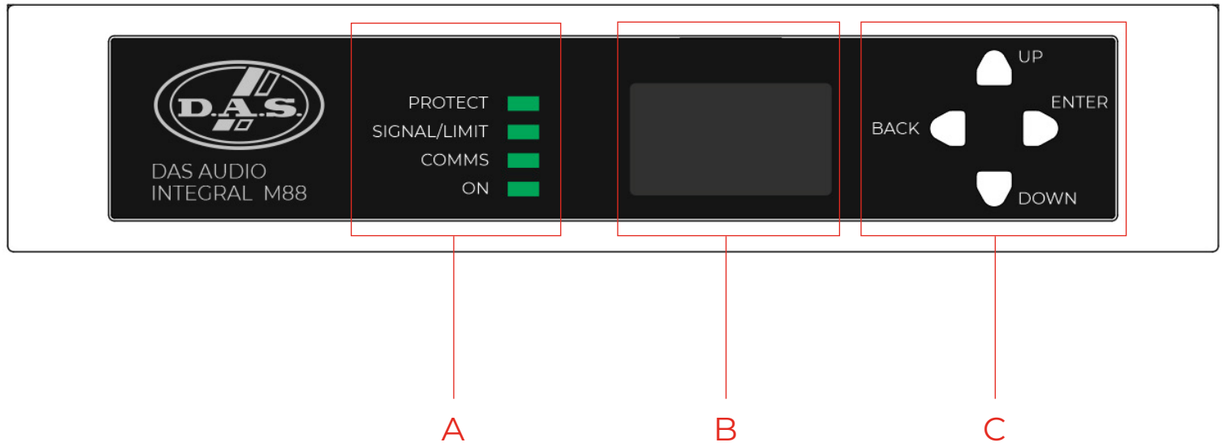
A LEDS

PROTECT: When red it will indicate the unit has entered in protect mode due to thermal or other cause.

SIGNAL/LIMIT: Green when audio signal is detected on whatever the output audio channels. It will lit in red when the limiter´s threshold of any output audio channel is reached.

COMMS: It will lit in orange when connected to a PC or mobile device and being controlled via ALMA or OSC.

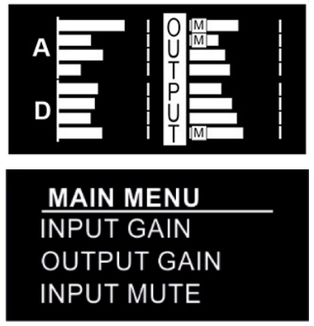
ON: When the unit is connected and switched on the led will be in green color.



B OLED DISPLAY DE 1.54”

The level of all input and output audio channels can be monitored with the display. A stands for analog input channels; D stands for digital Dante input channels. If an M is shown above a channel meter, this channel is Muted.

By the use of the display and the navigation buttons different menus will appear to configure the unit in a fast and intituive way:



C NAVIGATION BUTTONS

There exist four navigation buttons, Back, Enter, Up and Down. With these buttons the end user can easily have access to different configuration menus.
With the Back button the Display of the unit can be switched Off.
With the Down button the user access rapidly to IP address of the unit, the ID number and the current active preset.

INTEGRAL
Rear Panel

A **Balanced Analog Inputs (IN)**

There exist four input channels, IN A, IN B, IN C, IN D; each pair uses a 5pin, 3.5mm pitch Terminal Block type connector. Channels A and B can be destinated to connect Microphones. Phantom power available on Inputs A and B. Phantom activated thru front display in the Options Menu or via ALMA.

B **Gain controls for Mic inputs (A and B)**

Only to be used when having a microphone connected to IN A and / or IN B.

C **Balanced Analog Outputs**

There exist eight analog output channels. Each pair of channels uses a 5 pin Terminal Block type connector with 3.5mm pitch.

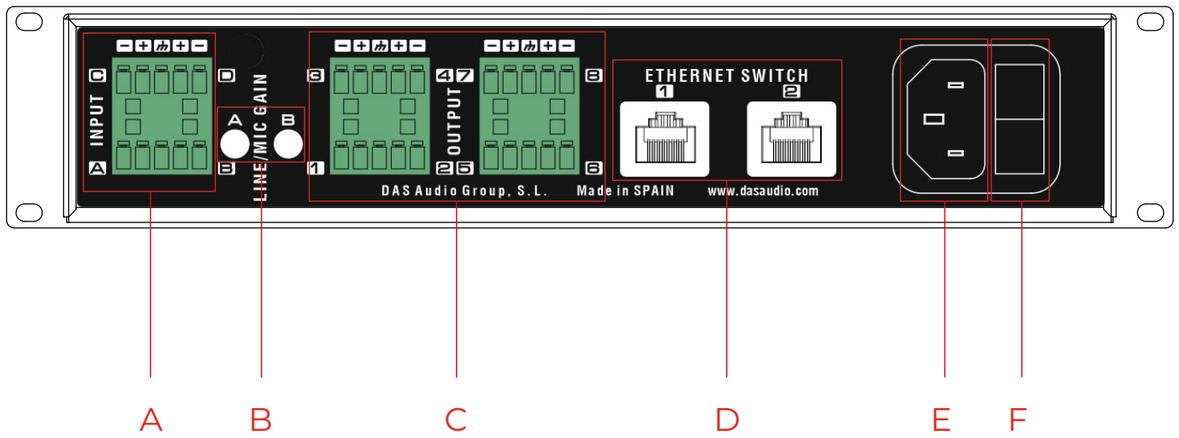
D **RJ45 Connectors**

There exist two RJ45 connectors with an internal ethernet switch to allow daisy chain connections between units.
CAT5e minimum quality admitted.
RJ45 ports to be used:

- Network connections to control the units via ALMA or OSC
- Sending or receiving DANTE digital audio

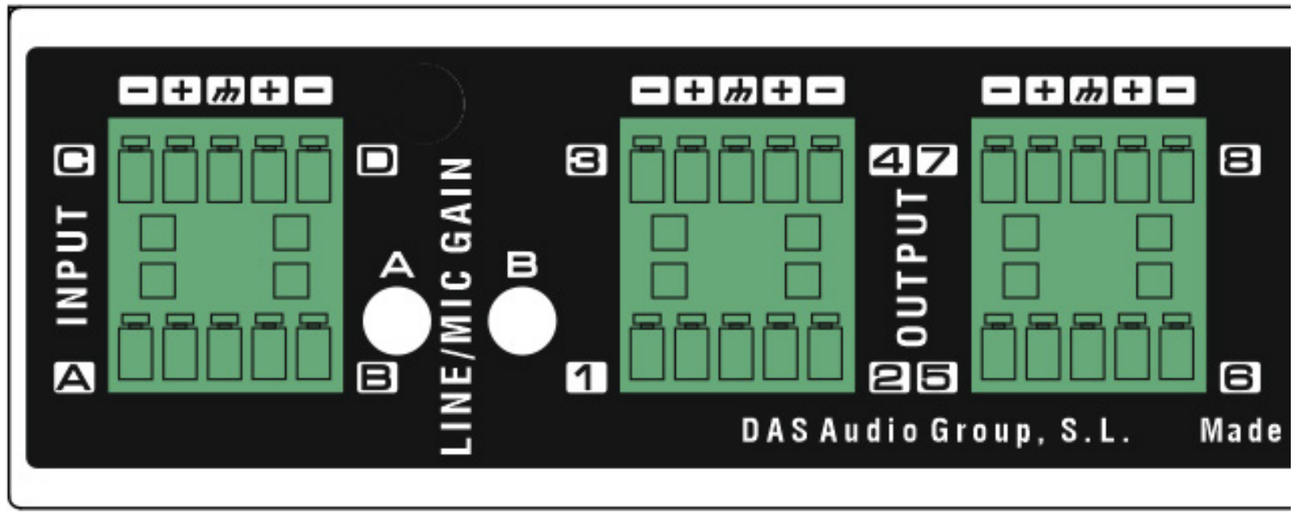
E **Mains**

F **ON / OFF Switch**



INTEGRAL
Analog audio connections

The M88 matrix includes 4 analog audio inputs named INPUT A, B, C and D. Input channels A and/or B can be used as microphone inputs. At the rear panel of the unit two independent gain controls are available for configuring the gain structure of these channels. When connecting line level signals to inputs A and B be sure that gain controls are set to the minimum.
Phantom power (12V) is available for the microphone inputs and could be activated via front panel with the navigation buttons or via ALMA.



The matrix M88 includes eight processed balanced analog audio outputs named OUTPUT 1, 2,....8.

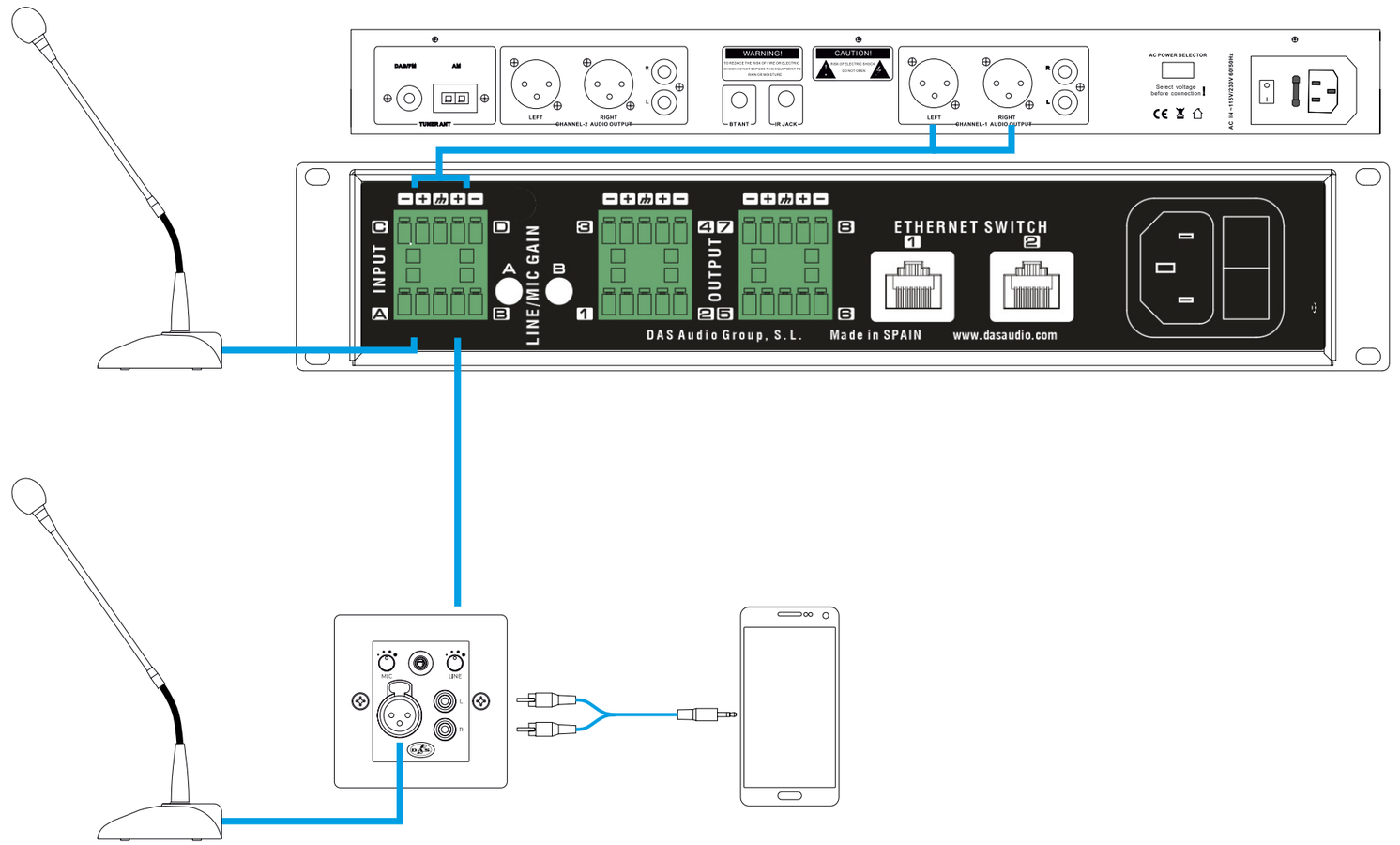
Each Output can have assigned up to two input priority sources (two levels).

Max analog output level +22dBu.
Max analog input level +22dBu.

INTEGRAL
Analog audio connections

Analog audio inputs

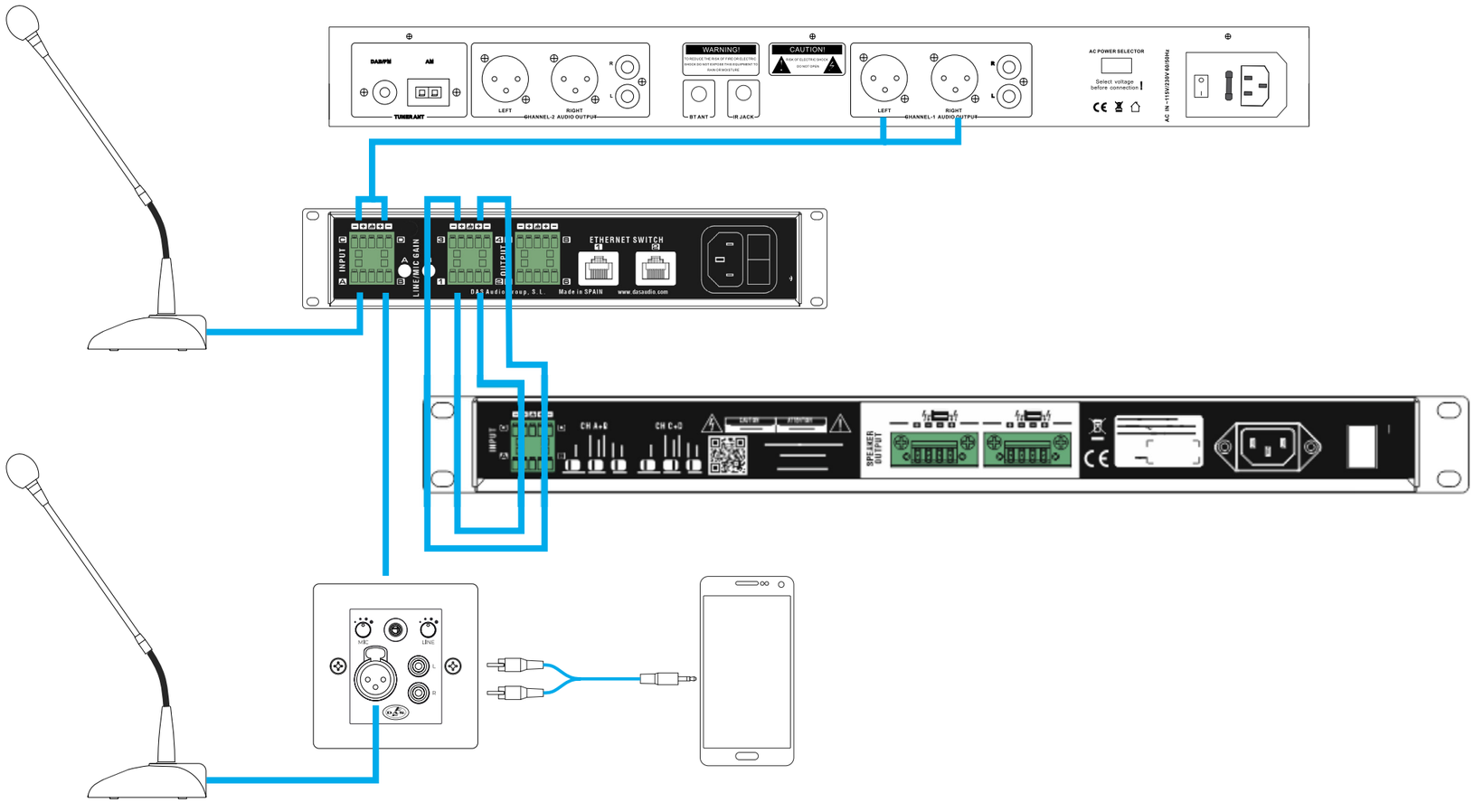
The connection of a 4 inputs channel system could be the following: an analog microphone directly connected to the Input A (remember to activate Phantom Power), a mono line signal connected from an INTEGRAL-WPM1 to the Input B and a Stereo Line input from INTEGRAL-AS1 or AS2 connected to Inputs C and D:



INTEGRAL
Analog audio connections

Analog audio outputs

In the figure below four analog outputs from the INTEGRAL-M88 have been used to send processed signal to four independent input channels of an INTEGRAL-A404.



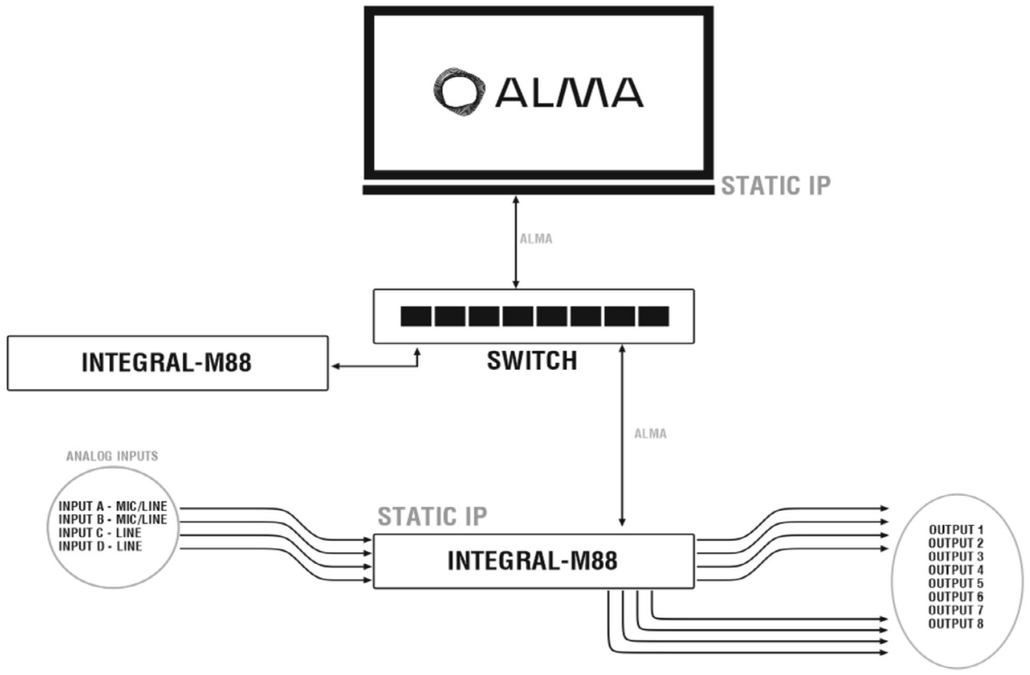
The INTEGRAL-M88 processing matrix includes two RJ45 connectors at the rear panel to permit IP connectivity of the unit. The ethernet connectors shall be used to connect the unit to a dedicated network switch or router. It is possible, as well, to connect directly the unit to a PC or Laptop. The network infrastructure will permit control of the unit by the use of ALMA and using DANTE digital Audio through the same cabling reducing the costs and complexity of the configuration.

The routing of digital audio channels between DANTE devices shall be configured with dante controller software (*https://www.audinate.com/products/software/dante-controller*). For more details consult the dedicated chapter in the present user´s manual.

The network connections and possibilities are very wide, here are shown the most common and convenient ones.

Static IP connection using an ethernet switch

The user could connect a PC or Laptop to several Integral units using an ethernet switch. Static IP addresses must be defined by the user for every single unit and the PC. Consult in the dedicated chapter of this manual how to define and change the IP address of an INTEGRAL-M88. With this configuration no DANTE channels could be routed as DANTE would need a Router to set IP addresses in dynamic mode.

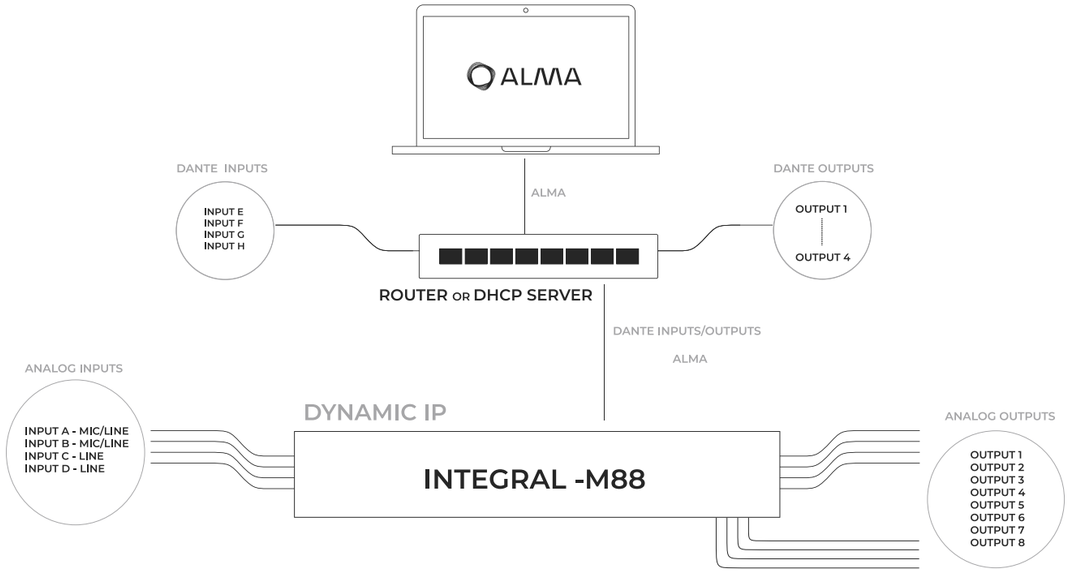


With this configuration no DANTE channels could be routed as DANTE would need a Router to set IP addresses in dynamic mode.

Network connections

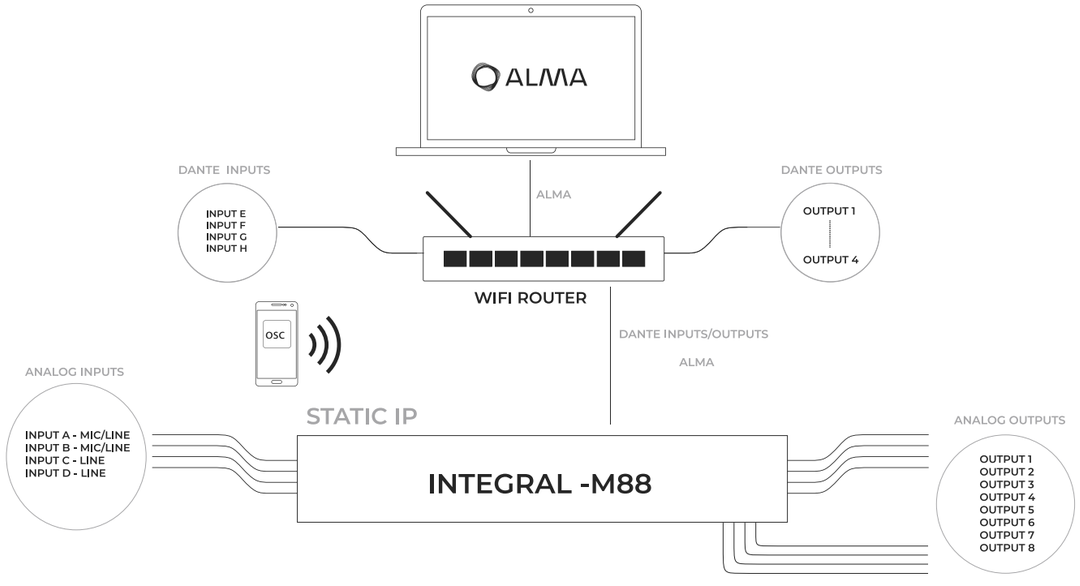
Dynamic IP connection using a DHCP server or a router

The connection between INTEGRAL units and the PC is done by the use of an ethernet router or a DHCP server. ALMA and DANTE can be configured with this option:



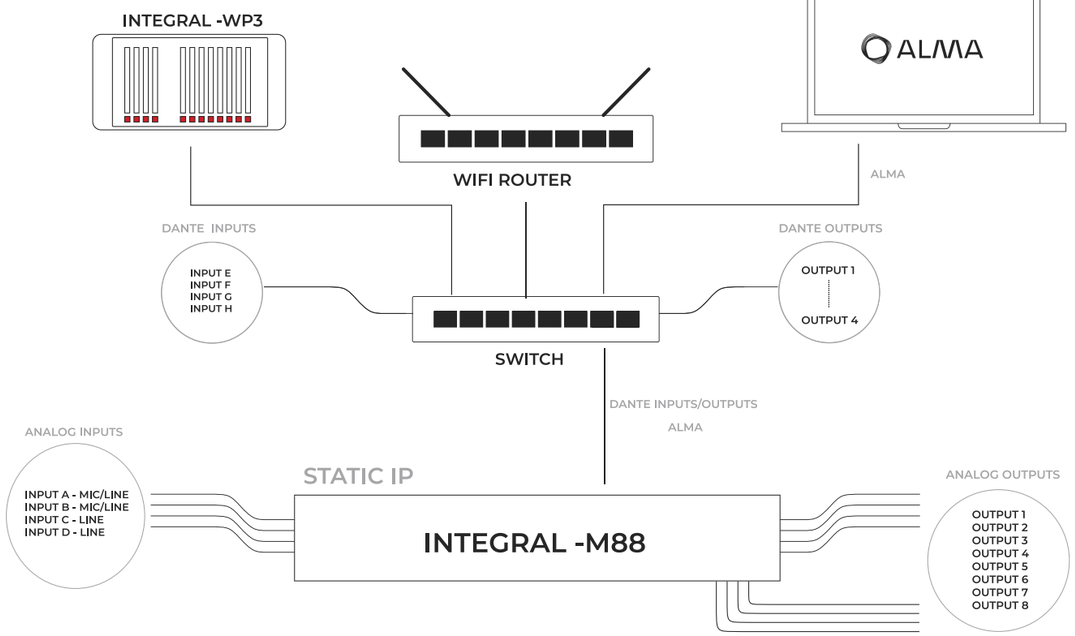
Dynamic IP connection using a DHCP server or a WIFI router OSC control

A WiFi router will assign automatically IP addresses to all the units present in the network. ALMA could be used via Wifi as well to configure the M88 unit. If DANTE Routing is needed connect the PC with a cable to the router. In this case OSC control is managed with an smartphone or tablet using the WiFi network.



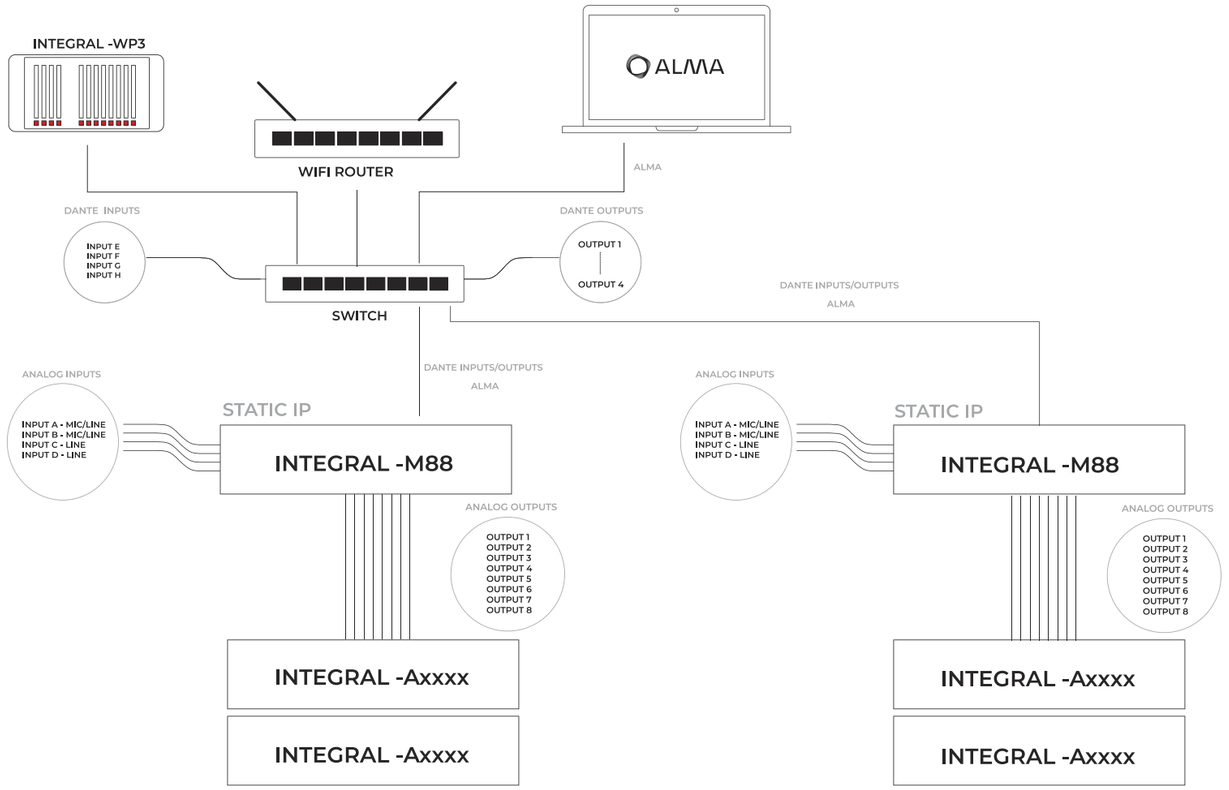
Dynamic IP connection using a DHCP server or a WIFI router
OSC control using WP3 panels (PoE)

The router will assign IP addresses automatically for the PC and WP3 panel(s). The user shall configure the M88 in static mode with an IP compatible with the range defined by the router. This static IP must be inserted in the WP3 to control the host unit (M88).



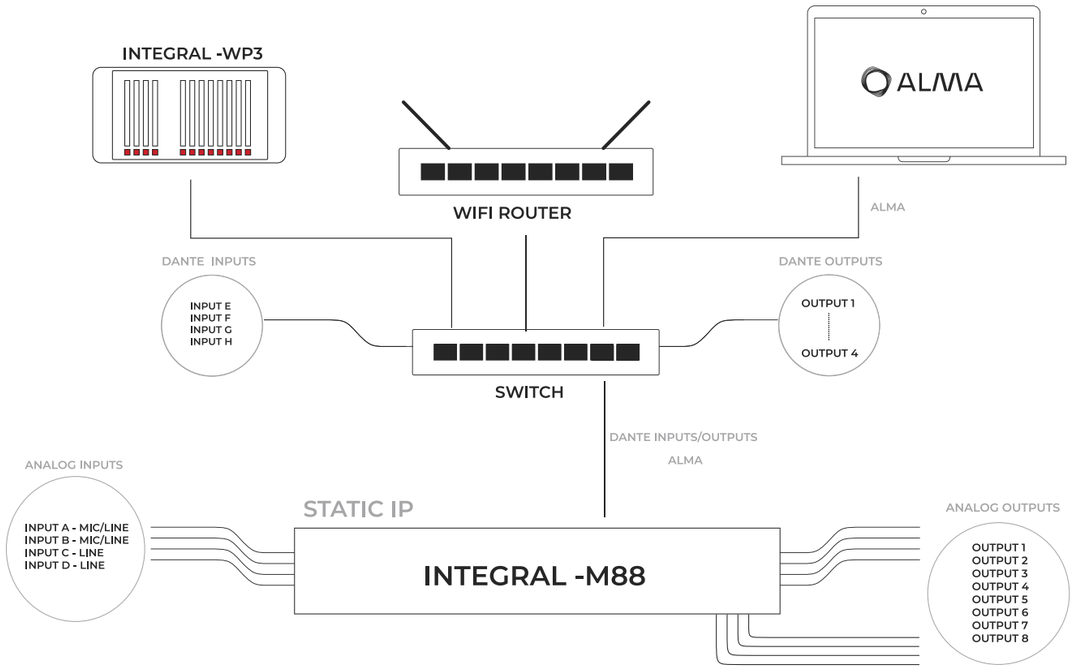
Multi Zone systems

The previous nextwork type can be expanded sending DANTE audio to other units allocated in a different space.



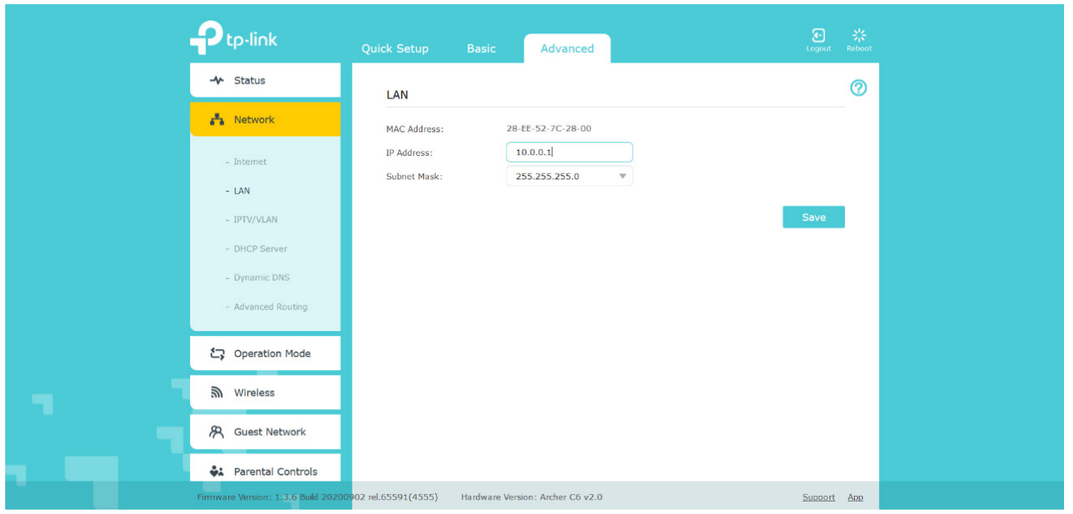
Setting up a local network

It is highly recommended to dedicate an independent network infrastructure for Dante audio distribution and control of integral units. A WiFi Router (in the sample below TP-LINK AC6) and a PoE ethernet Switch (NetGear GS308P or Cisco SG350P) are needed:



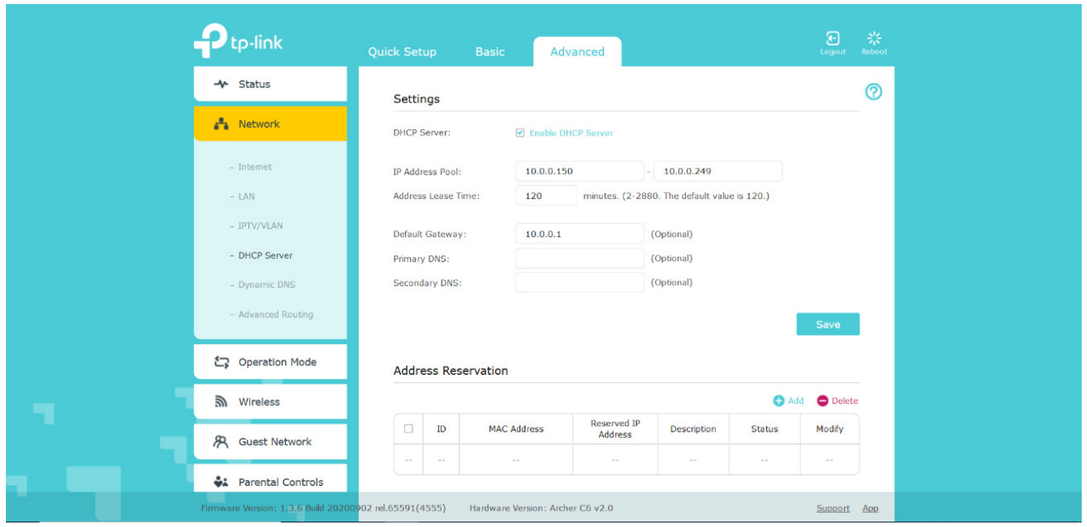
Router configuration:
Type 192.168.0.1 on the PC´s navigator to have Access to the router´s configuration menu. (if password is required consult the user´s manual of the router). Once inside the configuration menu go to Advanced Settings:

· Advanced Settings / Network / LAN change IP address to IP a 10.0.0.1 and SubNet Mask 255.255.255.0:

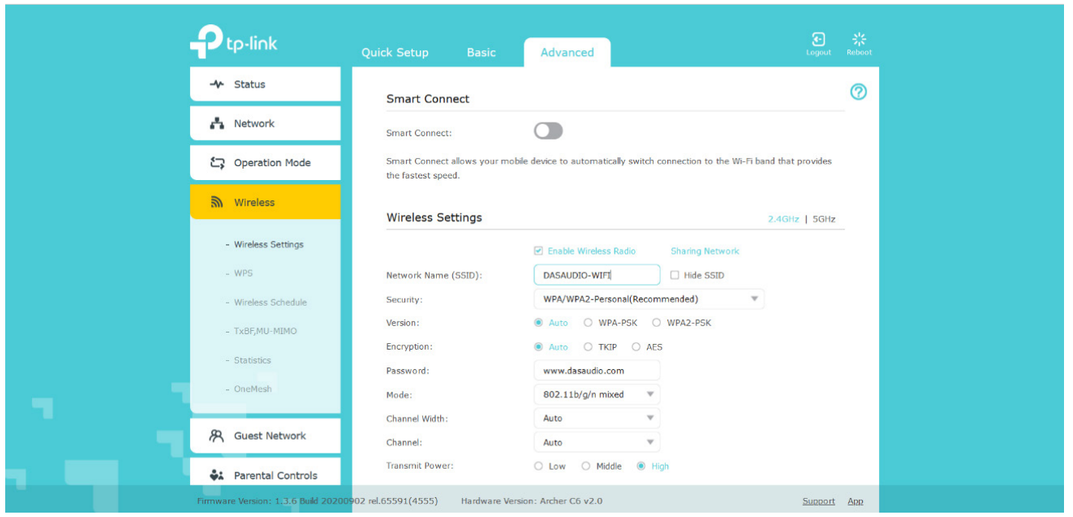


Setting up a local network

· Go to DHCP Server and Enable DHCP Server; configure the IP range of addresses from 10.0.0.150 to 10.0.0.249:



· Define a Name for the Wifi network in the WIRELESS menu; create a password for the Wifi network and for having access to the router´s configuration.



In the INTEGRAL-M88 an Static IP address shall be defined to be controlled by the WP3; for example, IP 10.0.0.101 Subnet Mask 255.255.255.0. By doing this the router will assign automatic IPs from 10.0.0.150 to 249 to all the devices connected to the network including the PC and the WP3. The Integral units shall use static IPs defined by the user in the range between 101 and 149: 10.0.0.101 – 10.0.0.149.

Configuration of Dante digital audio

This chapter is not intended to be an advanced DANTE digital audio management guide or a DANTE Controller user´s manual. For more detailed and complete information on DANTE Controller and network configurations consult resources on www.audinate.com

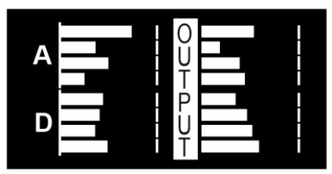
Each INTEGRAL-MAxxxx unit includes two RJ45 connectors on the rear panel for its control and monitoring with ALMA software and sending / receiving DANTE digital audio. Therefore, by using a single cable (minimum CAT5e) users can control the units and manage digital audio channels. The network infrastructure connected to the units for the use of ALMA will also be used to manage the DANTE channels; in this way it is possible to save on installation and wiring costs.

Each unit has 4 DANTE digital INPUT channels and 4 DANTE digital OUTPUT channels.

The routing of the DANTE digital audio channels (DANTE-1, DANTE-2, DANTE-3 y DANTE-4) between the different DANTE capable units present in the network has to be done using DANTE controller software:

https://www.audinate.com/products/software/dante-controller

DANTE Digital INPUT channels are shown on the display of the units (“D” stands for Digital INPUTS)



DANTE digital INPUT channels DANTE-1, DANTE-2, DANTE-3 y DANTE-4 are named INPUT E, F, G y H in the INTEGRAL-MA units.

Dante controller, channel routing

For routing the digital audio channels of the INTEGRAL-MAxxxx units it is necessary to use the DANTE Controller software and have the units connected through an ethernet switch, as a minimum. If ALMA is also going to be used as control software, it is recommended to use a DHCP server or connect the units to a Router.

DANTE Controller provides essential information regarding the status of each device (Device) on the audio network. Latency, the state of the clocks of each device, the bandwidth used with the transmission of digital audio are monitored in real time, any errors that have arisen can also be controlled in the event history.

Devices are automatically recognized by the software. In addition, the firmware version of each DANTE board located on the network is displayed. If necessary, the DANTE UPDATER application will be used to update the devices to the latest firmware version.

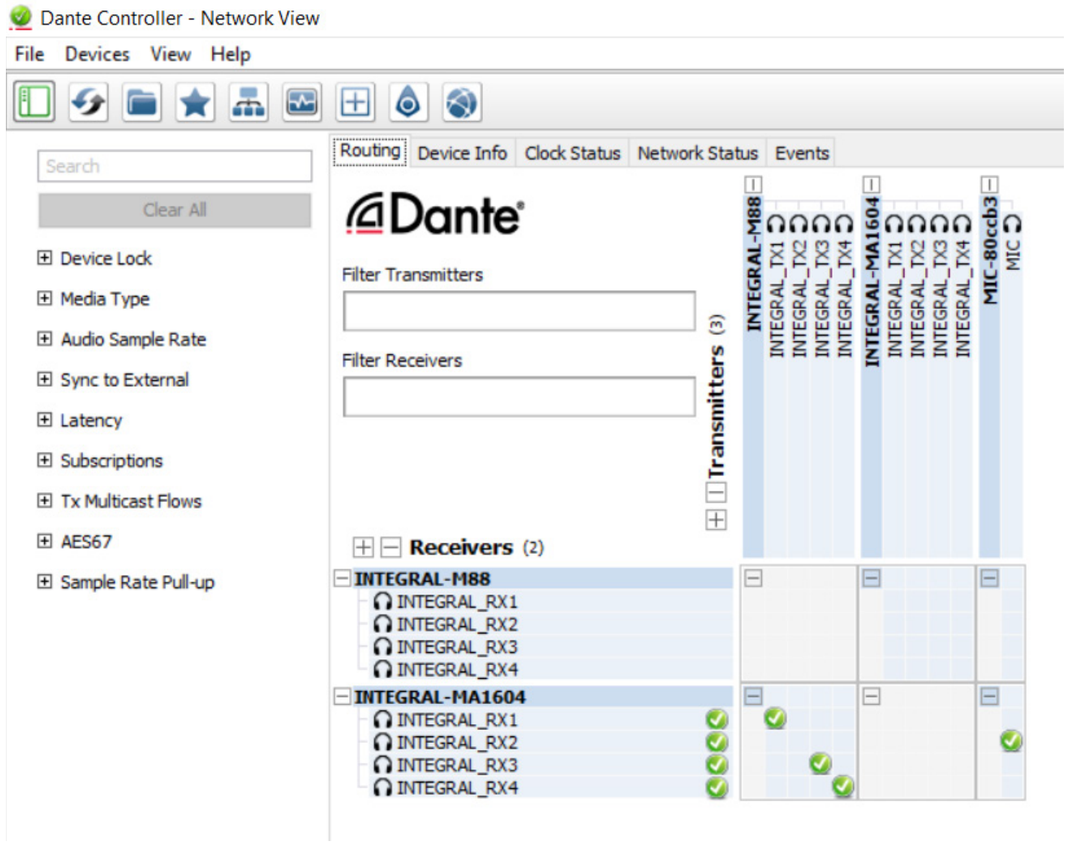
Dante Controller is available for Windows and macOS.

Configuration of Dante digital audio

Routing digital audio channels with DANTE Controller

1 Open DANTE Controller

2 The program will automatically discover all the units present in the network and will locate them on the main screen; If this is the first time you have connected them to the network, the names of the devices in DANTE could be like the ones shown below:



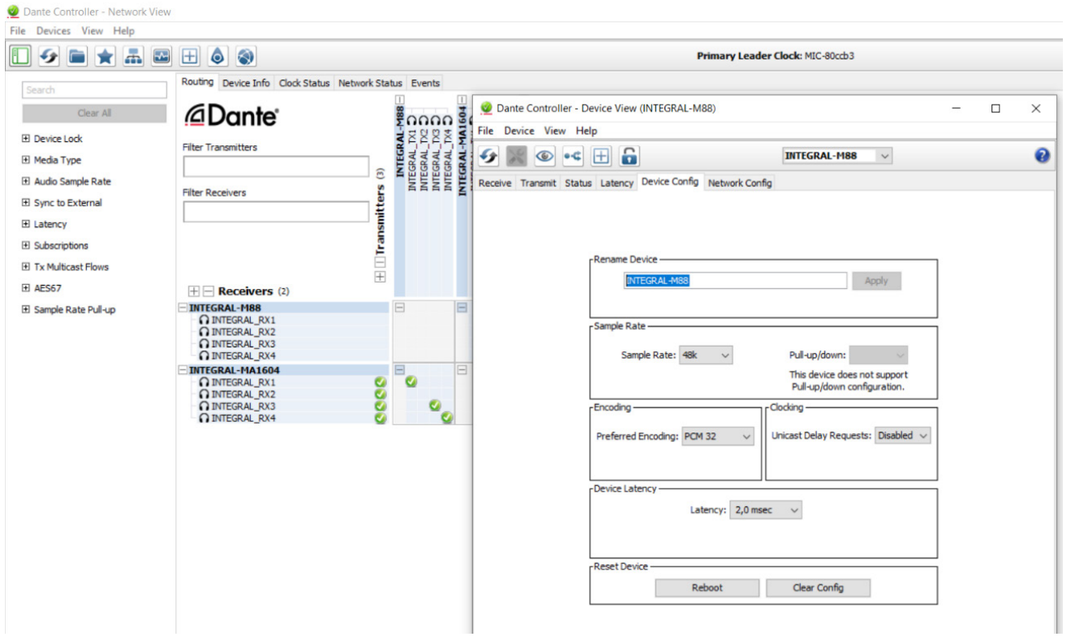
Note: If any device that should appear on the network is not detected by DANTE Controller, these could be the causes:

- The unit has no power or has not been turned on.
- The CAT5e or higher cable is defective or poorly connected.
- The unit is on a different subnet from the others.
- The unit is not able to synchronize with the other devices on the network.

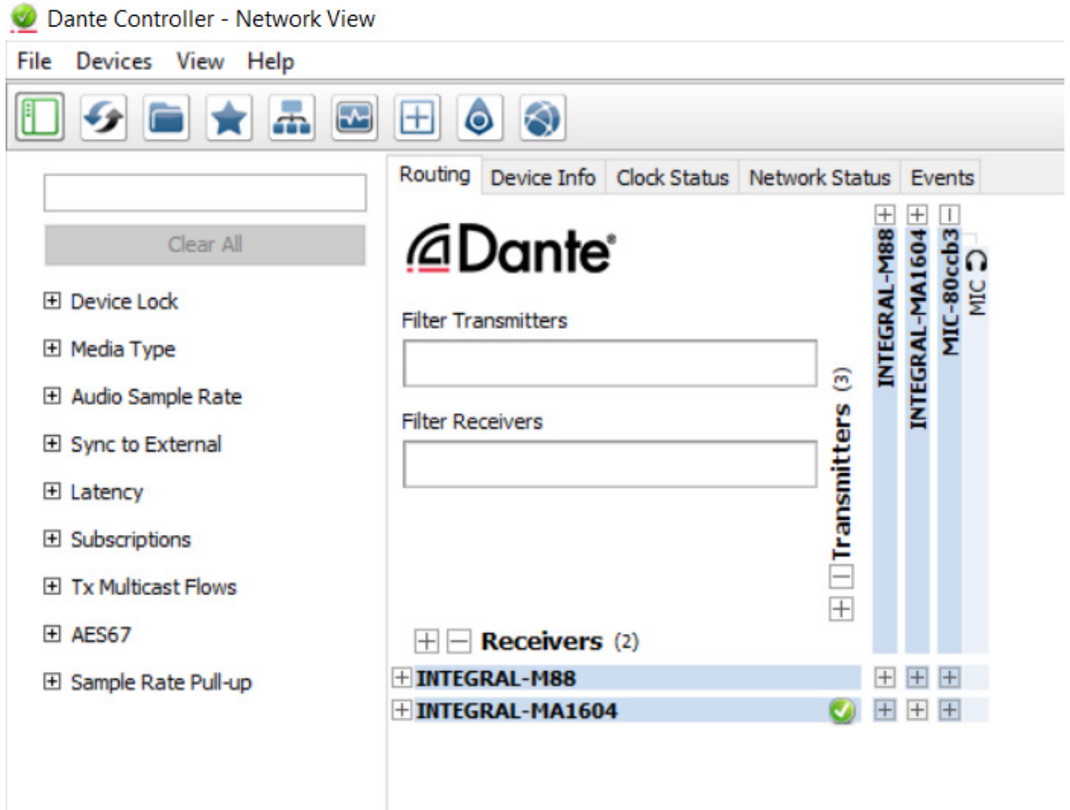
However, if the case of no connection was due to either of the last two reasons, the unit should appear at least in the “device Info” or “clock status” tabs. A quick solution to the problem is to power cycle the unit and reestablish the connection to the ethernet switch.

Configuration of Dante digital audio

Device names can be edited in the Device View tab (Ctrl + D):



As soon as the user confirms the name (which will not change unless it is edited again) the list of devices will be shown like this (in this case we have two MA models, a MA1004 and a MA1604 and a MC02 microphone):

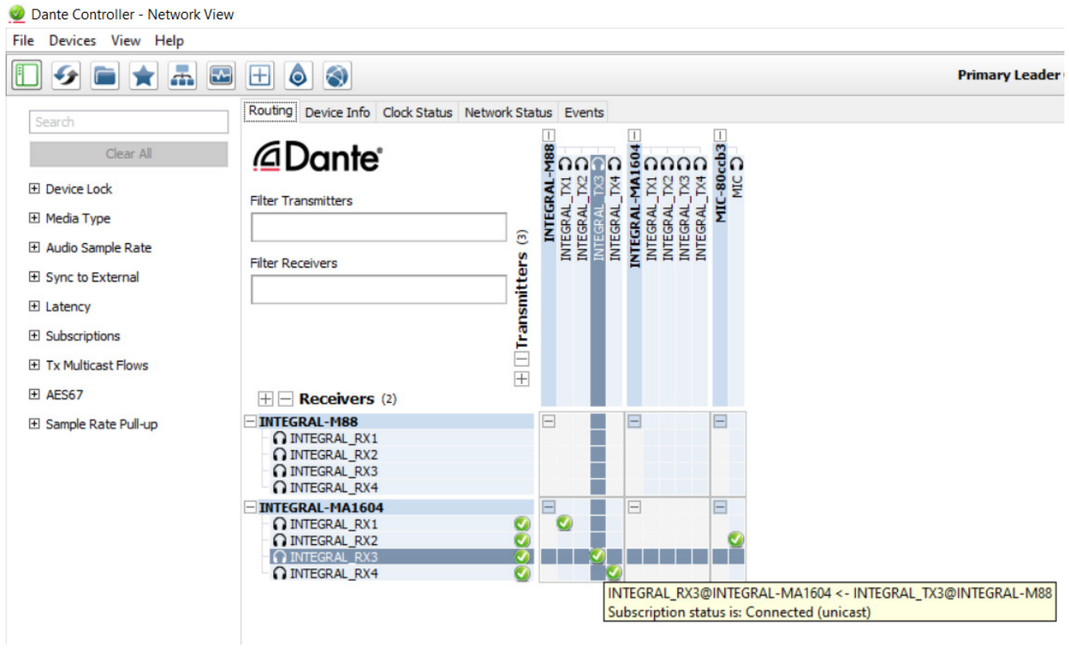


Transmitting devices and their channels appear on the top right, receiving devices and their channels appear on the bottom left.

3 Start routing the input and output channels of the different devices.

The ROUTING tab shows all the devices present on the network as well as their transmission channels (DANTE Transmitters; top right) and reception channels (DANTE Receivers; bottom left). Press ⊞ to expand those channels in the ROUTING window. The intersection of the channels that we want to link to each other must be marked. Remember that two transmit channels cannot be assigned to a single receiver channel. If we can instead, assign the same transmission channel to several receiver channels.

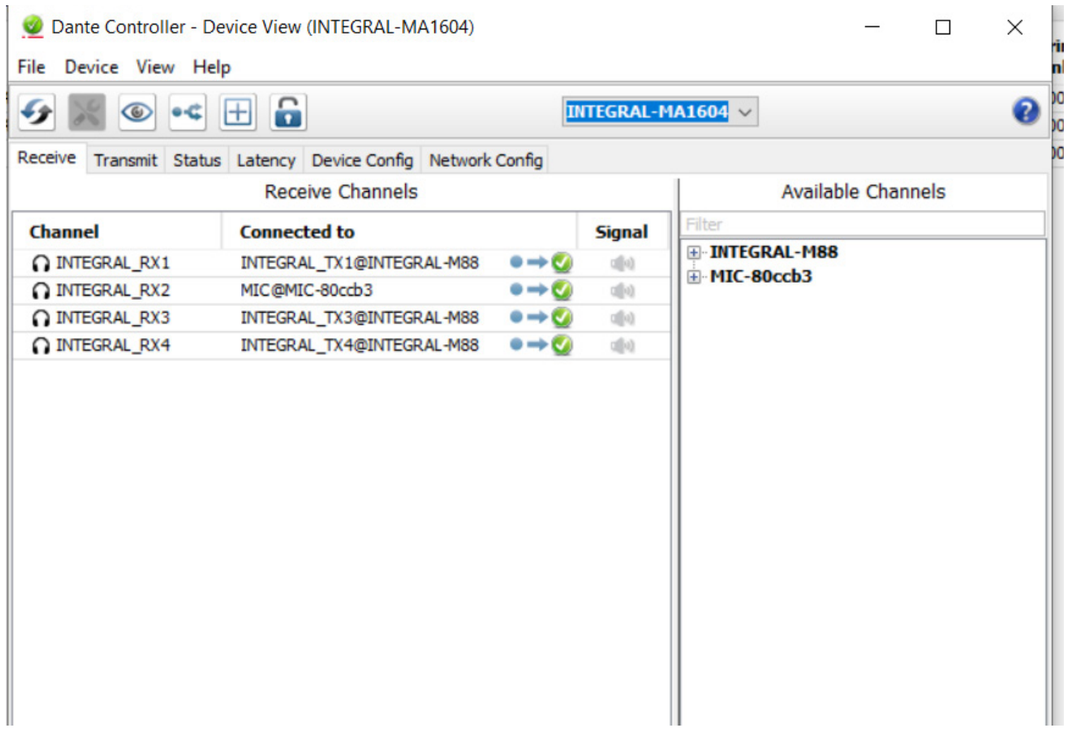
Wait for the box to show a green circle with the ✓ mark indicating that the audio channel assignment has been successful.



In the example above the MC02 microphone has been routed to DANTE RX2 (INPUTS F on the device) of the INTEGRAL-MA1604. In addition three audio channels from M88 have been routed to inputs E, G and H of the INTEGRAL-MA1604 (RX1, RX3 and RX4).

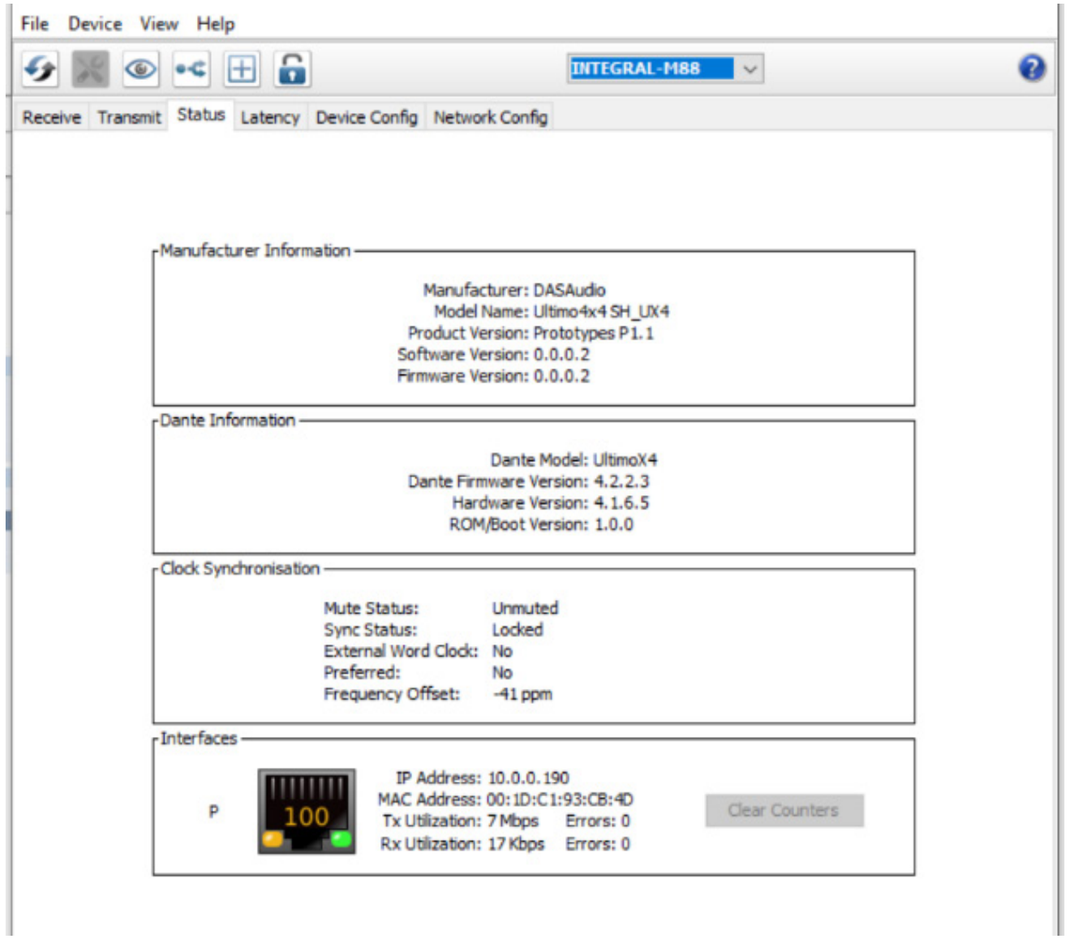
4 The names of the devices and other properties can be configured in the Device Vew window (Ctrl + D).

For example, within Device View on the Receive tab, we can check the active audio reception channels (the example MA1604 is shown):



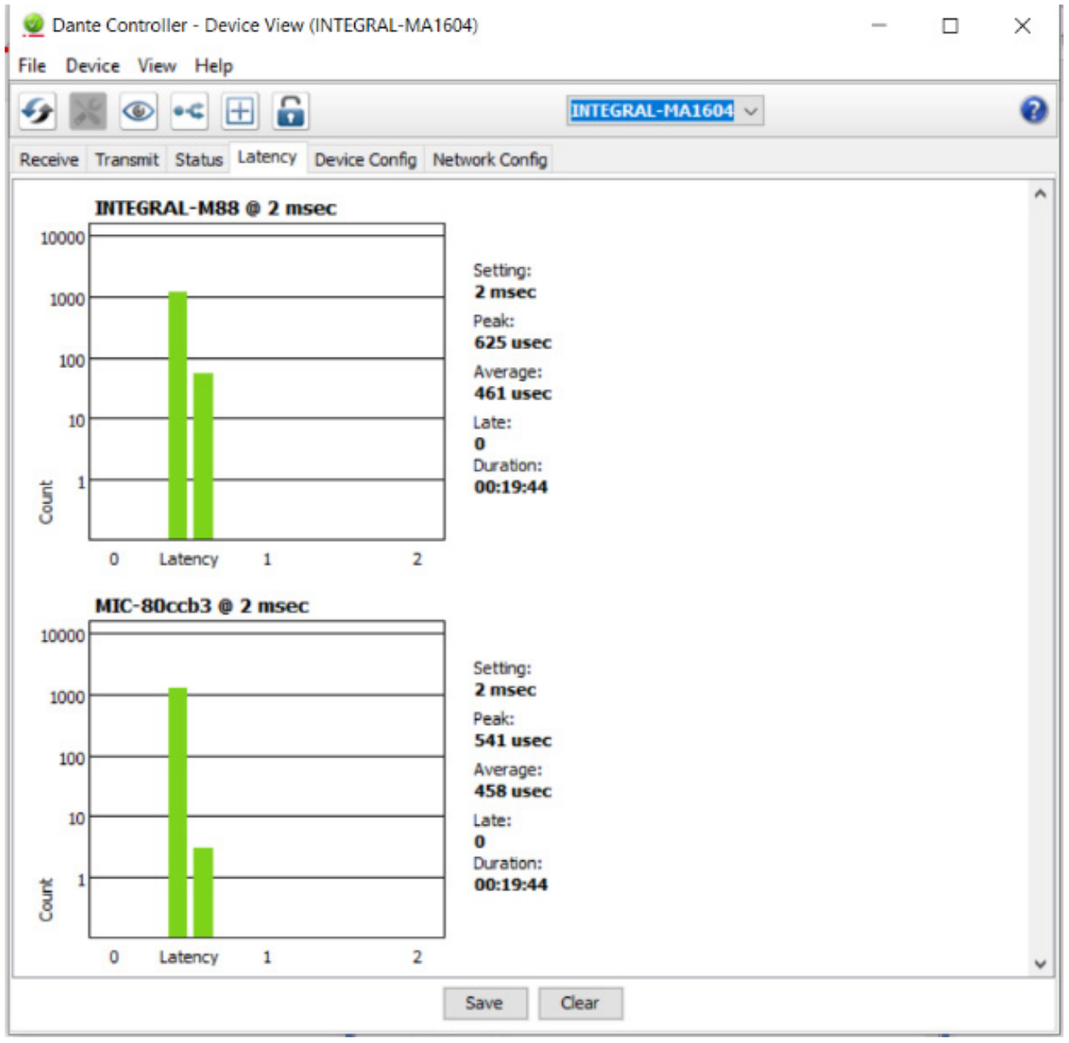
The transmission channels would appear in the Transmit tab (in the case of the MA1604 we have not configured any channel as a transmitter):

In the Status tab we can obtain information about the Dante chip used in the device, its firmware version, IP address, etc.

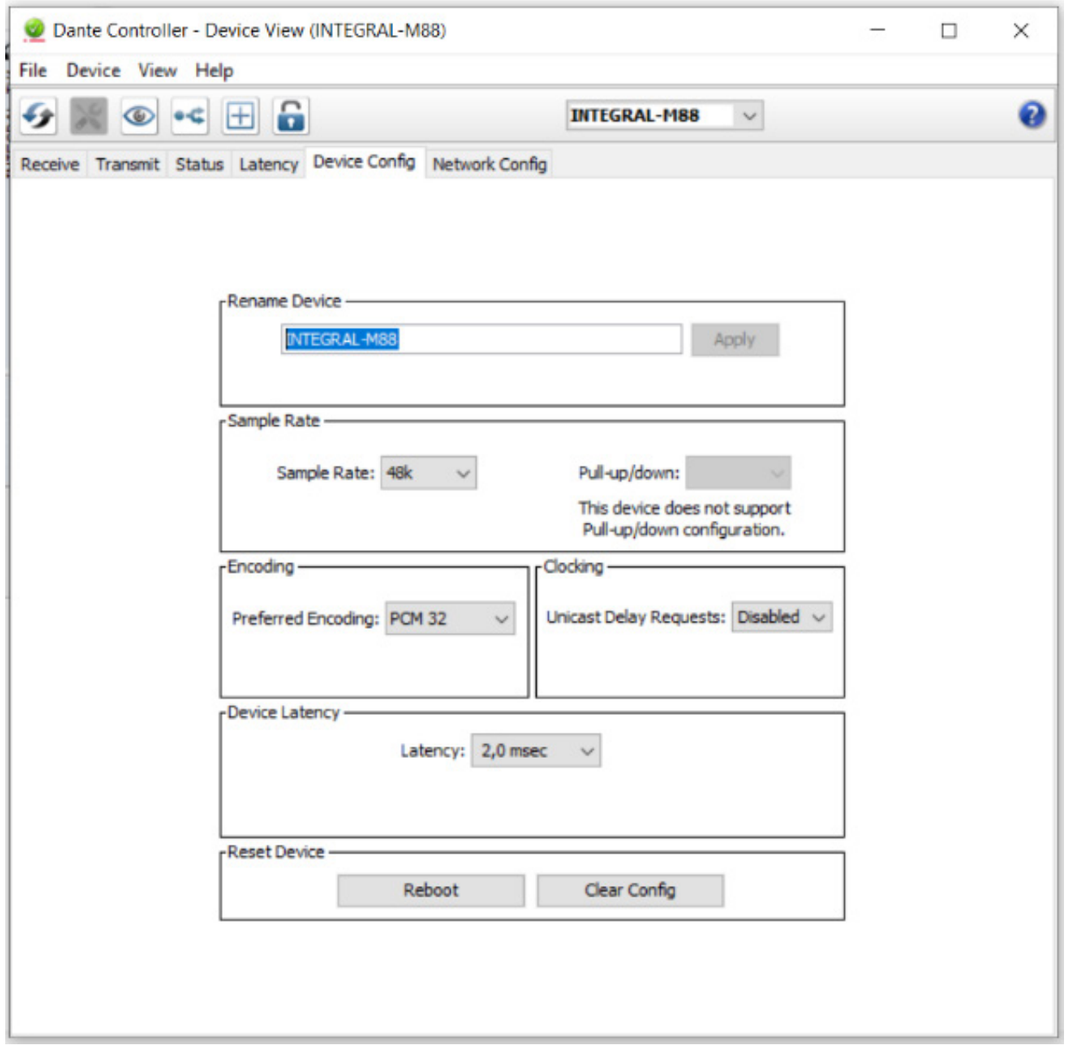


Configuration of Dante digital audio

In the Latency tab we can check the latency of the audio channels received from other devices. In this case Dante audio is received from INTEGRAL-MC02 and M88.

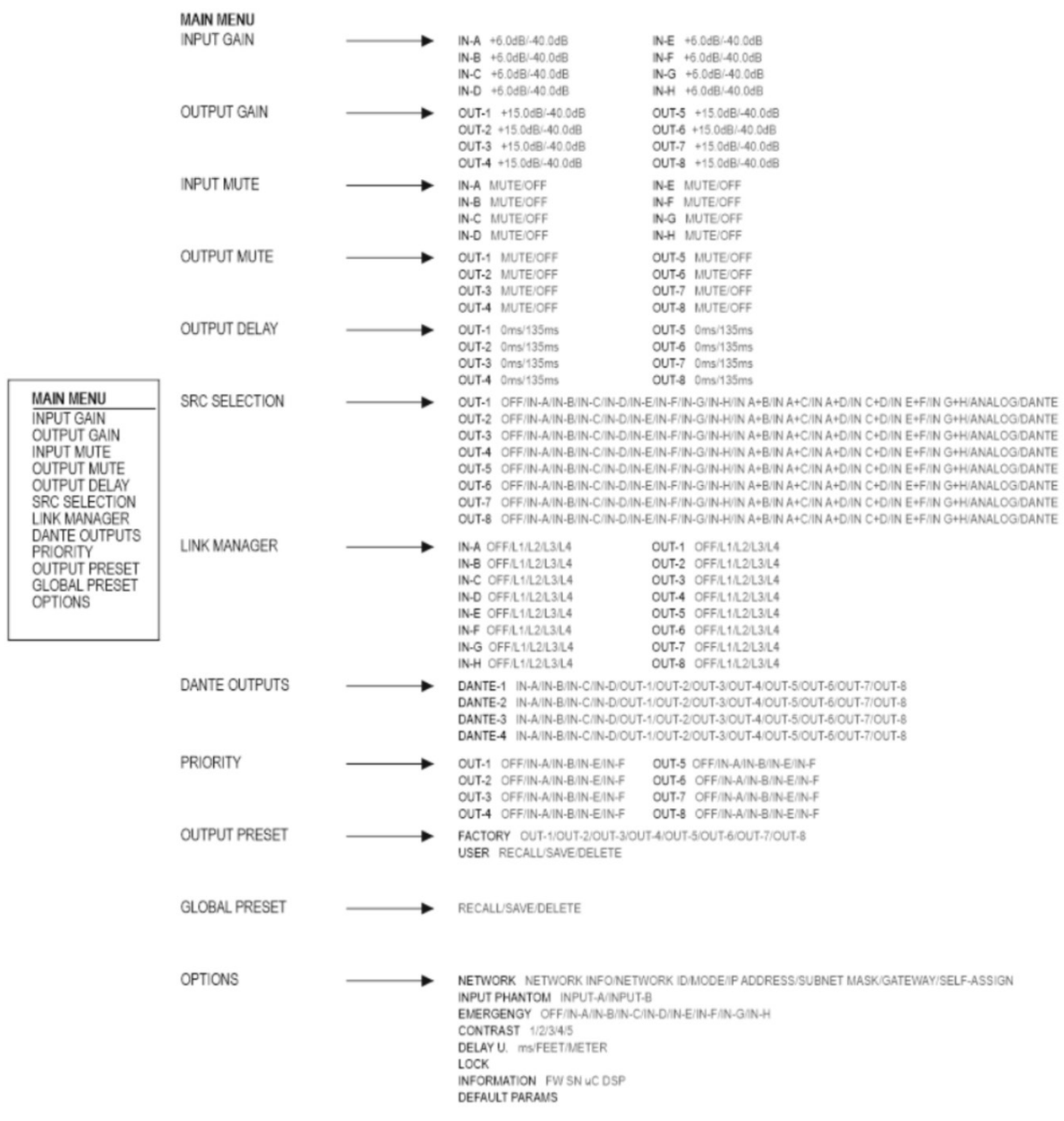


In the Device Config tab we can change the name and the sample rate (Sample Rate) of the DANTE chip. It is important to note that in order to link audio channels between devices, they must have the same sample rate.



Front display - Menu and navigation

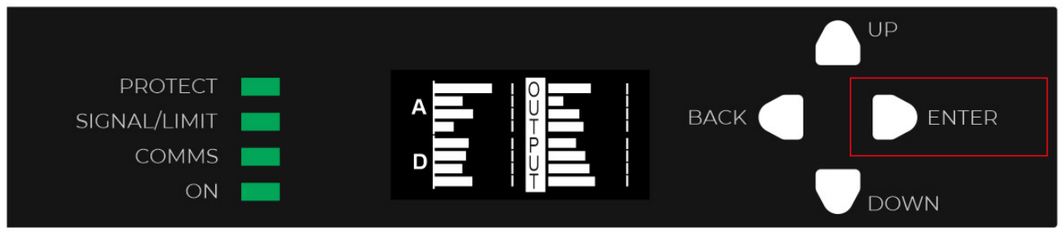
The INTEGRAL-M88 units include an 1.54 ”OLED front display accompanied by a keypad to access each of the different options. The following is a general outline of the options accessible from the front panel of the product:



By the use of ALMA control software it is possible to access more complex and advanced options. In these cases a message saying “ALMA” will be displayed. For example, in the SRC Selection and Priority menus there exit more configuration options using the control software. Thus, when in the input matrix or SRC selection (Source Selection) the gain values of the input channels assigned to each output are different from zero, a message will appear on the display showing “ALMA”. In the same way, when an output has been assigned two priority input channels, the display (in the priority menu) will show the message “ALMA”.

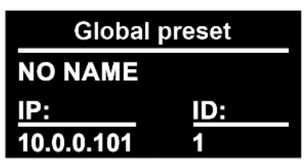
Front display - Menu and navigation

Navigation through each of the MAIN MENU options can always be done using the keypad located next to the screen on the front panel. To enter the menu (MAIN MENU) from the main screen, press the ENTER key.



By pressing the “BACK” knob the display of the unit will be switched off:

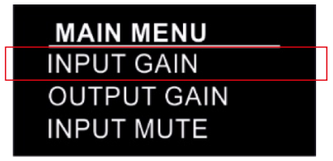
By pressing the “DOWN” knob user will have quick Access to IP current address, ID number and active global preset:



Once the ENTER key has been pressed, the MAIN MENU will appear on the screen with all the previously listed submenus (INPUT GAIN, OUTPUT GAIN, ……., Etc):

To enter any submenu navigate to it with the UP / DOWN keys and press ENTER. To exit each submenu, press the BACK key:

ENTER for selection



UP / DOWN
for navigation

Front display - Menu and navigation

INPUT GAIN

Select within this menu with the UP / DOWN keys the channel on which you wish to act; once on the desired channel, press ENTER. Adjust gain with the UP / DOWN keys. For each input channel the gain can be adjusted in 0.1dB steps between + 6dB and -40dB. By holding down the UP / DOWN keys, you can quickly increase or decrease the gain value.

OUPUT GAIN

Select within this menu with the UP / DOWN keys the channel on which you wish to act; once on the desired channel, press ENTER. Adjust gain with the UP / DOWN keys. For each output channel the gain can be adjusted in 0.1dB steps between + 15dB and -40dB. By holding down the UP / DOWN keys, you can quickly increase or decrease the gain value.

INPUT MUTE

Select within this menu with the UP / DOWN keys the channel on which you wish to act; once on the desired channel, press ENTER. Activate or deactivate MUTE with the UP / DOWN keys. Remember that the OFF position indicates that the channel is NOT muted.

IMPORTANT: Even if an input channel is muted, the level meter of that channel will continue to show signal presence (PRE-MUTE).

OUTPUT MUTE

Select within this menu with the UP / DOWN keys the channel on which you wish to act; once on the desired channel, press ENTER. Activate or deactivate MUTE with the UP / DOWN keys. Remember that the OFF position indicates that the channel is NOT muted.

IMPORTANT: even if an output channel is in MUTE mode, the channel's level meter will continue to show the presence of a signal on the front display (PRE-MUTE). Only if the input channel that is routed to the output channel is muted the output level meter will stop signaling the presence of a signal.

OUTPUT DELAY

Select within this menu with the UP / DOWN keys the channel you want to act on; once on the desired channel, press ENTER. Adjust the delay with the UP / DOWN keys. For each output channel gain can be adjusted in steps of 1ms / 0.1m / 1ft between 0ms and 135ms (0m and 46.3m, 0ft and 152ft). By holding down the UP / DOWN keys you can increase or decrease the delay value quickly.

Front display - Menu and navigation

SRC SELECTION

Select within this menu with the UP / DOWN keys the output channel on which you want to act; once in the channel press ENTER. Select within the chosen channel each of the inputs that you want to assign to the channel with the UP / DOWN keys. Through the front panel, all inputs assigned to an output channel (AMP or AUX) will do so with the defined gain of each input channel. For example, if for the AMP-1 output channel we want the inputs to be IN A + B, and previously in the INPUT GAIN menu we have defined IN-A 0dB, IN-B -6dB, AMP-1 will have as signal input the sum of the two channels A and B but with the volume of input B attenuated 6dB. Remember, if the input channel selection for an output is OFF, nothing will be assigned to that output channel.

For all output channels (AMP-1,2,3,4 and AUX-1, 2, 3, 4) these are the options and combinations of inputs available from the front panel:

OFF: no input assigned

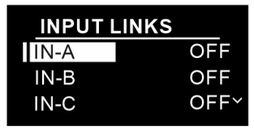
IN-A: only channel A
IN-B: only channel B
IN-C: only channel C
IN-D: only channel D
IN-E: only channel E
IN-F: only channel F
IN-G: only channel G
IN-H: only channel H
IN A+B: sum of channels A y B
IN A+C: sum of channels A y C
IN A+D: sum of channels A y D
IN C+D: sum of channels C y D
IN E+F: sum of channels E y F
IN G+H: sum of channels G y H
ANALOG: sum of all analog input channels, A, B, C y D
DANTE: sum of all digital input channels E, F, G y H

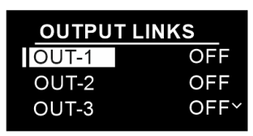
Remember that to have access to the input-output matrix with advanced gain settings for each input, you must connect the unit to the network and define the settings with ALMA software. The combinations of channels A + C and A + D are useful for example to add, in an output channel, a microphone input (typically connected to input A or B, where “Phantom Power” is available) and a line input (channel C or D).

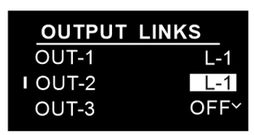
The priority input channels we need to assign to each output do not need to be routed from the SRC Selection menu. For example, if in the AMP-1 output channel we have selected the sum IN A + B as input sources and we want input E (DANTE-1) to have priority, it will not be necessary to select IN-E as the input channel of AMP-1 from the SRC Selection menu. All you have to do is select IN-E as the assigned priority input for the AMP-1 channel in the Priority menu.

LINK MANAGER

The input and output channels can be grouped into groups. In this way all the grouped channels will share all the settings (gain, delay, equalizations, filters etc). There is a maximum of 4 groups available for all outputs, named L-1, L-2, L-3, L-4. By default, in the unit the output channels are not assigned to any group (OFF).
When there are different processing parameters in two different output channels, for example OUT-1 and OUT-2 and they are grouped in a link, for example, L-1, the last selected channel will modify its processing parameters and inherit those of the first. Therefore, when making LINK groups, it is always recommended to first select the channel whose parameters should prevail.







Select within the LINK MANAGER menu with the UP / DOWN keys the channel on which you wish to act; once in the channel, press ENTER. This chosen channel must be the channel whose parameters we want to copy to the others. With the UP / DOWN keys assign the name of the LINK or group you want for this channel (for example, we selected AMP-1 and L-1). Press BACK and return to the LINK MANAGER menu. Select within the LINK MANAGER menu other channel (s) (in this case AMP-2) that you want to add to the previous group by pressing ENTER to select the channel and then UP / DOWN until the name of the group chosen previously is selected.

Groups created with this tool are stored in the global presets as an extra parameter when saving a memory.

DANTE OUTPUTS

The INTEGRAL-M88 matrix units can feed up to 4 channels of DANTE digital audio into the network. These output channels from the amplifier to other elements of the network can be processed. The user can independently select for each digital output channel (DANTE-1, 2, 3 and 4) its processing. In the DANTE Outputs Menu, the options are the following:

· Each DANTE channel can be copied from any analog input channel (IN A, B, C and D). In this way, for example, it is possible to have four analog inputs in one unit and inject them into the network as four digital channels.

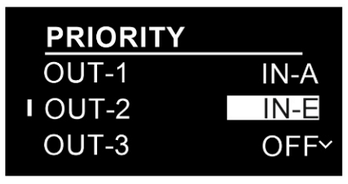
· Each DANTE channel can be a copy of any processed output channel (OUT-1, OUT-2, OUT-3, ...OUT-8).

Remember, to select the channel you want to work with, press UP / DOWN until you find it and then press ENTER. Once in the channel with the UP / DOWN keys select the source for the DANTE channel. To return to the previous menu press BACK.

PRIORITY

Each of the 8 outputs (OUT-1, 2, 3, 4, 5, 6, 7 y 8) of the processor included in the INTEGRAL-M88 unit can have up to TWO priority levels. The priority channels available will be IN-A, IN-B, IN-E, IN-F; that is, two analog and two digital, with a maximum of 2 per output channel.

By front menu and display you can only choose ONE priority level for each output channel. For advanced settings such as double priority level per output channel, “threshold”, “release”, “attack time”, “gain reduction” etc, ALMA should be used.

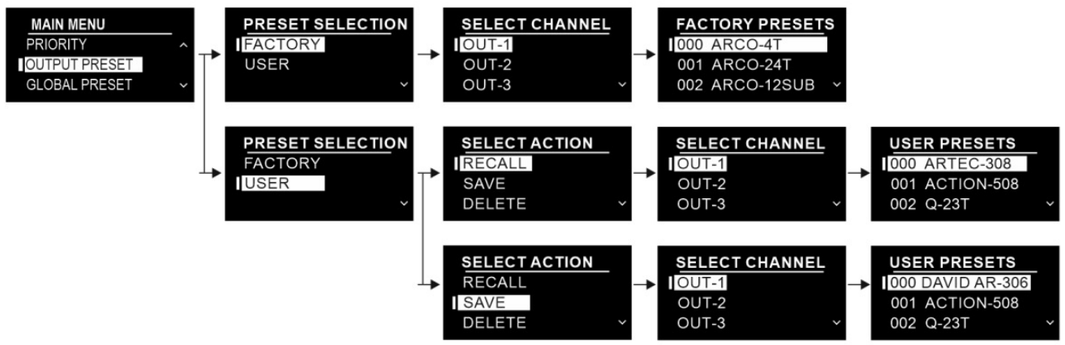


The priority input channels of each output do not need to be routed from the SRC Selection menu to that output. For example, if in the OUT-1 channel we have selected the sum IN C + D as input sources and we want input A (IN-A) to have priority, it will not be necessary to select IN-A as the input channel of OUT-1 from the SRC Selection menu. All you have to do is select IN-A as the assigned priority input for the OUT-1 channel in the Priority menu.

Front display - Menu and navigation

OUTPUT PRESET

DAS Audio provides within the local memory of each device a collection of presets per system model (Output presets). For example, we will find presets for systems ARCO-4T, ARCO-24T, Q-3T, Q-23T, Q-43T, Q-10, ARTEC-306, ARTEC-308, ARTEC-310 etc. In this way the user will be able to load individual presets for each output channel and thus create a global preset for installation.



There is, as we have said before, a bank of factory presets (FACTORY) for each DAS system model intended for the installation market (CL, ARCO, Q, ARTEC300, ARTEC500, HQ, WR series, etc.). The navigation structure within the Output Preset menu is as follows:

There are two options within the OUTPUT PRESET menu, load a factory preset (FACTORY) or load / save / delete a user preset (USER).

In the case of wanting to assign a manufacturer preset to an specific output, we must select the FACTORY option with the ENTER key. Once inside the FACTORY sub-menu with the UP / DOWN keys we select the output channel in which we want to upload the preset. In this case AMP-1, we press ENTER. The next screen will offer us the internal list of available presets. We must choose with the UP / DOWN keys the preset that interests us, in this case ARTEC-308 and then press ENTER.

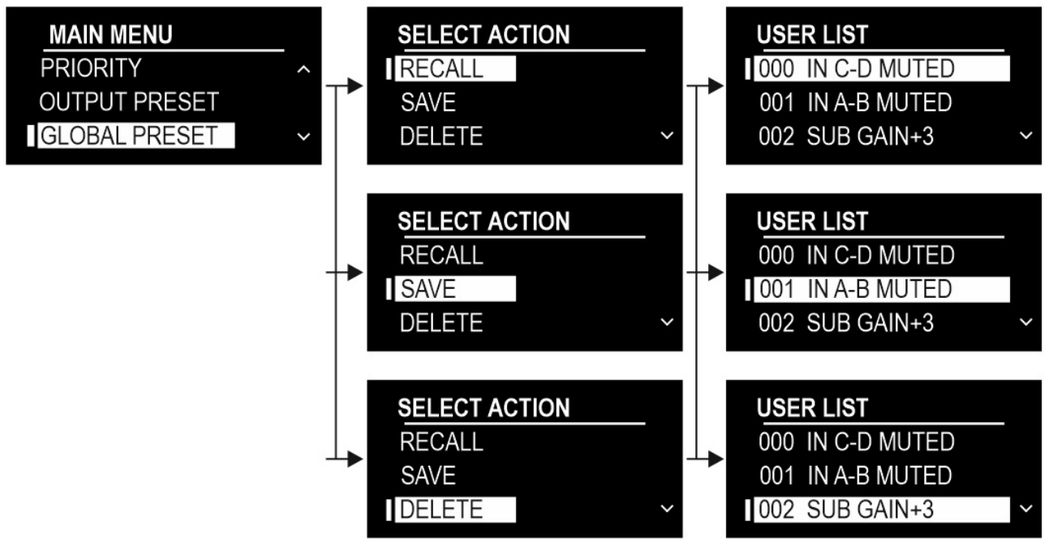
The user can create his own presets starting from the factory presets. In this case, for example, you could load a factory preset, say the ARTEC-308, add some equalization and / or gain change and save (SAVE) that preset as a user preset (USER). To carry out this action, once the preset has been created, you must go to the USER menu, select the SAVE option, press ENTER, select the channel where you want to save the preset, press ENTER and finally select the name you want to give the preset, in this case DAVID AR-306.

To recall a user preset (RECALL) in an output, the order of actions is very similar to the previous one and is described in the previous image. (RECALL□AMP-1□ARTEC-308). Finally, user presets can also be deleted by selecting the DELETE option in the SELECT ACTION menu. We will only hav→to selec→ (with the UP / DOWN keys) within the list of user presets that we want to delete and press ENTER.

Front display - Menu and navigation

GLOBAL PRESET

When the user has created their combination of output presets (OUTPUT PRESET) per output channel, they must save these global settings in the memory of the device. To do this, you must use the GLOBAL PRESET menu. Within this menu you can save memories (SAVE), recall them (RECALL) or delete them (DELETE):

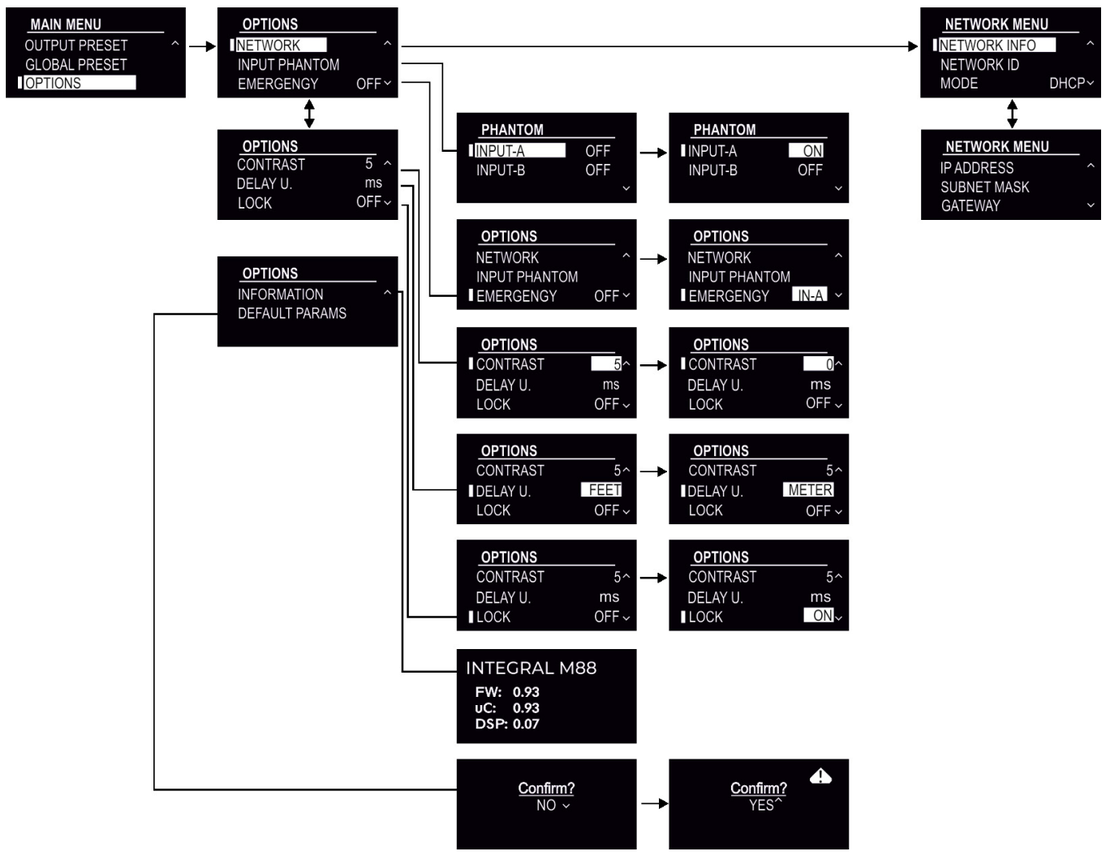


Navigate with the UP / DOWN keys within each sub-menu and select the desired option with ENTER. The GLOBAL presets save in addition to the information previously loaded in the output channels (OUTPUT PRESET), the signal routes (SRC SELECTION), the priority, the output delays, the assignment of DANTE output channels, input / output MUTES etc. that is, they save all the parameters.

Front display - Menu and navigation

OPTIONS

From the options menú the user can access to different configuration settings of the unit such as Network preferences, input Phantom, unit Locking etc:



· In the PHANTOM menu, 12V power can be activated for INPUT A and/or INPUT B. Remember to use only phantom power when having paging condenser microphones connected to these inputs. Never use phantom power when using line level inputs. Use the two rear gain controls to adjust microphone´s input gain.

· In the Emergency menu any input can be assigned as a permanent priority input (release time = infinity). Once activated, when signal level is detected all audio inputs will be muted except emergency input. To exit from the Emergency Status the user will need to press Enter in the front display of the unit.

· In the CONTRAST menu, the display´s contrast can be adjusted from 0 to 5.

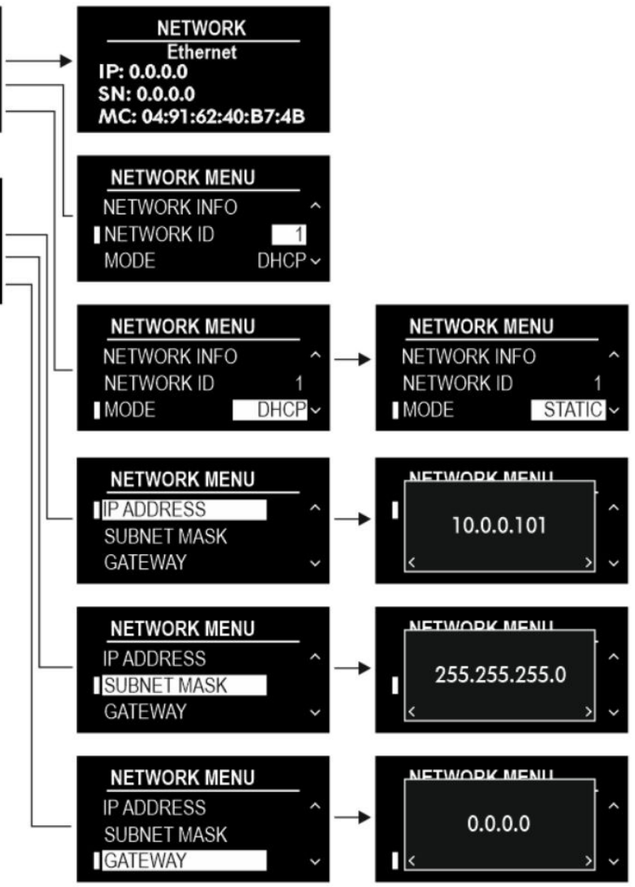
· In the DELAY UNITS menu the user can select between miliseconds, meters and feet.

· The unit can be locked by entering in the LOCK menu and selecting the ON option. When engaged, the unit will automatically need a password to be unlocked. Password will be 0292.

· In the INFORMATION menu relevant data related to firmware version will be displayed.

· With the DEFAULT PARAMS menu the user can reset the unit. All active settings including gain levels, mutes, Xovers, EQs, routings etc. will be lost leaving the unit with all channels muted and flat, without any routing. All global presets and user memories will be kept.

Front display - Menu and navigation



· In the NETWORK MENU information related to the IP address is shown. Besides this, the user can define new parameters for the network configuration. IP address can be redefined and changed from static to dynamic and vice versa.

NETWORK INFO shows the active IP address of the unit, the subnet mask and the gateway.

NETWORK ID is the numerical identifier of the unit. Range goes from 1 to 256. It is important, before connecting the unit to a network with more units, to define a unique ID number for all of them.

In the MODE sub menu, the IP assignment can be changed from DHCP (automatic) to STATIC. When engaging static mode the user shall define the IP address, Subnet mask and gateway.

What is OSC? (Open Sound Control)

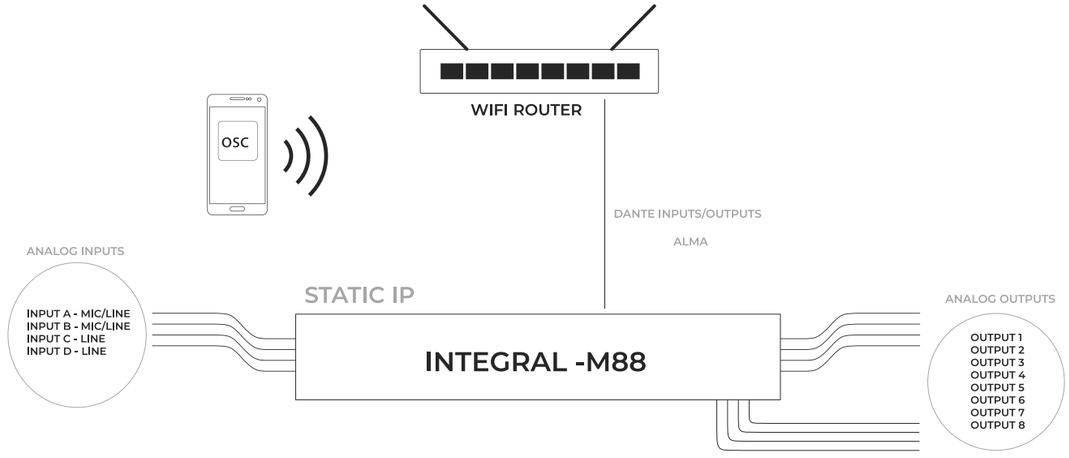
OSC is a communication protocol between hardware and software that permits the adjustment and control of basic parameters of INTEGRAL-M88 / MA units from computers, tablets, smartphones or DAS Audio INTEGRAL-WP3 wall panels. Setting input and output mutes, input and output gain levels and recalling memories containing different configurations is very fast and easy by the use of OSC.

The application TouchOSC needs to be installed in the mobile devices or computers in order to control the units.
https://hexler.net/touchosc

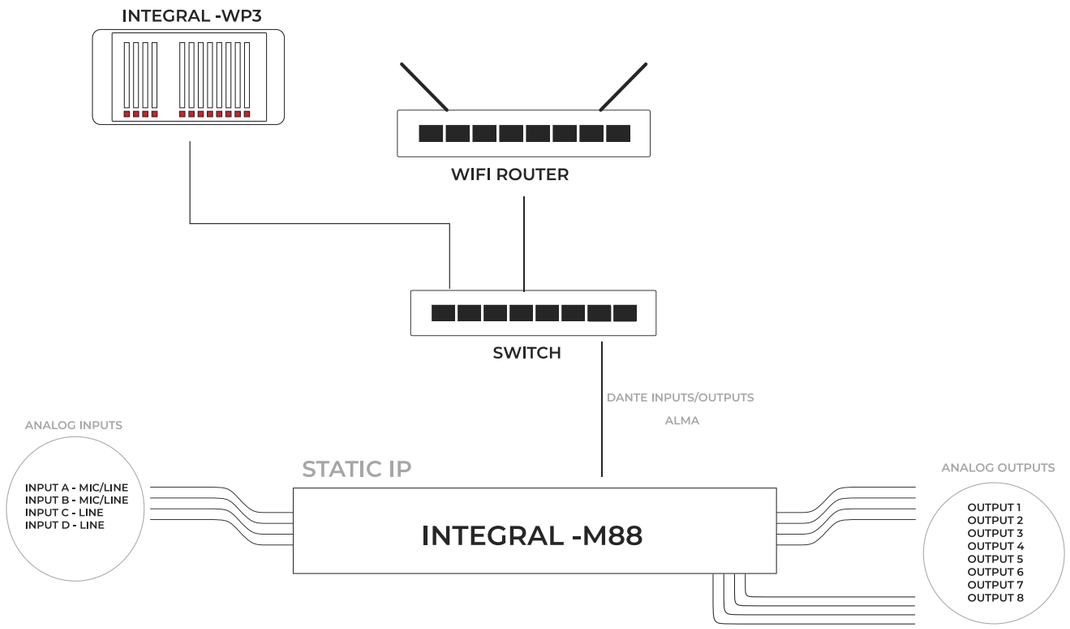
Each mobile device shall use (upload) a specific OSC template (provided by DAS) to control an Integral unit.

How does it work?

The connection between the mobile phones, tablets or laptops shall be done wireless by the use of a WiFi router.

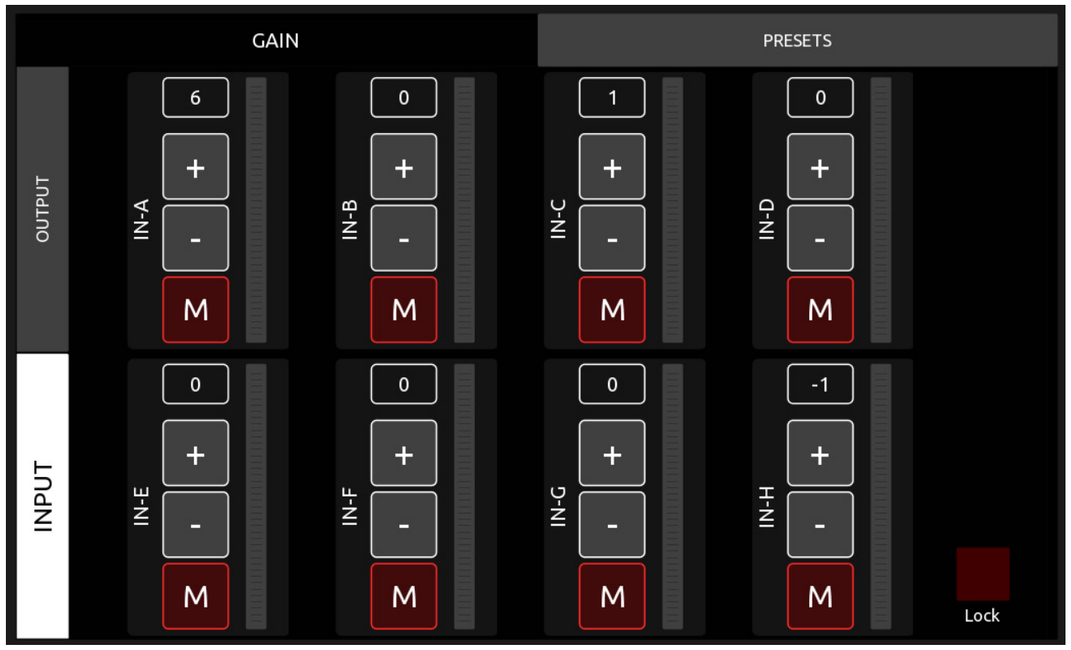


The connection between INTEGRAL-WP3 wall panels shall be done by the use of a WiFi router and a PoE (Power Over Ethernet) Switch. The WP3 wall panels need constant voltage (48V) provided through a CAT5e/6 cable from the ethernet switch.



OSC templates for mobile devices

Shown below the OSC standard DAS template for INTEGRAL-WP3 control panels. The template shall be upload into the mobile device using a computer as a server.
The template includes two main pages, one for gain, mute changes and meter monitoring and the second one for preset recall.



The gain can be adjusted on both, input and output channels in increments of 1.0dB. By the use of the “lock” button the user can block the access to the WP3 panel. The default password for the control panel Lock button is 0292. (Lock button only available on WP3 templates).

On the preset recall page the user can have access to the first 10 global presets or memories stored internally by the user in the Integral-MAxxxx or M88 units. A global preset change may affect routing, gains, mutes, delays, EQs, Dante Outputs, Priority settings etc, that is to say ALL the parameters.

Note: The user should use ALMA to configure all the settings and storing all the global presets created.

It is highly recommended to use OCS in simple configurations were one control panel controls a unique Integral device. (Although up to five devices may be controlled with one WP3 panel).

Previous steps - network configuration

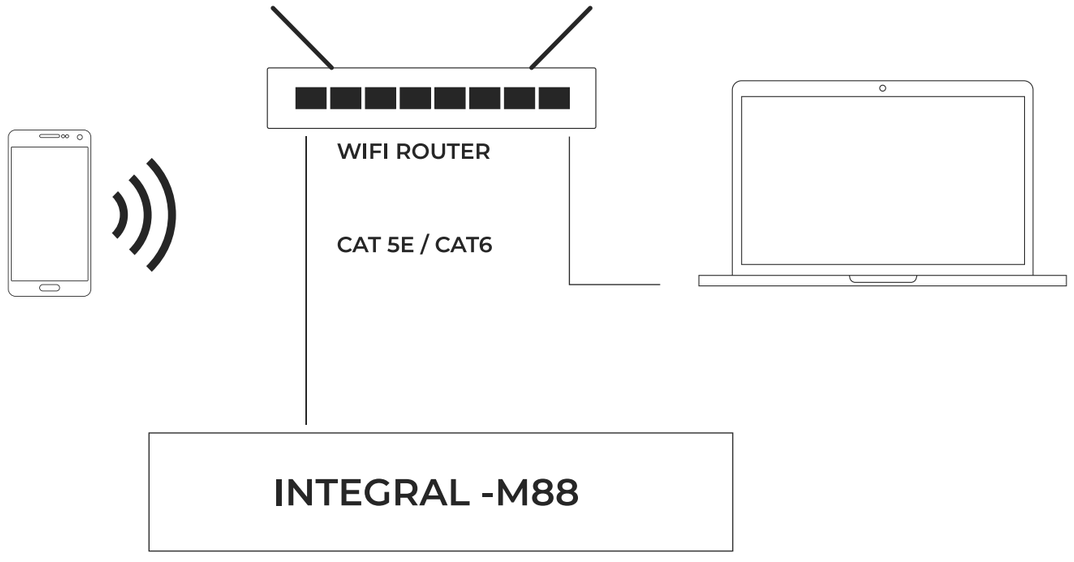
· There must be included a WiFi Router for establishing the connection with the Tablet or Smartphone; the M88 will be connected with a cable to the router. The PC or laptop shall be connected to the same network (via cable or wireless) to upload the template to the Tablet or Smartphone.

· DAS Audio Provides OSC templates for smartphones and tablets. To upload the templates on the smartphones and tablets a PC or Laptop will be used. The software TouchOSC is needed in the computer *(https://hexler.net/touchosc)*

· Download from the “Store” the APP TouchOSC and install it in your mobile device.

* If the user wants to create their own control panels (other than the templates provided by DAS Audio) for mobile devices, there is a guide document in the product support resources explaining all the commands that can be generated to control parameters of the M88 matrix.

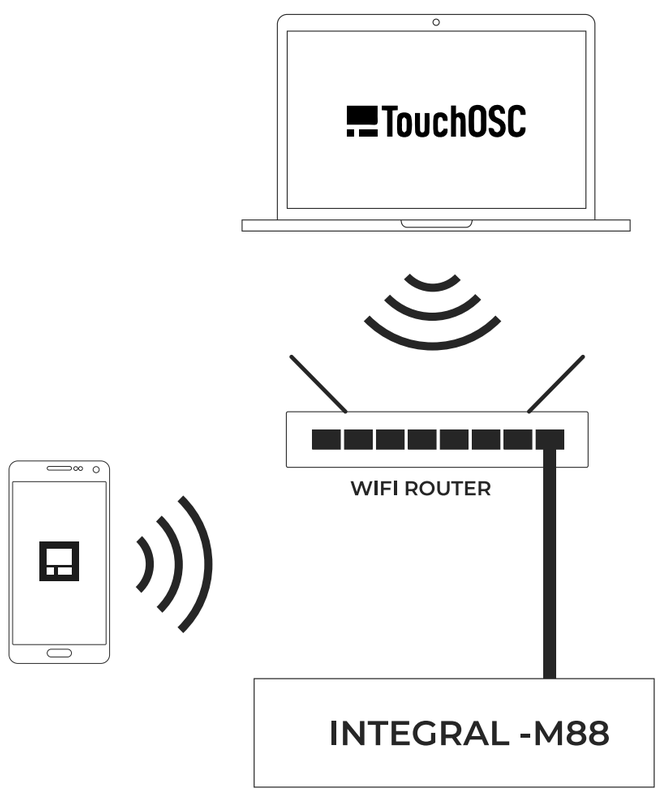
Connect the PC to the WiFi router. Connect your mobile device to the WiFi network:



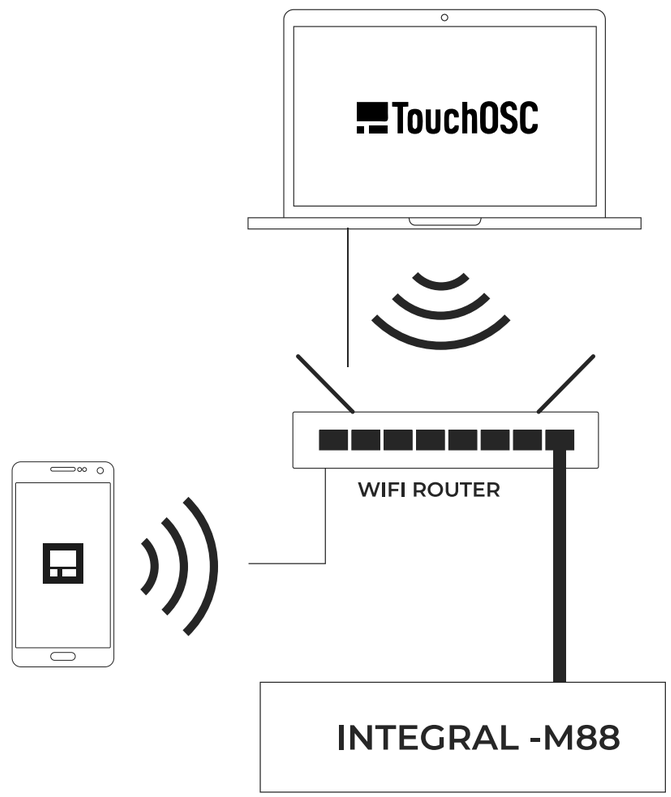
The PC can also be connected without cables.

How to upload an OSC template on a mobile device

Network configuration:



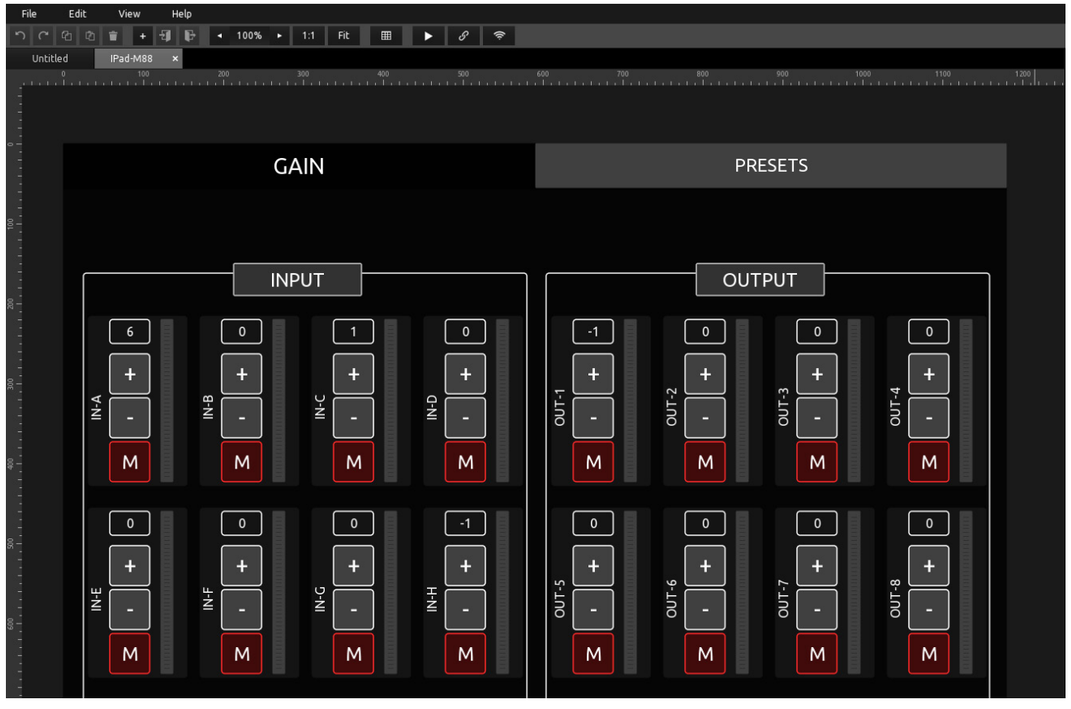
Sending the template from PC to the Tablet / SmartPhone via WiFi:



Let´s see in detail the previous process:

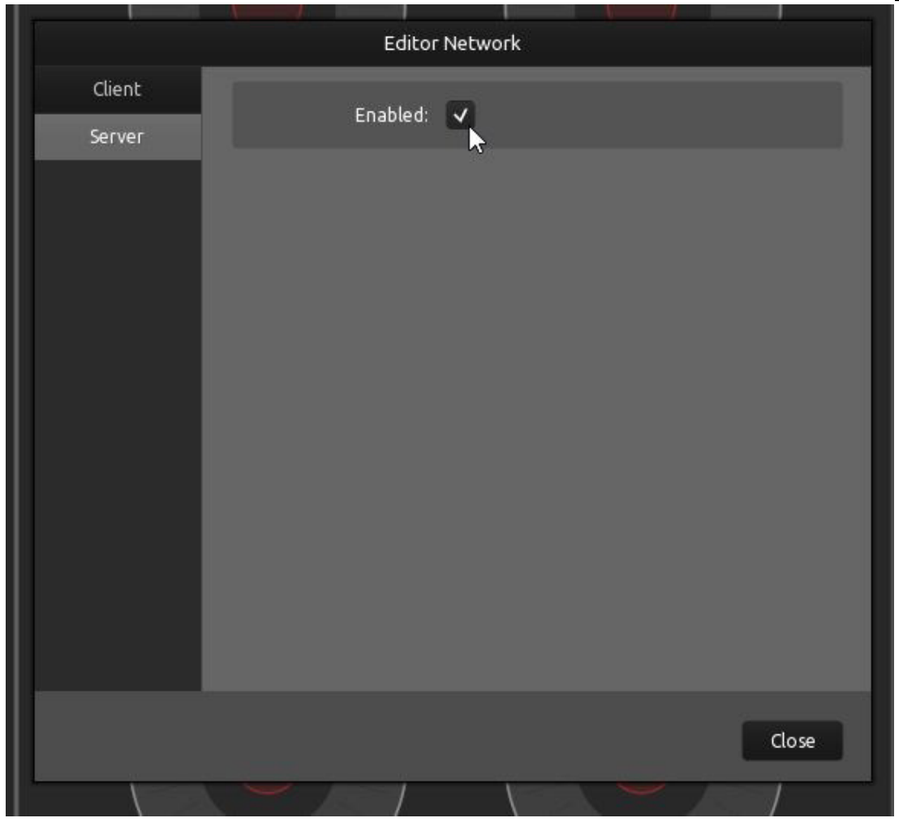
PC

1 Open TouchOSC program
2 Open the template file; in this case iPad-M88.tosc



3 Network Editor

Define the PC as a Server:

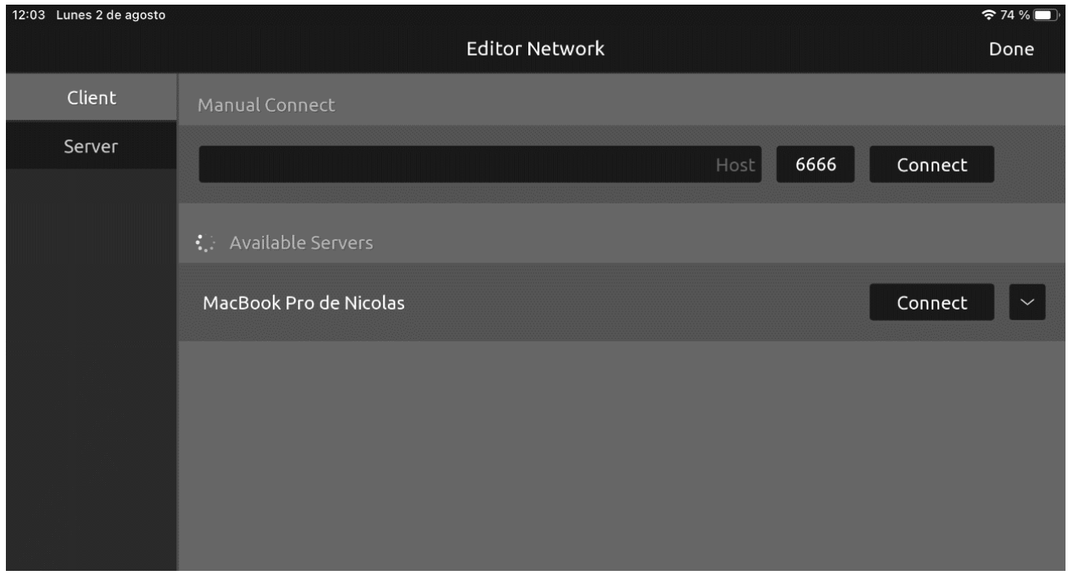


Once the PC has been configured as a Server the user shall need to carry a similar process on the mobile device or smartphone. It is important to keep on the PC the TouchOSC session active while transferring the template.

Tablet/Smartphone
WiFi activated during the process

1 Launch TouchOSC APP
2 Network Editor

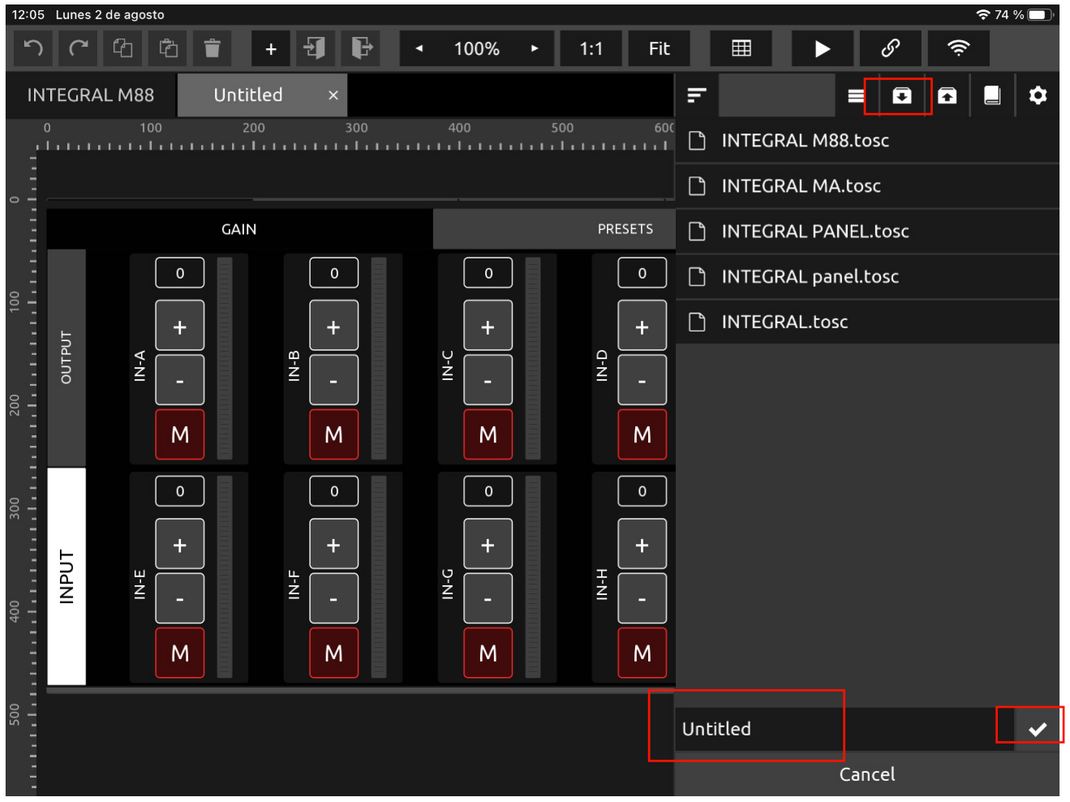
Define the Tablet or Smartphone as Client and select the server: click on the displayed PC (configured as Server previously). In the sample below, the server computer is Nicola´s MacBooK Pro; Press Connect:



At this moment the templated has been uploaded on to the smartphone or tablet.

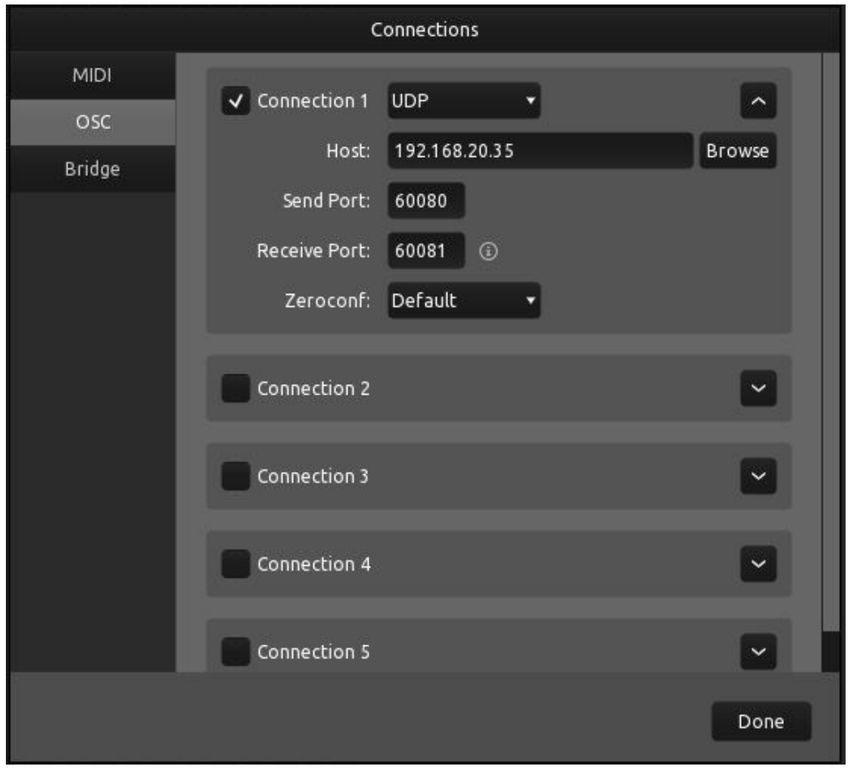
Note: It the Server Computer is not displayed automatically in the Editor Network menu, the connection can be configured manually by entering PC´s IP Adress in the “manual connect” Field.

3 Saving the template on the mobile device. Once the template has been transferred it will need to be saved in the device. Press the button with the”down arrow” as shown below:



Edit the name of the template before saving it and press OK.

4 Configuring Connections:

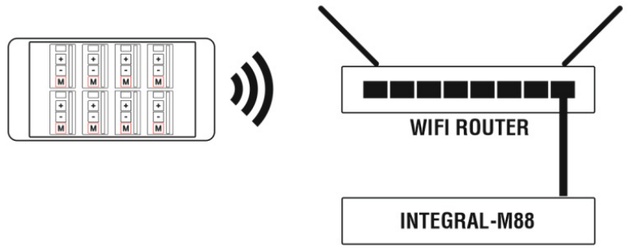


Select OSC and enter Integral-M88 or MA IP Adress in the Host field.

Send Port: **60080**
Receive Port: **60081**

5 Press “play” on the mobile device to start controlling your unit INTEGRAL-M88.

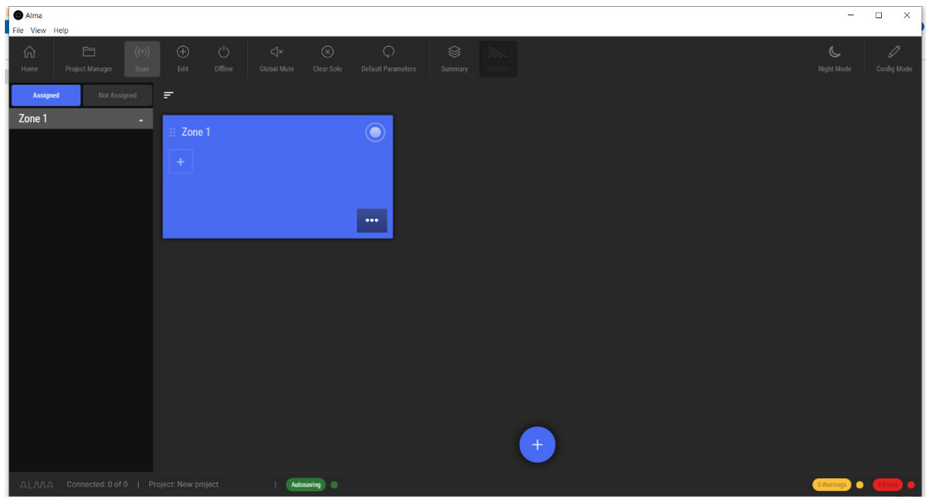
Once the mobile phone or tablet include the OSC template, the computer shall not be any more needed:



INTEGRAL
ALMA control

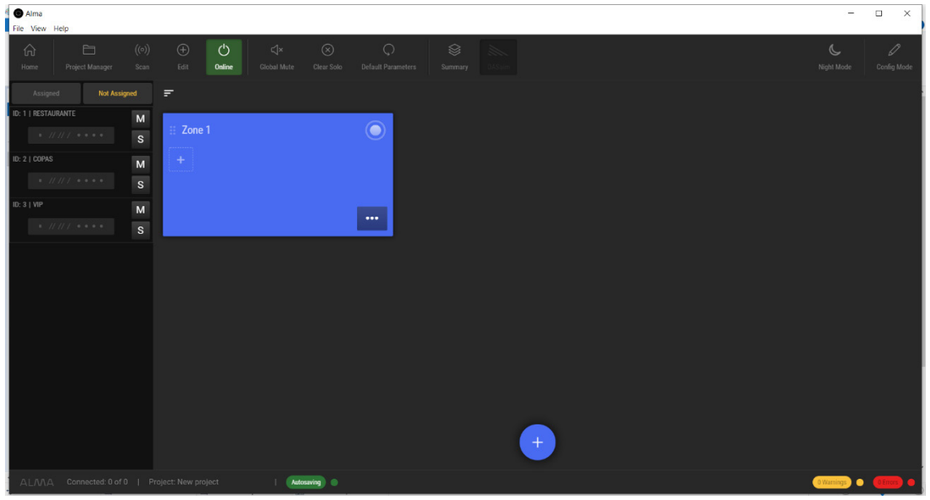
ALMA is the control and monitoring software for DAS Audio´s self-powered systems, rack amplifiers with built-in processors and matrixes. This advanced tool allows you to manage the systems instantly and intuitively, reducing system configuration times and streamlining the set-up process. The application allows all kinds of advanced settings, such as configuring up to two priority levels per output and digital audio output settings. Connectivity among units is done via TCP IP protocol.

There are different ways of configuring a network with the Integral devices; for more information, see the network Connections chapter in this manual.
First, when working “online” with all the units connected to the network, run a scan to detect them and assign them to a zone. During the scan process, the units detected will show under the “not assigned” tab on the left hand side of the screen.

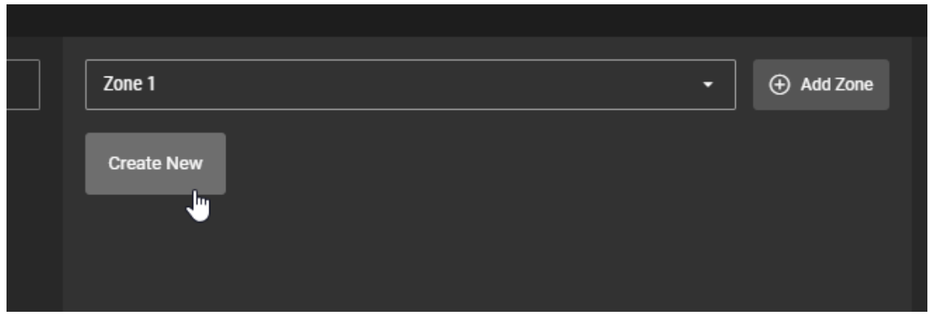


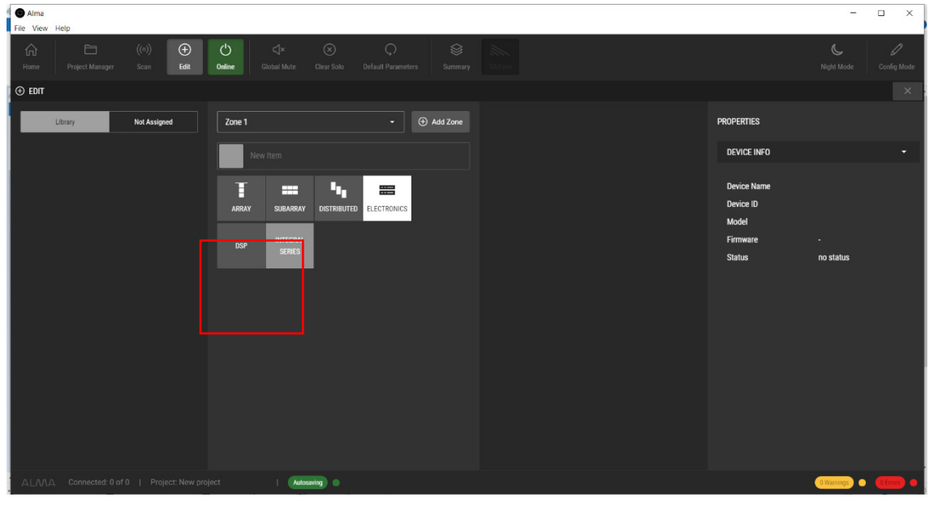
All units on the network must be assigned to a zone.
By default, when the software is launched, a zone is created automatically (Zone 1).

To create a new group of devices and add it to Zone 1, press the + icon that is shown below.

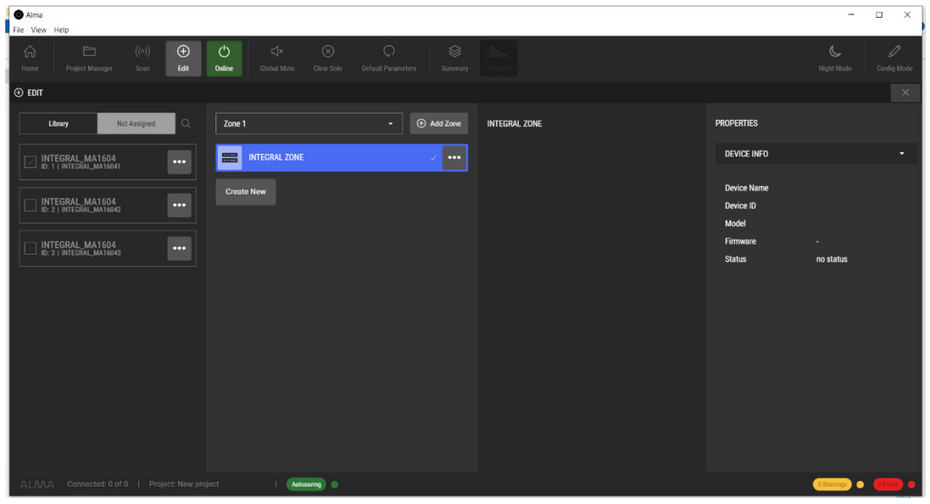


In Zone 1, click on “Create New”. Then select an option, in this case, Electronics -> Integral Series:

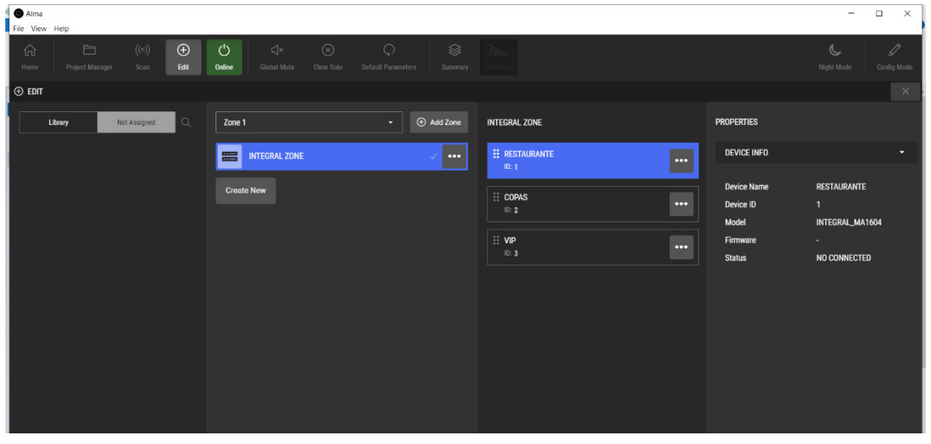




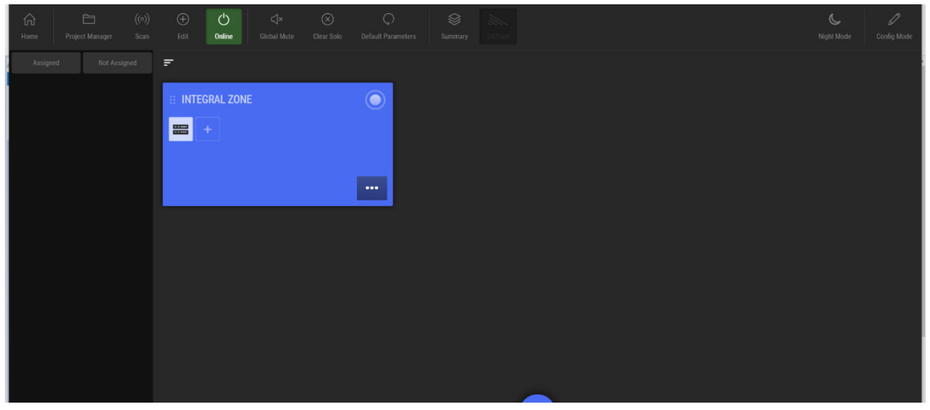
Next, assign the units that are under the “Not Assigned” tab to the group that has just been created. To do this, select from the “Not Assigned” tab the units that you want to include in this group by clicking on the tick boxes.



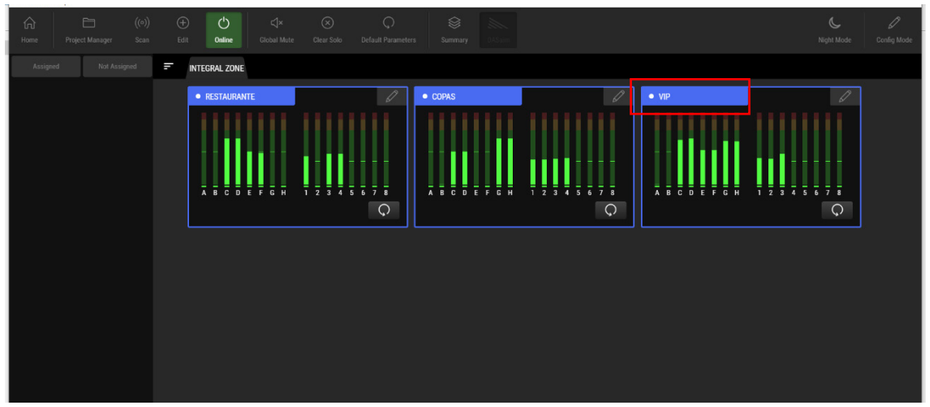
The units will automatically move to the “assigned” zone as part of the group in Zone 1.



The software offers the possibility of renaming the zones:



Double click on the blue section of Zone 1 to display the devices included in that Zone:

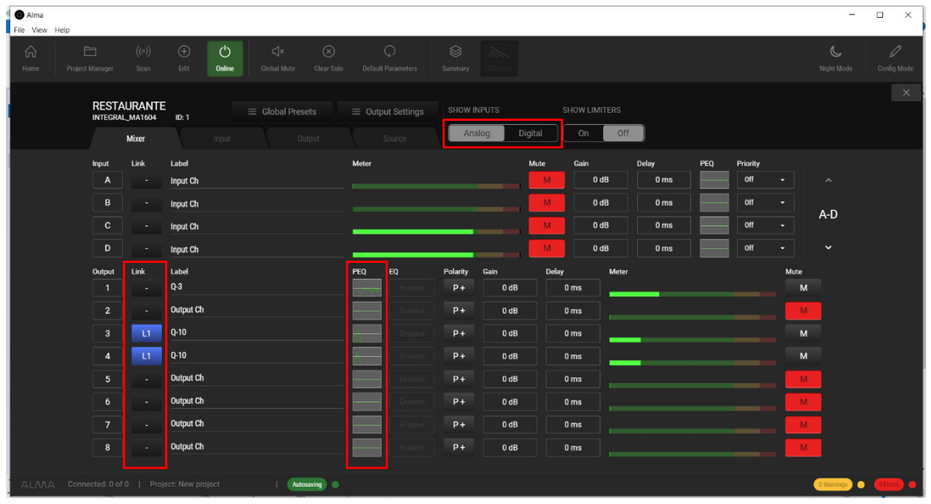


The figure above shows three INTEGRAL-MA1604 devices with their vumeters in operation. The user can view the 8 input and output channels per device. The name of the units can be edited by clicking on the blue section that contains their name.

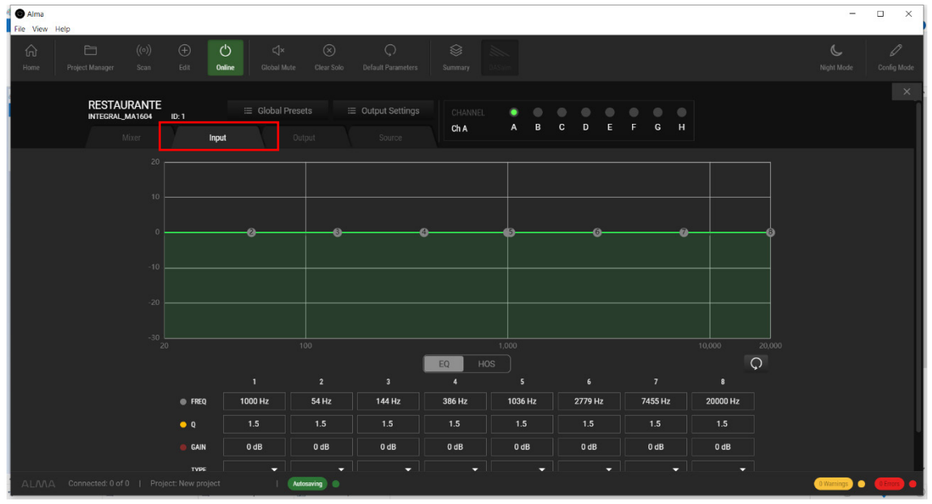
To access a more detailed view of the units, click on the upper right corner of the box showing the vumeters of the device. The device window will open displaying different tabs: MIXER, INPUT, OUTPUT and SOURCE.

The figure below shows the window of the RESTAURANTE unit with the MIXER tab opened. In this tab, you can view the 8 input and output channels. The analog input channels are in the first 4 positions (A, B, C, D) and the DANTE digital channels in the following (E, F, G, H). To access the digital channels, just click on Digital.

In this window, you can change the Mute, Gain, and Delay parameters. You can also LINK or group the systems. To access the EQ and X-over options, click on the boxes marked PEQ.

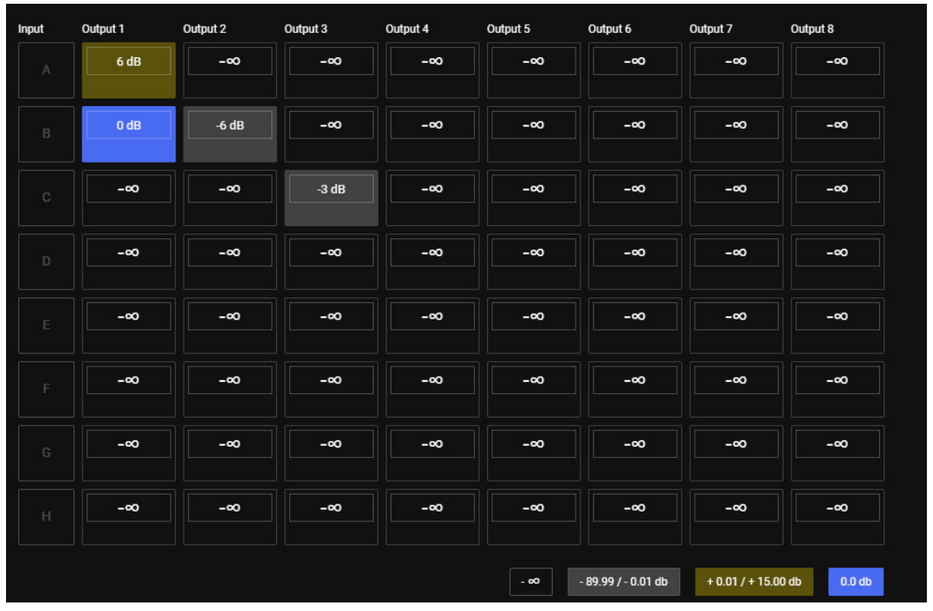


An alternative way to access the input channels is to click on the INPUT tab. The eight input channels are shown together with their corresponding equalization display:



The figure below shows the OUTPUT tab. The eight output channels are displayed with all the EQ points and X-overs available.

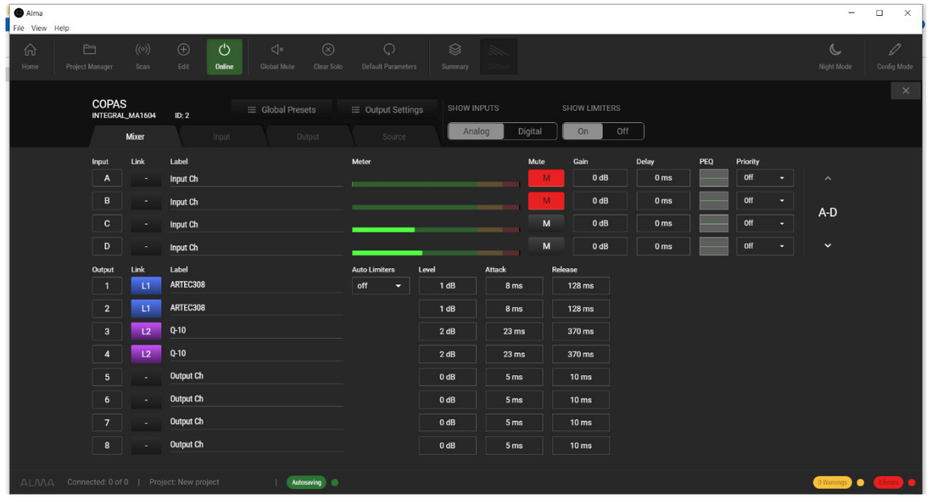
The figure below shows the SOURCE tab. Here, the user can define routing between input and output channels. One or more inputs can be assigned to an output channel and with a value of 0dB or any other value between +15dB and -90dB.



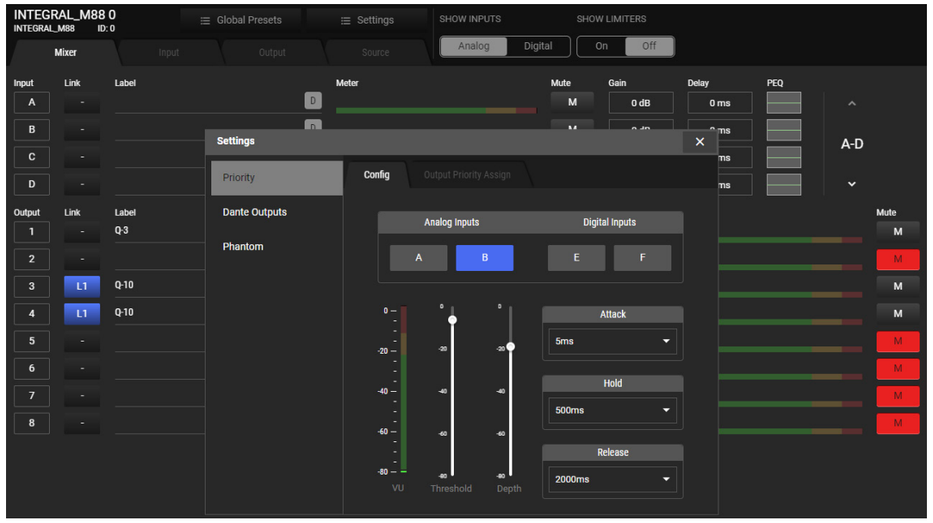
INTEGRAL
ALMA control

In addition to the MIXER, INPUT, OUTPUT and SOURCE options, you can access the Limiters tab and the Output Settings tab, where you can select the following configuration options: priority, bridge mode and DANTE outputs.

In the Limiters tab, the user can configure the threshold value for each output channel and the attack and release times, in the case of not using the automatic mode of the limiters. When using the automatic mode, the attack and release times are automatically configured according to the high cutoff frequency of that section or channel.

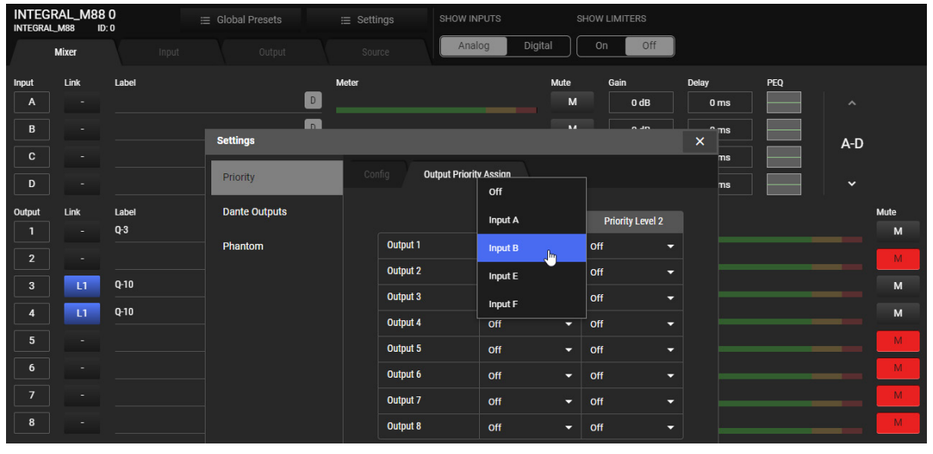


In the Settings tab, the first configuration option is Priority. Up to two priority levels are available for each output channel. The priority inputs can be any of the following: IN A, IN B, IN E, IN F.



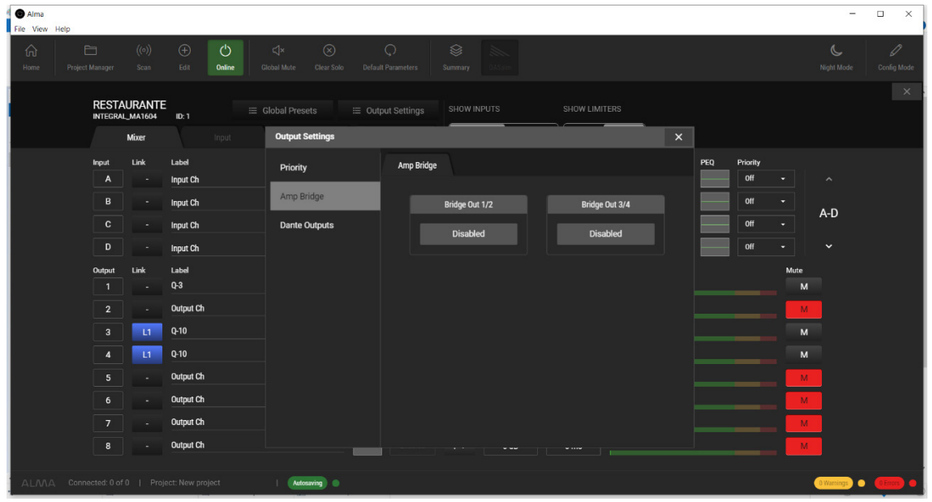
Attack, Release, Threshold and Depth times are the parameters available for the priority channels.

For every output channel, you can select up to two priority sources or input channels. In the following example, for Output 1, Input B has been assigned as level 1 priority channel (a letter P will appear indicating that there is a Priority input on that channel):



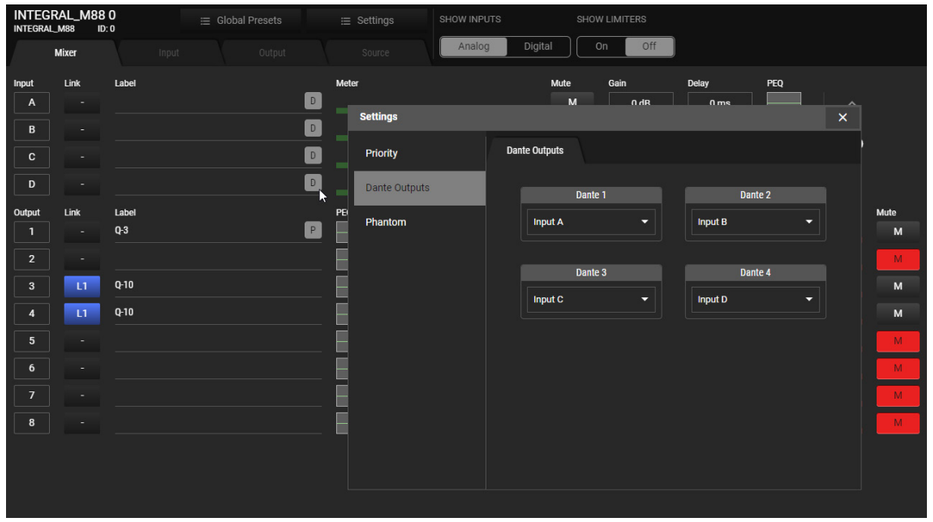
INTEGRAL
ALMA control

Two additional configurable parameters, Bridge mode (ONLY AVAILABLE ON MA MODELS) and Amp Bridge, are also available from the Settings tab. Bridge mode is used with systems with transformers (100 / 70V) or to double the output power of the amplifier.

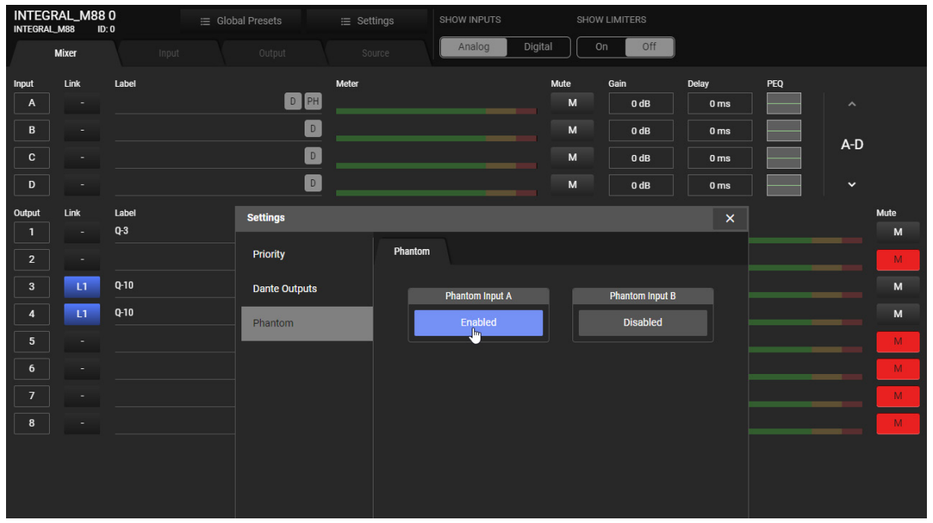


Note that the physical output pins employed when using the amplifier in Bridge mode are different from those used when configuring the amplifier in stereo mode.

In the Settings tab, you can also configure the DANTE digital output channels and select the output channels that the device will send to the network. The DANTE 1, DANTE 2, DANTE 3 and DANTE 4 channels can be a copy of any of the analog inputs IN A, IN B, IN C, IN D or any of the eight output channels OUTPUT 1, 2, 3,.....,8. This way, the audio injected into the network from a M88 device can be processed. In the following example, the DANTE 1,2,3,4 channels are copies of the input channels A, B, C and D (a D will appear on the input or output channel that has been assigned):



In addition to the previously mentioned options, from the Settings tab, the user can also enable and disable the phantom power supply of the analog input channels IN A, IN B (PH will appear on the channel with active phantom):



SOUND WITH SOUL