MPX-4088, MPX-400MIC, MPX-410ES, MPX-420V, MPX-430VS AND MPX-440X

AUDIO MATRIX

INSTRUCTION MANUAL

FONESTAR

We take this opportunity to thank you for buying this product.

We recommend you read the instruction manual before switching on the machine and follow the instructions that are given. Keep the manual for future reference.

SECURITY AND THE ENVIRONMENT

ELECTRICAL SECURITY
Check that the current in the mains connection where the machine is to be installed corresponds to the power supply of the machine.
To avoid damaging the equipment, electrical shocks, fire or physical injury when you connect or disconnect the equipment from the power supply, pull the plug firmly out of the mains socket holding the plug, never the cable.
Always do this with dry hands.
Keep the power supply cable far from sources of heat. Do not put heavy objects on top of it or change it.
Clean dust and dirt off the power supply cable regularly.
Do not open the machine; you could get an electric shock.

CAUTION
While installing the machine, make sure it is switched off and unplugged.
Do not open the machine. Touching the internal parts is dangerous and you could receive an electric shock.
The machine must not be splashed or dripped on. Never place recipients with liquid inside on the machine.
Do not place anything inside the machine.

LOCATION
Place the equipment on a horizontal surface with enough space around it to allow ventilation.
Avoid direct sunlight, heat sources and excessive dust.

Do not place the machine near magnetic fields or static electricity.
Do not use surfaces which vibrate or receive impact.
Do not pile machines on top of one another.

VENTILATION
Never block or cover the ventilation slits on the machine.
Do not expose it to direct sunlight or place it near sources of heat.

PERIODS OF INACTIVITY
When the machine is not going to be used for a long period of time, disconnect it from the mains.
If you are using an adapter, take into account that it will continue using electricity even if the machine is switched off. If it is not going to be used for a long period of time, disconnect it from the mains.

THE ENVIRONMENT
To save energy, switch the machine off when you are not going to use it for a long time. The machine could contain substances that are harmful to the environment or human health. To minimize the effect of these substances the machine must be correctly managed and recycled when you decide to dispose of it.
When you dispose of it remember: it cannot be thrown into a conventional rubbish bin.
If it contains or uses batteries, these must be disposed of separately.
The machine (without batteries) must be disposed of correctly. Put it in a container specially intended for the collection of electronic and electrical appliances, at the dump or hand it over to the dealer when you purchase similar equipment, so that the dealer can dispose of it correctly (at no added cost).

SIGNIFICANCE OF THE SYMBOLS ON THE MACHINE*

The symbol formed by the expression "Class 1 laser product" written in a rectangle indicates that visible or invisible laser radiation could be produced. Avoid direct exposure to the laser.

The symbol formed by a ray of lightening inside a triangle shows that the machine has connection terminals or a circuit with areas with a current which could cause an electric shock, even in normal working conditions.

The symbol formed by an exclamation mark in a triangle shows that the instruction manual must be referred to for information on how the machine works and its use.

The symbol formed by one square inside another square shows that the machine has double electrical insulation.

The European Community symbol shows that the machine complies with the current European Union legislation, as well as its transposition to local legislation.

The symbol of a rubbish bin crossed out and over a horizontal line shows that when the product is disposed of it must be done properly, placing it in a special selective electronic and electrical equipment container or through a dealer when purchasing a similar product, at no additional cost. It also shows that the machine was put on the market after 13th August 2005 (European Community Directive 2002/96/CE of Electrical and Electronic recycling, and its Spanish equivalent R.D.208/2005).

In accordance with what is set out in the aforementioned decree, FONESTAR is registered in the RAEE (Registro de Aparatos Eléctricos y Electrónicos) in a special section REI (Registro de establecimientos Industriales), with the entry number 001851.

*It is possible that some of these symbols do not appear on the machine.

EXEMPTION OF LIABILITY
The characteristics of the equipment and the content of the manual can change without forewarning.
FONESTAR, S.A. does not assume responsibilities regarding the inappropriate use of the equipment or the information supplied in this instruction manual, and specifically disclaims any implied liability for marketability or fitness for any other use.

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DESCRIPTION

The model **MPX-4088** is an audio matrix with 8 analogue input channels to 8 output zones and 4 configurable digital channels.

It has 8 analogue input channels to 8 output zones and 4 configurable digital channels. Musical source selection, volume and equalization control for each zone through PC software or via the optional zone controls mod. **MPX-420V** or **MPX-430VS**. DSP function in inputs/outputs, priority control and feedback suppressor.

Priority paging using optional microphone with zone selector mod. **MPX-400MIC**.

A highly versatile system which is suitable for installations of any size, allowing music to be selected in each zone. Perfect for commercial installations, conference rooms, etc.
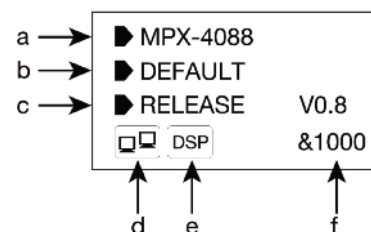
CONTROLS AND FUNCTIONS
FRONT PANEL
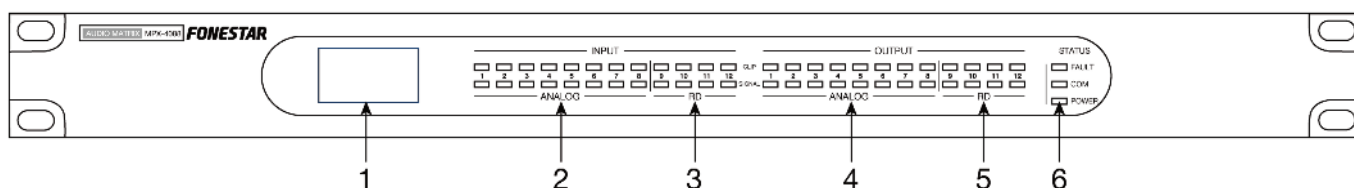
1.- **LCD DISPLAY**: information display:
   - a.- Device name.
   - b.- Selected preset.
   - c.- Software version.
   - d.- Connection status between PC and device. If the connection is correct, both icons will flash alternatively.
   - e.- DSP indicator. Should a problem occur "**DSP!**" will be displayed.
   - f.- Device ID number. It is obtained automatically when switched on.

2.- **ANALOG INPUT**: LED analogue input indicators:
   - **SIGNAL**: indicates signal presence in the corresponding input channel.
   - **CLIP**: indicates signal saturation in the corresponding input channel.

3.- **RD INPUT**: digital input LED indicators:
   - **SIGNAL**: indicates signal presence in the input channel.
   - **CLIP**: indicates signal saturation in the corresponding input channel.

4.- **ANALOG OUTPUT**: LED analogue output indicators:
   - **SIGNAL**: indicates signal presence in the input channel.
   - **CLIP**: indicates signal saturation in the corresponding output channel.

5.- **RD OUTPUT**: digital output LED indicators:
   - **SIGNAL**: indicates signal presence in the corresponding output channel.
   - **CLIP**: indicates signal saturation in the corresponding output channel.

6.- **STATUS**:
   - **FAULT**: indicates a fault with the DSP.
   - **COM**: provides information about the communication between the PC and the device. A light flashes when there is data transmission between them. It remains switched off if there are communication problems.
   - **POWER**: matrix LED power indicator.

REAR PANEL
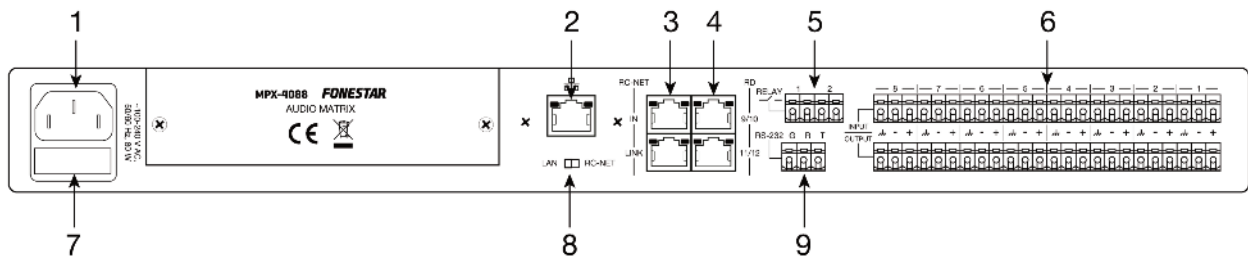
1.- 100-240 V AC power supply.

2.- Ethernet port. RJ-45 connector.

3.- **RC-NET IN/LINK**: input/output for interconnection of several **MPX-4088** devices. Connect the **LINK** output to the **IN** input of the next matrix and so on with the rest of the matrices up to a maximum of 16 matrices, 192 inputs and 192 zones. The matrices are configured using the PC software. RJ-45 connector.

4.- **RD 9/10 - 11/12**: ports corresponding to the digital input and output channels, 9/10 and 11/12. They allow the connection of models **MPX-400MIC**, **MPX-410ES**, **MPX-420V**, **MPX-430VS** for sending and receiving of control and digital audio signals. RJ-45 connector.

5.- **RELAY**: contact closures that can be controlled individually using PC software. They can be used as switches for other electric devices. Euroblock terminals.

6.- **INPUT/OUTPUT (1-8)**: balanced analogue audio input/output euroblock terminals. 48 V phantom power supply available via PC software.

7.- **FUSE**: AC power supply protective fuse.

8.- **LAN/RC-NET**: allows the type of communication to be selected in the LAN port (2) between, TCP/IP in LAN position or RS-485 in RC-NET position.

9.- **RS-232**: euroblock terminals to control via the series port.

STP CABLE FOR RD PORTS

The RD ports transmit and receive AES3 Plus control signals. Below, the PIN-OUT is shown for an RJ-45 connector and STP cable.

1.-	AES TX+	5.-	RS485 RX
2.-	AES TX-	6.-	AES RX-
3.-	AES RX+	7.-	DC 24 V
4.-	RS485 TX	8.-	GND
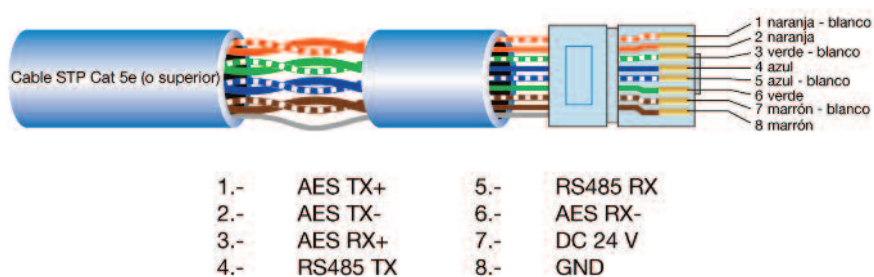
Note: do not connect an RD port to a router, the router could be damaged.

CONNECTION

CONNECTION OF BALANCED AUDIO INPUTS 1 TO 8 AND REMOTE ZONES

Connect the analogue audio sources/microphones to the inputs 1 to 8 on the rear panel of the mod. **MPX-4088**. The order in which the inputs are connected will allow their selection for each of the zones via software or zone controls.

If the zones are equipped with the remote audio input/output control mod. **MPX-410ES**, it is possible to connect the source directly to the microphone or line input, corresponding to the 9/10 or 11/12 lines according to which RD port on the **MPX-4088** matrix it has been connected to. Each matrix supports a maximum of two **MPX-410ES** connected and operating at the same time.

CONNECTION OF MICROPHONES WITH ZONE SELECTORS

Connect the microphones with zone selector mod. **MPX-400MIC**, up to a maximum of 2 units, to the RD 9/10 or 11/12 inputs on the rear panel of the mod. **MPX-4088**, using shielded Cat 5e cable with RJ-45 connector.

Note: it supports the connection of two **MPX-400MIC** microphones maximum per matrix, for non-simultaneous use.

ZONE OUTPUT CONNECTION

Each matrix mod. **MPX-4088** has 8 independent zones with balanced line level output for the connection of a power amplifier or amplifier per zone. Connect the output of each of the zones to a line level input of a corresponding power amplifier. Control the output volume with the PC software or using the remote control mod. **MPX-420V** or **MPX-430VS** and then regulate the level of the power amplifier in order to achieve a suitable level of volume in the loudspeakers in the zone. It is possible to extend the output zones to 12 with the connection of 2 **MPX-410ES** audio input/output controls or 2 **MPX-430VS** zone controls with audio output.

CONNECTION OF ZONE CONTROLS

Each of the output zones can be controlled remotely using the controls mod. **MPX-420V** or mod. **MPX-430VS**. These controls allow the selection of any of the selectable inputs 1 to 12 of the matrix mod. **MPX-4088**, as well as the regulation of the volume of each remote zone. The **MPX-430VS** control incorporates two audio outputs corresponding to the channels 9/10 or 11/12 according to the RD port on the **MPX-4088** matrix to which it has been connected.

Connect the **MPX-420V** or **MPX-430VS** control with Cat 5e or higher cable, RJ-45 connector to the RD ports 9/10 or 11/12 on the matrix.

Note: up to 8 **MPX-420V** controls can be connected in series as a maximum, for a maximum distance of 150 meters with shielded Cat 5e or higher network cable.

GENERAL CONNECTION RECOMMENDATIONS

Make the connections with the matrix and all the components of the audio system switched off and disconnected from the power supply. Always begin with the volume controls at their minimum. Move the controls slowly.

Firstly, connect the audio sources to the inputs. A bad connection can cause noise and interference. Use suitable cables that are not excessively long to make the connections: shielded cables, preferably low capacity.

Connect remote controls mod. **MPX-420V** or **MPX-430VS** in the required zones and the microphone with zone selector mod. **MPX-400MIC**, the remote audio input/output control mod. **MPX-410ES** or the extender **MPX-440X** to the matrix RD ports using Cat 5e or higher cable.

Connect a power amplifier to the OUTPUT of each zone you are going to use. 100 V line or low impedance 4-8 Ω amplifiers can be used depending on the type of loudspeakers that are going to be connected. Once the connections have been made, connect the devices to the mains supply and switch them on. After use, do not forget to switch them off and disconnect the device from the mains supply.

CONNECTION EXAMPLES

With the audio matrix mod. **MPX-4088** it is possible to configure systems of 12 to 192 zones. The basic system allows connection of up to a maximum of 12 inputs and 12 outputs per matrix. With the optional mod. **MPX-450D** (DANTE™ module), the interconnection of up to 16 **MPX-4088** matrices is possible for a total of 192 inputs and 192 outputs, making it compatible with other DANTE™ systems. The configuration and allocation of inputs and outputs can be performed using the PC software or the **MPX-420V** or **MPX-430VS** zone controls. The matrix has up to 8 analogue audio inputs, 8 zone outputs and two RD ports with 4 audio input/output channels for the connection of models **MPX-400MIC**, **MPX-410ES**, **MPX-420VS** or extending the RD ports with the mod. **MPX-440X**.

Below, the different connection configurations are shown:

CONFIGURATION 1
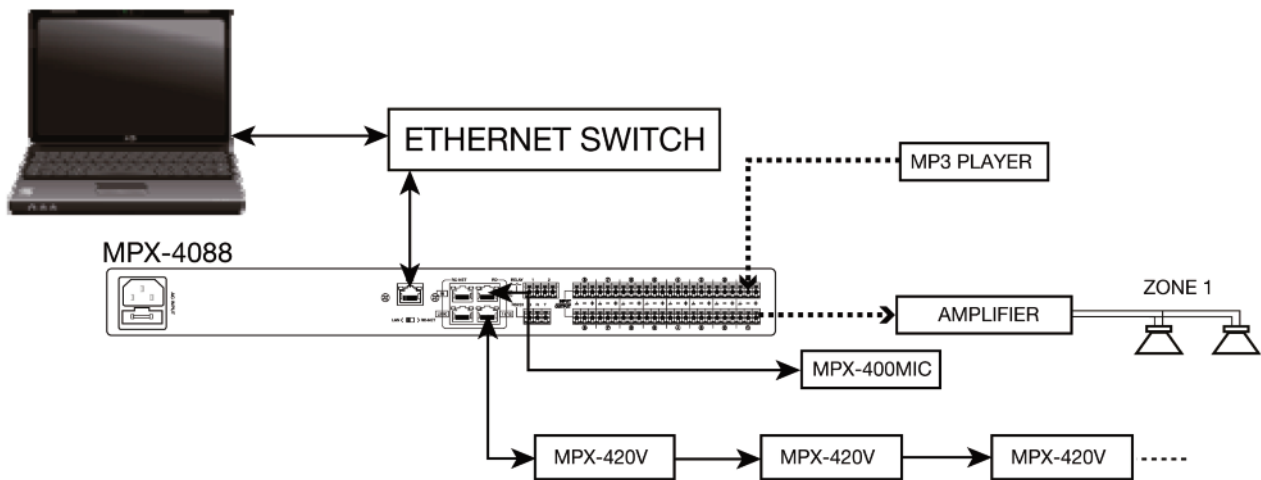
- **RD port 9/10**: **MPX-400MIC** microphone with zone selector for priority paging.
- **RD port 11/12**: **MPX-420V** zone controls, without exceeding a maximum of 8 devices in series and a distance of 150 meters for a shielded Cat 5e or higher cable.

CONFIGURATION 2
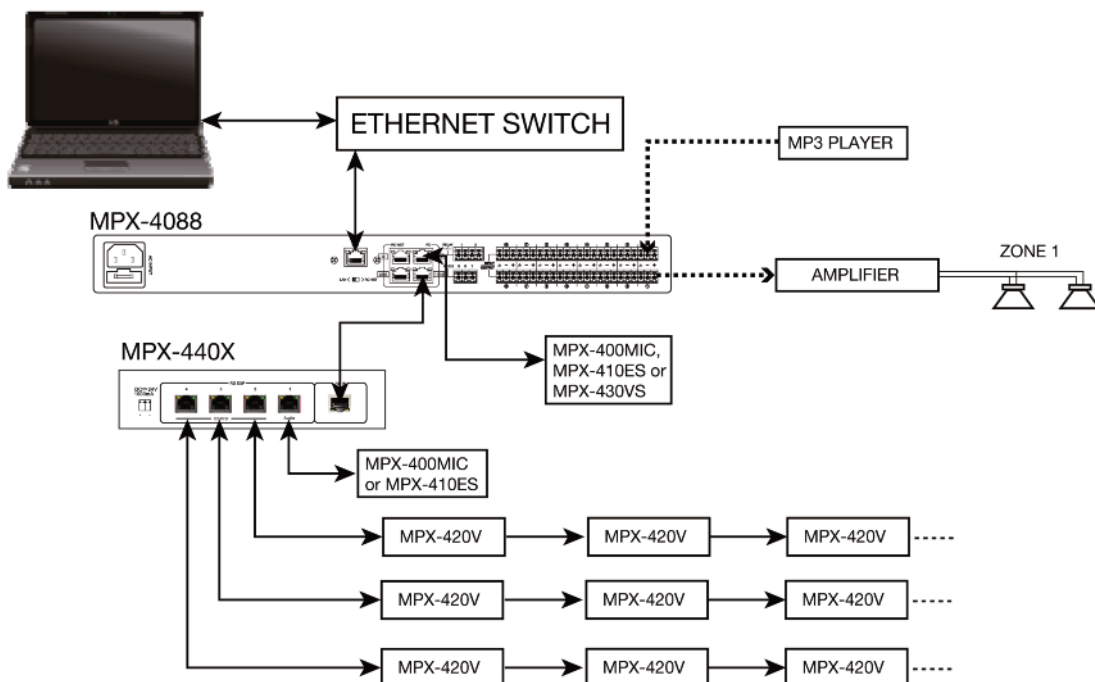
With the port extender mod. **MPX-440X** connected as shown in the previous diagram, 4 audio input/output channels are available corresponding to the audio port of mod. **MPX-440X** and the **RD 9/10** matrix port and 3 control ports on the mod. **MPX-440X** for the connection of **MPX-420V** zone controls. Up to a maximum of 8 units of the model **MPX-420V** can be connected in series by port and a maximum cable distance of 150 meters for a shielded Cat 5e or higher network cable.
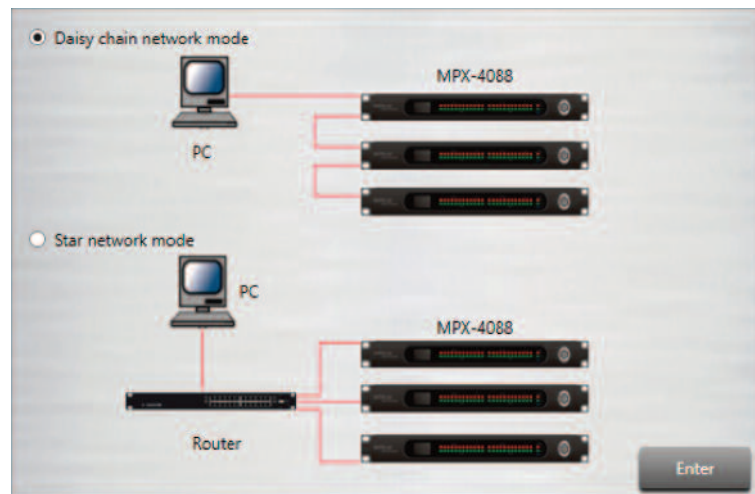
CONFIGURATION 3
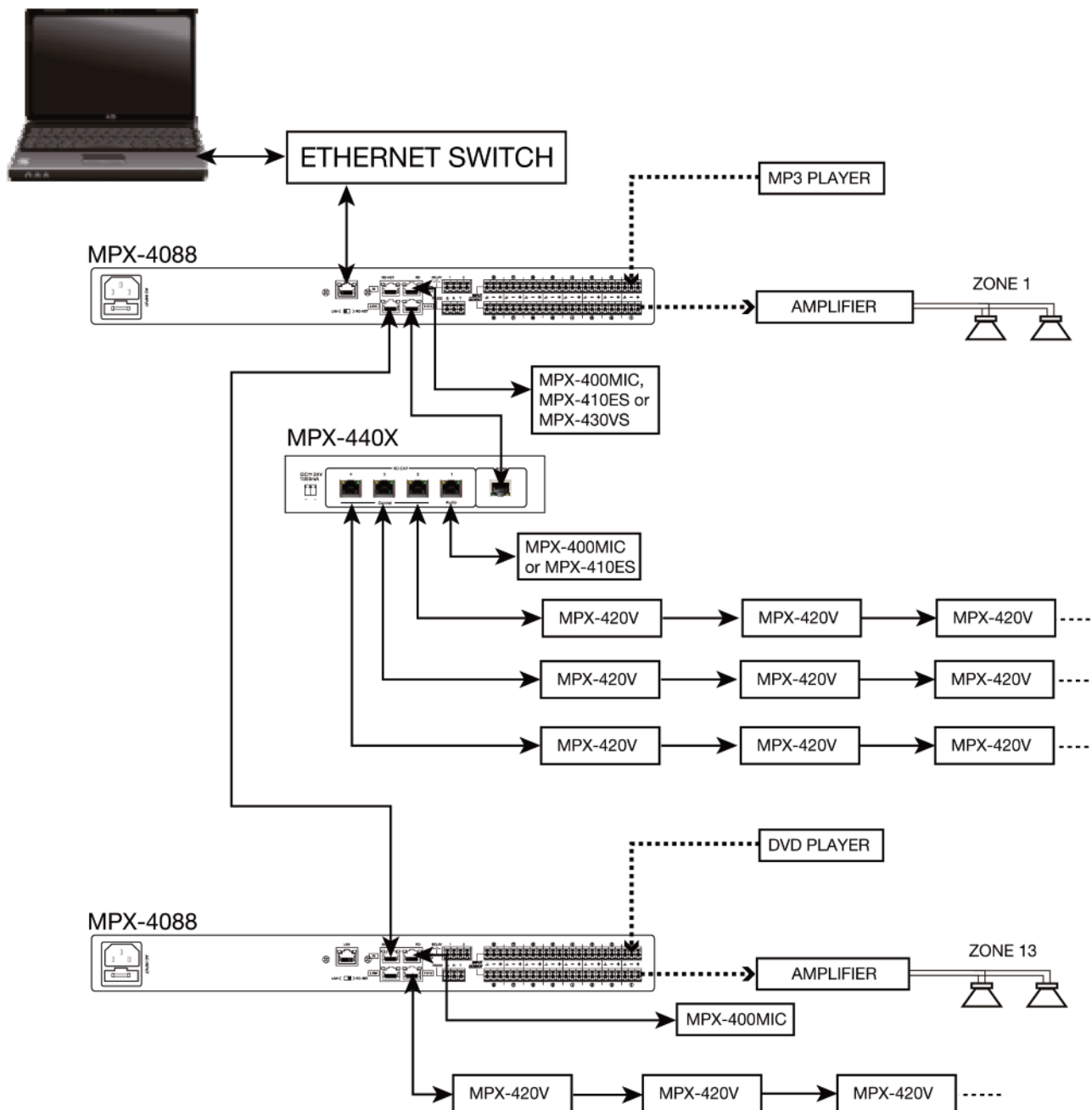
With the two **MPX-4088** matrices connected as shown in the diagram above, up to 16 analogue audio inputs can be connected to 16 selectable zones, 4 **MPX-400MIC** microphones with zone selectors or 4 **MPX-410ES** audio input/output controls, plus the **MPX-420V** or **MPX- 420VS zone controls**. With the optional **MPX-450D** model, the interconnection of up to 16 **MPX-4088** matrices is possible for a total of 192 inputs and 192 outputs, making it compatible systems with other DANTE™ systems.

EN

CONFIGURATION AND CONTROL SOFTWARE

The matrix **MPX-4088** is configured using PC software. In order to download the software, access our website **fonestarpro.com** and find the product **MPX-4088**. Then, open the "Software" tab to download the file in your computer and install the software. This software is compatible with Windows 7 or higher. The software has two connection modes for the configuration of the matrix.

1.- **Daisy chain network mode**: allows configuration of the matrix **MPX-4088**, as well as the optional models **MPX-400MIC**, **MPX-410ES**, **MPX-420V** and **MPX-430VS**. In this edition mode, the PC and the matrix **MPX-4088** must be connected directly by RJ-45 cable and the LAN/RC-Net selector located on the rear panel of the matrix, must be in the LAN position.
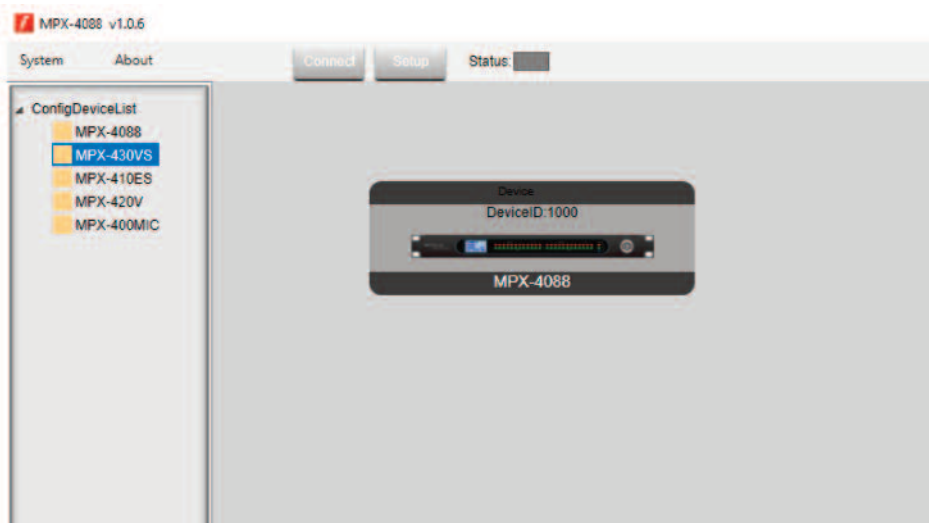
It is necessary to establish the IP address of the matrix. To do so, click on the SETUP button and, then, on SCAN to begin the automatic search for the IP and MAC address of the **MPX-4088** matrix.
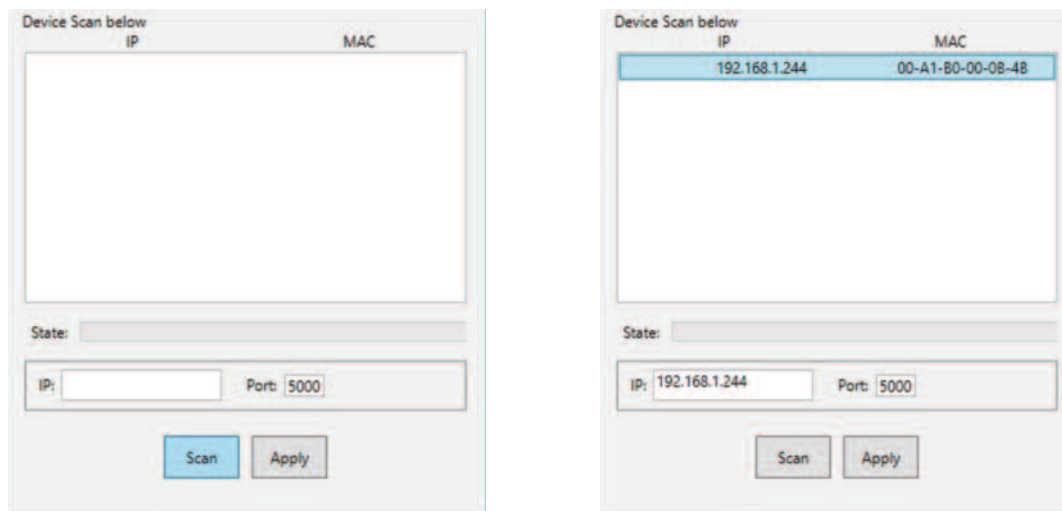
Select the line with the IP and MAC address of the **MPX-4088** matrix and click on APPLY. Then, click on CONNECT and the STATUS indicator should turn green. Add the devices located in the sidebar by dragging them into the grey area.

Double click on the required device module to access the edition mode.

Note: when several matrices are connected in cascade, the LAN/RC-Net connector must be in the LAN position on the matrix that is directly connected to the PC, and in the RC-Net position on the rest of the matrices that are connected to each other. To access the configuration of each device, it is necessary to establish the device's ID manually by right-clicking on the device to be configured and accessing "Change Device ID".
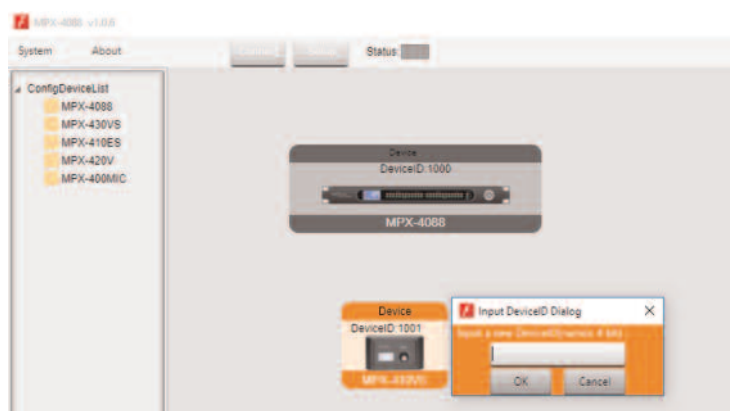
2.- **Star network mode**: allows the configuration and individual control of several **MPX-4088** matrices connected to the same router. In this edition mode, the PC and the **MPX-4088** matrix must be connected to the router with RJ-45 cable and the LAN/RC-Net selector located on the rear panel of the matrix must be in the LAN position.

In this edition mode, the system automatically detects the **MPX-4088** matrices connected to the network for their configuration and control.

EDITION MODE

MPX-4088

The edition mode of the **MPX-4088** allows real-time editing of input/output signal processing parameters, allocation of sources to zones, attenuation of signal level inputs, feedback cancellation, auto-mix, presets to be saved and loaded, relays to be activated/deactivated, the device name to be changed and factory values to be restored. By default, the **Input DSP Channel** tab is displayed.

INPUT DSP CHANNEL
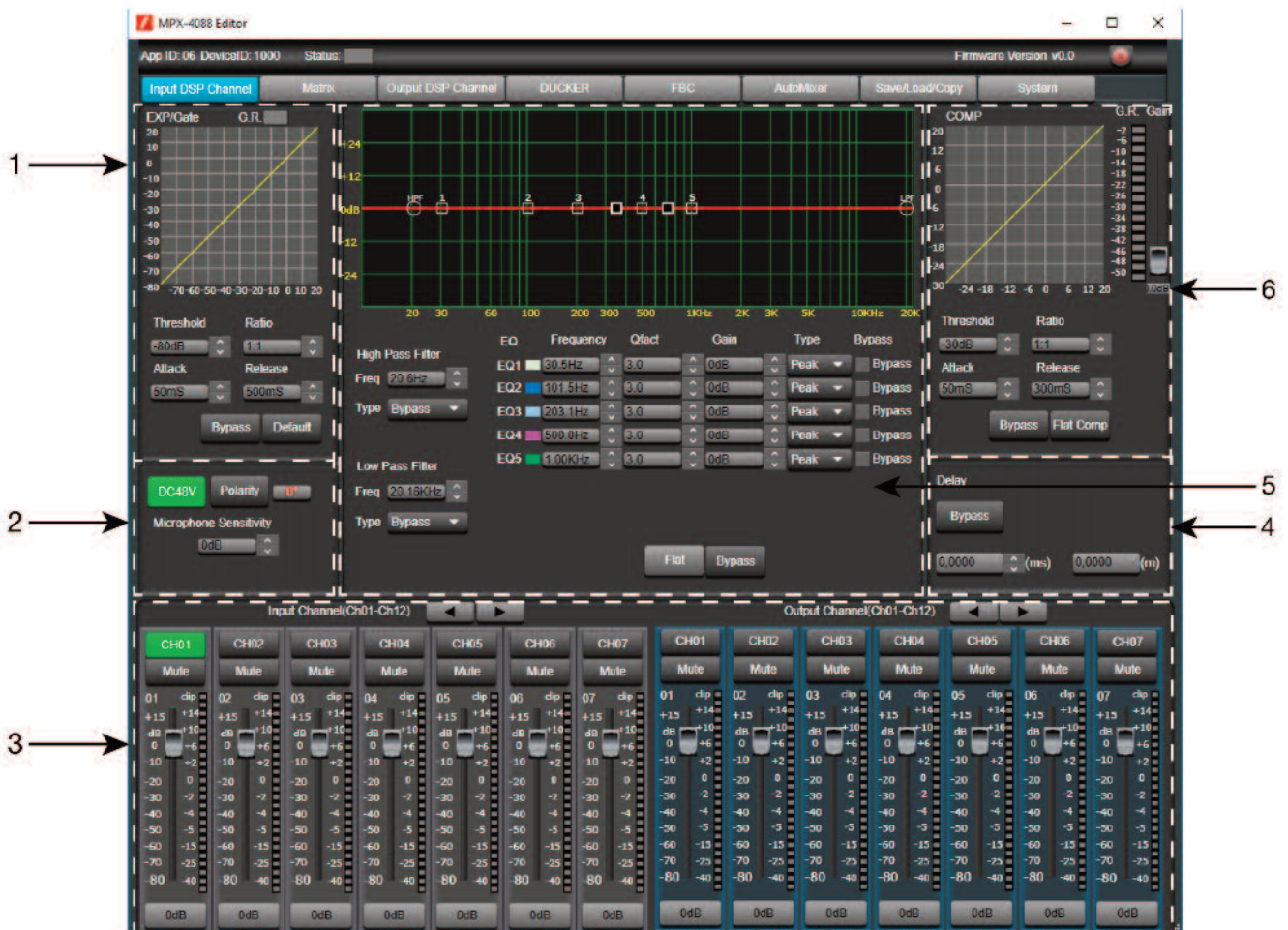
2.- EXP/GATE MODULE:

Add dynamic to the signal for each input channel. When the input signal is below the threshold, the expander amplifies it with the ratio value adjusted. If the signal is above the threshold, the output remains identical. By adjusting the ratio value to the maximum (Limit), the expander becomes a noise gate.

   a.- Graphic display of **EXP/GATE** module.

   b.- **Release**: expander release time when the signal goes above the threshold.

   c.- **Ratio**: amplification ratio between input signal and amplified signal.

   d.- **Threshold**: threshold value, the signal below this value will be amplified according to the selected amplification ratio.

   e.- **Attack**: expander reaction time when the input signal is below the threshold value.

   f.- **Bypass**: the input signal is not processed and is diverted to the next processing module.

   g.- **Default**: resets the default values of the **EXP/GATE** module.
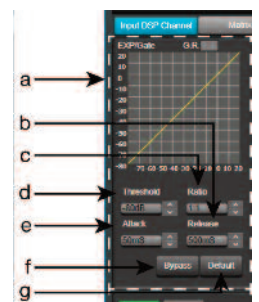
2.- PHANTOM POWER SUPPLY MODULE

a.- **DC 48 V**: allows the phantom power supply of each input channel to be activated/deactivated.

b.- **Microphone Sensitivity**: allows the microphone sensitivity to be adjusted.

c.- **Polarity**: allows the input signal phase to be inverted 180º.

3.- INPUT/OUTPUT CHANNELS

a.- Input/output channel selector (CH1 - CH12).

b.- **Mute**: silences the corresponding input/output channel.

c.- Signal level digital fader (-80 a +15dBu).

d.- LED indicator of input/output channel signal level.

e.- Displays the gain value applied to the input/output channel.
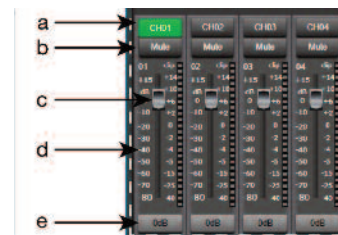
4.- DELAY MODULE

a.- **Delay**: delay applied to the signal from the corresponding input/output channel, in ms.

b.- **Bypass**: the input signal is not processed and is diverted to the next processing module.

5.- EQUALIZATION MODULE

High and low pass filters to eliminate frequencies above or below the established cutoff frequency.

a.- **Freq.**: cutoff frequency.

b.- **Type**: type of filter applied: Bessel, Linkwitz or Butterworth.

5-band parametric equalization. Allows the input signal spectrum to be modified graphically or by entering the required values manually.

c.- **Frequency**: central frequency.

d.- **Qfact**: filter quality factor. The greater the value, the smaller the range of frequencies that are affected.

e.- **Flat**: all the equalization parameters are restored to their original value.

f.- **Bypass**: the input signal is not processed and is diverted to the next processing module.

g.- **Gain**: gain elevation or attenuation in the established central frequency.

h.- **Type**: type of filter; peak, low pass or high pass.

i.- **Bypass 1~5**: allows the processing of filters 1 to 5 to be cancelled without using the general bypass.
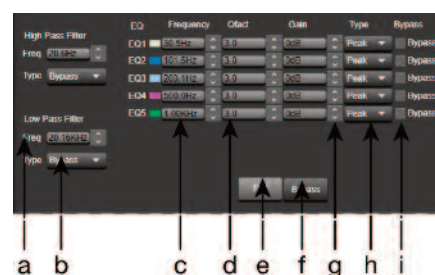
6.- COMPRESSION MODULE

Limits the dynamic of the signal for each input channel. When the signal exceeds the threshold, it is compressed in a ratio greater than 1. Below the threshold, the compressor does not modify the signal. By adjusting the ratio to its maximum value (Limit), the compressor becomes a limiter.

a.- Graphic view of the Compressor module.

b.- **Threshold**: threshold value, above this value the signal will be compressed according to the selected compression ratio.

c.- **Attack**: compressor reaction time when the input signal is above the threshold level.

d.- **Ratio**: compression ratio between the input signal and the compressed signal.

e.- **Release**: release time of the compressor when the signal is above the threshold value.

f.- **Flat Comp**: sets the Compressor module default values .

g.- **Bypass**: the input signal is not processed and is diverted to the next processing module.
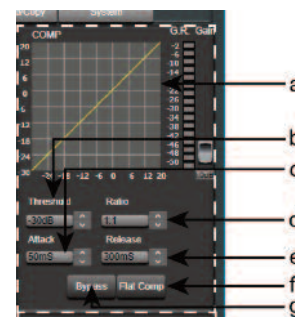
MATRIX
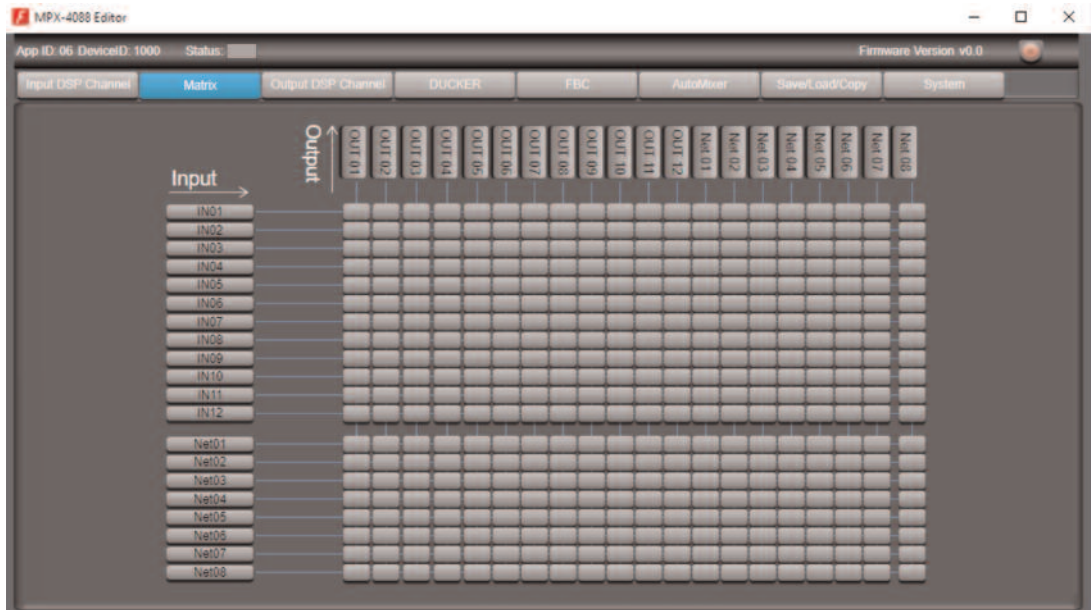
With the MATRIX function, the inputs are allocated to the outputs. By clicking on the grey rectangles, they turn green, indicating the correct allocation of the input channel to the chosen output.

IN/OUT 1~8 correspond to the analogue audio inputs/outputs available on the rear panel.

IN/OUT 9~12 correspond to the digital audio inputs/outputs (RD ports) for models **MPX-400MIC**, **MPX-410ES** and **MPX-430VS**, available on the rear panel.

IN/OUT NET 1~8: correspond to the broadcast inputs/outputs.

OUTPUT DSP CHANNEL

The same menu as the DSP Input Channel but without the expander module and phantom power supply. The parametric equalization is 8-band instead of 5.

DUCKER
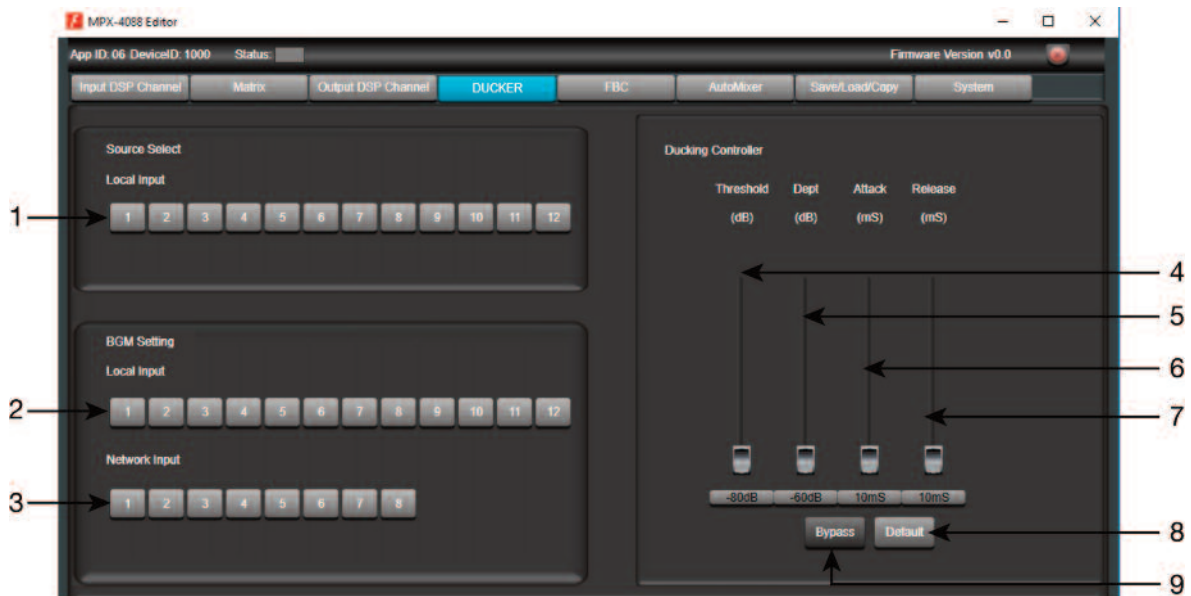
The DUCKER function allows one or several channels to be attenuated depending on the signal level of the channels with priority.

Source Select

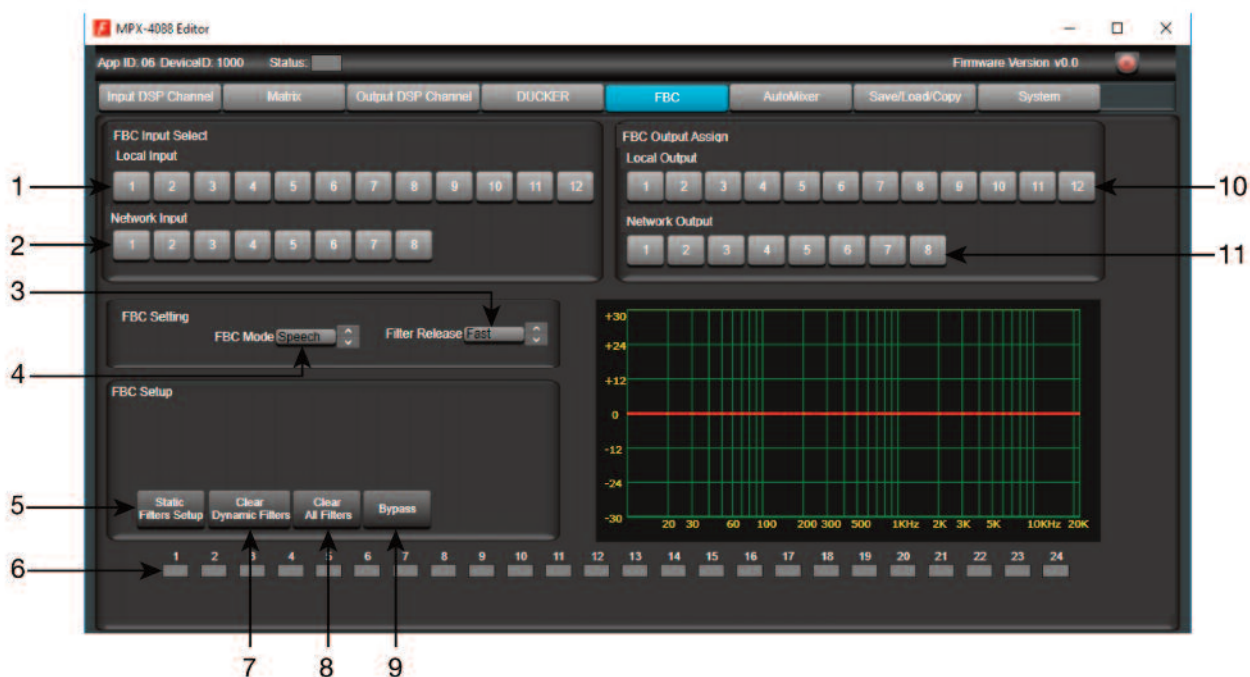1.- **Local Input**: selection of input channels with priority.

BGM Setting

2.- **Local input:** selection of input channels to be attenuated.

3.- **Network Input**: selection of broadcast inputs to be attenuated.

Ducking Controller

4.- **Threshold**: attenuation threshold.

5.- **Depth**: attenuation depth.

6.- **Attack**: reaction time to attenuate the selected channels.

7.- **Release**: release time of the selected channels.

8.- **Default**: resets the default values.

9.- **Bypass:** the input signal is not processed and is diverted to the next processing module.

FEEDBACK CANCELLER FBC

The Feedback Canceller function automatically eliminates the feedback produced by microphones to nearby loudspeakers.

FBC Input Select

1.- **Local Input**: selection of input channels to be processed.

2.- **Network input:** selection of broadcast input channels to be processed.

FBC Setting

3.- **Filter Release**: dynamic filter release time after processing the signal.

4.- **FBC Mode**: application mode, for music or for speech.

FBC Setup

5.- **Static Filters Setup:** volume configuration to achieve feedback.

6.- FBC filters: 24 feedback cancellation filters.

7.- **Clear Dynamic Filters**: restarts dynamic filters.

8.- **Clear All Filters**: restarts all filters, static and dynamic.

9.- **Bypass**: the input signal is not processed and is diverted to the next processing module.

FBC Output Assign

10.- **Local Output**: output channels corresponding to the inputs selected for processing.

11.- **Network output:** broadcast output channels corresponding to the inputs to be processed.

The configuration of the FBC is manual. It consists in finding the resonance frequencies to be eliminated. Once the frequencies have been found, the system will automatically decide on the suitable filters.

In order to configure the FBC, the microphones must be connected and open. The FBC (4) fader must be moved until feedback is reached. When the system detects feedback, the indicators 1 to 24 turn red for static filters and green for dynamic filters.

AUTOMIXER
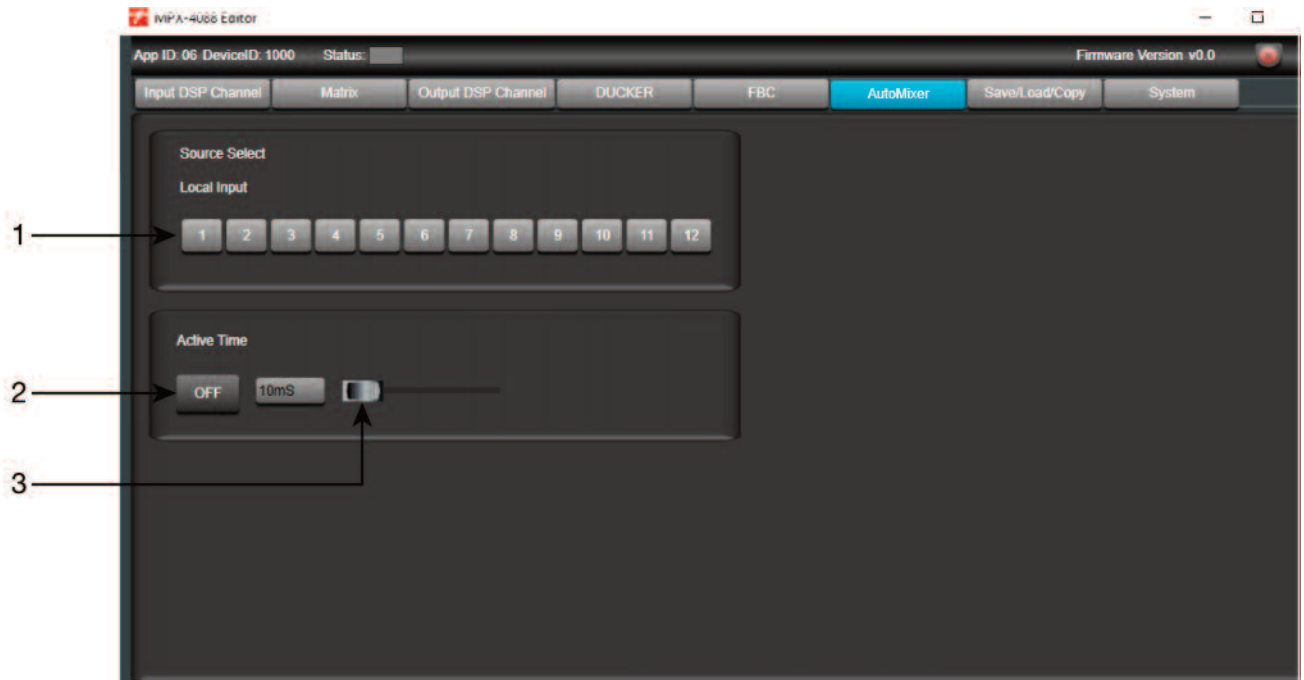
The AutoMixer function reduces the level of a microphone when it is not being used, ideal for conference rooms, theatres, etc.
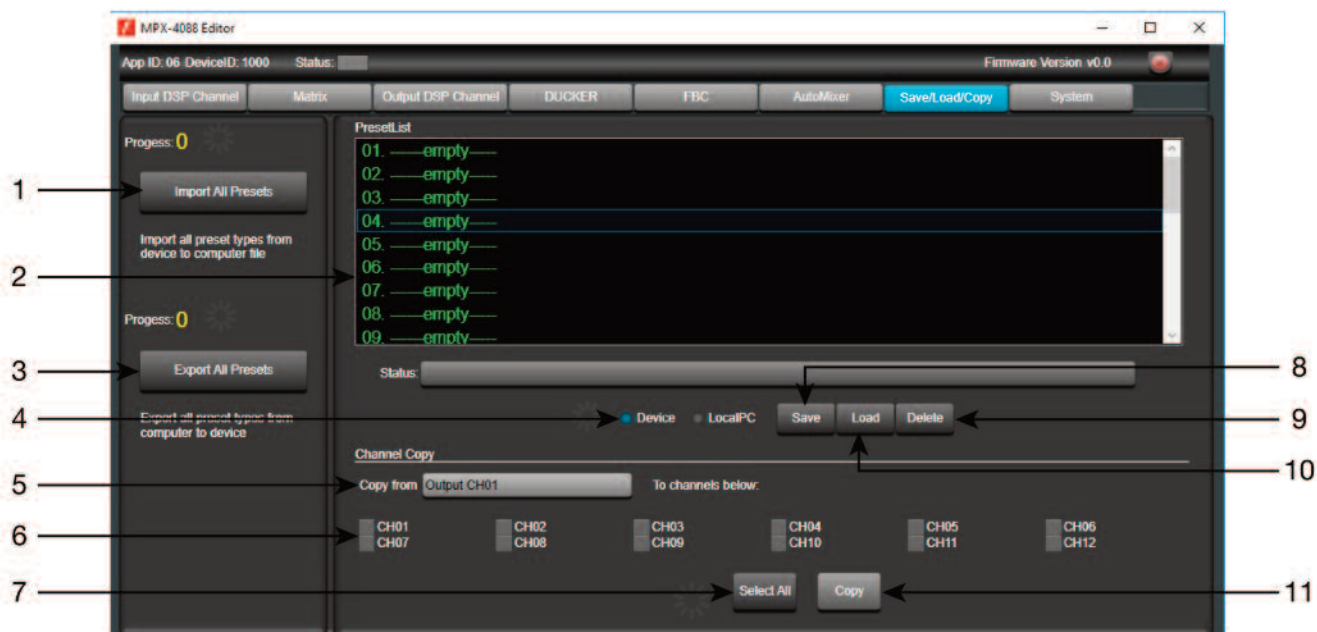
This function can be combined with the Ducker function, by doing so also establishing priority.

1.- **Local input**: selection of input channels to be processed.

Active Time

2.- **ON/OFF**: activates/deactivates the attenuation time.

3.- Sets the attenuation time.

From the SAVE/LOAD tab, configurations can be saved and loaded as presets. This data can be saved in the internal memory of the matrix, as well as in the PC. The memory of the **MPX-4088** matrix has a capacity for a total of 16 presets.

1.- **Import All Presets**: imports the presets from the **MPX-4088** matrix to a file in the PC.

2.- Window showing the list of presets and their position in the memory.

3.- **Export All Presets**: exports all the presets from the PC to the **MPX-4088** matrix.

4.- **Device/Local PC**: selects in order to act on the matrix memory or that of the PC.

5.- **Copy from**: channel from which the copy is made.

6.- Selection of channels to which the copy is applied.

7.- Selection of all channels simultaneously.

8.- **Save**: saves the current configuration of the **MPX-4088** matrix as a preset in the PC or matrix memory.

9.- Delete: eliminates a preset from the **MPX-4088** matrix.

10.- **Load**: loads a preset from a PC file or from a matrix memory.

11.- **Copy**: makes a copy of the selected channels.

SYSTEM
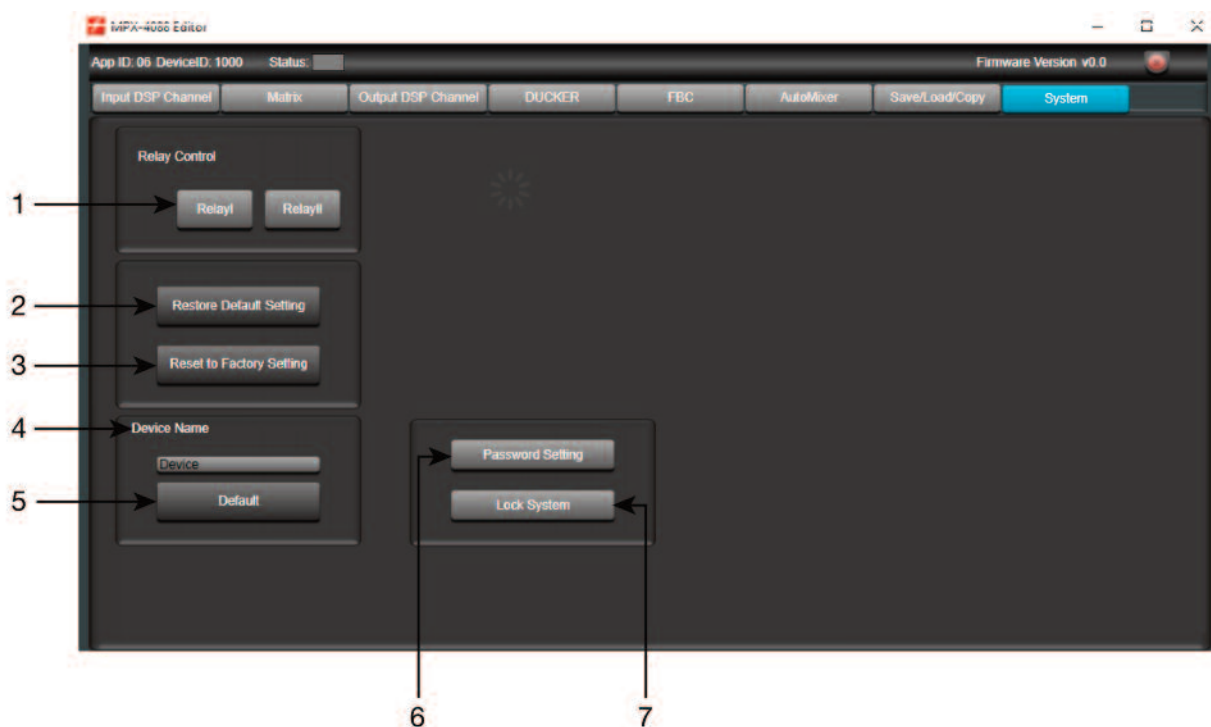
1.- **Relay Control**: controls the contact closures on the rear panel of the **MPX-4088** matrix. Press the button to close the relay(s): the buttons will turn green. Press the button(s) again in order to open the relays.

2.- **Restore Default Settings**: restores the matrix to the default configuration.

3.- **Reset to Factory Setting**: eliminates all the configurations, including the default configuration.

4.- **Device name**: displays the name of the device.

5.- **Change Device Name**: allows the name of the device to be changed.

6.- **Password setting**: allows the lock password to be changed.

7.- **Lock System**: allows the device to be locked/unlocked.

Note: the default password is **8888**.

MPX-400MIC

In Daisy Chain connection mode, the edition mode for the **MPX-400MIC** microphone with zone selector, has the following functions:
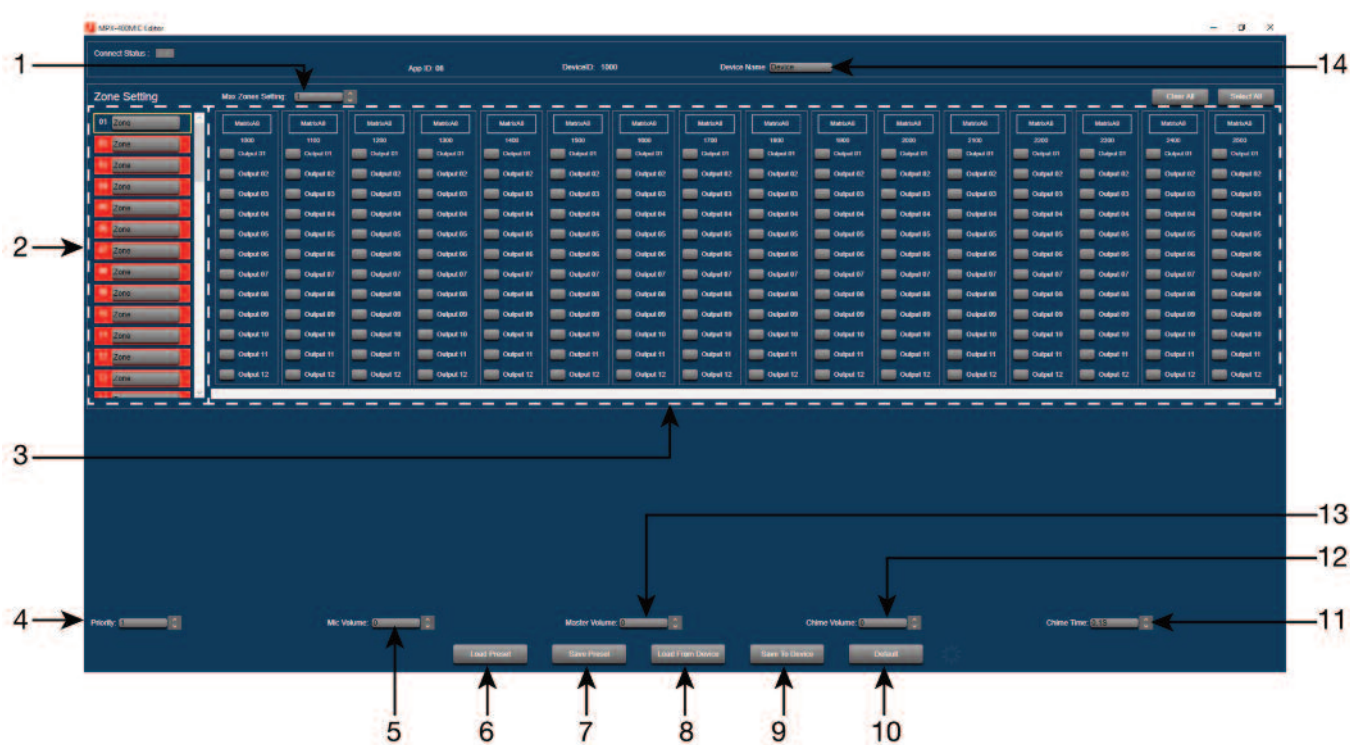
1.- **Max. Zone Setting**: maximum number of paging zones, from 12 to 192.

2.- **Zone Setting**: possibility of establishing names for each zone.

3.- Selection of zone number assigned to the output of each zone.

4.- **Priority**: selects the priority of this microphone within the system, 1 to 8.

5.- **Mic. Volume**: allows microphone volume to be adjusted.

6.- **Load Preset**: allows the saved configuration to be loaded.

7.- **Save preset**: saves the current configuration.

8.- **Load from Device**: loads the configuration of **MPX-400MIC**.

9.- **Save to Device**: saves the current configuration in the **MPX-400MIC**.

10.- **Default**: sets the default configuration.

11.- **Chime time**: sets the duration of the chime, from 0.5 to 12 seconds maximum.

12.- **Chime volume**: allows the chime volume to be adjusted.

13.- Master volume: allows the general volume of the **MPX-400MIC** to be adjusted.

14.- **Device name**: allows the device name to be changed to one that is easily identified.

MPX-410ES

In Daisy Chain connection mode, the edition mode for the audio input/output control **MPX-410ES**, allows the device name to be changed within the system.

MPX-420V

In Daisy Chain connection mode, the edition mode for the remote zone control **MPX-420V**, allows the device name to be changed within the system.

MPX-430VS

In Daisy Chain connection mode, the edition mode for the remote zone control **MPX-430VS**, allows the device name to be changed within the system.

OPTIONAL MODELS FOR MATRIX MPX-4088
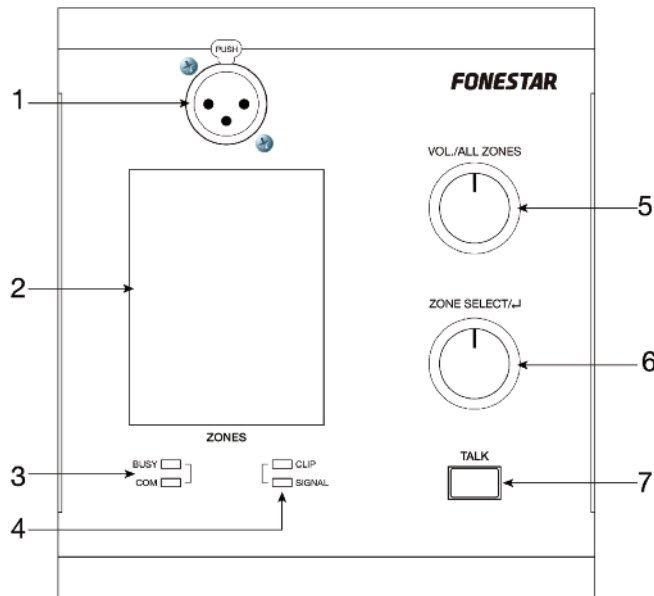
MPX-400MIC
DESCRIPTION
The model **MPX-400MIC** is a microphone with zone selector and chimes for the audio matrix model **MPX-4088**. The zones can be selected individually or all at the same time.

There is the option to personalise the zone names, microphone volume, volume and chime duration, using physical controls or PC software.

CONTROLS AND FUNCTIONS
FRONT PANEL

1.- XLR connector for electret condenser.

2.- LCD information display, showing the zones, volume and ID number.

3.- **COM/BUSY**: LED communication status indicator:

   - **COM**: correct communication between the **MPX-4088** matrix and the **MPX-400MIC** microphone.

   - **BUSY**: communication problem between the **MPX-4088** matrix and the **MPX-400MIC** microphone.

4.- **SIGNAL/CLIP**: LED signal indicators:

   - **SIGNAL**: indicates signal presence.

   - **CLIP**: indicates signal saturation.

5.- **VOL/ALL ZONES**: microphone volume control for selected zones. One press of the button, selects all zones. A long press of this button, accesses the edition mode of the **MPX-400MIC**.

6.- **ZONE SELECT/↵** : selects one or several zones by turning the button to the left or right and pressing to select them.

7.- **TALK**: when the button is pressed, the chime is played in the selected zones and the LED ring on the microphone lights up indicating that it is possible to speak.

   Note: in order to perform a factory reset, the buttons **VOL/ALL ZONES** and **ZONE SELECT/↵** must be pressed and held for more than 3 seconds.
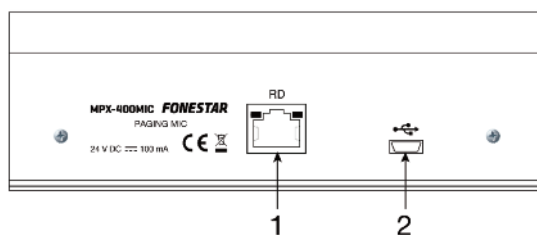
1.- **RD**: RD port for connection to matrix mod. **MPX-4088**.

2.- ⬚: mini USB port to load customized chimes in MP3. To set a different chime, connect the mini USB port to your PC and replace the chime with the one of your choice. The maximum duration of the chimes is 4 seconds.

INSTALLATION
Insert the RJ-45 connector in the RD port on the rear panel and the other end of the connector in the RD port 9/10 or 11/12 of the matrix mod. **MPX-4088**.

**Note:** the total distance of the cable must not exceed 150 meters for an STP Cat 5e cable.

MPX-410ES
DESCRIPTION
The model **MPX-410ES** is an audio input/output remote control for the matrix mod. **MPX-4088**, with 2 input channels for Mic. or 2 x RCA. Balanced XLR microphone input and 2 euroblock balanced audio outputs selectable via the control module **MPX-420V**, **MPX-430VS** or PC software.

CONTROLS AND FUNCTIONS
FRONT PANEL
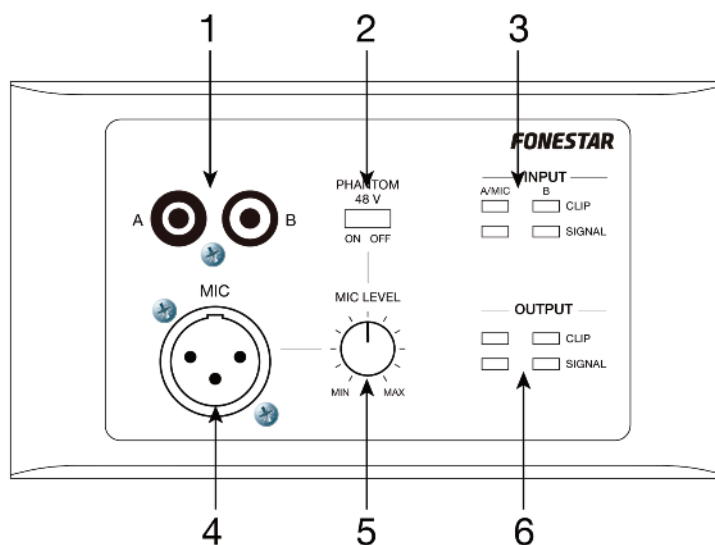
1.- **A/B RCA**: line level analogue inputs allocated to channels 9 or 10 (A) and 11 or 12 (B) according to the RD port connection 9/10 or 11/12 in the **MPX-4088** audio matrix.

2.- **PHANTOM 48 V**: phantom power supply connector for XLR microphone.

3.- **INPUT**: signal indicators for channels A/MIC and B.
   - **SIGNAL**: indicates signal presence in the corresponding channel.
   - **CLIP**: indicates signal saturation in the corresponding channel.

4.- **MIC**: XLR connector for the microphone input. When the microphone is connected, replace the input channel A of the RCA connection.

5.- **MIC LEVEL**: adjusts the microphone volume level.

6.- **OUTPUT**: signal indicators for the output channels 9/10 or 11/12 according to the RD port connection 9/10 or 11/12 in the **MPX-4088** audio matrix.
   - **SIGNAL**: indicates signal presence in the corresponding channel.
   - **CLIP**: indicates signal saturation in the corresponding channel.

INTERIOR PANEL
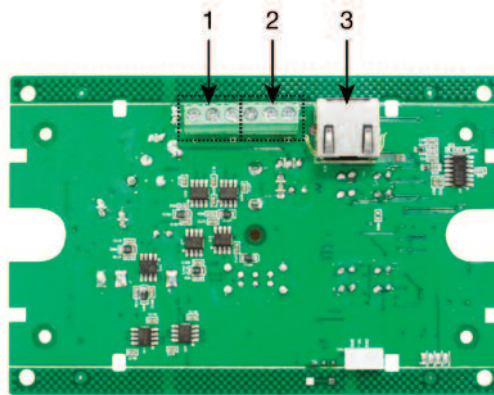
1.- Euroblock connection terminals, corresponding to the output channel 9 or 11.

2.- Euroblock connection terminals, corresponding to the output channel 10 or 12.

3.- RD port for connection to **MPX-4088** matrix. RJ-45 connector.
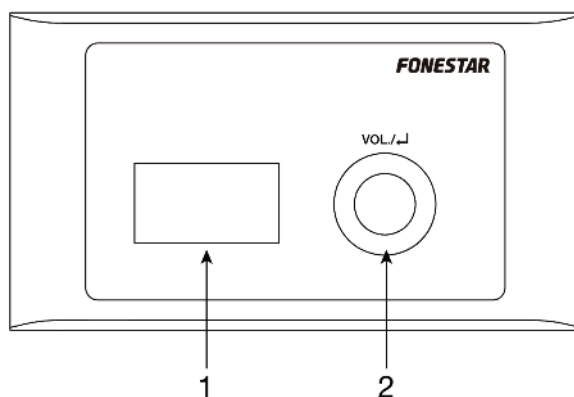
INSTALLATION
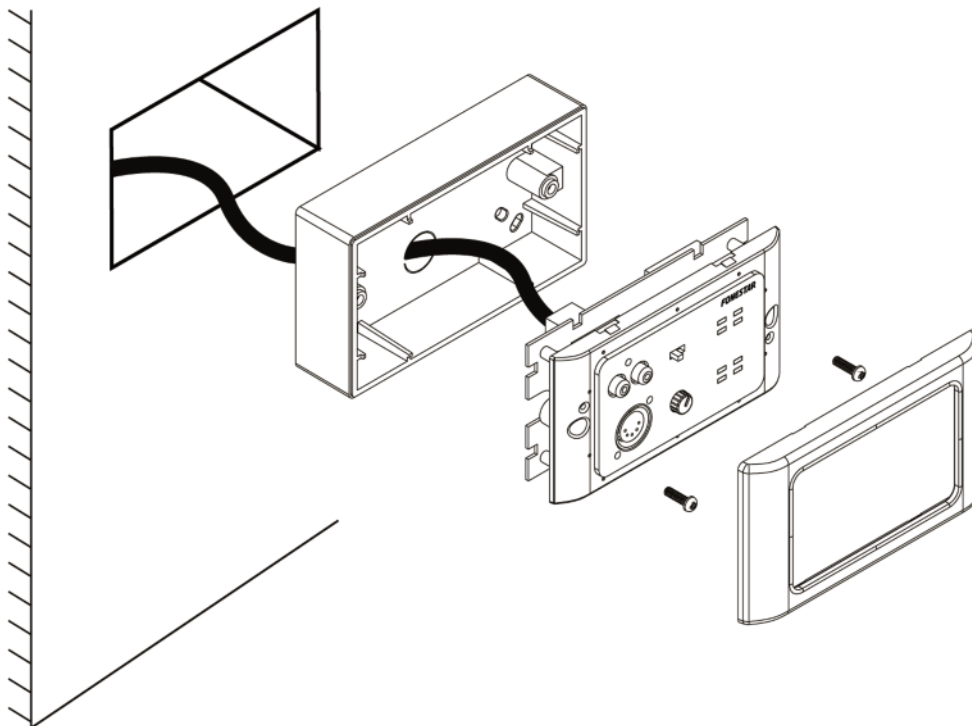
MPX-420V AND MPX-430VS

DESCRIPTION

The models **MPX-420V** and **MPX-430VS** are remote volume and zone controls for the matrix mod. **MPX-4088**. The model **MPX-430VS** incorporates two euroblock balanced audio outputs.

CONTROLS AND FUNCTIONS
FRONT PANEL

1.- **LCD DISPLAY**: displays information about volume in each zone and allocation of inputs to zones.

2.- **VOL./↵** : volume control and zone allocation.

INTERIOR PANEL MPX-420V
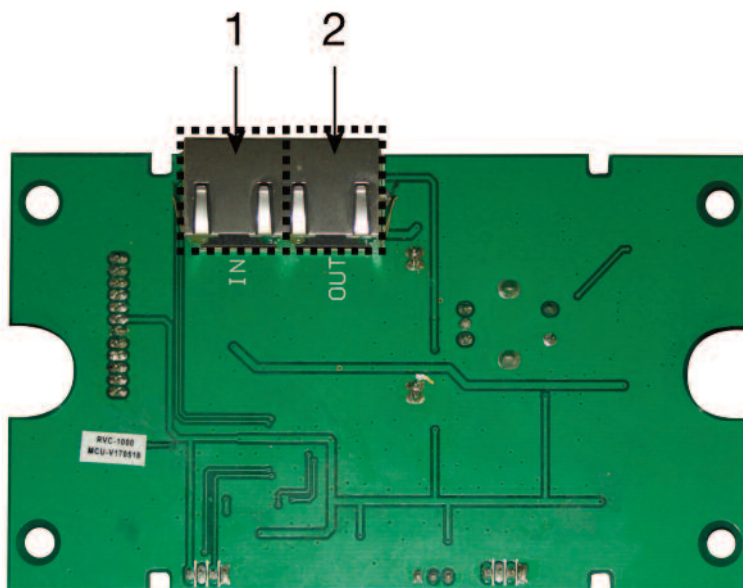
1.- RD port for connection to **MPX-4088** matrix. RJ-45 connector.

2.- RD LINK port for connection in series of remote controls **MPX-420V**.

INTERIOR PANEL MPX-430VS
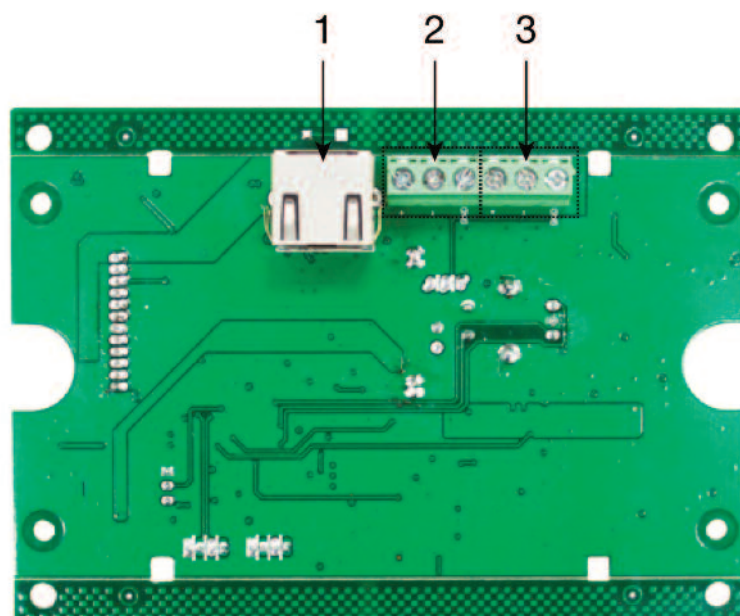
1.- RD port for connection to **MPX-4088** matrix. RJ-45 connector.

2.- Euroblock connection terminals, corresponding to the output channel 10 or 12.

3.- Euroblock connection terminals, corresponding to the output channel 9 or 11.

INSTALLATION

MPX-440X

DESCRIPTION

The model **MPX-440X** is an RD port extender for the matrix mod. **MPX-4088**.

CONTROLS AND FUNCTIONS
FRONT PANEL
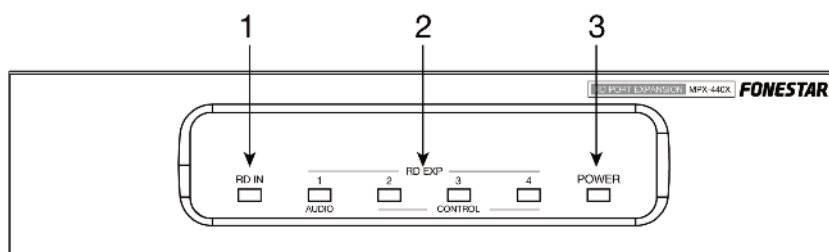
1.- **RD IN**: LED indicator of connection to the mod. **MPX-4088**.
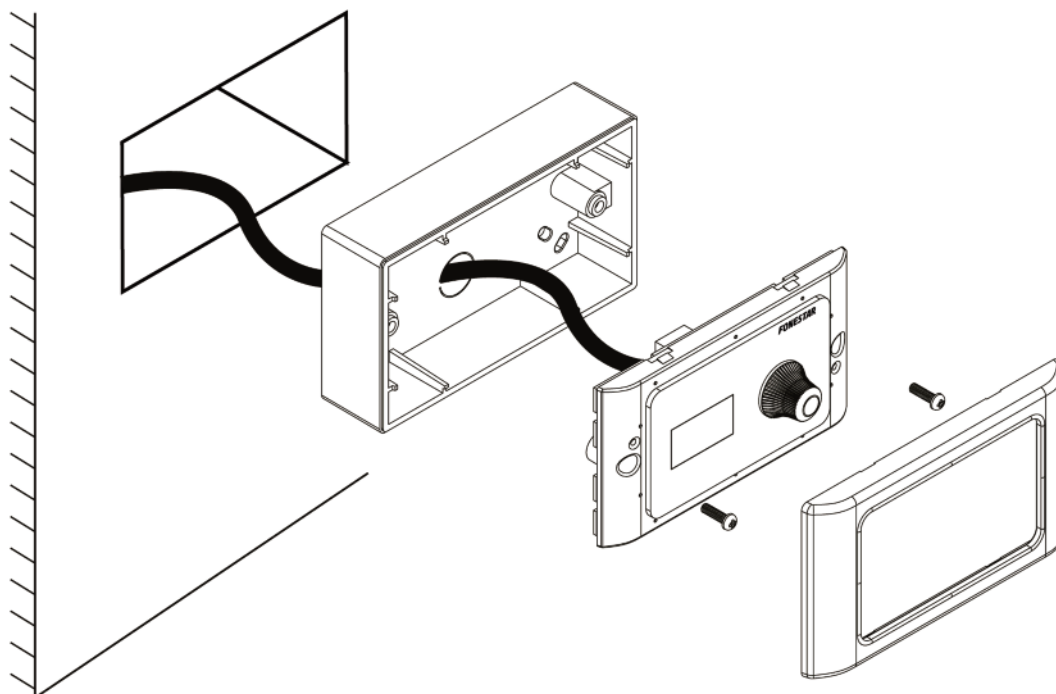
2.- **RD EXP**: LED indicator of connection via the **RD EXP** ports.

3.- **POWER**: LED power indicator.

REAR PANEL
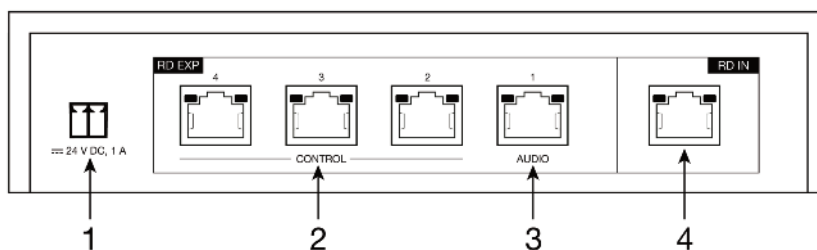
1.- 24 V DC power supply, 1 A. Euroblock connector.

2.- **RD EXP CONTROL**: digital port for connection to model **MPX-420V**. RJ-45 connector.

3.- **RD EXP AUDIO**: digital port for connection to models **MPX-400MIC**, **MPX-410ES** and **MPX-430VS**. RJ-45 connector.

4.- **RD IN**: digital port for connection to matrix model **MPX-4088**. RJ-45 connector.

RS-232 COMMUNICATION PROTOCOL

The following values must be used in order to configure the device using the RS-232 port:

- Baud Rate: 9600

| No.	Start byte 0 (1 byte)	Start byte 1 (1 byte)	Start byte 2 (1 byte)	Length	Command (1 byte)	Channel (1 byte)	Value (N bytes)	End byte (1 byte)	Function
1	0x01	0x20	0x03	0x08	0x01	00~0C	0x00~80	0x40	Changes the gain of the selected input channel
2	0x01	0x20	0x03	0x08	0x02	00~0C	0x00~01	0x40	Changes the phase of the selected input channel
3	0x01	0x20	0x03	0x08	0x03	00~0C	0x00~01	0x40	Mutes the selected input channel with values greater than 0x00
4	0x01	0x20	0x03	0x08	0x04	00~0C	0x00	0x40	Obtains information from the selected input channel
5	0x01	0x20	0x03	0x08	0x04	00~0C	Byte0: Gain Byte1: Phase Byte2: Mute value	0x40	Displays status information of the selected output channel
6	0x01	0x20	0x03	0x08	0x05	00~0C	0x00~80	0x40	Changes the gain of the selected output channel
7	0x01	0x20	0x03	0x08	0x06	00~0C	0x00~01	0x40	Changes the phase of the selected output channel
8	0x01	0x20	0x03	0x08	0x07	00~0C	0x00~01	0x40	Mute: mutes the selected input channel with values greater than 0x00
9	0x01	0x20	0x03	0x08	0x08	00~0C	0x00	0x40	Obtains information from the selected input channel
10	0x01	0x20	0x03	0x0A	0x08	00~0C	Byte0: Gain Byte1: Phase Byte2: Mute value	0x40	Displays status information of the selected output channel
11	0x01	0x20	0x03	0x16	0x09	00~0C	Byte0: input 1 analogue channel Byte1: input 2 analogue channel ... Byte8: input 9 digital channel Byte9: input 10 digital channel ...	0x40	Allocates input channels to the output channel : - 0x00: not allocated - 0x01: allocated
12	0x01	0x20	0x03	0x08	0x0A	00~0C	0x00	0x40	Obtains input channels allocated to the selected output channel
13	0x01	0x20	0x03	0x16	0x0A	00~0C	Byte0: input 1 analogue channel Byte1: input 2 analogue channel ... Byte8: input 9 digital channel Byte9: input 10 digital channel ...	0x40	Displays input channels allocated to the selected output channel
14	0x01	0x20	0x03	0x16	0x0D		16 bytes ASCII	0x40	Sets the device name
15	0x01	0x20	0x03	0x07	0x0E		0x00	0x40	Obtains device information
16	0x01	0x20	0x03	0x17	0x0E	Byte 0-15: ASCII device name; Byte 16: Firmware version; Byte 17-21: Device series number		0x40	Displays device information
17	0x01	0x20	0x03	0x08	0x0F		0x00~0x20 (0~32)	0x40	Load a saved preset

FIRMWARE UPDATING

To update the firmware of the **MPX-4088**, **MPX-400MIC**, **MPX-410ES**, **MPX-420V**, **MPX-430VS** and **MPX-440X**, it is necessary to download the Firmware Update Tool. Access fonestar.com/ES/MPX-4088 and go tothe Software section to download the Firmware Update Tool .

Connect your PC to the same network as the matrix **MPX-4088**, execute the firmware update tool and follow the steps below:

1.- Press the SETUP button and select the IP of the device to be updated.

2.- Then, press the Connect button. If the connection has been made correctly, the connection indicator will turn green and all the devices connected to the matrix will be displayed.
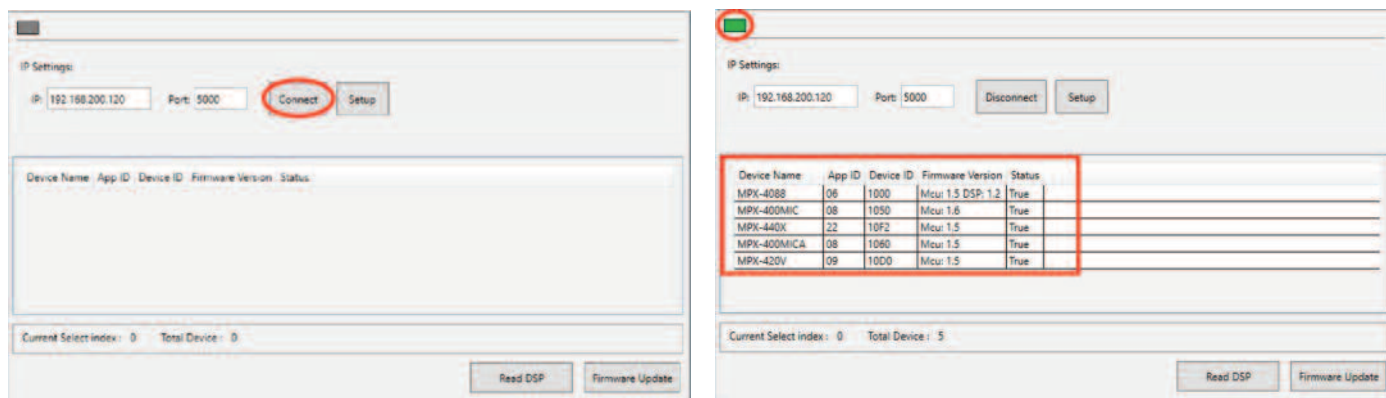
3.- Select the device you wish to update, click on Firmware Update and then on Update Firmware to proceed with the update.
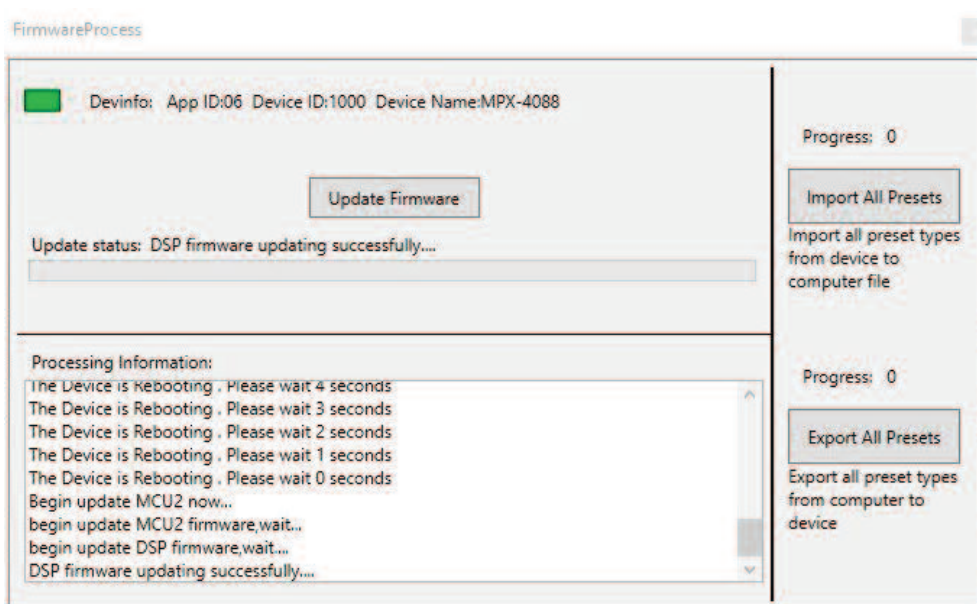

4.- Wait until the update has finished and then restart the device.

CONFIGURATION OF NETWORK PARAMETERS

It is possible to manually configure the parameters of the **MPX-4088** matrix. In order to do so, please consult fonestar.com/ES/MPX-4088 Software section in order to download the LAN Module Config Tool.

Connect your PC to the **MPX-4088** matrix, execute the network configuration tool and follow the steps below:

1.- Press the SETUP button, select the IP of the device to be configured and press the Config. button.
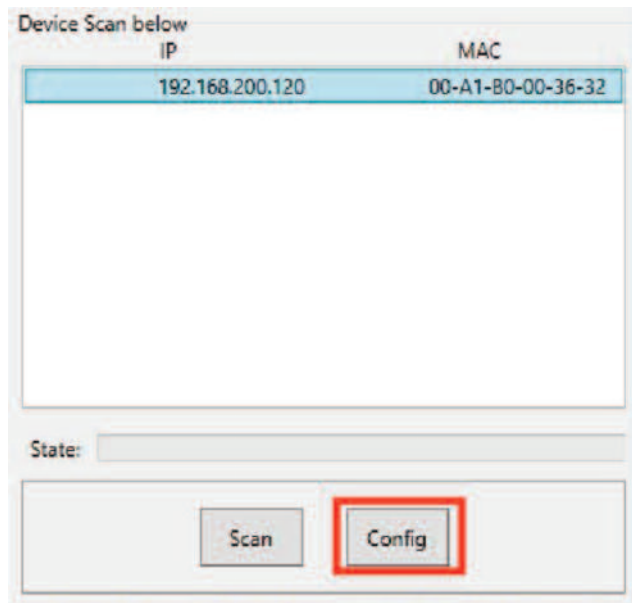
2.- In the new window, enter the configuration ID and password . The default ID is: admin, the password is: system.
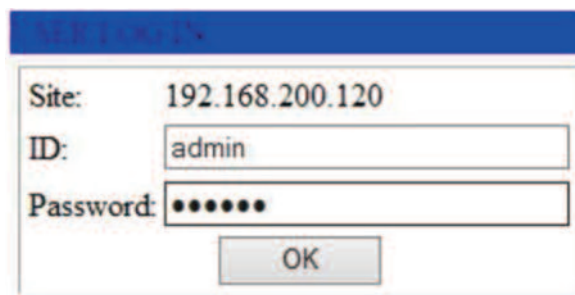
3.- In order to configure the network parameters of your choice, navigate through the available sections in the sidebar and set the parameters to the required values.

TECHNICAL SPECIFICATIONS

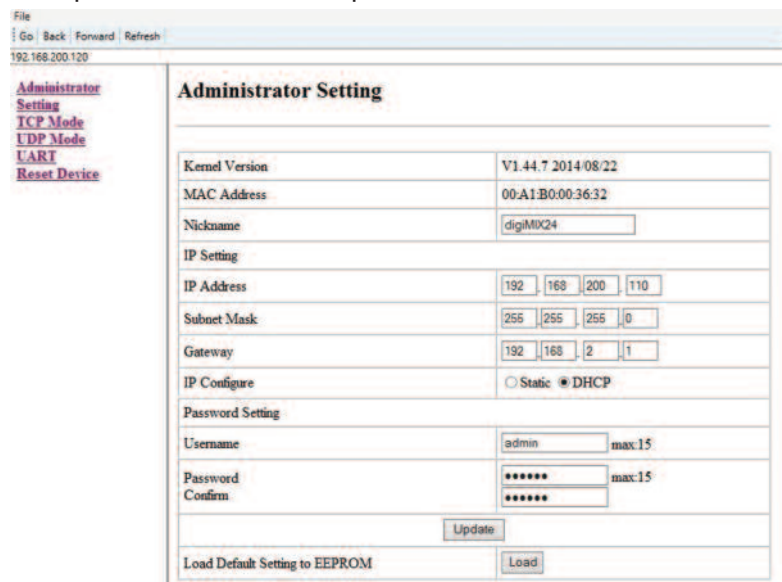|	MPX-4088
CHARACTERISTICS	Audio matrix with 8 analogue input channels to 8 output zones. 4 configurable input/output digital channels for use with controls mod. **MPX-400MIC, MPX-410ES, MPX-430VS**. Optional zone controls mod. **MPX-420V** and **MPX-430VS** for selection of program broadcast in the zone. PC control software. LED indicators for power, bus occupation, signal and failure. LCD information display. Microphone with priority and optional zone selection mod. **MPX-400MIC**. Compatible with DANTE.
INPUTS	8 balanced line, euroblock 6,800 Ω, 7.74 Vrms maximum 2 RD ports, for mod. MPX-420V, MPX-430VS, MPX-410ES, MPX-400MIC or MPX-440X, RJ-45 1 RC-Net port for matrix interconnection, RJ-45 1 LAN port for connection to local area network, RJ-45
OUTPUTS	8 balanced line, euroblock 240 Ω, 7.74 Vrms maximum 2 RD ports, for mod. **MPX-420V**, **MPX-430VS**, **MPX-410ES**, **MPX-400MIC** or **MPX-440X**, RJ-45 1 link, switchable RC-Net, RJ-45 RS-232 Port, euroblock
CONTROLS	PC control software (input and output routing, DSP functions, equalization, noise gates, compressor, gain control, etc.) TCP/IP and RS-232 protocol for integration with other systems
RESPONSE	20-20,000 Hz ±1.5 dB
DISTORTION	Harmonic: < 0.01%
S/N RATIO	Microphone > 102 dB Lines> 107 dB
PHANTOM	48 V in inputs 1 to 8, selectable with software
PRIORITY	Microphone with optional zone selector mod. MPX-400MIC Inputs 1 to 8 through level, selectable with software
POWER SUPPLY	100-240 V AC, 50/60 Hz, 80 W
DIMENSIONS	483 x 44 x 256 mm depth. 1 U 19" rack
OPTIONAL	**MPX-400MIC:** microphone with zone selector **MPX-410ES:** audio input/output control **MPX-420V:** zone control **MPX-430VS:** zone control with stereo output **MPX-440X:** RD port extender **MPX-450D:** DANTE module

	MPX-400MIC
CHARACTERISTICS	Microphone with zone selector. Chimes. Selection of zones and paging in audio matrix mod. **MPX-4088**. LED indicators for power, signal, saturation and communication status. LCD information display. PC control software, personalization of zone names, microphone volume, volume and duration of chime and priority.
MICROPHONE	Electret condenser with gooseneck and LED ring
INPUTS	1 balanced mic., XLR 6,800 Ω 1 mini USB port for loading chimes in MP3 or WAV format 1 RD port for connection to **MPX-4088** matrix, RJ-45
CONTROLS	Microphone and zone selector control
CONNECTION	RJ-45, Cat 5e cable
PHANTOM	12 V
POWER SUPPLY	24 V DC, 100 mA, through RD port
DIMENSIONS	Microphone with gooseneck: 430 mm height Base: 176 x 53 x 166 mm depth
ACCESSORIES	Foam windshield

	MPX-410ES
CHARACTERISTICS	Audio input/output control for audio matrix mod. **MPX-4088**. 2 input channels and 2 output channels. Converts and transmits digital audio to RD port. LED signal presence and saturation indicators for the inputs and outputs. Up to 2 **MPX-410ES** modules per matrix.
INPUTS	1 balanced mic., XLR 5,100 Ω, assignable to channels 10 or 12. 1 stereo RCA line, 5,100 Ω, 7.74 V, assignable to channels 9/10 or 11/12. 1 RD port for connection to matrix MPX-4088, RJ-45
OUTPUTS	2 balanced line, euroblock 240 Ω, 7.74 V, assignable to digital channels 9/10 or 11/12
CONTROLS	Microphone volume control Selectable phantom power supply
CONNECTION	RJ-45, Cat 5e cable
PHANTOM	48 V
POWER SUPPLY	24 V DC, 100 mA, via RD port
DIMENSIONS	147 x 86 x 47 mm depth
ACCESSORIES	Surface box

MPX-420V	
CHARACTERISTICS	Remote volume and zone allocation control for audio matrix mod. **MPX-4088**. Connection to the matrix via RJ-45, Cat 5e cable and link for connection of more MPX-420V in series. LCD display with volume level information for the selected output.
INPUTS	1 RD port for connection to matrix **MPX-4088**, RJ-45
OUTPUTS	1 link, RJ-45
CONTROLS	Volume and zone allocation control
CONNECTION	RJ-45, Cat 5e cable
POWER SUPPLY	24 V DC, 100 mA, via RD port
DIMENSIONS	147 x 86 x 47 mm depth
ACCESSORIES	Surface box

MPX-430VS	
CHARACTERISTICS	Volume control with two balanced audio outputs and zone allocation for audio matrix mod. MPX-4088. Connection to RD ports. Connection to the matrix via RJ-45, Cat 5e cable. LCD display with volume level information for the selected output.
INPUTS	1 RD port for connection to matrix **MPX-4088**, RJ-45
OUTPUTS	2 balanced line, euroblock, 240 Ω, 7.74 V, assignable to digital channels 9/10 or 11/12.
CONTROLS	Volume control and zone allocation
CONNECTION	RJ-45, Cat 5e cable
POWER SUPPLY	24 V DC, 100 mA, RD port
DIMENSIONS	147 x 86 x 47 mm depth
ACCESSORIES	Surface box

MPX-440X	
CHARACTERISTICS	4 RD port extender for audio matrix mod. **MPX-4088**. Connections via RJ-45, Cat 5e cable. LED power and connection indicators for each port.
INPUTS	1 RD port for connecting to matrix **MPX-4088**, RJ-45
OUTPUTS	1 RD audio port for connecting mod. **MPX-400MIC**, **MPX-410ES** or **MPX-420VS**, RJ-45. 3 RD control ports for connecting mod. **MPX-420V**, RJ-45
CONNECTION	RJ-45, Cat 5e cable
POWER SUPPLY	24 V DC, 1 A, euroblock
DIMENSIONS	196 x 44 x 135 mm depth

WARRANTY

This product has been tested and has passed the corresponding quality control prior to being put on the market.

FONESTAR guarantees the suitability of the product for its specified use during a period of 2 years from the delivery date and commits itself to repair or substitute the goods as expressed in the Spanish law 'La Ley General para la Defensa de los Consumidores y Usuarios, Real Decreto Legislativo 1/2007 16 Noviembre.

The lack of conformity in the first six months after purchase, due to a manufacturing defect, will be rectified with no more than showing the proof of purchase. After six months **FONESTAR** reserves the right to demand proof of the product being sold with that problem.

This warranty does not include damage produced by: inappropriate use or negligence, accidents, worn out parts due to use, breakages, burns, spilt liquids or other substances, excessive humidity, battery deterioration and internal manipulation of the device, the software or its components by unauthorized persons, and in general any use that is unrelated to the nature and purpose of the product.

If any service is needed during the warranty period because of lack of conformity, please contact the business or distributor where the product was purchased in no more than 2 months after being conscious of the problem. It is only necessary to contact **FONESTAR** if it is impossible or imposes an undue burden for them to solve it.

To benefit from this warranty it is necessary to show the proof of purchase with the date clearly visible, with no corrections or crossing out.

This document adds information, and never decreases the consumers' rights, which in all cases are protected by the Spanish law 'La Ley General para la Defensa de los Consumidores y Usuarios, Real Decreto Legislativo 1/2007 16 Noviembre.

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