OWNER MANUAL

AX 8042 - AUTOMIXER WITH 8 AUDIO
INPUTS AND 6 AUDIO OUTPUTS

RCF

TABLE OF CONTENTS

SAFETY PRECAUTIONS

IMPORTANT NOTES
Before connecting and using this product, please read this instruction manual carefully and keep it on hand for future reference.
The manual is to be considered an integral part of this product and must accompany it when it changes ownership as a reference for correct installation and use as well as for the safety precautions.
RCF S.p.A. will not assume any responsibility for the incorrect installation and / or use of this product.

WARNING: To prevent the risk of fire or electric shock, never expose this product to rain or humidity (indoor use only).

SAFETY PRECAUTIONS
1. All the precautions, in particular the safety ones, must be read with special attention, as they provide important information.

2. POWER SUPPLY FROM MAINS
- The mains voltage is sufficiently high to involve a risk of electrocution: never install or connect this product when its power cord is plugged in.
- Before powering up, make sure that all the connections have been made correctly and the voltage of your mains corresponds to the voltage shown on the rating plate on the unit, if not, please contact your RCF dealer.
- The metallic parts of the unit are earthed by means of the power cord.
- An apparatus with CLASS I construction shall be connected to a mains socket outlet with a protective earthing connection.
- Protect the power cord from damage. Make sure it is positioned in a way that it cannot be stepped on or crushed by objects.
- To prevent the risk of electric shock, never open this product: there are no parts inside that the user needs to access.
- The mains plug is used as the disconnect device and it shall remain readily operable.

3. Make sure that no objects or liquids can get into this product, as this may cause a short circuit.
This apparatus shall not be exposed to dripping or splashing.
No objects filled with liquid (such as vases) and no naked sources (such as lighted candles) shall be placed on this apparatus.

4. Never attempt to carry out any operations, modifications or repairs that are not expressly described in this manual.
Contact your authorized service centre or qualified personnel should any of the following occur:
- The product does not function (or functions in an anomalous way).
- The power supply cord has been damaged.
- Objects or liquids have got in the unit.
- The product has been subject to a heavy impact.

5. If this product is not used for a long period, disconnect the power cord.

6. If this product begins emitting any strange odours or smoke, switch it off immediately and disconnect the power cord.

7. Do not connect this product to any equipment or accessories not foreseen.
For suspended installation, only use the dedicated anchoring points and do not try to hang this product by using elements that are unsuitable or not specific for this purpose.
Also check the suitability of the support surface to which the product is anchored (wall, ceiling, structure, etc.), and the components used for attachment (screw anchors, screws,

IMPORTANT

WARNING

brackets not supplied by RCF etc.), which must guarantee the security of the system / installation over time, also considering, for example, the mechanical vibrations normally generated by loudspeakers.
To prevent the risk of falling equipment, do not stack multiple units of this product unless this possibility is specified in the user manual.

8. RCF S.p.A. strongly recommends this product is only installed by professional qualified installers (or specialised firms) who can ensure correct installation and certify it according to the regulations in force.
The entire audio system must comply with the current standards and regulations regarding electrical systems.

9. Supports and trolleys
The equipment should be only used on trolleys or supports, where necessary, that are recommended by the manufacturer. The equipment / support / trolley assembly must be moved with extreme caution. Sudden stops, excessive pushing force and uneven floors may cause the assembly to overturn.

10. Mechanical and electrical factors need to be considered when installing a professional audio system (in addition to those which are strictly acoustic, such as sound pressure, angles of coverage, frequency response, etc.).

11. Hearing loss
Exposure to high sound levels can cause permanent hearing loss. The acoustic pressure level that leads to hearing loss is different from person to person and depends on the duration of exposure. To prevent potentially dangerous exposure to high levels of acoustic pressure, anyone who is exposed to these levels should use adequate protection devices.
When loudspeakers capable of producing high sound levels are used, it is necessary to wear ear plugs or protective earphones.
See the technical specifications in loudspeaker instruction manuals to know their maximum sound pressure levels.

12. Situate this product far from any heat source.

13. Never force the control elements (keys, knobs, etc.).

14. Do not use solvents, alcohol, benzene or other volatile substances for cleaning the external parts of this product. Use a dry cloth.

NOTES ABOUT AUDIO SIGNAL CABLES ⚠

To prevent the occurrence of noise on microphone / line signal cables, use screened cables only and avoid putting them close to:
- **Equipment that produces high-intensity electromagnetic fields**
- **Mains cables**
- **Loudspeaker lines.**

RCF S.P.A. THANKS YOU FOR PURCHASING THIS PRODUCT, WHICH HAS BEEN DESIGNED TO GUARANTEE RELIABILITY AND HIGH PERFORMANCES.

INSTALLATION

This device can be installed into a 19" rack cabinet (1 unit) thanks to its rack ears.

DESCRIPTION

AX 8042 is a highly versatile digital matrix and automixer based on a powerful DSP and dedicated to installed sound systems and other audio applications.

It has 8 mic / line inputs on removable connectors with selectable 48 V phantom power (each input from 5 to 8 has a single RCA socket) and 4 outputs (A to D, on removable screw terminals) directly linked to the matrix audio buses, plus 2 additional outputs (E – F, on RCA sockets) that can be separately processed and combined to any of the first 4 (A to D).

Sound processing includes parametric equalizers, noise-gates, compressors, limiters, delays, ducking, automatic level and gain controls, priority functions, levels and gains on all cross-points.

All parameters can be edited through a dedicated RDNET software module.

Each AX 8042 can work as a dual-room combiner with 2 independent 'automix' settings.

AX 8042 has 10 logic inputs (GPIN), 4 logic outputs (GPOUT) plus 2 (RL1, RL2) with a relay. All logic inputs and outputs have removable screw terminals and are fully configurable.

Two AX 8042 (MASTER and SLAVE) can be linked each other to get a 16-input 8-output matrix (plus 4 additional outputs) through RJ 45 digital ports on their rear panels.

Up to four TS 9918 remote controls can be connected to the MASTER AX 8042.

A slot on rear panel allows to integrate an optional RCF RDNET module to get remote control through RDNET network.

Up to twelve BM 3003 paging microphones (linked in daisy-chain on the same line) can be connected to the dedicated RJ 45 port, which can be used in alternative to input 1.
Each of the three BM 3003 buttons can be configured to page one or more zones (audio outputs).
All paging microphones are interlocked one another and report in-use and busy indications.

MAIN FEATURES
- digital 8-input 4-output (plus 2 additional outputs) matrix and automixer.
- 40-bit floating point DSP, sampling frequency: 48 kHz, 24-bit a/d d/a converters.
- 8 mic / line balanced audio inputs with 48 V 'Phantom' power, with noise gates, compressors, parametric equalizers, automatic gain controls, ducking function.
- 4 line balanced audio outputs with level controls, parametric equalizers, delays, limiters.
- 2 additional line (unbalanced) audio outputs with level controls, parametric equalizers, delays, limiters, each linkable to one of the first 4 outputs.
- 10 programmable logic inputs (GPIN).

- 4 programmable logic outputs (GPOUT) plus 2 with relay (RL1, RL2).
- Dual-room combiner with 2 independent 'automix' settings.
- 16-input 8-output matrix (plus 4 additional outputs) by linking together two AX 8042.
- Configurable ALC ('Automatic Level Control') when a noise detection microphone is connected to the input no.8 .
- Either USB link (standard) or RDNET link (through an optional module).
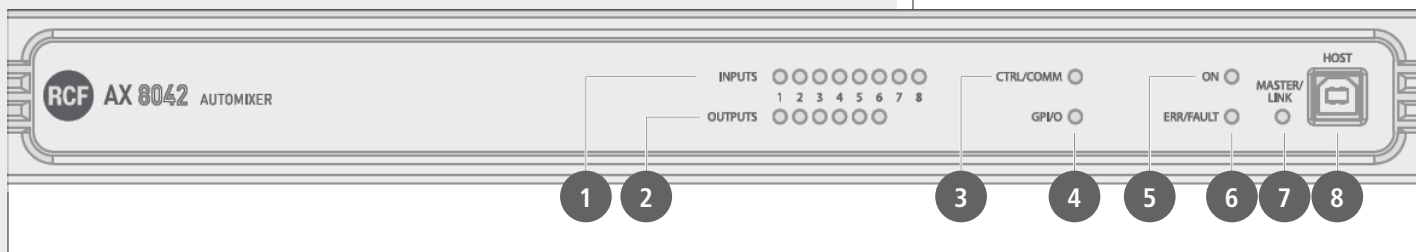- Port for dedicated RCF TS 9918 remote controls.

AUDIO INPUT BLOCK DIAGRAM
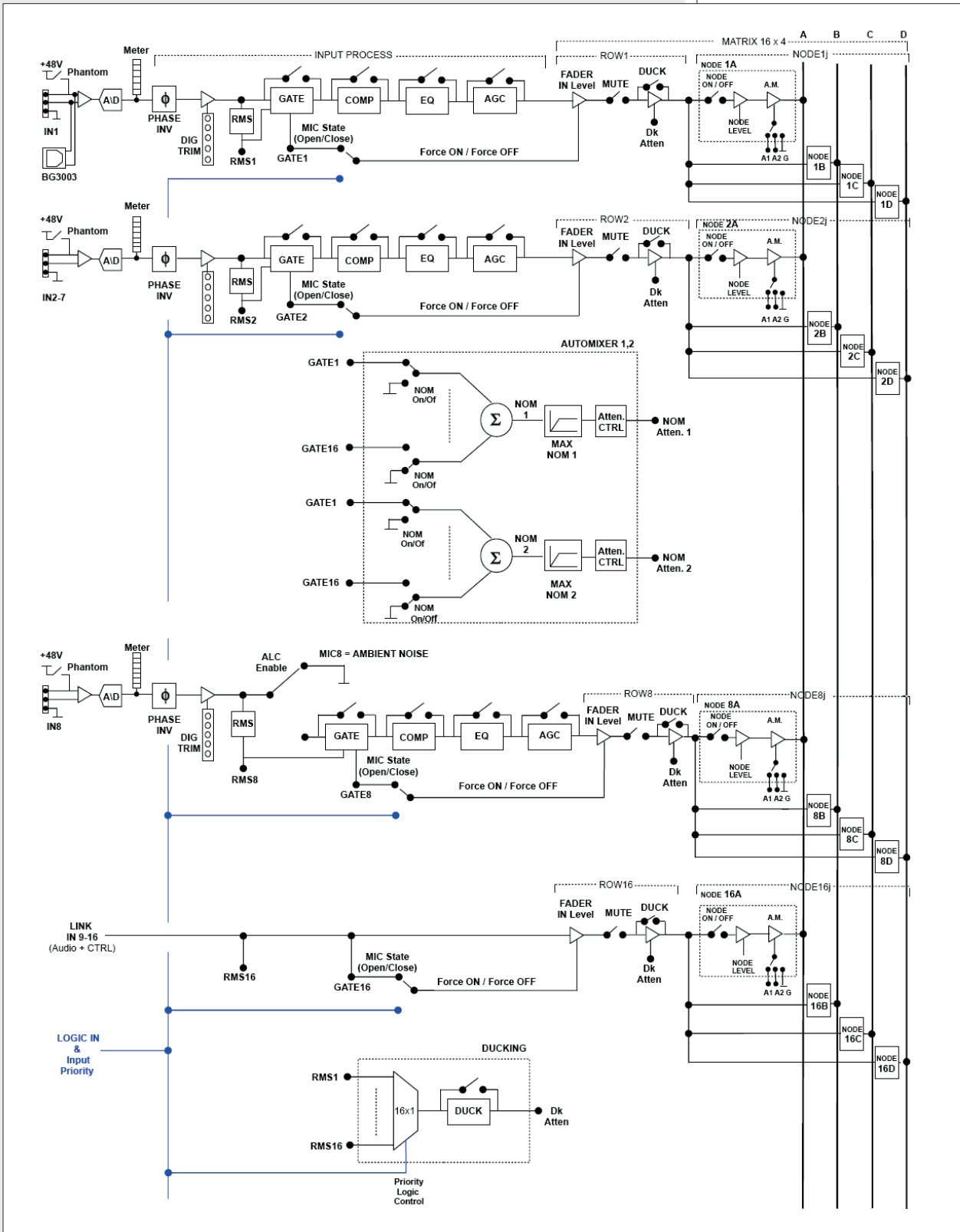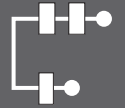
AUDIO OUTPUT BLOCK DIAGRAM
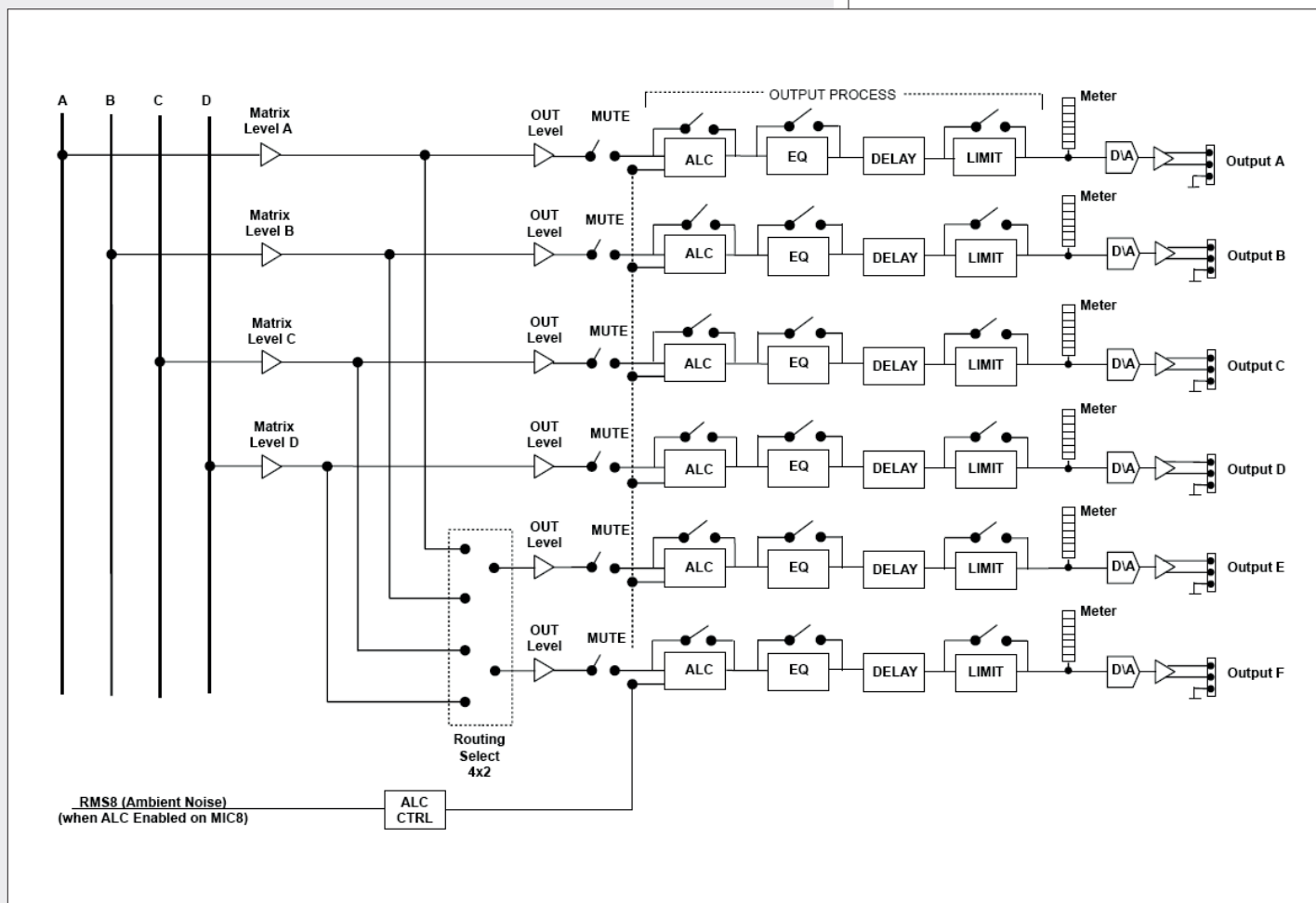
FRONT PANEL

1 **INPUTS** LEDs: each LED indicates the signal presence (green) / peak (red) at its respective audio input.

2 **OUTPUTS** LEDs: each LED indicates the signal presence (green) / peak (red) at its respective audio output.

3 **CTRL/COMM** LED: it blinks when receiving control data.

④ **GPI/O** LED: when lit, it indicates the activation of at least a logic input / output.

⑤ **ON** LED: when lit, it indicates the AX 8042 automixer is properly powered and operating.

⑥ **ERR/FAULT** LED: when lit, it indicates a fault or data transmission / reception errors.

⑦ **MASTER/LINK** LED: when lit, the AX 8042 automixer is the MASTER unit, otherwise (if the LED is off) it is set to SLAVE.

⑧ **HOST:** USB (type B) port to link a computer (PC) locally.

REAR PANEL
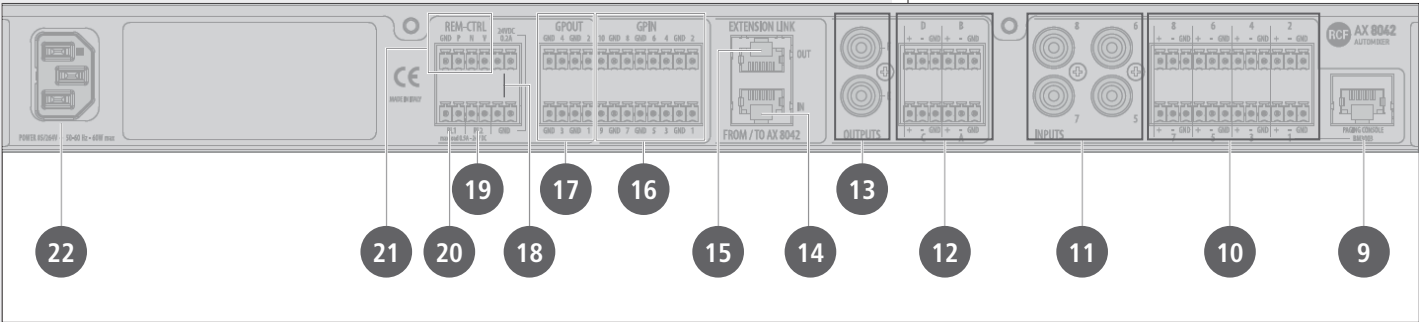
⑨ **PAGING CONSOLE (input 1):** audio input with RJ 45 socket (alternative to the input 1 with removable connector ⑩) for a line made of max. 12 RCF BM 3003 paging microphones linked in 'daisy-chain' (read the BM 3003 user manual).

⑩ **AUDIO INPUTS 1 to 8:** balanced line level inputs for removable connectors. Pins:

+	Audio signal, hot
–	Audio signal, cold
GND	Ground

(11) **AUDIO INPUTS 5 to 8:** (alternative to those for removable connectors (10)), unbalanced line level inputs with RCA sockets.

(12) **AUDIO OUTPUTS A to D:** balanced line level outputs for removable connectors. Pins:

+	Audio signal, hot
–	Audio signal, cold
GND	Ground

(13) **AUDIO OUTPUTS E and F:** unbalanced line level outputs with RCA sockets.

(14) **EXTENSION LINK IN:** input to link the EXTENSION LINK OUT of the second AX 8042 (optional). Read the manual section 'How to link two AX 8042 each other'.

(15) **EXTENSION LINK OUT:** output to link the EXTENSION LINK IN of the second AX 8042 (optional). Read the manual section 'How to link two AX 8042 each other'.

(16) **GPIN 1 ÷ 10** 'Generic Purpose Inputs' (removable connectors)
Logic inputs that can be activated by other device commands.
Each logic input can be set via software. It can be activated when its two pins (for example, '1' and its respective ground GND) are either shorted or open.

(17) **GPOUT 1 ÷ 4** 'Generic Purpose Outputs' (removable connectors)
Logic outputs that can be set via software.
NOTE: LOGIC OUTPUTS CANNOT BE USED TO POWER OTHER DEVICES (I.E. RELAYS).
OUTPUT VOLTAGE CAN BE EITHER 5 V (HIGH) OR 0 (LOW).

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(18) **24 VDC** output (two positive 24 V dc pins and two ground pins)
24 V dc output (for removable connectors) available to power other devices (max. current: 0.2 A).

(19) **RL2** logic output with relay (removable connector) that can be set via software.
Max. current on contacts: 0.5A. Max. applicable voltage: 24 V dc.

(20) **RL1** logic output with relay (removable connector) normally assigned to the device fault indication. To enable its user software control, it is necessary to set the JMP1 internal jumper (see the respective manual section).
Max. current on contacts: 0.5A. Max. applicable voltage: 24 V dc.

㉑ **REM-CTRL** RS 485 port for RCF TS 9918 remote controls (removable connector).
It is possible to link up to four TS 9918 remote controls, of which the first shall have its digital address set '0', the second set to '1', the third set to '2', the fourth set to '3'.

GND	Ground
P	Non-inverting pin (RS 485 A)
N	Inverting pin (RS 485 B)
V	24 V dc

㉒ Input for the power cord (to be connected to mains through an earthed socket only).

## HOW TO LINK TWO AX 8042 EACH OTHER

Two AX 8042 can be linked each other to get a 16-input 8-output matrix (plus 4 additional outputs) through the EXTENSION LINK ports (RJ 45 sockets) on their rear panels.

Connect the **EXTENSION LINK OUT** ⑮ output of the first AX 8042 to the **EXTENSION LINK IN** ⑭ input of the second AX 8042 and vice-versa.

THE TWO CABLES MUST BE SCREENED (**SFTP** OR **CAT6**) AND NOT LONGER THAN **20** CM (ABOUT **8** INCHES).

WHEN USING THE PC SOFTWARE (READ THE RESPECTIVE MANUAL SECTION), IN THE GLOBAL SETTING WINDOW, SET THE FIRST AX 8042 TO MASTER AND THE SECOND AX 8042 TO SLAVE (NOTE: THIS SETTING NEEDS TO BE CARRIED OUT IN TWO STAGES WITH SEPARATE USB CONNECTION, FIRST ONE AX 8042, THEN THE OTHER).
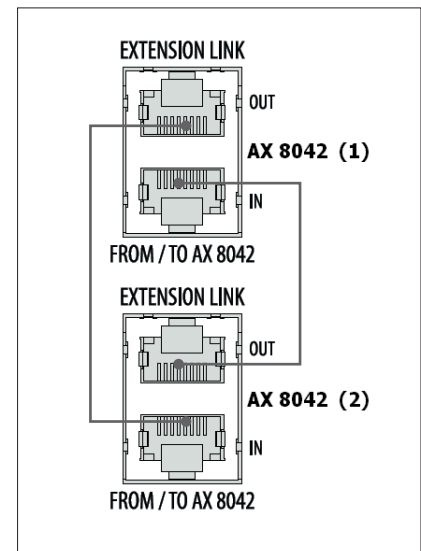
NOTES ABOUT THE RDNET SOFTWARE

The **RDNET** software is protected by international copyright laws and is to be used to configure the **RCF RDNET** system only.
It is not allowed to modify or change or try to decompile this software.
In no event shall RCF S.p.A. be liable to end-users for any damage whatsoever, including but not limited to financial damages for loss of business profits or business information due to the software use or inability to use this product.
The foregoing provision is effective even if RCF S.p.A. has been advised of the possibility of such damages.
Even if the SOFTWARE has any material, verifiable and reproducible program errors, RCF S.p.A. shall have no obligation to modify such errors.

Minimum requirement: a PC with Microsoft 'Windows® XP', 'Vista' or '7' operating system, having an available USB port. The operating system shall also have the drivers for the emulation of the serial RS 232 interface via the USB port.

Before installing a new software release, it is necessary to remove the previous version (if installed) by running **Start > Programs > RCF > RDNet > Uninstall** and disconnect the USB cable (if linked) between the computer and AX 8042 (or RDNET CONTROL 8).

Run setup.exe (inside the 'setup' folder) to start the software installation.

If the installed PC software does not include the release 4.0 of MS '.NET Framework' (necessary to install the RD NET software), it will be show the request for downloading from the web (for free).
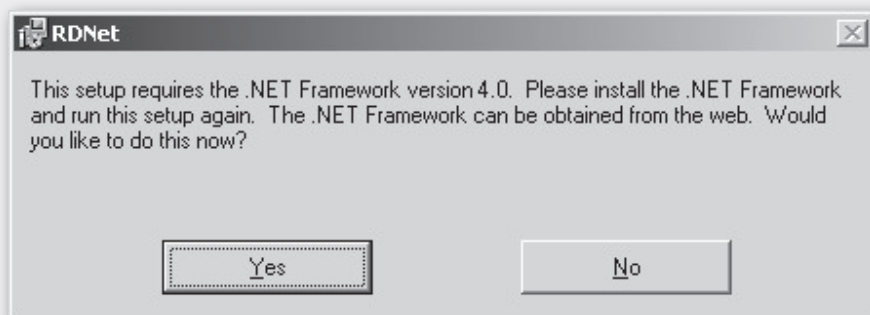
If internet is available, click the YES button to open the web page where it is possible to download the last release of the '.NET Framework' software, then install it.

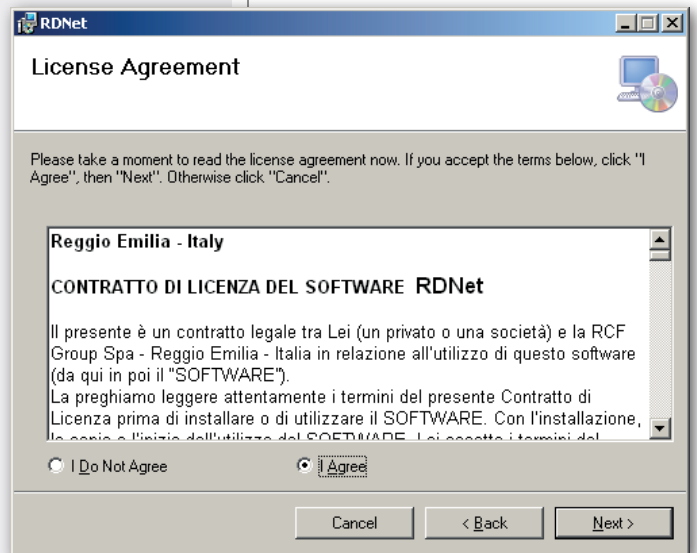If '.NET Framework 4.0' has been previously installed, the RDNET software wizard starts.

Click the NEXT > button to proceed.

Read the license agreement.
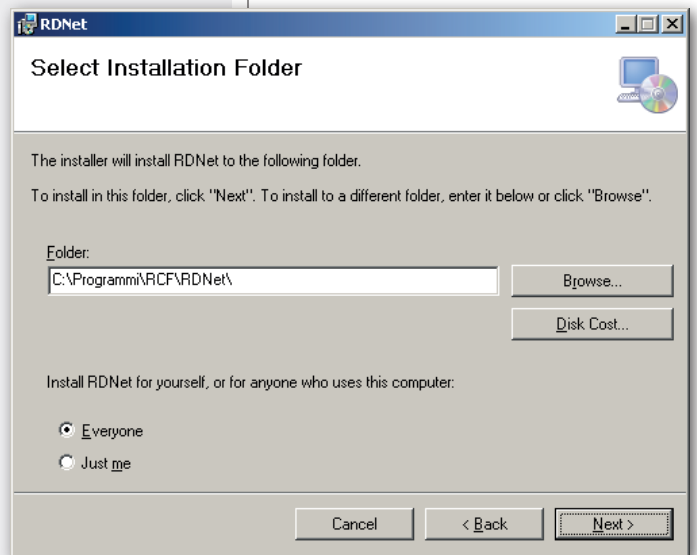Click 'I Agree' to accept and proceed with the software installation.
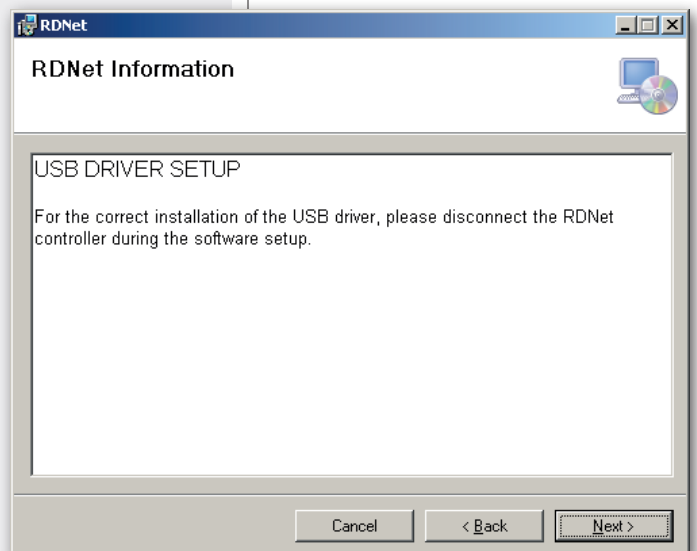
Click the NEXT > button to proceed.

It is now possible to change the installation folder (directory) of the RDNET software (or keep the default path).
Choose if the software can be used by 'Everyone' or 'Just me'.

Click the NEXT > button to proceed.

The wizard reminds you that it is necessary to disconnect the USB cable between the computer and AX 8042 (or the RDNET CONTROL 8 unit) in order to install USB drivers properly.
Check if the USB cable is actually disconnected before proceeding.

13

Then, it is required the installation confirmation.

If you are sure, click the NEXT > button to proceed and start the installation.

Await the installation is complete.

Confirm Installation

The installer is ready to install RDNet on your computer.

Click "Next" to start the installation.

Cancel | < Back | Next >

While waiting, the installation progress bar is shown.

Installing RDNet

RDNet is being installed.

Please wait...

Cancel | < Back | Next >

As soon as the installation ends (no errors), the 'Installation Complete' window will appear.

Click the CLOSE button to exit.

Installation Complete

RDNet has been successfully installed.

Click "Close" to exit.

Please use Windows Update to check for any critical updates to the .NET Framework.

Cancel | < Back | Close

Connect the USB cable between the computer and AX 8042 (or the RDNET CONTROL 8 unit) before running the PC software.
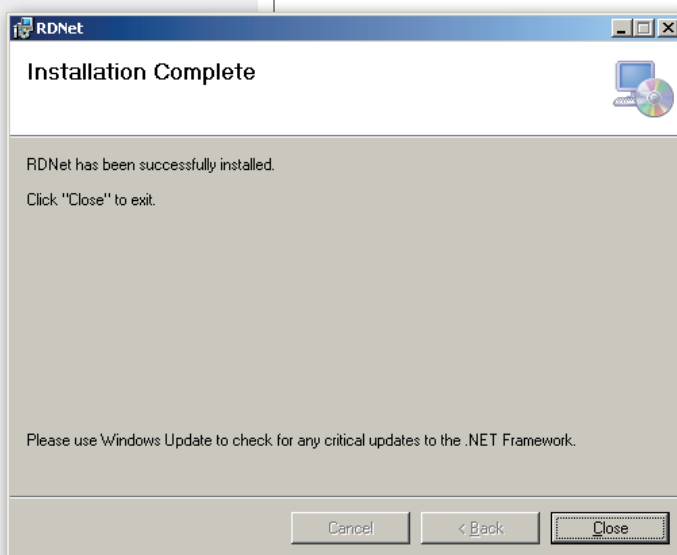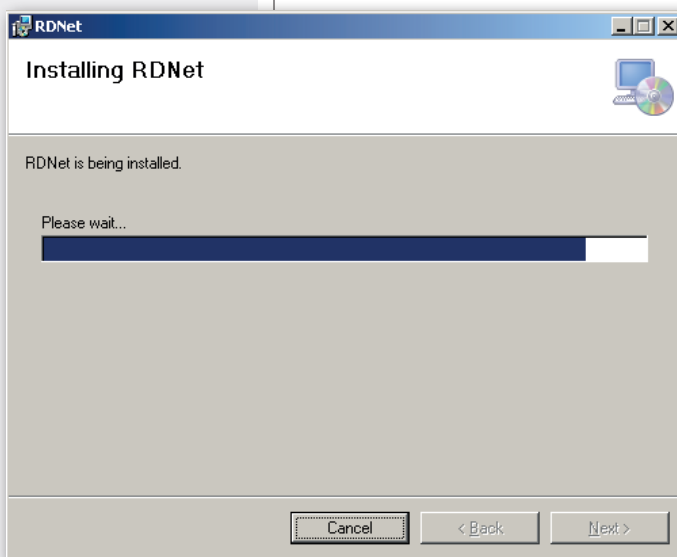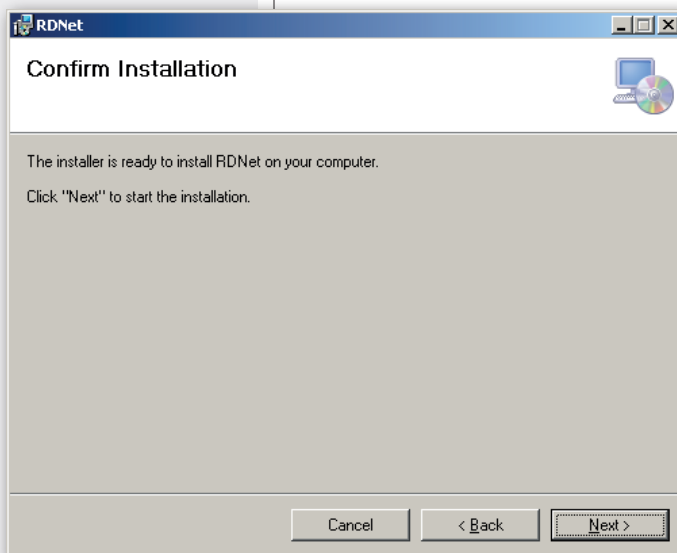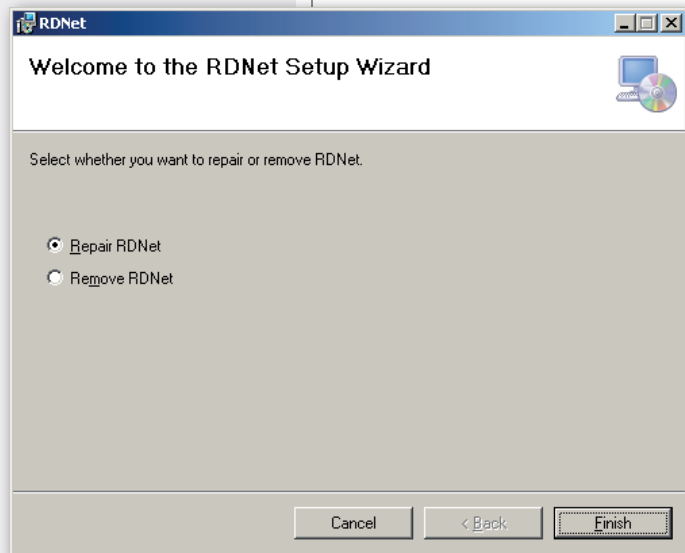
If the RDNET software needs to be repaired (in case of errors, for instance due to damaged files) or removed, run the setup.exe file of the installation software.
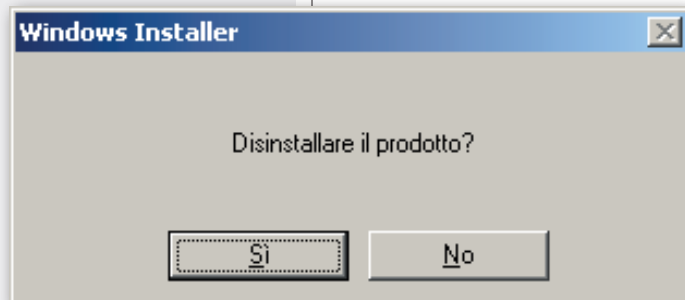
The window will show 2 options:
- Select **'Repair RDNet'** to repair the software.
- Select **'Remove RDNet'** to remove the software.

Then click the **Finish** button to proceed.

An alternative way to remove the software (in Windows):
Start > RCF > Programs > RDNet > Uninstall

Click 'Sì' / 'Yes' to confirm.

START THE RDNET SOFTWARE (REL. 2.0.63.2596) VIA USB

NOTE: THE PC OPERATING SYSTEM SHALL ALSO HAVE THE DRIVERS FOR THE EMULATION OF THE SERIAL RS 232 INTERFACE VIA THE USB PORT.
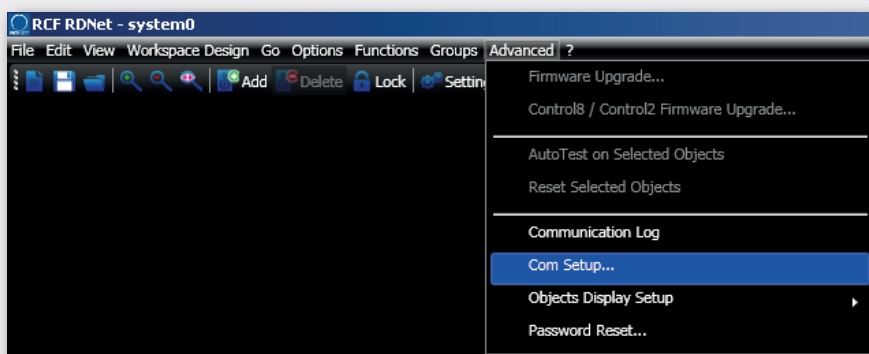
Link (through a suitable cable) the computer USB port to the one of the AX 8042 automixer (labelled **HOST** 8).

Run the RDNET software (in Windows, click):
Start > Programs > RCF > RDNet > RDNet

In the main menu, click **'Advanced'** and then **'Com Setup..'** to open the serial port setting window.

'Port': select the right serial port (the one with RS 232 emulation via USB) of the used computer, for instance **'COM 4'**.
Do not change the other parameters ('Parity', 'Stop Bits', 'Handshake').
Click 'Connect' to start the connection (if not connected yet).
In the bottom left-hand corner of the main window (in the bottom bar) should appear 'Connected (RS232)'.
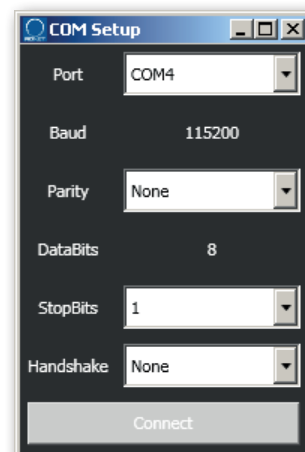
In the main menu, now click **'Quickstart'**: in the bottom right-hand corner of the main window (in the bottom bar) the word **'OFFLINE'** becomes **'ONLINE'**.

The AX 8042 module now appears on the left.
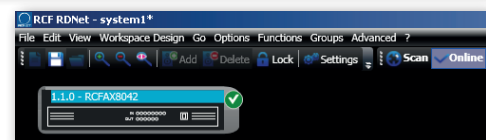
Point the PC mouse at the AX 8042 module and double-click (or right-click and select **'Show Obj Details'**) to open the automixer setting window.

16

This section includes the 8 MASTER input channels (on the left) and the 8 SLAVE input channel (on the right, off by default).

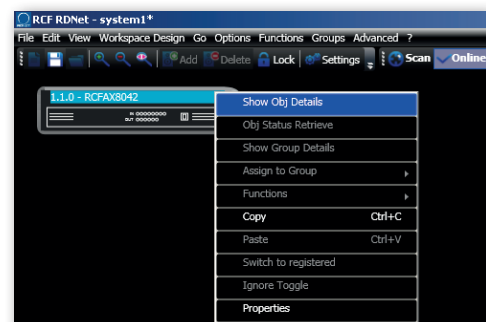First, click **MASTER/SLAVE CFG.** (dark green, in the bottom left-hand corner) to open the MASTER / SLAVE unit setting window.

UNIT CONFIG
Select either **MASTER** if the AX 8042 currently linked to the PC is the MASTER unit (or the only one) or **SLAVE** if the AX 8042 currently linked to the PC is the SLAVE unit.

Important: when two AX 8042 are linked each other (MASTER and SLAVE), this settings shall be carried out (in two stages) on both units, by linking the USB cable to the first unit, then to the second unit.
After every change, click SAVE and then turn the AX 8042 off (unplug its power cord) and turn it on again.
If there is a SLAVE unit, first turn the MASTER unit on (then the SLAVE).

LINK CONFIG
Select either **MASTER ONLY** if there is a single AX 8042 or **MASTER + SLAVE** for two AX 8042 linked each other.
The MASTER + SLAVE setting enables all SLAVE unit software controls.

SYSTEM CONFIG CONTROL

Click **SAVE to save the current software configuration to AX 8042.**
The configuration includes the MASTER / SLAVE settings, the initial PRESET, audio input settings (e.g. PHANTOM power, phase, MIC/LINE settings, digital trimmers), logic inputs and outputs, all labels, remote controls and groups.

Click **LOAD** to load (into the software) the configuration previously saved to AX 8042.

UNITS RESET
Click **RESET** to reset all AX 8042 automixers.

INPUT CHANNEL SETTINGS

Each audio input has a level bar ①, from –60 to 0 dB.
0 dB is the peak level before distortion.

All input controls are here listed:

EDIT ② opens or closes the setting window of the equalizer, the compressor, the automatic gain control (AGC), the noise gate and the digital trimmer.
The INPUT 1 also includes all settings for BM 3003 paging microphone.

PH48V ③ toggles the Phantom power (48 V) in its respective input.
Phantom is usually needed by electret microphones.

WARNING: NEVER TURN PHANTOM POWER ON WHEN NOT NECESSARY (I.E. FOR LINE LEVEL SIGNAL FROM CD / MP3 PLAYERS, DYNAMIC MICROPHONES) OR THE USED CABLE IS UNBALANCED. ⚠

PH.SHIFT ④ (when lit) inverts the signal phase.
Do not turn this option on (but particular needs).

LINE ⑤ changes the input sensitivity from LINE (for signals coming from other mixers, CD / MP3 players, etc.) to MIC (microphones that are not pre-amplified).
After clicking LINE, choose 'Yes' on the confirmation request.
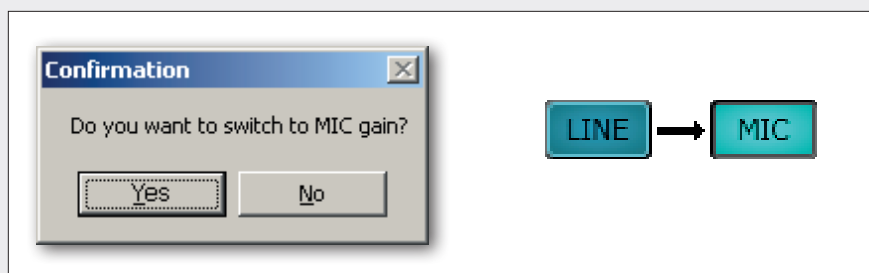
Click MIC to turn back to LINE.

NSGT ⑥ toggles the noise gate (automatic channel opening only if its signal exceeds the predetermined threshold).
The noise gate must be kept on when automixer and / or 'ducking' functions are used.
To access its parameters, click **EDIT** ② and select the INPUT DSP window.

CMP ⑦ toggles the compressor.
To access its parameters, click **EDIT** ② and select the INPUT DSP window.

EQ ⑧ toggles the parametric equalizer.
To access its parameters, click **EDIT** ② and select the EQ window.

AGC ⑨ toggles the automatic gain control.
To access its parameters, click **EDIT** ② and select the INPUT DSP window.

PRIORITY ⑩: priority level setting from 0 (lowest) to 5 (highest) for the 'ducking' function (automatic level attenuation of one or more audio inputs when a signal is detected at the input with the highest priority level).
Between 2 (or more) inputs having the same same priority level, the one with the lowest channel number gets the priority.

DUCK ⑪ toggles the 'ducking' function (automatic level attenuation of one or more audio inputs when a signal is detected at the input with the highest priority level).
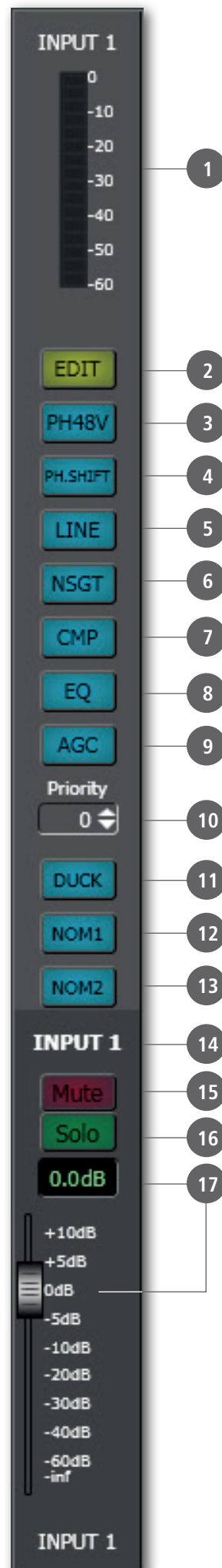To access its parameters, click GLOBAL SETTINGS.
When using the 'ducking' function, turn the noise gate on (**NSGT** ⑥) in all involved channels.
The priority level setting is made by the **PRIORITY** ⑩ parameter.

NOM1 12 (when lit) assigns the channel to the automixer no.1 open input count.

NOM2 13 (when lit) assigns the channel to the automixer no.2 open input count.

INPUT 1 14 **:** audio input label that can be edited after a double-click on the text.

MUTE 15 (when lit) mutes the audio input.

SOLO 16 (when lit) open the selected input only (and mutes all the others).

17 Audio input level control. The level can be adjusted by moving the fader (by keeping it with the mouse left button) or directly changing its value (above the fader: click the number and then insert the new value with the numeric keyboard).

EQUALIZER

Click **EDIT** to open the **EQ** setting window (of its respective audio input).
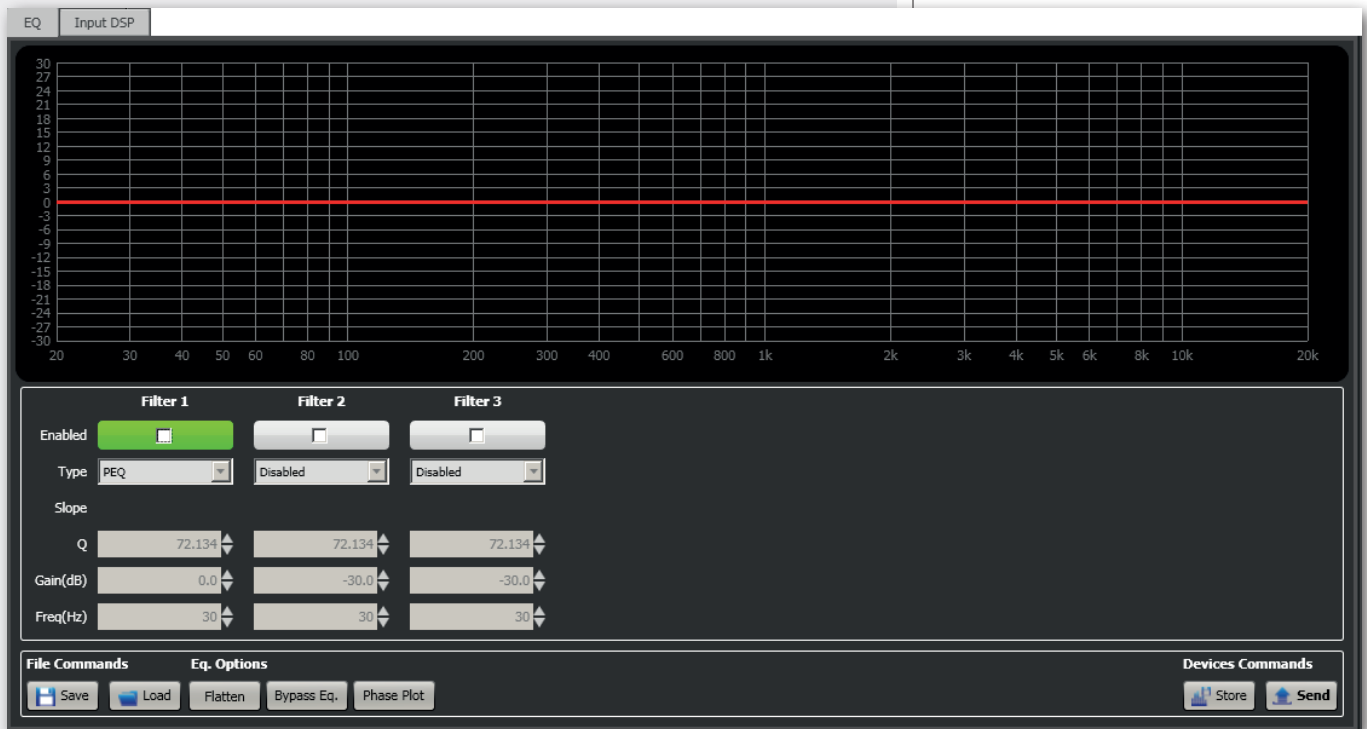
It is possible to set up to 3 independent filters (Filter 1, 2, 3).

ENABLED: click the checkbox to toggle each filter.
Move the mouse on its white background (making it green) to highlight a filter (if present) on the EQ graph.

TYPE:
- **DISABLED:** the filter is disabled (by-pass).
- **PEQ:** parametric equalizer that allows to adjust the level at the settable centre frequency and specify the Q factor (the adjusted level can be widened or narrowed).
- **SHELVING_HIGH:** increase or decrease the level of all frequencies above the selected frequency by the specified amount.
- **SHELVING_LOW:** increase or decrease the level of all frequencies below the selected frequency by the specified amount.
- Filter no.1 (only) also includes these options (high-pass): **BUTTERWORTH, LINKWITZ-RILEY, ELLIPTIC, BESSEL.**

Slope: filter slope setting (dB / oct).

Q: Q factor setting.

Gain (dB): filter gain setting.

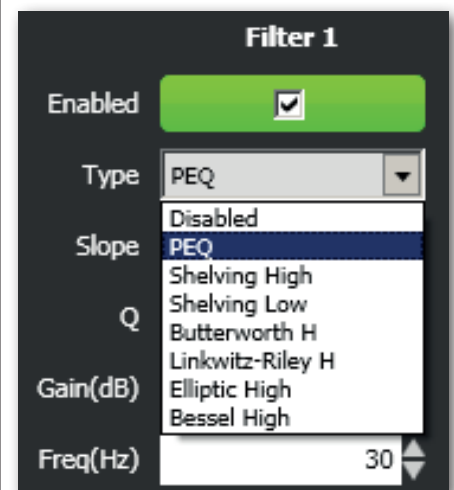**Freq (Hz):** either filter frequency selection or PEQ central frequency setting.

FILE COMMANDS:
- **SAVE:** it saves to PC the current equalization as .rde file.
- **LOAD:** it loads from PC an equalization previously saved as .rde file.

EQ. OPTIONS:
- **FLATTEN:** it disables all filters (flat frequency response).
- **BYPASS EQ:** it disables the equalization, but without changing filter settings.
- **PHASE PLOT:** if selected, the phase plot is shown (green line).

DEVICES COMMANDS:
- **STORE:** it sends and stores the equalization to AX 8042.
- **SEND:** it sends (without storing) the equalization to AX 8042.

For each filter, frequency and gain can be adjusted either graphically (through the mouse) by dragging the little coloured square or in an analytical way (by inserting the values in the cells).
The overall equalization is shown as a red line, the intervention of the selected filter as a green line, the intervention of a filter that is not selected as a white line.

For example, to apply a 12 dB attenuation for frequencies below 80 Hz: enable the filter 1 by clicking its 'Enabled' checkbox, select the SHELVING_LOW filter type, set the gain to –12 dB and frequency to 80 Hz.
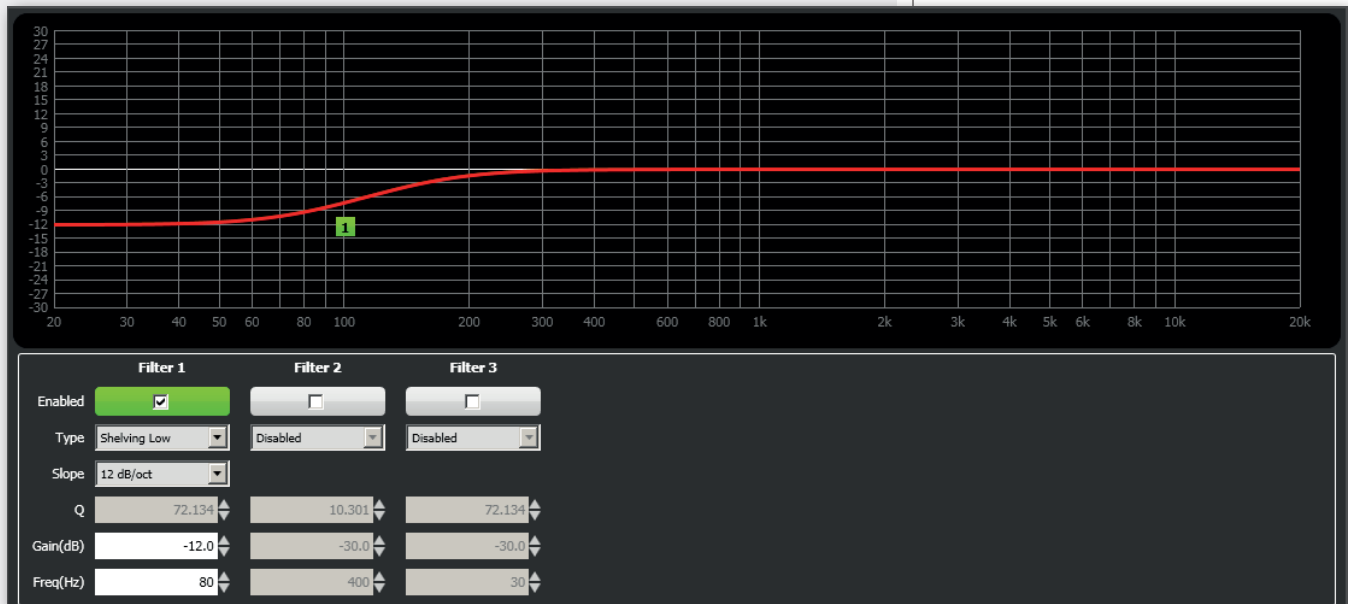
To add a second filter (i.e. PEQ): enable the filter 2, select the PEQ filter type, its gain and central frequency, then set its Q factor.
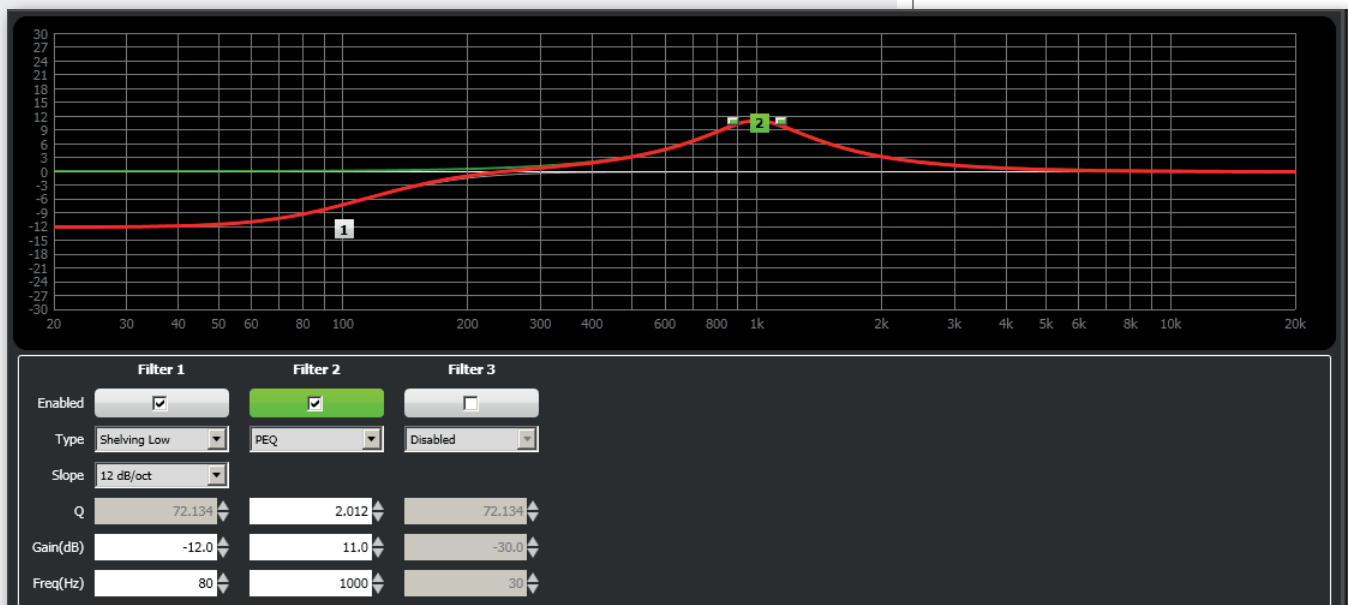
Finally, click either STORE (send and store) or SEND (send without storing) to send all EQ settings to AX 8042.

COMPRESSOR

The compressor does not modify a signal having a level lower than the predetermined threshold and compresses a signal with higher level.
To access its parameters (of a single input), click **EDIT** on the respective channel and select the **INPUT DSP** window.
THRESHOLD and RATIO values can be adjusted either by moving the respective faders or dragging (with the mouse) the red points in the graph.

THRESHOLD: adjusts the level above which the compressor compresses the signal.

OUT GAIN: adjusts the output gain (useful to minimize the signal attenuation due to compression).

ATTACK: adjusts the compressor attack time.

RELEASE: adjusts the compressor release time.

RATIO: sets the ratio between the original signal (above the threshold) and the compressor output.
For example: if ratio is 2:1, a signal that exceeds the threshold of 2 dB will be compressed to 1 dB (above the threshold).
Indicatively: 2:1 ratio is suitable for voice, from 2:1 to 4:1 for musical instruments.
A compressor having a ratio higher than 10:1 operates as a limiter.
A 1:1 ratio is an invalid setting, as it does not compress at all.

ENABLE: toggles the compressor (keep it on when using).

Send: sends the compressor settings to AX 8042.

USE EXAMPLE:

1. Set the **THRESHOLD** to a level lower than 0 dB (e.g. –15 dB).
   NOTE: SEE THE EXCLAMATION MARK WITH YELLOW BACKGROUND NEXT TO THE SEND BUTTON, USED AS A REMINDER TO INDICATE THAT THE SOFTWARE CONFIGURATION AND AX 8042 REAL SETTINGS DIFFER BEFORE CLICKING SEND.

2. Set the **RATIO** (i.e. 4:1).

3. If necessary, adjust **OUT GAIN** in order to increase the signal output gain (to minimize the compressor attenuation, i.e. +10 dB) and click **SEND**.

1   2   3

22
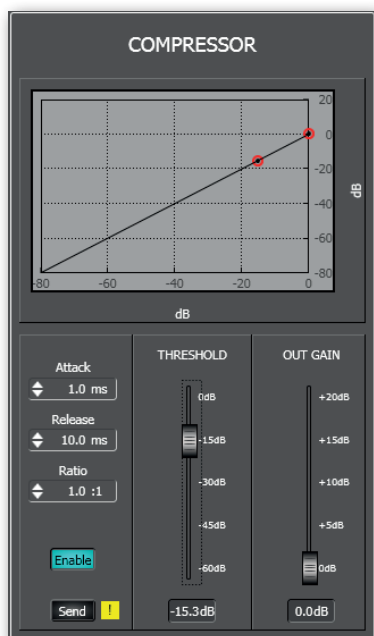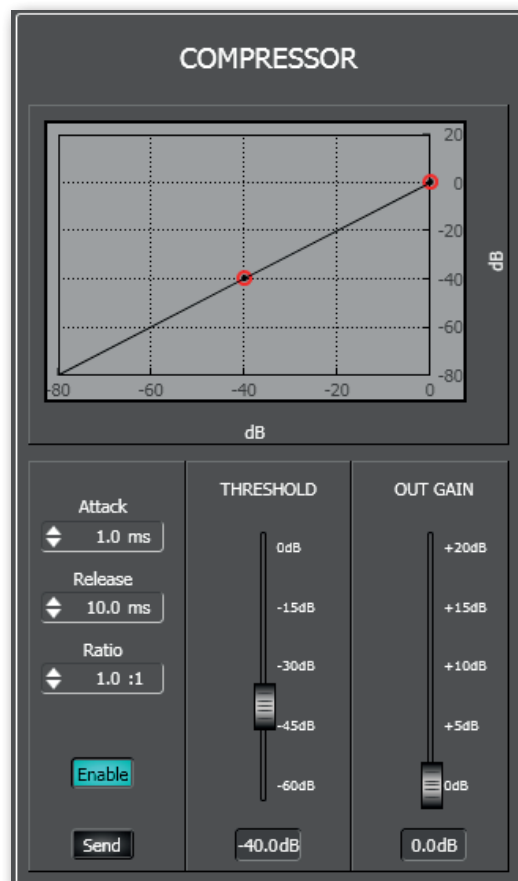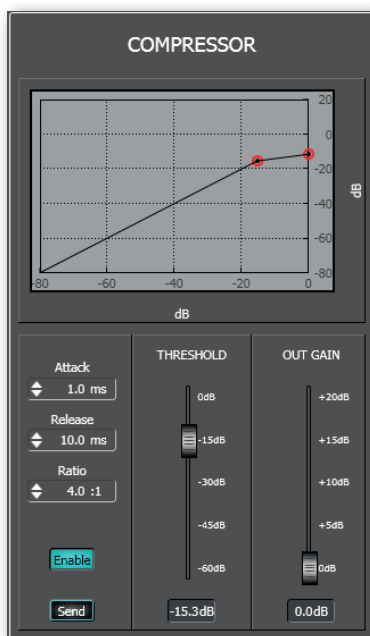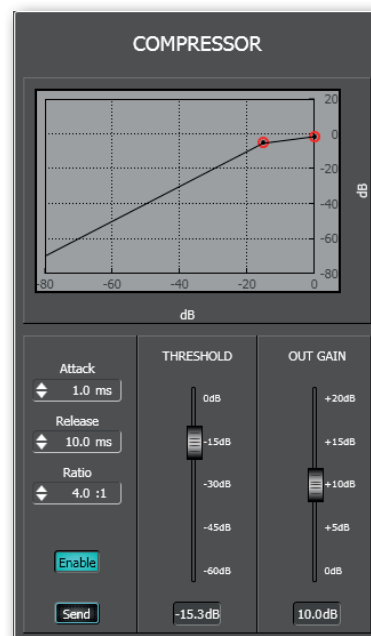
AUTOMATIC GAIN CONTROL (AGC)

The automatic gain control does not modify a signal having a level lower than the predetermined threshold, but increases or reduces a signal above the threshold to get the desired average level ('target'), within the set time and according to the compression/expansion ratio.

To access AGC parameters (of a single input), click **EDIT** on the respective channel and select the **INPUT DSP** window.

THRESHOLD: adjusts the level above which the AGC operates.

TARGET: adjusts the optimal average signal level to be obtained.

Time: adjusts the AGC intervention time.

Ratio: sets the ratio between the original signal (above the threshold) and the AGC output.
Use a ratio in the 1.5 ÷ 3 range, in order to avoid excessive compression / expansion, which may lead to too low or distorted output signals.
A 1:1 ratio is an invalid setting, as the AGC does not operates at all.

Enable: toggles the AGC (keep it on when using).

Send: sends the AGC settings to AX 8042.

### USE EXAMPLE:

1. Set the **THRESHOLD** to a level lower than 0 dB (e.g. –45 dB).

2. Adjust the **TARGET** fader to fix the optimal average level of the signal (e.g. –30 dB).

3. Set the **RATIO** value (e.g. 2:1).

4. Click **SEND**.

23

NOISE GATE

The noise gate automatically reduces an audio input level when its signal is below the defined threshold (or absent).
It allows to either mute a channel when no signal is detected at its input or open it when necessary.

The noise gate permits to count which inputs have to be considered in use at a given time (necessary information for automixer / 'ducking' functions).

It is necessary to set a proper THRESHOLD value and insert the noise gate in all audio inputs that are managed by automixer / 'ducking' functions.

To access the noise gate parameters (of a single input), click **EDIT** on the respective channel and select the **INPUT DSP** window.

THRESHOLD: adjusts the level below which the noise gate attenuates a signal.

GATE RANGE: adjusts the signal reduction when its level is below the threshold.

ATTACK: adjusts the noise gate attack time.

RELEASE: adjusts the noise gate release time.

ENABLE: toggles the noise gate (keep it on when using).

SEND: sends the noise gate settings to AX 8042.

USE EXAMPLE:

1. Set a low **THRESHOLD** (e.g. –50 dB) to ensure the immediate channel opening even with signals having a low amplitude (but higher than the background noise).

2. Adjust the **GATE RANGE** value according to your needs
   (for instance, a –60 dB setting entails the audio input muting when its signal does not reach the threshold).

3. Click **SEND**.

DIGITAL TRIMMER

The digital trimmer adjusts the audio input sensitivity.
It can help optimize a too low or too high audio signal.

To access the digital trimmer (of a single input), click **EDIT** on the respective channel and select the **INPUT DSP** window.

Set the **DIG. TRIMMER** to either a positive value to increase the input sensitivity or a negative value to attenuate (0 dB: no change).

Use this fader with caution, in order to avoid signal distortion (too high) or an insufficient level.
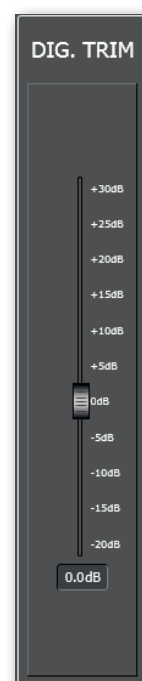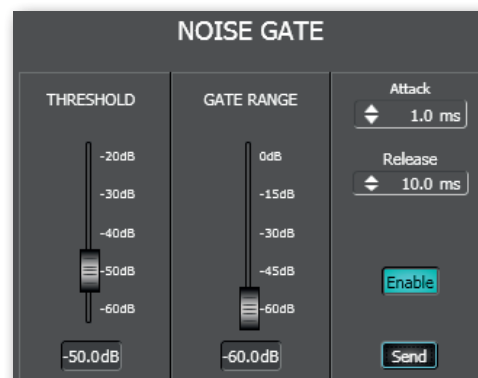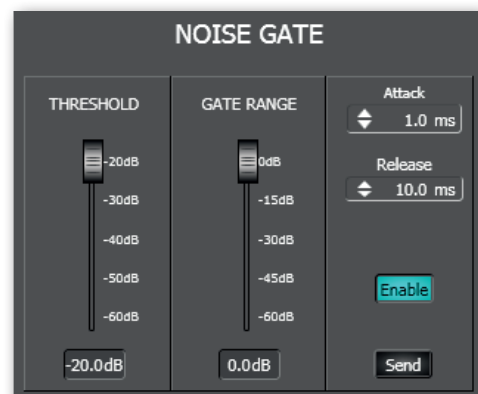
BM 3003 PAGING MICROPHONE SETTINGS

To access the (common) BM 3003 paging microphone settings, click **EDIT of the INPUT 1** and select the **INPUT DSP** window.

If two AX 8042 are linked each other (MASTER and SLAVE units), it is necessary to set both MASTER INPUT 1 and SLAVE INPUT 1 in the same way. All settings must be identical.

Each of the three BM 3003 paging microphone zone buttons corresponds to a checkbox group: **A ZONE, B ZON**E and **C ZONE**.

Each BM 3003 zone button can be assigned to one or more buses (that correspond to AX 8042 audio outputs A, B, C, D) of both MASTER unit and SLAVE unit (if available).

SEND: click SEND to apply a new paging microphone setting.

EXAMPLE (see the 'example' figure)

The first zone button (A ZONE) of all BM 3003 paging microphones is assigned to the MASTER A output only.

The second zone button (B ZONE) of all BM 3003 paging microphones is assigned to the MASTER B output only.

The third zone button (C ZONE) of all BM 3003 paging microphones is assigned to the MASTER C, D and SLAVE A outputs.
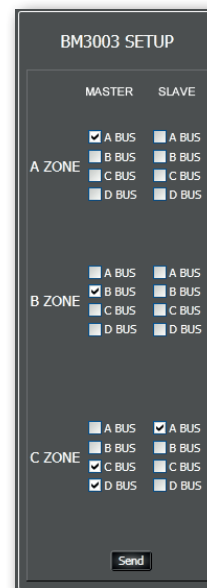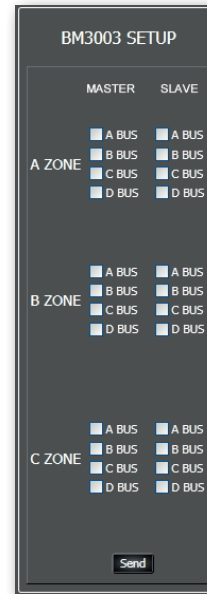
EXAMPLE

AUTOMATIC LEVEL CONTROL (ALC)

This function automatically adjusts the level of one or more audio outputs according to the detected ambient noise.
If ALC is enabled, the audio input no.8 is reserved for the microphone used as noise detector and its red ALC indication lights up (below the signal level bar).
NOTE: SET THE INPUT 8 TO MIC AND ADJUST ITS SENSITIVITY ACCORDING TO THE MICROPHONE TYPE.

When the ambient noise (detected by the microphone linked to the input 8) is above the threshold, all audio outputs keep their current level.

When the ambient noise is below the threshold, (only) audio outputs with ALC enabled are processed (their level is attenuated).
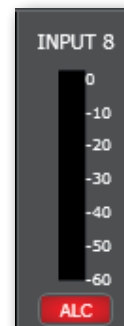
25

Click **GLOBAL SETTINGS** (green button, at the top left of audio input settings) to open the global setting window, which includes ALC parameters.

THRESHOLD: adjusts the level below which the ALC operates.
It is also the reference threshold for the comparison of each audio output, in which the automatic level control is enabled.

MIN GAIN: sets the minimum guaranteed level of audio outputs (with ALC enabled) when the input no.8 microphone detects a noise level below the threshold.

Attack: adjusts the ALC attack time.

Release: adjusts the ALC release time.

Ratio: signal slope in the range between MIN GAIN and THRESHOLD.

Enable: toggles the ALC (keep it on when using).

Send: sends the ALC settings to AX 8042.

AUTOMIX COMMON SETTINGS

Click **GLOBAL SETTINGS** (green button, at the top left of audio input settings) to open the global setting window, which includes the common parameters of the 2 automixers (AM1 and AM2).

AM1 ON: toggles the automixer no.1 (keep it on if used).

AM2 ON: toggles the automixer no.2 (keep it on if used).

MAX NOM1: sets the maximum number of open channels simultaneously (assigned to the automixer no.1 and with NOM 1 activated).

MAX NOM2: sets the maximum number of open channels simultaneously (assigned to the automixer no.2 and with NOM 2 activated).

MAX NOM is a limitation that may force off input channels (even if signals are detected at their inputs), when the maximum limit of open channels is reached in the respective automixer.

IMPORTANT: in the MIXER MATRIX section, it is necessary to assign all matrix nodes (input / output combinations) **to one of the two automixers.**

PRIORITY FUNCTION ('DUCKING')

This function allows to get automatic level attenuation of one or more audio inputs when a signal is detected (through the noise gate) at the input with the highest priority level.

It is necessary to enable the noise gate (NSGT) in all audio inputs that are controlled by the 'ducking' priority function and properly set the THRESHOLD of each single channel (in addition to the general threshold of the DUCKING window).

The priority level, from 0 (lowest) to 5 (highest), is set in each input channel by **PRIORITY** parameters.
Between 2 (or more) inputs having the same same priority level, the one with the lowest channel number gets the priority.
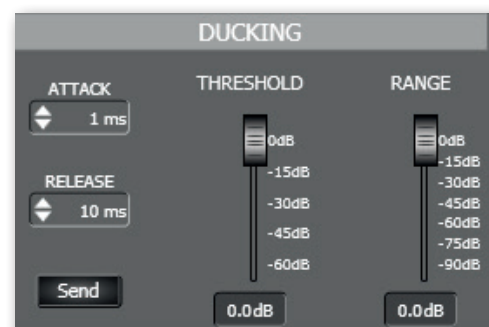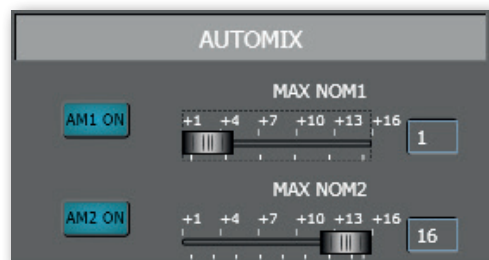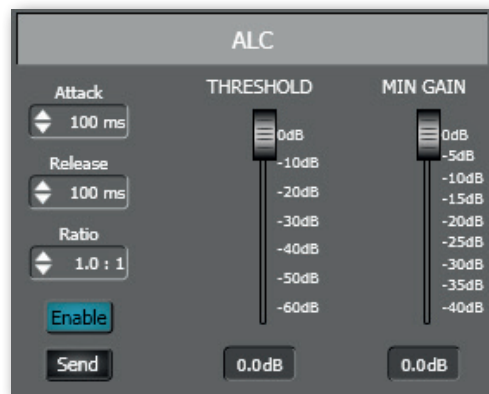
Click **GLOBAL SETTINGS** (green button, at the top left of audio input settings) to open the global setting window, which includes 'ducking' parameters.

The **THRESHOLD fader refers to only one audio input, the one with the highest priority among all those simultaneously open** (in which audio signals are above their noise gate threshold) and sets the threshold above which that input gets the priority over all the others.

RANGE: adjusts the attenuation to apply to all inputs with lower priority level when 'ducking' priority is in progress.

ATTACK: adjusts the priority function attack time.

RELEASE: adjusts the priority function release time.

SEND: sends the priority settings to AX 8042.

PRESET MANAGER

In the software configuration, it is possible to store and recall up to 16 different presets.

Click **GLOBAL SETTINGS** (green button, at the top left of audio input settings) to open the global setting window, which includes the preset manager.

SAVE: saves the current settings to the selected preset (chosen from 1 to 16 in the **PRESET** list).
A **NAME** (text box) can be given to each preset.

RECALL: recalls the selected preset (previously saved).
WARNING: SAVE CURRENT SETTINGS TO A PRESET BEFORE RECALLING ANOTHER ONE (OTHERWISE ALL CURRENT SETTINGS WILL BE LOST)!

STARTUP CONFIG
It allows to choose which preset will be loaded as first after AX 8042 start-up:
- **SPECIFIC PRESET**, the one chosen in the **SELECTED PRESET** list.
- **LAST SAVE PRESET**, the last saved preset (in chronological order).

NOTE: CLICK **SEND** TO SEND NEW SETTINGS TO AX 8042.

CONFIGURATIONS

Click **SAVE CFG.** (green button, on the left of audio input settings) to open the window to save the current configuration to a file with .cfg extension.
It is advisable to save the complete configuration, in order to have a backup file.

NOTE: TO STORE THE CURRENT CONFIGURATION TO AX 8042, FIRST CLICK **MASTER/SLAVE CFG.** (IN THE MAIN WINDOW) TO OPEN THE **GLOBAL SETTINGS**, THEN CLICK **SAVE** OF **SYSTEM CONFIG CONTROL.**

Click **LOAD CFG.** (green button, on the left of audio input settings) to load a configuration previously saved as file with .cfg extension and automatically send it to AX 8042, to achieve data synchronization on both AX 8042 and control software.
WARNING: FIRST SAVE THE CURRENT CONFIGURATION (OTHERWISE IT WILL BE LOST)!
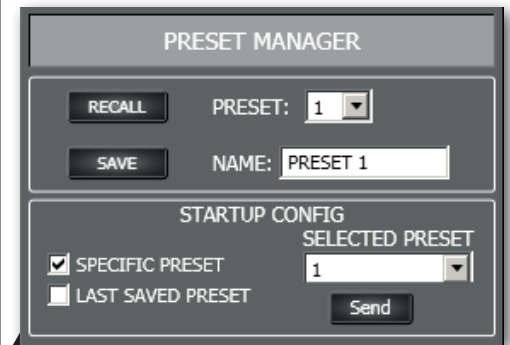
AUDIO OUTPUTS AND SLAVE UNIT CONTROLS

The 6 audio outputs (A-F) of the MASTER unit (single or first AX 8042) are on the right of the software main window.

NOTE: ALL CONTROLS OF THE 6 AUDIO OUTPUTS OF THE SLAVE UNIT (OPTIONAL SECOND AX 8042, IF PRESENT) CAN BE ENABLED BY CLICKING **MASTER/SLAVE CFG.** (DARK GREEN BUTTON, AT THE BOTTOM LEFT IN THE MAIN SECTION) TO OPEN THE RESPECTIVE WINDOW AND THEN SELECTING **MASTER+SLAVE** AS **LINK CONFIG** CHOICE.

On the far right of the software main window, there are two buttons to choose which AX 8042 needs to be edited: click either **MASTER** to access all MASTER unit parameters or **SLAVE** (if enabled) for all SLAVE unit parameters.

MASTER and SLAVE outputs have different background colours.

The selection of the SLAVE unit entails to get control of all its parameters (instead of the MASTER unit ones), including audio inputs, the matrix, groups, 'force on/off'.

Note: after selecting the SLAVE outputs, the logic input/output and remote control settings are not available.

AUDIO OUTPUT SETTINGS

Each audio output has a level bar ①, from –60 to 0 dB.
0 dB is the peak level before distortion.

All audio output controls are now listed.

EDIT ② opens or closes the setting window of both the equalizer and the limiter.

EQ ③ toggles the parametric equalizer.
Click **EDIT** ② to access its parameters.

LIM ④ toggles the limiter.
Click **EDIT** ② to access its parameters.

ALC ⑤ toggles the automatic level control that operates according to the ambient noise detected by a microphone (connected to the input no.8).
Read the 'Automatic Level Control (ALC)' manual section.

DELAY ⑥: delay time setting (in milliseconds) applied to the output signal.
Except in specific cases (e.g. second line loudspeakers to be delayed), leave this parameter to 0.

OUTPUT 1 ⑦: audio output label that can be edited after a double-click on the text.

MUTE ⑧ (when lit) mutes the audio output.

SOLO ⑨ (when lit) open the selected output only (and mutes all the others).

⑩ Audio output level control.
The level can be adjusted by moving the fader (by keeping it with the mouse left button) or directly changing its value (above the fader: click the number and then insert the new value with the numeric keyboard).
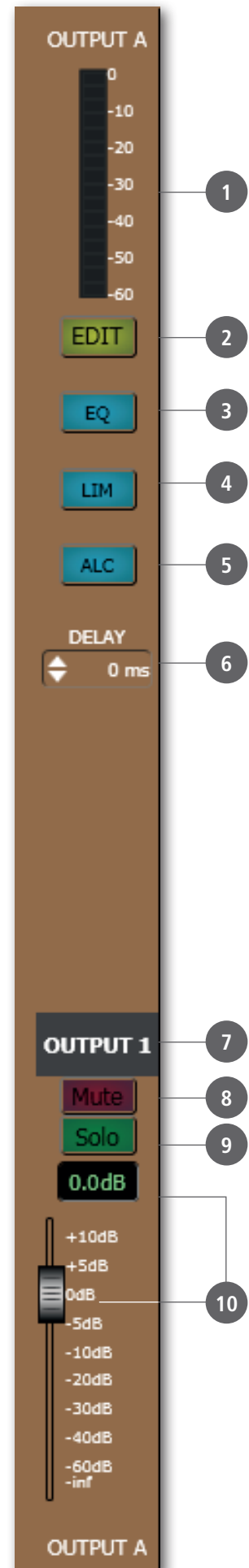
EQUALIZER

Click **EDIT** to open the EQ/LIMITER setting window (of the respective audio output).

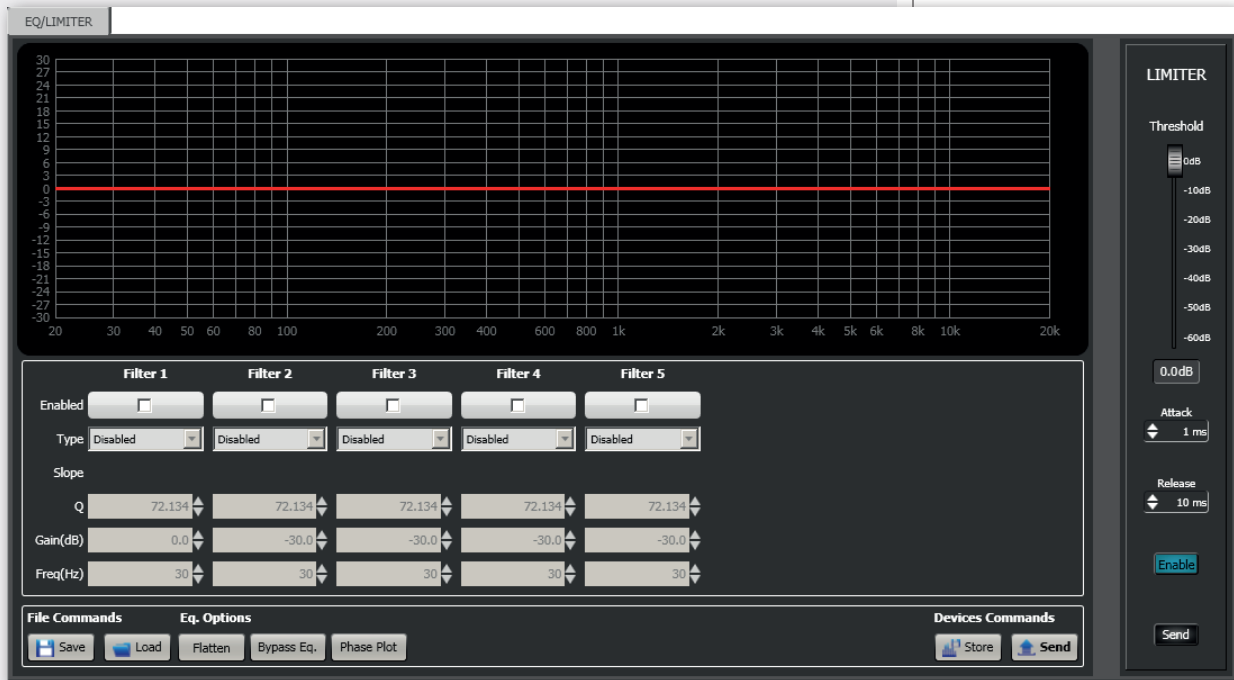It is possible to set up to 5 independent filters (Filter 1, 2, 3, 4, 5).

ENABLED: click the checkbox to toggle each filter.
Move the mouse on its white background (making it green) to highlight a filter (if present) on the EQ graph.

TYPE:
- **DISABLED:** the filter is disabled (by-pass).
- **PEQ:** parametric equalizer that allows to adjust the level at the settable centre frequency and specify the Q factor (the adjusted level can be widened or narrowed).
- **SHELVING_HIGH:** increase or decrease the level of all frequencies above the selected frequency by the specified amount.
- **SHELVING_LOW:** increase or decrease the level of all frequencies below the selected frequency by the specified amount.
- Filter no.1 (only) also includes these options (high-pass): **BUTTERWORTH, LINKWITZ-RILEY, ELLIPTIC, BESSEL.**
- Filter no.5 (only) also includes these options (low-pass): **BUTTERWORTH, LINKWITZ-RILEY, ELLIPTIC, BESSEL.**

Slope: filter slope setting (dB / oct).

Q: Q factor setting.

Gain (dB): filter gain setting.

Freq (Hz): either filter frequency selection or PEQ central frequency setting.

File Commands:
- **SAVE:** it saves to PC the current equalization as .rde file.
- **LOAD:** it loads from PC an equalization previously saved as .rde file.

Eq. options:
- **FLATTEN:** it disables all filters (flat frequency response).
- **BYPASS EQ.:** it disables the equalization, but without changing filter settings.
- **PHASE PLOT:** if selected, the phase plot is shown (green line).

Devices commands:
- **STORE:** it sends and stores the equalization to AX 8042.
- **SEND:** it sends (without storing) the equalization to AX 8042.

For each filter, frequency and gain can be adjusted either graphically (through the mouse) by dragging the little coloured square or in an analytical way (by inserting the values in the cells).
The overall equalization is shown as a red line, the intervention of the selected filter as a green line, the intervention of a filter that is not selected as a white line.

For example, to apply a 6 dB attenuation at 800 Hz through a parametric equalizer: enable the filter 1 by clicking its 'Enabled' checkbox, select the PEQ filter type, set its bandwidth (e.g. 2.0), its gain to –6 dB and frequency to 800 Hz.
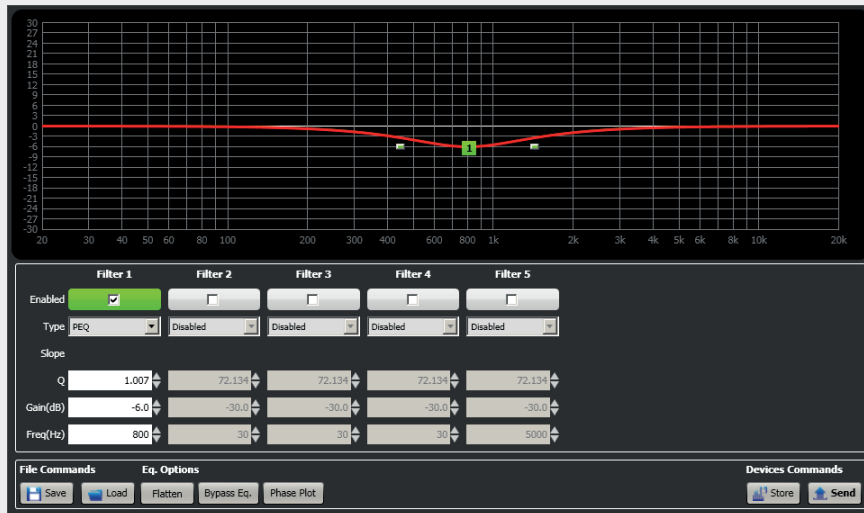
Finally, click either STORE (send and store) or SEND (send without storing) to send all EQ settings to AX 8042.

LIMITER

The limiter does not modify a signal having a level lower than the predetermined threshold and limits a signal with higher level.
A limiter is in fact a compressor having a high compression ratio.
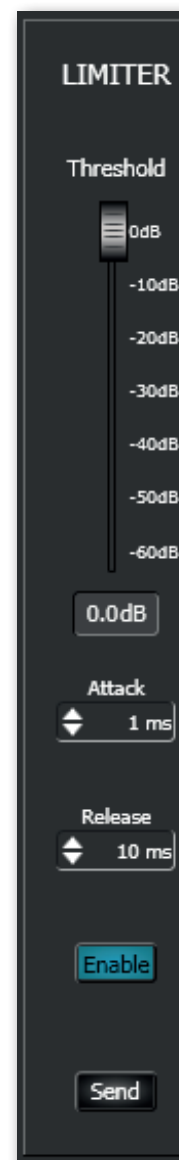It can be really useful to avoid signal distortion due to too high levels.

THRESHOLD: adjusts the level above which the limiter compresses the signal.

Attack: adjusts the limiter attack time.

Release: adjusts the limiter release time.

Enable: it turns the limiter on.

Send: sends the limiter settings to AX 8042.

MIXER MATRIX SECTION

Click MIXER MATRIX (above, in the software main window) to access the audio matrix where nodes can be managed. Nodes are input / output combinations, among the 8 MASTER inputs (plus the 8 SLAVE inputs, if available) and either the first 4 MASTER outputs (A-D buses) or the first 4 SLAVE outputs (A-D buses, if available).

Each of the 2 additional outputs (E, F) can be assigned to one of the A-D buses.

Important:

- In the **MIXER MATRIX** section, click either **MASTER INPUTS** to select or the 8 MASTER inputs or **SLAVE INPUTS** for the 8 SLAVE INPUTS.

- MASTER or SLAVE output / bus selection is made by clicking either the **MASTER** or the **SLAVE** button on the far right of the software main window.

- There can be up to 4 matrix tables:
    1. MASTER inputs to MASTER outputs / buses.
    2. SLAVE inputs to MASTER outputs / buses.
    3. SLAVE inputs to SLAVE outputs / buses.
    4. MASTER inputs to SLAVE outputs / buses.

MATRIX NODES
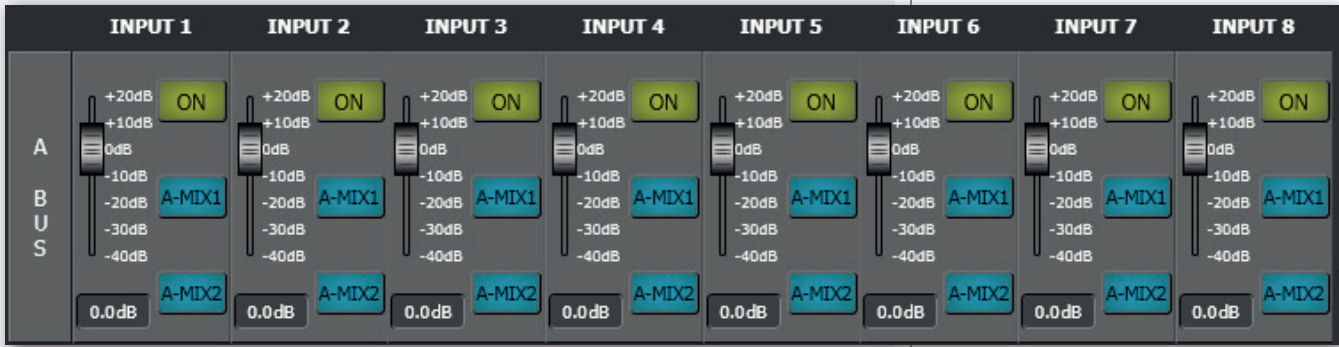
For each bus, every audio input has the following controls:

ON: toggles the audio input in the correspondent bus. It is the main switch of the node.

A-MIX1: assigns the node to the control of the automixer no.1, which automatically adjusts the audio input level according to the number of open channels.

**A-MIX2:** assigns the node to the control of the automixer no.2 (alternative to the automixer no.1).

IMPORTANT:

- **The two automixers need to be enabled** (read the 'Automix common settings' manual section).

- **It is necessary to enable the noise gate (NSGT) in all audio inputs that are controlled by an automixer and properly set its THRESHOLD of each single channel.**
  Noise gates permit to count which inputs have to be considered in use at a given time (read the 'Noise Gate' manual section).

For each matrix node, there is also a fader (from –40 to +20 dB) to adjust the node signal level (default setting is 0 dB, that entails no adjustment).

MATRIX OUTPUT LEVELS

Each A-D bus has a master fader (from –40 to +20 dB) to adjust its level (default setting is 0 dB, that entails no adjustment).
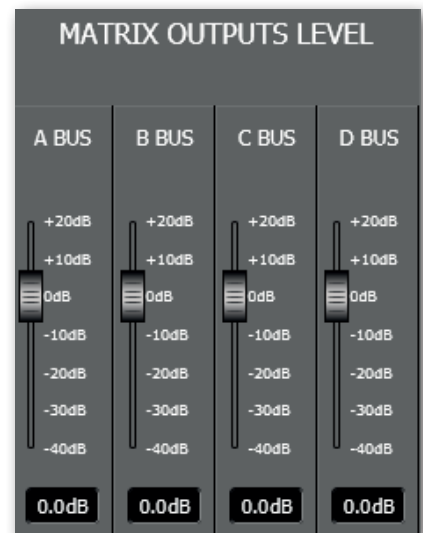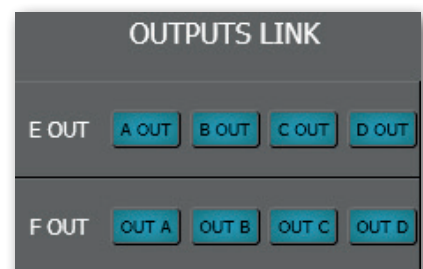

E-F OUTPUT LINKS

Both E and F output can be linked to only one of A-D buses, by clicking their respective button (the selected one gets lit).
These selections are mandatory to get for the correct operation of E and F audio outputs.

To cancel a link, click the current selection (again).

33

A 'group' is a setting that includes some audio inputs and outputs. Any event (e.g. the activation of a GPI logic input) that refers to a group simultaneously acts on all audio inputs and outputs assigned to that group.

For each AX 8042 (MASTER or SLAVE), it is possible to set up to 16 **CONTROL** groups and 16 **MUTE** groups.
Before editing group settings, always check (on the far right of the software main window) which unit (MASTER or SLAVE) is selected.
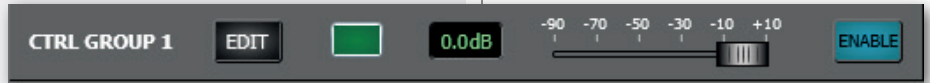
MAIN	MIXER MATRIX	GROUPS	FORCE ON/OFF	GPI/GPO	REMOTE CONTROLS

CONTROL

CTRL GROUP 1	EDIT		0.0dB	-90 -70 -50 -30 -10 +10	ENABLE
CTRL GROUP 2	EDIT		0.0dB	-90 -70 -50 -30 -10 +10	ENABLE
CTRL GROUP 3	EDIT		0.0dB	-90 -70 -50 -30 -10 +10	ENABLE
CTRL GROUP 4	EDIT		0.0dB	-90 -70 -50 -30 -10 +10	ENABLE
CTRL GROUP 5	EDIT		0.0dB	-90 -70 -50 -30 -10 +10	ENABLE
CTRL GROUP 6	EDIT		0.0dB	-90 -70 -50 -30 -10 +10	ENABLE
CTRL GROUP 7	EDIT		0.0dB	-90 -70 -50 -30 -10 +10	ENABLE
CTRL GROUP 8	EDIT		0.0dB	-90 -70 -50 -30 -10 +10	ENABLE
CTRL GROUP 9	EDIT		0.0dB	-90 -70 -50 -30 -10 +10	ENABLE
CTRL GROUP 10	EDIT		0.0dB	-90 -70 -50 -30 -10 +10	ENABLE
CTRL GROUP 11	EDIT		0.0dB	-90 -70 -50 -30 -10 +10	ENABLE
CTRL GROUP 12	EDIT		0.0dB	-90 -70 -50 -30 -10 +10	ENABLE
CTRL GROUP 13	EDIT		0.0dB	-90 -70 -50 -30 -10 +10	ENABLE
CTRL GROUP 14	EDIT		0.0dB	-90 -70 -50 -30 -10 +10	ENABLE
CTRL GROUP 15	EDIT		0.0dB	-90 -70 -50 -30 -10 +10	ENABLE
CTRL GROUP 16	EDIT		0.0dB	-90 -70 -50 -30 -10 +10	ENABLE

MUTE

MUTE GROUP 1	EDIT		ENABLE
MUTE GROUP 2	EDIT		ENABLE
MUTE GROUP 3	EDIT		ENABLE
MUTE GROUP 4	EDIT		ENABLE
MUTE GROUP 5	EDIT		ENABLE
MUTE GROUP 6	EDIT		ENABLE
MUTE GROUP 7	EDIT		ENABLE
MUTE GROUP 8	EDIT		ENABLE
MUTE GROUP 9	EDIT		ENABLE
MUTE GROUP 10	EDIT		ENABLE
MUTE GROUP 11	EDIT		ENABLE
MUTE GROUP 12	EDIT		ENABLE
MUTE GROUP 13	EDIT		ENABLE
MUTE GROUP 14	EDIT		ENABLE
MUTE GROUP 15	EDIT		ENABLE
MUTE GROUP 16	EDIT		ENABLE

CONTROL GROUP

CTRL GROUP 1: group name that can be edited after a double-click on the text.

EDIT: opens the window of audio input / output selection.
The green light beside (when lit) means that at least one input / output has been selected (if the light is off, the group has not been configured yet).

FADER: group level control (default setting: 0 dB). The level can be adjusted by moving the fader (by dragging it with the mouse left button) or directly changing its value (click the number and then insert the new value with the numeric keyboard).

ENABLE: toggles the group (keep it on when using).

MUTE GROUP

MUTE GROUP 1: group name that can be edited after a double-click on the text.

EDIT: opens the window of audio input / output selection.
The green light beside (when lit) means that at least one input / output has been selected (if the light is off, the group has not been configured yet).

ENABLE: toggles the group (keep it on when using).

## ASSIGNMENT OF AUDIO INPUTS AND OUTPUTS TO A GROUP

Click **EDIT** of either a CONTROL or MUTE group to open the window of audio input / output selection.

MASTER INPUTS: click checkboxes to select the MASTER unit audio inputs to be included in the group.

SLAVE INPUTS: click checkboxes to select the SLAVE unit audio inputs (if available) to be included in the group.

OUTPUT: click checkboxes to select the audio outputs (of either the MASTER or SLAVE unit currently selected) to be included in the group.

DESELECT: clear all checkboxes.
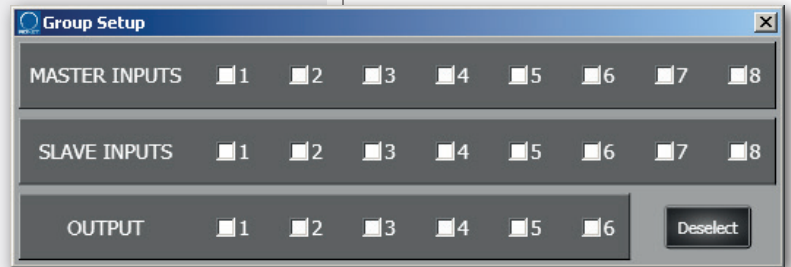
After selecting audio inputs and outputs, close the window (by clicking the X in the top right-hand corner).

FORCE ON/OFF SECTION

This function allows to either increase **(FORCE ON)** or reduce **(FORCE OFF)** an input level forcedly.

Its activation can be either automatic (when the audio input signal level is above the noise gate threshold) or through an external command linked to a logic input (GPIN).

When the SLAVE unit is available (linked to the MASTER unit), there are two FORCE ON/ OFF tables:
- The first with all the 16 audio inputs that refers to the MASTER unit output.
- The second with all the 16 audio inputs that refers to the SLAVE unit output.
Before editing any setting, always check (on the far right of the software main window) which unit (MASTER or SLAVE) is selected.

AUDIO INPUT SETTINGS

SOURCE
Activation mode choice:
- **GPIN:** through a logic input (GPIN, to be set to either FORCE ON or FORCE OFF).
- **VOX:** automatic, when the audio input signal level is above the noise gate threshold.

FORCE ON: sets how much (up to +20 dB) the audio signal level will be increased during a FORCE ON event.

FORCE OFF: sets how much (up to –20 dB) the audio signal level will be reduced during a FORCE OFF event.

NOTE: THE USE OF FORCE ON / FORCE OFF FADERS IS EXCLUSIVE (THE ADJUSTMENT OF ONE CLEARS THE SETTING OF THE OTHER).

English

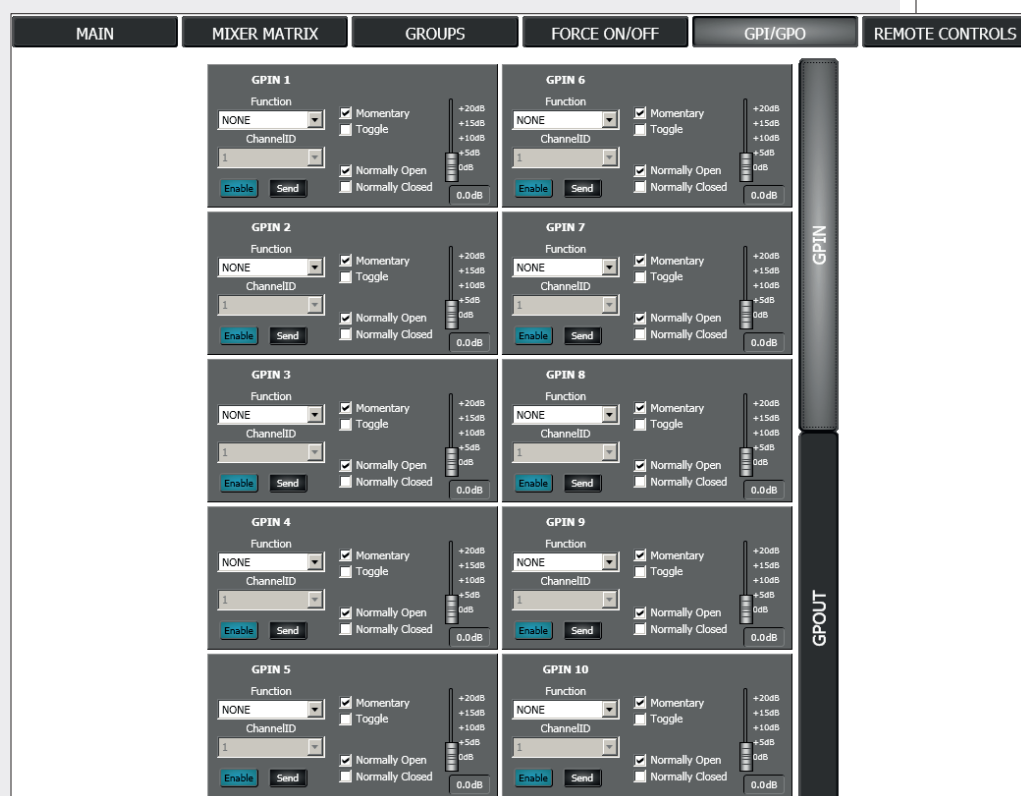# GPI/GPO SECTION (logic inputs and outputs, MASTER unit only) ➡

For the MASTER AX 8042 only, it is possible to set up to 10 logic inputs (GPIN), 4 logic outputs (GPOUT) plus 2 (RL1, RL2) with relay.

LOGIC INPUTS (GPIN)

The GPIN screen page allows to set up to 10 logic inputs.

Each logic input includes the following parameters:

FUNCTION: selection of the function assigned to the logic input (read the next paragraph).

CHANNEL ID: depending on the selected function, select the number corresponding to a preset, an audio input / output or a group.

MOMENTARY: the selected function is applied only when the logic input is kept activated.

TOGGLE: every logic input activation toggles the selected function.

NORMALLY OPEN: the logic input is activated when its contacts are shorted (or off when its contacts are open).

NORMALLY CLOSED: the logic input is activated when its contacts are open (or off when its contacts are shorted).

FADER: sets the group level gain / attenuation when using either the GRP VOL INCR function (group volume increment) or the GRP VOL DECR (group volume decrement).
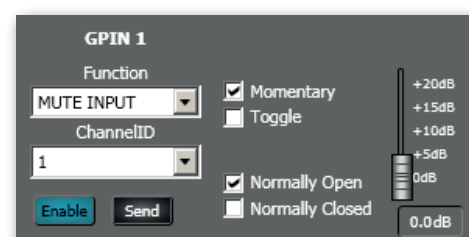
ENABLE: toggles the logic input (keep it on when using).

SEND: sends the logic input settings to AX 8042.

LOGIC INPUT FUNCTIONS

NONE: disabled.

LOAD PRESET: load the selected preset.

MUTE INPUT: mutes the selected audio input.

MUTE OUTPUT: mutes the selected audio output.

MUTE GROUP: mutes the selected group.

MUTE ALL: mutes all audio outputs.

ENABLE IN: forces the opening of the selected audio input channel (when muted).

FORCE ON: forces on the selected audio input. Its setting is made in the **FORCE ON/OFF** section (in the respective input), where the **SOURCE** choice needs to be set to **GPIN**.

FORCE OFF: forces off the selected audio input. Its setting is made in the **FORCE ON/OFF** section (in the respective input), where the **SOURCE** choice needs to be set to **GPIN**.

GRP VOL INCR: increases the selected group level.
Use the fader to adjust the gain (max. 20 dB).

GRP VOL DECR: reduces the selected group level.
Use the fader to adjust the attenuation (max. 20 dB).
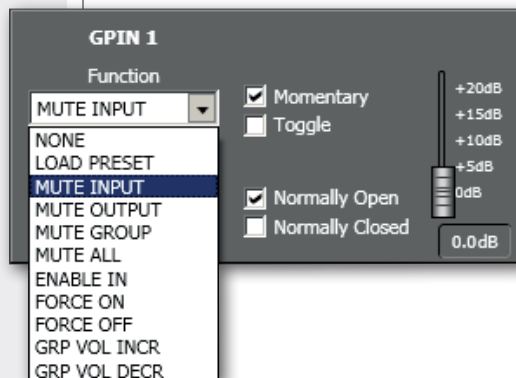
LOGIC OUTPUT (GPOUT)

In the GPI/GPO section, click GPOUT to access all logic output settings.

The GPOUT screen page allows to set up to 4 logic outputs (GPOUT) plus 2 (RL1, RL2) with relay.

NOTE: AS DEFAULT, THE **RL1** LOGIC OUTPUT WITH RELAY IS ASSIGNED TO THE DEVICE FAULT INDICATION. TO ENABLE ITS USER SOFTWARE CONTROL, IT IS NECESSARY TO SET THE **JMP1** INTERNAL JUMPER (SEE THE RESPECTIVE MANUAL SECTION).

i
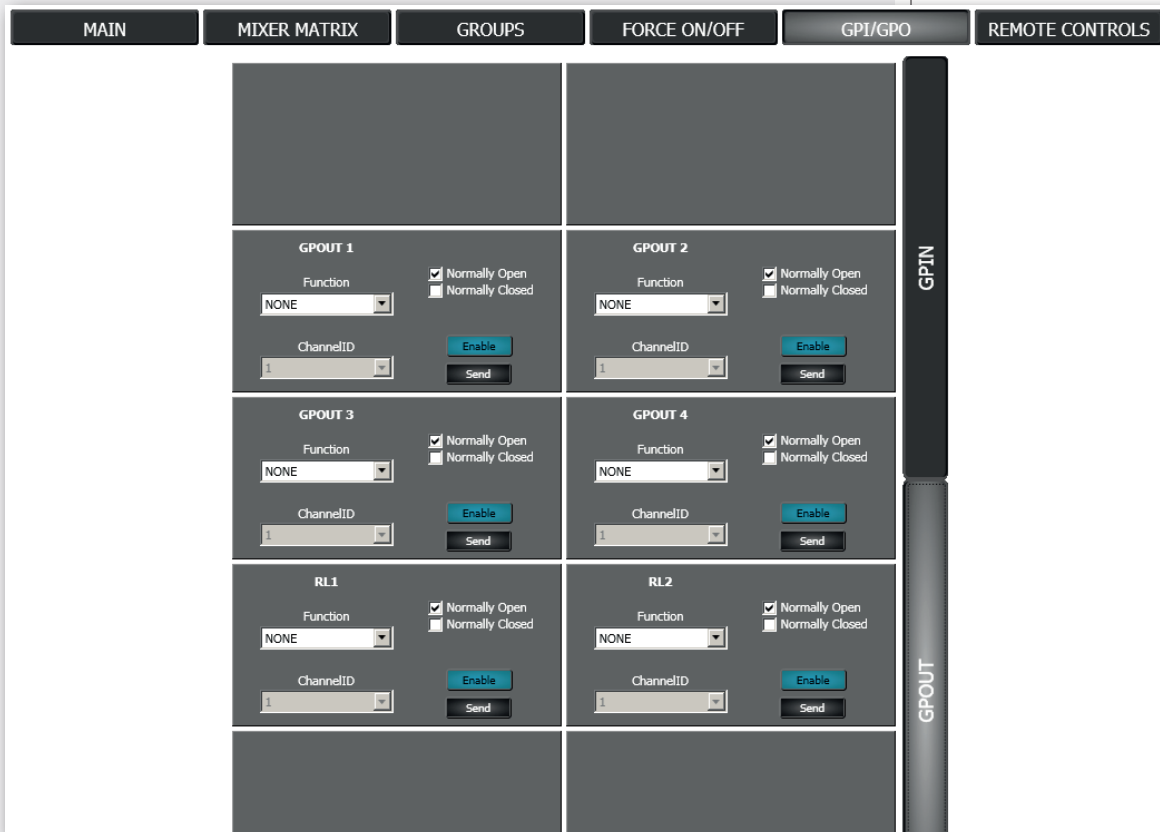
Each logic output includes the following parameters:

FUNCTION: selection of the function assigned to the logic output (read the next paragraph).

CHANNEL ID: depending on the selected function, select the number corresponding to a preset, an audio input / output or a group.

NORMALLY OPEN
GPO: the logic output is normally high (5 V) and will switch to low (0) when activated.
RL: the internal relay contacts are normally open and will get shorted as soon as the logic output is activated.
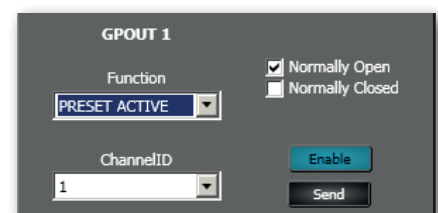
NORMALLY CLOSED
GPO: the logic output is normally low (0) and will switch to high (5 V) when activated.
RL: the internal relay contacts are normally closed (shorted) and will get open as soon as the logic output is activated.

ENABLE: toggles the logic output (keep it on when using).

SEND: sends the logic output settings to AX 8042.

LOGIC OUTPUT FUNCTIONS

NONE: disabled.

PRESET ACTIVE: the logic output is activated when the selected preset is recalled.

ENABLE IN: the logic output is activated when the selected (and muted) audio input channel has been open due to the activation of a logic input set to ENABLE IN.

MUTE OUTPUT: the logic output is activated when the selected audio output is muted.

MUTE IN: the logic output is activated when the selected audio input is muted.

MUTE GROUP: the logic output is activated when the selected group is muted.

MUTE ALL: the logic output is activated when all audio outputs has been muted due to the activation of a logic input set to MUTE ALL (or by using TS 9918 remote controls).
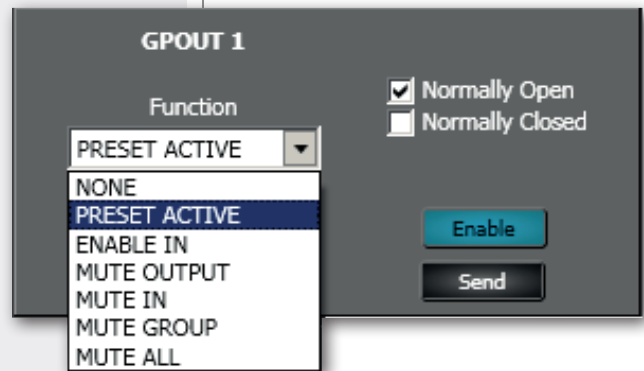
REMOTE CONTROLS SECTION (MASTER unit only)

This manual section concerns the software configuration of **RCF TS 9918** remote controls.
Refer to the **TS 9918 / TS 9918-W** user manual about all that concerns remote control installation, hardware settings and use.

It is possible to configure up to four TS 9918 remote controls for the MASTER unit only.

Each TS 9918 remote control shall have a digital address different from those already engaged.
REMOTE CONTROL 0 refers to the digital address 0, REMOTE CONTROL 1 to the digital address 1, REMOTE CONTROL 2 to the digital address 2, REMOTE CONTROL 3 to the digital address 3. Every current state is shown in the top left-hand corner: **CONNECTED** (the remote control is linked and operating) or **NOT CONNECTED**.

The software allows to select the operating mode (static, dynamic or combined) and configure the eight T1-T8 lateral keys and the central SCROLL WHEEL level control.

GENERIC SETTINGS

MODE: operating mode selection among **static, dynamic, combined.**

Before selecting the combined mode, first it is necessary to set the remote control in both static and dynamic modes.

ENABLE: toggles the remote control (keep it on when using).
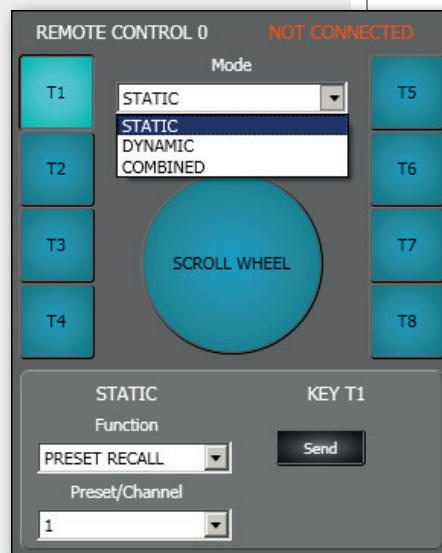
STATIC MODE SETTINGS

Click one of the 8 **T1-T8** buttons to configure it.

Choose the **Function** (to be assigned to the selected button, e.g. **T1**) and the preset number, the audio input / output or the group (to match the function) through the **Preset/Channel** parameter:

NONE: disabled button.

PRESET RECALL: recalls the selected preset.

MUTE INPUT: mutes the selected audio input.

MUTE OUTPUT: mutes the selected audio output.

MUTE GROUP: mutes the selected group.

MUTE ALL: mutes all audio outputs.

Send: sends the remote control settings to AX 8042.

Click the **SCROLL WHEEL** to configure it.

Choose the **Function** and the audio input / output or the group (to match the function) through the **Preset/Channel** parameter:

INPUT LEVEL: adjusts the level of the selected audio input.

OUTPUT LEVEL: adjusts the level of the selected audio output.

GRP LEVEL: adjusts the level of the selected group.

Send: sends the remote control settings to AX 8042.

DYNAMIC MODE SETTINGS

In the dynamic mode, it is possible to assign:
- Either an audio input or a control group to each of **T1-T4** buttons.
- Either an audio output or a control group to each of **T5-T8** buttons.

Click one of the 4 **T1-T4** buttons and choose either an audio input or a control group through the **Preset/Channel** parameter.

Click one of the 4 **T5-T8** buttons and choose either an audio output or a control group through the **Preset/Channel** parameter.

COMBINED MODE

In the combined mode there are no parameters to be set.

Before selecting the combined mode, first it is necessary to set the remote control in both static and dynamic modes.
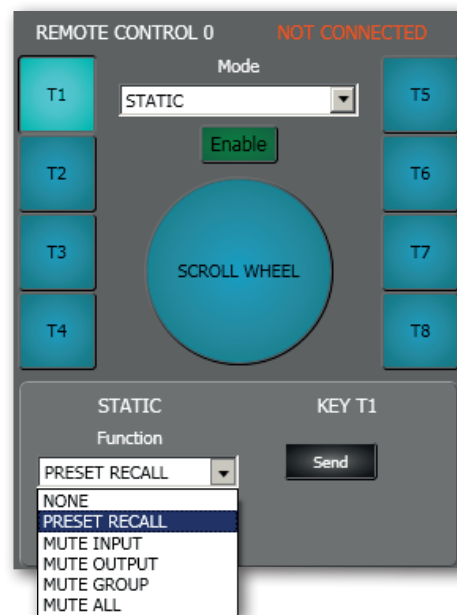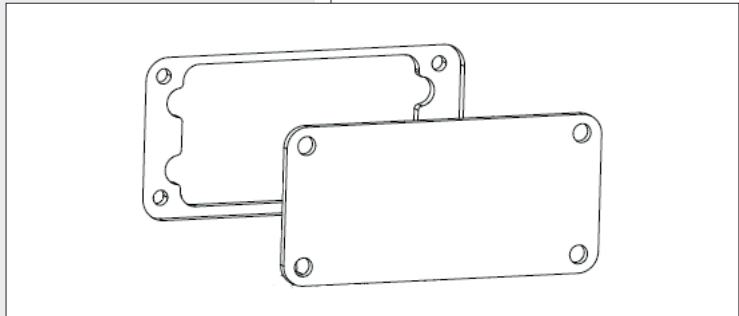
The **AC RDNET IN/OUT PLUG** optional board allows the AX 8042 automixer control via RDNET.
Refer to the RDNET CONTROL 8 manual about the complete RDNET software use and further information.

1. Unplug the power cord.

2. Remove the blank panel on the side of the input for the power cord **22** (on the AX 8042 rear panel) by unscrewing the 4 screws with a TORX T10 screwdriver.

3. Connect the flat cable inside the AX 8042 automixer to the AC RDNET IN/OUT PLUG board.
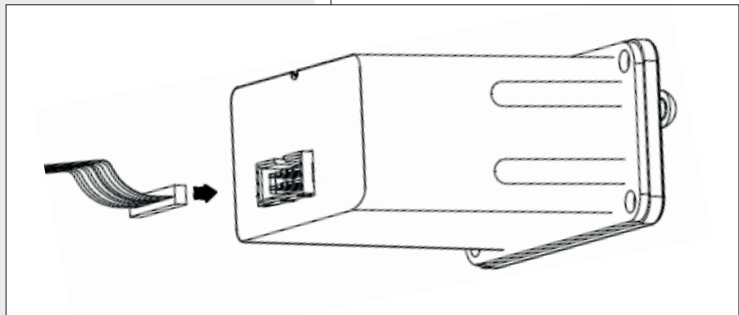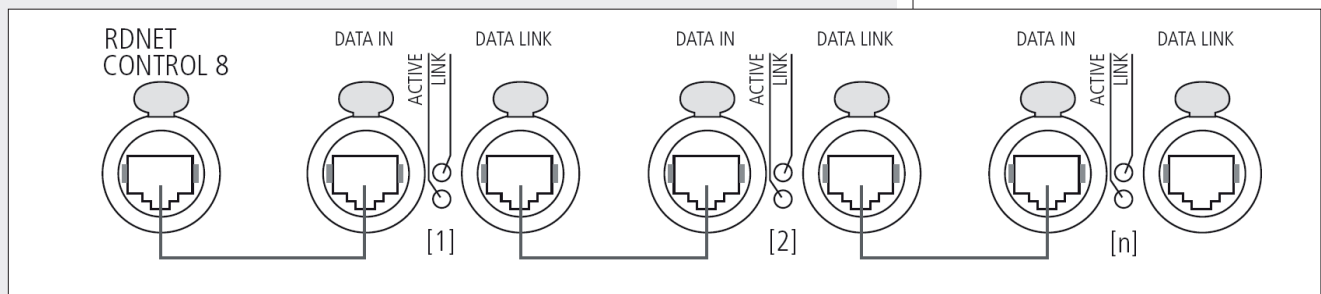
4. Insert the AC RDNET IN/OUT PLUG board into the AX 8042 automixer slot and fasten it with the 4 screws.
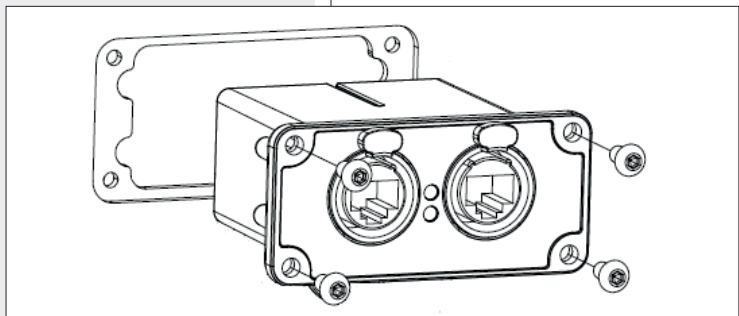
Each of the eight RDNET CONTROL 8 ports can be connected to max. 32 (daisy-chained) compatible audio devices.
Each **RDNET CONTROL 8** port shall be connected to the **DATA INPUT** of a RDNET device and the **DATA LINK** parallel output to the **DATA INPUT** of the next device.

RDNET CONTROL 8 — DATA IN — ACTIVE / LINK — DATA LINK — [1] — DATA IN — ACTIVE / LINK — DATA LINK — [2] — DATA IN — ACTIVE / LINK — DATA LINK — [n]

In the example above, [n] is a number from 3 to 32 (max. number of audio devices connected to a subnet).

The total CAT5 cable length of a single subnet cannot exceed 900 metres (c. 2950 feet).

INTERNAL JMP1 (for RL1 logic output) AND JMP2 JUMPER SETTINGS

IMPORTANT: internal jumper settings shall be carried out only by either RCF or an authorised service centre.

As default, the **RL1** logic output with relay is assigned to the device fault indication. Set the **JMP1** internal jumper (on the digital board) to the position **1-2**, in order to enable the user software control.
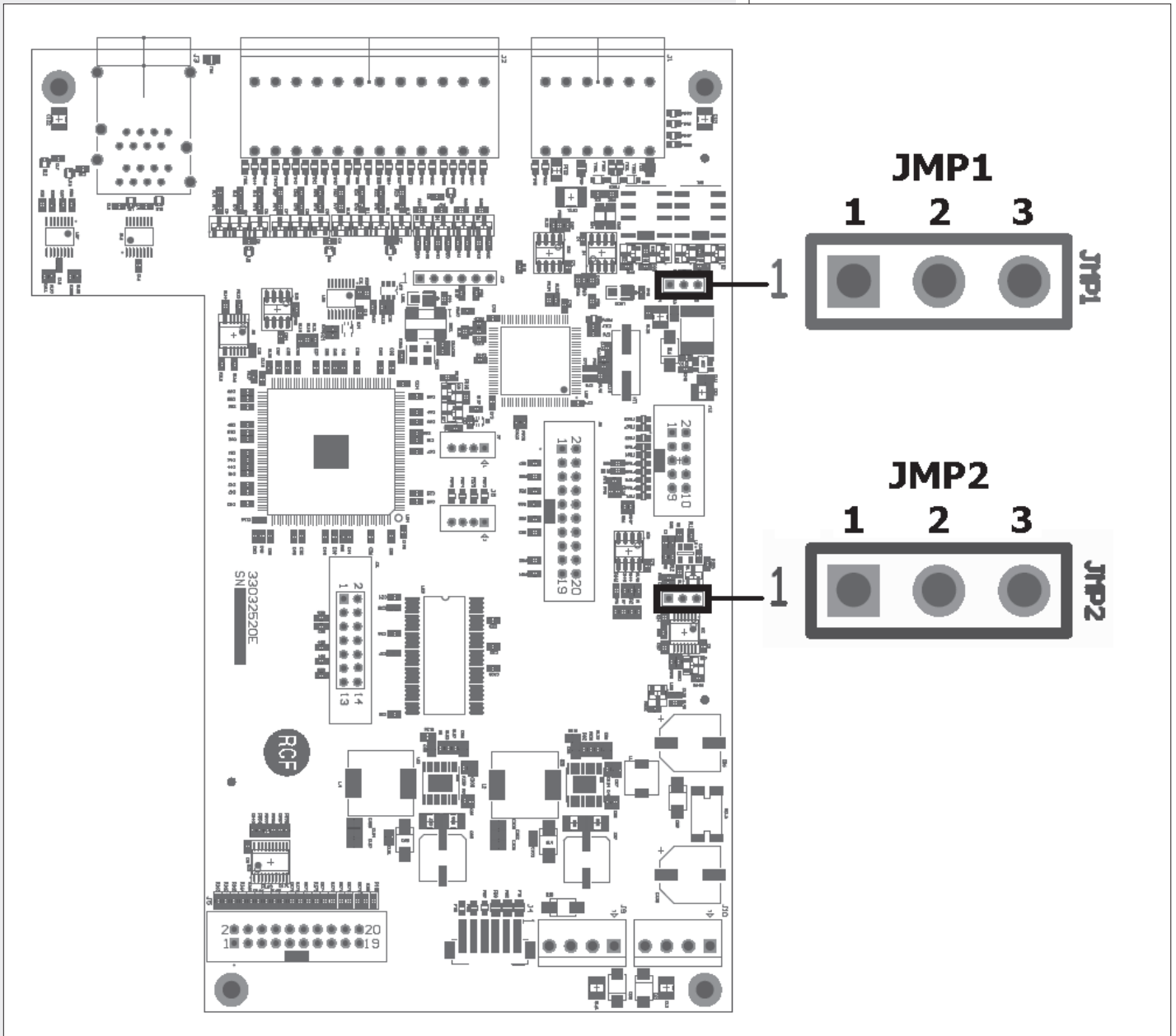
JUMPER	POSITION	FUNCTION
JMP1	1-2	The **RL1** logic output is software controlled.
	2-3	The **RL1** logic output is assigned to the device fault indication (factory default).
JMP2	1-2	A device fault mutes all audio outputs (factory default).
	2-3	A device fault does NOT mute all audio outputs.

SPECIFICATIONS

AUDIO PERFORMANCE DATA

A/D – D/A converters:	24 bits
Sampling rate:	48 kHz
Max. audio input level:	+24 dBu (balanced)
Max. MIC input gain:	+50 dB
Max. audio output level:	+24 dBu
Output impedance:	50 Ω
Frequency response:	20 Hz ÷ 20 kHz (±0.5 dB)
Dynamic range:	> 114 dB
Distortion (THD+N, 1kHz@ +22 dBu):	< 0.01% (analogue input to analogue output)

ELECTRICAL DATA

Power:	100 ÷ 240 V ac (50 / 60 Hz)
'Phantom' power:	48 V

MECHANICAL DATA

Dimensions (l, h, p):	482 mm, 44 mm, 320 mm (1 unit - 19″ rack) (18.98″, 1.73″, 12.60″)
Net weight:	3.475 kg (7.66 lbs)

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