GTX series

USER MANUAL

LYNX pro-audio

V. 20.06

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CE

CE CERTIFICACTION, EUROPEAN PRODUCT

CONTENTS

WELCOME

Just contact the new generation of digital amplifiers, designed and manufactured by Lynx Pro Audio S.L.

Before working with the amplifier we recommend that you read this manual, in its pages you will find instructions for use, programming examples and practical advice that will be of great help.

This GTX amplifier become a working tool of great value, providing the user with the best solutions in the market with the highest level of accuracy and a host of features for the professional.

We hope that as a user you will be completely satisfied. We are sure that the GTX amplifier will meet your expectations and make it easier for you to get the most out of your system.

IMPORTANT SAFETY INSTRUCTIONS

The CE mark of the **GTX** amplifier shows that it is verified and tested to accomplish the European Norms and International Norms about Electromagnetic Compatibility and Electrical Safety.

CE

Radiated Emisions :	EN55013-1 (1996)
RF Immunity:	EN55103-2 (1996)
Electical Safety:	EN60065 (1993)
	IEC65 (1985) and emendation 1, 2 and 3

This product also meets the specifications of the following safety directives:

Low Voltage Directive 73/23/EEC
EMC Directive 89/336/EEC

EUROPEAN PRODUCT

Product Developed and Manufactured in the European Union.

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

The symbols shown above are internationally accepted symbols that warn of potential hazards with electrical products. The lightning flash with arrowpoint in an equilateral triangle means that there are dangerous voltages present within the unit. The exclamation point in an equilateral triangle indicates that is necessary for the user to refer to the owner's manual.

Warning :

Do not expose the amplifier to humidity and dust.
Do not take off the top cover.
Do not handle internal elements to avoid electrical shock.
Use only power cords in good condition.

Unpacking the GTX

Before unpacking your new amplifier, verify that the box does not show any damage or deformation. If this happens, please claim the damage to your fordwarder. Once unpacked and verified its correct operation, keep the original box in case you need to ship it back to your provider.

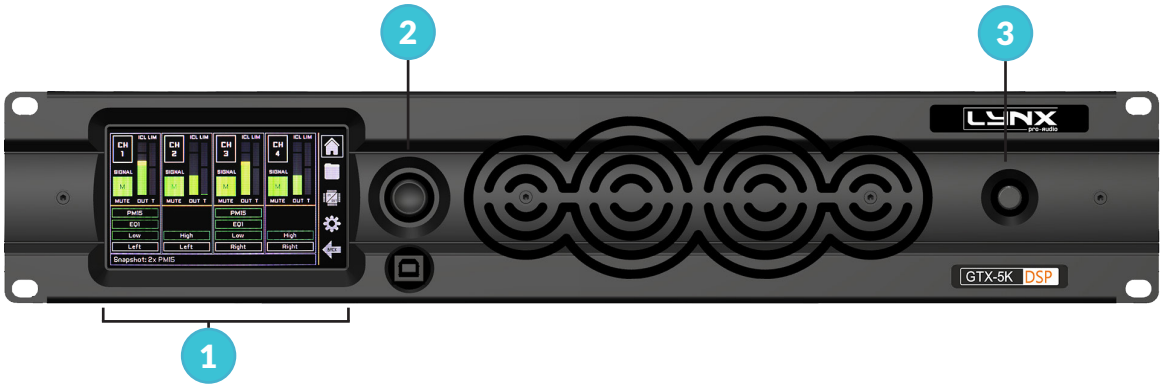
INTRODUCTION

The GTX Series consists of four-channel, mid-to-high power amplifiers designed specifically for the installation market. These amplifiers are versatile, supporting both low and high impedance loads via Phoenix connectors for inputs and outputs. They feature a high-quality, 64-bit, double-precision 96kHz FIR DSP, providing exceptional signal processing fidelity.

User control for the GTX amplifiers is provided through a large IPS display and a capacitive touch panel interface, ensuring an intuitive and modern experience. Optional digital network inputs are available with AES67 and AES3 compatibility, as well as GPIO connectivity to facilitate integration with third-party control systems.

The GTX Series is engineered to meet the demands of professional fixed installations, offering superior sound quality and operational flexibility adaptable to a variety of installation environments.

GTX frontal panel description



01. IPS Display

Capacitive touch panel user interface.

02. ENCODER AND PUSH BUTTON

This encoder allows you to control the interface and touch panel.

03. POWER ON SWITCH

GTX amplifier characteristics

• Large IPS display with a capacitive touch panel interface for intuitive user control.

• 64-bit, double-precision DSP processing at 96kHz.

• Optional Networking AES67 and AES3 Digital inputs.

• Dual Ethernet ports and a USB port for comprehensive control and monitoring.

• Optional GPIO interface for integration with third-party systems.

• High-efficiency Class D amplifier design.

• Universal power supply with Power Factor Correction (PFC).

• Delivers up to 10,000W across 4 channels

• Operates at 8, 4, and 2 Ohms for low impedance; compatible with 100V, 70V, 50V, and 35V high impedance modes

• Equipped with RAM Audio's advanced Power Control Management (PCM™)

• Phoenix connectors for reliable input and output connections

• Innovative upside-down design to reduce dust accumulation from fans

• Front-to-back, temperature-controlled cooling fan

GTX Output power

	GTX-5K	GTX-10K	GTX-14K	GTX-20K
2 ohms	4 x 1250 W	4 x 2500 W	4 x W	4 x W
4 ohms	4 x 1250 W	4 x 2500 W	4 x W	4 x W
8 ohms	4 x 1250 W	4 x1250 W	4 x W	4 x W
Hi -Z 100 V	4 x 1250 W 1 x 2500 W	4 x 2500 W 1 x 2500 W	4 x W 1 x W	4 x W 1 x W
Hi -Z 70 V	4 x 1250 W 1 x 8000 W	4 x 2500 W 1 x 2500 W	4 x W 1 x W	4 x W 1 x W

1. INSTALLATION AND OPERATION

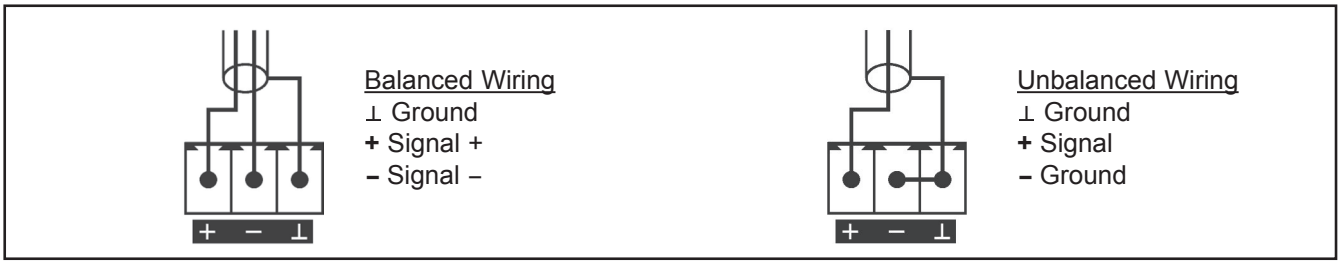
Connections

Connect the amplifier to a properly grounded mains socket (90-265V AC).

The input signal for the amplifier can be either balanced or unbalanced. The following instructions detail how to wire a 3.5mm-pitch Phoenix connector for each type:

- **Balanced Signal:** Connect the ground to the ground pin, Signal + (hot) to the + pin, and Signal - (cold) to the - pin.

- **Unbalanced Signal:** Connect the ground to both the ground and - pins, and connect the Signal to the + pin.



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- **Unbalanced Signal:** Connect the ground to both the ground and - pins, and connect the Signal to the + pin.

NOTICE

If a connection is done with a un-balanced line and pin - on the Euro style is not connected to ground, a 6 dB loss occurs in the line and only a quarter of the amplifier power is produced.

The GTX Series can operate on two different configurations: DUAL or BRIDGE.

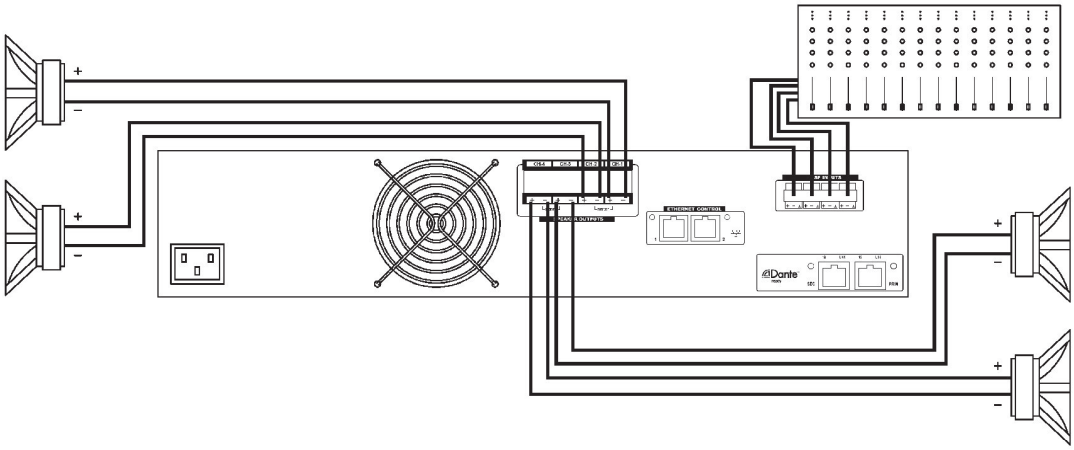
The connections for the two modes are different.

Dual channel mode

By means of the display, set the Amplifier Mode to “DUAL”.

- Connect the signal lines to the Phoenix type 3.5mm-pitch connectors.

- Connect the speakers’ lines to the corresponding Phoenix type 7.62mm-pitch on the amp respecting the polarity.

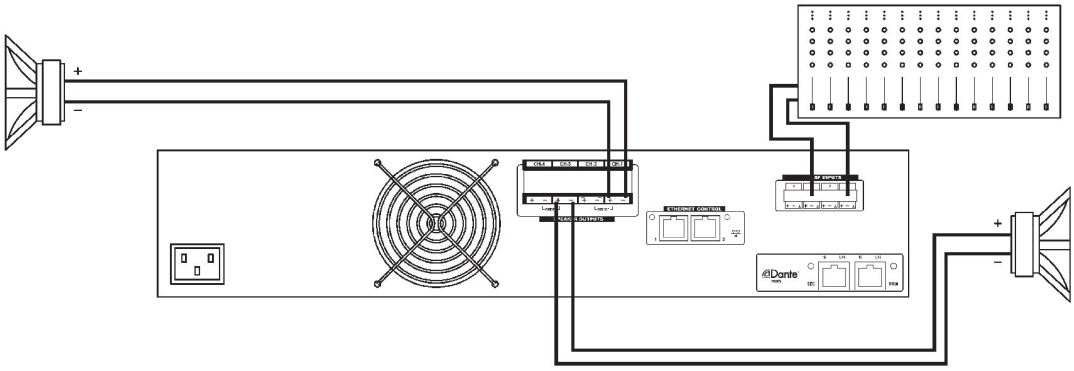


Bridge mode

By means of the display, set the configuration mode to “BRIDGE”.

- Connect the signal lines to the Phoenix type 3.5mm-pitch connectors.

- Connect the speaker line to the Phoenix type 7.62mm-pitch connector wired to + and - between bridged channels.



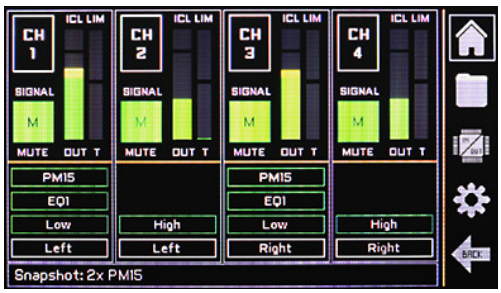
2. OCS DSP CONTROL

GTX_OCS DSP Control

GTX series DSP is a highly versatile amplifier suitable for any sound system and configurable for any possible application.

This high-performance DSP features FIR filters at 96 kHz.

The digital amplifier has Ethernet control and is managed via Lynx Pro Audio's proprietary control software, GTX_OCS.



DSP management using OCS and amplifier

- Input Routing matrix Analog/Networking AES67/AES3
- Input EQ section with 8 filters and 20 memories
- Input EQ Mode section
- System Preset selection (Locked/Unlocked)
- Snapshot library management up to 20 presets
- Master Control Groups
- Input EQ Mode section creation, up to 20 presets
- Ways routing section (Locked/Unlocked)
- IIR EQ section: XOver, Gain, Delay and 7 EQ filters
- FIR EQ section: linear phase XOver and EQ filters, or custom up to 1000 taps
- RMS and Peak Dynamic control
- Snapshot Preset library management up to 20 presets (Locked/Unlocked)
- System Preset library management up to 100 pre-sets
- 5 Security levels definition to limit final user functionality

DSP Specifications

Overall:

- High performance 96kHz/24 bits AD/DA converters
- 64 bit double-precision 96kHz DSP process
- 0.85ms minimum process latency time
- Custom FIR process up to 1000 taps
- Networking AES67 and AES3 input versions

Input Section (x4):

- Gain, Mute and Phase inversion
- Delay: in In A: 333ms (114m), In B/C/D: 90ms (31m)
- Input EQ: 16 filters (Param., Shelving, LP, HP, BP, SB, AP)

Output Section (x4):

- Crossover Filters: FIR and IIR (up to 48dB/oct, Butterw./LR/Bessel)
- Output Delay: 0 to 31 meters (90ms) per channel
- Output IIR EQ: 12 filters per channel (Param., Shel, LP, HP, BP, SB, AP)
- Output FIR EQ: 20 filters per channel (Parametric, Shelving, LP,HP, BP, SB, PA), or Custom. Up to 1000 taps
- RMS and Peak limiter per channel

Communications:

- Two ports Ethernet switch for daisy chain connection
- UBS 2.0 Type B port

Miscellaneous:

- 20 User preset memories library
- 20 User snapshot memories library
- Manufacturer/User passwords
- User control groups for virtual Equalization, Gain and Delay
- Zone management for library, and alerts information
- Smaart ® analysis software integration

ONLINE CONTROL SYSTEM

- Who is it for?

Users of Self powered DSP incorporated Lynx Pro Audio Cabinets where the user has requested the cabinets be supplied with the Ethernet Module kit.

- What is it for?

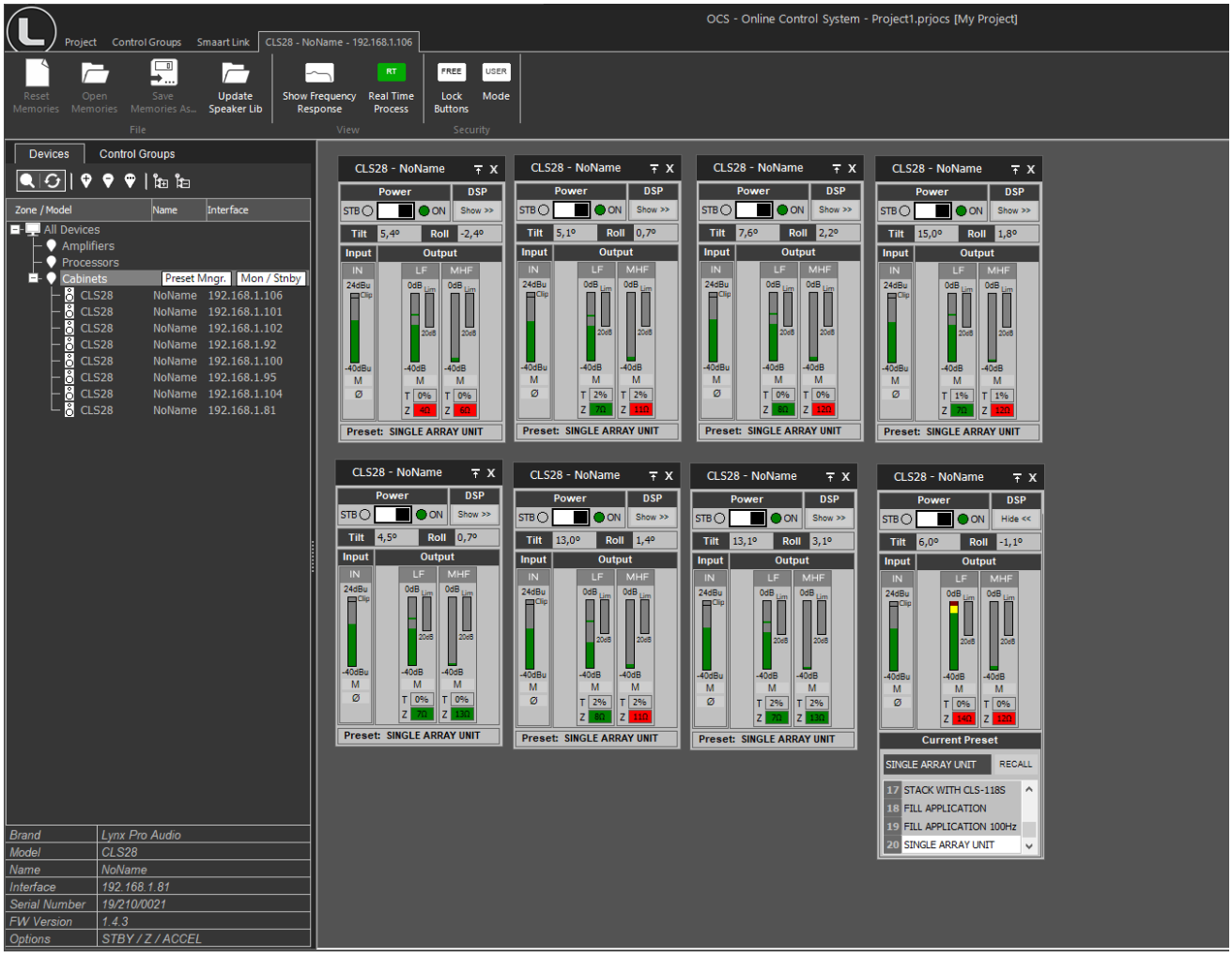
Obtain detailed information of cabinet behaviour and monitor the cabinet/s in real time. You can change the preset, gain, mute, polarity and phase. You can also activate the air absorption compensation and select the «SOLO» mode.

- How does it work?

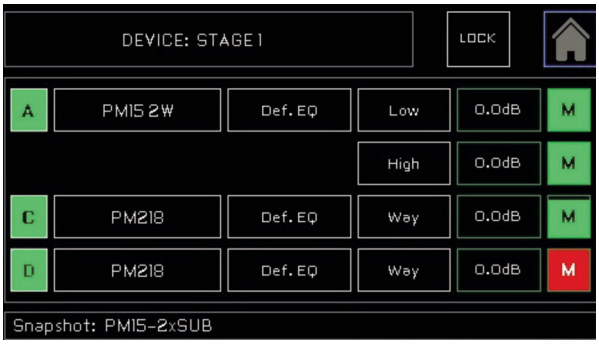
Via Ethernet (cable or wireless). Once installed, the O.C.S. software automatically detects all the cabinets connected to the network and displays them in the O.C.S. window on the users PC.

- What does it show?

As well as displaying the cabinet model and IP address the O.C.S will be monitoring in real time and the user will be able to view RMS levels, Input clip, power module temperature, compression levels, air absorption compensation and cabinet angulation.

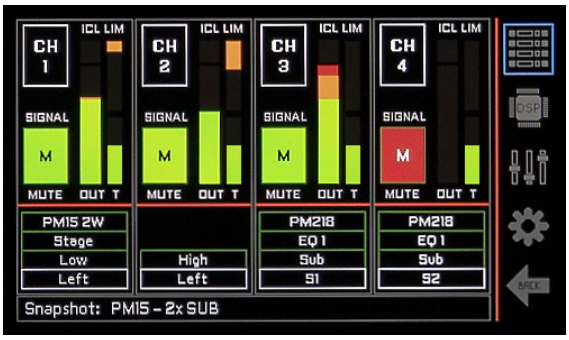


Default screen



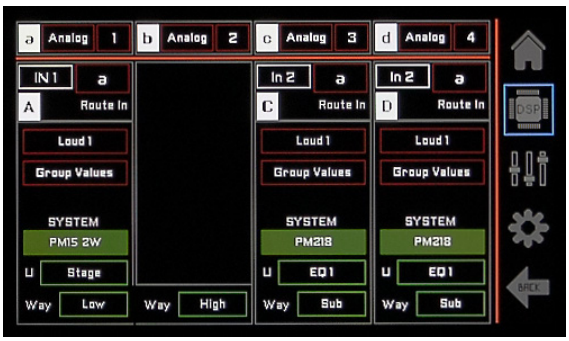
- **Device Name:** asigned by user
- **Lock Button:** to lock touch screen
- **Home Button:** to acess to Home screen
- **System Input Signal:** shines green with signal presence
- **System Preset, Mode and Way names of current process**
- **Level Control for amplifier channel output**
- **Output Mute / Signal:** shines green with output signal presence
- **Snapshot:** shows the name of current Snapshot (if loaded one)

Home screen



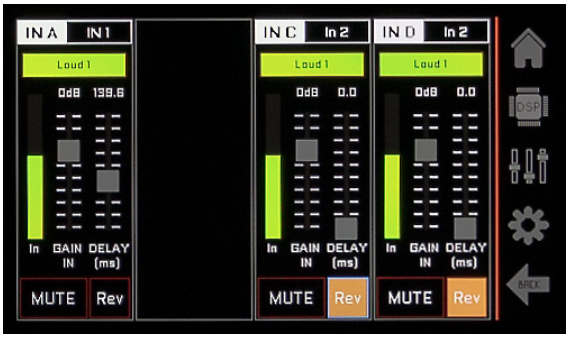
- **Output signal per channel:** lights up green with signal presence
- **Mute button:** silences the amplifier channel output
- Channel output level
- **ICL indicator:** lights up when the clip limiter system is active
- **LIM:** shows the compression level of the RMS and Peak limiters
- **T:** shows the channel temperature (as a percentage)
- System Preset/Mode/Channel/User ID names in the current process
- **Snapshot:** shows the name of the current Snapshot (if any is loaded)
- **Default Screen Icon:** button to access the default screen

DSP Edit screen



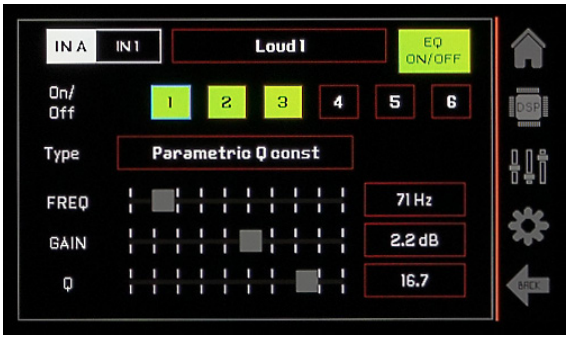
- **Input source:** to select the analogue/digital input source
- **System input:** to select the input for each system
- **User ID input label:** shows the user-assigned name
- **User equalisation:** to select the user memory for input equalisation
- **Group Values:** shows control group values (in green if present)
- **JOIN (optional):** to link different outputs to one input
- System Preset selection
- **M:** to select the Mode equalisation
- **Way:** to optionally select the output channel

User input settings screen



- **User ID input label:** shows the user-assigned name
- User Equalisation Access Button
- **In:** input level VU meter
- **GAIN IN:** to adjust the input gain
- **DELAY:** to adjust the input delay (ms)
- **MUTE:** to mute the input
- **Rev:** to change the input polarity

User equialisation screen

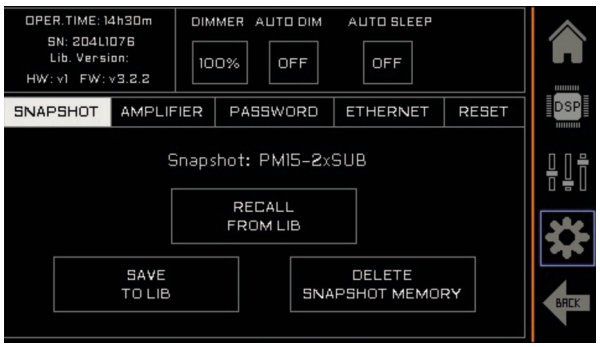


- Equalisation Memory Name
- **EQ ON/OFF:** to enable/disable User Equalisation
- **On/Off HP 1-6:** to access a specific filter and enable/ disable it
- **Type:** to assign the filter type to the selected equalisation
- **FREQ:** to assign the frequency to the selected equalisation
- **GAIN:** to assign the gain to the selected equalisation
- **Q:** to assign the Q to the selected equalisation

Amp. Infor & Screen configuration (top section)

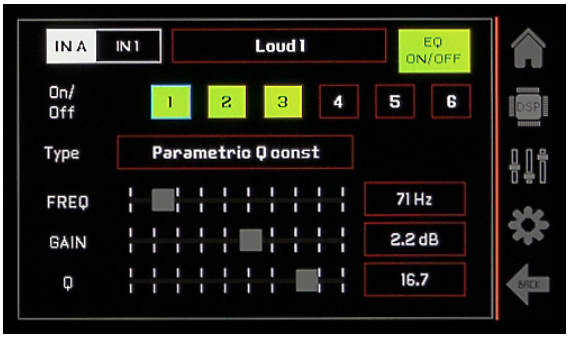
- **OPER. TIME:** shows the amp operation time
- **SN / MODEL:** shows serial number and model of the amp
- **HW / FW:** shows the hardware and firmware versions
- **BACKLIGHT DIMMER:** to change the screen brightness
- **AUTO OFF:** to automatically turn off the screen (selectable time)
- **AUTO LOCK:** to automatically lock the screen after 60s

SNAPSHOT Tab:



- **Snapshot:** shows the name of current Snapshot (if loaded one)
- **RECALL FROM LIB:** to recall a Snapshot saved in the library
- **SAVE TO LIB:** to save current amp setup to a Snapshot
- **DELETE SNAPSHOT MEM:** to remove a library Snapshot

User equialisation screen



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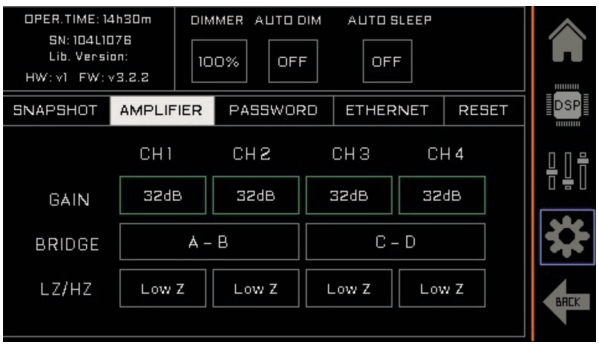
Amplifier Tab:

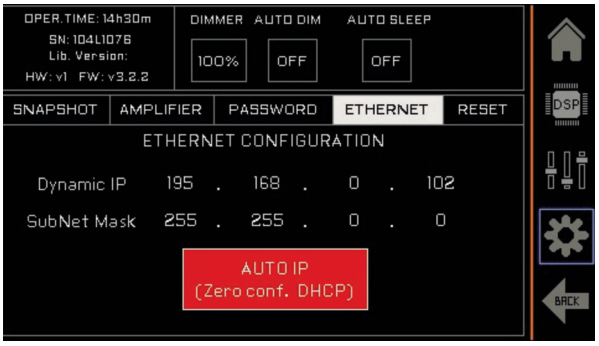


- **GAIN:** to select amp gain (26dB to 44dB)
- **BRIDGE:** to configure a pair of channels in Bridge mode
- **0dB FS IN (optional):** to adjust the input digital reference

Password Tab

- **GENERAL PASSWORD:** to enable/disable the general password. When enable you have to introduce a 4-digits password and confirm it. When it is active user will limit the access to the amp through the screen and OCS software.

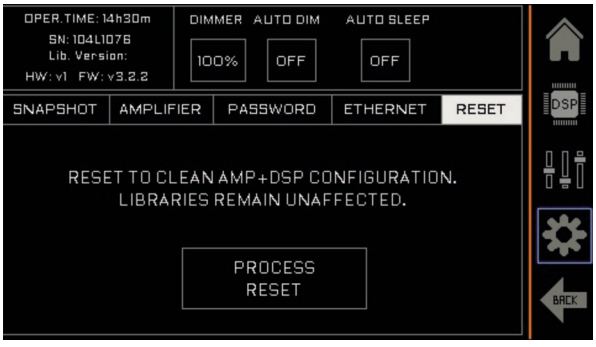
ETHERNET Tab:



- **Dynamic IP / SubNet Mask:** information of the current IP address
- **AUTO IP:** to enable/disable the dynamic IP function:
  - When Auto IP is enabled, amp will receive an IP from an external. DHCP server. When no DHCP server is present in the network, amp will self-asignate an IP with the Zero config protocol.

  - When Auto IP is disabled, you have to manually configure IP selecting each IP number and changing it with the encoder. To finish press the button APPLY IP.

Reset Tab



- **FACTORY RESET:** to reinstate initial factory parameters.

Caution! All the amp configurations and loaded presets will be lost, libraries, snapshots, EQ presets stored will be retained.

3. OPTIONS

GPIO (General Purpose Input/Output)

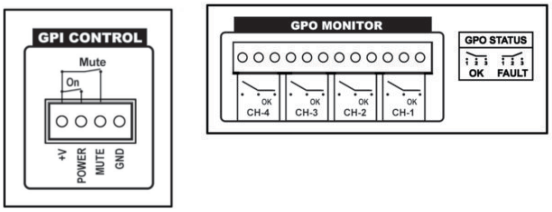
GPI Control:

- **+V:** Provides a +15V output.
- **POWER:** Can be activated by contact (connecting +V to POWER) or by voltage (applying 3V-24V).
- **MUTE:** Can be muted by contact (connecting +V to MUTE) or by voltage (applying 3V-24V relative to GND).
- **GND:** Ground connection.

When the amplifier is powered ON via GPI, the display and software will indicate “GPI ON.” Pressing the amplifier’s power button will switch the control to “button,” and the “GPI ON” message will disappear. Pressing the power button again will return control to the “GPI ON” state.

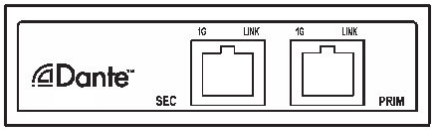
GPO (General Purpose Output):
Each channel has three contacts to monitor amplifier status:

- **Normal Operation:** Pins 2-3 are closed (pins 1-2 are open), indicating “OK” status.
- **Fault or Power Off:** Pins 1-2 are closed (pins 2-3 are open), indicating “FAULT” status.



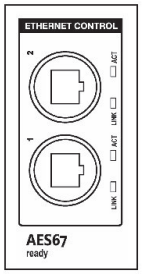
DANTE/AES67 Inputs

Direct AES3 digital audio inputs are available via Phoenix-type 3.5mm-pitch connectors on pins 1 and 3. In a daisy chain configuration, a termination resistor must be applied to the last amplifier in the chain.



AES67 Standalone Inputs

AES67 digital audio inputs (compatible with ATMOS and RAVENNA) are available through two EtherCon connectors, which also serve as Ethernet control ports.



4. TECHNICAL SPECIFICATIONS

	GTX-5K	GTX-10K	GTX-14K	GTX-20K
Number of channels	4	4	4	4
Total output power	5000 W	10000 W	14000 W	20000 W
Output power				
@ 2 Ohms	4 x 1250W / 1 x 1250W	4 x 2500W / 1 x 2500W	4 x 3500W / 1 x 3500W	4 x 5000 W / 1 x 5000W
@ 4 Ohms	4 x 1250W / 1 x 2500W	4 x 2500W / 1 x 2500W	4 x 3500W / 1 x 3750W	4 x 5000 W / 1 x 6000W
@ 8 Ohms	4 x 1250W / 1 x 1250W	4 x 1250W / 1 x 1300W	4 x 1800W / 1 x 1900W	4 x 2500 W / 1 x 3000W
@4 Ohms Bridged	2 x 2500 W	2 x 5000 W	2 x 7000 W	2 x 10000 W
@8 Ohms Bridged	2 x 2500 W	2 x 5000 W	2 x 7000 W	2 x 10000 W
Hi-Z 100V	4 x 1250 / 1 x 1250 W	4 x 2500 / 1 x 2500 W	4 x 3500 / 1 x 4200 W	4 x 5000 / 1 x 5000 W
Hi-Z 70V	4 x 1250 / 1 x 1800 W	4 x 2500 / 1 x 2500 W	4 x 2950 / 1 x 2950 W	4 x 3500 / 1 x 3500 W
Max output voltage	150 V peak	150 V peak	189 V peak	235 V peak
Max output current	36 A peak	50 A peak	59 A peak	71 A peak
Total Harmonic Distortion	<0.05%	<0.05%	<0.05%	<0.05%
Crosstalk /20Khz-1KHz), typical	>70 dB	>70 dB	>70 dB	>70 dB
Voltage Gain	26 dB to 44 dB	26 dB to 44 dB	26 dB to 44 dB	26 dB to 44 dB
SNR	111 dBA	111 dBA	113 dBA	115 dBA
Required AC Mains Operating Voltage (50Hz-60Hz)	90V-140V AC	90V-140V AC	90V-140V AC	90V-140V AC
1/8 Rated Power (@ 4 ohms)	3.7 A	7.3 A	10 A	14 A
Dimensions W x H x D (mm)	483 x 89 x 355	483 x 89 x 355	483 x 89 x 355	483 x 89 x 355
Weight Net (kg - lbs)	7 - 15.4	7 - 15.4	7.5 - 16.5	7.5 - 16.5
Protections	Soft-start, Turn-on Turn-off transients, Over-heating, DC, RF, Short-circuit, Open or mismatched loads, Overloaded power supply, ICL™, PMS™ and SSP™			

* IEC filtered pink noise signal (40Hz-5kHz, 12 dB crest factor). 230V AC mains.

5. TROUBLESHOOTING

We aim to resolve possible issues by providing solutions in this section:

1 – The amplifier does not start up
Check the power supply cord. If it is correctly connected and the red led on the front panel does not light on, check the fuse situated in the input of the power cord.

2 – The amplifier starts up but there is no sound
Check that the amplifier is being provided with a signal in the correct input, A, B, C or D. If the signal does reach the amplifier, the green signal LED will light.

3 – The resulting sound is “strange”
Check that the outputs and their corresponding cabinets are correctly linked. Always be careful in increasing little by little the cabinets volume channel by channel in order to check the correct connection and not to damage the transducers.

4 – One of the cabinets (with the same signal) sounds less than the others
Check that the joining cable from the amplifier to the cabinet is well balanced otherwise the output signal will fall 6 dB.

CE

DECLARATION OF CONFORMITY

Lynx Pro Audio S.L. declares that GTX series are in conformity with the following EC directives:

Low Voltage Directive	2014/35/UE
Electromagnetic Compatibility EMC	2014/30/UE
RoHS Directive	2011/65/UE
RAEE (WEEE)	2012/19/UE

In accordance with Harmonized European Norms:

EN 60065:2014	Audio, video and similar electronic apparatus. Safety requirements
EN 60065:2002	Audio, video and similar electronic apparatus. Safety requirements
EN 55103-1:1996	Electromagnetic compatibility. Product family standard for audio, video, audiovisual and entertainment lighting control apparatus for professional use. Part 1: Emission.
EN 55103-2:1996	Electromagnetic compatibility. Product family standard for audio, video, audiovisual and entertainment lighting control apparatus for professional use. Part 2: Immunity.

GTX- 5K | GTX- 10K | GTX- 14K | GTX- 20K

LYNX pro-audio

LYNX PRO AUDIO GUARANTEE

Lynx products are guaranteed against every kind of manufacturing fault 2 year after the date of sale. When products are under guarantee, the repairing and the free supplying of the device parts in order to correct any kind of defect are guaranteed by Lynx Pro Audio S.L. In the case that the product could not be returned to the factory for checking and repairing, Lynx Pro Audio S.L. would supply all the necessary parts.

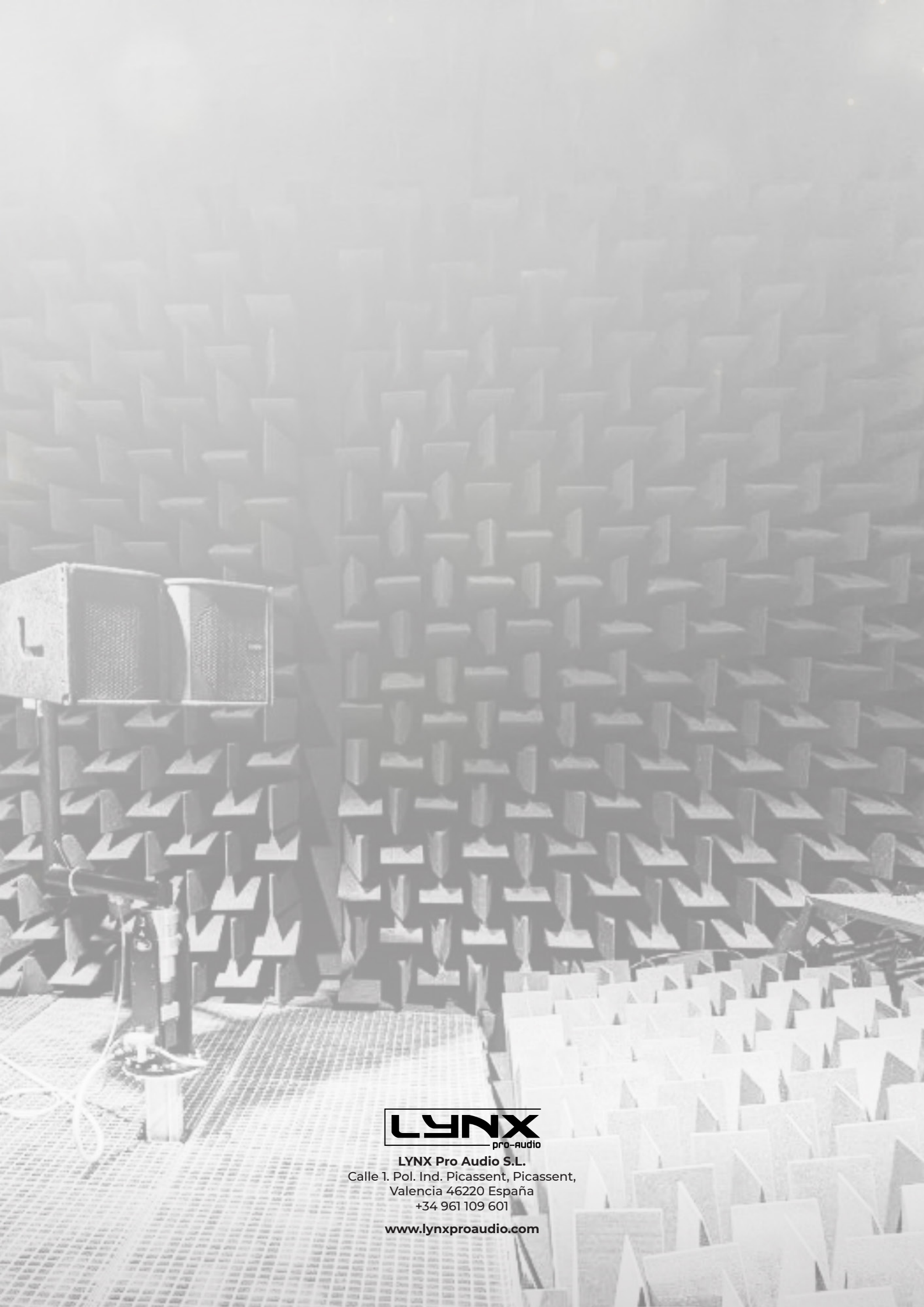
Lynx Pro Audio S.L. is not responsible for any damage or defect caused during the transport or caused by an undue or improper handling by a non-authorized person during the life of this guarantee.

All our products go through rigorous testing and quality controls. We guarantee the characteristics described here within and their quality against any fabrication defect.

The user loses all warranty rights if he incorporates or carries out any modification to the product, if he uses it outside of the stated safe working loads or does not secure the system properly using all the pins in their corresponding holes.

For any question regarding the product, the user must quote the model and serial number.

WEEE Declaration: Electrical and electronic equipment must be disposed of separately from normal waste at the end of its operational lifetime. Please dispose of this product according to the respective national regulations or contractual agreements. If there are any further questions concerning the disposal of this product please contact Lynx Pro Audio S.L.



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