CA120HZ

AMPLIFIER
AV Integration Micro-amplifier

USER MANUAL

INDEX

1. IMPORTANT REMARK

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

WARNING: SHOCK HAZARD - DO NOT OPEN
AVIS: RISQUE DE CHOC ÉLECTRIQUE - NE PAS OUVRIR

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING (If applicable): The terminals marked with symbol of " ⚡ " may be of sufficient magnitude to constitute a risk of electric shock. The external wiring connected to the terminals requires installation by an instructed person or the use of ready-made leads or cords.

WARNING: To prevent fire or shock hazard, do not expose this equipment to rain or moisture.

WARNING: An apparatus with Class I construction shall be connected to a mains socket-outlet with a protective earthing connection.

2. IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

9. Do not defeat the safety purpose of the polarized or grounding type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at the plugs, convenience receptacles, and at the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Unplug the apparatus during lightening sorts or when unused for long periods of time.
13. Refer all servicing to qualified personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
14. Disconnecting from mains: When switching off the POWER switch, all the functions and light indicators of the unit will be stopped, but fully disconnecting the device from mains is done by unplugging the power cable from the mains input socket. For this reason, it always shall remain easily accessible.
15. Equipment is connected to a socket-outlet with earthing connection by means of a power cord.
16. The marking information is located at the bottom of the unit.
17. The apparatus shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on apparatus.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

WARNING: This product must not be discarded, under any circumstance, as unsorted urban waste. Take to the nearest electrical and electronic waste treatment centre.

NEEC AUDIO BARCELONA, S.L. accepts no liability for any damage that may be caused to people, animal or objects due to failure to comply with the warnings above.

3. IMPORTANT NOTE

Thank you for choosing our Ecler **CA120HZ AV Integration Micro-amplifier**!

It is **VERY IMPORTANT** **to carefully read this manual and to fully understand its contents before any connection** in order to maximize your use and get the best performance from this equipment.

To ensure optimal operation of this device, **we strongly recommend that its maintenance be carried out by our authorised Technical Services**.

All ECLER products are covered by warranty, please refer to www.ecler.com or the warranty card included with this product for the period of validity and conditions.

4. COMPLIANCE WITH INTERNATIONAL STANDARDS

The CA120HZ micro amplifier complies with the following international standards:

- EN55103-1   Electromagnetic Compatibility.
  Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use
  Part 1: Emission

- EN55103-2   Electromagnetic Compatibility.
  Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use
  Part 2: Immunity

- EN60065   Audio, video and similar electronic apparatus. Safety requirements
  Complying with the requirements of directives 73/23/EC and 2004/108/EC

5. INTRODUCTION

The CA120HZ is a very small mono amplifier with high impedance output (70/100V) and a multitude of remote control functions (RS-232 serial port, infrared receiver, 0-10 VDC remote control port), and is ideal for integrating audiovisual applications with other devices: educational classes, meeting rooms and multimedia presentations, business premises, etc.

5.1 Main characteristics

- 1 x 96W RMS @ 70/100V amplifier

- Universal external power supply

- AUTO STANDBY function: in the absence of an audio signal the unit automatically goes into *STANDBY* mode, minimising power consumption

- Lightweight, silent, high-performance amplifier (fan-free convection cooling)

- 1 switchable balanced mic / unbalanced line input, with high quality microphone preamplifier, *phantom* power supply, noise gate and "talkover" function or priority over the rest of input

- 2 stereo lines (unbalanced)

- 2-band independent tone control (Bass, Treble) for the microphone / line 3 and line 1&2 input connection.

- Auxiliary output for liaison with other amplifiers or external audio devices

- Local control by digital rotary knob ("encoder")

- Remote control by infrared remote control

- Remote control by WpaVOL or WpaVOL-SR (0-10 VDC) wall panel

- RS-232 control port, compatible with EclerCOMM software (free) and control protocol CA-NET

- MUTE port to silence the entire unit by closing external contact

6. INSTALLATION

WARNING: Non-compliance with the instructions or neglecting warnings may cause malfunction or even damage the unit:

1. Avoid turning on the device without the speakers connected to its outputs and without having previously set the volume/gain controls to minimum level.

2. Always use shielded cables to make connections between devices.

3. In an amplifier, avoid placing the speaker output cables close to other signal cables (micro, line…). This may cause the system to oscillate, damaging the amplifier and speakers.

6.1. Location and assembly

The CA120HZ is suitable for installation on a wall or under a surface (table, shelf, cupboard, etc.), thanks to its design and layout of its connectors, controls and LED indicator lights.

6.2. Mains connection

The amplifier is powered by alternating current through its external power source: 100-240 VAC and 50-60 Hz.

This apparatus must be earthed through its mains cable (earth resistance, Rg = 30Ω, or lower). The environment should be as dry and dust free as possible. Do not expose the unit to rain or water splashes. Do not place liquid containers or incandescent objects like candles on top of the unit.

⚠️ Should any work or connection / disconnection task be done, always disconnect the unit from the mains supply. There are no elements that can be manipulated by the user inside the amplifier.

To avoid buzzing, do not allow the power cable to intertwine with the shielded cables that transport the audio signal.

The CA120HZ accepts two types of signals in its input channels:

- Microphone (**MIC**): has a balanced Euroblock or jack type connection, ready to accept a signal level between -20dBV y –50dBV, with adjustable sensitivity with the ADJ control

  NOTE: the microphone input has a phantom power supply to power condenser microphones, activated by internal bridge (see section 11. CONFIGURATION DIAGRAM).

- Line signals (**LINE1**, **LINE2, LINE3**): they have unbalanced minijack or double RCA type stereo connections. They are prepared for input of between -6dBV and 0dBV, with input sensitivity that can be adjusted by internal port (see section 11. CONFIGURATION DIAGRAM).

  You can connect signals from CD players, radio tuners, mixing consoles, media players, the audio outputs of PCs and tablets, etc. to these connections.

  NOTE: Turntables CANNOT BE CONNECTED directly to this device because none of the inputs have an RIAA preamp.

The CA120HZ has the following operating modes according to the input sources selected as active:

- **LINE1**: only the LINE1 input is sent to the mix bus to be amplified and routed to the OUTPUT in mono format
- **LINE2**: only the LINE2 input is sent to the mix bus to be amplified and routed to the OUTPUT in mono format
- **LINE3/MIC**: only the microphone (MIC) / line (LINE3) input is sent to the mix bus to be amplified and routed to the OUTPUT in mono format
- **LINE1 + LINE3/MIC**: the LINE1 and LINE3/MIC inputs are mixed, amplified and routed to the OUTPUT in mono format. If the TALKOVER function is enabled, the LINE3/MIC input will attenuate the LINE1 signal when the activation threshold is reached
- **LINE2** + **LINE3/MIC**: the LINE2 and LINE3/MIC inputs are mixed, amplified and routed to the OUTPUT in mono format. If the TALKOVER function is enabled, the LINE3/MIC input will attenuate the LINE2 signal when the activation threshold is reached

Select one of the 5 work modes in special selection mode with the rotating knob on the front (see section 7.2. Special selection mode of active sources and adjusting settings for details of the full procedure).

6.4. Audio output connections

The amplified **OUTPUT** uses a Euroblock connector.

The connection cable between the CA120HZ output and the speakers should be of good quality, with a suitable cross section and as short as possible.

The output operates in mono mode only (L+R summed in case of active stereo input).

Additionally, the CA120HZ has an unamplified auxiliary output (**AUX OUT**) which makes it possible to connect it to amplifiers or with other external devices. The auxiliary output **AUX OUT** has a line level signal (0dBV) which is an unamplified replica of the signal delivered to the **OUTPUT** terminals.

6.5. Remote control options

- **REMOTE** port: the RJ-45 **REMOTE** type connector allows the connection of a WpaVOL or WpaVOL-SR (control 0-10 VDC) wall control panel to adjust the general output volume and/or to select one of the five active work source modes (LINE1, LINE2, LINE3/MIC, LINE1 + LINE3/MIC, LINE2 + LINE3/MIC). The connection is made by a standard CAT5 cable between the WpaVOL or WpaVOL-SR wall panel and the REMOTE CA120HZ connector.

- Because there is a CA120HZ Wpa type control as well as other types of controls (front knob, infrared control and serial port control) the most recent adjustments by any of these methods will prevail. For example, if an active source is selected and/or a volume adjustment is made using the WpaVOL-Sr wall panel connected to the **REMOTE** port, and then these settings are adjusted using the front control, the adjustment made with the frontal control will prevail. In this case, when the wall panel position is adjusted again, the CA120HZ will change to the values indicated, and so on and so forth.

- **MUTE** port: The **MUTE** connector makes it possible to connect a power free contact to totally silence the CA120HZ if an external device works on it (example: a emergencies and centralised evacuation warning system).

- **RS-232** port: the serial communication port **RS-232** allows remote management of the CA120HZ from a computer through the EclerCOMM software or CA-NET protocol from an external control system supporting this protocol. See the **CA-NET** protocol manual for detailed information on the connection and syntax of the commands supported.

The connection has the following specifications:

- o   Baud rate: 9600 (fixed, without auto negotiation)
- o   Data bits: 8
- o   Parity: None
- o   Stop bits: 1
- o   Flow control: None

WIRING RS-232 – DB9	
RS-232 CA120HZ	**DB9**
Tx	Pin 2 (RxD)
Rx	Pin 3 (TxD)
Gnd	Pin 5 (Signal Gnd)

- Receiver **IR**: the built-in IR receiver gives general volume control of the CA120HZ and its **MUTE ON / OFF** function from the **REVO-IR** remote control included with the unit.

7. OPERATION AND USAGE

7.1. Start up and default mode

Start up the CA120HZ by connecting the equipment to an external power source to which the DC 24V connector of the CA120HZ has already been connected. The LED indicator ON/STBY immediately lights up on the front panel. We recommend you turn on all the devices in the following order: sound sources, mixer, equalisers, active filters and processors and, finally power amplifiers. Powering off should be done by following the exact reverse sequence. Following this order, the introduced noise due to turning on or switching off the devices will not affect those further on in the chain and will be inaudible.

The system defaults to volume adjustment mode. In this mode, the VOL/MUTE knob on the front panel acts on the general output volume of the CA120HZ. This controller has a maximum of 64 steps between the unit's minimum and maximum volume. When turned, it will adjust the volume while the LED LEVEL light is flashing. When the controller is turned to the left or to the right, this flashes while the output volume increases or decreases. The light stops flashing when it reaches either end of the scale and it is no longer possible to increase or decrease the volume of the unit.
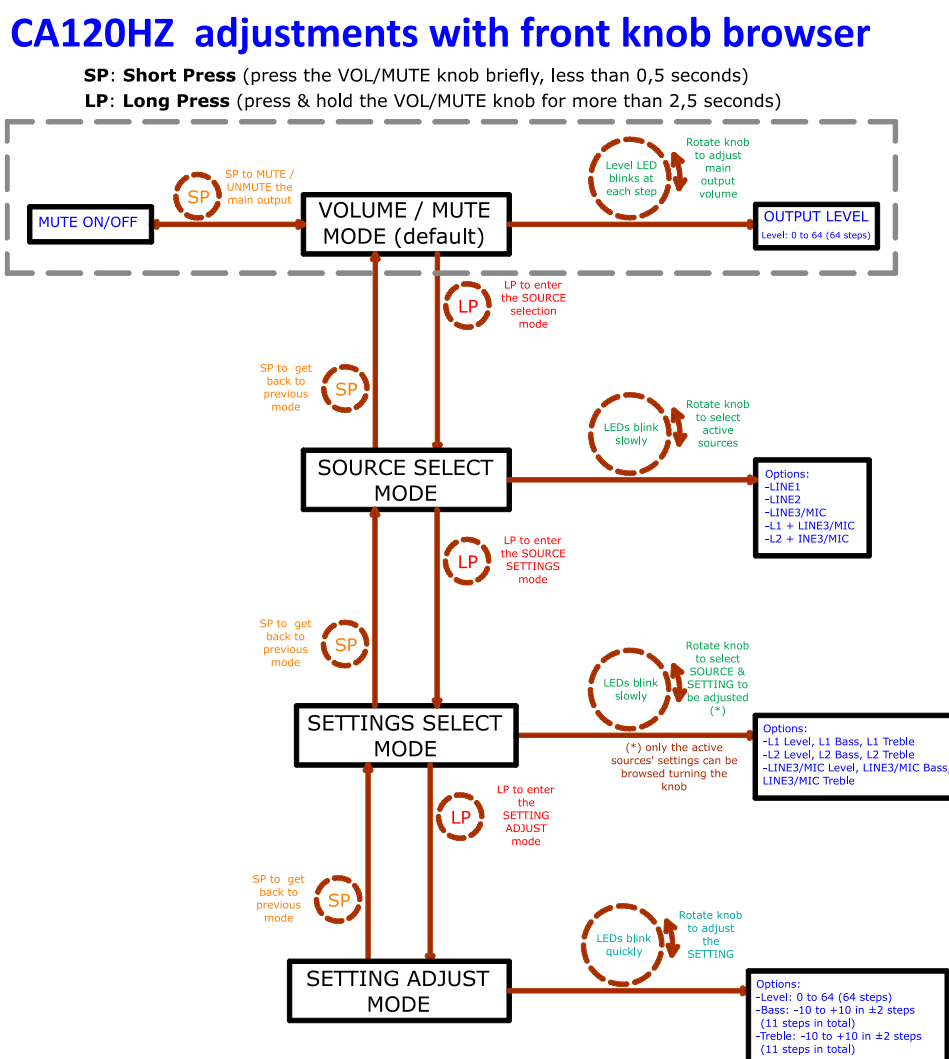
Quickly press the VOL/MUTE controller to activate/deactivate the mute function of the unit (MUTE ON/OFF). The MUTE LED lights when the mute function is activated.

If you adjust the volume using the infrared remote control, the LED LEVEL y MUTE visual indicators are exactly the same as those seen when adjusting these with the knobs on the front panel.

Use the knob on the front panel to access special modes for selecting active sources and adjusting levels and equalization (bass and treble). You can access these modes by holding in the knob for a certain time and then turning it. By adjusting the level of each source you can mix the signal from the microphone or line (LINE3/MIC) and another line (LINE1 or LINE2), and the result of this mix will be controlled by the general output volume of the unit together, in other words, respecting the relative levels set of each source.

The full procedure for accessing and operating in these special modes and the options available in each are set out in the following graph:

CA120HZ adjustments with front knob browser

SP: **Short Press** (press the VOL/MUTE knob briefly, less than 0,5 seconds)
LP: **Long Press** (press & hold the VOL/MUTE knob for more than 2,5 seconds)

Notes:

1. If the device is in special mode for 10 seconds and the front knob is not touched, the equipment automatically reverts to VOL/MUTE mode.
2. In tone control mode, when you turn the knob in either direction it flashes fast while the gain of the affected tone increases. When either end of the scale is reached (-10 ó +10dB) or when it goes through the centre point (0dB) it flashes more slowly.

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The **AUTO STANDBY** function (idle or low consumption mode) means you can install the CA120HZ in inaccessible places and leave the device connected to the mains power supply permanently because when no signal is detected, it automatically goes into standby mode, saving energy.

To enable **AUTO STANDBY** use the micro switch with the same name on the rear panel of the unit (see section 9. DIAGRAM and LIST OF FUNCTIONS). When activated, if there is no audio signal in any of the inputs (or the signal is very weak, below the activation threshold), the CA120HZ automatically goes into STANDBY mode, and the **ON/STBY** on the front panel of the device goes orange. When a valid audio signal is detected in any of the inputs, the CA120HZ leaves standby mode and starts operating normally again and the **ON/STBY** LED goes green.

When you enable **AUTO STANDBY** mode with the micro switch (position **ON**) one of two things happens:

a) There is NO audio signal in the inputs. Result: the amplifier immediately goes into AUTO STANDBY mode
b) There is an audio signal in the inputs. Result: the amplifier stays active

When the amplifier goes into **AUTO STANDBY** mode, all the LED indicators go out with the exception of **ON/STBY**. If the amplifier is in STANDBY mode and you turn the **VOL/MUTE** knob to adjust the volume or activate the MUTE function, the LED lights will come on for a short time then go out again. Remember that the first acting on the VOL/MUTE knob, this will only reset the LED indicators, and will not change any of the settings.

When the unit is a special mode (source selection or setting adjustment) the LED indicators will not go out even if the amplifier is in **AUTO STANDBY** mode.

- **SP**: The signal presence or **SP** LED indicator shows that there is a signal in the amplifier input. This lights up when the input level reaches the established detection threshold.

- **CLIP**: The saturation or **CLIP** LED indicator comes on when the signal delivered to the speakers is close to the amplifier's clipping or saturation level. Input signals should be set to ensure the **CLIP** (saturation or cut off) indicators never stay on, but that they do so at most to the beat of the lowest sound frequencies. Otherwise the amplified signal will be distorted with low quality and low intelligibility.

- *Note:* If the input signal is too high, the CLIP indicator lighting up very frequently over a short time interval (a few seconds), the amplifier may go into protection mode, being muted to return to normal operation in a short time

- **MUTE**: This lights up when the **MUTE** function is active (silent mode)

- **ON/STBY**: the green light comes on when the equipment is in normal operating mode and it goes orange when it is in standby or low consumption mode (STANDBY).

- **LEVEL:** This flashes when you adjust the general level of the device. It also lights up during special adjustment modes, input levels (see section 7.2. Special active source selection mode and setting adjustments)

- **BASS:** This light up during special adjustment modes bass frequencies (see section 7.2. Special active source selection mode and setting adjustments)

- **TREBLE**: This light up during special adjustment modes, treble frequencies (see section 7.2. Special active source selection mode and setting adjustments)

- **LINE1, LINE2, LINE3/MIC**: These lights up during special modes, selection of active sources and adjustments (see section 7.2. Special active source selection mode and setting adjustments)

- **REMOTE**: Turn on (ON) the remote control from the WpaVOL or WpaVOL-SR wall panel connected to the REMOTE port.

- **NOISE GATE**: Turn on (ON) or turn off the noise gate function for the LINE3/MIC input. When this function is active the microphone input is muted whilst there is no signal above the function activation threshold, so the equipment rejects background noise captured by the microphone connected to it.

- **TALKOVER**: On or off according to the priority of the LINE3/MIC input over the line inputs (LINE1 or LINE2). When the TALKOVER function is on, the LINE3/MIC signal will attenuate the selected line (LINE 1 or 2) when the activation threshold set is reached.

- **AUTO STANDBY**: Switch the AUTO STANDBY function on (ON) or off. When the function is on, the CA120HZ will automatically go into STANDBY or low consumption mode in the absence of audio signals in its inputs.

- **LINE3/MIC**: input selection between LINE and MIC3 (line level input from RCA connectors or microphone level input from Euroblock connector)

- **HPF**: frequency selection (50 or 70 Hz) for the unit's high-pass filter

7.6. Lock mode

To switch the CA120HZ lock mode on or off hold in the VOL/MUTE control for 10 seconds from the VOL/MUTE mode. The LED SETTING indicators will flash 3 times to indicate that lock mode is now on. When in lock mode the device cannot be managed using the VOL/MUTE control (it will flash three times to show that it is in that mode when you turn the knob). This will protect the equipment from unwanted handling until it is restored to normal operation after holding the VOL/MUTE control in for a further 10 seconds (the LED SETTING indicators will flash twice to show that the lock mode is off).

Note: once lock mode is activated it will stay activated even when the equipment is turned off and on again. It will stay in lock mode until the VOL/MUTE control is held in for 10 seconds again.

If you would like to restore the CA120HZ to factory settings, follow this procedure:

1. Unplug the equipment then press and hold the knob in.

2. Plug back the unit without releasing the knob. The MUTE LED indicator will flash.

3. Wait a few seconds and then switch the CA120HZ off again.

4. The next time you turn it on, the factory settings will be in the memory.

Note: for instructions on how to update the unit's firmware, see the product web page at www.ecler.com, where you will find the update software utility and instructions on how to proceed.

8. CLEANING

The CA120HZ must not be cleaned with solvents or abrasive substances which may damage the prints. Clean using a cloth moistened in water and a neutral liquid detergent, then dry with a clean cloth. Under no circumstances allow water to enter any of the orifices in the equipment.

9. DIAGRAM and LIST OF FUNCTIONS
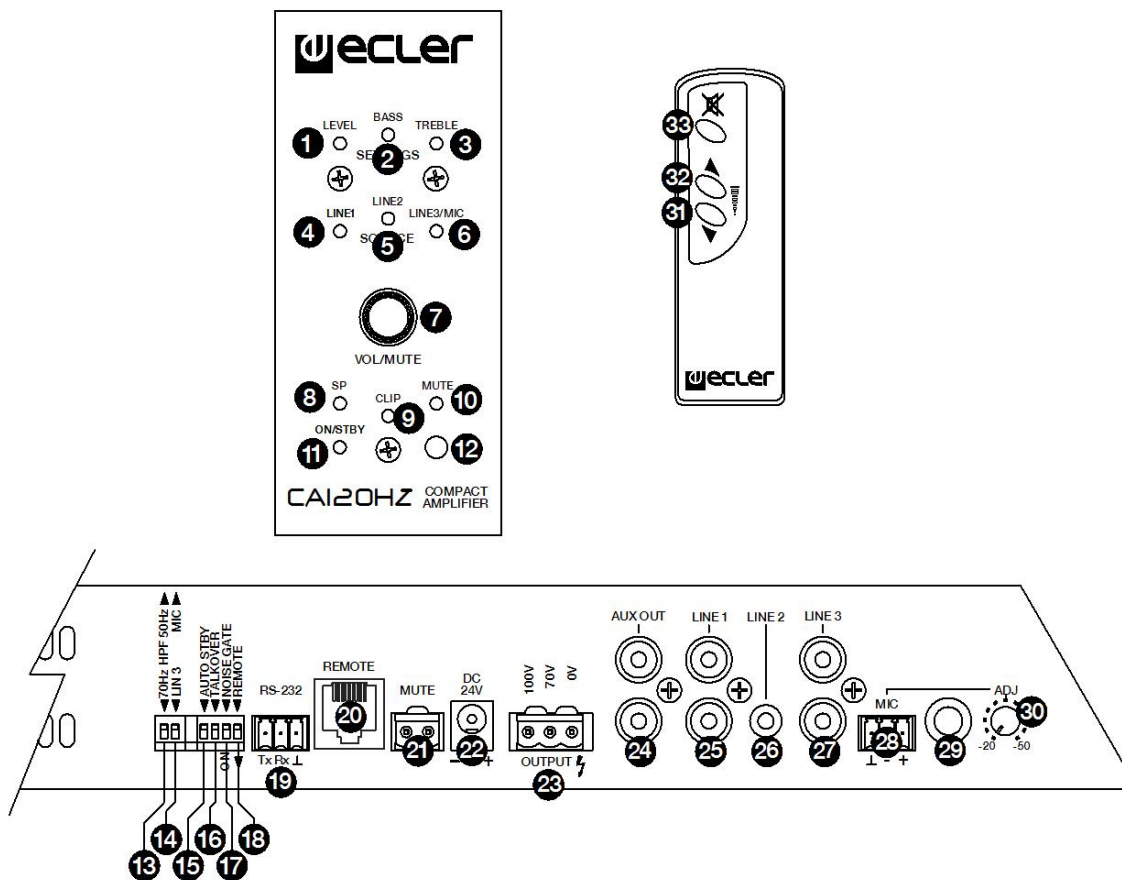
|			
1	LEVEL indicator light	**17**	NOISE GATE micro switch
2	BASS indicator light	**18**	REMOTE micro switch
3	TREBLE indicator light	**19**	Remote control by protocol CA-NET, RS-232
4	LINE1 indicator light	**20**	RJ-45, REMOTE connector
5	LINE2 indicator light	**21**	MUTE remote control
6	MIC indicator light	**22**	DC24V power connector
7	VOL/MUTE knob	**23**	OUTPUT amplified output
8	SP input signal presence indicator light	**24**	AUX OUT
9	CLIP indicator light	**25**	RCA input line, LINE1
10	MUTE indicator light	**26**	Mini jack input line, LINE2
11	ON/STBY on or standby indicator light	**27**	RCA input line, LINE3
12	REMOTE, remote control receiver	**28**	Microphone input, MIC
13	HPF micro switch	**29**	Microphone jack, MIC
14	MIC/LINE3 micro switch	**30**	MIC input sensitivity setting
15	AUTO STANDBY micro switch	**31**	Volume down key
16	TALKOVER micro switch	**32**	Volume up key
		33	Mute key

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10. BLOCK DIAGRAM
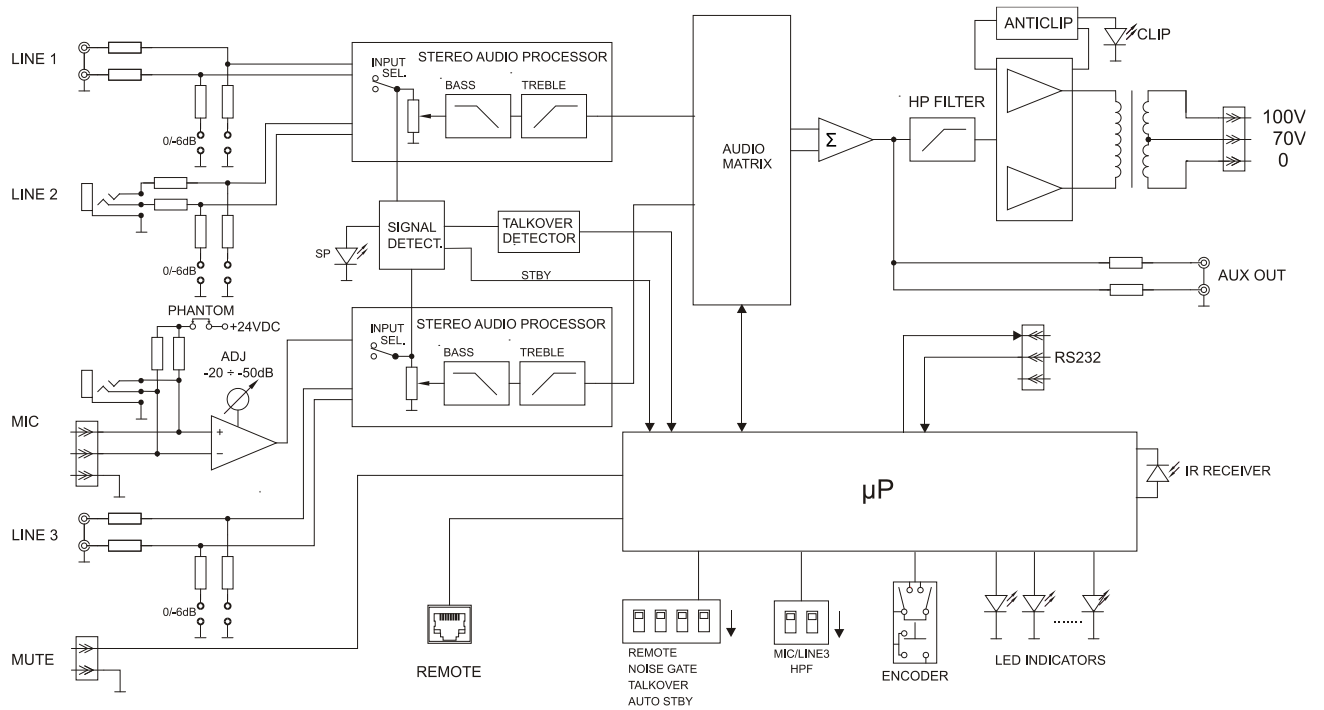
11. CONFIGURATION DIAGRAM

JUMPERS FACTORY ADJUST

Phantom	ON
Sensitivity	-6dB

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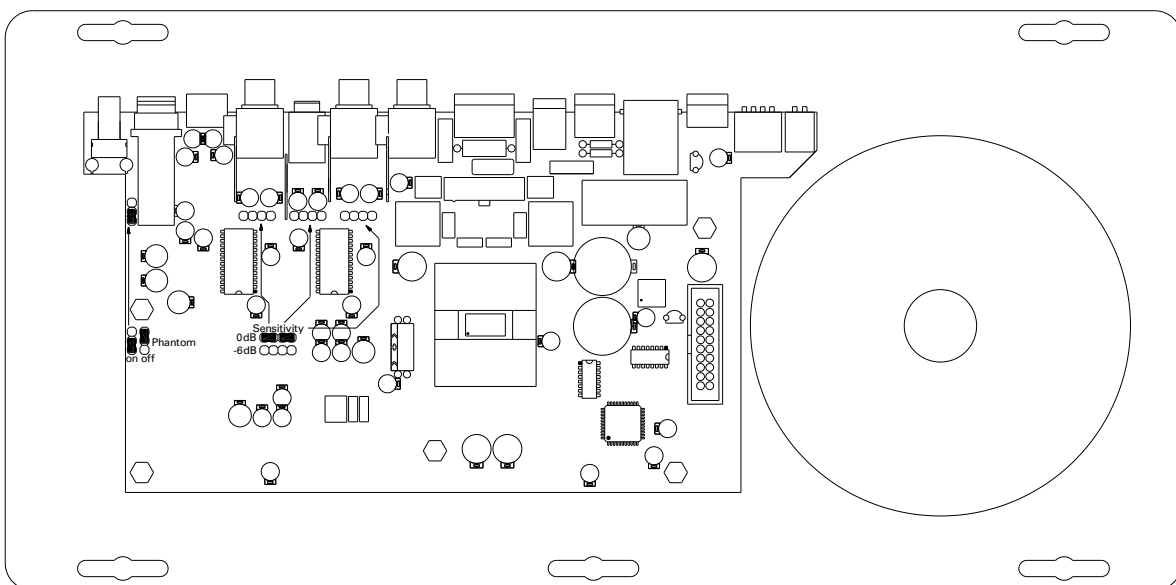
12. TECHNICAL CHARACTERISTICS

CA120HZ

Power	
STEREO	-
MONO	96W @ 100Ω 1% THD
BRIDGE	-
Frequency response	50Hz - 30kHz (-3dB)
THD+Noise @ 1kHz Full Pwr. SPKR OUT	<0.09%
THD+Noise AUX OUT	< 0.02%
Channel crosstalk @ 1kHz	>65dB

Inputs Sensitivity nom/Impedance:	
LINE 1	0dBV (-6dBV*)/>8kΩ
LINE 2	0dBV (-6dBV*)/>8kΩ
LINE 3	0dBV (-6dBV*)/>8kΩ
MIC (BAL)	-20 to -50dBV/>1kΩ

CMRR	
MICRO (BAL)	>65dB @ 1kHz

High Pass Filter	
	50Hz - 70Hz

Outputs Level/Minimum Load	
AUX OUT	>-6dBV/10kΩ

Tone control (LINE & MIC)	
BASS	100Hz ±10dB
TREBLE	6KHz ±10dB

Signal Noise Ratio	
LINE	>70dB
MIC (BAL)	>50dB

Talkover	
TIME	2 Sec.**
DEPTH	-30dB**
Microphone Noise Gate	20-30dB below max.**
Phantom voltage	+24VDC/10mA max.*

RS-232	
BAUD RATE	9600 (fixed)
DATA	8 bits
PARITY	NONE
STOP BITS	1
FLOW CTRL	NONE

Analogue remote (0-10V. based)	Volume & Input/preset** selection
Infrared remote	Volume & Mute
Mains (using Meanwell GS60A24-P1J)	100-240VAC 50/60Hz + External PSU 24VDC

Power consumption	
pink noise, 1/8 power	33VA / 24W
pink noise, 1/3 power	58VA / 52W
Stand By (time 2 minutes)	<2.5W

General	
Dimensions WxDxH	160x325x48mm
Weight	2,92Kg

*Internally selectable   **Software selectable

13. CA-NET RS-232 Remote Control Protocol

The built-in RS-232 port in the rear panel of the CA and DAM series devices allows for an external device communication via a serial connection. This kind of connection uses a syntax which is very similar to the one used in the Ecler TP-NET protocol: it lets a client device get from and/or set the values of several parameters of a CA device (for instance, the CA120HZ) like volumes, mutes, equalisation tones, etc.

The RS-232 serial communication must fulfil the following specifications:

Baud rate:		**9600** **(fixed, no auto-negotiation)**
Data bits:	**8**	
Parity:		**None**
Stop bits:	**1**	
Flow control:		**None**

It's not allowed to have more than one simultaneous access from several clients to the same CA120HZ device using the RS-232 connection.

The protocol is simple and direct, syntax-friendly, making it easy to read, write and modify the generated code. It is based on messages with no begin delimiter: each message is self-delimited by the RS-232 packet size, which is defined with a maximum of **80 ASCII characters**, and always including the character **LF** (0x0A) at the end of each message. All the messages must be written in **CAPITAL LETTERS**.

To let some control systems (like EXTRON®, CRESTRON®, AMX®, RTI®, VITY®, MEDIALON®, etc.) process the messages more easily, the CA120HZ device adds the character **LF** (0x0A) at the end of each message it sends. This way the client of the CA120HZ device can buffer the received messages to process them, when required. The CA120HZ device can also handle several messages received in a single RS-232 packet by using the **LF** delimiter.

The available messages are built with one or more fields separated with blank spaces (= blank space):

<TYPE> **[PARAM1]** **[PARAM2]** **[PARAM3]** **[PARAM4][LF]**

The first field (**TYPE**) defines the **message type** and then, the required parameters for it (each kind of message requires a given number of parameters). The field **TYPE** can have these values:

- **GET**
- **SET**
- **DATA**
- **ERROR**

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At the end of this document you'll find a table including all the available messages and their parameters for each model of CA-NET compatible device.

The **GET** & **SET** messages can be sent from the client (control system) to the CA120HZ device. The **DATA** & **ERROR** messages can just be sent from the CA120HZ device to the client.

The **SET** messages coming from a client device don't have an automatic acknowledgement with a **DATA** message sent from the CA120HZ device after it has processed the **SET** command. The client must update the values itself, sending the needed **GET** message to ask for a parameter's value when it requires confirmation from the device. On the other hand, when a local control in the CA120HZ unit occurs (for instance, using the front panel controls or an infrared remote control), the CA120HZ device will automatically send the associated **DATA** command via its RS-232 interface, to keep synchronisation with the client device.

NOTES for CA120HZ:

- A couple of special parameters for the **GET** and **SET** commands would require a detailed explanation:

  1. **AUTOLOAD_PRESET1**: its value (ON/OFF) defines whether preset number 1 must be recalled or not each time the CA device is powered ON, defining this way the default working mode at startup

  2. **PANEL_LOCKED**: its value (ON/OFF) defines whether the front panel controls (the rotary encoder) is enabled (PANEL_LOCKED=OFF) or disabled (PANEL_LOCKED=ON) for local management of the device. (see the CA120HZ user manual for further details)

- The numerical values are always integer numbers without comma or dot symbols
- **<Input Name>** are text strings (without blank spaces) that identify an audio input of a CA device:
  - For the CA120HZ, there are 5 possible Input Names:
    - LINE1
    - LINE2
    - MICL3
    - LINE1_AND_MICL3
    - LINE2_AND_MICL3

- **<Preset Number>** is a numerical value that identifies one available Preset stored in the device's memory. It can be within the [1..5] range.
- **<Volume Level>** are numerical values in the [0...64] range that define values in a scale equivalent to [-inf...Maximum_Volume] in 1.25 dB steps.

- **<Tone Level>** are numerical values in the [-10…10] range that define values in a scale equivalent to [-10, -8, -6, -4, -2, 0, 2, 4, 6, 8, 10] dB. If the numerical value is not in this list, the unit will reply with an error message.

- **<Increment Value>** are numerical values in the [0…64] range that define a value in a scale equivalent to [Increment Value]x(1.25) dB, used to increase or decrease the current absolute value of a level.

- **<Threshold Level>** the allowed numerical values in this field are just 3 [20, 25, 30]. It defines a value in a scale equivalent to [20, 25, 30] dB below the nominal level value for a given audio input. If the numerical value is not in this list, the unit will reply with an error message.

- **<Depth Level>** the allowed numerical values in this field are just 4 [20, 30, 60, 80]. It defines a value in a scale equivalent to [20, 30, 60, 80] dB. If the numerical value is not in this list, the unit will reply with an error message.

- **<Attack Time Value>** the allowed numerical values in this field are just 4 [50, 100, 200, 300]. It defines a value in a scale equivalent to [50, 100, 200, 300] milliseconds. If the numerical value is not in this list, the unit will reply with an error message.

- **<Release Time Value>** the allowed numerical values in this field are just 5 [300, 500, 1000, 2000, 3000]. It defines a value in a scale equivalent to [300, 500, 1000, 2000, 3000] milliseconds. If the numerical value is not in this list, the unit will reply with an error message.

- **<Remote Select Value>** are text strings (without blank spaces) that identify the function of the analogue (0 – 10 VDC) remote control selector connected to a physical "REMOTE" port in the device.
  - In the case of the CA120HZ, there are just two possible string values for this parameter:
    - INPUTS
    - PRESETS

*In the CA120HZ, a single REMOTE port admits the connection of a **WpaVOL-SR** unit, which has a volume control knob and a 5-position rotary switch, or selector. The selector can be used in any of these two modes:*

- *INPUTS: to select the active audio source(s) (LINE1, LINE2, MICL3, LINE1_AND_MICL3 or LINE2_AND_ MICL3.*
- *PRESETS: to recall any of the 5 presets in the memory of the unit, which store the full configuration of the unit, including volumes, EQ, etc.*

- *The factory default working mode of the selector is **INPUTS**, and it can just be modified to **PRESETS** by means of an RS-232 connection.*

- **<Zone>** are text strings (without blank spaces) that identify a zone where the command will operate.
  - ZA (output labeled as ZA or L)
  - ZB (output labeled as ZB or R)
- **<Micro Name>** are text strings (without blank spaces) that identify the MIC inputs in the unit.
  - MICRO1
  - MICRO2
- **<Output Mode>** are text strings (without blank spaces) that identify the amplifier's output working mode.
  In the CA120HZ there are just two possible values for this parameter:
  - STEREO
  - MONO
- **<Zone Label>** is a text string that contains the customized name for a zone. The maximum length for this string is 17 characters, being ignored those exceeding this limit. Blank characters are not allowed. A valid example: MAIN_HALL
- **<Display Mode>** are text strings (without blank spaces) that identify the LCD display working mode.
  - ON
  - DIMMED
  - OFF
- **<Contrast Level>** are numerical values in the [0…100] range that define the LCD display contrast level.
- **<Assign Value>** are text strings (without blank spaces) that identify the Talkover / Pager function assignment for a MIC input towards the device's outputs.
  - OFF
  - ZA
  - ZB
  - ZA-B
  - PAGER
- **<Priority>** is a numerical value that defines the Talkover function priority of one MIC input in front of the other inputs in the unit.
- **<Error ID>** is a numerical value for an error code.
- **"<Error Description>"** is a text chain inside double quotation marks, containing an error description.

CA120HZ AMPLIFIER

TYPE	PARAM1	PARAM2	PARAM3	PARAM4	DESCRIPTION
GET	ALL				Dumps current device status (with DATA messages)
	PRESET_NUMBER				Gets the current PRESET number
	OUTPUT_MODE				Gets the current amplifier OUTPUT MODE
	INPUT				Gets the current active INPUTs
	LIN3_SELECTOR				Gets the current LIN3 SELECTOR status
	MUTE				Gets the current MUTE status
	MASTER_VOL				Gets the current MASTER VOLUME
	LINE1_VOL				Gets the current LINE1 VOLUME
	LINE2_VOL				Gets the current LINE2 VOLUME
	MICL3_VOL				Gets the current MICL3VOLUME
	LINE1_BASS				Gets the current LINE1 BASS LEVEL
	LINE2_BASS				Gets the current LINE2 BASS LEVEL
	MICL3_BASS				Gets the current MICL3 BASS LEVEL
	LINE1_TREBLE				Gets the current LINE1 TREBLE LEVEL
	LINE2_TREBLE				Gets the current LINE2 TREBLE LEVEL
	MICL3_TREBLE				Gets the current MICL3 TREBLE LEVEL
	GATE				Gets the current NOISE GATE ON/OFF status
	GATE_THRESHOLD				Gets the current NOISE GATE THRESHOLD LEVEL
	TALKOVER				Gets the current TALKOVER ON/OFF status
	TALKOVER_THRESHOLD				Gets the current TALKOVER THRESHOLD LEVEL
	TALKOVER_ATTACK				Gets the current TALKOVER ATTACK TIME
	TALKOVER_RELEASE				Gets the current TALKOVER RELEASE TIME
	TALKOVER_DEPTH				Gets the current TALKOVER DEPTH (attenuation)
	REMOTE				Gets the current REMOTE ON/OFF status
	REMOTE_SELECTOR				Gets de current REMOTE SELECTOR function
	AUTO_STANDBY				Gets the current AUTO STANDBY ON/OFF status
	AUTOLOAD_PRESET1				Gets the current AUTOLOAD_PRESET1 at Startup function

	PANEL_LOCKED				Get the current PANEL_ LOCKED (front knob) status
	INFO_MODEL				Gets the Device model name
	INFO_VERSION				Gets the current Firmware Version
SET	LOAD_PRESET	<Preset Number>			Recalls and activates a PRESET
	SAVE_PRESET	<Preset Number>			Saves the current PRESET
	INPUT	<Input Name>			Sets the current active INPUT(s)
	MUTE	ON/OFF			Sets the current MUTE status
	MASTER_VOL	<Volume Level>			Sets the current MASTER VOLUME
	LINE1_VOL	<Volume Level>			Sets the current LINE1 VOLUME
	LINE2_VOL	<Volume Level>			Sets the current LINE2 VOLUME
	MICL3_VOL	<Volume Level>			Sets the current MICL3 VOLUME
	LINE1_BASS	<Tone Level>			Sets the current LINE1 BASS LEVEL
	LINE2_BASS	<Tone Level>			Sets the current LINE2 BASS LEVEL
	MICL3_BASS	<Tone Level>			Sets the current MICL3 BASS LEVEL
	LINE1_TREBLE	<Tone Level>			Sets the current LINE1 TREBLE LEVEL
	LINE2_TREBLE	<Tone Level>			Sets the current LINE2 TREBLE LEVEL
	MICL3_TREBLE	<Tone Level>			Sets the current MICL3 TREBLE LEVEL
	GATE_THRESHOLD	<Threshold Level>			Sets the current NOISE GATE THRESHOLD LEVEL
	TALKOVER_THRESHOLD	<Threshold Level>			Sets the current TALKOVER THRESHOLD LEVEL
	TALKOVER_ATTACK	<Attack Time Value>			Sets the current TALKOVER ATTACK TIME
	TALKOVER_RELEASE	<Release Time Value>			Sets the current TALKOVER RELEASE TIME
	TALKOVER_DEPTH	<Depth Level>			Sets the current TALKOVER DEPTH (attenuation)
	MASTER_VOL_INC	<Increment Value>			Increments the current MASTER VOLUME
	MASTER_VOL_DEC	<Increment Value>			Decrements the current MASTER VOLUME
	REMOTE_SELECTOR	<Remote Selector Value>			Sets de current REMOTE SELECTOR function
	AUTOLOAD_PRESET1	ON/OFF			Sets the current AUTOLOAD_PRESET1 at Startup function
	PANEL_LOCKED	ON/OFF			Sets the current PANEL_ LOCKED (front knob) status
DATA	PRESET_NUMBER	<Preset Number>			Shows the current PRESET
	PRESET_DONE				Shows that the last SET LOAD_PRESET n command has been processed: the preset is loaded and active

	OUTPUT_MODE	<OutputMode>			Shows the current amplifier OUTPUT MODE (MONO/STEREO/BRIDGE)
	INPUT	<Input Name>			Shows the current active INPUT(s)
	LIN3_SELECTOR				Shows the current LIN3 SELECTOR status
	MUTE	ON/OFF			Shows the current MUTE status
	MASTER_VOL	<Volume Level>			Shows the current MASTER VOLUME
	LINE1_VOL	<Volume Level>			Shows the current LINE1 VOLUME
	LINE2_VOL	<Volume Level>			Shows the current LINE2 VOLUME
	MICL3_VOL	<Volume Level>			Shows the current MICL3 VOLUME
	LINE1_BASS	<Tone Level>			Shows the current LINE1 BASS LEVEL
	LINE2_BASS	<Tone Level>			Shows the current LINE2 BASS LEVEL
	MICL3_BASS	<Tone Level>			Shows the current MICL3 BASS LEVEL
	LINE1_TREBLE	<Tone Level>			Shows the current LINE1 TREBLE LEVEL
	LINE2_TREBLE	<Tone Level>			Shows the current LINE2 TREBLE LEVEL
	MICL3_TREBLE	<Tone Level>			Shows the current MICL3 TREBLE LEVEL
	GATE	ON/OFF			Shows the current NOISE GATE ON/OFF status
	GATE_THRESHOLD	<Threshold Level>			Shows the current NOISE GATE THRESHOLD LEVEL
	TALKOVER	ON/OFF			Shows the current TALKOVER ON/OFF status
	TALKOVER_THRESHOLD	<Threshold Level>			Shows the current TALKOVER THRESHOLD LEVEL
	TALKOVER_ATTACK	<Attack Time Value>			Shows the current TALKOVER ATTACK TIME
	TALKOVER_RELEASE	<Release Time Value>			Shows the current TALKOVER RELEASE TIME
	TALKOVER_DEPTH	<Depth Level>			Shows the current TALKOVER DEPTH (attenuation)
	REMOTE	ON/OFF			Shows the current REMOTE ON/OFF status
	REMOTE_SELECTOR	<Remote Selector Value>			Shows de current REMOTE SELECTOR function
	AUTO_STANDBY	ON/OFF			Shows the current STANSBY ON/OFF status
	AUTOLOAD_PRESET1	ON/OFF			Shows the current AUTOLOAD_PRESET1 at Startup function
	PANEL_LOCKED	ON/OFF			Shows the current PANEL_ LOCKED (front knob) status
	INFO_MODEL	<Device Model>			Shows the Device Model
	INFO_VERSION	<Firmware Version>			Shows the current Firmware Version
ERROR	<Error ID>	"<Error Description>"			Informs about an error