



USER MANUAL

CX15A

active stage monitor loudspeaker

KEY FEATURES

- High-Output Coaxial Stage Monitor
- Very compact size
- Low-profile design
- 80° constant coverage
- 96KHz / 40 bit floating point CORE processing with PRONET remote control
- Digitally controlled Class D amplifier module with SMPS

INTRODUCTION

The CX15A is a coaxial stage monitor designed specifically for live sound, even if the low-profile enclosure is suitable also for theater and television applications. The high-performance coaxial transducer employed provides good sound balance and great intelligibility even at very high power.

The high frequency range is reproduced by a low-distortion compression driver, equipped with pure Titanium diaphragm. An edgewound aluminum ribbon voice coil and a copper sleeve reduce distortion and increase the unit's output. The special shape of the cone allows a precise and controlled conical dispersion of 80°.

The 15" woofer employed in the reproduction of the low frequency range is equipped with a special interleaved sandwich 3" voice coil and an aluminum demodulation ring for minimum distortion. A single powerful neodymium magnet guarantees high performance with a consistent weight reduction.



TECHNICAL SPECIFICATION

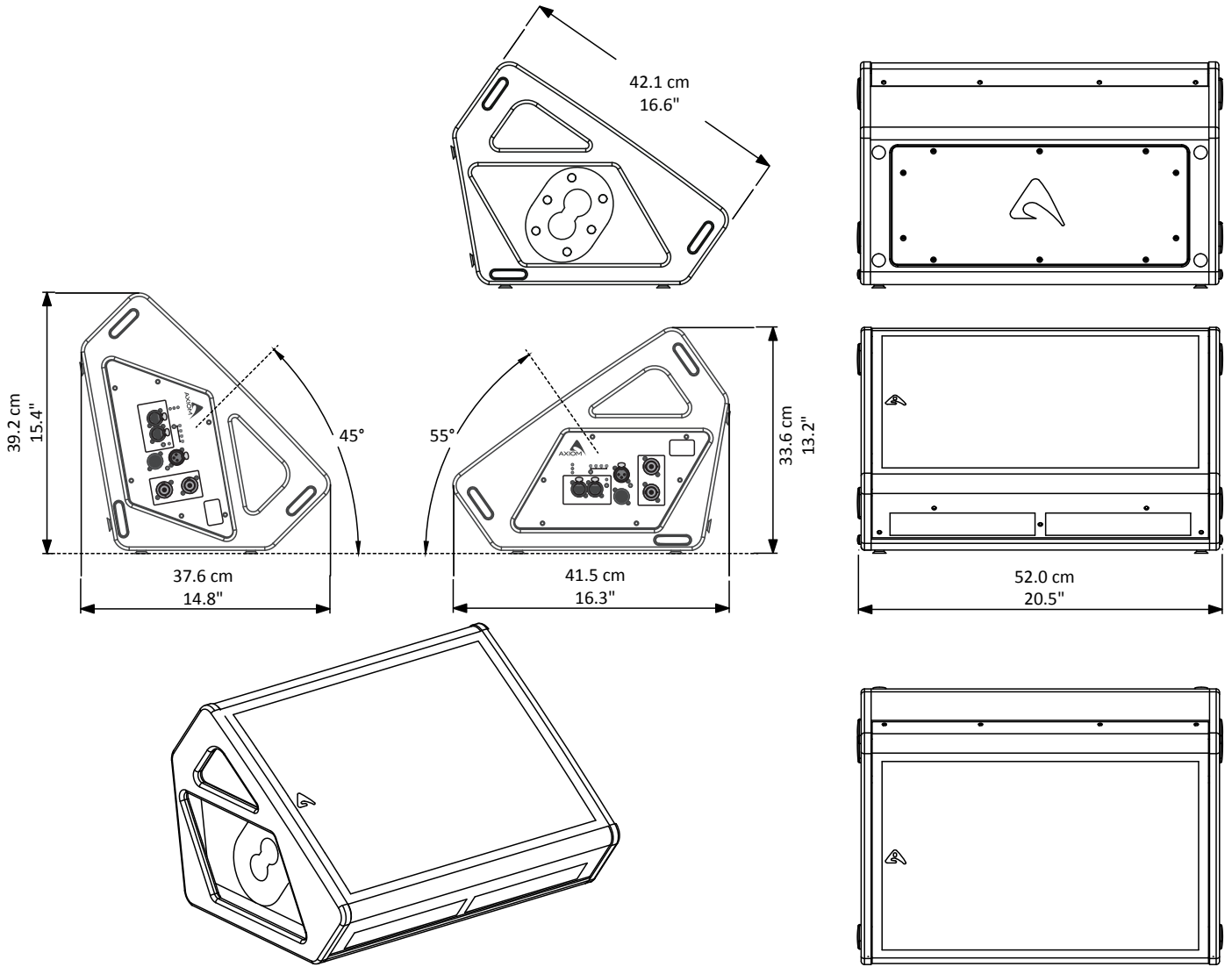
Acoustical		Remote Controls	PRONET control software
System type	2-way processed coaxial active enclosure	Network protocol	CANBUS
Low frequency transducer	One 15" (380mm), 3" (75mm) Interleaved Voice Coil, 8 Ohm	Amplifier Type	Class D with Variable Switching Frequency and SMPS
High frequency transducer	One 1.4" driver, 2.4" (60mm) edgewound aluminium voice coil, titanium diaphragm, 8 Ohm	Output Power	2000 W
Frequency response (±3 dB)	60 Hz – 18 kHz (Processed)	Mains Voltage Range (Vac)	230 V ~ ±15% or 115 V ~ ±15% 50/60 Hz
Horizontal Coverage Angle	80° (-6 dB)	Mains Connector	PowerCon® (NAC3MPA + NAC3MPB)
Vertical Coverage Angle	80° (-6 dB)	Consumption*	700 W (nominal) 1700 W (max)
Maximum Peak SPL @ 1m	131 dB	IN / OUT Connectors	Neutrik XLR-M / XLR-F
Electrical		IN / OUT Network Connectors	ETHERCON® (NE8FAV)
Input Impedance	20 kΩ balanced	Mechanical	
Input Sensitivity	+4 dBu / 1.25 V	Width	520 mm (20.47")
Signal Processing	CORE processing, 96kHz / 40bit floating point SHARC DSP, 24 bit AD/DA converters	Height	336 mm (13.22")
Direct access Controls	4 Presets: Normal Wedge, Coupled Unit, Low Cut, User. Network Termination, GND Link	Depth	415 mm (16.33")
		Monitor Taper Angle	45° or 55°
		Construction	15 mm, reinforced Phenolic Birch
		Paint	High resistance, water based paint
		Pole holder	1 x side, dual-angle
		Net Weight	18.5 Kg (40.8 lbs.)

* Nominal consumption is measured with pink noise with a crest factor of 12 dB, this can be considered a standard music program.





MECHANICAL DRAWING



OPTIONAL ACCESSORIES

- | | | | |
|------------------|------------------------------|----------------|--------------------------|
| CXCASE02 | Carrying Case for 2 box unit | | |
| NAC3FCA | Neutrik Powercon® BLUE PLUG | USB2CAN | PRONET network converter |
| NAC3FCB | Neutrik Powercon® WHITE PLUG | | |
| NE8MCB | Neutrik Ethercon PLUG | | |
| NC3MXXBAG | Neutrik XLR-M | | |
| NC3FXXBAG | Neutrik XLR-F | | |

see <http://www.axiomproaudio.com/> for detailed description and other available accessories.

SPARE PARTS

- | | | | |
|-------------------|--|--------------------|---------------------------------|
| NAC3MPA | Neutrik Powercon® BLUE SOCKET | 91DA2000 | DA2000 Power amplifier module |
| NAC3MPB | Neutrik Powercon® WHITE SOCKET | 91PCAGLED1 | Position Check LED PCBA |
| 98NCX15WZ8 | Coaxial Loudspeaker 15" woofer - 1.4" driver | 91PCAG00031 | DSP Interface PCBA |
| 98MBN1424T | titanium diaphragm for 1.4" driver | 91DSPKT3 | DSP PCBA and Control PCBA |
| 99CXRT15V | Loudspeaker protection metal grid | 91CRAX2010 | XLR Input PCBA |
| | | 95CX15PLS2 | Input/Control Panel (only mech) |



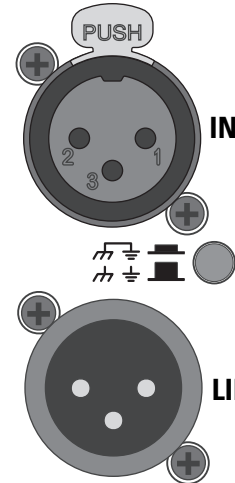
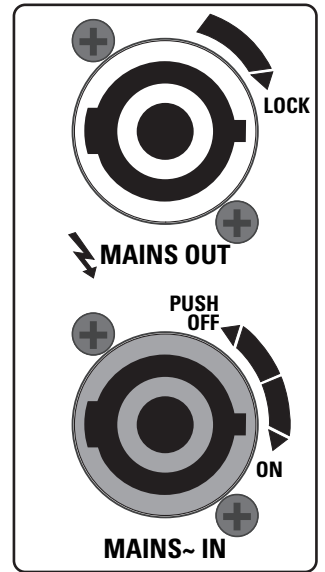


I/O AND CONTROL OPERATIONS

MAINS IN - Powercon® NAC3FCA power input connector (blue). To switch the amplifier on, insert the Powercon® connector and turn it clockwise into the ON position. To switch the amplifier off, pull back the switch on the connector and turn it counter-clockwise into the POWER OFF position.

WARNING! In the case of product failure or fuse replacement, disconnect the unit completely from the mains power. The power cable must only be connected to a socket corresponding to the specifications indicated on the amplifier unit. The power supply must be protected by a suitably rated thermo-magnetic breaker. Preferably use a suitable switch to power on the whole audio system leaving the Powercon® always connected to each speaker, this simple trick extend the life of the Powercon® connectors.

MAINS OUT - Powercon® NAC3FCB power output connector (grey). This is connected in parallel with the MAINS ~ / IN. The maximum load applicable depends on the mains voltage. With 230V~ we suggest to link a maximum of 4 CX15A loudspeakers, with 120V~ we suggest to link a maximum of 2 CX15A loudspeaker.



INPUT - Audio signal input with locking XLR connector. It has a fully electronically balanced circuitry including AD conversion for the best S/N ratio and input headroom.

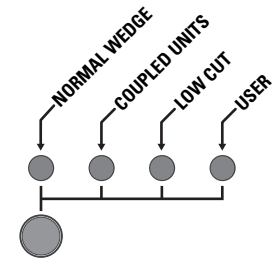
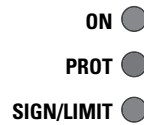
LINK - A direct connection from the input connector to link other speakers with same audio signal.

ON - This LED indicates power on status.

PROT - This red LED lights when the amplifier module is in protect mode for an internal fault and, consequently, the amplifier is muted.

SIGN/LIMIT - This LED lights in green to indicate the presence of the signal and lights in red when an internal limiter reduces the input level.

GND LIFT - This switch lift the ground of the balanced audio inputs from the earth-ground of the amplifier module.



PRESET BUTTON - This button has two function:

1) Pressing it while powering on the unit:

ID ASSIGN the internal DSP assigns a new ID to the unit for the PRONET remote control operation. Each loudspeaker must have a unique ID to be visible in the PRONET network. When you assign a new ID, all the other loudspeakers with the ID already assigned must be ON and connected to the network.

2) Pressing it with the unit ON you can select the DSP PRESET. The selected PRESET is indicated by the corresponding LED:

NORMAL WEDGE This PRESET is suitable for typical stage monitor applications. It can be used also when the CX15A is used mounted on a pole.

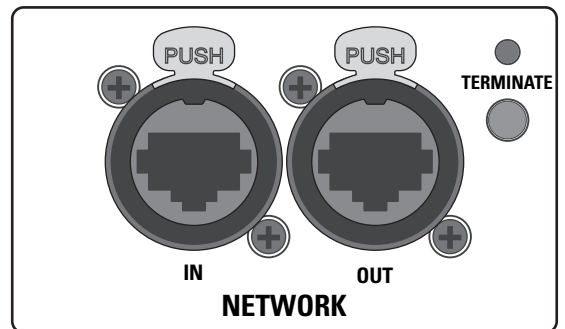
COUPLED UNITS This preset provides the correct EQ when two CX15A monitors, fed with the same audio signal, are placed at no more than 0,6 m (2 feet) one to the other. To be used for double stage monitoring for singers or other musicians.

LOW CUT This PRESET is the same as NORMAL WEDGE but with a low cut at 110 Hz 48 dB/oct. To be selected when a CX15A is used in combination with a subwoofer to form a DRUM FILL or a SIDE FILL system. It can be used also in case you need to cut drastically the monitor LF response.

USER The USER PRESET corresponds to the first USER MEMORY (Preset 4-U) stored in the DSP and, as a factory setting, it's the same as NORMAL WEDGE. If you want to modify it, you have to connect the unit to a PC, edit the parameters with PRONET software and save it into "Preset 4-U-your_preset_name" (see also further in this manual).

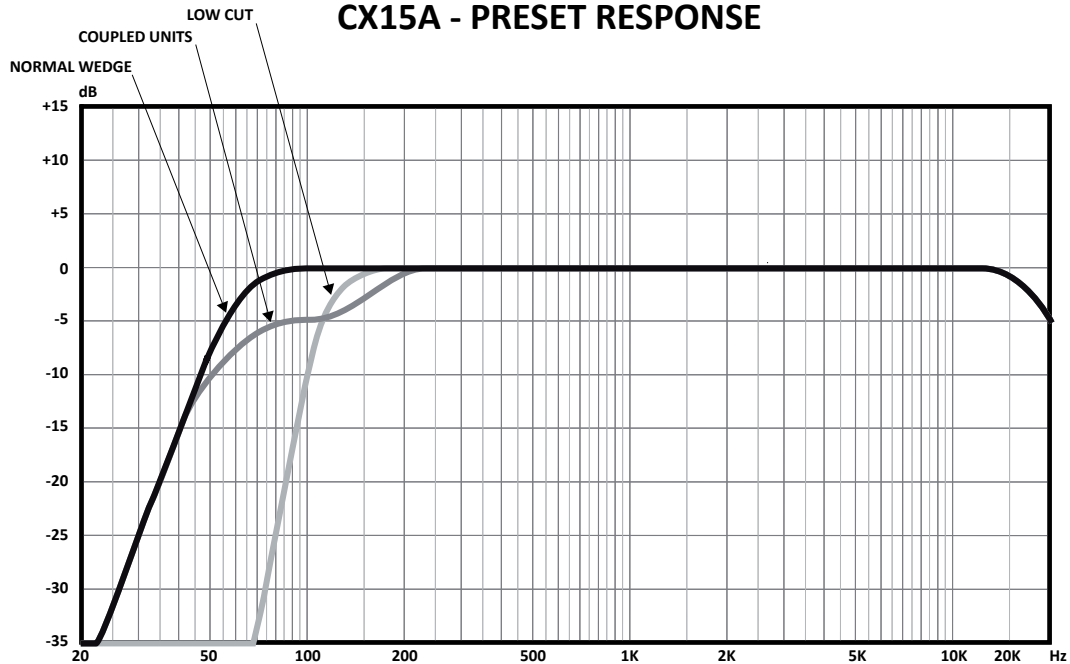
NETWORK IN/OUT - These are a standard RJ45 CAT5 connectors (with optional NEUTRIK NE8MC RJ45 cable connector carrier), used for PRONET network transmission of remote control data over long distance or multiple unit applications.

TERMINATE - In a PRONET network the last loudspeaker device must be terminated (with an inner load resistance) especially in a long run cabling: press this switch if you want to terminate the unit.





CX15A - PRESET RESPONSE



POWER AMPLIFIERS

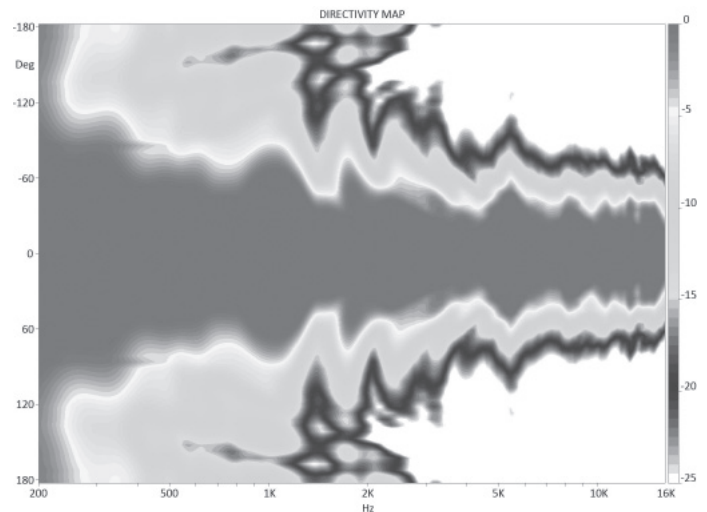
The CX15A is powered by DA SERIES digital power modules, a new generation of CLASS D power amplifier with digitally-controlled SMPS. The innovative technology used for these amplifiers (including also the use of a variable switching frequency) offers performances at the top of the range, such as a superior sound definition at any audio frequency, very high dynamics also for low level signals and very low distortion even at the maximum power. The superior sound quality can be compared with top-of-the-range AB-class analog systems, while the DA modules feature a higher dynamics, very compact size and light weight and efficiency above 90%. The DA module employed for powering the CX15A deliver in an ultra-compact package a maximum power of 2000W.

SIGNAL PROCESSING

The system processing is based on the CORE DSP platform, which has been designed by the PROEL R&D Laboratories using one of the most advanced SHARC DSP for audio application. It features 40bit, 96kHz floating point resolution and high quality 24bit AD/DA converters, for a perfect signal integrity, a dynamic range in excess of 110dB and a superior sonic performance. Thanks to its massive processing power, the CORE platform is capable of providing the most sophisticated algorithms for speaker processing, together with remote control and networking capability.

The DIRECTIVITY MAP figure shows the optimal behaviour obtained with the combination of loudspeakers and DSP used within CX15A.

The PRONET control software, working on a solid and reliable CANBUS based network protocol, provides an intuitive interface for the remote control of the whole system, with the possibility of eqing, delaying, increasing the protections and monitoring the status of the amplifier.



PRONET Network

PRONET software has been developed in collaboration with sound engineers and sound designers, in order to offer an "easy-to-use" tool to setup and manage your audio system. With PRONET you can visualize signal levels, monitor internal status and edit all the parameters of each connected device.

Download the PRONET app from the AXIOM website at <http://www.axiomproaudio.com/> clicking on downloads section of the product.

The AXIOM active loudspeaker devices can be connected in a network and controlled by the PRONET software. For the network connection the PROEL USB2CAN converter optional accessory is needed. The first time you connect a device with the USB2CAN converter, Windows O.S. will ask you to install the driver files, which you can find in the Driver folder within the Pronet application folder (by default is C:\Program Files\Proel\Pronet\Driver, or if you changed it <your path>\Driver). Please refer also to "Installation" and "Drivers" paragraphs in the Pronet documentation.

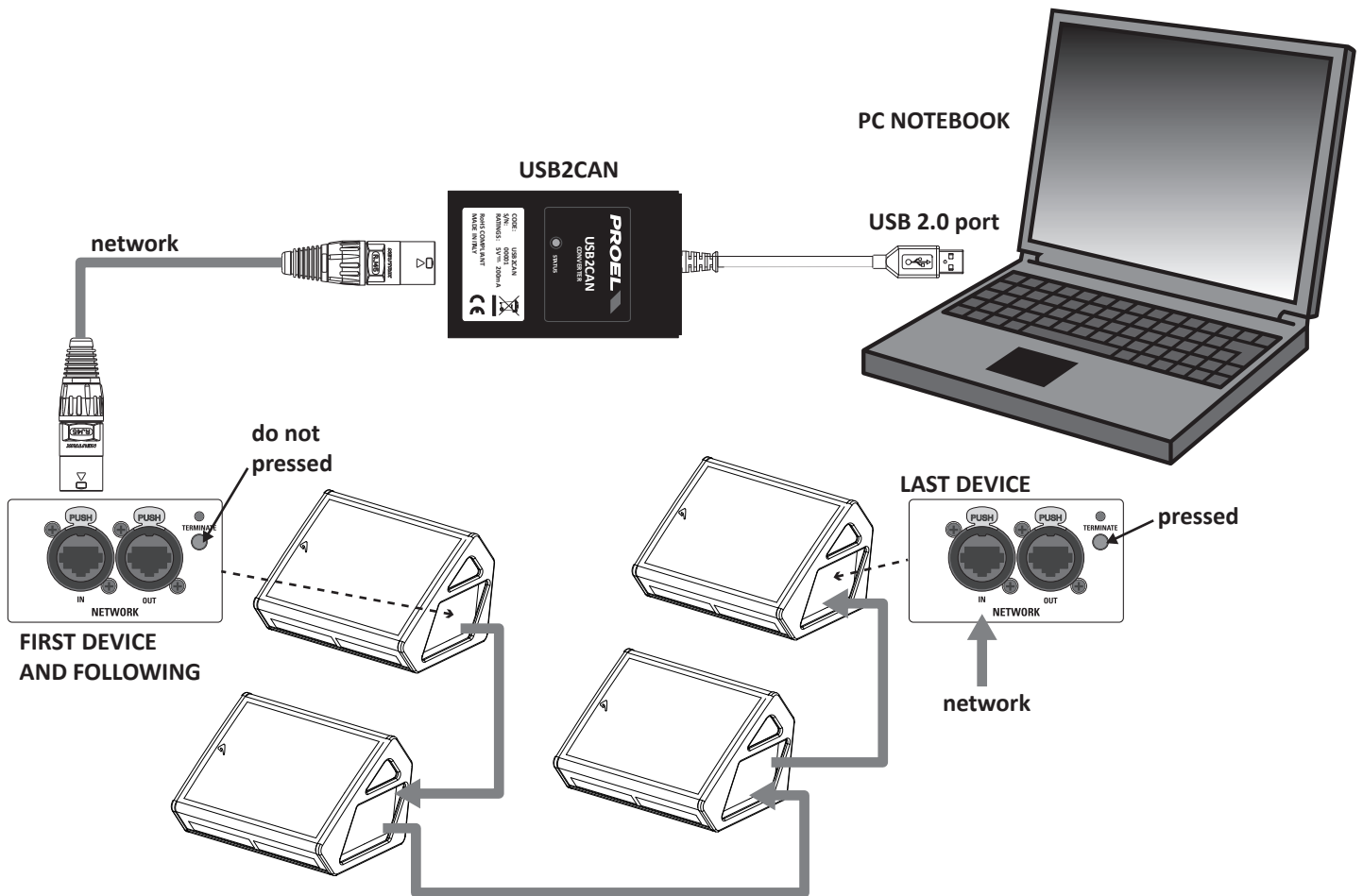
The PRONET NETWORK is based on a robust, reliable and fast communication protocol called CANBUS. The devices in a PRONET NETWORK are connected together with a "linear bus topology". The USB2CAN converter must be connected to the network input of the first device, the network output of the first device is connected to the input of the second and so on. For the network connections simple RJ45 cat.5 or cat.6 ethernet cables can be used (please don't confuse a ethernet network with a PRONET network these are completely different and must be fully separated also both use the same kind of cable).

The beginning and the end of a PRONET NETWORK must be terminated. One side is terminated by the USB2CAN converter, the other side must be terminated pressing the TERMINATE switch on the last device. All devices between these two points must have the TERMINATE switch lifted.





EXAMPLE OF PRONET NETWORK WITH CX15A WEDGE MONITOR



Assign the ID number

To work properly in a PRONET network each connected device must have a unique identifier number, called ID. By default the USB2CAN PC controller has ID=0 and there can be only one PC controller. Every other device connected must have its own unique ID equal or greater than 1: in the network cannot exist two devices with the same ID.

An ID number is assigned automatically to each devices when they are turned on for the first time connected to a network.

In order to correctly assign a new available ID to each device for working properly in a Pronet network, follow these instructions:

1. Switch off all the devices.
2. Connect them correctly to the network cables.
3. "TERMINATE" the latest device in the network connection.
4. Switch on the first device keep pressed "PRESET" button on the control panel.
5. Leaving the previous device switched on, repeat the previous operation on the next device, until the latest device is turned on.

The "Assign ID" procedure for a device makes the internal network controller to perform two operations: reset the current ID; search the first free ID in the network, starting from ID=1. If no other devices are connected (and powered on), the controller assume ID=1, that is the first free ID, otherwise it searches the next one left free.

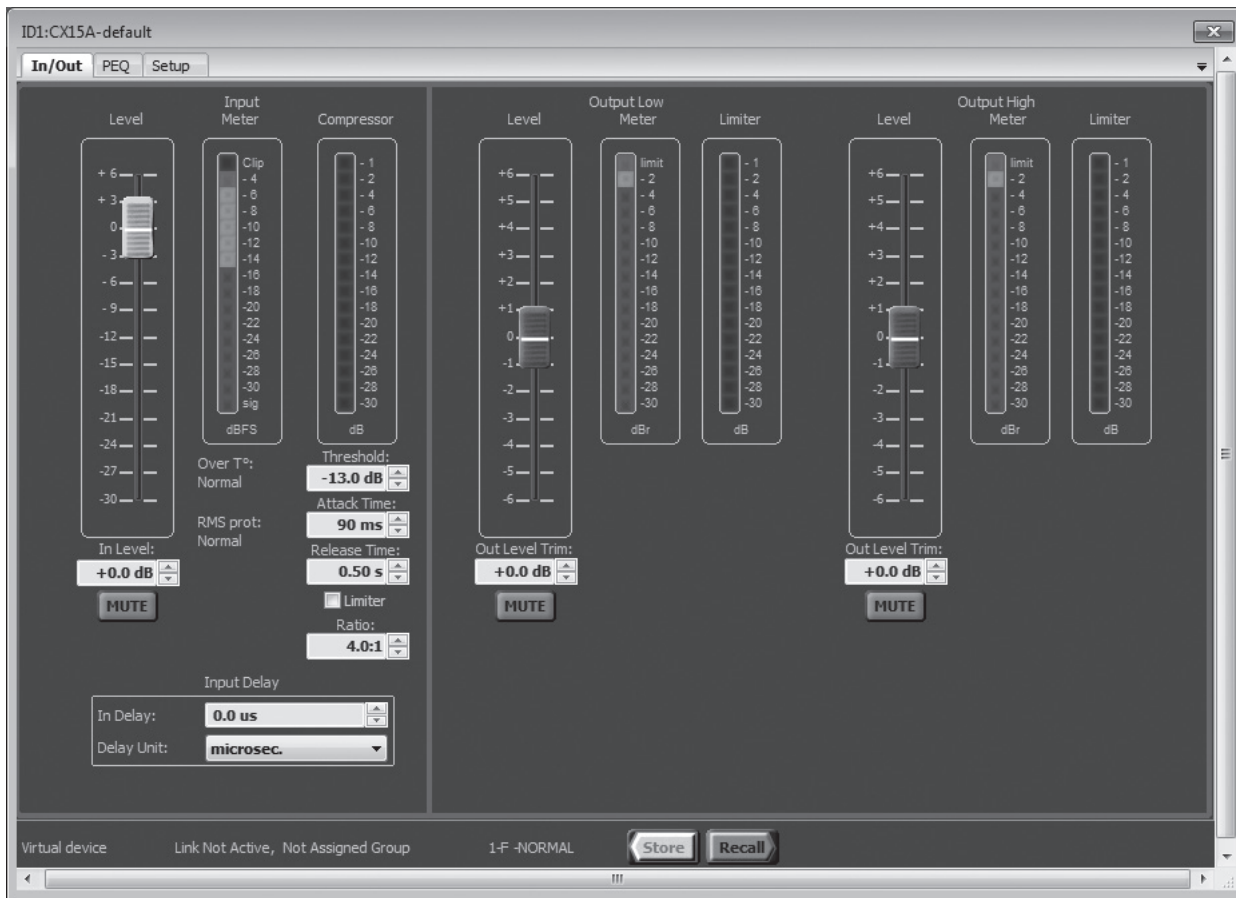
These operations ensure that every device has it's own unique ID, if you need to add a new device to the network you simply repeat the operation of step 4. Every device maintains its ID also when it is turned-off, because the identifier is stored in the internal memory and it is cleared only by another "Assign ID" step, as explained above. This means that if your network is made always of the same devices the assigning ID procedure must be executed only the first time the system is turned on.

For more detailed instruction about PRONET see the PRONET USER'S MANUAL included with the software.



EDITING USER PRESETS

If you connect the CX15A to a PC, using PRONET Control Software you can edit the user presets. In particular, the user preset no. 4-U can be loaded also from the unit's control panel without the need to connect again the loudspeaker to PRONET. Here below there is a brief explanation about how to edit the main DSP parameters.



In/Out - Level: adjusts the input level gain in the range of $-30 \div +6$ dB (this is a digital control after the A/D converter).

In/Out - Input Meter: shows the input level signal after the A/D converter. Green LED indicates the normal operating level before nominal input sensitivity (+4 dBu), yellow LED indicates that the signal exceeds the nominal sensitivity, red LED indicates digital clipping and must be avoided.

In/Out - Compressor/Limiter: this is a compressor/limiter for the input signal, that can be used to increase loudness and transparency (for the best results, we recommend to not change the factory settings).

In/Out - Output Level Trim: use these controls in you want to trim finely the level of woofer and HF driver.

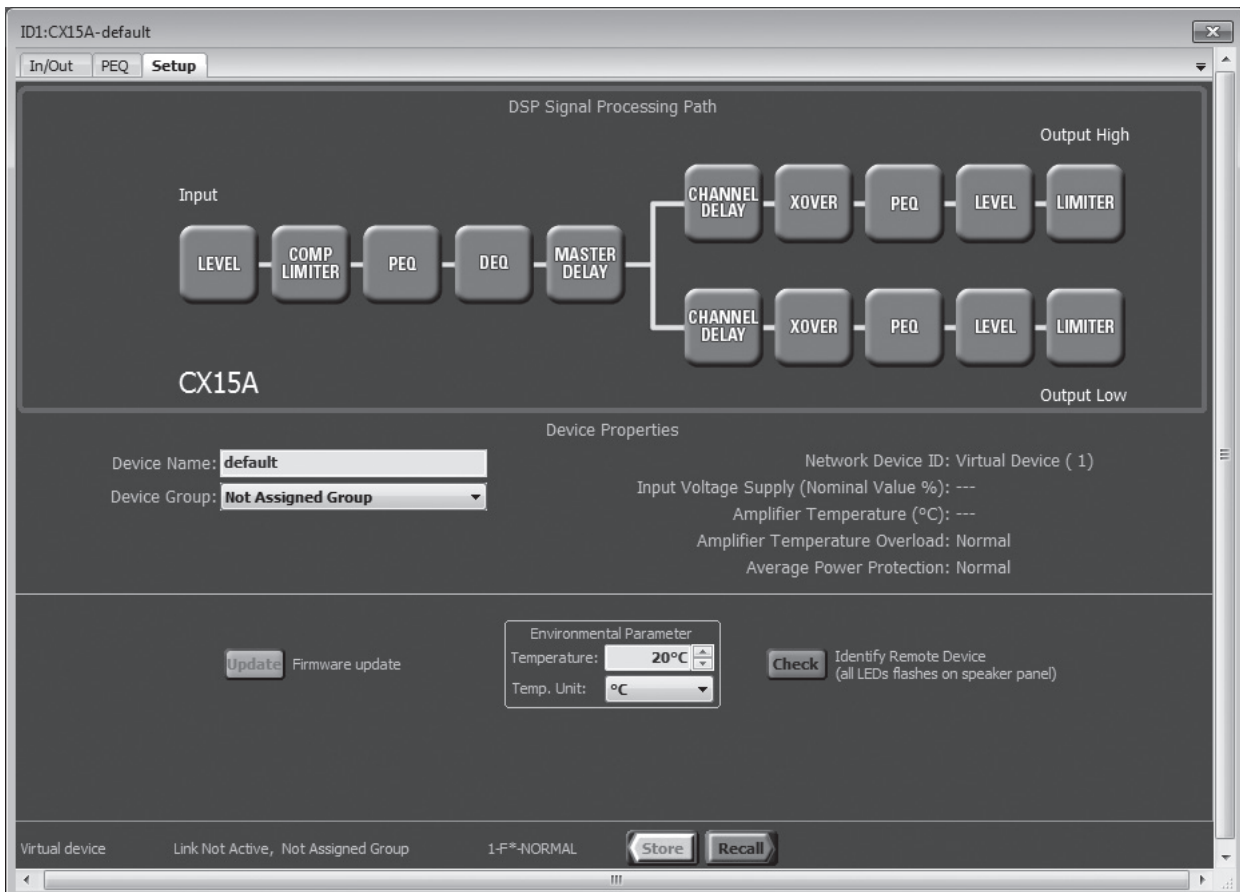
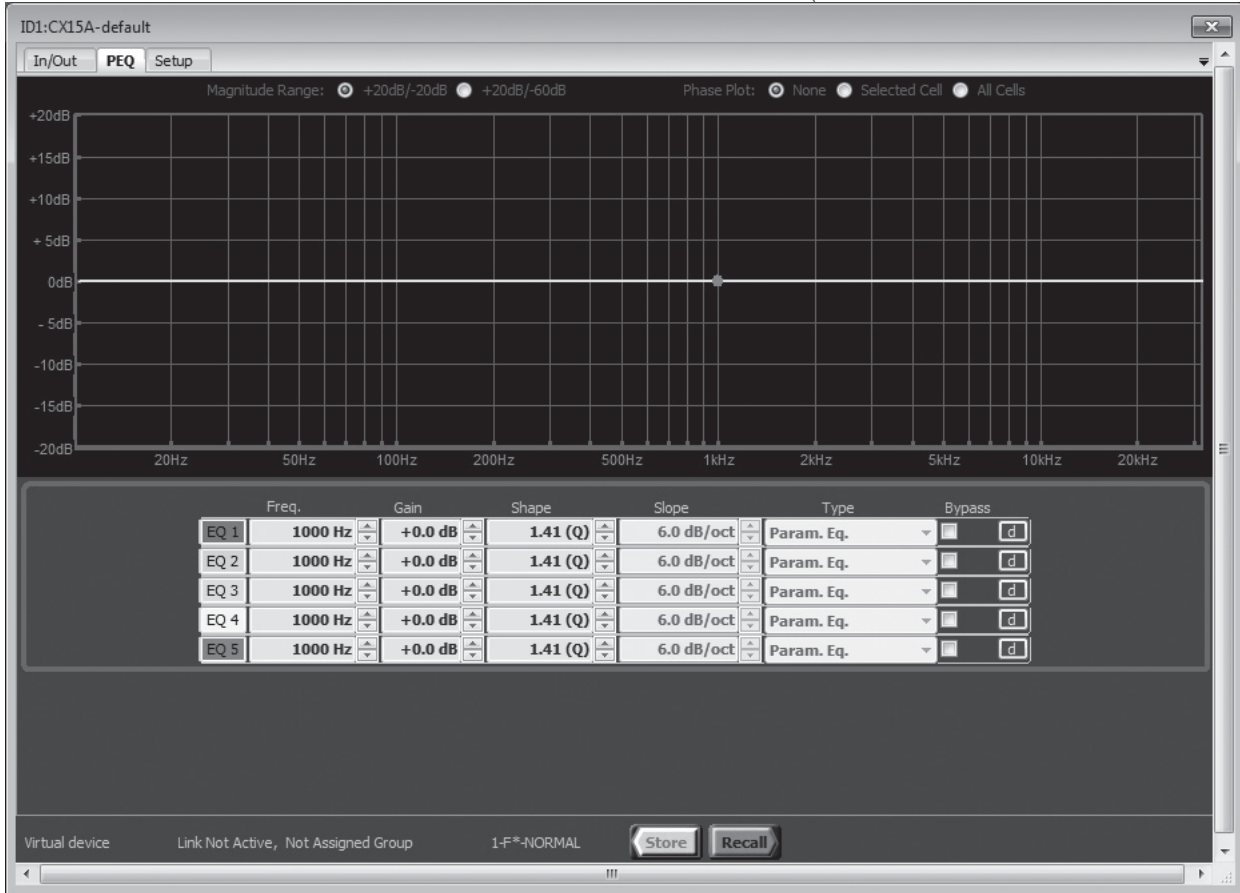
In/Out - MUTE: these buttons can be used to switch off the woofer or the HF driver in order to check the system.

In/Out - Input Delay: edit this box to apply a delay to the speaker, to be used typically if you need to align in time the speaker to another sound source. *Note: a delay higher than 10 ms (3 m) is easily audible and it can be annoying to singers and musicians.*

PEQ - EQ1-5: 5-band full parametric EQ. *Note: CX15A is already optimized for the best performance for wedge monitoring, so we suggest to make only small adjustments.*

Setup - Device Name: here you can assign a unique name at the unit (twelve characters are available).

Setup - Device Group: here you assign the unit to a group, so when the LINK function on PRONET software is activated, you can automatically set the same parameters to all the units assigned to the same group.





LIMITED WARRANTY

Proel warrants all materials, workmanship and proper operation of this product for a period of two years from the original date of purchase. If any defects are found in the materials or workmanship or if the product fails to function properly during the applicable warranty period, the owner should inform about these defects the dealer or the distributor, providing receipt or invoice of date of purchase and defect detailed description. This warranty does not extend to damage resulting from improper installation, misuse, neglect or abuse. Proel S.p.A. will verify damage on returned units, and when the unit has been properly used and warranty is still valid, then the unit will be replaced or repaired. Proel S.p.A. is not responsible for any "direct damage" or "indirect damage" caused by product defectiveness.

- This unit package has been submitted to ISTA 1A integrity tests. We suggest you control the unit conditions immediately after unpacking it.
- If any damage is found, immediately advise the dealer. Keep all unit packaging parts to allow inspection.
- Proel is not responsible for any damage that occurs during shipment.
- Products are sold "delivered ex warehouse" and shipment is at charge and risk of the buyer.
- Possible damages to unit should be immediately notified to forwarder. Each complaint for package tampered with should be done within eight days from product receipt.

SAFETY INSTRUCTIONS

- To reduce the risk, close supervision is necessary when the product is used near children.
- Protect the apparatus from atmospheric agents and keep it away from water, rain and high humidity places.
- This product should be site away from heat sources such as radiators, lamps and any other device that generate heat.
- This product should be located so that its location or position does not interfere with its proper ventilation and heating dissipation.
- Care should be taken so that objects and liquids do not go inside the product.
- The product should be connected to a power supply mains line only of the type described on the operating instructions or as marked on the product. Connect the apparatus to a power supply using only power cord included making always sure it is in good conditions.
- WARNING: The mains plug is used as disconnect device, the disconnect device shall remain readily operable.
- Do not cancel the safety feature assured by means of a polarized line plug (one blade wider than the other) or with a earth connection.
- Make sure that power supply mains line has a proper earth connection.
- Power supply cord should be unplugged from the outlet during strong thunderstorm or when left unused for a long period of time.

CE CONFORMITY

Proel products comply with directive 2004/108/EC (EMC), as stated in EN 55103-1 and EN 55103-2 standards and with directive 2006/95/CE (LVD), as stated in EN 60065 standard.

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