USER MANUAL

CX14A

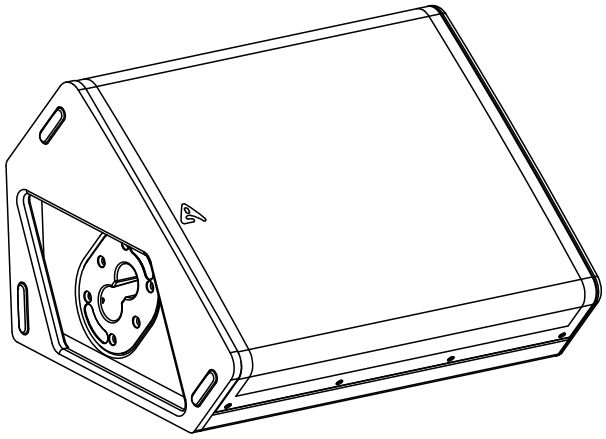
Powered Processed Stage Monitor

KEY FEATURES

- High-Output Coaxial Active Stage Monitor
- Single magnet neodymium motor
- Dual taper angle monitor configuration (45° or 55°)
- Very compact size Low-profile design
- Dual-angle pole holder for multipurpose applications
- Coaxial Transducers, 14” woofer, 2” HF compression driver
- 80° constant coverage
- 96KHz / 40 bit floating point CORE processing with PRONET remote control
- Class D amplifier module with SMPS

INTRODUCTION

The CX14A is a coaxial stage monitor designed specifically for live sound, although the very compact, low-profile enclosure also makes it suitable for theatre and television applications.
The combination of a high-performance coaxial transducer, a carefully designed cabinet, and powerful Class D amplifier together with CORE DSP processing provides very high SPL before feedback and excellent intelligibility even at very high power.
The unique 14” LF transducer’s coaxial design offers a very stable acoustical pattern over 80° in both the horizontal and vertical axes. The high frequency range is reproduced by a low-distortion compression driver equipped with a 3” aluminium voice coil and polyester/titanium diaphragm. The special shape of the LF cone allows precise and controlled conical dispersion of 80°.
The reduced size and weight of the birch plywood cabinet makes the CX14A one of the most compact and lightweight stage monitors in its category. The 45° and 55° angled sides enable it to be positioned at differing distances from the performers depending on the stage size and type of monitoring needed.
A convenient dual-angle pole holder allows the CX14A to be mounted on a standard speaker stand to be used as a multipurpose front of house loudspeaker.



TECHNICAL SPECIFICATION

SYSTEM		Remote Control	PRONET AX control software
System’s Acoustic Principle	2-way coaxial vented enclosure	Network protocol	CANBUS
Frequency response (±3 dB)	70 Hz – 18 kHz (Processed)	Amplifier Type	Class D with SMPS
Horizontal Coverage Angle	80° (-6 dB)	Output Power	900W + 300W
Vertical Coverage Angle	80° (-6 dB)	Mains Voltage Range (Vac)	230 V~ ±15% or 115 V~ ±15% 50/60 Hz
Maximum Peak SPL	131 dB @ 1m	Consumption*	575 W (nominal) 1200 W (max)
TRANSDUCERS		Mains Connector	PowerCon® (NAC3MPA)
LF	One 14” (355mm), 3”(75mm) voice coil, waterproof cone	Mains Link Connector	PowerCon® (NAC3MPB)
		IN / OUT Connectors	Neutrik XLR-M / XLR-F
HF	One 2” driver, 3” (75mm) aluminium voice coil, polyester/titanium diaphragm	IN / OUT Network Connectors	ETHERCON® (NE8FAV)
		Cooling	Variable speed DC fan
ELECTRICAL		**ENCLOSURE & CONSTRUCTION**	
Input Impedance	20 kΩ balanced, 10kΩ unbalanced	Dimensions	507mm W x 316mm H x 403mm
Input Sensitivity	+4 dBu / 1.25 V	Taper	Stage Monitor: 45° and 55°
Signal Processing	CORE processing, 96kHz / 40bit floating point SHARC DSP, 24 bit AD/DA converters	Pole holder	One on the side, dual-angle
		Enclosure Material	15 mm, reinforced Phenolic Birch
Direct access Controls	4 Presets (NORMAL WEDGE, COUPLED, LOW CUT, USER), Network Termination, GND Link	Paint	High resistance, black water based paint
		Net Weight	16 Kg / 35.3 lbs

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

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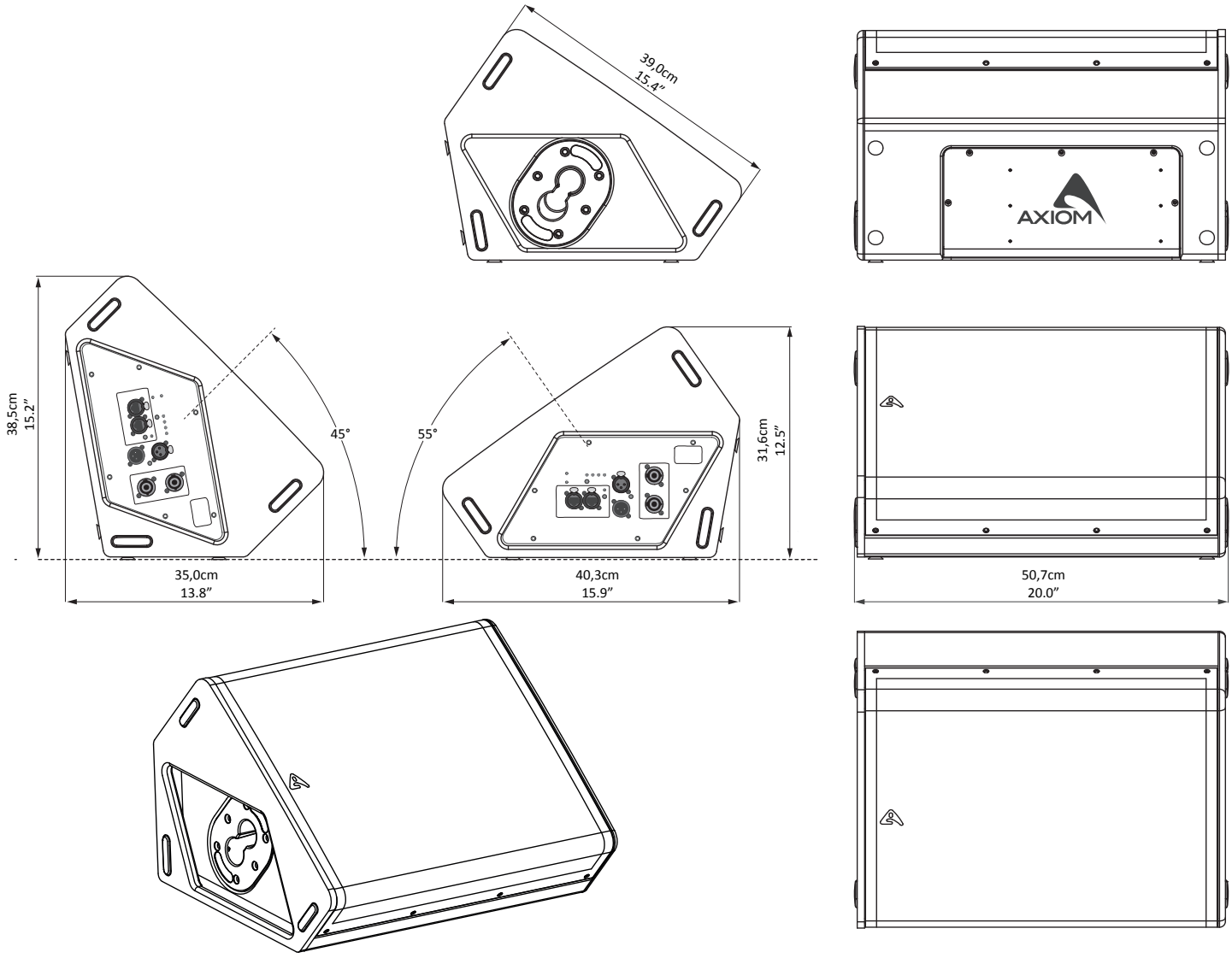
AXIOM

MECHANICAL DRAWING



OPTIONAL ACCESSORIES

CXCASE14PT	Carrying Case for 2 box unit
COVERCX14A	Cover for CX14A
NAC3FCA	Neutrik Powercon® BLUE PLUG
NAC3FCB	Neutrik Powercon® WHITE PLUG
NE8MCB	Neutrik Ethercon PLUG
NC3MXXBAG	Neutrik XLR-M
NC3FXXBAG	Neutrik XLR-F
USB2CAND	Dual output PRONET network converter

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

SPARE PARTS

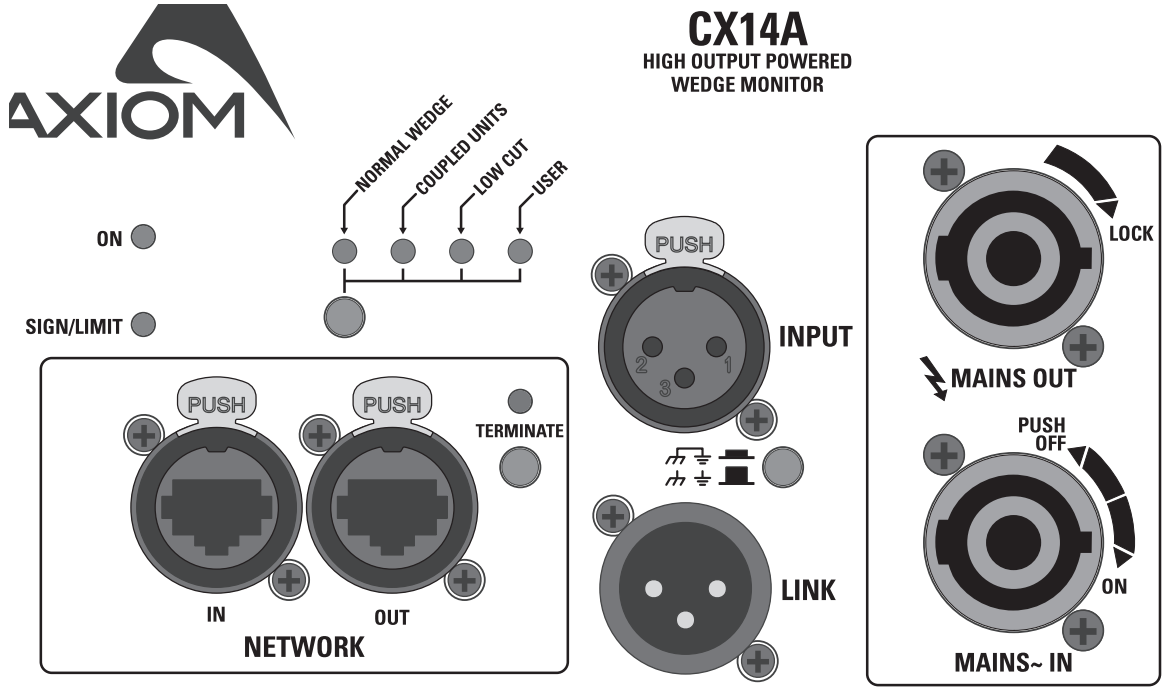
NAC3MPA	Neutrik Powercon® BLUE SOCKET
NAC3MPB	Neutrik Powercon® WHITE SOCKET
9814CXN76WZ4	Coaxial Loudspeaker 14’’ woofer - 2” driver
98MMD9028M	Titanium diaphragm for 2” driver
95MET300061	Loudspeaker protection metal grid
91DA900B	DA900B Power amplifier module
91DSPKT10	DSP PCBA Input PCBA and Control PCBA

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.

WARNINGS: 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 CX14A loudspeakers, with 120V~ we suggest to link a maximum of 2 CX14A 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.

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 CX14A is used mounted on a pole.

COUPLED UNITS This preset provides the correct EQ when two CX14A 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.

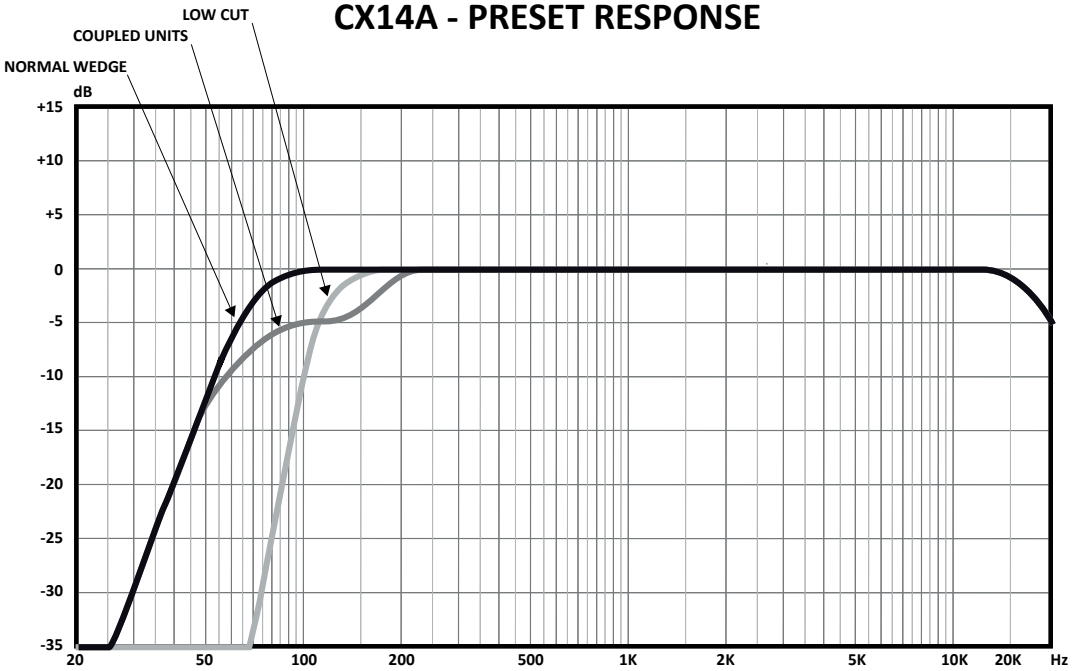
LOW CUT This PRESET is the same as NORMAL WEDGE but with a low cut at 110 Hz 48 dB/oct. To be selected when a CX14A is used in combination with a subwoofer to form a DRUM FILL or a SIDE FILL system. It can be used also in case you need to cut drastically the monitor LF response.

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 AX software and save it into "Preset 4-U-your_preset_name" (see also the PRONET AX 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.

CX14A - PRESET RESPONSE



POWER AMPLIFIERS

Powering the loudspeaker drivers is a well-proven DA series Class D amplifier module used in many of the Axiom powered loudspeaker products, with audio quality that is comparable to some of the best analogue Class A-B designs, but with the benefit of lower weight and better than 90% efficiency. The output power is optimised specifically to the drive units, delivering 900 watts to the low frequency woofer and 200 watts to the high frequency driver. The DA series amplifier delivers superior definition at all frequencies, and very high dynamic range with low distortion even at maximum level, so your sound remains clean and dynamic even when loud..

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 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.

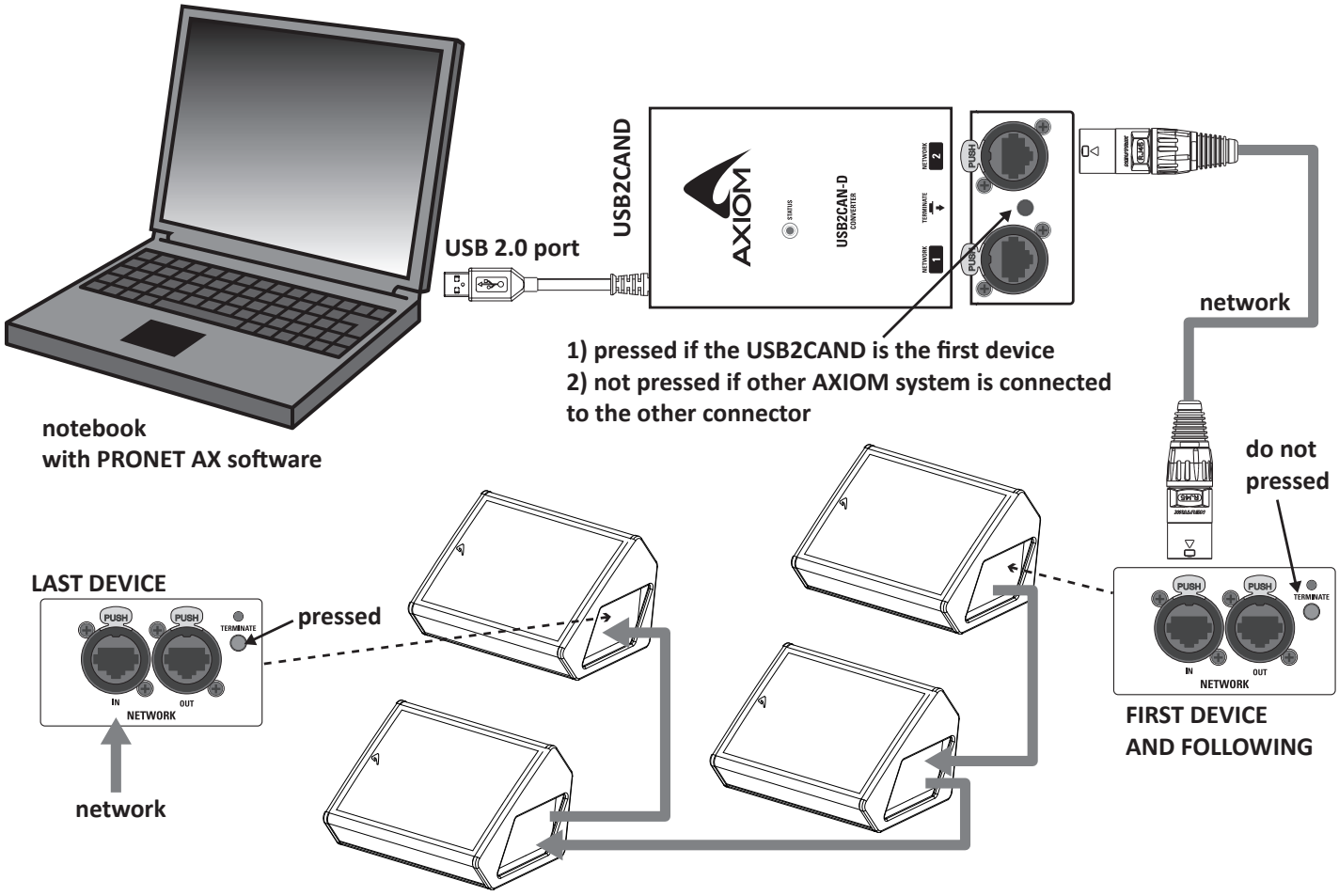
PRONET AX

PRONET AX 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 AX you can visualize signal levels, monitor internal status and edit all the parameters of each connected device.

Download the PRONET AX 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 AX software. For the network connection the PROEL **USB2CAN** (with 1-port) or **USB2CAND** (with 2-port) converter optional accessory is needed.
PRONET AX network is based on a “bus-topology” connection, where the first device is connected to the input connector of the second device, the second device network output is connected to the network input connector of the third device, and so on. To ensure a reliable communication the first and the last device of the “bus-topology” connection must be terminated. This can be done by pressing the “TERMINATE” switch near the network connectors in the rear panel of the first and the last device. 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 AX network these are completely different and must be fully separated also both use the same kind of cable).

EXAMPLE OF PRONET NETWORK WITH CX14A WEDGE MONITOR



Assign the ID number
To work properly in a PRONET AX network each connected device must have a unique identifier number, called ID. By default the USB2CAND 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.
In order to correctly assign a new available ID to each device for working properly in a Pronet AX network, follow these instructions:

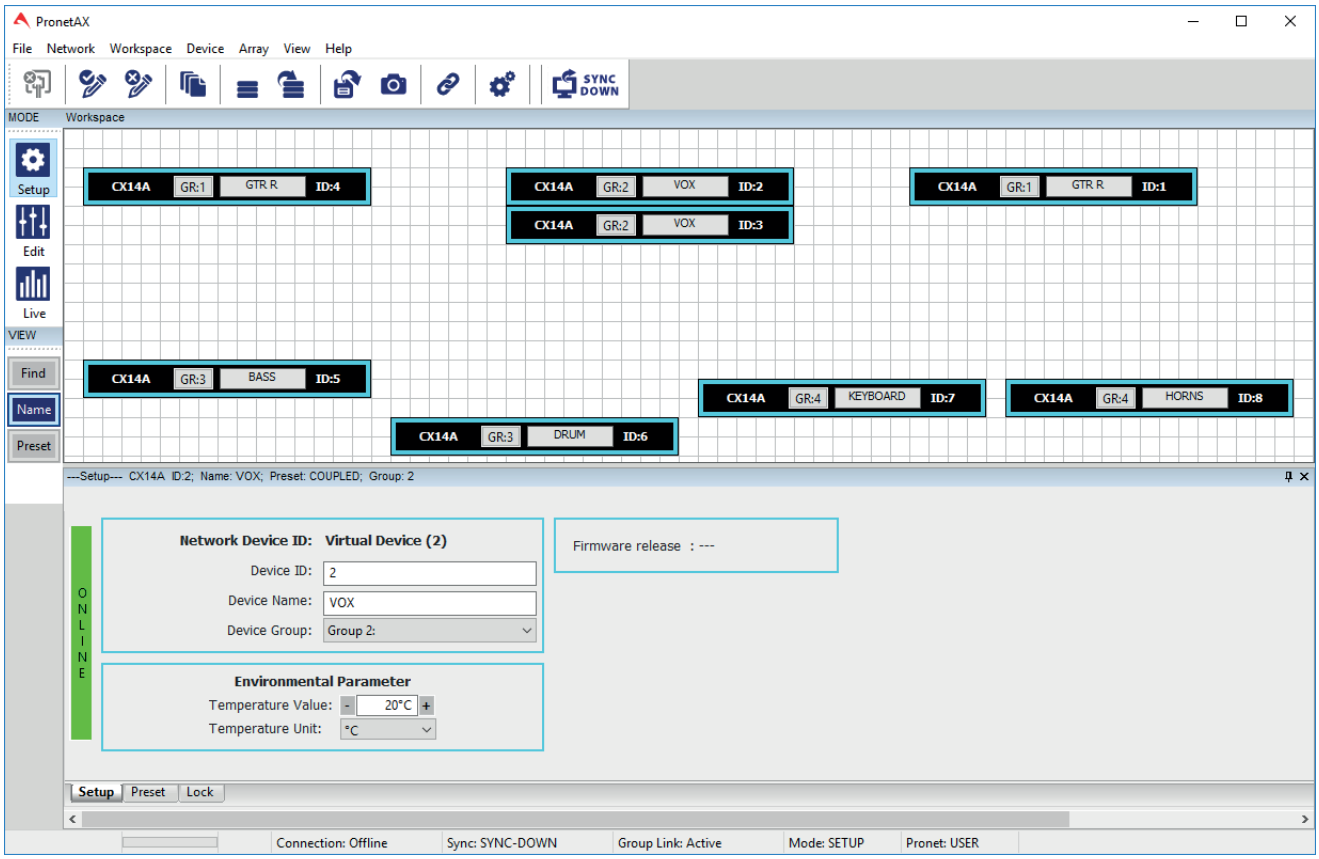
1. Switch off all the devices.
2. Connect them correctly to the network cables.
3. "TERMINATE" the end device in the network connection.
4. Switch on the first device keep pressed "PRESET" button on the control panel.
5. Leaving the previous device switched on, repeat the previous operation on the next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

With the network made always of the same devices the assigning ID procedure must be executed only the first time the system is turned on.

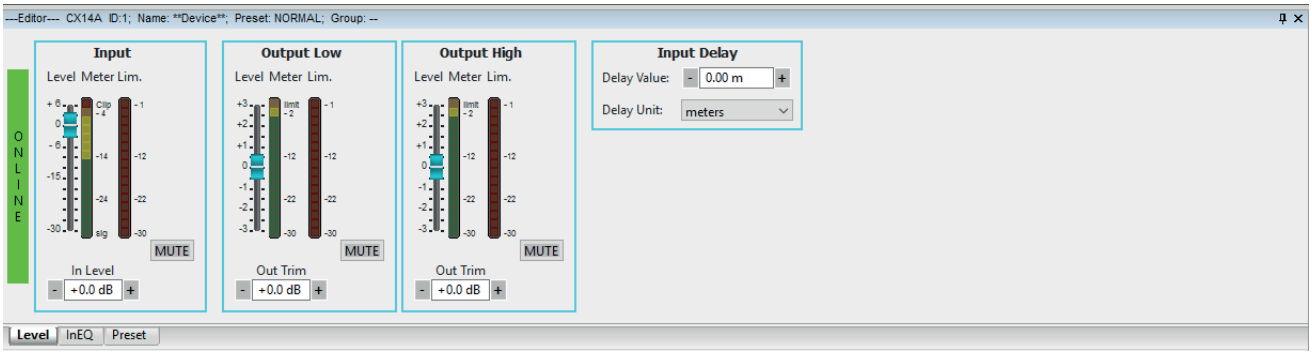
EDITING USER PRESETS

If you connect the CX14A stage monitor to a PC, using PRONET AX Control Software you can edit the user presets.
Here below a typical stage setup of a band using 8 CX14A wedges from a monitor engineer point of view:

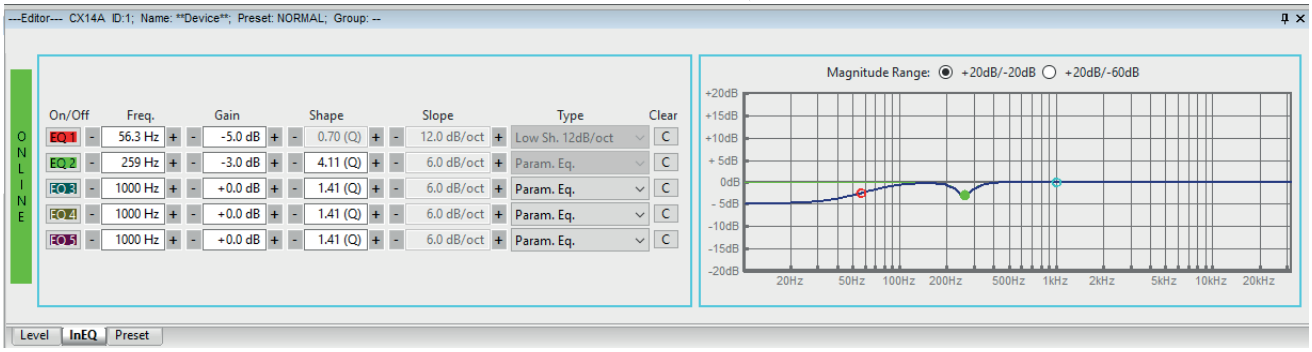


Setup - Device Name: here you can assign a unique name at the unit (twelve characters are available).
Setup - Device Group: here you assign the unit to a group, so when the LINK function on PRONET software is activated, you can automatically set the same parameters to all the units assigned to the same group.

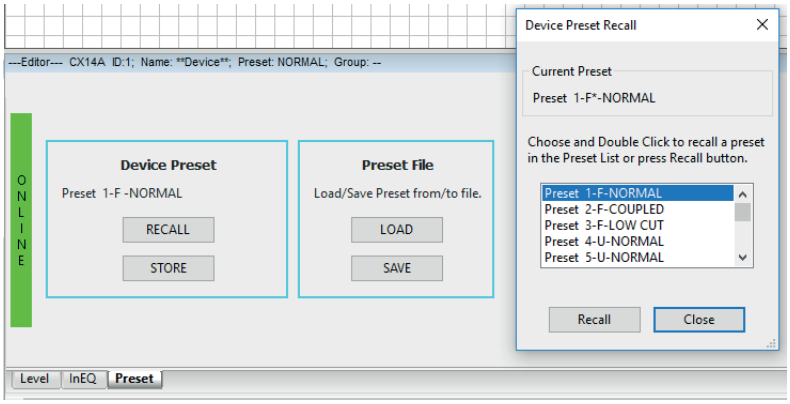
For each unit is possible to edit its DSP parameters, a brief explanation will follow:



Input - Level: adjusts the input level gain in the range of -30 ÷ +6 dB (this is a digital control after the A/D converter).
Input - Meter: shows the input level signal after the A/D converter in dBFs. Green LED indicates the normal operating level before nominal input sensitivity (+4 dBu corresponding to -16 dBFs), yellow LED indicates that the signal exceeds the nominal sensitivity, red LED indicates digital clipping and must be avoided.
Input - Limiter: show the reduction of the input signal if it crosses the threshold of the input limiter for the whole loudspeaker, this value is set from factory for the better performance and transparency.
Input/Output - MUTE: these buttons can be used to switch off the unit or the woofer or the HF driver in order to check the system.
Output - Out Trim: use these controls in you want to trim finely the level of woofer and HF driver within a ±3dB range.
Output - Limiter: show the reduction of the signal sent to each speaker, the threshold of these limiters is set from factory to preserve the safety of each speaker.
Input - Delay: edit this box to apply a delay to the speaker, to be used tipically 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: *CX14A is already optimized for the best performance for wedge monitoring, so we suggest to make only small adjustments to adjust the response for particular enviroments or instrument mic'ing.*



PRESET: *you can store or recall preset in the device's memory or load and save presets in your computer HD as *.pcf files.*
Note: *the user preset no. 4-U can be reloaded also from the unit's control panel without the need to re-connect to the pc.*

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

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 2014/30/UE (EMC), as stated in EN 55103-1 and EN 55103-2 standards and with directive 2014/35/UE (LVD), as stated in EN 60065 standard.

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