USER MANUAL

NEOS12AXS
digital self-powered loudspeaker

KEY FEATURES
• Premium transducers
• C-AUDIO CLASS D power amplifiers with SWITCH MODE power supply
• 96KHz, 40bit floating point C-AUDIO CORE DSP
• Network functionality thru PRONET control software
• Access to EQ, DYNAMICS and DELAY and real time parameter control
• Plywood cabinets with die-cast handles, dual-angle pole holder and multiple flying points

INTRODUCTION
NEOS AXS series represents the highest expression of PROEL GROUP Research & Development applied in loudspeaker systems. A natural evolution of the NEOS Series, it incorporates the latest technologies developed by PROEL in advanced sound reinforcement systems able to provide premium sound, maximum performance and up-to-date features.
NEOS AXS is a complete range of self-powered loudspeaker systems combining cutting-edge transducers with C-AUDIO CLASS D amplifiers and digital processors, thus ensuring the best integration between acoustics and electronics for an optimal performance.
The NEOS AXS are designed for the use both as high-performance mobile systems for live applications and as versatile and remotely controllable systems for advanced fixed installations.
All the models are powered by C-AUDIO DA power modules, a new generation of CLASS D power amplifiers with SWITCH MODE power supply, able to provide an exceptional sound definition together with very high dynamics and low distortion in an ultra-compact package.
The on board control electronics are based on the 96KHz, 40bit floating point C-AUDIO CORE DSP platform, able to optimize further the system performances through the use of sophisticated EQ, crossover and dynamics algorithms. The CORE processing provides also network functionality through the PRONET control software based on CANBUS communication protocol (USB2CAN converter needed).
The PRONET control software provides access to the major processing features, including full PARAMETRIC and DYNAMIC EQ, advanced COMPRESSOR/LIMITERS and DELAY, together with the real time control of parameters such as temperature, supply voltage and protections.
Setting created by the user can be saved in user presets that can be recalled through the control software or from the unit's interface.

TECHNICAL SPECIFICATION

Acoustical

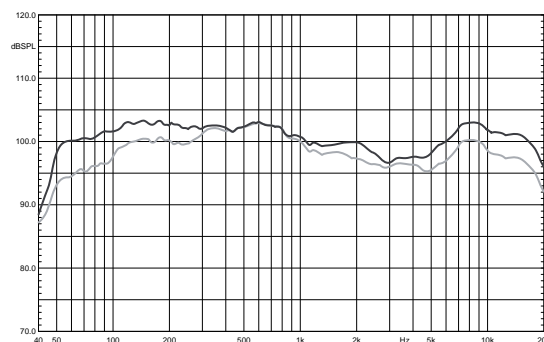|	
System type	Full range 2-way, vented
Low frequency driver	12'' woofer - 2.5" VC
High frequency driver	1'' compression driver - 1.75" VC
Frequency response	55 Hz - 20 kHz
Horn type	Asymmetrical rotatable horn
Coverage	100°>80° H x 60° V
Max SPL	127 dB

Electrical

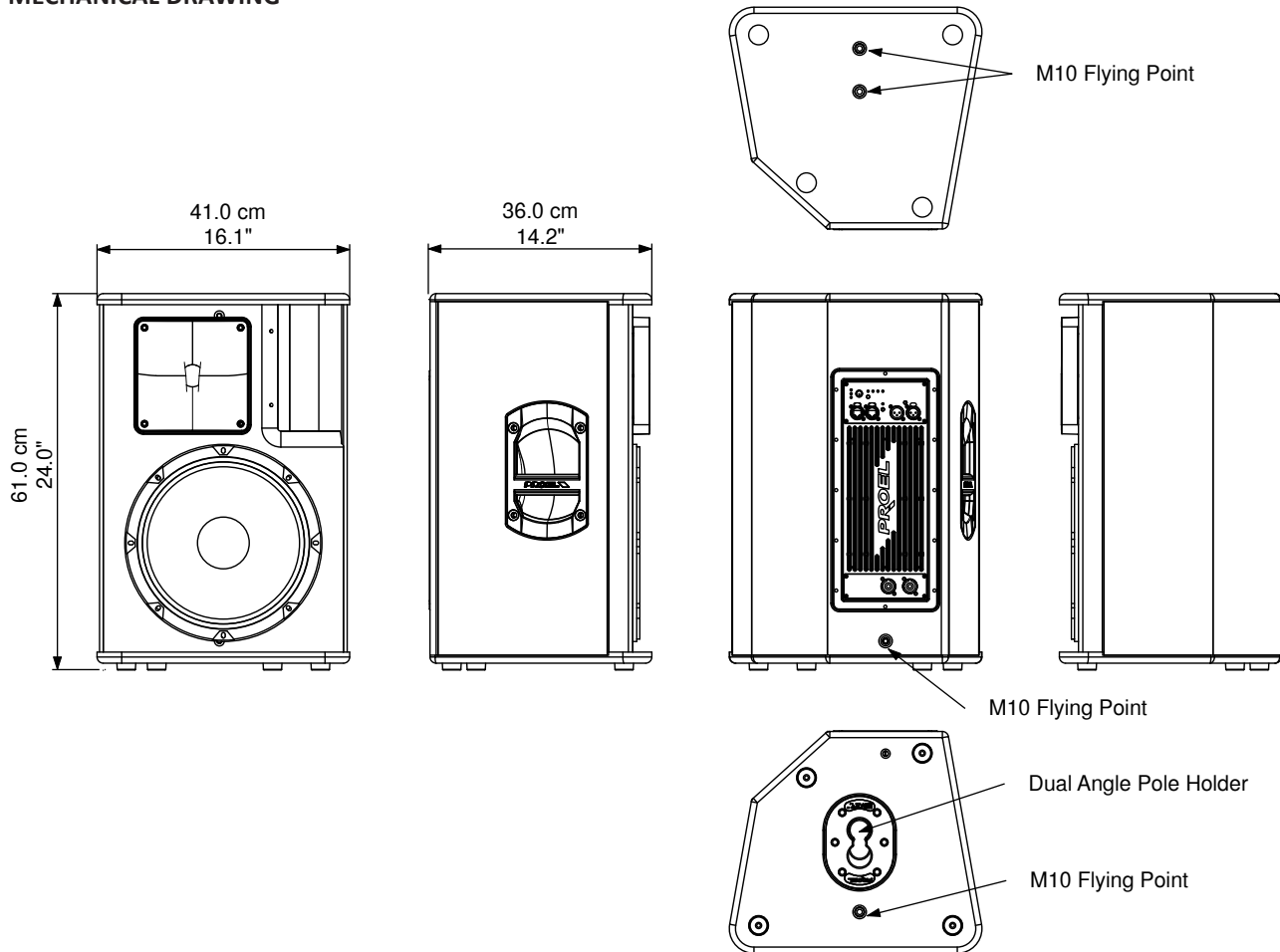|	
Input Impedance	20 kohm balanced, 10 kohm unbalanced
Input Sensitivity	+4 dBu / 1.25 V
Signal Processing	CORE processing 24 bit / 96 kHz
Amplifier type	C- AUDIO Class D with SMPS
Output power	500 + 500 W
Connectors	IN - LINK: XLR M - XLR F NETWORK IN - OUT: ETHERCON® (NE8FAV) MAIN LINK: PowerCon® (NAC3MPB) MAIN: PowerCon® (NAC3MPA)
Controls	LEVEL, PRESET (FLAT / HPF / MONITOR/ USER) TERMINATE, GND LIFT
Cooling	Variable speed DC fan
Power Supply	230 VAC or 120 VAC 50/60 Hz
Max consumption	750 VA
1/8 power out consumption	250 VA

Mechanical

Construction	15 and 18 mm birch plywood
Finish	Anti-scratch black paint
Flying hardware	4 x M10 - top, bottom, rear
Trapezoidal taper	10°
Monitor taper	42°
Pole holder	1 bottom dual angle (0° / 7.5°)
Dimensions (W x H x D)	400 x 600 x 365 mm
Weight	24 kg (52.9 lbs)

Frequency Response Diagram

black = FLAT   gray = MONITOR

PROEL
technology as art

MECHANICAL DRAWING

41.0 cm
16.1"

36.0 cm
14.2"

61.0 cm
24.0"

M10 Flying Point

M10 Flying Point

Dual Angle Pole Holder

M10 Flying Point

OPTIONAL ACCESSORIES

USB2CAN	USB PC-PRONET converter
COVERNE12	Loudspeaker soft bag
FRE300BK	Loudspeaker ground stand
KP210BK	Sub-Speaker pole
KPPTL12	Loudspeaker wall stand
KPTFL12PB	Loudspeaker free aiming ground stand
NAC3FCA	Neutrik Powercon® BLUE POWER IN PLUG
NAC3FCB	Neutrik Powercon® WHITE POWER OUT PLUG

see **www.proel.com** for detailed description and other available accessories.

for speaker suspending:

PLH295	M10 Ø 50 mm Truss mount coupler
AC169A	M10 black shoulder eyebolt
AC171	L = 75 cm / 30 inch Aircraft cable sling
AC172	L = 1.5 m / 4.9 ft Aircraft cable sling
AC173	Screw pin anchor shackle

SPARE PARTS

NAC3MPA	Neutrik Powercon® BLUE POWER IN panel socket
NAC3MPB	Neutrik Powercon® WHITE POWER OUT panel socket
91AMDAXS	Amplifier Module (specifying NEOS12AXS firmware)
98NEOS12WZ4	12'' woofer - 2.5" VC
98DRI1475	1'' compression driver - 1.75" VC

POWER PANEL
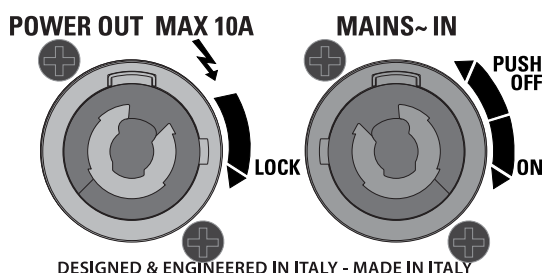
MAINS IN - Powercon® NAC3FCA power input connector (blue). To switch the amplifier on, insert the Powercon® connector and turn it in a clockwise direction into the ON position. To switch the amplifier off, pull back the switch on the connector and turn the connector in an anti-clockwise direction into the POWER OFF position.
NOTE: 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 adequate 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.
POWER OUT - Powercon® NAC3FCB power output connector (grey). This is connected in parallel with the MAINS ~ / IN; the maximum load applicable is 10A/230V ~.
NOTE: the number of speaker units that can be connected in sequence depends by the sum of the speaker consumption current.
PRODUCT LABEL - In this label are written the most important information about the active loudspeaker, model, line voltage, consumption, serial number.

CONTROL PANEL
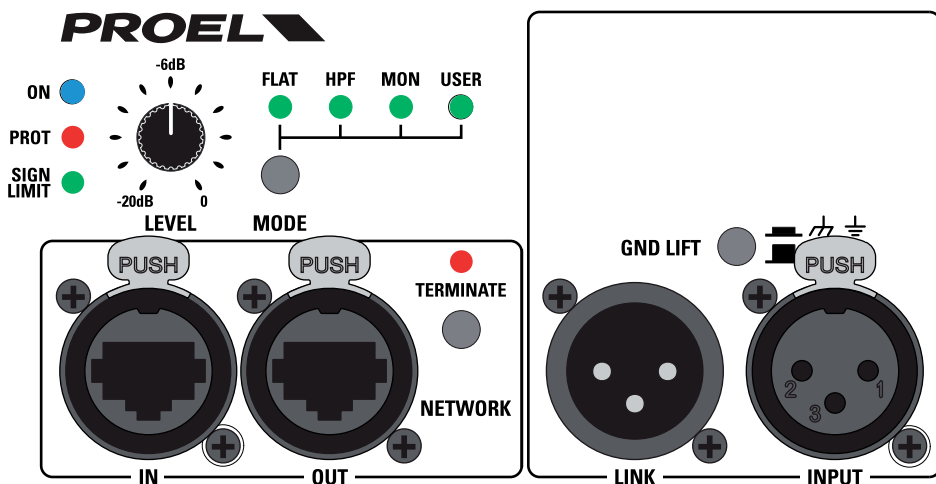
ON - This LED indicates power on status.
PROT - This red LED lights when the amplifier module is in protect mode for an internal fault and, consequently, the amplifier is muted.
SIGN LIMIT - This LED lights green to indicate the presence of the signal and lights red when an internal limiter reduces the input level.
LEVEL - This potentiometer attenuates the input level in the most useful range starting from 0dB to -20dB with a -6dB attenuation at the centre.
MODE - This button select one of the four preset available, if it is pressed when the unit is switched on it forces the internal DSP to re-assign an ID to the unit for the PRONET remote control operation.
FLAT - This LED lights when the FLAT preset is selected. This is the basic factory preset of the loudspeaker and it can be used for all music genre.
HPF - This LED lights when the HPF preset is selected, which is the FLAT preset with an high-pass filter added. Use this preset when the loudspeaker is combined with subwoofers.
MON - This LED lights when the MONITOR preset is selected. Use this preset if the loudspeaker is used as a stage monitor.
USER - This LED lights when the USER preset is loaded. This preset corresponds to USER MEMORY no. 1 of the DSP and, as a factory setting, it's the same to FLAT. If you want to modify it, you have to connect the unit to a PC, edit the parameters with PRONET software and save them into USER MEMORY no. 1.
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 connected 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.
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.
GND LIFT - This switch lift the ground of the balanced audio inputs from the earth-ground of the amplifier module.

PRONET

PRONET software has been designed by Proel's Research & Development Department to easily control a single unit or a network of devices, like active loudspeakers or speaker processors, equipped with the C-AUDIO CORE digital processing platform.
PRONET 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 PROEL website at http://www.proel.com clicking on support section.

The NEOS AXS loudspeaker devices can be connected using the network connection, in this case 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.

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.
See the more detailed instruction about PRONET on the documentation downloadable from the web site: www.proel.com.

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.

PROEL S.p.A. (World Headquarter) - Via alla Ruenia 37/43 - 64027 Sant'Omero (Te) - ITALY
Tel: +39 0861 81241 Fax: +39 0861 887862 www.proel.com