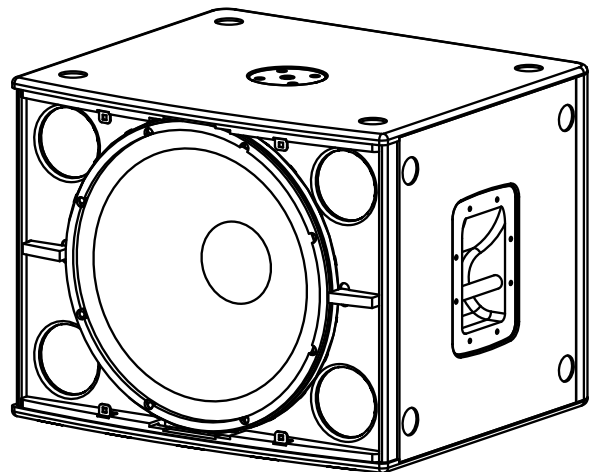# USER MANUAL

SW18A
active subwoofer

KEY FEATURES
• High power compact subwoofer
• Small size for a good output-toweight ratio
• Digitally controlled Class D amplifier module with SMPS

• Bass-reflex Direct Radiating Subwoofer
• 96KHz / 40 bit floating point CORE processing with PRONET remote control

INTRODUCTION
The SW18A is a high power compact subwoofer designed to partner ED series point source loudspeakers for fixed installations in discotheques, nightclubs and bars, and live music clubs, and for portable corporate audio-visual applications. It features a high excursion 4" voice coil, 18" driver equipped with a double centred spider that maintains linear voice coil travel even at high output levels. The phenolic birch plywood cabinet is equipped with pole mount socket, stacking feet, flush handles, and heavy duty wheels to enable easy handling and transportation.

The SW18A subwoofer system is equipped with a high power 18" (460mm) transducer capable of long excursion (up to 30mm peak-to-peak), controlled by high stiffness Double Silicon Spider as centering suspension and by heavy duty surround. The motor structure features high strength (BL^2/Re) with optimized symmetry and excursion controlled by Inner Flux Demodulating Ring. The robust copper 100mm (4") voice coil is wounded in two different layers both outside and inside the coil support, then doubling the coil surface exposed to air cooling and consequently improving the long term thermal capacity of the loudspeaker. Cones are made of very high-stiffness glass fiber reinforced paper, featuring also invisible water repellent treatment.

The powered SW18A features an integrated 2000 watt class D amplifier module that provides convenience and simplicity of connection for portable sound reinforcement applications, and also for fixed installations in discotheques and live music clubs. It will deliver punchy bass performance from a very compact cabinet, and thanks to the integral pole mount socket partners well with any of the ED series of point source loudspeakers in portable corporate audio-visual applications, while its small size enables it to be easily fitted into tight venue spaces.

TECHNICAL SPECIFICATION

Acoustical

System type	Bass-reflex
Transducer	18" (460 mm), 4" (100 mm) VC 8 ohm, High stiffness, water repellent, glass fibre reinforced cone Flux Demodulating Ring VC Double Centering Spider Suspension
Frequency response (-6 dB)	36 Hz – 100 Hz (Processed)
Maximum Peak SPL @ 1m	132 dB

Electrical

Input Impedance	20 kΩ balanced
Input Sensitivity	+4 dBu / 1.25 V
Signal Processing	CORE processing, 96kHz / 40bit floating point SHARC DSP, 24 bit AD/DA converters
Direct access Controls	4 Presets: Standard, InfraSub, Cardioid, User. Network Termination, GND Link
Remote Controls	PRONET control software
Network protocol	CANBUS

Amplifier Type	Class D with Variable Switching Frequency and SMPS
Output Power	2000 W
Mains Voltage Range (Vac)	230 V~ ±15% or 115 V~ ±15% 50/60 Hz
Mains Connector	PowerCon® (NAC3MPA + NAC3MPB)
Consumption*	700 W (nominal) 1700 W (max)
IN / OUT Connectors	Neutrik XLR-M / XLR-F
IN / OUT Network Connectors	ETHERCON® (NE8FAV)

Mechanical

Width	650 mm (25.6")
Height	500 mm (19.7")
Depth	564 mm (22.2")
Depth Including Wheels	672 mm (26.5")
Construction	15 mm Phenolic Birch Plywood
Paint	Black textured paint (or White)
Wheels	4 heavy-load 80 mm ø
Transport	2 handles
Net Weight	42.5 Kg (93.7 lbs.)

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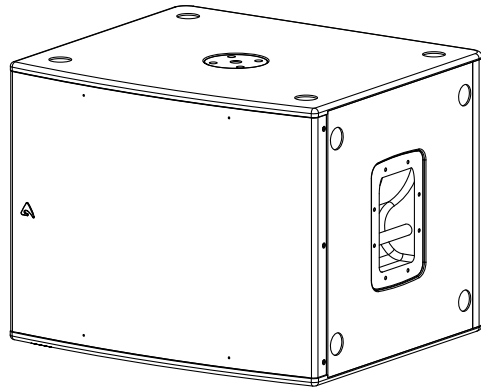
MECHANICAL DRAWING

65 cm
25.6"

56.4 cm
22.2"

50 cm
19.7"

67.2 cm
26.5"
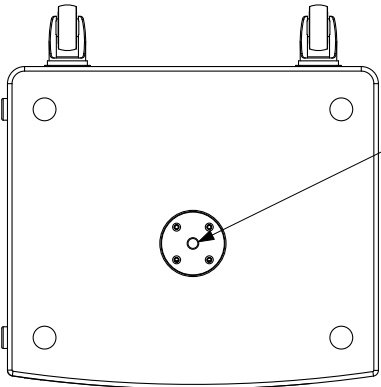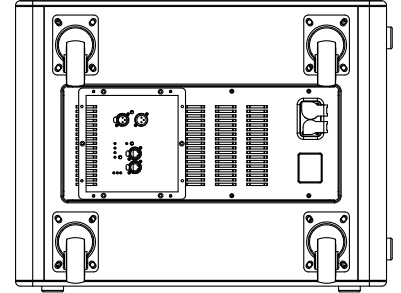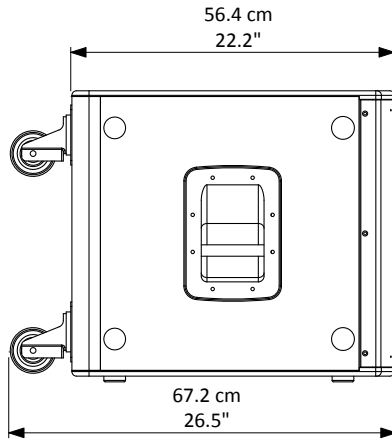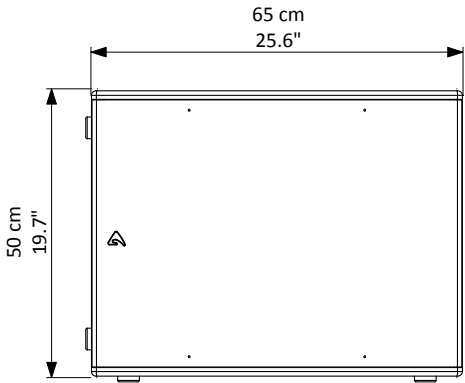
M20 Pole Adaptor

OPTIONAL ACCESSORIES

|			
NAC3FXW	Neutrik Powercon® TRUE1 (for power in)*	USB2CAN	PRONET network converter
NAC3MXW	Neutrik Powercon® TRUE1 (for power out)*	USB2CAND	Dual Port PRONET network converter
HTAC	Hand tool for tightening powerCON TRUE1*	DHSS10M20	Sub-Speaker ø35mm 1-1.7m Pole with Handle and M20 screw
NE8MCB	Neutrik Ethercon PLUG	KP210S	Sub-Speaker ø35mm 0.7-1.2m Pole with M20 screw
NC3MXXBAG	Neutrik XLR-M	RAINCOV215	Rain protection for connectors
NC3FXXBAG	Neutrik XLR-F	COVERSW18	Cover for SW18

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

*Note: See assembly instruction downloadable from NEUTRIK WEB site at: http://www.neutrik.com/

SPARE PARTS

AC102GS	80 mm Swivel castor without brake	NAC3PX	Neutrik Powercon® TRUE1 Appliance inlet-outlet
AC115DN	Black steel handle	91AMDSW18A	Amplifier module assembly
98NEOS18SW8	18'' woofer - 4" VC - 8 ohm		

SW18A - PRESET RESPONSE

INFRA   STANDARD

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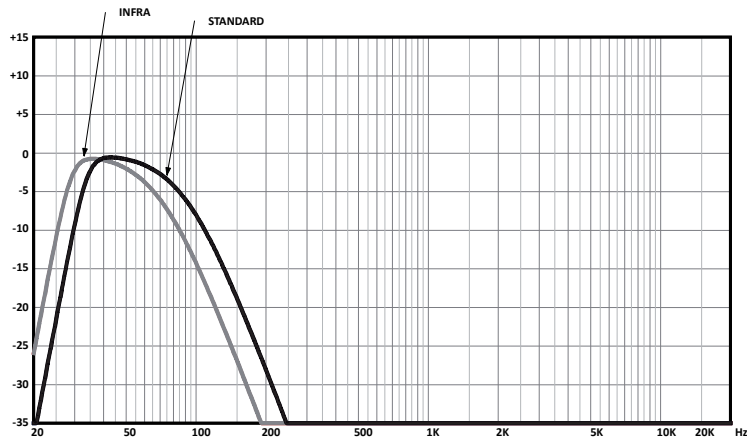
I/O AND CONTROL OPERATIONS

MAINS~ IN - Powercon® NAC3PX power inlet connector. 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.

MAINS~ OUT - Powercon® NAC3PX power outlet connector. This is connected in parallel with the MAINS~ IN.

⚠️ **WARNING! Connect no more than one subwoofer unit to the MAINS~ OUT connector.**
WARNING! If you use the MAINS~ OUT turn on each subwoofer unit one a time.
WARNING! In the case of product failure or fuse replacement, disconnect the unit completely from the mains power.
WARNING! Use a suitable power cable and mains plug to build the power cable, it must only be connected to a socket corresponding to the specifications indicated on the amplifier unit.
See assembly instruction downloadable from NEUTRIK WEB site at: http:// www.neutrik.com/

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 in green to indicate the presence of the signal and lights in red when an internal limiter reduces the input level.
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.

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:

STANDARD   This PRESET is suitable for any application where low frequency reinforcement is required. It features a 90Hz cut off frequency and it can be used in almost any environment in combination with any vertical arrays.

INFRA   This PRESET can be used when a deeper bass response is required (Note that when this preset is used the sound pressure level of the system is slightly reduced). NOTE: INFRA and STANDARD PRESET must NOT be used together in close units.

CARDIOID   This special PRESET, combined with the STANDARD PRESET, gives the advantage to reduce the low frequencies at the back of an array of three subs, in order to obtain a more comfortable level for the performers on the stage without losing level for the the audience in front of the array. The cardioid configuration is also useful in situation where you want to reduce the bass frequency feedback due to many microphones on stage, for example for acoustic and jazz ensemble, classic orchestra, musicals. Further in this manual you can find some example how to set up a cardioid array.

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 STANDARD. If you want to modify it, you have to connect the unit to a PC, edit the parameters with PRONET software and save the PRESET 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 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.

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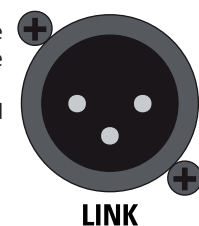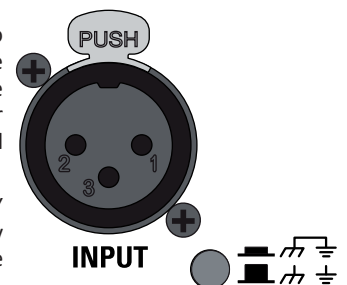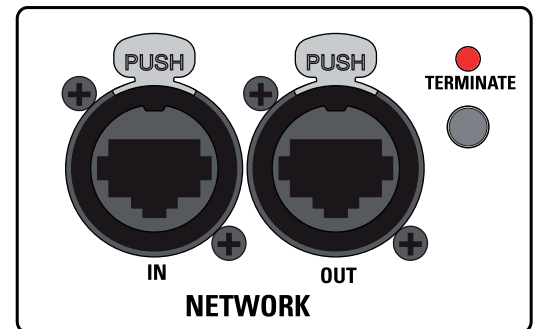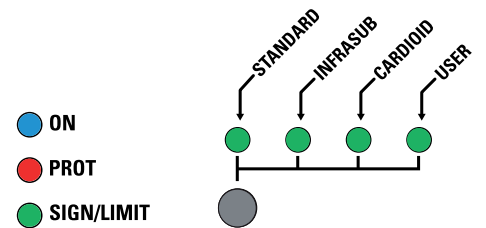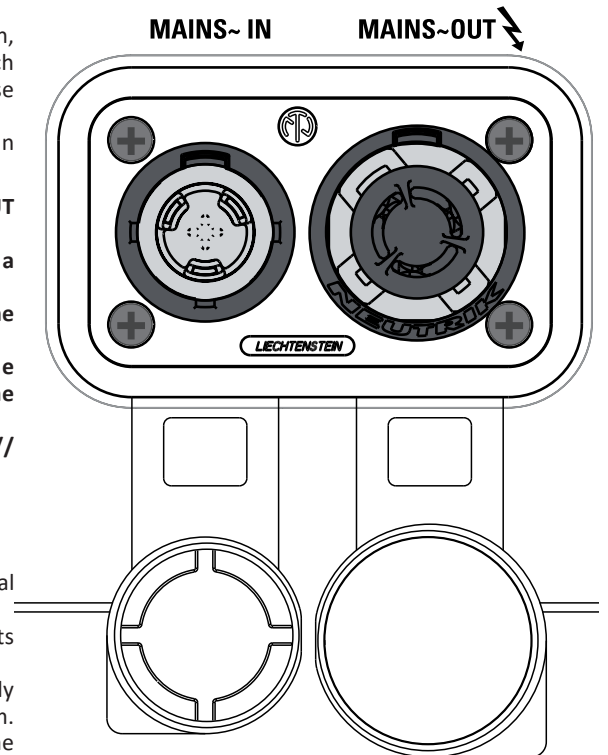
POWER AMPLIFIERS

The SW18A 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 two DA modules employed for powering the SW18A deliver in an ultra-compact package a maximum power of 4000W.

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 AX 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 the **USB2CAN-D** (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 network 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).

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 USB2CAN-D 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.

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

CARDIOID PRESET

The cardioid preset must be used in a sub array of three SW18A. Two box must be oriented towards the audience and one must be turned in the opposite direction (typically the box in the centre of the array). The bottom and the top boxes must have the STANDARD PRESET, the box in the middle must have the CARDIOID PRESET. The audio signal sent to all boxes is the same.

The CARDIOID PRESET has the same response of the STANDARD PRESET, but to obtain the maximum cancellation on the back side of the array it has the phase inverted and a proper level and delay setting.

The figure below shows two typical displacement of the array. The first with all the boxes in horizontal position for a total height of 1500 mm and a width of 650 mm. The second one with all the boxes in vertical position for a total height of 650 mm and a width of 1500 mm.
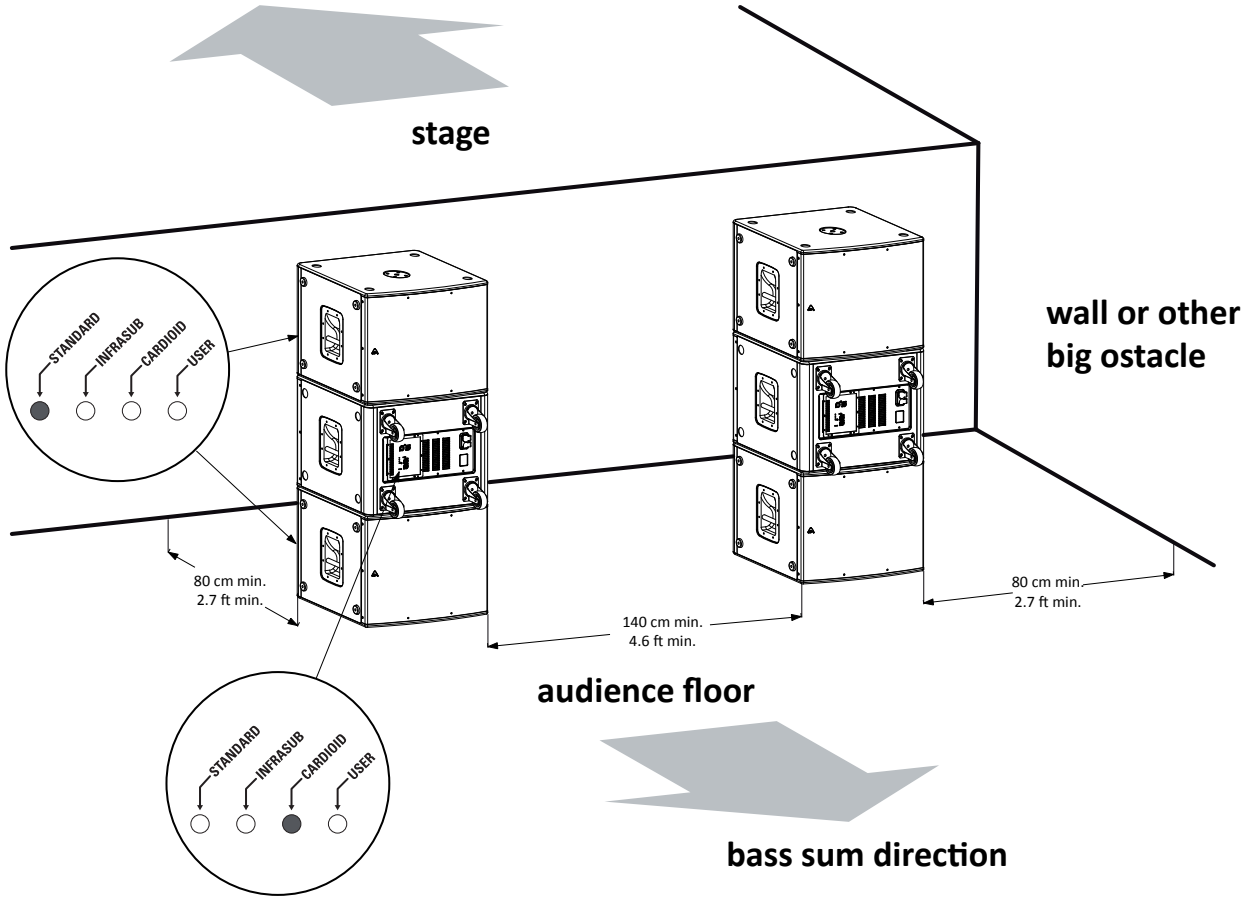
NOTES:

When placing the cardioid array keep a distance to walls or other obstacles of at least 80 cm (2.6 ft) in order not to affect the radiation of the reversed cabinet.
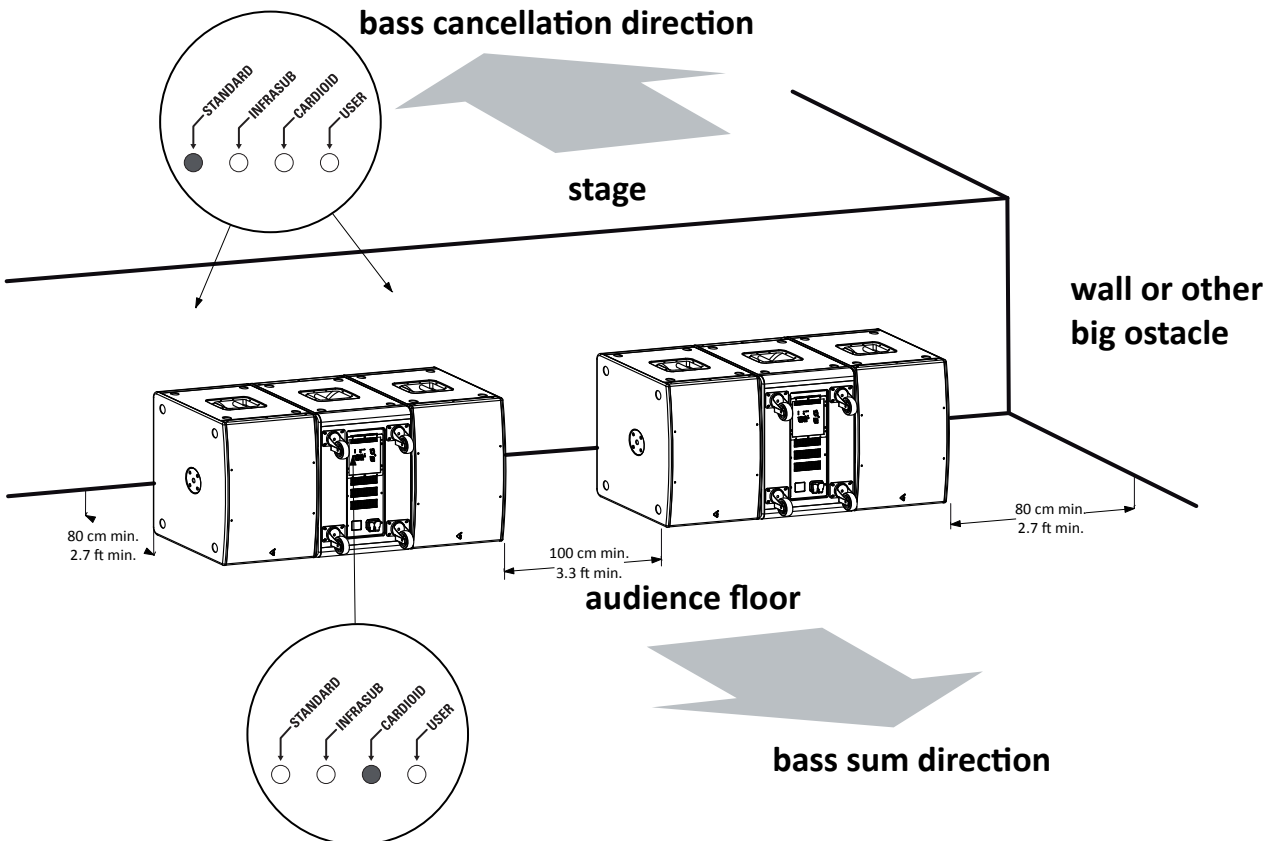
When placing multiple cardioid arrays keep a distance between them of at least 140 cm (4.6 ft) for vertical placement, or 100 cm (3.3 ft)for horizontal placement, in order to maximize the combined radiation of whole arrays.

bass cancellation direction

stage

STANDARD INFRASUB CARDIOID USER

wall or other big ostacle

80 cm min.
2.7 ft min.

140 cm min.
4.6 ft min.

80 cm min.
2.7 ft min.

STANDARD INFRASUB CARDIOID USER

audience floor

bass sum direction

bass cancellation direction

STANDARD INFRASUB CARDIOID USER

stage

wall or other big ostacle

80 cm min.
2.7 ft min.

100 cm min.
3.3 ft min.

80 cm min.
2.7 ft min.

STANDARD INFRASUB CARDIOID USER

audience floor

bass sum direction

AXIOM

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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