



TNA-2800SA
Active Subwoofer

USER MANUAL

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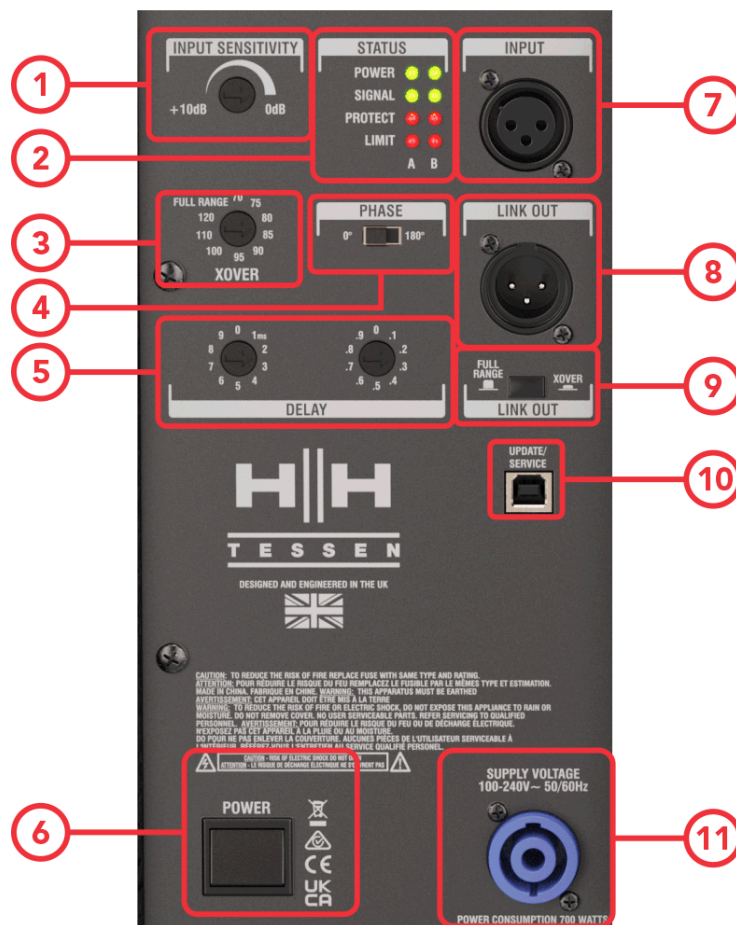
INTRODUCTION

The TNA-2800SA Active subwoofer features two HH designed 18" low frequency woofers with exceptionally high output; each powered by a separate 1KW RMS power amplifier giving 2KW RMS total power. Equipped with integrated rigging hardware, the TNA-2800SA can be installed quickly and easily. The TNA-2800SA offers a max SPL of 144 dB and offers a frequency response as low as 32Hz. The TNA-2800SA offers an ideal venue installation or point source solution. Ideal for bars, clubs, venues, schools, sports, gyms, hotels and more.

FEATURES

- High performance dual 18-inch active subwoofer
- High power Class-D amplifier
- Universal switched mode supply and global mains operation
- Adjustable input sensitivity, crossover, and delay settings
- Balanced XLR output with switchable full-range and crossover mode
- 4pcs Heavy duty 100mm PU castors included.

CONTROLS



1. INPUT SENSITIVITY

This control sets the input sensitivity of the TNA-2800SA. Turned fully anti-clockwise, the system will accept a nominal +10dB signal such as that from a high output mixing console, whereas when set to 0dB it is more suited to lower-level inputs such as those from PA link outs. +10dB sensitivity is recommended for most setups. Increase if you need more volume.

2. STATUS LEDs

4 LEDs for each woofer, A and B. Power, signal present, protect system and limiter are all highlighted by their respective LED.

3. CROSSOVER SELECTOR

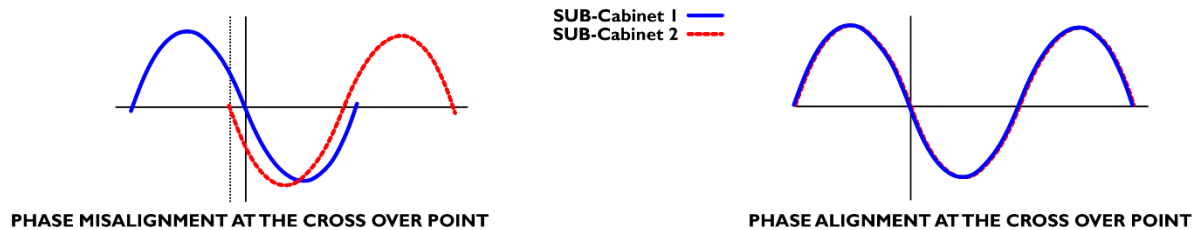
Adjust the full range frequency limit of the sub from 70Hz (fully anti-clockwise) to 120Hz (fully clockwise). A full range setting is also included to aid setup and troubleshooting.

4. PHASE SWITCH

Switch the signal phase of the output between 0° and 180°, with respect to the input signal. Swap the phase to better integrate the subwoofer into a full speaker system and keep it in phase with the rest of the speakers. Useful when the sub is positioned in a corner for example. Link out is not affected by this.

5. DELAY CONTROLS

Add a delay to your signal if required to keep the sub in sync with the rest of the sound system. Two switches are provided, with the left controlling the delay in milliseconds and the right in microseconds. Can also be used to implement a cardioid function along with the phase switch, multiple subwoofers required.



6. POWER SWITCH

Turn on and off the TNA-2800SA - jump to the [power cycle section](#) for more information.

7. INPUT SOCKET

Balanced XLR signal input socket for the TNA-2800SA.

8. LINK OUT SOCKET

Line level balanced XLR output socket to link the sub to the rest of your system.

9. LINK OUT SWITCH

Toggle the output signal at the link out between your set crossover frequency, or a full range frequency response.

10. USB-B SOCKET

This socket is for service updates only and is typically not to be used.

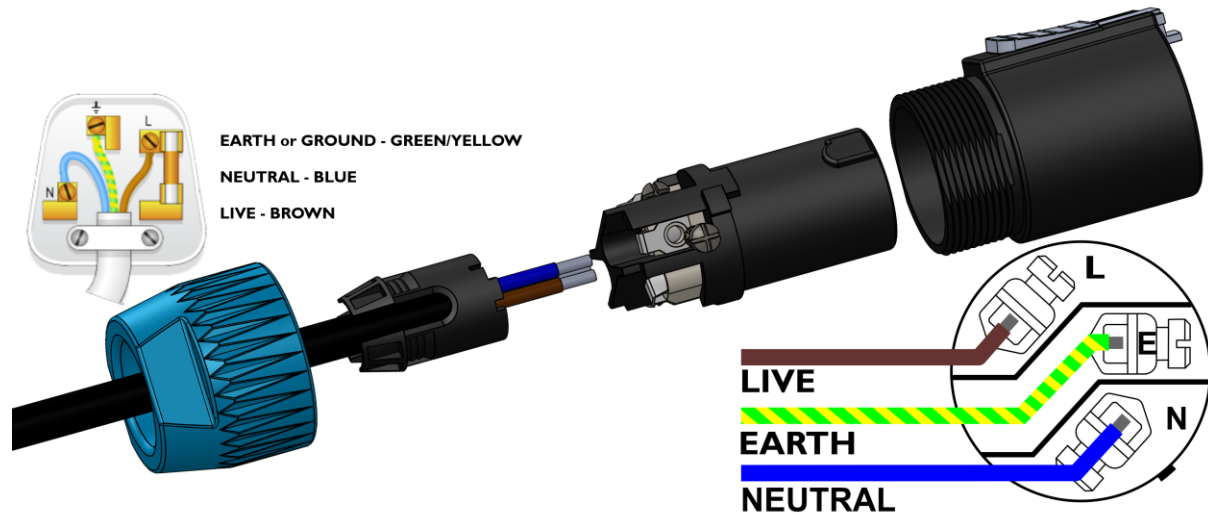
11. POWER SOCKET

Connect the provided twist lock power cable here to power the subwoofer from mains power. Note, as this system is typically wired into a distribution system, we only provide the actual twist lock power connector socket, and any mains wiring must be made by the end user. Mains voltages are deadly, and all wiring must be performed by qualified personnel only. If in doubt consult a qualified electrician.

TWIST LOCK POWER CONNECTOR WIRING INFORMATION

The TNA-2800SA comes with an unterminated twist lock power connector compatible connector. It is the user's responsibility when making the mains cable assembly to ensure the wiring conforms to local regulations / codes. It is vital that cable of suitable gauge is used.

- 3 CORE POWER CABLE - 1.5mm² 16 AWG.



UK and EU wiring shown in this example.

INSTALLATION

Installation of the product should only be carried out by qualified installers. Do not attempt any rewiring or reconfiguring if you do not possess the relevant training.

Carefully unpack your TNA-2800SA and check that no damage has occurred during transportation.

When handling and moving the amplifier, always use the carrying handles provided.

WARNING: Due to the heavy weight of the product, at least two persons are required to move and install the TNA-2800SA.

The TNA-2800SA comes with four heavy duty castors and fixing screws. If the amplifier is to be a portable system, it is recommended to fit these for easy transportation.

Connect the input socket to either your signal source or a link out from another speaker.

Select your required phase and delay to ensure the subwoofer is kept in phase with the rest of the system. Note that the placement of the product and the direction it faces, compared to the other speakers, will determine how out of phase the output initially is and a verification measurement is recommended.

Finally, when the input is connected, and all rear panel settings are correct, follow the power cycle below to power up the 2800SA.

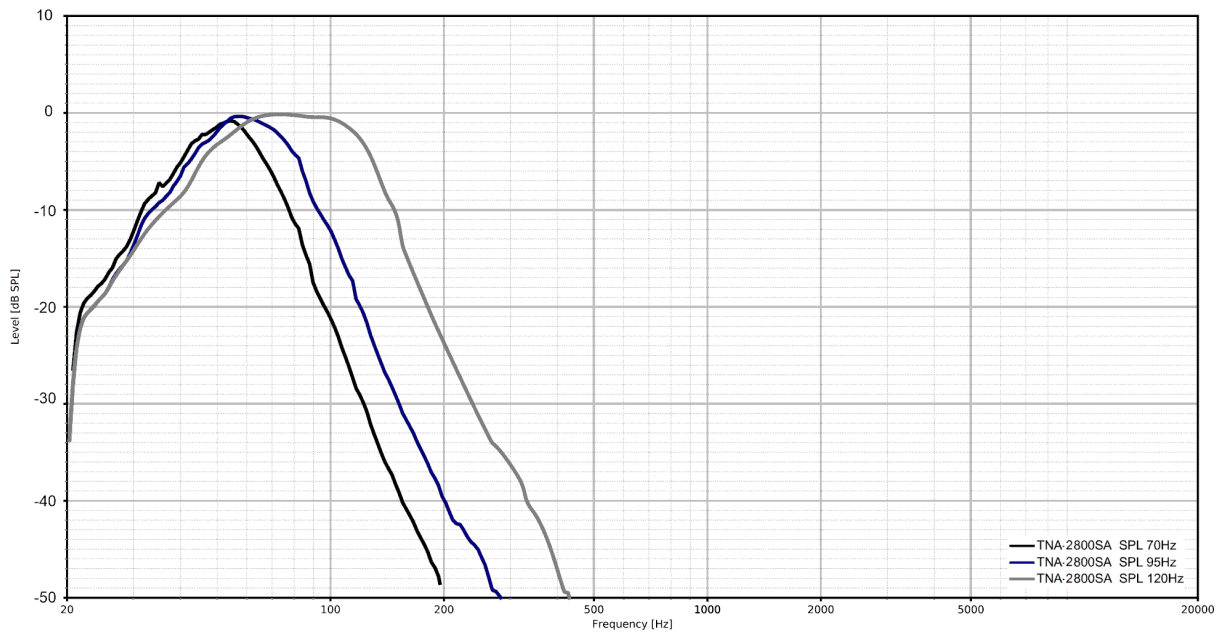
POWER CYCLE

The TNA-2800SA is a very powerful subwoofer, and when powered on with a signal present, can be affected by transient surges that could damage the speakers.

To ensure this doesn't occur, follow the sequence below when powering on (and in reverse for powering off):

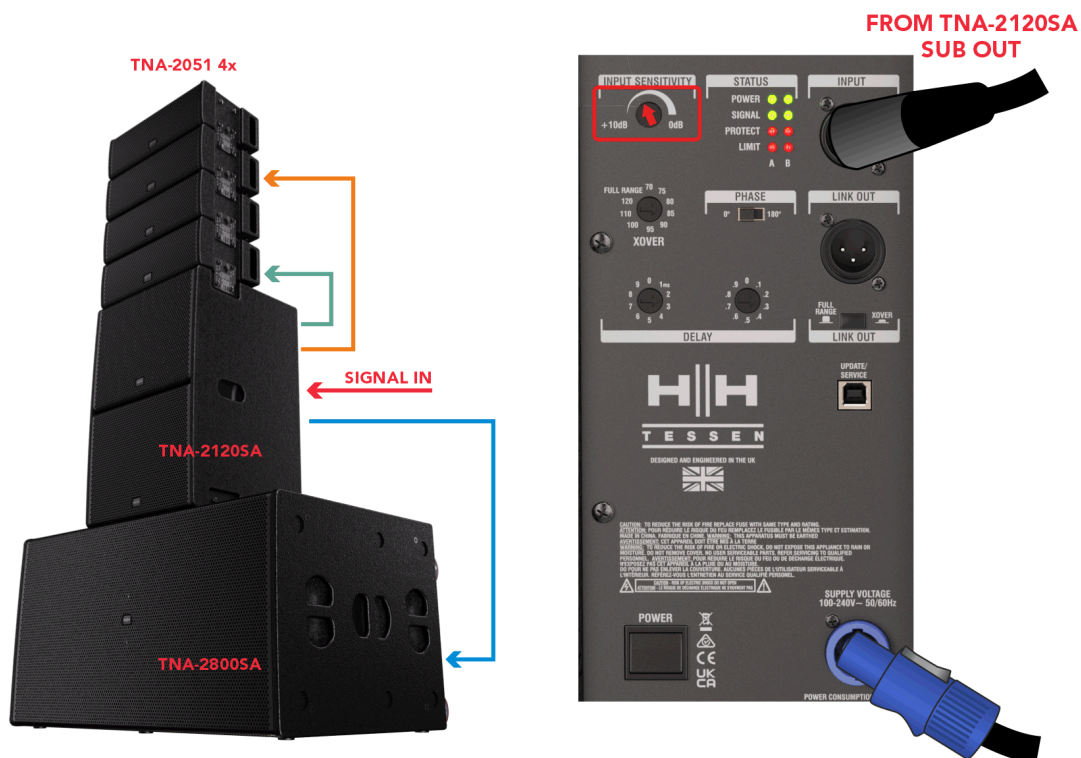
1. Ensure power switch is off.
2. Connect to power by plugging in the twist lock power cable and turning the mains switch on.
3. Connect the input signal, ensuring it is muted and turned to its lowest setting.
4. Power the subwoofer on.
5. Set the input sensitivity to the required level.
6. Unmute the audio source and slowly increase the level.

FREQUENCY RESPONSE

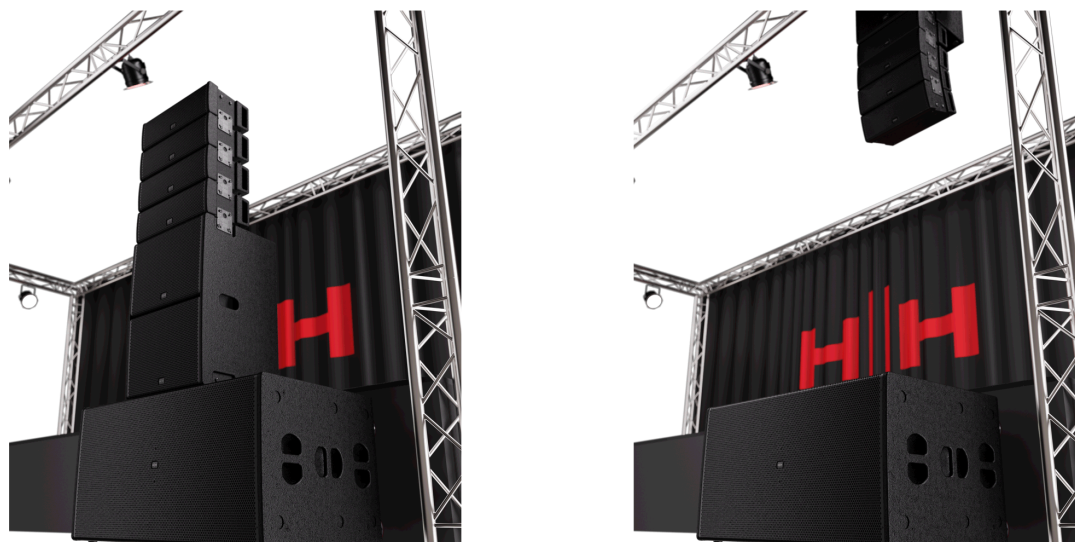


CONNECTIONS

The TNA-2800SA as part of a full-range system:



Connect the TNA-2800SA as above, from the line level sub-out of the TNA-2120SA, to utilise it as part of a full-range TNA system. Follow the power cycle instructions, and gradually turn the TNA-2800SA input sensitivity up to a suitable level, this should be around 10-11 o'clock.



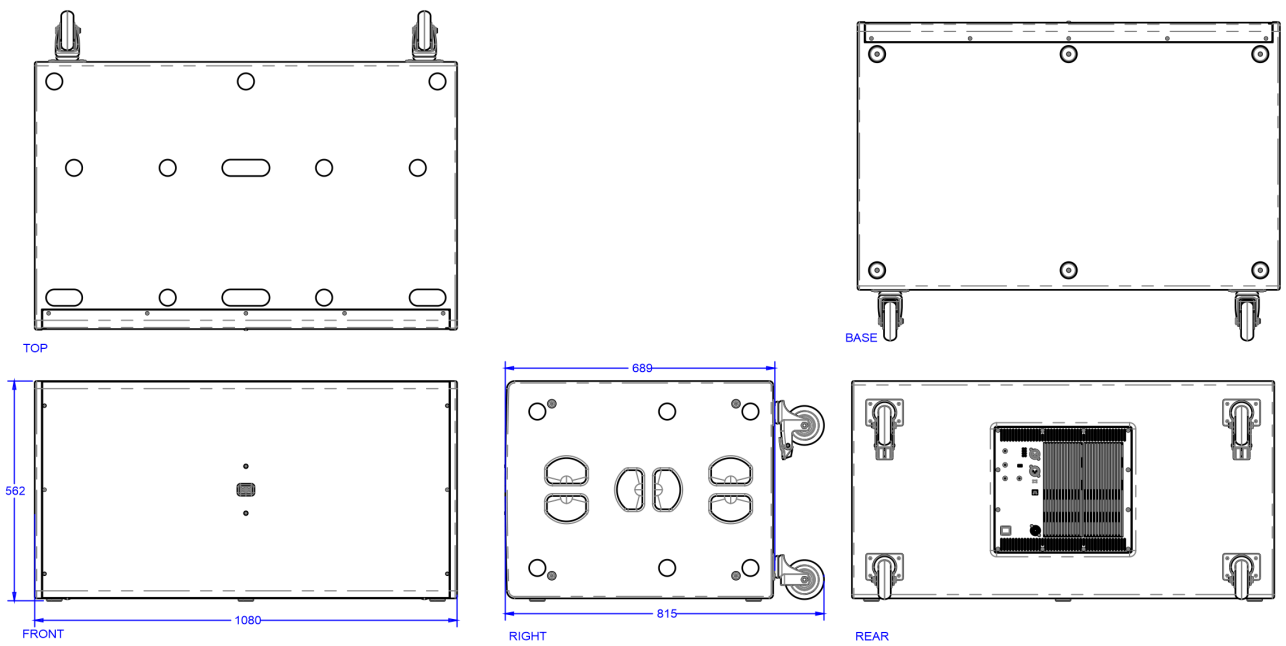
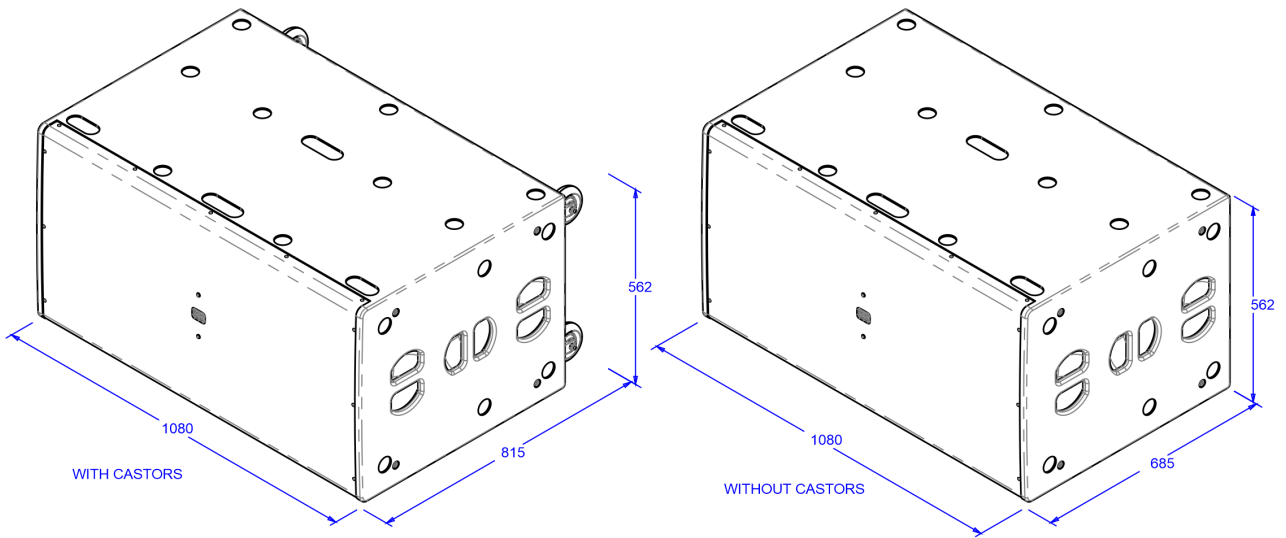
The TNA-2800SA can be wired up to a full floor system, or suspended system.

TECHNICAL SPECIFICATIONS

Specifications	
Model	<i>TNA-2800SA</i>
System Type	<i>Dual 18" Active Subwoofer, Direct Radiating, Bass Reflex</i>
Frequency Response2	<i>32Hz - 100Hz (-10dB)</i>
	<i>37Hz - 100Hz (-3dB)</i>
LF Driver	<i>2x18" High sensitivity HH designed driver. 4" Voice Coil</i>
Max SPL 1m3	<i>144</i>
Crossover	<i>Active - 70Hz to 120Hz</i>
Amplifier	
Power Rating	<i>8000W Peak, 4000W Continuous, 2000W RMS</i>
Input Sensitivity	<i>0dBu to +10dBu Adjustable</i>
Maximum Analogue Input Level	<i>+21dBu</i>
Input Connector	<i>Balanced Female XLR</i>
Output Connector	<i>Balanced Male XLR (Switchable Full Range/Xover)</i>
Signal Indicators	<i>Power, Signal Present, Clip Indicator, Protect</i>
Controls	<i>Input sensitivity, Crossover frequency, Phase Switch, Variable Delay (0>9.9mS)</i>
AC Power	<i>~100V-240V 50/60Hz</i>
AC Power Consumption	<i>700W Typical, 1500W Max</i>
AC Power Inlet	<i>Twist Lock Power Socket. (Plug included, to be wired by installer)</i>
Enclosure	
Cabinet	<i>Acoustically optimised 18mm plywood cabinet with extensive internal bracing</i>
Finish	<i>Painted Black (White finish optional, subject to MOQ)</i>
Mounting Points	<i>8x M10 Penn Elcom tie down/flying points. 16x M8 inserts for included transport wheels</i>
Grille	<i>1.5mm Thickness Steel, Hexagonal mesh, acoustic foam lined</i>
Transport Wheels	<i>4pcs Heavy duty 100mm PU castors included in the box</i>
Unit dimensions (HWD)	<i>562 x 1080 x 685mm, (22.1" x 42.5" x 27")</i>
Unit weight	<i>77.7Kg, 171 lbs</i>
Carton dimensions (HWD)	<i>700 x 1280 x 815mm, (27.6" x 50.4" x 32.1"), (0.73 M3)</i>
Packed weight	<i>91Kg, 201 lbs</i>
EAN13	<i>5060109458350</i>

In the interest of continued development, HH reserves the right to amend the product specification without prior notification.

DIMENSIONAL DATA







SAFETY INFORMATION

In order to take full advantage of your new product and enjoy long and trouble-free performance, please read this owner's manual carefully, and keep it in a safe place for future reference.

- 1) Unpacking: On unpacking your product please check carefully for any signs of damage that may have occurred whilst in transit from the HH factory to your dealer. In the unlikely event that there has been damage, please re-pack your unit in its original carton and consult your dealer. We strongly advise you to keep your original transit carton, since in the unlikely event that your unit should develop a fault, you will be able to return it to you dealer for rectification securely packed.
- 2) Amplifier Connection: In order to avoid damage, Generally it is advisable to establish and follow a pattern for turning on and off your system. With all system parts connected, turn on source equipment, mixers, effects processors etc, BEFORE turning on your amplifier. Many products have large transient surges at turn on and off which can cause damage to your speakers. By turning on your amplifier LAST and making sure its level control is set to a minimum, any transients from other equipment should not reach your loud speakers. Wait till all system parts have stabilised, usually a couple of seconds. Similarly when turning off your system always turn down the level controls on your amplifier and then turn off its power before turning off other equipment.
- 3) Cables: Never use shielded or microphone cable for any speaker connections as this will not be substantial enough to handle the amplifier load and could cause damage to your complete system. Use good quality shielded cables everywhere else.
- 4) Servicing: The user should not attempt to service these products. Refer all servicing to qualified service personnel.
- 5) Heed all warnings.
- 6) Follow all instructions.
- 7) Do not use this apparatus near water.
- 8) Clean only with a dry cloth.
- 9) Do not block any of the ventilation openings. Install in accordance with manufacturer's instructions.
- 10) Do not install near any heat sources such as radiators, heat registers, stoves or other apparatus (including amplifiers) that produce heat.
- 11) An apparatus with Class I construction shall be connected to a mains socket outlet with a protective connection. 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 third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- 12) Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point they exit from the apparatus.
- 13) Only use attachments/accessories provided by the manufacturer.
- 14) Use only with a cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
- 15) The mains plug or appliance coupler is used as the disconnect device and shall remain readily operable. The user should allow easy access to any mains plug, mains coupler and mains switch used in conjunction with this unit thus making it readily operable. Unplug this apparatus during lightning storms or when unused for long periods of time.
- 16) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as when 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.
- 17) Never break off the ground pin. Connect only to a power supply of the type marked on the unit adjacent to the power supply cord.
- 18) If this product is to be mounted in an equipment rack, rear support should be provided.
- 19) Note for UK only: If the colours of the wires in the mains lead of this unit do not correspond with the terminals in your plug, proceed as follows:
 - o The wire that is coloured green and yellow must be connected to the terminal that is marked by the letter E, the earth symbol, coloured green or coloured green and yellow.
 - o The wire that is coloured blue must be connected to the terminal that is marked with the letter N or the colour black.
 - o The wire that is coloured brown must be connected to the terminal that is marked with the letter L or the colour red.
- 20) This electrical apparatus should not be exposed to dripping or splashing and care should be taken not to place objects containing liquids, such as vases, upon the apparatus.
- 21) Exposure to extremely high noise levels may cause a permanent hearing loss. Individuals vary considerably in susceptibility to noise-induced hearing loss, but nearly everyone will lose some hearing if exposed to sufficiently intense noise for a sufficient time. The U.S. Government's Occupational Safety and Health Administration (OSHA) has specified the following permissible noise level exposures: According to OSHA, any exposure in excess of the above permissible limits could result in some hearing loss. Earplugs or protectors to the ear canals or over the ears must be worn when operating this amplification system in order to prevent a permanent hearing loss, if exposure is in excess of the limits as set forth above. To ensure against potentially dangerous exposure to high sound pressure levels, it is recommended that all persons exposed to equipment capable of producing high sound pressure levels such as this amplification system be protected by hearing protectors while this unit is in operation.
- 22) If your appliance features a tilting mechanism or a kickback style cabinet, please use this design feature with caution. Due to the ease with which the amplifier can be moved between straight and tilted back positions, only use the amplifier on a level, stable surface. DO NOT operate the amplifier on a desk, table, shelf or otherwise unsuitable non-stable platform.
- 23) Symbols & nomenclature used on the product and in the product manuals, intended to alert the operator to areas where extra caution may be necessary, are as follows:

Duration Per Day in Hours	Sound Level dBA, slow response
8	90
6	92
4	95
3	97
2	100
1 1/2	102
1	105
1/2	110
1/4 ou inférieur	115

 CAUTION:	<p>Intended to alert the user to the presence of uninsulated 'Dangerous Voltage' within the products enclosure that may be sufficient to constitute a risk of electrical shock to persons.</p> <p>Ce symbole est utilise pur indiquer a l'utilisateur de ce produit de tension non-isolee dangereuse pouvant etre d'intensite suffisante pour constituer un risque de choc electrique.</p> <p>Este simbolo tiene el proposito de alertar al usuario de la presencia de '(voltaje) peligroso' que no tiene aislamiento dentro de la caja del producto que puede tener una magnitud suficiente como para constituir riesgo de corrientazo.</p> <p>Dieses Symbol soll den Anwender vor unisolierten gefahrlichen Spannungen innerhalb des Gehauses warnen, die von Ausreichender Starke sind, um einen elektrischen Schlag verursachen zu konnen.</p>
 WARNING:	<p>Intended to alert the user of the presence of important operating and maintenance (Servicing) instructions in the literature accompanying the product.</p> <p>Dieses Symbol soll den Anwender vor unisolierten gefahrlichen Spannungen innerhalb des Gehauses warnen, die von Ausreichender Starke sind, um einen elektrischen Schlag verursachen zu konnen.</p> <p>Este simbolo tiene el proposito de la alertar al usuario de la presencis de instrucccones importantes sobre la operacion y mantenimiento en la literatura que viene conel producto.</p> <p>Dieses Symbol soll den Benutzer auf wichtige Instruktionen in der Bedienungsanleitung aufmerksam machen, die Handhabung und Wartung des Produkts betreffen.</p>
CAUTION: ATTENTION: PRECAUCION: VORSICHT:	<p>Risk of electrical shock - DO NOT OPEN. To reduce the risk of electrical shock, do not remove the cover. No user serviceable parts inside. Refer servicing to qualified personnel.</p> <p>Risques de choc electrique - NE PAS OUVIRIR. Afin de reduire le risque de choc electrique, ne pas enlever le couvercle. Il ne se trouve a l'interieur aucune piece pouvant etre reparee par l'utilisateur. Confier l'entretien a un personnel qualifie.</p> <p>Riesgo de corrientazo - no abra. Para disminuir el riesgo de corrientazo, no abra la cubierta. No hay piezas adentro que el pueda reparar. Deje todo mantenimiento a los tecnicos calificadod.</p> <p>Risiko - Elektrischer Schlag! Nicht offen! Um das Risiko eines elektrischen Schlages zu vermeiden, nicht die Abdeckung entfernen. Es befinden sich keine Teile darin, die vow Anwender repariert werden Konnten. Reparaturen nur von qualifiziertem Fachpersonal durchfuhren lassen.</p>
WARNING: ADVERTISSEMENT: ADVERTENCIA: ACHTUNG:	<p>To prevent electrical shock or fire hazard, do not expose this appliance to rain or moisture. Before using this appliance please read the operating instructions for further warnings.</p> <p>Afin de prevenir les risques de decharge electrique ou de feu, n'exposez pas cet appareil a la pluie ou a l'humidite. Avant d'utiliser cet appareil, lisez les advertissements supplementaires situes dans le guide.</p> <p>Para evitar corrientazos o peligro de incendio, no deja expuesto a la lluvia o humedad este aparato Antes de usar este aparato, lea mas advertcias en la guia de operacion.</p> <p>Um einen elektrischen Schalg oder Feuergefahr zu vermeiden, sollte dieses Gerat nicht dem Regen oder Feuchtigkeit ausgesetzt werden. Vor Inbetriebnahme unbedingt die Bedienungsanleitung lesen.</p>
	<p>This device complies with Part 15 of the FCC rules Operation is subject to the following two conditions:</p> <ol style="list-style-type: none"> 1) This device may not cause harmful interference 2) This device must accept any interference received, that may cause undesired operation. <p>Warning: Changes or modification to the equipment not approved by HH can void the user's authority to use the equipment.</p> <p>Note: This equipment has been tested and found to comply with the limits for Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try and correct the interference by one or more of the following measures. Reorient or relocate the receiving antenna. Increase the separation between the equipment and receiver. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected. Consult the dealer or an experienced radio/TV technician for help.</p>
	<p>This product conforms to the requirements of the following European Regulations, Directives & Rules: CE Mark (93/68/EEC), Low Voltage (2014/35/EU), EMC (2014/30/EU), RoHS (2011/65/EU), ErP (2009/125/EU)</p> <p>SIMPLIFIED EU DECLARATION OF CONFORMITY</p> <p>Hereby, HH Electronics Ltd. declares that the radio equipment is in compliance with Directives 2014/53/EU, 2011/65/EU, 2009/125/EU. Full text of the EU declaration of conformity is available at the following internet address:</p> <p>http://support.hhelectronics.com/approvals</p>
	<p>The object of the declaration described above is in conformity with the relevant statutory requirement Electrical Equipment (Safety) Regulations 2016, Electromagnetic Compatibility Regulations 2016, The Restriction of the use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012, The Ecodesign for Energy-Related Products and Energy Information, (Amendment) (EU Exit) Regulations 2012</p>
	<p>In order to reduce environmental damage, at the end of its useful life, this product must not be disposed of along with normal household waste to landfill sites. It must be taken to an approved recycling centre according to the recommendations of the WEEE (Waste Electrical and Electronic Equipment) directive applicable in your country.</p>

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IN THE INTEREST OF CONTINUED DEVELOPMENT, HH RESERVES THE RIGHT TO AMEND PRODUCT
SPECIFICATION WITHOUT PRIOR NOTICE

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