iSP Technologies

ACTIVE SERIES

HIGH DEFINITION LINE 2208

ACTIVE 2-WAY LINE ARRAY SYSTEM

OWNERS MANUAL

IMPORTANT SAFTEY INSTRUCTIONS!

Please read this very carefully before operating this unit

- Read ***ALL*** instructions carefully before using this unit.
- Do not operate this unit near water, in the rain or where there is moisture. If this warning is ignored a serious electrical shock or death may occur.
- Do not attempt to service this unit. No user serviceable parts inside. Refer servicing to qualified, ISP approved service personnel.
- Never remove or defeat the ground connection on the power cord of this unit.
- Care should be taken to avoid spilling any foreign objects or liquid into this unit.
- This active speaker system has a three-channel internal power amplifier with a heatsink and a fan located inside the speaker for cooling. Air is drawn in the front grille and hot air is exhausted out the rear of the cabinet. Care should be taken to avoid placing this active speaker in a location where the rear exhaust ports are obstructed and does not allow proper cooling of the internal amplifiers. Avoid placing this system close to other heat sources. The internal heatsink may reach high temperatures under normal use. Make certain there is proper ventilation for the speaker when in use.
- Do not drive the HIGH DEFINITION LINE 2208 into excessive heavy distortion for an extended period of time to avoid premature speaker failure.
- Failure to follow these instructions may void the warranty.

Caution: Exposure to extremely high noise levels can cause permanent hearing loss.

The HIGH DEFINITION LINE 2208 system is capable of producing in excess of 134db SPL at 1 meter. Continued exposure to noise levels in excess of 90db may cause permanent hearing loss. Below is a chart of the OSHA (Occupational Safety & Health Administration) regulations for Occupational Noise Exposure. Please note: OSHA requires hearing protection for any work environment when the sound levels exceed those shown in Table G-16 when measured on the A scale of a standard sound level meter at slow response.

TABLE G-16- PERMISSIBLE NOISE EXPOSURES	
Duration per day, 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	115

INTRODUCTION

Thank you for purchasing ISP Technologies HIGH DEFINITION LINE 2208 active speaker system. The HIGH DEFINITION LINE 2208 is a high output two-way active speaker system designed to deliver HI-FI sound quality for high SPL sound reinforcement applications. ISP Technologies HDL 2208 is a high performance, powered, small-format line array cabinet providing high fidelity performance and smooth, accurate response.

The HDL 2208 provides a 2-way line array design with little compromise in terms of its mid-range performance. This is, in part, due to a new high performance non-metallic compression driver on a multiple-aperture waveguide and dual 8-inch neo woofers. The result is a new level of performance in a small-format line array system. The HDL 2208 is a 10-degree vertical by 100-degree horizontal box with user adjustable pin-points for various splay angles from 1 to 10 degrees in 1 degree increments.

The internal amplifiers are based on ISP Technologies patent pending D-CAT (Dynamic Current Amplifier Technology) amplifier technology. The D-CAT technology is capable of delivering extremely high output current providing an improvement in transient response, output current and a noticeable improvement in ***PUNCH***. The D-CAT amplifier technology utilizes a high performance power amplifier driver that reduces parts count and greatly improves reliability. The D-CAT amplifiers provide improved reliability by including short circuit and over temperature protection.

The HIGH DEFINITION LINE 2208 cabinet is made of high quality 13 ply Baltic birch plywood built with smooth sides, the boxes provide a very clean look, without any protruding rigging or pins, and are coated with a durable polyurethane finish.

SUSPENDING LOUDSPEAKERS

Important Notice!!!

The information in this section has been gathered from engineering data and is for informational purposes only. None of the information in this section should be used without first obtaining competent advice with respect to applicability to a given circumstance. None of the information presented herein is intended as a representation of warranty on the part of ISP Technologies. Anyone making use of this information assumes all liability arising from such use.

All information presented in this manual is based upon materials and practices that are most common to The United States of America and may not directly apply to other countries because of differing material dimensions, specs, and/or local regulations. Users in outside countries should consult with appropriate engineering and regulatory authorities for specific guidelines.

Correct use of all flyware is required for secure system suspension. Careful calculations should always be performed to ensure that all components are used within their working load limits before the cabinet suspended. Never exceed the maximum load ratings.

Before hanging any speaker system, always inspect all components for cracks, deformations, corrosion, missing, loose or damaged parts that could reduce strength and safety of the cabinet. Do not suspend the cabinet until the proper corrective action has been taken.

ATTACHMENT TO STRUCTURES

A licensed professional engineer must approve the placement and method of attachment to the structure prior to the installation of any overhead object. The following performance standards should be provided to the professional engineer for design purposes; Uniform building code as applicable, Municipal Building code as applicable and Seismic Code as applicable.

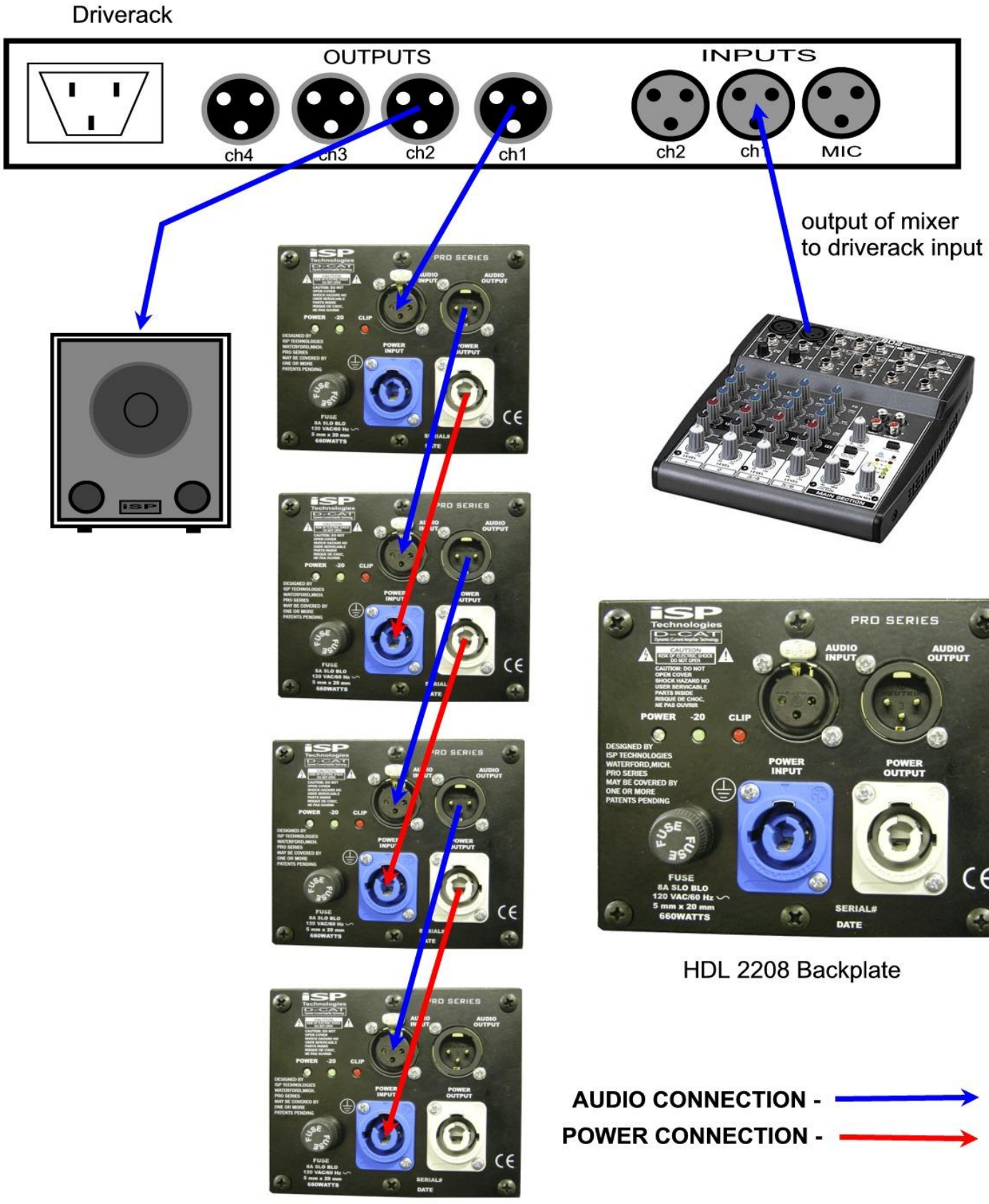
INSPECTION and MAINTENANCE

Suspension systems are comprised of mechanical devices and, as such, they require regular inspection and routine maintenance to insure proper function ability. Any suspended ISP Technologies loudspeaker must be inspected for fatigue at least annually. The inspection shall include a visual survey of all corners and load bearing surfaces for signs of cracking, water damage, de-lamination, or any other condition that may decrease the strength of the loudspeaker enclosure.

Flyware that is provided with or for any ISP Technologies loudspeakers must be inspected for fatigue at least annually. The inspection shall include a visual survey of the material for signs of corrosion, bending, or any other condition that may decrease the strength of the fastener.

ISP Technologies is not responsible for the application of its products for any purpose or the misuse of this information for any purpose. ISP is also not responsible for the abuse of its products caused by avoiding compliance with inspection and maintenance procedures.

REAR PANEL CONNECTION DIAGRAM



1. Two external amplifiers are required to power each HIGH DEFINITION LINE 4210 box. The ISP Technologies HIGH DEFINITION AMPLIFIERS are provided for ease of use and simple connection to a five-way digital crossover box. Make sure that the digital crossover box is configured with proper ISP Technologies approval, prior to use.

2. Make sure that all of the proper cables are available. These connections require an 8 conductor speaker cable, 4 conductor speaker cable, ¼' phone cable and XLR cables with male and female connection ends.

3. Connect the outputs of the crossover/processor box to the inputs of the first pair of HIGH DEFINITION AMPLIFIERS (H.D.A. 1003-8 and H.D.A 1003-4) as shown in the connection diagram. Connect a short jumper from the LOW 1 output to the LOW 2 input of the second external amplifier.

4. Connect the Speaker Outputs of the amplifiers to the speakon inputs of the HIGH DEFINITION LINE 4210 box. 8 conductor and 4 conductor speaker wire must be used in order to achieve all necessary connections. Also connect the HF jump using a short ¼' phone cable. This cable brings the HI channel output from the bottom external amplifier to the speakon connector on the top external amplifier.

8 pole connections

1 +-	LOW/MIDS	4 OHMS
2+-	HI/MIDS	8 OHMS
3+-	HI	4 OHMS
4+-	HI	4 OHMS

4 pole connections

1+-	WOOFER 1	6 OHMS
2+-	WOOFER 2	6 OHMS

5. Daisy Chain the four outputs from the first pair of external amplifiers to the inputs of the next pair of external amplifiers. Connect the speaker outputs to the next HIGH DEFINTION LINE 4210 box.

6. Repeat this process for all line array boxes until full connection is achieved.

THERMAL CONDITIONS

The ISP HIGH DEFINITION LINE 2208 Series is capable of producing in excess of 850 watts at full power. This generates heat that must be dissipated in order to maintain reliability and insure the amplifier components stay within their operating temperature specs. To accomplish this the amplifier is mounted on a heatsink that is internal to the cabinet. Airflow is forced through a port near the internal heatsink.

In addition the amplifiers are thermally protected internally via a thermal switch which will attenuate the signal 40db if the heatsink temperature exceeds a certain temperature. When the temperature drops below a certain point, full signal will be restored. Tests have shown under extreme conditions that cycling will occur approx. (40 sec. ON, 20 sec. OFF)

It should also be noted that a separate internal thermal breaker also protects the power transformers. If one power transformer temperature reaches a critical point the internal thermal breaker will open. If this condition occurs simply reduce the signal level of the system. This will only occur if the HIGH DEFINITION LINE 2208 is continually pushed into heavy distortion.

SPECIFICATIONS

(per box)

Configuration: 2-way

LF Drivers: 2 x 8 inch, high sensitivity, neo magnet, water resistant cones.

HF Drivers: 2 x 2.6 inch compression, 1.4 inch throat, neo magnet, polymer diaphragm, on multiple-aperture waveguide.

Coverage: 100 H x 10 V

Frequency Resp.: 68 Hz to 16 kHz

Maximum peak SPL: 134 dB @ 1m

Construction: Baltic Birch Plywood.

Dimensions: 24” W x 9.1” H x 19” D

Weight: 62 lbs.

Amplifier: 850 W RMS, 3 channels high current DCAT, fan cooled.

Power Required: 5 amps x 120 VAC.

Power Connections: Powercon Input, Powercon Thru.

Audio Connections: Female XLR Input, Male XLR Thru. Electronically balanced, 20k Ohm differential between pins 2 and 3. Pin 2 hot.

Crossover: Built-in line-level electronic, 900 Hz nominal, 4^{th} order. An array of boxes will require a DSP unit for equalization.

Rigging: 16 Boxes @ 7:1 Safety Factor, Aluminum Alloy. 1 to 10 degree adjustments with 1 degree increments.

WARRANTY AND SERVICE

The Internal Circuitry is fully guaranteed to be free of defects under normal use and service for a period of two years from the date of purchase. The Speakers and Cabinet that are used in this product are fully guaranteed to be free of defects under normal use and service for a period of three years.

Any damage resulting from the misuse or the failure to follow the precautions and instructions will void the warranty.

In the event that the unit needs to be repaired. Please return the unit to ISP Technologies directly. Simply repack the unit, send a copy of the original receipt, a note stating the problem, and send it to:

ISP Technologies, LLC
5479 Perry Drive Suite B
Waterford, MI 48329
Attn: Repair Dept.

All shipping charges must be fully prepaid.

ISP will not be responsible for any damages incurred in shipping of any unit. Any claim will need to be settled with the shipping company.

The warranty will be voided if the serial number has been tampered with in any way.
The warranty card must also be filled out and returned in order to activate the warranty.

Should you have any questions for the repair department prior to returning the product please call 1-(248)-673-7790

NOTE: If it is determined that the power amp module has failed, it is possible for an ISP certified service center to remove the module from the cabinet by removing the mounting screws and disconnecting the speaker terminals and the transformer. The module may be sent back to ISP separately. Please contact ISP for technical support to help determine if the amplifier module may be defective.

ISP TECHNOLOGIES, LLC
5479 Perry Drive Suite B
Waterford, MI. 48329
248-673-7790
FAX: 248-673-7696
www.isptechnologies.com