



ACTIVE
SERIES



REFERENCE LINE 4215

ACTIVE 4-WAY LINE ARRAY SYSTEM

OWNERS MANUAL

PRECAUTIONS!

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 three internal power amplifiers and an external heatsink located on the back of the speaker for cooling of the internal amplifiers. Care should be taken to avoid placing this active speaker in a location where the external heatsink does not allow proper cooling of the internal amplifiers. Avoid placing this system close to other heat sources. The external heatsink may reach high temperatures under normal use. Do not block the external heatsink with any other object. Make certain there is proper ventilation for the external heatsink when is use.
- Do not drive the REFERENCE LINE 4215 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 REFERENCE LINE 4215 system is capable of producing in excess of 138db 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 REFERENCE LINE 4215 active speaker system. The REFERENCE LINE 4215 is a high output four-way active speaker system designed to deliver HI-FI sound quality for high SPL sound reinforcement applications. The REFERENCE LINE 4215 is a dual element line array system where each element includes a 600-watt 15-inch woofer, dual 300-watt 8-inch midrange drivers, and a high performance, 1.75-inch polyester diaphragm neodymium high frequency compression driver. The REFERENCE LINE 4215 has nine separate power amplifiers capable of producing upwards of 2000 watts of power. The REFERENCE LINE 4215 requires an external digital crossover network to provide optimized phase and frequency response at each crossover point. 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 REFERENCE LINE 4215 inputs are a combination of both ¼-inch RTS and XLR balanced inputs. Proper connection from the internal power amplifiers to the external processor crossover is critical to avoid sending low frequency information to the high frequency drivers, which would cause failure of the drivers. The REFERENCE LINE 4215 cabinet is made of high quality 13 ply Baltic birch plywood with a durable spray on black splatter finish for long life.

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.

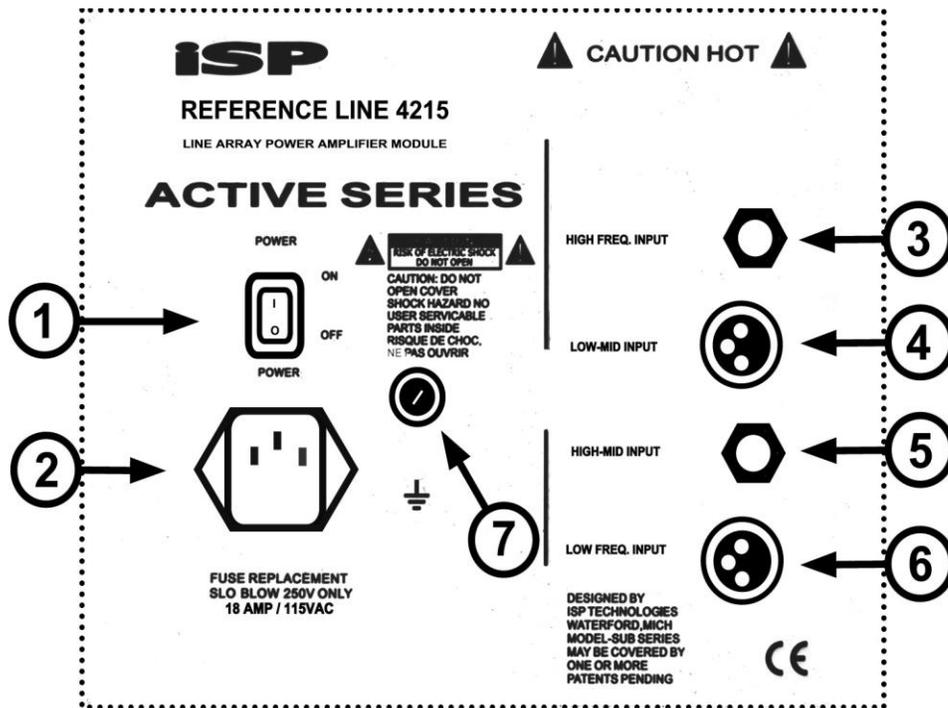
INSPECTION and MAINTENANCE

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 DESCRIPTION



1. **POWER SWITCH**-This switch provides power to the internal power amplifiers.
2. **POWER INLET MODULE**-This module provides a connection for the power cord.
3. **HIGH FREQUENCY INPUT** -This jack provides a balanced input for the high frequency input from an external processor / crossover.
4. **LOW – MID FREQUENCY INPUT** -This female XLR connector provides a balanced input for the Mid Frequency, line level signal from an external processor / crossover.
5. **HIGH – MID FREQUENCY INPUT** – This ¼” phone jack provides a balanced input for the High-Mid Frequency, line level signal from an external processor / crossover.
6. **LOW FREQUENCY INPUT**- This XLR male provides a balanced input for the Low Frequency, line level signal from an external processor / crossover.
7. **FUSE** This fuse holder contains the mains fuse for the REFERENCE 4215 system. Replace with only 15-amp slowblow fuse.

The REFERENCE LINE 4215 requires the use of an external digital processor crossover. This processor is supplied with the REFERENCE LINE 4215 fully programmed by ISP Technologies. Refer to the instructions included with the external processor for final connections.

THERMAL CONDITIONS

The ISP REFERENCE LINE 4215 Series is capable of producing in excess of 2000 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 REFERENCE LINE 4215 is continually pushed into heavy distortion.

SPECIFICATIONS

System

Frequency Range	40 Hz – 20 KHz
Frequency Response (-3dB)	50 Hz – 18 KHz
Horizontal Coverage Angle	100 degrees.
Vertical Coverage Angle	70 degrees.
Peak Output @ 1m	138 dB
Crossover Points	250 Hz, 700 Hz, 3 KHz
Input Type	Balanced differential
Input Impedance	10K ohms
Thermal Protection	Output Drivers have internal protection, self resetting. Heatsink temperature monitored and input is muted if safe temperature is exceeded, self-resetting. Transformer has internal thermal fuse, self-resetting.

Transducers

Low-Frequency Transducers	
Diameter	15" (381mm)
Voice Coil Diameter	3" (76.2mm)
Power Handling	600 watts RMS
Low-Mid-Frequency Transducers	
Diameter	8"
Voice Coil Diameter	2.5" (63.5mm)
Power Handling	300 watts RMS
High-Mid Frequency Transducers	
Diameter	4" compression driver
Power Handling	180 watts RMS
High-Frequency Transducer	Neodymium
Diaphragm Diameter	1.75"
Throat Size	1" (25.4mm)
Power Handling	120 watts RMS
Diaphragm Material	Polyester

Power Amplifiers

Type	D-CAT
Power	2,200 watts RMS

Physical

Height	38"
Front Width	36"
Depth	28"
Weight	350 lbs.
Enclosure	18mm thick, 13 ply Baltic Birch plywood
Geometry	Trapezoidal
Mounting Methods	3 internal fly points 3/8 eyebolt. NOTE: Use only grade 8 eyebolts.

WARRANTY AND SERVICE

The Internal Circuitry is fully guaranteed to be free of defects under normal use and service for a period of three 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 mailed back 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: This Product may be covered under one or more of the following patents or patents pending: 7,035,413; 6,944,305; 6,931,134; 6,831,514; 6,091,013

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.



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