

iSP
Technologies

ACTIVE
SERIES



VMAX
12/12XL
2 WAY ACTIVE SPEAKER SYSTEM
OWNERS MANUAL

IMPORTANT SAFETY 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 two internal power amplifiers and an external heatsink located on the side 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 extremely high temperatures under continuous use. Do not block the external heatsink with any other object. Make certain there is proper ventilation for the external heatsink when in use. If using the VMAX at continuous high level and the unit reaches thermal attenuation it is recommended to position a cooling fan so as to circulate air across the heatsink.
- Do not drive the VMAX 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 VMAX speaker system is capable of producing in excess of 124db 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 VMAX Series Active speaker system. The VMAX is a high output two-way active speaker / monitor speaker system designed to deliver HI-FI sound quality for high SPL sound reinforcement applications. The VMAX has two separate power amplifiers capable of producing more than of 400 watts of power in the VMAX12 and 400 watts of power in the VMAX 15. Each amplifier receives its input signal from an internal 4th order crossover network specifically designed 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 monolithic power amplifier driver that reduces parts count and greatly improves reliability. The D-CAT amplifiers provide improved reliability by including a several protection points and over temperature protection for both the amplifiers and the power transformer.

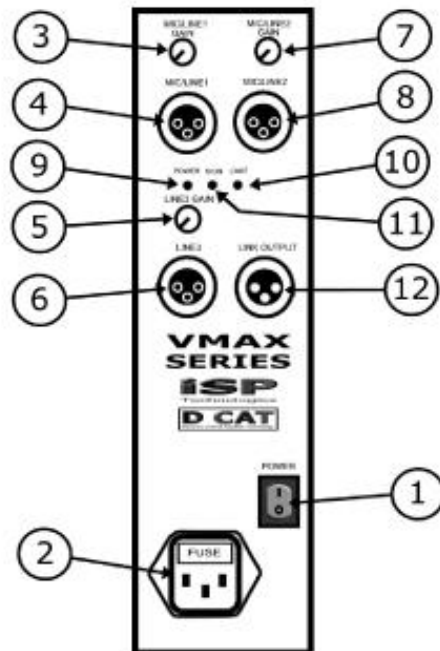
The VMAX offers XLR balanced inputs for two microphone/line inputs and a dedicated line input as well as, an XLR link output for connecting multiple speakers. Each input channel has an input level adjustment.

PLACEMENT

The VMAX is designed to sit on the floor or stage in a flat position and can also be used as a top box in a standing position or pole mounted. Do not position or mount the cabinet where it can tip over and fall on someone. Do not attempt to 'fly' (suspend by cables, chains, ropes, etc.) the cabinet. Do not attempt to suspend the cabinet from the handles. It was not designed for flying. Position it only on a flat, stable surface where it is not in danger of tipping over or falling.

Also, note that the placement of the cabinet relative to floors and walls will affect the low frequency response (below about 500 Hz). Placing it closer to the floor and walls will reinforce the low frequency response. The closer it is, the higher in frequency this reinforcement will go. When used as a top box make sure that adequate space (at least 6 inches) is left on the heatsink side of the cabinet to allow for adequate airflow over the amplifier heatsink.

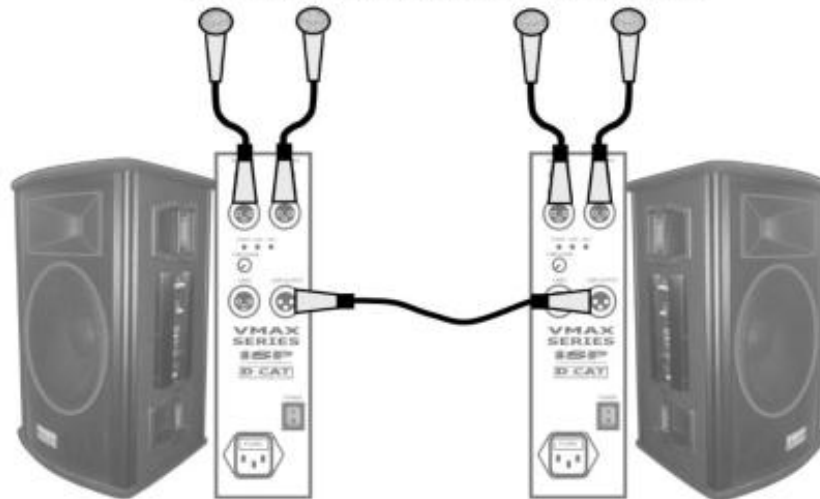
AMPLIFIER / CONTROLS DESCRIPTION



1. **POWER SWITCH**-This switch provides power to the VMAX power amp section.
2. **POWER INLET MODULE**-This module provides a connection for the power cord and also houses the mains fuse. (See Fuse Replacement Section)
3. **MIC/LINE1 GAIN**- This control determines the gain of the MIC/LINE channel 1. When using this input for a line level input, the gain should be set a minimum. The Microphone preamp provides up to 50db of gain.

4. **MIC/LINE1 BALANCED XLR INPUT**-This female XLR connector provides the input for channel 1.
5. **LINE3 GAIN CONTROL**- This control determines the gain of the MIC/LINE channel 1. When using this input for a line level input, the gain should be set a minimum. The Microphone preamp provides up to 50db of gain.
6. **LINE3 BALANCED XLR INPUT**-This female XLR connector provides the input for channel 3.
7. **MIC/LINE2 GAIN**- This control determines the gain of the MIC/LINE channel 1. When using this input for a line level input, the gain should be set a minimum. The Microphone preamp provides up to 50db of gain.
8. **MIC/LINE2 BALANCED XLR INPUT**-This female XLR connector provides the input for channel 2.
9. **POWER LED** –When lit this LED indicates that the VMAX power is on.
10. **LIMIT LED** – This LED lights when the internal limiter is active. This LED will flash when the signal level at the input of the power amplifier is at maximum i.e. where the power amplifiers will start to clip. When the input to the amplifier reaches the point where the limiter becomes active, any increase in input level will be limited at the input to the power amplifiers. This will allow the VMAX to play at maximum level but not allow the speaker produce large amounts of distortion.
11. **SIGNAL LED** – This LED lights when the input signal exceeds –25dbu.
12. **LINK OUTPUT CONNECTOR**- This output provides a line level output signal that can link two VMAX cabinets together. Two VMAX speaker cabinets can be linked together allowing both VMAX speakers microphone preamps to sum together and feed both VMAX speakers power amplifiers in mono. By connecting a cable with two female XLR connectors from the link output of one cabinet to the link output of the second cabinet all four microphone preamps will sum together and feed both VMAX speaker cabinets.

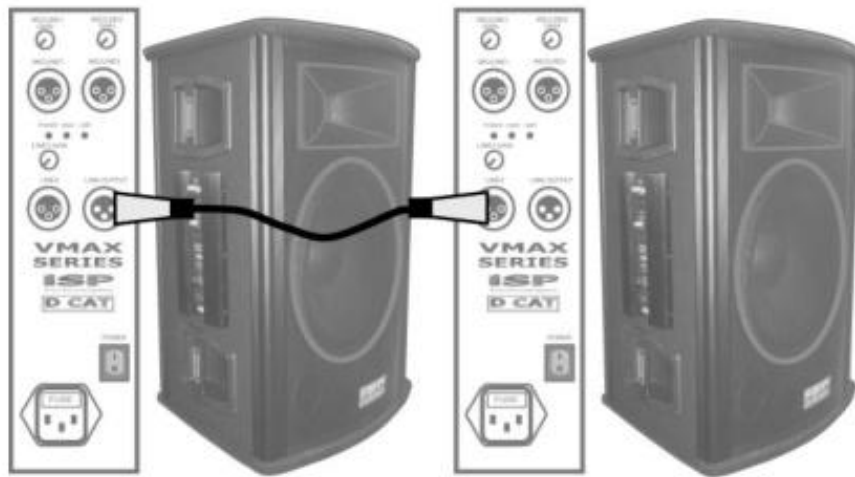
LINK / MICROPHONE SUM CONFIGURATON



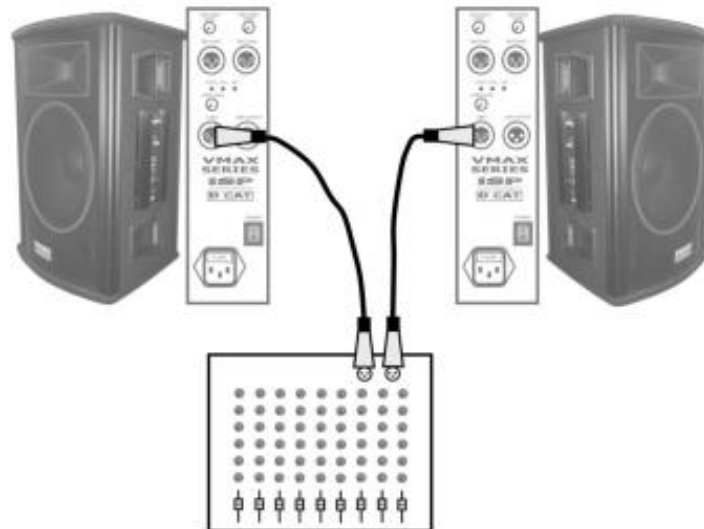
In the configuration above, you can still use Line3 inputs as stereo inputs if desired.

Using multiple VMAX cabinets in parallel

Multiple cabinets can be added in parallel by feeding the link output of one cabinet to the line input of a second cabinet. You can chain as many cabinets together as desired in this configuration. You will need to use either the Line1 or Line2 input when using the VMAX in parallel in order to have an output signal at the link output. When paralleling multiple cabinets you will need to connect the link output to the Line1 input of the next cabinet.



Using VMAX speakers with an external Mixer



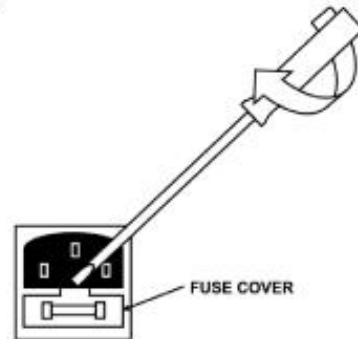
Connect the output of the external mixer to the Line 3 inputs on the VMAX cabinets.

Note: when using the line input(s) on the VMAX keep the Microphone input level controls at minimum to avoid any increase in input gain noise. It is recommended to match the input sensitivity of the VMAX speaker with the output level of the external mixer. Increasing the gain of the VMAX input may cause clipping of the input section of the VMAX speakers. It is recommended to start with the gain at minimum and increase the VMAX input sensitivity as needed.

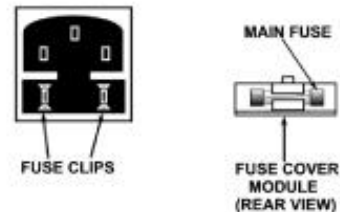
FUSE REPLACEMENT

1. Use a small screwdriver as shown to slide the fuse cover out from the power inlet module. The fuse can be found inside the fuse cover module after it is pulled out.

NOTE: A SMALL COMPARTMENT IS ALSO PROVIDED WITHIN THE FUSE COVER MODULE FOR STORING A SPARE FUSE.



2. After replacing the fuse with another of identical specifications, push the fuse cover module fully back into place, ensuring that the fuse has snapped onto the fuse holder inside the power inlet module.



THERMAL CONDITIONS

The ISP VMAX is capable of producing in excess of 400 watts RMS 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 exposed on the side of the cabinet. As the heatsink gets hot air will flow over the fins on the heatsink by convection. When using the VMAX as a floor monitor it is recommended that you do not block or obstruct the airflow by the side-mounted heatsink. The VMAX has large rubber feet on the bottom of the cabinet, which will allow air to move out from the bottom bass port and provide cooling for the internal amplifier. When using the VMAX as a top box or mounted on a pole allow a minimum of 6 inches of clearance in the back so as to provide proper cooling of the internal amplifiers.

NOTE: Under continuous high-level use, the external heatsink will get extremely hot. Care should be taken to avoid touching the heatsink until it cools. The internal amplifiers have thermal protection and will protect the D-CAT amplifiers if the temperature exceeds a safe operating point.

The internal D-CAT amplifiers are thermally protected internally via a thermal switch, which will attenuate the signal 30db if the heatsink temperature exceeds a safe operating temperature. If the amplifier reaches the point where thermal limiting occurs, the Red Limit LED will light when the amplifier is in thermal protection. When the temperature drops below this threshold point, full signal will be restored. Tests have shown under extreme conditions that cycling will occur approx. (40 sec. ON, 10 sec. OFF). Under extreme conditions, such as when ambient temperatures are too high (hot rooms, extreme outdoor temperatures) it is recommended to use a fan to cool the fins and reduce the possibility of this thermal cycling.

It should also be noted that a separate internal thermal breaker also protects the power transformer. If the power transformer temperature reaches a critical point, the internal thermal breaker will open. The power LED on the front of the cabinet will go out and the VMAX will shut down for several minutes while the power transformer cools. If this condition occurs, simply reduce the signal level of the system. This will only occur if the VMAX is continually pushed to the point of distortion.

NOTE: The power transformer inside the VMAX contains an enamel coating on the wires. During the first several hours of heavy use, the VMAX may have a slight odor caused by the enamel on the transformer wires heating.

SPECIFICATIONS VMAX 12 / 12XL

System

Frequency Range	55Hz - 18KHz
Frequency Response (-3dB)	60Hz - 18KHz
Horizontal Coverage Angle	90 degrees.
Vertical Coverage Angle	40 degrees.
Peak Output @ 1m	124 dB
Crossover Point	2.5KHz
Input Type	Balanced differential
Input Impedance	Microphone inputs 1k Line 3 input 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 Transducer	
Diameter	12"
Voice Coil Diameter	2.5
Power Handling	300 watts RMS

High-Frequency Transducer	<u>VMAX 12</u>	<u>VMAX 12XL</u>
Diaphragm Diameter	1.35"	2"
Voice Coil Diameter	1.35"	2"
Throat Size	1"	1"
Power Handling	60	100watts
Diaphragm Material	Titanium	Titanium

<u>Power Amplifiers</u>	<u>VMAX 12</u>	<u>VMAX12XL</u>
Low-Frequency Amplifier		
Power Output	350 watts RMS	375watts RMS
THD	<0.05% typical	<0.05% typical

High-Frequency Amplifier	80 watts RMS	100 watts RMS
THD	<0.05% typical	<0.50% typical

Line Input Power

Voltage	117Vac, 60 Hz
Current	3 amps
Power	350 watts

Physical

Height	28 inches
Front Width	20 inches
Depth	15 inches
Weight	52 lbs. XL 56 lbs.
Geometry	Pentagonal Shape
Mounting Methods	Floor mount / Pole mount

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.

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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