



REACTOR SERIES OWNERS MANUAL

CAB



**ACTIVE CAB
PASSIVE CAB**

WEDGE



**ACTIVE WEDGE
PASSIVE WEDGE**

POWER AMP



**MONO BLOCK
POWER AMP**

ARFR-AC ACTIVE CAB
ARFR-AW ACTIVE WEDGE
ARFR-PC PASSIVE CAB
ARFR-PW PASSIVE WEDGE
MB-50 POWER AMP



**THE WORLD'S FIRST AND LEADING LINE OF
TUBE-POWERED FULL RANGE AMPS/MONITORS**



www.atomicamps.com



WARNING!

TO PREVENT FIRE OR SHOCK HAZARD,
DO NOT EXPOSE THIS UNIT TO RAIN OR
MOISTURE.

NO USER SERVICABLE PARTS INSIDE,
REFER SERVICING TO QUALIFIED
PERSONNEL ONLY.

SERVICE BY PERSONS OTHER THAN
ATOMIC AUTHORIZED SERVICE
TECHNICIANS MAY VOID WARRANTY.

**THIS UNIT MUST BE
EARTH GROUNDED.**

Atomic Amplifiers, Atomic Reactor Series, and Reactor FR are trademarks of Atomic Amplifiers LLC.
Any other product names, trademarks or names are the property of their respective owners
which are in no way associated with or affiliated with Atomic Amplifiers LLC

© 2010 Atomic Amplifiers LLC. All rights reserved.

Atomic Amplifiers LLC • info@atomicamps.com • www.atomicamps.com



REACTOR SERIES USER MANUAL

TABLE OF CONTENTS

2	The Atomic Reactor Series
3	Summary of Components
4	Panel Diagrams and Features
6	Using the Reactor Power Amp
8	Rig Diagrams
10	Maintenance
11	Service
10	Troubleshooting
13	Specifications
18	Warranty

THE ATOMIC REACTOR SERIES



THE ATOMIC REACTOR SERIES is a range of professional audio products from Atomic Amplifiers including the world's first and leading tube-powered full-range guitar amp/personal monitor offered in both **CAB** and **WEDGE** formats, plus passive versions of the same products (without power amplifiers) and finally, a standalone version of the power section called the **MB-50**, a 50w tube-powered full-range mono block amplifier.

Products in the Reactor Series are designed and built with the performing or studio guitarist in mind, but are also extremely effective for acoustic guitars, vocals, keyboards and other electronic instruments, and any other application where a full range powered speaker system is needed.

The Reactor Series represents a superior-sounding solution for the modern digital guitar rig. These products ensure that preamps, modelers and simulators will sound their very best by imparting the best qualities of real tube amplification: power, presence, and punch. Even as guitar tone processing technology advances, the Reactor Series products will remain a viable and valuable investment in tone.

The Reactor Series is engineered to withstand the demanding conditions of life on the road or in other professional environments, whether on stage, in the studio, or in a standalone setting.

SUMMARY OF COMPONENTS

The Reactor **FR Powered Cab** and **FR Powered Wedge** are comprised of a 50-watt RMS tube audio **power amplifier** section and a very high efficiency tuned **speaker system** installed in a high quality speaker cabinet.

The **power amplifier** employs one 12AX7 and two “JJ” Brand 6L6GC vacuum tubes to deliver full-rated power over a full-frequency response, with high headroom and very low distortion. In other words, this is an amp “without an opinion” which amplifies without coloring the tone.

The **speaker system** consists of a 12” driver, a tweeter/horn, and a crossover network. Its range is wide and smooth, without peaks or notches. The high efficiency of the cabinet design, coupled with the dynamic abilities of the amp and speaker, provides a level of performance that one would expect from more powerful and expensive systems. Through the use of the speaker jack and switch, the powered cab or wedge may be used to drive an external speaker, or the internal speaker may be used with an external amplifier. See the annotated Panel Diagrams (p. 4-6) for more information.

The **Passive Cab** and **Passive Wedge** offer the same construction and speaker/crossover systems as their powered counterparts, differing only in that their power amplifiers have been removed and replaced with a jack plate/control panel.

The **MB-50 Mono Block Power Amplifier** uses a power section similar to that of the powered cab and powered wedge models but with an active presence control replacing the passive tweeter level. It is housed in a conveniently compact enclosure with no speakers and may be used with our passive cab/wedge models or any appropriate speaker system.

POWERED WEDGE & CAB PANELS

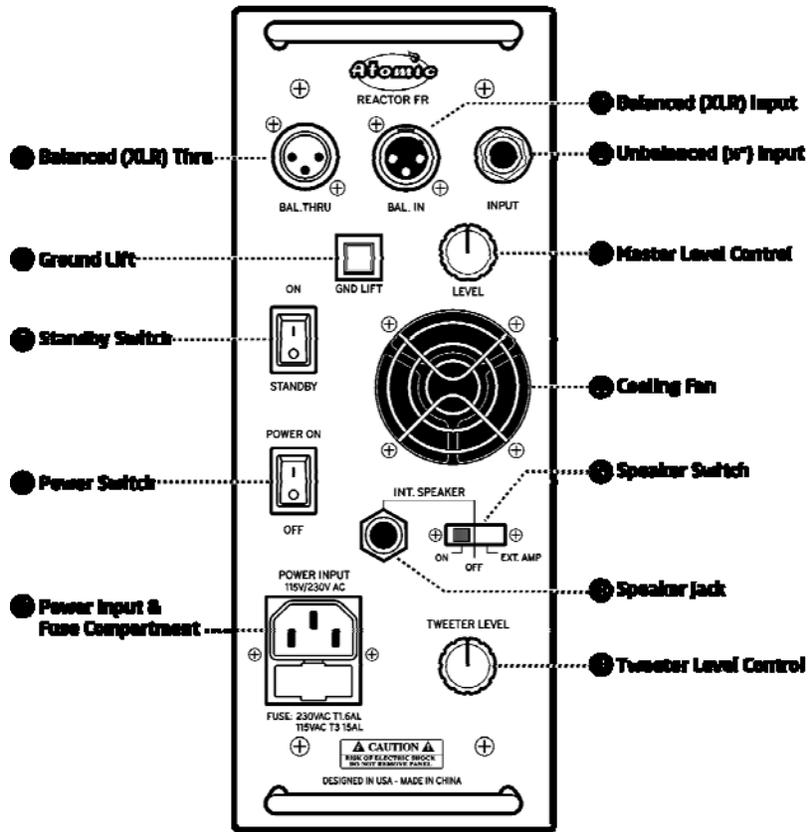


Figure 1 (above): Controls & Connections of the FR-AC Active Powered Cabinet Model.

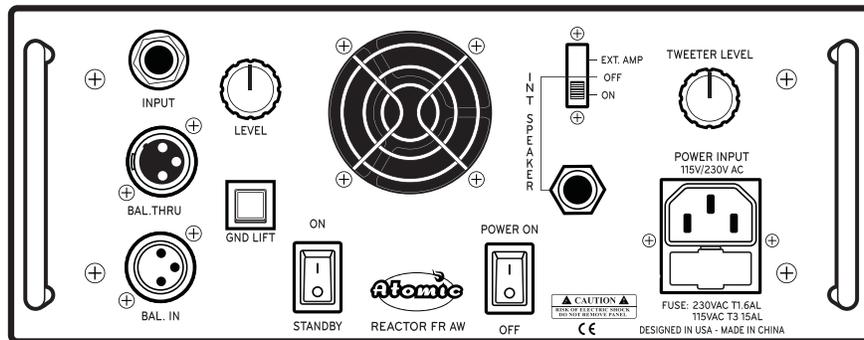


Figure 2 : Controls & Connections of the FR-AW Active Powered Wedge Model.

The models have identical controls, described on the facing page.

- ❶ **Unbalanced (¼") Input** - Unbalanced input of the amplifier. The ¼" input overrides the balanced XLR input if both are connected.
- ❷ **Balanced (XLR) Input** - This female XLR-type connector accepts a balanced or unbalanced line level signal.
- ❸ **Balanced (XLR) Thru** - This male XLR connector passes any signal sent to the balanced XLR input jack (whether or not the amp is switched ON). Note: THRU passes ONLY the XLR input and NOT the ¼" input!
- ❹ **Power Switch** - Switches the amplifier ON or OFF.
- ❺ **Standby Switch** - Standby controls high voltages to the tubes. Allow 60 seconds after powering up before setting standby to the ON position.
- ❻ **Ground lift** - When your system produces a hum or buzz from ground loop, the lift switch can often eliminate it. Works on all inputs.
- ❼ **Master Level Control** - Adjusts the amplifier's overall volume.
- ❽ **Tweeter Level** - Adjusts the volume of the high frequency component of the amplifier's sound.

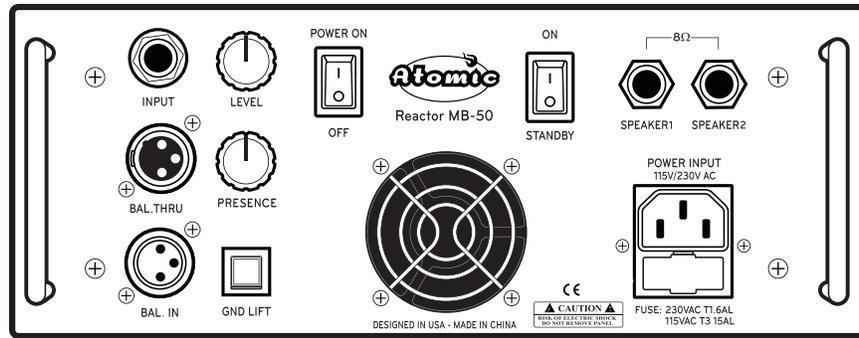
TONE TIP: The high-frequency response is "flat" with the Tweeter Level at 12 o'clock. The "sweet spot" will vary depending on your listening environment and the position/placement of the unit. Turn the control downwards for a warmer darker tone or increase for added brightness and sparkle. (NOTE: The MB-50 has active presence instead. See p. 6)

- ❾ **Speaker Switch** - Sets the function of the **Speaker Jack**❿ as follows:

Switch Setting	Internal Speaker	Jack Function
ON:	ON	ON
OFF:	OFF†	ON
EXT. AMP:	In this position, the jack is converted from an output to an input for the internal speaker allowing the use of an external amplifier.*†	
*WARNING: Do not operate the internal amp with no speaker or load connected!		
† NEVER connect an external amplifier to the speaker jack when the speaker switch is not set to Ext. Amp as doing so could damage both amps. When using the Powered Cab or Wedge as a passive cabinet, the amps should always be switched OFF and UNPLUGGED.		

- ❿ **Cooling Fan** - Operates quietly when the amp is powered on.
- ⓫ **Power Input** - Connect the supplied AC line cord to provide power to the amp. The power inlet also houses the **Fuse Compartment** which must be opened to replace the fuse. In order to convert the power amp from 115v (US) to 230v (EU) operation (or vice versa) change the fuse to the appropriate value (see specs on pp. 13-17), then rotate and replace the fuse compartment.

MB-50 PANEL

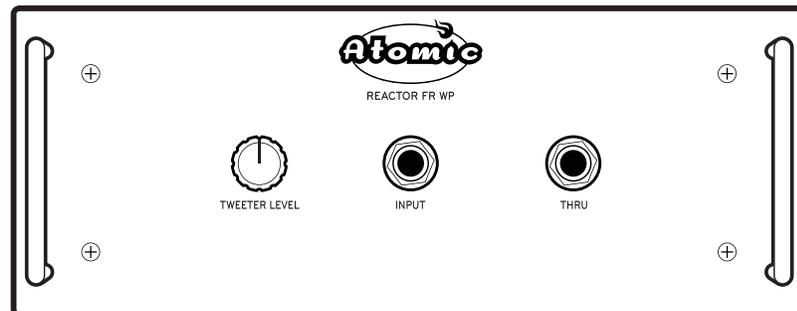


The **MB-50** is similar to the powered Wedge and Cab with 2 exceptions:

Presence Control: Since it has no internal speakers, the Tweeter control is replaced by an active **Presence Control** on the MB-50. Presence can alter the high frequency component of a signal passing through the amplifier, adding “brightness” or “sparkle” while retaining a pleasant high-end quality. The presence circuit is completely disengaged with the knob turned fully counterclockwise.

Dual Speaker Outputs The MB-50 has dual speaker output jacks, each of which can handle an 8Ω load. Both jacks produce identical output. There is no speaker jack function switch on the MB-50.

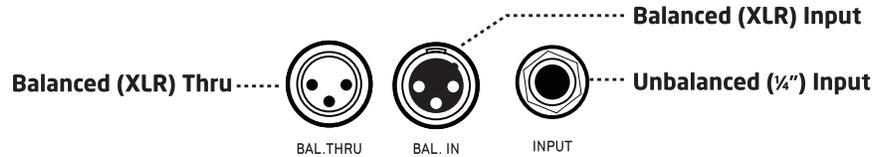
PASSIVE CAB/WEDGE PANEL



The driver/crossover/tweeter system in the Passive Cab or Wedge has the same specs as that in its active counterpart. The **Tweeter Level** is adjustable (see ③ on p. 5). Connect your amplifier’s speaker output to the **Speaker Input Jack**. This jack is hard wired in parallel to the **Speaker Thru Jack** allowing you to connect a second speaker cab. (WARNING: Always observe amplifier load limits!)

USING THE REACTOR SERIES POWER AMP

The 50w power amp module in the Active Cab, Active Wedge, or MB-50 is easy to use and offers the controls needed for a great range of music performance situations. *NOTE: Always lower the output level knobs on any connected devices before beginning to operate the power amp.*



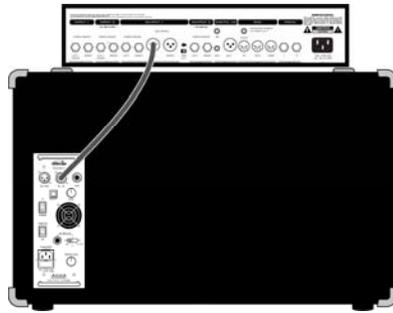
1. **POWER UP!** Connect the supplied **Power Cable** to your unit's **Power Input** located on the back panel.
2. Using a high-quality cable, connect a signal source to either the **Unbalanced (1/4") Input** or the **Balanced (XLR) Input**.
3. Turn the **Power Switch** to ON (it should light up).
4. **IMPORTANT:** Wait at least 60 seconds for the amplifier to warm up, then set the **Standby Switch** to ON.
5. Increase the level of your instrument or processor and set the **Master Level** of the **Reactor Series power amp** to the desired level. Adjust the tweeter level to taste.

REMINDER: The Balanced XLR Thru is an output, designed to pass the balanced signal from the XLR input through to a second amplifier, mixer, recording console or other device. It is not wired to the unbalanced 1/4" in.

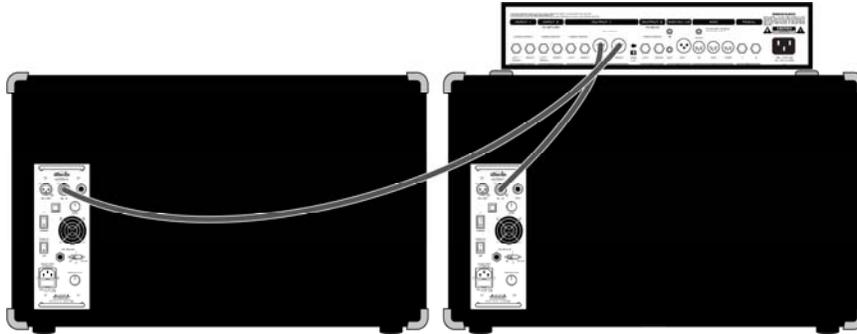
WHO'S DRIVING? Whether you like to run your source signal "Hot" and lower the master volume of the Reactor, or turn up the Reactor and lower the output level of a connected instrument or processor, you will find that the Reactor operates quietly and sounds great.

POSITION & PLACEMENT As with any audio system the floor, walls, and other characteristics of your performance space will shape the sound you hear from *any* speaker. You can increase openness and clarity by elevating Reactor Series cabinet models from several inches to several feet above the floor using casters, blocks, or an amp stand. Wedge models are less affected in this way because of their angled design.

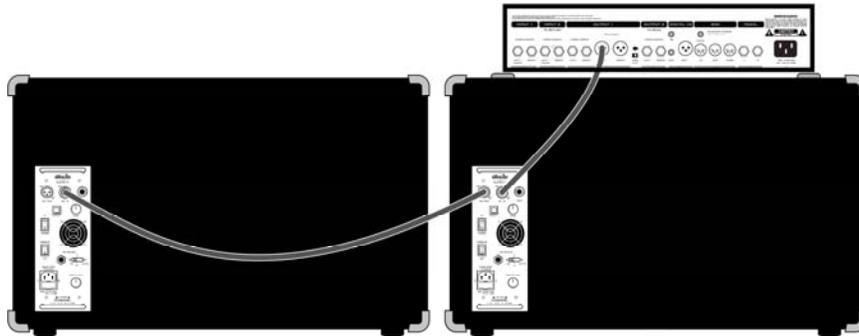
RIG DIAGRAMS



MONO RIG - Guitar processor (ex: Fractal Axe-FX Ultra) connected to the balanced XLR or 1/4" unbalanced input (whichever is convenient) of the powered cab or wedge.



STEREO RIG - Connect the left and right outputs of a stereo processor to the inputs of two Reactors to create a wide, 3D sound.

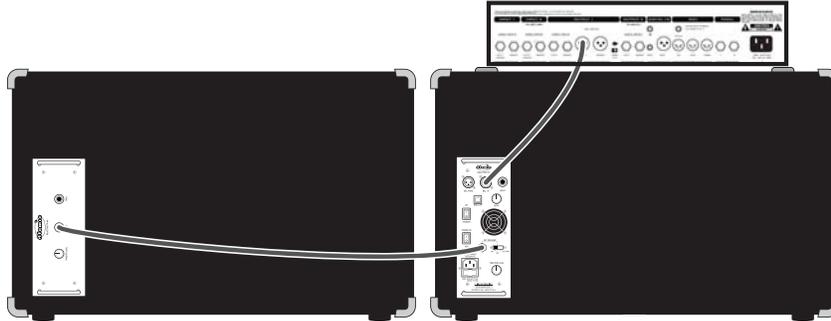


TWIN-POWERED MONO

Connected as in mono above, but with the THRU of the first powered Reactor connected to the input of a second powered Reactor (XLR only!)

ACTIVE CAB/WEDGE plus REACTOR PASSIVE CAB or WEDGE

It is possible to operate a second speaker cab with your powered cab or wedge. Set up your active unit as shown in the MONO GUITAR RIG example (p.8) and set the **Speaker Switch** to **EXT**. Then, connect the **Speaker Jack** output to the **Input** of the passive cab/wedge with a high quality speaker cable. This system may be duplicated on each channel to create a massive stereo rig.



MB-50 with a REACTOR PASSIVE CAB or WEDGE

Using an MB-50 with a Reactor Passive Cab or Wedge creates a system which is essentially identical to the corresponding ACTIVE model, with the advantage of separate components bringing greater flexibility and lighter individual piece weight. Simply connect the speaker output(s) of the MB-50 to the input jack(s) of one or two passive cabs/wedges with a high quality speaker cable. The MB-50 may also be used with any appropriate speaker cabinet of your choice, allowing for the operation of your favorite 1x12, 2x12, 4x12 or other configuration in an open-back or closed-back designs.

MAINTENANCE

The power section of your amplified Reactor Series product is vacuum tube driven, and therefore requires tube maintenance. The power tubes have a life expectancy of approximately 1000 hours. Regular play requires regular service.

Tube Replacement: The Reactor power amp utilizes one 12AX7 tube and two high quality JJ brand 6L6GC tubes selected because they are capable of producing the best possible sound quality. Depending on your level of use, you will notice sound quality degradation when tubes need to be replaced. For optimal performance, tubes should be replaced only with tubes of the correct type. The power section is built to work with any properly biased 6L6 or EL34 tube.

Output Tube Bias: Your new Reactor has an internally mounted variable bias control. The bias control is used to set the idle current in the output tubes, properly matching the amp's performance characteristics to the type of tubes used. Each tube type and brand may require a slightly different bias setting. An amp's bias can also drift over time as bias requirements can change with extended use. The bias should be checked periodically and when the tubes are replaced. A properly biased amp will sound great and will run reliably and safely.



WARNING! The internal voltages of tube type amplifiers are potentially lethal and capacitors are capable of storing these lethal charges. To ensure tone and safety, amp biasing should be carried out by qualified personnel only.

The Fuse: The fuse protects the amplifier in the event of an electrical fault or tube failure. If a fuse blows, replace it only with one of the required type and rating. The fuse is in a compartment built into the AC inlet of the amplifier and can be accessed by opening the fuse compartment with a small flat-head screwdriver or similar tool. In order to

change the voltage specification from 115v (US) to 230v (EU), or vice versa, the fuse module must be rotated 180° and the fuse changed to the correct specified value as marked above the AC inlet.



WARNING! Always disconnect the amplifier's power cord from the AC outlet before attempting to change the fuse. Refer to the specification pages (pp. 13-17) to determine the correct fuse type and rating. NEVER use a fuse with a higher rating as this could damage the amp and present a serious safety hazard. If the fuse blows repeatedly, the amp should be taken to an authorized service center.

OBTAINING SERVICE

Q: How do I go about getting my Reactor product repaired?

A: If your product should require service, you have two options. The first is to take it to an authorized service center in your area. A list of service centers is available on the ATOMIC AMPLIFIERS website (www.atomicamps.com) or through our Customer Service Department at info@atomicamps.com or (646) 201-9543. Your second option is to send the unit back to our factory service center for repair. You must first contact us for a RETURN AUTHORIZATION NUMBER and shipping instructions.

Q: Is there a charge for repairing my Reactor Series Product?

A: There may or may not be. If you have not done so already, read the WARRANTY beginning on page 18 for information on coverage, duration, and what is required of you the purchaser in order to obtain Warranty Service.

TROUBLESHOOTING

Reactor does not power up.

- Is the power cord firmly inserted into the AC input socket?
- Is the power cord firmly plugged into a working electrical outlet?
- Is the fuse blown?

The Reactor powers up but produces no sound.

- Is the Reactor *really* turned on? ("Tubes glow and fan blows.")
- Is the standby switch also set to the ON position?
- Is the output level control on your source device turned up?
- Is there a problem with your audio connector cable?
- Is the speaker switch set to ON? If the speaker switch is set to OFF, an external 8 ohm speaker cab must be connected to the speaker jack. If the switch is set to Ext. Amp, an external amplifier must be used to power the internal speaker. Is the level control of the attached external device turned up?

IMPORTANT! Operating the power amp in the absence of a load on the output transformer can cause serious damage and may void your warranty. Do not operate the amp with the internal speaker OFF unless there is an external 8 ohm cab connected. Always power off and UNPLUG the amp while an external amp is being used to power the internal speaker.

Amp Produces a Hum or Buzz

- Try the Ground Lift switch.

If after performing all of the troubleshooting steps above your Reactor FR is still not performing correctly, please contact Atomic Amplifiers.

(See Obtaining Service on p. 11.)

**SPECIFICATIONS:
ARFR-AC ACTIVE CAB**

Intended Applications:	Full Range Sound Reinforcement
Power Requirements:	115V AC, 50/60 Hz 105w <u>OR</u> 230v AC, 50 Hz 105w Remove/rotate/replace fuse & holder to select between 115 (US) and 230 (EU)
Amplifier Power Output:	50w into 8 ohms at 3% THD
Power Amp Input	270 mv (-9.5db) at 1000 Hz
Sensitivity (Return):	for 50 watts output
Power Amp Input Impedance:	100K ohm
Tubes:	One 12AX7A tube Two 6L6GC tubes
Fuse:	US Model 115V AC, Slow Blow, 3.15A EU Model 230V AC, Slow Blow, 1.6A
Internal Speaker:	8 ohms - 12" 200w driver - 1" Tweeter with 4.5" horn (to 20kHz) - Crossover network
External Speaker:	8 ohms
Cabinet Construction:	Marine-grade 12-ply birch plywood
Dimensions:	Width: 26.0 in. (66.0 cm) Height: 16.25 in. (41.2 cm) Depth: 11.0 in. (27.9 cm) Weight: 45 lbs. (20.4 kg)

**SPECIFICATIONS:
ARFR-AW PASSIVE CAB**

Intended Applications:	Full Range Sound Reinforcement
Power Requirements:	NA
Amplifier Power Output:	NA
Power Amp Input	NA
Sensitivity (Return):	NA
Power Amp Input Impedance:	NA
Tubes:	NA
Fuse:	NA
Internal Speaker:	8 ohms - 12" 200w driver - 1" Tweeter with 4.5" horn (to 20kHz) - Crossover network
Additional Connectors:	THRU jack hardwired to input in parallel
Cabinet Construction:	Marine-grade 12-ply birch plywood
Dimensions:	Width: 26.0 in. (66.0 cm) Height: 16.25 in. (41.2 cm) Depth: 11.0 in. (27.9 cm) Weight: 34 lbs. (15.4 kg)

**SPECIFICATIONS:
ARFR-AW ACTIVE WEDGE**

Intended Applications:	Full Range Sound Reinforcement
Power Requirements:	115V AC, 50/60 Hz 105W <u>OR</u> 230v Ac, 50 Hz 105w Remove/rotate/replace fuse holder to select between 115 (US) and 230 (EU)
Amplifier Power Output:	50w into 8 ohms at 3% THD
Power Amp Input	270 mv (-9.5db) at 1000 Hz
Sensitivity (Return):	for 50 watts output
Power Amp Input Impedance:	100K ohm
Tubes:	One 12AX7A tube Two 6L6GC tubes
Fuse:	US Model 115V AC, Slow Blow, 3.15A EU Model 230V AC, Slow Blow, 1.6A
Internal Speaker:	8 ohms - 12" 200w driver - 1" Tweeter with 4.5" horn (to 20kHz) - Crossover network
External Speaker:	8 ohms
Cabinet Construction:	Marine-grade 12-ply birch plywood
Dimensions:	Width: 27.3 in. (66.3 cm) Height: 15.5 in. (39.3 cm) Depth: 19.75 in. (50.1 cm) Weight: 46 lbs. (20.8 kg)

**SPECIFICATIONS:
ARFR-AW PASSIVE WEDGE**

Intended Applications:	Full Range Sound Reinforcement
Power Requirements:	NA
Amplifier Power Output:	NA
Power Amp Input	NA
Sensitivity (Return):	NA
Power Amp Input Impedance:	NA
Tubes:	NA
Fuse:	NA
Internal Speaker:	8 ohms - 12" 200w driver - 1" Tweeter with 4.5" horn (to 20kHz) - Crossover network
Additional Connectors:	THRU jack hardwired to input in parallel
Cabinet Construction:	Marine-grade 12-ply birch plywood
Dimensions:	Width: 27.3 in. (66.3 cm) Height: 15.5 in. (39.3 cm) Depth: 19.75 in. (50.1 cm) Weight: 35 lbs. (15.8 kg)

SPECIFICATIONS:
MB-50 MONO BLOCK POWER AMP

Intended Applications:	Full Range Sound Reinforcement
Power Requirements:	115V AC, 50/60 Hz 105w <u>OR</u> 230v Ac, 50 Hz 105w Remove/rotate/replace fuse holder to select between 115 (US) and 230 (EU)
Amplifier Power Output:	50w into 8 ohms at 3% THD
Power Amp Input	270 mv (-9.5db) at 1000 Hz
Sensitivity (Return):	for 50 watts output
Power Amp Input Impedance:	100K ohm
Tubes:	One 12AX7A tube Two 6L6GC tubes
Fuse:	US Model 115V AC, Slow Blow, 3.15A EU Model 230V AC, Slow Blow, 1.6A
Internal Speaker:	NONE
External Speaker:	Jacks for 2@ 8 ohms each
Cabinet Construction:	Marine-grade 12-ply birch plywood
Dimensions:	Width: 11.25 in. (28.6 cm) Height: 5.4 in. (13.7 cm) Depth: 10.88 in. (27.6 cm) Weight: 15 lbs. (6.8 kg)

WARRANTY

Atomic Amplifiers warrants to the original purchaser that this product (exclusive of tubes) will be free of defects in material and workmanship for a period of 1 year from the original date of purchase. Atomic Amplifiers warrants to the original purchaser of this product that tubes will be free of defects in material and workmanship for a period of period of 90 from the original date of purchase by the original purchaser. It is understood that Atomic Amplifiers reserves the rights to inspect any warranty part prior replacing or repairing them to insure that their defect is not a result of user error. These warranties are subject to the conditions, exclusions, and limitations hereinafter set forth.

This limited warranty is transferable and is valid only when accompanied by a copy of the original sales receipt or packing slip with legible purchase date, purchase price, and when product is purchased from an authorized dealer in the United States or Canada and must be returned to the same for any warranty services required. All exported products are subject to warranty and services to be specified and provided by the authorized distribution center for each country or region. Excluded from this warranty are defects caused by wear and tear, accident, misuse, neglect, failure to follow all operating instructions (including the OVERPOWERING of speakers), alterations and modifications, or act of nature. Such determinations will be made by Atomic Amplifiers. This limited warranty is also void if: the original retail purchase is not made directly from the company or an Authorized ATOMIC AMPLIFIERS' dealer, or if repairs, alterations, or modifications are performed by anyone other than Atomic Amplifiers or an Atomic Amplifiers Authorized Service Center, or if the original serial number affixed to the product is altered, defaced, or removed.

All parts costs for repairs covered under this limited warranty will be borne by Atomic Amplifiers so long as the repairs have been requested within the applicable warranty periods described above. It is understood that all repair charges and costs incurred by Atomic Amplifiers for all periods following the applicable warranty period will be borne and paid for by the purchaser. All labor costs incurred by Atomic Amplifiers for repairs covered under this limited warranty will be borne and paid for by Atomic Amplifiers within the applicable warranty period according to rate schedules established by Atomic Amplifiers. All labor costs and expenses above these rates will not be the responsibility of Atomic Amplifiers. Atomic Amplifiers, or an Atomic Amplifiers Authorized Service Center MUST do all warranty services. Transportation charges involved in warranty services are the sole responsibility of the purchaser.

A copy of the original sales receipt or packing slip must accompany all products being presented to an Atomic Amplifiers Authorized Service Center for warranty service. All products being returned to Atomic Amplifiers for warranty service must be accompanied by a copy of the original sales receipt or packing slip, a detailed description as to needed repairs, and an Atomic Amplifiers Return Authorization number. Atomic Amplifiers reserves the right to repair or replace the affected piece of equipment at their option but it is understood that repair or replacement as provided under this limited warranty is the sole and exclusive remedy to the purchaser for defective or non-conforming products.

Atomic Amplifiers will not be held liable for any incidental consequential, special, punitive, or exemplary damages resulting from any defect or failure of this product other than the repair of the Atomic Amplifiers product subject to the terms of this limited warranty. Any product repaired or replaced under this limited warranty will, itself, be warranted only for the remainder of the limited warranty period of the original product being repaired or replaced. Products used for dealer rental purposes shall be warranted from the date of the original invoice to dealer and if sold will be warranted only for the remainder of the limited warranty period of the original product.

This warranty gives you specific legal rights, and you may have other rights which vary from state to state, and province to province, and to the extent required by law, any limited warranty shall be limited to the duration of this limited written warranty.

OTHER THAN AS STATED ABOVE, ATOMIC AMPLIFIERS MAKES NO WARRANTIES EITHER WRITTEN, EXPRESSED, OR IMPLIED WITH RESPECT TO THE PRODUCT. THIS WARRANTY IS EXCLUSIVE, AND ATOMIC AMPLIFIERS MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED, INCLUDING IMPLIED WARRANTIES OR MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE, ALL OF WHICH WARRANTIES ARE HEREBY BEING DISCLAIMED.

Atomic Amplifiers LLC

info@atomicamps.com

www.atomicamps.com



www.atomicamps.com