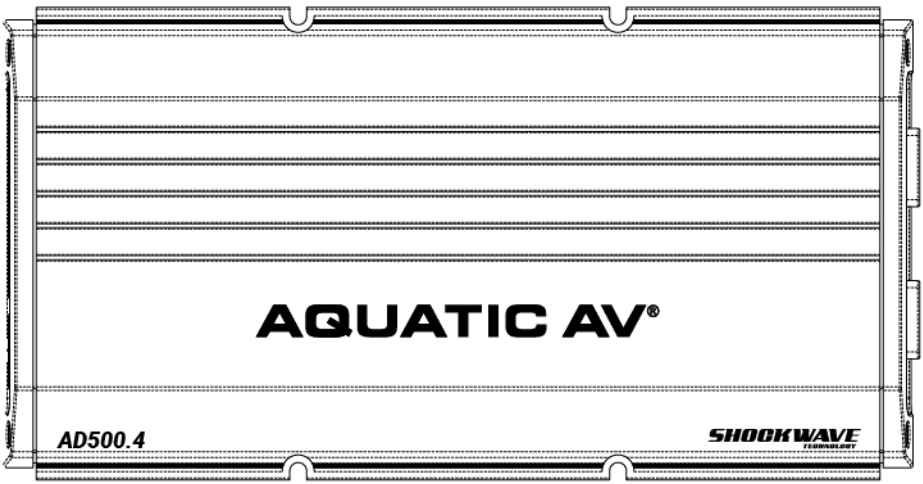
AQUATIC AV

USER MANUAL

AD500.4
4/3/2 CHANNEL AMPLIFIER

AD504



PLEASE READ THIS INSTRUCTION MANUAL BEFORE INSTALLATION AND OPERATION

Congratulations on your purchase of an Aquatic AV AD500.4 4/3/2 Channel Amplifier. It has been designed, engineered and manufactured to bring you the highest level of performance and quality. Thank you for making Aquatic AV your choice for marine audio equipment!

1.1 Using Your Amplifier

Working Safely With Your Battery

Disconnect the negative battery terminal before doing any electrical work. Always disconnect the negative (–) battery terminal first, followed by the positive (+) terminal. When reconnecting terminals, connect the positive (+) terminal first followed by the negative (–) terminal. This can minimize the chance of sparks and voltage spikes, and is a good general practice when dealing with any DC electrical system.

Grounding

Always use the shortest length of ground wire possible between chassis ground and the amplifier. Never use a ground wire longer than the one we provide. The ground wire and power wire are equally important; if either one of them is compromised, the amplifier's performance will degrade or cease to function.

Fuses

Always install a master fuse within 12" of the battery for any additional equipment added to your installation's electrical system. The mini-fuse installed on the main amplifier only protects the internal circuitry, not the wiring. In the event of a short, failure to install a fuse near the battery can cause damage to your electrical system or the possibilty of fire.

Speaker Polarity

The way speaker wires are marked for polarity (+/-) varies from brand to brand. Some manufacturers use the stripe as positive (+), while others use the stripe as negative (-). Be sure to check the documentation of each component you're dealing with before making connections.

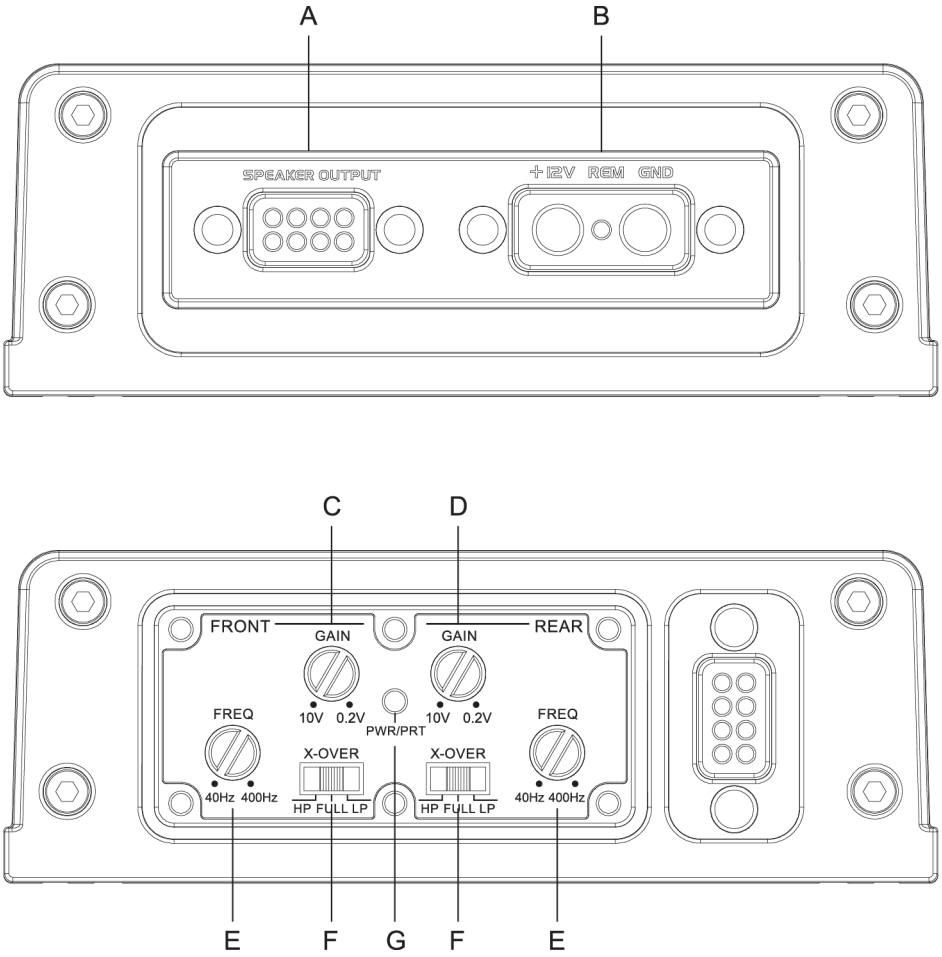
Cutting Cables

Always route wires and cables safely, avoid sharp edges and burrs along the way. Use wire loom when possible. Check for proper length to both termination points, knowing where each component mounts, before you cut anything.

Mounting

Mount the amplifier away from water/mud at all times and in a good ventilated area with good air flow. Do not mount in engine compartment. Mount amplifier securely. Be careful not to drill into fuel line, electrical or mechanical areas when mounting. Do not run wires under the vehicle or vessel, this could be very dangerous with severe damage.

1.2 Front Plate



A Speaker output cable

B Power input cable

C Front Gain Control

D Rear Gain Control

E Variable Frequency Control (40 ~ 400Hz)

F Crossover Switch HPF: High Pass Filter; LPF: Low Pass Filter; FULL: Full Range

G Power/Protect LED; Blue: working status; Red: protect status

1.3 Shockwave Technology

Aquatic AV's Shockwave Technology brings together outstanding sound quality, high performance characteristics and unprecedented reliability into a single amplifier.

When the Cross-Over Filter switch is set to HPF (High Pass Filter) the adjustable frequency range is 40Hz-400Hz.

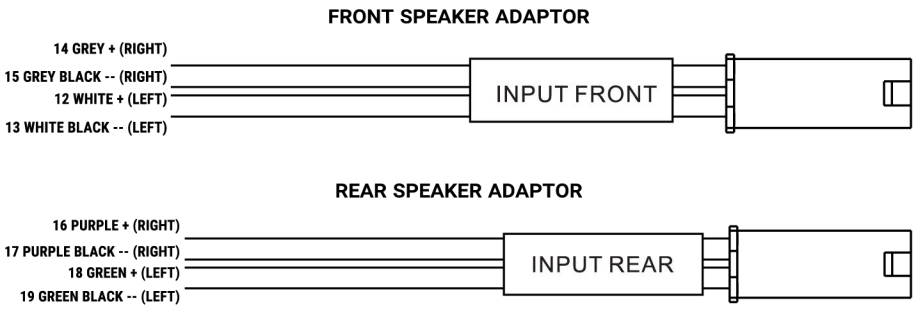
Protected against water and dust with an Ingress Protection rating of IP67 means you can literally hose down our Shockwave Technology amplifiers thanks to a number of unique features exclusive to Aquatic AV.

Conformal coated circuit boards protect the smallest components from any humidity or atmospheric moisture. Custom molded grommets around cable extrusions and gaskets between all meeting points eliminate any chance of water or dust intrusion. Aluminium and stainless steel are used in chassis construction eliminating any risk of rust or corrosion.

Designed to support the widest variety of applications, Shockwave Technology amplifiers operates both 4ohm and 2ohm speaker configurations.

Shockwave Technology incorporates Digita IC's with specially designed low-noise circuitry to produce high-quality, true sound reproduction from any source. This technology also reduces unwanted EMI (Electromagnetic Interference), which can cause noise in your audio system.

Using gold plated RCA's and high quality connectors ensures the best possible listening experience. There is also a speaker level input for those that do not provide RCA's. To use our amplifier with the Harley-Davidson Factory Radio, you will need to use the Molex connector with the speaker wires, provided in the kit.



Digital amplifiers are much more efficient than traditional amplifiers; producing less heat, lowering power consumption, reducing strain on batteries and charging systems.

Shockwave Technology amplifiers combine all these features into a single, compact unit and when compared with the competition, still make considerable reductions in both size and weight!

Aquatic AV's Shockwave Technology is the sensible amplifier solution for wet, dusty or harsh environments.

2 Getting Started

2.1 Contents

When first unpacking your new amplifier, please check first that the package contains all the items below. If something is missing, contact the store where you purchased the product.

- AD500.4 4/3/2 Channel Amplifier
- Output cable with connector (x2)
- Stainless steel mounting screws (x4)
- Mounting brackets (x4)
- RCA input cables (x2)
- Speaker level cables (x2)
- User Manual

2.2 Key Features

- Maximum Power: 4 x 150W (2 Ohms) or 4 x 100W (4 Ohms)
- Bridged Power 2 x 300W (4 Ohms)
- Power and Protection LED
- Line Inputs
- Bridgeable/Trimode Operation
- Variable Gain Controls (200mV to 10V)
- Variable Low Pass Crossover & Fixed High Pass Crossover
- Up to +18dB Variable Bass Boot
- PCB with Conformal Coating
- Waterproof IP67
- Hardwired Input/Output and Speaker Cables
- Signal-to-Noise Ratio: 90dB

Aquatic AV understands that amplifiers are placed in many different kinds of installations, so we have included an input sensitivity control to help you integrate the amplifier into your system regardless of the nature of your input source and features both high pass and low pass crossovers.

Aquatic AV marine amplifiers are constructed using a special corrosion resistant coating on the printed circuit board to prevent damage from the high humidity.

In order to prevent the intrusion of water into the amplifier enclosure, we have provided the connections at the end of the waterproof wires/cables, and tightly grommeted the wires as they pass through the end panels. An additional important and unique component is the rubber pad which seals all control openings.

2.3 Troubleshooting

Problem	Probable Cause	Solutions
It doesn't sound right	Speaker connected to the wrong output	Refer to page 7-9 of this owner manual
	Control panel settings are wrong	Refer to page 7-9 of this owner manual
Amplifier doesn't turn on	Controller/head unit wasn't turned ON	Did you remember to press and hold the controller's power button for 3-5 seconds?
	Poor connection integrity	Check "+12V" and "Ground" leads for pinched wires; ensure tight connections.
Balance reversed	Speaker Wire L & R Reversed	Correct speaker wire orientation
Output Distorted	NR/Audio player Volume Set Too High	Lower NR /Audio player Volume
	Amplifier Gain set too High	Lower Amplifier Gain (SENS)
Whining or ticking noise while the engine is ON	The amplifier is picking up alternator or radiated noise	Move the audio cables away from the power wires
		Turn Down input gain (SENS)
		Check the alternator and/or voltage regulator. Test for weak battery or add water to the battery.

3 Installation

NOTE: For an easier installation process when you purchase an amplifier for Harley Davidson® motorcycles, we suggest also buying one of Aquatic AV's Amplifier Mounting Kits. These kits are available in the following models:

- Road Glide Amplifier Mounting Bracket Kit (1998-2013)
- Batwing Amplifier Mounting Bracket Kit (1998-2013)
- Road Glide Amplifier Mounting Bracket Kit 2015+
- Batwing Amplifier Mounting Bracket Kit 2014+

3.1 Installation Precautions

Before you drill or cut any holes, investigate your ATV or boat layout very carefully. Take special care when you work near the gas tank, fuel lines, hydraulic lines and electrical wiring. Aquatic AV suggests you have a professional install the amplifier.

Never operate the amplifier when it is unmounted. Attach all audio system components securely within the amplifier to prevent damage especially in an accident.

Do not mount this amplifier in a way in which the wire connections are unprotected, in a pinched condition, in contact with any metal surfaces or likely to be damaged by nearby objects.

Before making or breaking power connections in your system, disconnect the battery. Confirm that your head unit or other equipment is turned off while connecting the input jacks and speaker terminals.

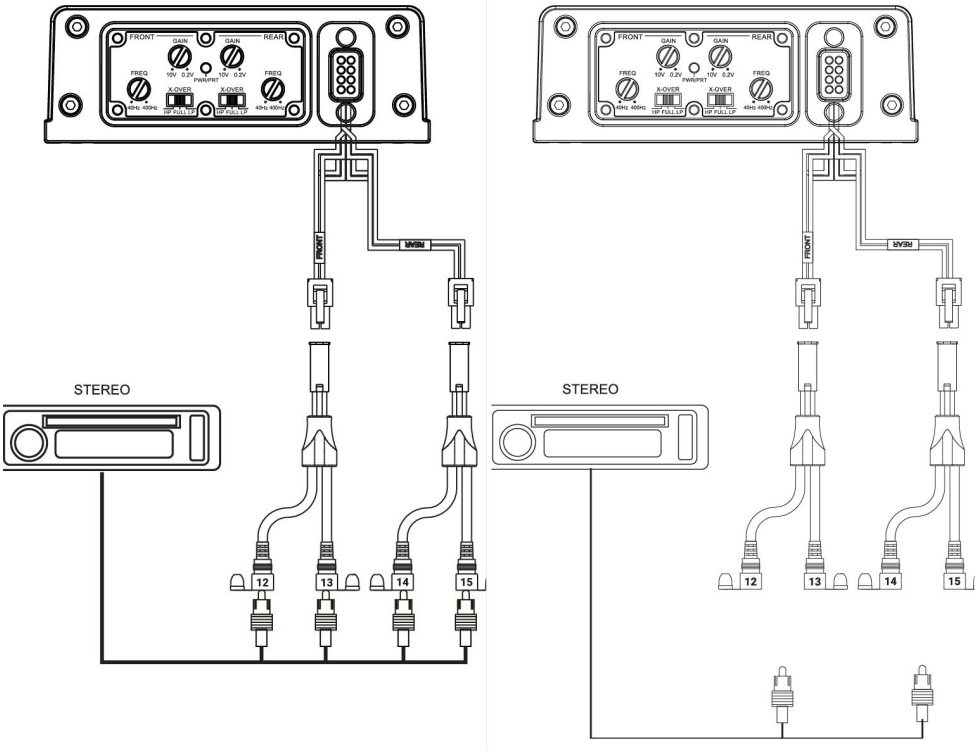
If you need to replace the power fuse, replace it only with a fuse identical to that supplied with the amplifier. Using a fuse of a different type or rating may result in damage to your audio system or your amplifier which is not covered by the manufacturer's warranty.

4 Input Wiring

4.1 Head Unit With RCA Outputs

The AD500.4 amplifier requires all four RCA inputs to be connected to provide correct operation. When the amplifier is used in conjunction with a stereo source where only two RCA outputs are available, please use RCA 'Y-connectors' to allow all four inputs to be connected. Always use high-quality RCA cables for best audio performance.

STEREO WITH 4 X RCA OUTPUTS (FRONT & REAR) **STEREO WITH 2 X RCA OUTPUTS (LEFT & RIGHT)**



12 FRONT Left RCA White Input

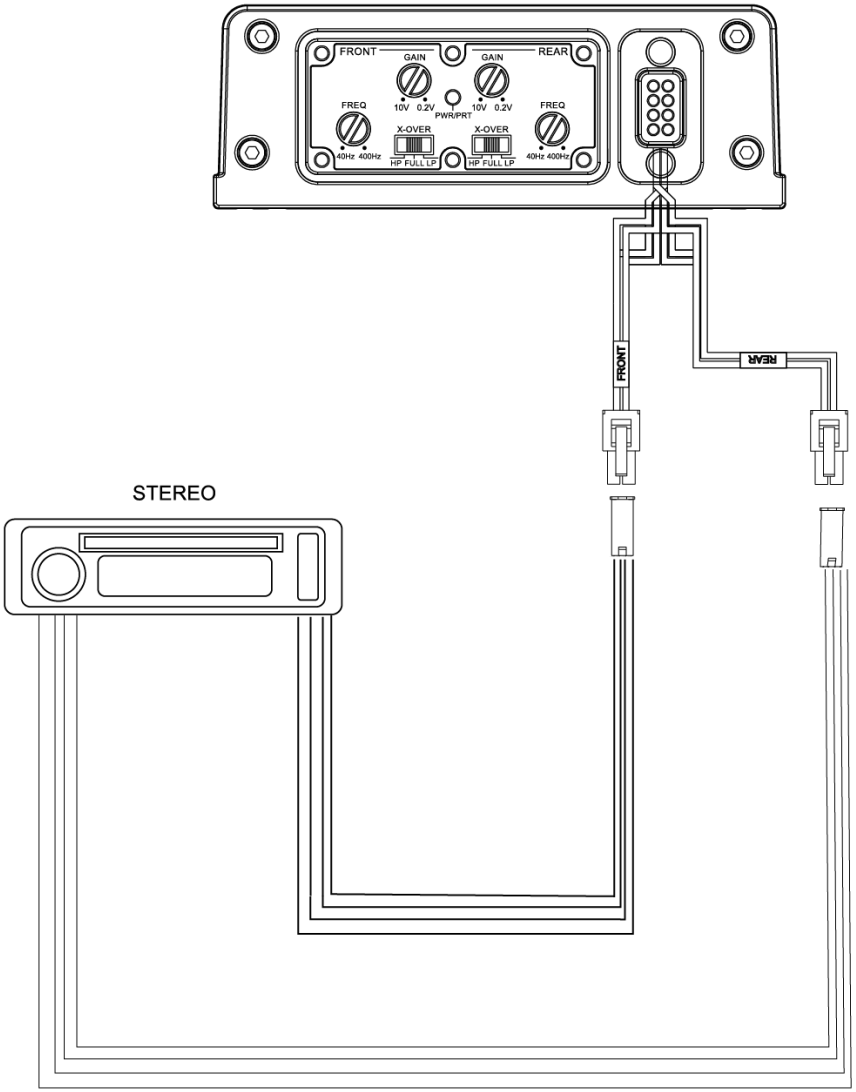
13 FRONT Right RCA Red Input

14 REAR Left RCA White Input

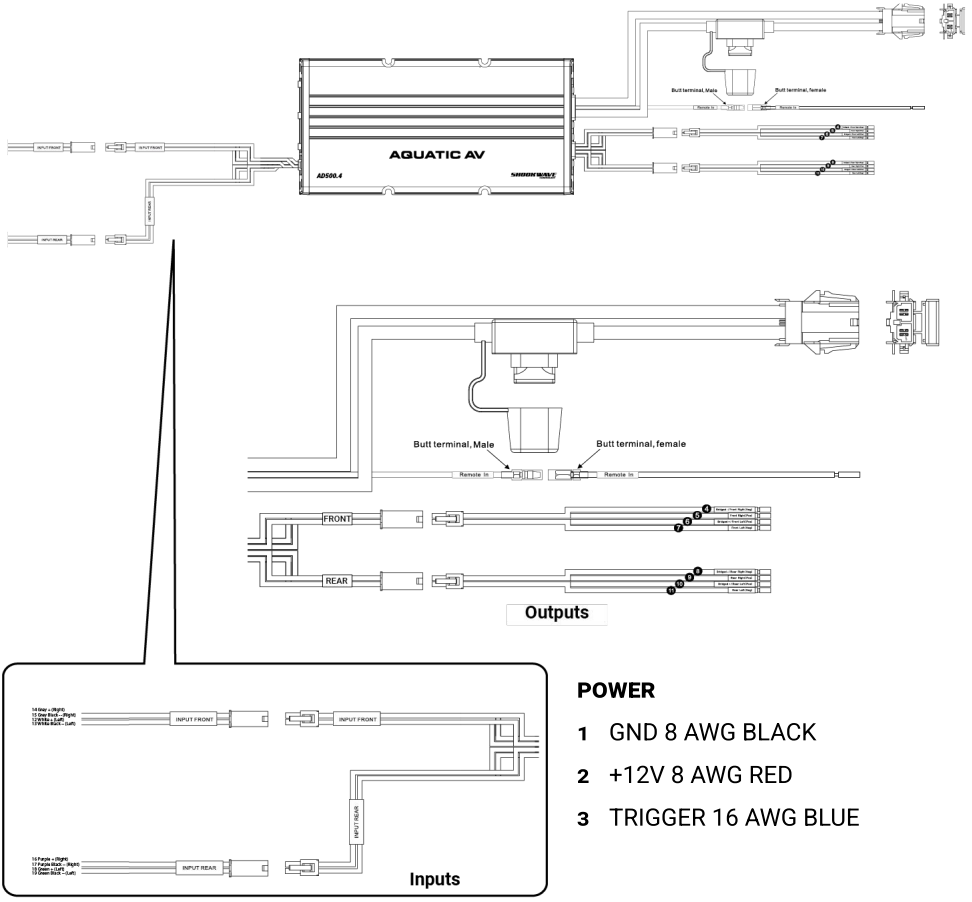
15 REAR Right RCA Red Input

4.2 Speaker Wiring

This will be used if the customer will use our amplifier with the Stock Harley Radio or with the head unit which does not have RCA outputs.



4.3 Input & Output Wiring



POWER

1 GND 8 AWG BLACK

2 +12V 8 AWG RED

3 TRIGGER 16 AWG BLUE

SPEAKER OUTPUT

4 FRONT RIGHT (NEG)16 AWG GREY/BLACK

5 FRONT RIGHT (POS)16 AWG GREY

6 FRONT LEFT (POS)16 AWG WHITE

7 FRONT LEFT(NEG) 16AWG WHITE/BLACK

8 REAR RIGHT(NEG) 16AWG PURPLE/BLACK

9 REAR RIGHT(POS) 16AWG PURPLE

10 REAR LEFT(POS) 16AWG GREEN

11 REAR LEFT(NEG) 16AWG GREEN/BLACK

SPEAKER HIGH LEVEL INPUT

12 FRONT LEFT(POS) WHITE

13 FRONT LEFT (NEG) WHITE/BLACK

14 FRONT RIGHT (POS) GREY

15 FRONT RIGHT (NEG) GREY/BLACK

16 REAR RIGHT (POS) PURPLE

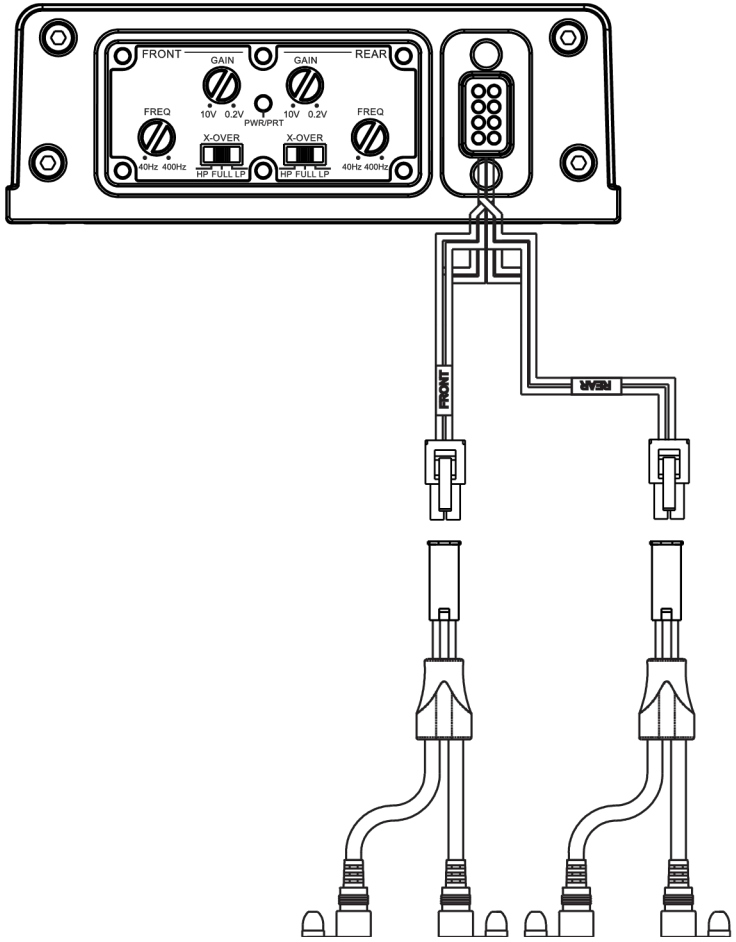
17 REAR RIGHT(NEG) PURPLE/BLACK

18 REAR LEFT(POS) GREEN

19 REAR LEFT(NEG) GREEN BLACK

5.1 Input Settings

Adjust both gain controls. Turn the stereo to 75%, then adjust the 0.2V gains frequency upward when the music gets loud and turn it down when the music is not clear. This will keep your system working well and protect your equipment.

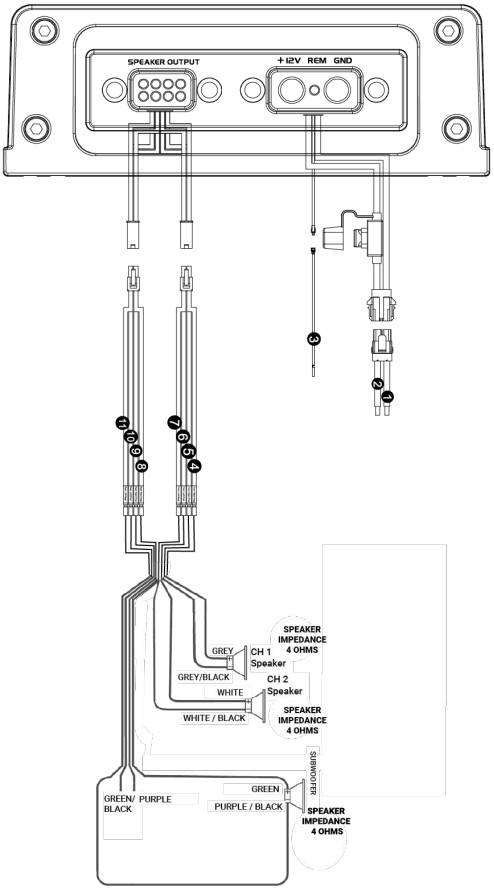


NOTE: Make sure the polarity to each speaker is correct! If not your speakers will be out of phase and the output will have a loss of bass and the sound will not be good.

6.1 Power & Speaker Wiring

3 Channel/Bridge Mode operation allows you to connect this amplifier to one pair of main speakers on channels 1 & 2, plus a subwoofer on output channels 3 & 4. The main speakers will operate in STEREO while the subwoofer simultaneously operates in MONO.

To set the amplifier to run in this mode, put the crossover switch in the FULL position.



POWER

1 GND 8 AWG BLACK

2 +12V 8 AWG RED

3 TRIGGER 16 AWG BLUE

SPEAKER OUTPUT

4 FRONT RIGHT (NEG)16 AWG GREY/BLACK

5 FRONT RIGHT (POS)16 AWG GREY

6 FRONT LEFT (POS)16 AWG WHITE

7 FRONT LEFT(NEG) 16AWG WHITE/BLACK

8 REAR RIGHT(NEG) 16AWG PURPLE/BLACK

9 REAR RIGHT(POS) 16AWG PURPLE

10 REAR LEFT(POS) 16AWG GREEN

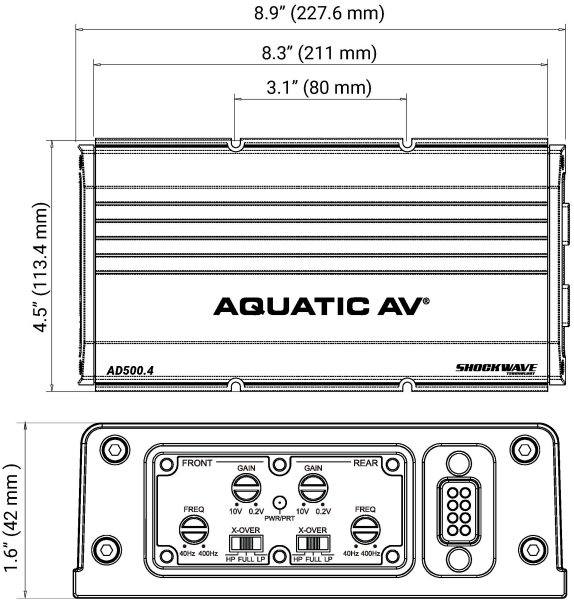
11 REAR LEFT(NEG) 16AWG GREEN/BLACK

NOTE: Make sure the polarity to each speaker is correct! If not your speakers will be out of phase and the output will have a loss of bass and the sound will not be good.

7.1 Specifications

Type:	4/3/2 Channel Amplifier
Waterproof:	Yes - IP67
Input Channels:	4xRCA, 4 Speaker Level Input
Output Channels:	4/3/2
Output Impedance (Nominal):	2 Ohm & 4 Ohm Stable
Power Output (Max) @ 4 Ohms:	400W (4 X 100W)
Power Output (Max) @ 2 Ohms:	600W (4 X 150W)
THD @ 4 Ohms, 100W:	1%
THD @ 4 Ohms, 50W:	0.05%
THD (Bridged), 300W:	1%
Frequency Response:	20 Hz – 20,000 Hz
High-Pass/Low-Pass Cross-Over Frequency:	Configurable From 40Hz - 400Hz
Input Sensitivity:	0.2 – 10V
Operating Voltage:	9V – 16V DC

7.2 Dimensions



8 Output Settings

8.1 Gain Controls

These are very important to the quality of the sound you recieve from your stereo input. Stereos or source units range with different outputs. We want to match the output to your amplifier as close as possible so you can achieve the ultimate sound performance.

Your amplifier can adjust from 0.2V to 10V input. Place your gain controls down to 0.2V to start.

First turn your source (stereo) up to about 75% of the maximum volume. Then play some music you are familiar with. The sound at first may be very low. Then start rotating the gain control for the front and rear channels up toward 10V slowly you will get to a point where the music should sound very good to your ear. After that point the music can still get louder but you do not want it to get too loud and distort the sound. This can also damage your equipment and speakers.

When the music starts distorting, please lower the volume level. You might be overdriving the speakers and it may damage them. Aquatic AV suggests you get the music as loud as you need without distortion and reduce the gain by 10% to keep your system safe.

8.2 Crossovers

Adjust the crossover points to the current setting needed. By doing this you send the right information to each speaker so they can perform well. This also protects the speaker from damage or abuse.

- HP - High Pass Filter is set for high frequencies and cuts out low frequencies such as bass
- LP - Low Pass Filter is set for low frequencies and eliminates high frequencies such as cymbals.
- Full - Full Range gives you all the frequencies.

There are two frequency settings that you can adjust for the front and rear channels. These are adjusted after you set the crossover settings.

If you are not familiar with these settings consult a local dealer. By having the setting set at the correct point you will extend the life of your system and achieve ultimate performance.

8.3 Power/Protect LED

When the PWR/PRT LED is blue the amplifier is working properly. If the LED turns red the amplifier goes into protection mode. If the LED is red you have to trouble shoot your system to see if there are any damaged wires, speakers or short circuit. Make sure your Ohm load is not below 2 Ohms.

Product Registration

Register your new Aquatic AV product in order to receive a 2-year warranty. You will need proof of purchase, such as a receipt, from an authorized dealer. Additionally, you will have to provide your contact information, the date and location of the purchase.

You can submit a Product Registration form at the Aquatic AV Support Center or through the Aquatic AV App. The app is available on the App Store for iOS devices and on the Play Store for Androids.

Warranty

Aquatic AV offers a limited warranty of our products on the following terms:

Length Of Warranty

2 years on audio systems, electronics, speakers, and accessories (receipt required).

Coverage

This warranty covers only the original purchaser of a Aquatic AV product purchased from an authorized Aquatic AV dealer in the United States. In order to receive service, the purchaser must provide Aquatic AV with a copy of the receipt stating the customer name, dealer name, product purchased and date of purchase.

Defective Products

Products found to be defective during the warranty period will be repaired or replaced (with a product deemed to be equivalent) at Aquatic AV's discretion.

What Is Not Covered

- Damage caused by accident, abuse, improper operations, theft.
- Any cost or expense related to the removal or reinstallation of product.
- Any product with the serial number or tamper labels defaced, altered, or removed.
- Subsequent damage to other components.
- Any product not purchased from an authorized Aquatic AV dealer.

Limit On Implied Warranties

Any implied warranties including warranties of fitness for use and merchantability are limited in duration to the period of the express warranty set forth above. Some states do not allow limitations on the length of an implied warranty, so this limitation may not apply. No person is authorized to assume for Aquatic AV any other liability in connection with the sale of the product.

How To Obtain Service

You must obtain a return material authorization number (RMA) to return any product to Aquatic AV. You are responsible for shipping charges of returned products to Aquatic AV.

FCC ID:
MADE IN CHINA
FCC Statement to the User

This equipment has been tested and found to comply with the limits for a 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 to correct the interference by one of the following measures:

1. Reorient or relocate the receiving antenna.
2. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
3. Increase the separation between the equipment and receiver.
4. Consult the dealer or an experienced radio/TV technician for help.

FCC Caution:

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation

Product design and specification subject to change without notice. E&OE.

CE

AQUATIC AV

AQUATIC AV

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AQUATICAV.COM

California Proposition 65 Warning

WARNING: This product contains chemicals known to the State of California to cause cancer, and birth defects or other reproductive harm.

For more information: www.P65Warnings.ca.gov