MrRCSound Sound Generator

Version 4.1 for RC Aircraft/Cars/Trucks

Thank you!

Thank you for purchasing the MrRCSound electric aircraft sound module, or our other product. I have done extensive design work and testing on each type of module to ensure a powerful, yet lightweight sound module.

Each module is proudly assembled by me in the United States.

Although I have done extensive testing on these units, they do push the components to their limits. Failures should be rare, and I have done all I can to eliminate them. Each unit is tested before it is packed and shipped. If you have any problems with the components or workmanship within 30 days of purchase, please contact me for repair or replacement.

MrRCFlying@MrRCSound.com

Warranty

This product is warranted to the original purchaser to be free from defects in material and workmanship for a period of 30 days from the date of purchase. In the event of defect we will, at our option, repair or replace the defective product with a new or reconditioned product, provided the product is returned beforehand postage prepaid to MrRCSound.

*****This warranty does not cover damage cause by accident, crashes, disassembly, modification, misuse, unapproved speakers, removal of speakers from enclosure, unapproved speaker enclosures, unapproved components, over voltage, adjustments of any presets other than the main volume control, or any other intentional changes to attempt to make the system louder, change sounds, or improve sound from its stock form. Such changes can and will result in damage to speakers or electronic components.*****

This warranty gives you specific legal rights. You may also have other rights which vary from state to state. Please retain a copy of this warranty, your sales receipt, and date of purchase.

MrRCSound Version 4.1 Instructions

We have made every effort to make the MrRCSound Version 4.1 RC airplane sound system, the most easy and versatile sound system on the market. Every effort has been made to make this the most hassle free system available. Designed for the average pilot, the unit has been pre-loaded with all the sounds, tested to ensure each unit is functioning properly, and is easy to use.

Your sound module comes with at least one speaker and the Version 4.1 sound card. The sound card is actually several different components in one. It consists of a voltage regulator, sound module, and amplifier. It has been specially designed to work best with the Max SPL2 speakers available at MrRCSound.com. It is not recommended to use any other speakers.

The sound card can safely accept input from a 3S Lipo to an 8S Lipo, or approximately 12v -35v. Although it can be used down to a 2S (7.4v) with a single speaker and the volume turned down slightly. Connection to the main flight pack is recommended via a power Y cable or tapping off the main power connector. Using a separate battery pack is also an option, but because of the extra weight it is not recommended.

The sound unit, even with two speakers, has very low draw, especially compared to other sound units. There is no need for high wattage and amp draw, when decent volume levels can be achieved with higher efficiency. With two speakers

the unit will never draw more than 1.75A and 25W. The V4.1 has also been specifically designed with upgrades in mind. It has a set of raw, unamplified, sound output ports, to which you can connect your own external amplifier, or connect a pre-made amplifier/regulator set available through MrRCSound.com. This set will allow for a second set of Max SPL2 speakers, for a total of four!

Hooking up your Version 4.1

Connection of the Version 4.1 is straight forward. There are four servo style connections on the board. These accept female to female servo cables that go to your RX. These are labelled on the board 'Servo 1-4' Servo 1 is the main engine sound connection. Servo 2, 3 and 4 are used for auxiliary sounds such as guns, whistles, and pilot chatter, or in the case of car/truck unit, burn outs, pop off valves, horns, etc. Servo 1 connection can be made either to your throttle channel with a servo Y cable with the other end going to your ESC, or to a separate channel you have mixed with the throttle.

Connection of Servo 2, 3 and 4 can be made to any empty RX channels that are associated with a switch or knob.

Powering up

When powering up the Version 4. sound unit, **it is recommended that you do not hook its power up until power to your RX is on**. The Version 4.1 sound card detects your throttle position when connected and uses that for its start position. Since some RXs can take several seconds to initialize, it is important to wait until the RX is ready, otherwise the Version 4.1 sound card might not see the proper starting throttle position, and might not respond to throttle inputs.

Once powered up, one to two clicks of the throttle stick/trigger will start the engine start up sequence. To make these as realistic as possible, some of the start up sequences can be quite lengthy, upwards of 20 seconds. During the start up sound sequence, adjust the throttle position one more click up, or a couple clicks up on the throttle trim. This is not necessary on the car/truck version, as there is a built in timer, which will be explained later. When the start up sound is done, it will enter an idle sound. The RPM now will increase and decrease with throttle movement. Move the stick back to the start position to run the shut down sound.

Sound Configurations

The default Version 4.1 Airplane Sound Unit comes complete with six engine sounds. These are Lycoming, Merlin, Continental, Daimler Benz 601, Pratt & Whitney Double Wasp, and a Generic Turbine.

The default Version 4.1 Car/Truck Sound Unit comes complete with eight engine sounds. These are Monster Truck, Diesel Pickup, Late Model GM 5.7L, Old School Ford 302, Late Model Ferrari, Formula 1, Dragster, and NASCAR.

Each sound configuration has three auxiliary sounds with it to complete the sound set. On the Airplane Sound Unit, Servo 2 is **always** a machine gun sound, and is synced to the two LED outputs on the board. The main engine sound used determines the auxiliary sounds on Servo3 and 4. For example, Lycoming, Continental or other civilian engine sounds may have pilot chatter such as “clear”, “clear prop” or “contact”, while military engines may have a second machine gun, cannon, whistle or other special sounds.

Sound configurations are changed by pressing the black button located on the board. You will hear what configuration you are on by an audible “airplane one”, “airplane two”, etc. announcement, and “vehicle one” etc. for the car/truck version. To determine which configuration you are on, please review the configuration sheet.

Volume

The volume knob is a yellow turn screw located on the board. This can be adjusted by a small Philips screw driver. Just be careful not to contact any points on the board with the metal screw driver. The volume knob is preset to full volume for your unit. Notice it's position carefully, and do not adjust above this point. This is the full volume point. Although it may be possible to turn the knob more to the right, it is not recommended, and will not increase the volume, but will increase power draw that may lead to the sound cut outs. The full volume point may vary slightly from unit to unit.

The system will work at full volume with either one or two speakers attached. You should never have to move the volume down, unless you wish to, with one exception. **On especially warm days, the amplifier chip may get too warm and begin to cut the sound in and out. If this happens it may be necessary to adjust the knob down in volume to about the ¾ mark.**

V4.1 'Airplane Finder'

Your new MrRCSound aircraft version V4.1 system has a new 'Airplane Finder' feature. This addendum will tell you how this system works. What is an 'Airplane Finder'? Most of us fly at fields that might border woodlands, wetlands, or farm lands. Sometimes if you have problems with your airplane, and you end up going down, it can take several people, and quite some time to locate where the plane ended up, especially if it is in thick underbrush, or crop fields.

The 'Airplane Finder' on the MrRCSound V4.1 unit is designed to shorten that search period by emitting a loud buzzing beep, to allow you to home in to the airplane's location a lot faster.

The 'Airplane Finder' finder is basically all automatic, and requires no input from you the user, or additional channels.

The 'Airplane Finder' does not arm until the throttle is advanced and the engine sound has run, or an Aux. sound has run. So if you plug the battery in, and have it sitting on the field for a time, the alarm will not sound unless you play an Aux. sound, or engine sound. Once the engine sound has been played, by advancing the throttle, or an Aux. sound has been played, the 'Airplane Finder' system activates. If the throttle is returned to the neutral position, and the engine sound shuts down, a timer activates and begins a silent three minute countdown. If no throttle input, or Aux. sounds are played in that three minute time, the alarm will begin to sound. Once the alarm sounds, it requires power to be removed from the system to reset.

So basically no input is required from the user at all. Just remember to disconnect the power to the sound unit after each flight, so that the 'Airplane Finder' alarm does not accidentally go off on the flight line, otherwise you may have some upset pilot buddies. :)

V4.1 Car/Truck Version Differences

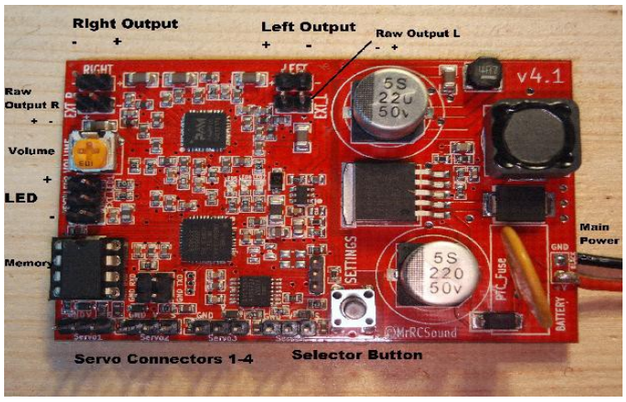
The MrRCSound V4.1 Car/Truck version differs from the airplane version in a few respects. If you have the Car/Truck version, review this section for the additional information. One of the main differences is in the programming of the main chip. Because of these differences, using the same module for Aircraft, and Car/Truck is not possible. One major feature is the 'shift points', which make the Car/Truck version sound like it is going up and down through the gears as the throttle input is changed. This adds extra realism to the sound. Three distinct gears are heard throughout the throttle range. This was chosen, as more than that leads to a sound that is too busy and does not sound right. The second main difference is the automatic shut down. The airplane version runs the shut down as soon as the motor is stopped. There are times when you might want to bring your car/truck to a brief stop, but not have the engine 'shutdown' sound play, but rather stay in idle - that is what this accomplishes.

To start the engine sound, remember to fist **ALWAYS** hook the sound unit up to the power source **AFTER** the main battery is connected and the ESC/RX are at a ready state. Once powered up, a slight touch of the throttle trigger will start the engine start up sound. Wait for the start up sound to complete, this might take several seconds, but sounds fantastic. The sound unit will then go into an idle sound, and you may now run the car/truck as normal with real engine sound to match. Once you come to a stop and the throttle trigger is in the neutral position, an on board timer starts. After approximately six seconds of idle time, the system assumes that you are done, and runs the shutdown sound sequence. Simply touch the throttle again to begin the start up sequence again.

Occasionally the system might drop into an idle, but not run the shutdown. This just means that the sound system did not correctly identify the neutral position of the throttle, possibly because of an inaccurate throttle trigger, or bumped throttle trim. If this happens and it seems like it has been in idle a while, simply touch the throttle forward just a hair,

and it should go right into the shutdown sequence. On very rare occasions, things might have changed so much that this does not work, in which case you will need to unplug the power from the sound card to reset it.

If you have any problems or questions, feel free to contact me at: MrRCFlying@MrRCSound.com



Please take note of the components listed on the board diagram, and their orientations.

The speaker output ports are opposed to each other. This means the positive red wires should both face in, towards each other, with black on the outside. If the orientation is the same, you will cause the speaker 'cancelation', which means some tones will cancel each other out, and cause a reduction in overall volume and tone.

LED output: There are two rows of LED outputs on the board, with three pins each. The pin nearest to the volume knob is positive and synced with the Servo 2 gun sound. The pin nearest to the memory chip is negative. The center pin is a positive output that is steady, for a steady LED like a landing light, and not synced with any gun sounds.

Currently MrRCSound does not sell a pre-made set of LED gun lights. If you intend to build your own set, the following will help in your LED and connection choice. The LED should be high brightness, and low voltage. 24volts and 10-20ma are recommended. Wire the lights in parallel for best results. Although not needed, to improve brightness you might want to match each LED with a resistor. You migt have to do some research to determine the best resistor for the LED you have chosen.

The connector of choice for the LED output ports is simply a servo female connector, with the wires running to the LEDs.

Tip if you get sound 'cut out': As stated above, the unit has been designed to run at the full volume point on most boards. Due to slight differences in production, your volume knob might be preset for max., but might not be at the full position.

On certain sounds, especially the P&W Double Wasp, with two speakers, the sound pushes the limit of the board capability. It is designed this way to get the maximum volume possible. Under certain conditions such as warm weather, or no airflow across the sound card, the engine sound might begin to cut in and out. **THIS IS NORMAL OPERATION** and not a problem with the unit. By doing this, the card is protecting its components from possible damage.

If you get this intermittent sound cut out, you can do one of two things. In most cases a little better airflow over the card will dissipate any excess heat, and keep it from happening. The other option is to lower the volume just a bit. The last ¼ turn of the volume knob is not used. Turning the knob to just shy of the ¾ mark will stop the cut out, but affect the overall volume very little.

Airplane Configuration:

Airplane	Servo1	Servo2	Servo3	Servo4
One:	Lycoming	Gun 1	“clear”	“clear prop”
Two:	Merlin	Gun 1	P-51 Whistle	Gun 2
Three:	Continental	Gun 1	“clear”	“contact”
Four:	Daimler Benz	Gun 1	Stuka siren	Cannon
Five:	Double Wasp	Gun 1	“clear”	Gun 2
Six:	Turbine	Gun 1	“clear”	Gun 2

Truck Configuration:

Vehicle	Servo1	Servo2	Servo3	Servo4
One	Monster Truck	Horn	Tire squeal	Crash
Two	Diesel Pickup	Horn	Truck Horn	Crash
Three	GM 5.7L	Horn	Alarm	Tire Squeal
Four	Old School 301	Horn	Alarm	Dixi Horn
Five	Ferrari	Horn	Alarm	Tire Squeal
Six	Formula 1	Horn	Crash	Tire Squeal
Seven	Dragster	Horn	Dixi Horn	Tire Squeal
Eight	NASCAR	Horn	Crash	Tire Squeal

The picture below shows the correct setup for a two speaker system. Notice the servo Y cable that goes from the throttle channel on the RX to both the sound card, and the ESC. Also, take note that the speakers are connected with the red wires facing each other. This is the correct way.