

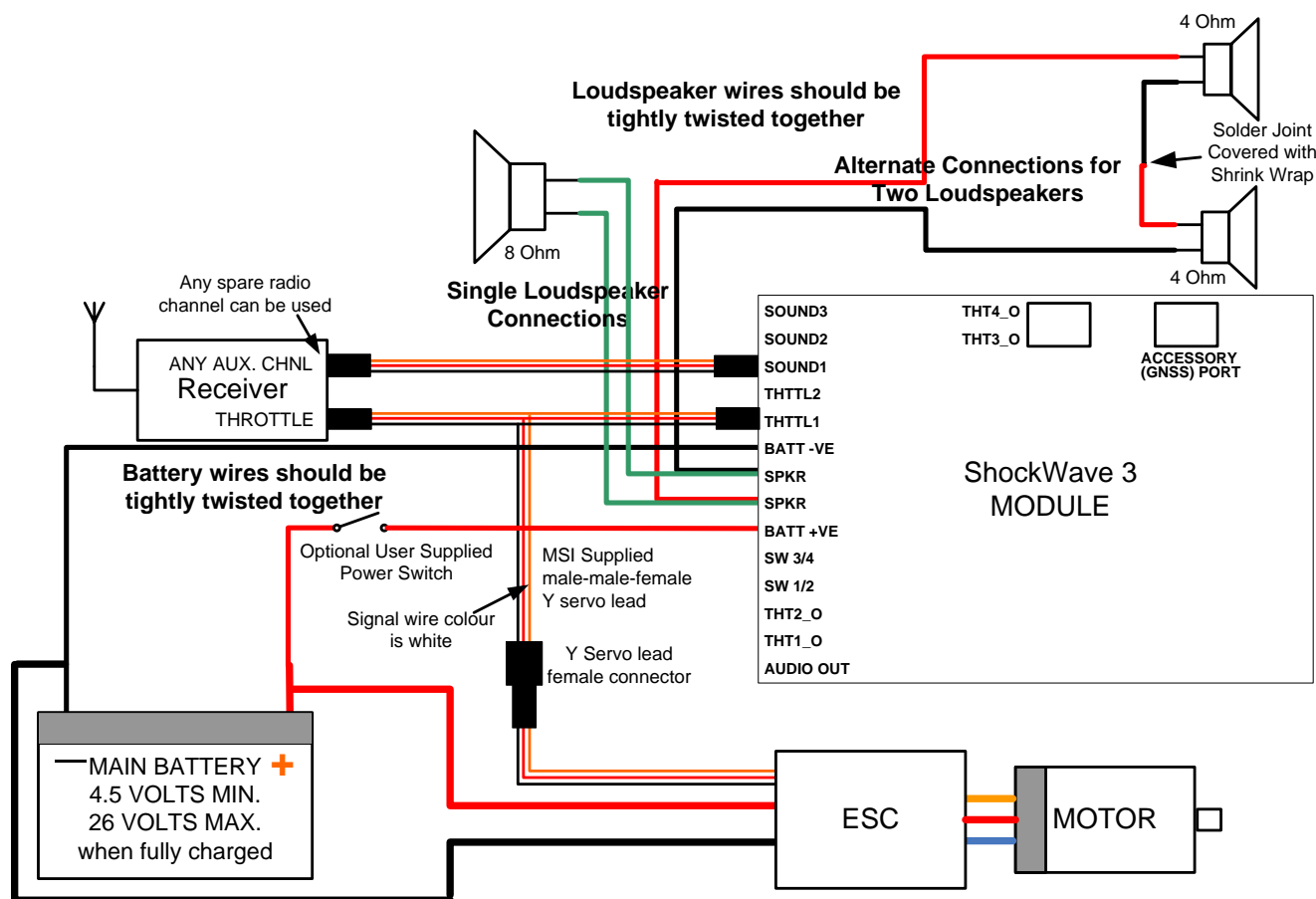
This is a Quick Start Guide only. For comprehensive instructions, please read the [SHOCKWAVE3HWManual.pdf](#) Reference Manual in the Manuals-Instructions folder on the microSD Card that is in the sound module. Insert the microSD Card into the included microSD to standard SD adaptor and insert that into your computer's SD card reader, or use a USB microSD card reader.

THEN MAKE BACKUP COPIES OF THE CONTENTS OF THE MICROSD CARD!

ALWAYS MAKE BACKUP COPIES OF ANY KIND ON TO MORE THAN ONE DRIVE OR EXTERNAL MEDIA!

WARNING: DO NOT EXCEED THESE BATTERY VOLTAGES	One 4 Ohm 20 Watt Speaker	One 8 Ohm 20 Watt Speaker	Two 4 Ohm 20 Watt Speakers in series
Maximum Battery Voltage	3S LiPo / 12 Volt gel	5S LiPo	6S LiPo

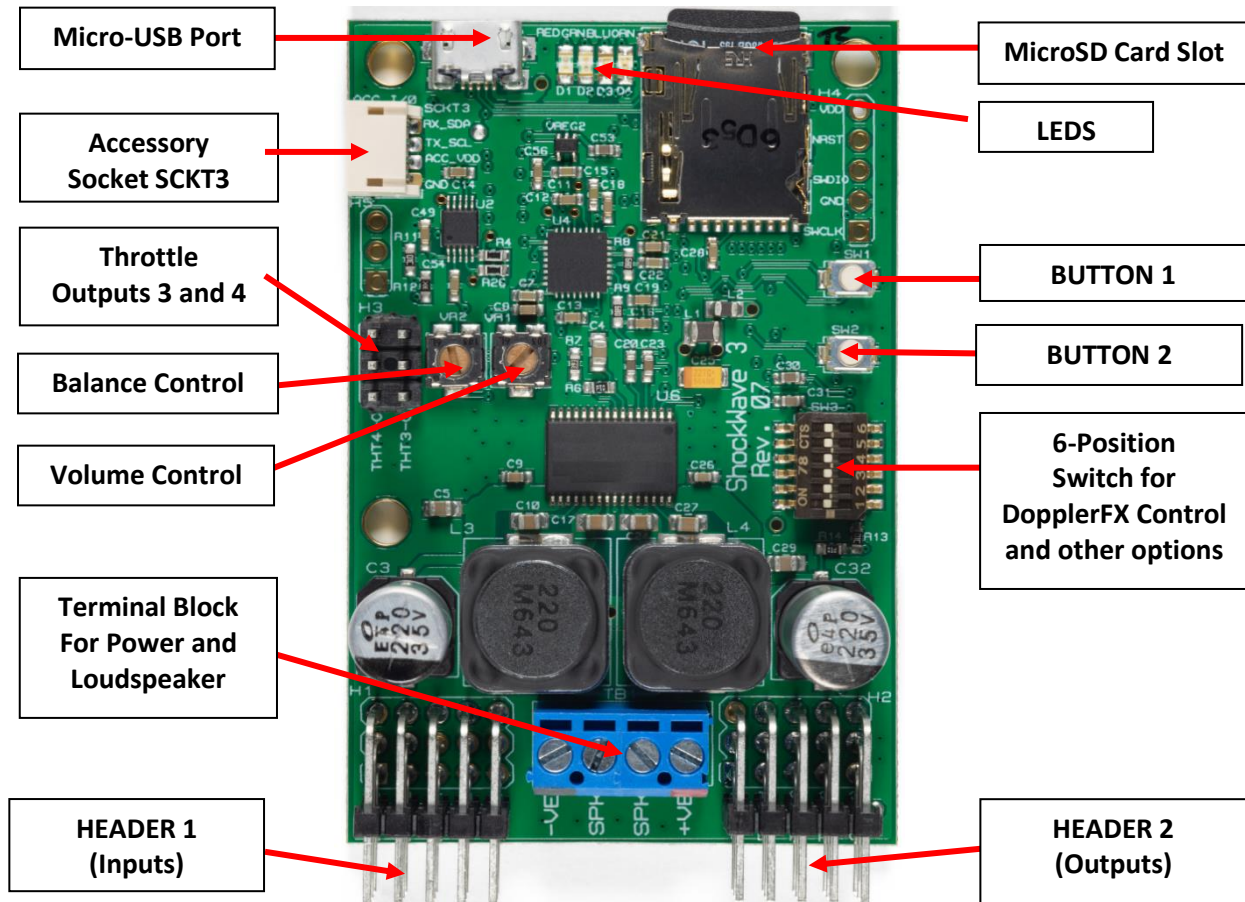
TYPICAL WIRING FOR ONE THROTTLE – USING ESC BEC (BATTERY ELIMINATOR CIRCUIT)



Make all required connections as specified on the anti-static bag that the sound module came in. DO NOT REVERSE THE BATTERY CONNECTIONS. THE MODULE WILL BE DESTROYED IF YOU DO.

When installing, be sure to run separate power lines, as shown above, to the battery just for your sound module. If the power lines are shared with motor or ESC lines, the electrical noise generated by them may interfere with the sound module.

SHOCKWAVE 3 SOUND MODULE CONNECTIONS



Power supply input and loudspeaker connections are made through the centre terminal block TB1. All R/C receiver inputs for throttles and sound select are at **HEADER 1**. Optional throttle outputs, switched outputs and audio line outputs are at **HEADER 2**. In order to hear sound from the speaker, 4.5 – 26 Volts power must be on the main terminal block terminals 1 and 4.

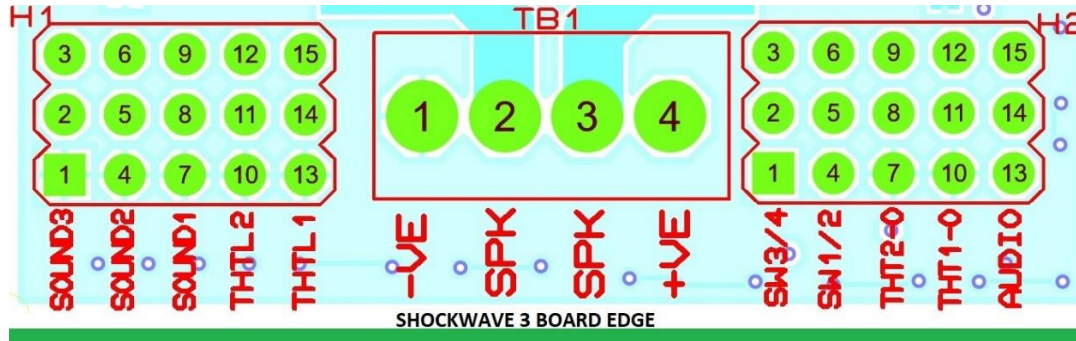
Recommended gauge for loudspeaker and battery wire is 22AWG solid core.
Do not use stranded wire.

ENABLING/DISABLING SYSTEM SOUNDS (VOICE ANNOUNCEMENTS)

System Sounds (Voice Announcements) are enabled by default when the module is delivered. To switch them all off, once the red/green LEDs have stopped flashing, press and release **BUTTON 1** quickly within 1.5 seconds. To switch them on again (this is a good idea if you are using the DopplerFX feature), press and hold down **BUTTON 1** for longer than 1.5 seconds.



TERMINAL BLOCK AND CONNECTOR H1/H2 DETAIL



HEADER 1 Detail – Use Male-Male or Male-Male-Female Servo Leads

Pin Numbers	Board Legend	Function	Notes
1, 2, 3	SOUND3	Sound Select3 signal in from receiver. Pin 1 is GND, 2 is receiver power, 3 is Sound Select3 signal.	Receiver power is on pin 2
4, 5, 6	SOUND2	Sound Select2 signal in from receiver. Pin 4 is GND, 5 is receiver power, 6 is Sound Select2 signal.	Receiver power is on pin 5
7, 8, 9	SOUND1	Sound Select1 signal in from receiver. Pin 7 is GND, 8 is receiver power, 9 is Sound Select1 signal.	Receiver power is on pin 8
10, 11, 12	THTL2	Throttle2 signal input from receiver. Pin 10 is GND, 11 is receiver power, 12 is Throttle2 signal.	Receiver power is on pin 11
13, 14, 15	THTL1	Throttle1 signal input from receiver. Pin 13 is GND, 14 is receiver power, 15 is Throttle1 signal.	Receiver power is on pin 14

The **BLACK GND (battery -VE)** servo lead wire always goes towards the edge of the board.

Terminal Block TB1 Detail – Use 22AWG solid core wire

Pin Numbers	Board Legend	Function	Notes
1	--VE	Main Battery negative 4.5 Volts – 26 Volts	Do NOT reverse Battery leads!!
2,3	SPKR	Loudspeaker - Do NOT use less than 8 Ohms on voltages above 14.4 Volts. 4 Ohms is OK on 4.5 - 14.4 Volts.	Loudspeaker leads are reversible.
4	++VE	Main Battery positive 4.5 Volts – 26 Volts	Do NOT reverse Battery leads!!

HEADER 2 Detail

Pin Numbers	Board Legend	Function	Notes
1, 2, 3	SW 3/4	Switched Outputs 3/4. Pin 1 is SWITCH4, 2 is RECEIVER POWER , 3 is SWITCH3.	Receiver power is on pin 2.
4, 5, 6	SW 1/2	Switched Outputs 1/2. Pin 4 is SWITCH2, 5 is RECEIVER POWER , 6 is SWITCH1.	Receiver power is on pin 5.
7, 8, 9	THT2_O	Throttle2 signal output. Pin 7 is GND, 8 is receiver power, 9 is THT2_O signal.	Receiver power is on pin 8. Used for Multi-Sync feature.
10, 11, 12	THT1_O	Throttle1 signal output. Pin 10 is GND, 11 is receiver power, 12 is THT1_O signal.	Receiver power is on pin 11. Used for Multi-Sync feature.
13, 14, 15	AUDIO	Line level Audio Out signals – 1.0V RMS. 13 is GND, 14, is Left Signal, 15 is Right Signal.	Used to feed external amplifier(s).

NOTES :

- LEDs for guns or other switched loads can be connected between their Switch 1/2 terminals 4, 6 or Switch 3/4 terminals 1, 3 and **any secondary positive power supply up to a maximum of 30 Volts. DO NOT connect the external LED battery +VE supply to any pin on the sound module. DO NOT exceed 1A on each output or 4 Amps total for all switched outputs.**
- The supplied male – male – female Y servo leads for Throttle and male – male Sound Select inputs are Futaba style colours (black, red, white), but with JR style male plugs for maximum flexibility.

The black wire is always the GND, 0V or –VE connection and should always be inserted towards the outside of the receiver case and towards the board of the sound module.

CONTROLLING THE ENGINE SOUNDS

By default, the Engine Sounds are switched on and off by the throttle controls only. The engine sound increases in 16 steps of increasing pitch.

With some models, e.g. model tanks, and helicopters, jet or turbo-prop/turbo-fan aircraft with long turbine spool-up times, it is preferable to control the engine start-up and shutdown sounds using a switched radio channel instead of using the throttle stick. This is done using our optional **ShockWave 3 PC Windows Software Application. However, if you ordered an engine sound type like this, it will be already configured by us to use a switched radio channel before we shipped it to you.**

If using a pistol grip style radio, the range of motion of the throttle trigger is very small making it very difficult to use that trigger to correctly startup and shutdown the engine sound. **Therefore, we do not recommend using a pistol grip style radio with our sound module.**

In that case it is far better to use a spare switched channel to startup and shutdown the engine sound. Then a different configuration setting is required in the .sfx8 sound set file.

For both types of throttle (forwards or forwards/reverse), when using the throttle stick to startup and shutdown the engine sound, nudge the throttle control forwards a little and the corresponding engine sound will start playing. If there is a separate engine start-up sound, that sound will play and then continue to loop from its loop point. As you move the throttle stick forwards the engine sound will increase in speed.

For Forwards/Reverse throttles, if the throttle is moved back to the neutral position the engine sound will continue to play in idle indefinitely. This is good for model boats and tanks. To switch off the engine sound, nudge it into reverse very slightly and **hold it there for about 2 seconds**. If you move it too far, the engine sound will continue to play with its increasing speed. If there is a separate engine shutdown sound, it will play once then stop. If there is not a separate engine shutdown sound, the engine sound will stop after the 2 second delay.

CONTROLLING THE “REGULAR” (NON-ENGINE) SOUNDS

There are several ways of controlling the Regular (non-engine) sounds. The default method is to use a single on/off switch on the transmitter to control the sounds – this is called “**Switched R/C 1xN**” mode since one transmitter switch is used to control many (N) sounds.

Alternatively, if you have a four-channel transmitter and are controlling a land-based vehicle, or a model boat, you can use one of the unused proportional stick channels to simulate a switch.

The different modes are selected in the optional **ShockWave 3 PC Software Control Panel->Hardware Tab** and work like this :

“Switched R/C 1xN” Mode : One transmitter ON/OFF channel is used to switch N sounds

1. Toggle Sound Select 1 **from OFF to ON and back to OFF** N times quickly to select sound N. After a timeout of about 1 second (adjustable), Sound N will start playing. This is **Latched** action. Repeat to switch Sound N Off.

OR

2. Toggle Sound Select 1 **from off to ON and back to OFF** N-1 times and then move to on position **and hold it there** – Sound N will play for as long as the switch is in that **ON** position. Release the switch to the **OFF** position to switch Sound N Off. This is “**Momentary**” action.

It is best to not use the **Latched** mode unless you really need to. That mode is meant for long playing sounds such as sonar pings, music etc. where you would not want to hold the switch/stick in the on position for too long. For all other sounds such as guns, horns, Morse code etc. it is best to use the momentary mode by holding the switch in the on position for as long as you want that sound to play.

WHY DO I HAVE TO WAIT FOR THE LEDS TO STOP FLASHING?

During the initialization period when the red/green LEDS are flashing rapidly alternately, the sound module is waiting for the receiver to stabilize and produce valid output signals. The default wait period is 6 seconds. This is because some receivers can take a long time to stabilize.

If your receiver stabilizes much quicker, you can reduce this wait time down to as short as 3 seconds using the optional **ShockWave 3 PC Software Control Panel->Hardware Tab** or the new **HardwareSettings.txt** file on the microSD card.

MOUNTING THE MODULE

Mount the module using pan-head screws. Philips type screws are recommended to prevent screwdriver slippage damaging the board. Do not over-tighten the screws or the board may be damaged.

Mount the module where good air circulation can take place, especially when operating it above 18 Volts. The module will get warm on 12 Volts and quite hot on 24 Volts if operated continuously when playing sounds. Do not be overly concerned. The output amplifier is thermally protected and will shut down if it gets too hot which, in practice, it has never done.

APPLYING POWER TO THE SHOCKWAVE 3 SOUND MODULE

The **ShockWave 3** module's low-level circuitry can be powered using two methods.

1. From the R/C receiver through the THTL1/2 or SOUND1/2/3 cables.
2. From the USB port when connected to a PC.

In addition, the audio power amplifier is powered from the Blue terminal block on the module. If you want to hear sound from the sound module's internal power amplifier you must have power applied to the Blue terminal block **as well as** low level power from methods 1 or 2.

THROTTLE PINS

Throttle inputs from the receiver are connected to the **THTTL1** and **THTTL2** pins on HEADER1 on the left side of the sound module. The throttle outputs on HEADER2 are internally generated and have additional signal processing in some modes. A custom made male-male-female Y servo lead is provided to connect both the sound module's THTTL1 input and the ESC input to your receiver.

MICROSD CARDS

Correct operation of the sounds on the **ShockWave 3** sound module is guaranteed for only the microSD card that is supplied with it. Not all microSD cards perform the same, even if they appear to have the same specifications. The only supported microSD cards are Kingston brand Class 4 8GB or 16GB. **DO NOT use SanDisk cards.** Please contact us at contactus@modelsoundsinc.com to purchase additional Kingston microSD cards pre-loaded with sounds.

CONFIGURING SOUNDS ON YOUR SHOCKWAVE 3 SOUND MODULE

As delivered, your **ShockWave 3** module is configured to start-up with whichever sound set you asked for during our pre/post-order email exchanges. It is easy to change it to any of the other available Airplane, Helicopter, Tank or Boat pre-configured composite sound files by editing a simple text file on the microSD card using a Windows computer. Depending on what you ordered, you will get Airplane OR Helicopter OR Boat OR Tank sounds.

The microSD card contains multiple composite sound files with our proprietary .sfx8 file extension. These .sfx8 files contain multiple sound clips and important configuration and sound file metadata all within a single .sfx8 file. Thus, all of the sounds and their supporting data travel together in a single file for any particular model.

Each time the **ShockWave 3** sound module is powered up it reads a file called **SELECT_YOUR_SOUNDSET_HERE.txt** in the root folder of its microSD Card.

The **SELECT_YOUR_SOUNDSET_HERE.txt** file contains at least two lines of text:

1. The first line should contain the path of the folder containing the .sfx8 file you want to use.
2. The second line should contain the name (with file extension) of the .sfx8 file you want to use.

For Example:

**ShockWaveSoundSets44\Airplanes
SpitfireMerlinSoundSet.sfx8**

There may be additional lines of informational text after the first two lines. This additional text is ignored by the ShockWave 3 sound module.

HOW TO CHANGE THE ACTIVE SOUND SET ON THE MICROSD CARD

In order to change the active sound file to a different one, you will have to edit the **SELECT_YOUR_SOUNDSET_HERE.txt** file using a computer. The microSD card is formatted as a FAT32 file system, so a Windows PC should be used.

There are three ways you can access the microSD card on your computer:

1. Insert the microSD card into the included microSD to standard SD adapter and insert that into a SD card reader slot on your computer.
2. Insert the microSD card into a USB microSD card reader and insert the USB reader into a USB port on your computer.
3. Connect the **ShockWave 3** sound module to your computer using a standard USB 2.0 Male A to micro-B male cable. This is the kind of cable commonly used with mobile devices.

Once the microSD card is accessible on your computer, it will appear as a removable drive with the name **SHOCKWAVE3**.

Using Windows File Explorer, navigate to that drive and open its root folder. In that folder you will see the **SELECT_YOUR_SOUNDSET_HERE.txt** file. By default, Microsoft sets up Windows to hide file extensions so you may not see the **.txt** file extension at the end of the file name. You can change that setting using the File Explorer Folder View settings.

Double click on the **SELECT_YOUR_SOUNDSET_HERE.txt** file. By default, it should open up in a simple text editor such as Notepad. Once you have made any changes to the file, make sure it is saved as a simple **.txt** format file. It must not have any text formatting in it.

If the microSD card was not already inside the **ShockWave 3** module, the microSD card can be removed from the card reader and re-inserted into the **ShockWave 3** module.

TWO 4 INCH 20 WATT 4OHM LOUDSPEAKERS

If you ordered a ShockWave 3-2x4x4 sound system kit, it comes with two 4 inch 20 Watt 4 Ohm loudspeakers. They are intended to be used in pairs and wired in **SERIES**, never in parallel.

These may be used singly **ONLY** on a 3S LiPo or a 12 Volt lead gel battery. With higher voltages than 12 Volts they **MUST** be used in pairs and wired in **SERIES**.

If your model can accommodate only one 4 inch loudspeaker, or only smaller loudspeakers, please contact us at contactus@modelsoundsinc.com for alternate loudspeakers.