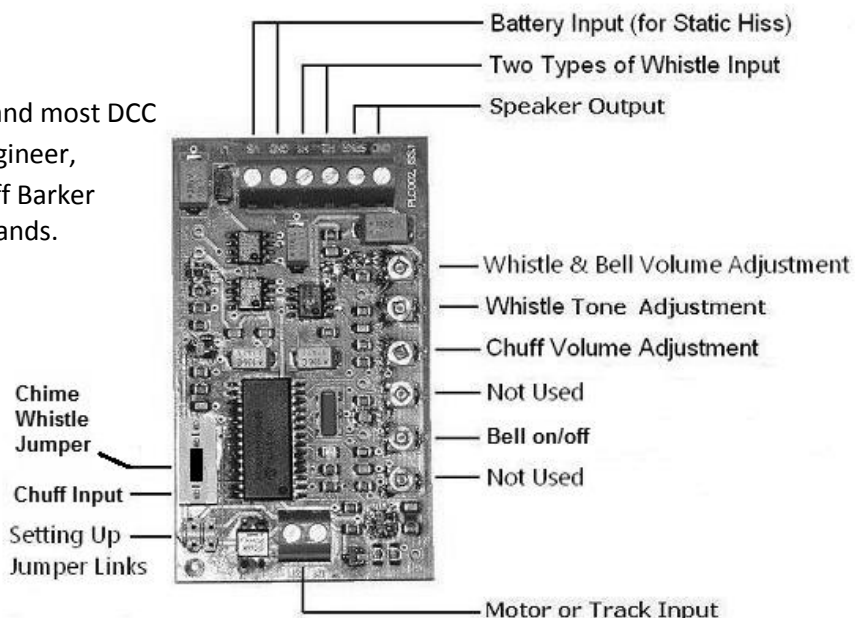


MyLocoSound – Steam for Locomotives with Chuff Timers

A LOW COST AND CUSTOMISABLE SOUND CARD FOR LARGE SCALE STEAM LOCOS

- ✓ One third the cost of the major sound card brands
- ✓ Small size for easy fitting – only 64mm by 38mm by 13mm
- ✓ Digital synthesized sound with loco timed chuff
- ✓ Plain and Chime whistles and a switchable bell
- ✓ Customisable using a screwdriver – no programming needed.
- ✓ Suitable for battery or track powered locos and most DCC
- ✓ Compatible with Roundhouse, RCS, Train Engineer, TE Revolution, Brian Jones, Mtroniks and Cliff Barker radio control equipment plus many other brands.
- ✓ Very easy to connect.

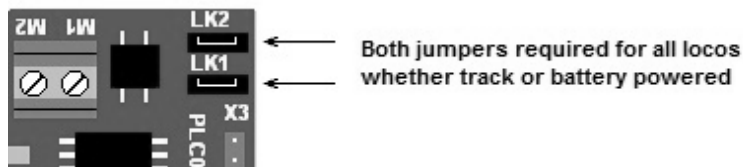
MyLocoSound – Steam is not an inflexible recording of a real steam loco. It is a synthesised sound which is highly adjustable to represent a variety of steam locos, from small industrial locos up to heavy, mainline freight units.



PREPARING THE SOUND CARD

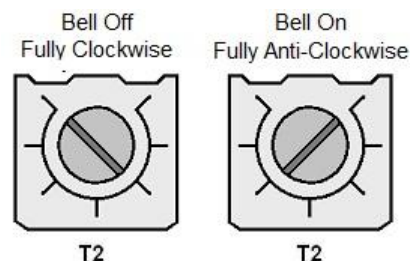
The card contains two setting up jumpers which are pushed onto the pins marked LK1 and LK2 as shown below:

When used for locos with chuff timers, these two jumper links must always be installed, regardless of the soundcard being driven by track power or battery power.



A BELL FOR AMERICAN LOCOS

If you have an American loco and want to have a bell sound when the loco is moving at low speeds then switch off the loco, rotate the T2 trimpot fully anti-clockwise to the position shown in the diagram alongside, and switch the loco on again. The bell will then sound at low loco speeds. To stop the bell ringing, turn the trimpot fully clockwise to the off position and switch on again.



Important

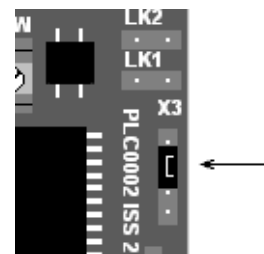
Before running the soundcard in a locomotive, please check that:

1. The chuff cam is connected to the GND terminal as shown in the following wiring diagrams and **not** to the VS terminal.
2. That the axle chuff switch is isolated from all other power inputs from track or batteries.

Failure to follow these instructions is likely to damage the large soundcard processor chip. If you feel the processor chip getting hot then switch off and check these two items immediately.

PLAIN OR CHIME WHISTLE

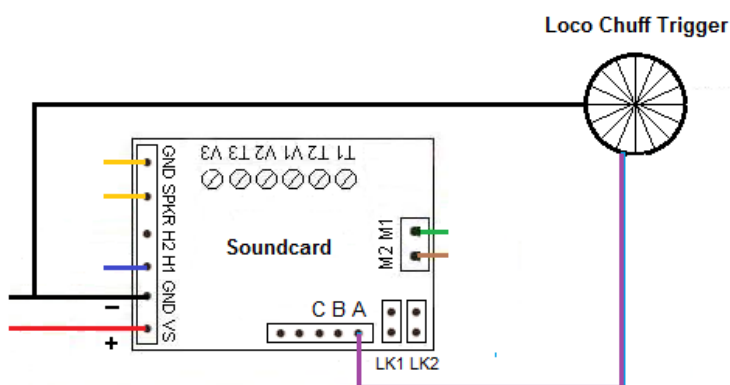
To change the whistle from plain to chime fit a jumper as shown alongside. Switch off the loco, fit the whistle jumper, switch the loco on again and the whistle should change from plain to chime. To change it back, switch the loco off, remove the jumper and turn the loco on again.



CONNECTING TO THE AXLE DRIVEN CHUFF SWITCH

In the loco, two wires will come from the chuff switch which is mounted on one of the driving wheel axles. These two wires need to be connected to the soundcard as shown below.

The remaining soundcard terminals are then connected as shown in the wiring diagrams on the following pages for the different types of control.



SPEAKERS

MyLocoSound – Steam requires an 8 ohm loudspeaker which is not included. A 4 ohm speaker can also be used but you may need to connect a 2 ohm resistor in series. Your choice of speaker is highly important because it determines the quality of the sound produced.



The lowest cost option is to fit speaker from your local consumer electronics store. Typically these come in 27mm or 57mm diameters. Use the largest which you can fit in your loco.

For a better quality sound and more volume, the speaker needs to be baffled. That means that it needs to be built into the front face of an airtight box so that sound is heard only from the front of the speaker and none from the back. The plastic top of a spray paint can is good for making a baffle as shown in the diagram.



A good solution, which ensures high quality sound with lots of deep throbbing bass, is to purchase an 8 ohm impedance external speaker unit for iPod and MP3 music players and remove the two speaker modules, in their enclosures, for use in two locos. These are readily available at consumer electronics stores.

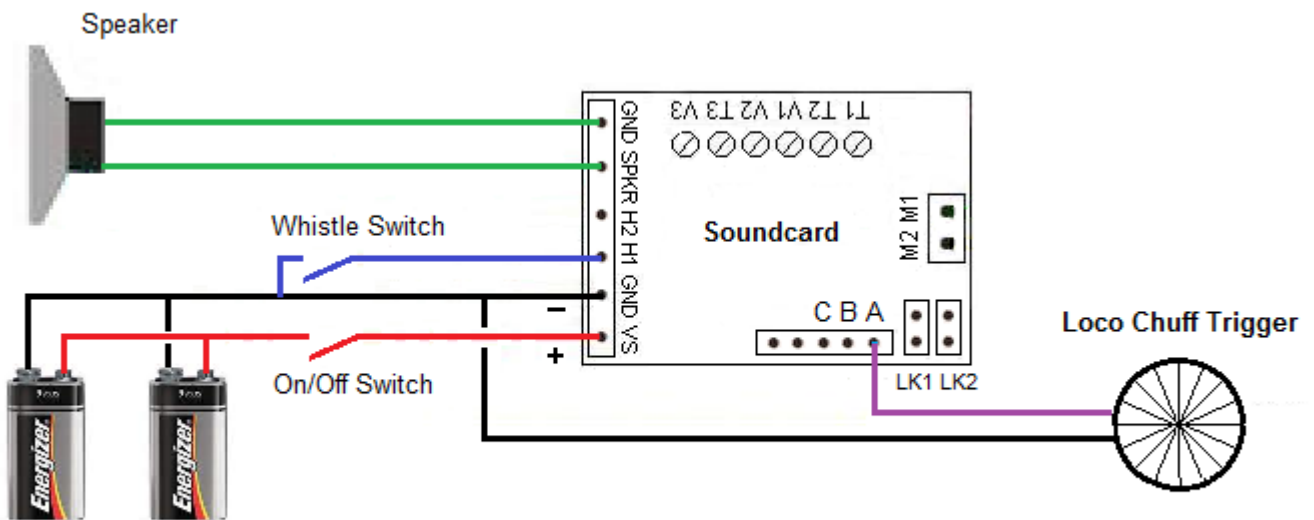


CONNECTING THE SOUND CARD

The sound card is designed for use on track or battery powered railways where the loco has a chuff cam or optical switch which closes the appropriate number of times on each driving wheel revolution.

The whistle will sound automatically each time the loco moves off.

The connections are shown on the next page.



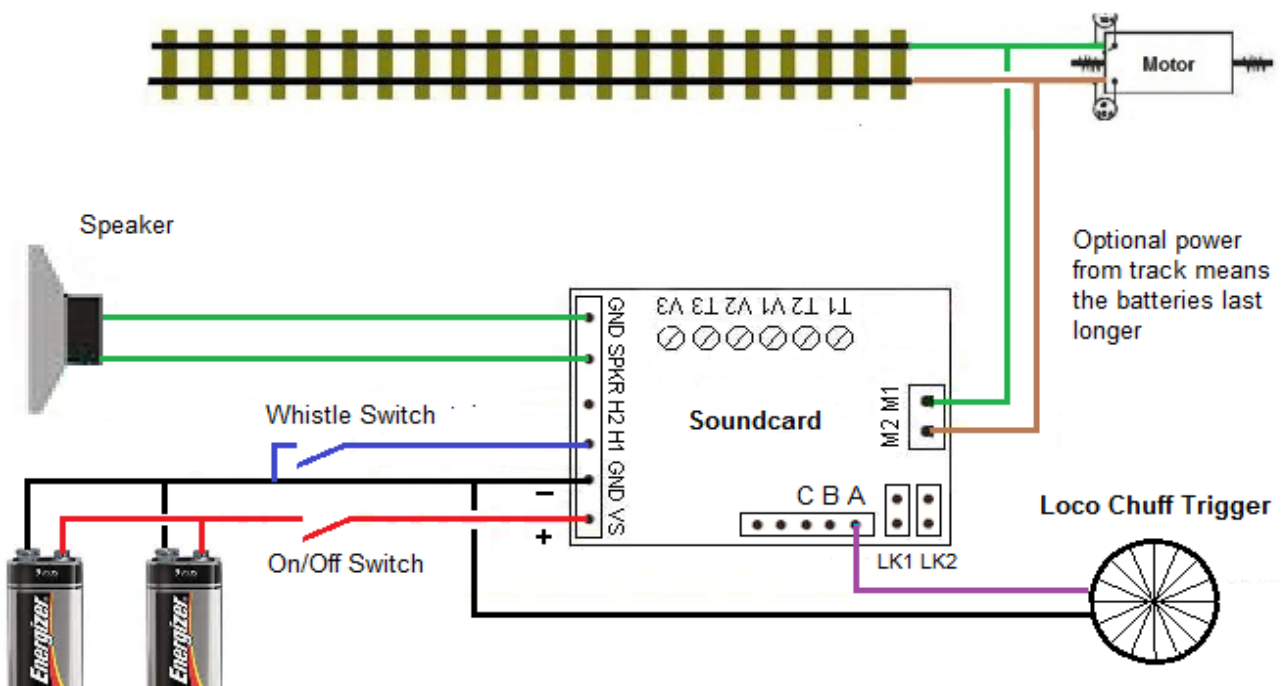
Use one small 9v battery for moderate volumes
 Use two small 9v batteries or one larger one for maximum volumes

One 9 small volt battery is sufficient to power the soundcard but only if the chuff and whistle volumes are set to medium or lower. If only one of these batteries is used and the chuff and whistle volumes are set too high then the soundcard will draw too much current, the battery voltage will drop and the soundcard will go quiet for a couple of seconds while it resets itself. If you want to set the volumes high then use a larger capacity battery or two small 9 volt batteries connected in parallel as shown above.

USING THE SOUND CARD ON TRACK POWERED RAILWAYS

If your loco is powered through the track then you can use the track voltage to power the soundcard. The batteries shown above are still required but will now last much longer because they will not be used whenever the track voltage exceeds 7.5 volts.

If it is convenient to use the track power then connect it as shown below:



Use one small 9v battery for moderate volumes
 Use two small 9v batteries or one larger one for maximum volumes

The DC track voltage can vary from zero to a maximum of 24 volts. Controllers should be linear not pulse width modulated. On DCC systems you must connect the soundcard to the DC output to the motor, not to the AC voltage from the track.

If using the Aristocraft Train Engineer system, please ensure that the receiver is set to “Linear” not “PWM”.

You can make the whistle sound by connecting a switch between the H1 and GND terminals. This switch can be a reed switch under the loco operated by magnets buried between the rails. In both cases, the whistle will sound for one second. Alternatively, a door chime, from you local hardware store, can be used to remote control the whistle. Details are on the MyLocoSound web site at www.mylocosound.com.

CONNECTING THE SOUND CARD IN A MANUALLY CONTROLLED, BATTERY POWERED LOCO

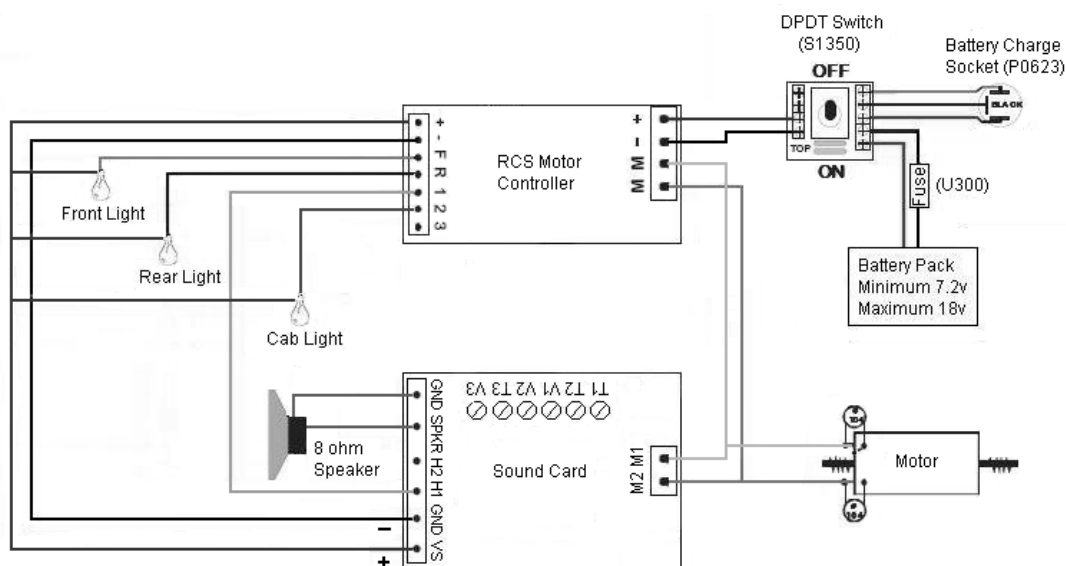
The sound card is suitable for battery powered locos in the range 7.2 to 24 volts, with or without radio control.

Just connect the soundcard VS and GND terminals to your loco battery instead of the small 9 volt batteries shown above.

CONNECTING THE SOUND CARD IN RADIO CONTROLLED, BATTERY LOCOS USING RCS EQUIPMENT

The MyLocoSound – Steam sound card is compatible with the products of Remote Control Systems (RCS) , using either pushbutton or joystick transmitters.

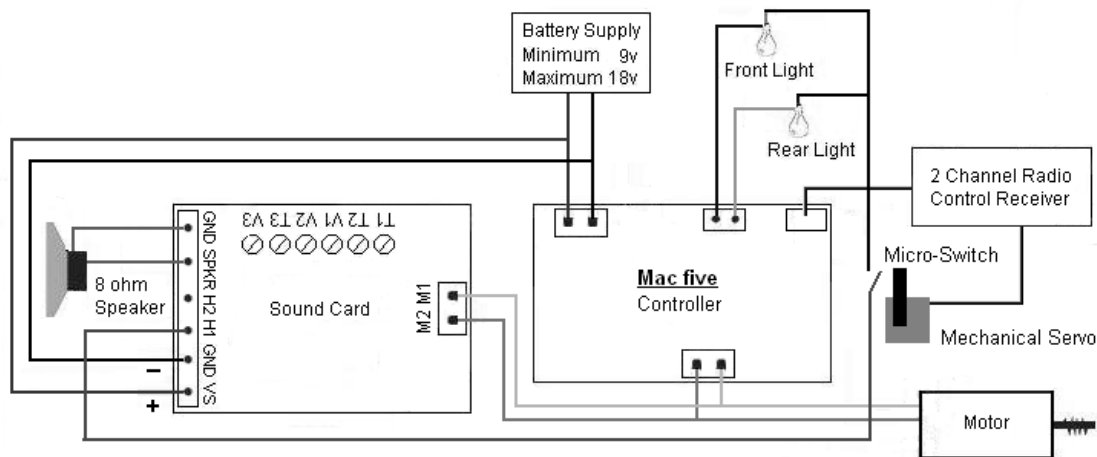
The diagram below shows how the sound card can be connected to an RCS motor controller with the optional accessory terminals which are used as follows:



- The F terminal is connected to a front light which will then illuminate when the loco is moving forwards.
- The R terminal is connected to a rear light which will then illuminate when the loco is moving backwards.
- The 1 terminal is connected to the sound card whistle. This terminal should be programmed for momentary operation that is the whistle sounds while the button is pressed and stops when it is released.
- The 2 terminal is connected to a cab light and can be used for other purposes. For a cab light, this terminal should be programmed for latched operation that is it alternates on and off each time the button is pressed.

CONNECTING THE SOUND CARD IN RADIO CONTROLLED, BATTERY LOCOS USING OTHER EQUIPMENT

The diagram below shows how the soundcard can be connected to other types of battery radio control systems.



The Brian Jones Mac Five uses one channel for loco speed and direction but has no accessory channel. The second channel can drive a separate mechanical servo and micro switch to operate the whistle. The wiring diagram is shown above.

Controllers from Cliff Barker are also similar except that they have a rear light only which is pre-fitted. They also do not require the capacitor but the controller pulse rate **must** be set to 1KHz. The whistle can be worked by the uncoupler button by connecting the centre terminal of the controller accessory connector to the soundcard H1 terminal.

The LocoLinc KLR-102 and KLR-106 receivers have accessory terminals which can be used to operate the whistle. They do not require a capacitor.

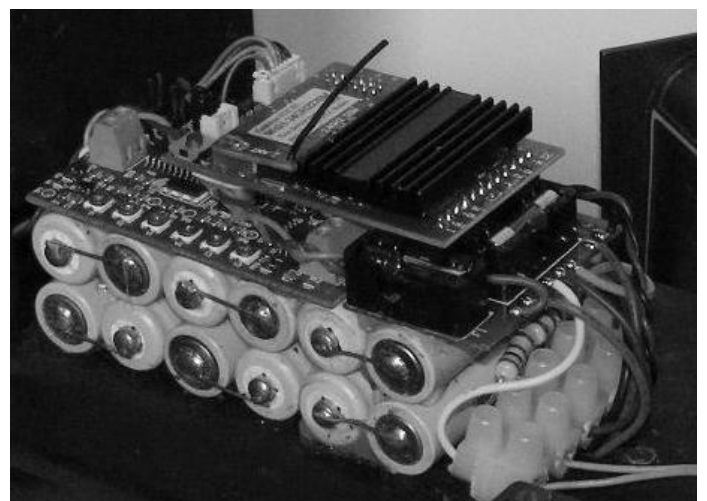
In all cases, the whistle operates on a momentary basis ie. It sounds when the switch is closed and stops when the switch is opened.

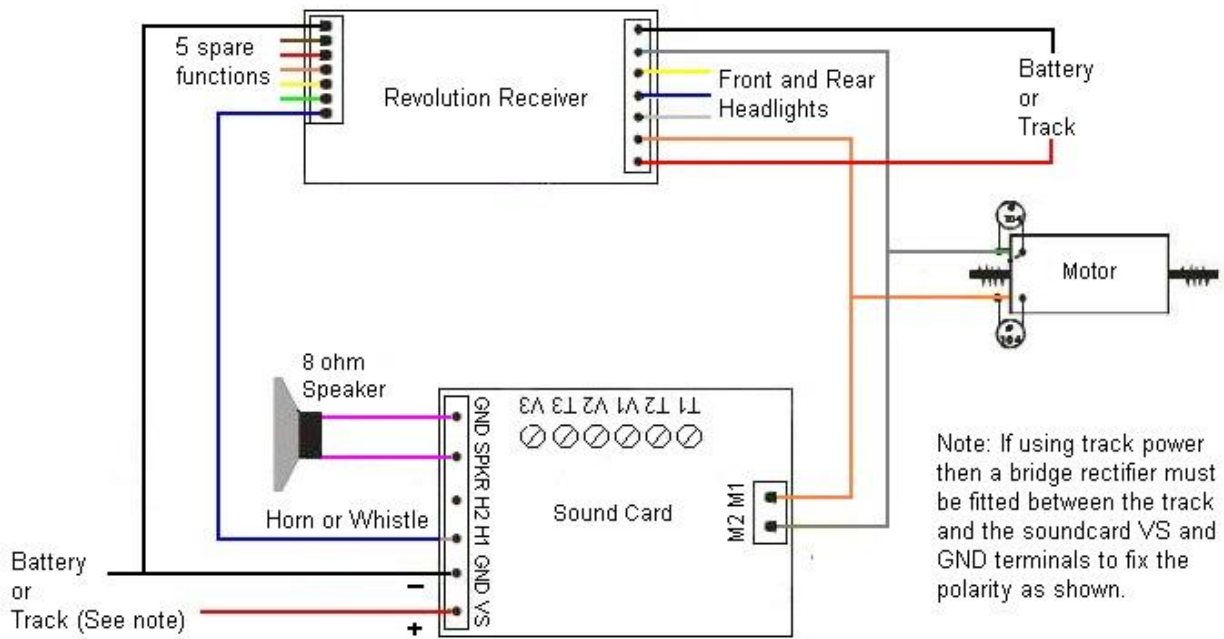
CONNECTING THE SOUND CARD TO THE CREST TRAIN ENGINEER REVOLUTION FROM ARISTOCRAFT

The photo shows a compact Revolution installation where silicon has been used to mount the soundcard on a pack of twelve AA rechargeable batteries for a total of 14.4 volts. The Revolution Adaptor Plug has been mounted alongside and the Revolution receiver plugged in on top giving easy access to the soundcard trim pots.

The terminal strip ahead of the batteries is used to connect the resistors needed for incandescent head and rear lights.

The Revolution receiver has six accessory outputs, the first of which is set to momentary and is used for the whistle. The remaining five can be used for cab lights and other purposes.

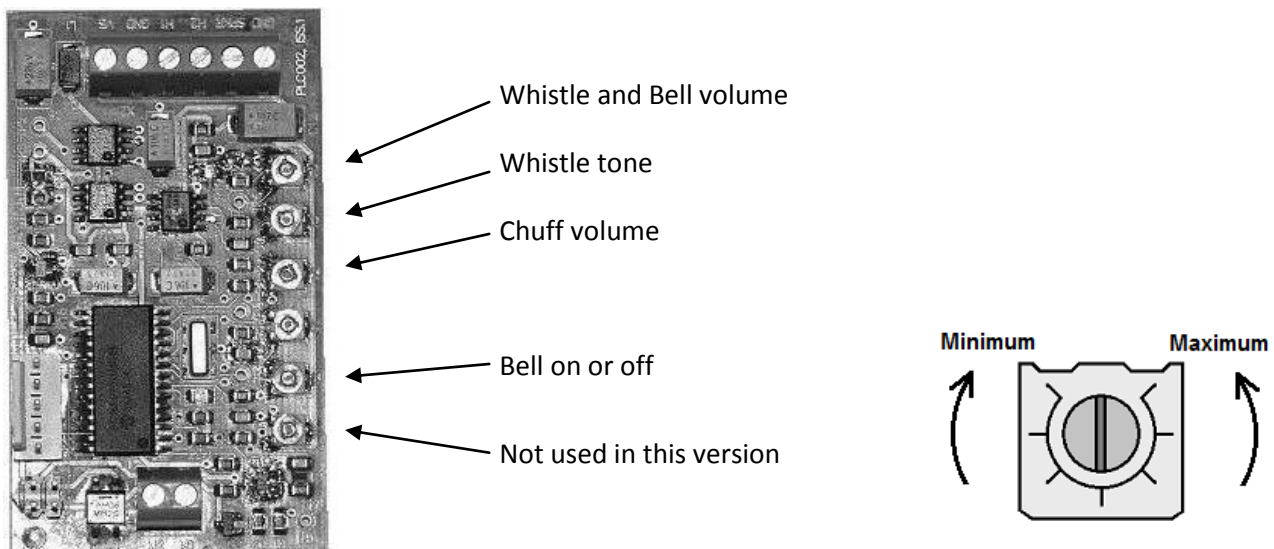




The diagram below shows how the soundcard can be connected to the Train Engineer Revolution from Aristocraft for both battery and track power supply. If using track power then you will need to purchase a bridge rectifier from your local consumer electronics store. Connect it between the track and the soundcard VS and GND terminal.

ADJUSTING THE SOUND CARD

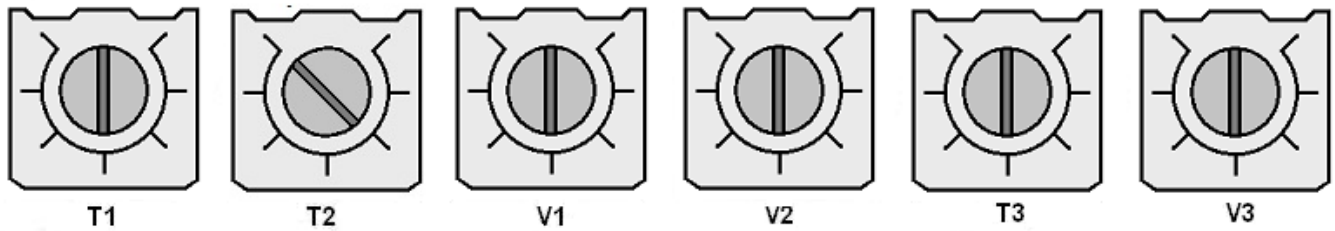
Once it has been installed and connected, the MyLocoSound – Steam sound card can be adjusted to provide the sound characteristics required for each loco. Adjustments are made by using a 2.5mm flat bladed screwdriver to turn the trimpots located down one side of the sound card, as shown below.



Note that each trimpot rotates between the minimum and maximum positions shown above. Turn anti-clockwise to increase the setting and clockwise to decrease.

FACTORY SETTINGS

The steam soundcard is shipped with the slot pointing in the directions shown below:



If the soundcard sounds wrong then it is suggested that you return all the trimpots to these factory settings and commence your adjustments again.

Note that trimpot T2 needs to be turned to switch the bell on or off as shown on page 1.

CHECKING THE SOUND CARD

If you suspect that the soundcard is faulty or cannot make it work properly, we suggest that you carry out the following steps:

1. Disconnect all wires from the soundcard
2. Check that the jumper links are set correctly as shown in page one.
3. Return all the trimpots to their factory settings as shown above.
4. Connect a voltage between 7.2 volts and 24 volts, positive to the VS terminal and negative to the GND terminal. After a delay of a couple of seconds, the red light should illuminate. If it does not then the soundcard is faulty or damaged or the voltage is less than 7 volts.
5. Connect a speaker to the SP1 and SP2 terminals. It does not matter which way around the wires are. You should hear a steam hiss. If nothing is heard then turn up the volume control V2. If still nothing is heard, check that the speaker is okay.
6. Connect an additional wire to the GND terminal and touch the other end on the pin A as shown in page 2. This should produce a chuff.
7. Connect a wire between the H1 and GND terminals or between the H2 and VS terminals. The whistle should sound. If you hear nothing then check that the whistle volume trimpot V3 is turned up enough.

GOT A PROBLEM?

I get a very poor sound or no sound at all

There are several common reasons for this:

1. The supply voltage at the VS and GND terminals may be too low. It needs to be at least seven volts.
2. VS and GND are connected the wrong way around. The positive should be connected to the VS terminal and the negative to the GND terminal.
3. The speaker is not connected.
4. The speaker is the wrong impedance. It should be 8 ohms impedance or, if a 4 ohm speaker is used then try connecting a 2 ohm resistor in series.

5. The soundcard has been mounted using double sided tape which is electrically conductive.

6. If there is no sound at all then the volume control V2 may be set to zero.

The whistle does not work.

There are two whistle input terminals H1 and H2. These are designed for different types of output from the accessory terminals of radio controllers. If it doesn't work on the terminal you have connected to then try the other one.

The chuff is erratic

The chuff cam in your loco could be closing erratically or sticking. Try cleaning it.

The sound stops when the loco moves off

The soundcard requires a minimum of 7.5 volts operate. If your loco has only a small 9 volt battery on board and the chuff and whistle volume is set high then the soundcard may be pulling the voltage down below the minimum. To fix this you can:

1. Turn down the volume
2. Add a second 9 volt battery in parallel as shown on page 3.
3. Use a larger capacity battery.