MYLOCOSOUND

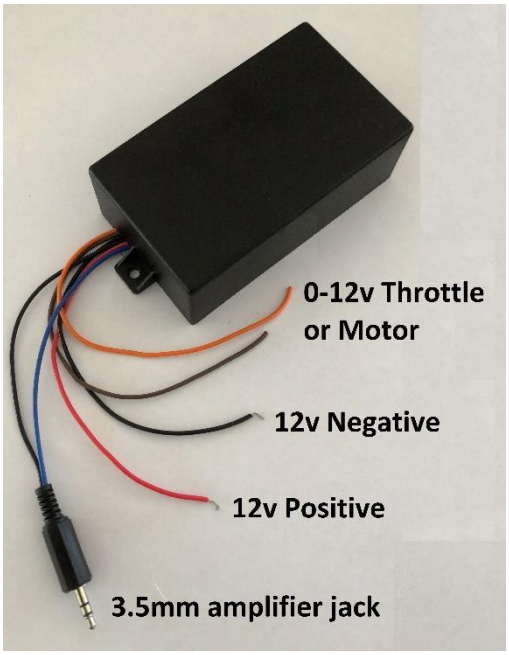
UNIVERSAL SOUND FOR RIDE ON LOCOMOTIVES

1.OVERVIEW

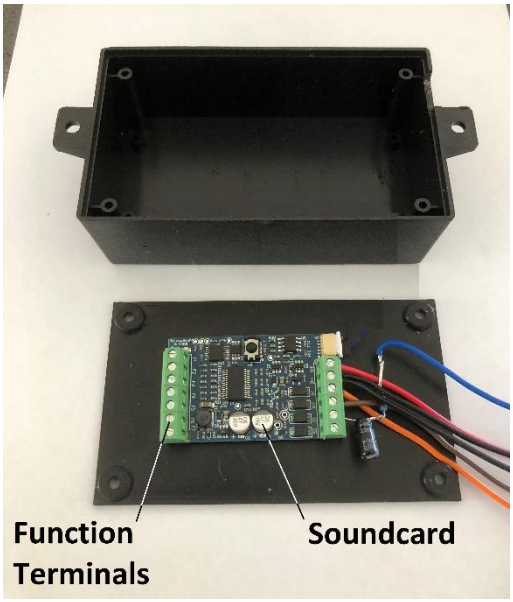
- Packaged for easy installation.
- Uses a TV remote control to adjust the sounds to match the prototype loco.
- Provides five selectable engine sounds which adjust to match the loco speed and load.
- Selectable engine start up
- Six single and dual tone horns with adjustable pitch to suit the loco.
- Full remote control of the horn, bell, airbrake, guard's whistle and optional turbocharger.
- Optional brake squeal.

2. CONTENTS

The sound box is designed to be mounted on or in ride on locomotives. It is weather resistant but not waterproof. Inside is a soundcard which generates synthesised sound which is adjustable to reproduce the sounds of most diesel locos and railcars



The engine sound is automatic and is controlled by the connection to the throttle or motor. The other sounds can be triggered by pushbutton or by a Sony infra-red TV remote control which can be purchased locally. Low cost, universal, TV remote controls are available from most consumer electronics stores and need to be set to Sony coding to work with the soundcard. Although it can be used when running, the remote control is intended mainly for the adjustment and testing of sounds.



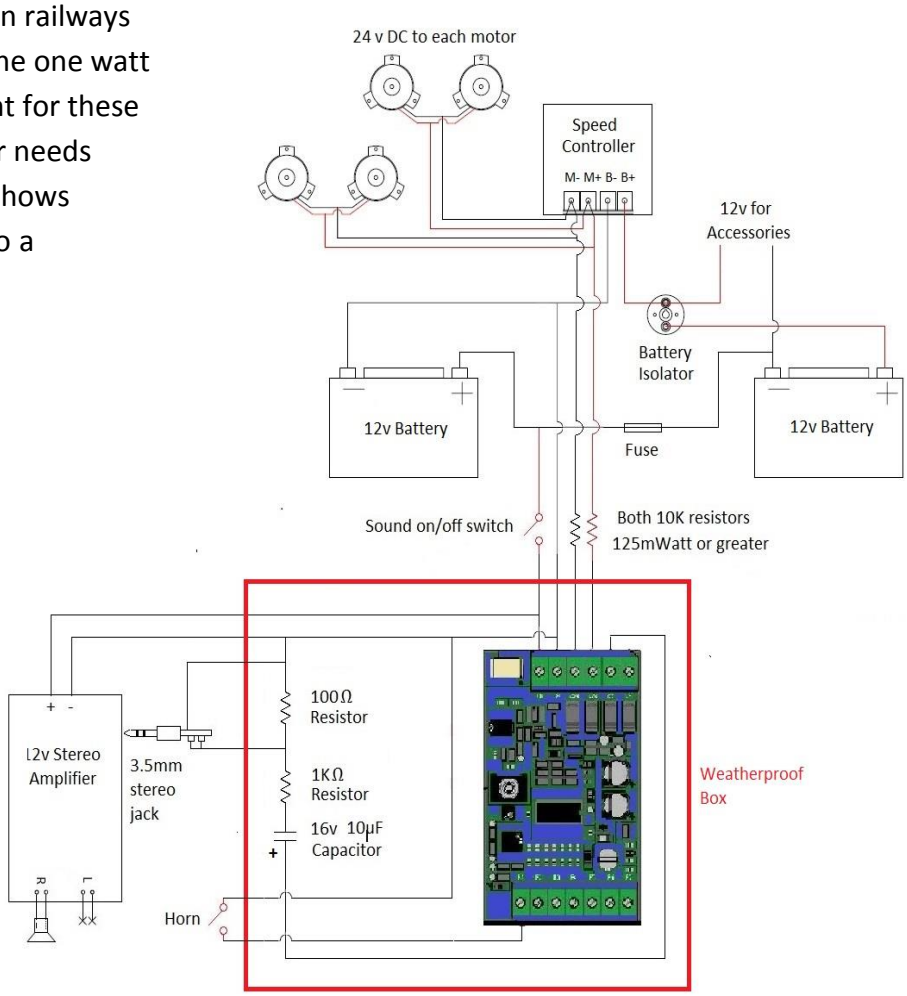
The remote control communicates with the soundcard via the hole in the side of the box. You just point the remote control at and close to the hole. Adjustments to the sounds can then be made without taking the box apart to access the soundcard.

Important Note

The soundcard is designed for outdoor use and may not work correctly under bright incandescent lights on a workbench. LED lights are okay.

3. USING AN EXTERNAL AMPLIFIER FOR RIDE ON RAILWAY LOCOMOTIVES

When used in 5 inch and 7¼ inch ride on railways there is a lot of environmental noise. The one watt output of the soundcard is not sufficient for these environments and an external amplifier needs to be used. The wiring diagram below shows how the soundcard can be interfaced to a commercial stereo amplifier in a loco powered by a 12 V battery.



Note that the soundcard can handle a maximum of 24 volts DC. A battery which is labelled as 24 volts will typically output 28 volts when fully charged and will therefore damage the soundcard if connected directly. The two 10K resistors on the M1/M2 terminals keep the voltage down to 24v.

In Australia, the 2x15 watt AA0487 amplifier from Jaycar is suitable. Other amplifiers may require the 100Ω resistor to be changed. If the output volume is too low then raise the value of the 100Ω resistor.

A single speaker can be used on the right output or two speakers on the left and right outputs.

Any of the five functions can be used by means of a pushbutton between the function terminal and ground. The sound functions available are horn, bell, guard's whistle, airbrake release and engine start/stop. Only the horn wiring is shown in the diagram.

The installation can be made more robust by enclosing the soundcard, capacitor and two resistors into a plastic project box as shown in the diagram. The whole can then be fixed to the top of the amplifier using silicon.

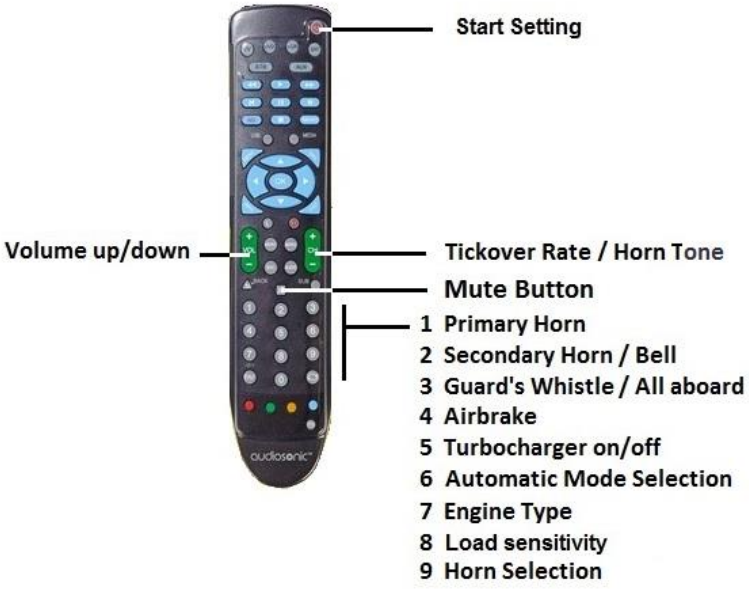
Select a speaker which matches the impedance and power output of the amplifier. In the case of the Jaycar AA0487 a 15 watt speaker of four ohms impedance is needed. It is also important to make a soundbox which is an airtight fit to the back of the speaker. This will improve both volume and sound quality.

4. THE INFRA-RED RECEIVER

The infra-red receiver on the soundcard accepts commands from the handheld remote control to adjust or trigger sounds when setting up. In normal running, pushbuttons connected to the soundcard function terminals are the normal way of triggering sounds.

5. THE REMOTE CONTROL

The soundcard will operate with any Sony™ TV remote control using the buttons described in this section. It will also operate with any universal remote control when it is set to Sony coding. They can be purchased from your local consumer electronics store, Kmart, Good Guys, etc. for less than $20. You will probably find a number of codes listed for Sony and will need to try each one until you get to the code which operates the soundcard volume, mute and function buttons correctly. **If you have an Audiosonic, Anko or Home & Co remote from Kmart then please follow the instructions in section 8 for setting the code.**



Please ensure that your chosen remote control has batteries installed and follow the instructions which come with it to set the coding.

Note that the buttons on the remote control auto-repeat if held down. If you want a single event to occur, like turning on the safety valve, then press the safety valve and release it immediately. If you want to make a large change in volume or tone then you can hold the button down to avoid the need to press the button repeatedly.

6. CONFIGURING THE SOUNDCARD

The soundcard has two modes:

1. **Setting mode in which you can select the sounds you want and can make adjustments to them.**
2. **Run mode in which the soundcard does its job on your railway.**

All settings are done using the remote control and we will cover that first. So place the soundcard into Setting mode by pointing the remote control at the hole in the side of the soundbox and press the **Mute** button. The LED on the soundcard will blink slowly and all sounds will cease.

Next press one of the keys on the remote control to change the sounds listed below. When you press a button, the LED will start blinking. At any time, you can press the **Mute** button and then the button you are changing to hear the sound you have selected and then press **Mute** again to turn it off. The options are:

Power Button – For ride on use, this needs to be set to one beep.

Button 0 – Country. This is used to select the part of the world which your locomotive comes from. Your choice here will determine the selection of horns offered and how those horns are sounded. When you press the 0 button, one or more beeps will be heard to indicate the country currently selected as follows:

1 beep – Britain

2 beeps – North America

3 beeps – Australasia

Press the 0 button repeatedly to select the region you want. The sole purpose of changing the country is to select default horns and sounds which are appropriate. If you want to use a horn from another country because it fits your particular locomotive then there is no problem with changing the country to access that horn.

Button 1 – Horn. This is used to select the style of horn which suits your locomotive. Every one of these horns has an adjustable pitch and volume. Each time you press the 1 button the number of beeps will increase to indicate that the horn listed below has been selected. If you wish to hear that horn, press the Mute button on the remote control and then button 1 to start the horn and then again to stop it. While the horn is sounding, you can use the channel up/down buttons to vary the pitch and also the volume buttons. The pre-selected horns available are:

Beeps	**Horn**	
1	European	**(British default)**
2	Nathan Single Chime (also used in the UK).	
3	Nathan Five Chime	**(US default)**
4	Leslie Five Chime	
5	WABCO Two Chime	
6	Australian	**(Australasian default)**

Note that all of these are single tones when button 2 is set to 1 to 6 beeps to ring the bell.

They are all two tone when button 2 is set to 7 or 8 beeps.

The pitch of horns 1 to 5 can be adjusted by using the channel up/down buttons. Horn 6 has a fixed pitch.

Button 2 – Bell. This is used to select the type of bell from the list below.

1 beep – Manual bell. Starts ringing repeatedly when the button is pressed until the button is pressed again.

2 beeps – Timed bell. When F2 is triggered, rings repeatedly for a predetermined time. To set that time, press the Mute button to exit setting mode and then press Button 2 to ring the bell. When the bell has rung for as long as you want, press Button 2 again to stop the ringing. The time is then set and the bell will ring for that time when F2 is triggered while running.

3 beeps – Automatic bell. Rings repeatedly when the motor voltage is under 4 volts. (**US Default)**

4 beeps – Automatic bell. Rings repeatedly when the motor voltage is less than 8 volts.

5 beeps – Automatic bell. Rings repeatedly when the motor voltage is less than 12 volts.

6 beeps – Manual bell. Rings once only each time the button is pressed. (**Australasian Default)**

7 beeps – Bell not required. Buttons 1 and 2 and functions F1 and F2 sound a two tone horn. Button/function 1 sounds Dee-Dar and button/function 2 sounds Dar-Dee. (**British Default)**

8 beeps – Bell not required. Buttons 1 and 2 and functions F1 and F2 sound a two tone horn. Button/function 1 sounds Dee only and button/function 2 sounds Dar only. Therefore by use of the two buttons/functions you can play different sequences and tunes.

When two tone horns are in use, the channel up/down buttons will change the pitch of whichever tone is playing at the time.

Button 3 – Guard. This is used to select the guard's sounds from the list below.

1 beep – Sounds a guard's Acme Thunderer whistle. (**British Default)**

2 beeps – Sounds "All aboard". (**US Default)**

3 beeps – Sounds "All aboard" and then the guard's whistle. (**Australasian Default)**

Button 4 – Brakes. This gives you three braking options:

1 beep – No braking sounds required. **(Default)**

2 beeps – Automatic brake squeal whenever the locomotive comes to a halt.

3 beeps – Automatic airbrake release when moving off.

4 beeps – Automatic brake squeal whenever the locomotive comes to a halt plus automatic airbrake release when moving off.

Button 5 – Turbocharger and Exhaust. These can be switched on or off by:

1 beep – Turbocharger and exhaust reverberation not required. **(Default)**

2 beeps – Turbocharger sounds automatically according to the locomotive motion. When the turbocharger is selected, the channel up/down buttons can be used to change the pitch and the volume buttons to change the volume of the turbo. Therefore the turbocharger has to be temporarily turned off if you wish to change the engine rev rate or volume using these buttons.

3 beeps – Exhaust reverberation when accelerating.

Button 6 – Engine starting and stopping

1 beep – Manual. Pressing the button 7 will shut down and start up the engine using the starter motor **(Default)**

2 beeps – Automatic. The engine will shut down after one minute of no movement and will start up again, using the starter motor, when the throttle is given a slight nudge.

Button 7 – Engine Type. This will operate in three ways:

1 beep – Manual notch up with no gear change. Revs increase proportionally to the speed.

2 beeps – Mechanical transmission with gear changes as the locomotive accelerates.

3 beeps –Automatically revs up to notch 5 to move off with engine revs twice tickover.

4 beeps – Automatically revs up to notch 8 to move off with revs three times tickover. (**Default)**

It is important to tell the soundcard when your loco starts moving and hence when to start revving up**.** Do this by slowly increasing the throttle until the loco is just about to start to move. Then press the power button on the remote control. This tells the soundcard the voltage at move off.

Button 8 – Engine Sound. You can choose from the following:

1 beep – English Electric (**British Default)**

2 beeps – Modern EMD (**US Default)**

3 beeps – Classic GM

4 beeps – Alco (**Australasian Default)**

5 beeps - Sulzer

6 beeps – Railcar.

Button 9 – The Operating Mode. There are three operating modes available:

1 beep – Indicates manual mode. In this mode all sounds are triggered according to the above settings. The horn will sound for as long as its button is pressed.

2 beeps – Indicate simple automatic mode. This is designed for controllers which have no function buttons, as is often the case with track power, or at exhibitions, etc. where you don't want to operate manually. The horn will sound once automatically when the loco moves off and then once more three times a minute when the loco is on motion. A reed switch can be placed under the loco and be connected to the F1 terminal to make the horn sound when the loco passes over a magnet. Another reed switch, connected to the F2 terminal, can be used to trigger the bell which will turn on when crossing a magnet and then off at the next magnet.

3 beeps – Indicate American automatic mode. Again this is designed for controllers which have no function buttons, as is often the case with track power, or at exhibitions, etc. where you don't want to operate manually. However, it follows American rules.

The horn will sound two long toots when the loco moves off forwards or three short when backing up. If these occur the wrong way around then reverse the leads at the M1/M2 terminals. When the loco stops, a single short toot will indicate brakes on. A reed switch can be placed under the loco and be connected to the F1 terminal to make the horn sound the grade crossing sequence when the loco passes over a magnet.

Channel up/down buttons– Load Sensitivity. The soundcard is programmed to make the engine loud when accelerating and softer when coasting and slowing down. The channel up/down buttons change the level of sensitivity as indicated by the number of beeps when pressed. One beep indicates maximum sensitivity. Five beeps sets minimum sensitivity ie. the engine will be loud all the time. The default sensitivity is two and change to one if you want more sensitivity or three or more if the chuff sounds erratic. We recommend one beep for the Crest Revolution controller.

You can change these settings whenever you wish and those changes will be effective immediately.

7. RESETTING THE SOUNDCARD TO THE FACTORY DEFAULTS

Being able to vary so many settings, you may get into a tangle where the sounds you are earing don't make sense. In that case, go into run mode (so that the sounds are not muted) and holding down the 0 button on the remote control until you hear five beeps. This will cause the soundcard to reset itself back to its factory defaults. It will not change the country setting.

8. SETTING THE ENGINE REVS

This is a once only exercise although you can repeat it later if you want to make a change.

First press Mute to stop the sound and go into programming mode. Then use buttons 5, 6, 7 and 8 to set your chosen engine as described in the previous section.

The last step then is to set the rev rates when static and when in motion. Press Mute to come out of programming mode so that you can hear the sounds. Then do the following:

1. Use the channel up/down buttons to adjust the tickover revs to the desired rate.
2. Turn up the locomotive throttle until you get to the point where you want the revs to increase. Then press the Power button on the remote control. Most people press the Power button at a very small amount of throttle movement so that the engine revs increase well before the locomotive starts moving.
3. If the engine type (Button 7 above) is set to 3 or 4 beeps then you need to do no more. The locomotive is ready to run.
4. If the engine type (Button 7 above) is set to 1 or 2 beeps then the revs will increase as the locomotive speed increases. With the engine in motion, you can increase or decrease the rate at which the revs change by using the channel up/down buttons.

9.OPERATING THE SOUNDCARD

When the loco is running, the engine sounds should operate automatically, getting louder when accelerating and softer when slowing down or idle.

Inside the box there are terminals which operate the following functions when switched to ground using a pushbutton:

- Terminal 1. Sounds the main horn.
- Terminal 2. Operates the bell or the British horn 2.
- Terminal 3. Sounds “All aboard” in the US version or the guard’s whistle elsewhere.
- Terminal 4. Sounds the airbrake release.
- Terminal 6. Starts and stops the engine.

10. TROUBLE SHOOTING GUIDE

THE REMOTE CONTROL WON’T WORK

Start the soundcard, press any button on the remote control and the LED should flash. If it does not flash then the battery probably needs replacing. If the LED flashes but the soundcard does not respond then the Sony™ coding may have been lost and can be reset as follows.

Refer to the remote control’s instructions for resetting the Sony coding. You will probably find a number of codes listed for Sony and will need to try each one until you get to the code which operates the soundcard volume, mute and function buttons correctly.

For the Audiosonic brand:

1. Hold down the red on/off button and press the TV button. Release both and the TV light will stay on.
2. Enter 0188
3. The TV light will flash twice.
4. The remote control is ready for use.

For the Home & Co and Anko brands:

1. Hold down the red on/off button and the TV button for five seconds. Release both and the TV light will stay on.
2. Enter 0180
3. The TV light will flash twice.
4. The remote control is ready for use.

I GET NO SOUND AT ALL

Press the Mute button on the remote control in case the sound has been accidentally turned off.

The red/black leads must be connected to the power source and the orange and brown leads to the motor. The soundcard will not start if only the red and black leads are connected. A little bit of throttle may be needed to start the sound and it will then continue running even if the throttle is shut down.

Check that the amplifier is connected correctly.

THE SOUNDCARD MAKES A CLICKING NOISE OR SHUTS DOWN

This most often occurs when the horn is sounded. It is caused by the soundcard restarting because there is insufficient voltage in the power leads

WHEN INSTALLED IN A LOCO, THE LOCO AND SOUND STOP INTERMITTENTLY AND I HAVE TO RESET THE CONTROLLER TO GET IT GOING AGAIN

The soundcard maximum output is 1.5 amps. If this is exceeded as a result of a short circuit, a heavy load and/or high volume settings then the soundcard will shut down. Also, if the soundcard is installed in a very confined space and is run for a prolonged period at high power then it can overheat and switch itself off while it cools down.

HOW TO RESET YOUR SOUNDCARD

A time may come when you have been adjusting the sound and you want to start again. This can be achieved by resetting the soundcard back to the settings when it left the factory. You can do this by pressing the 0 button on the remote control and hold it down for three seconds. The soundcard will beep five times when the reset is complete.

Remote Control	Radio Control		US Defaults shown in bold
Power		Set Start Voltage for Rev Up	10

VOL up/down		Change Volume of active sound		
CH up/down		Change Sound		Horn Tone when horn sounding
				Engine tickover rate when static
				Engine rev rate when moving
Mute		Sound on/off		
Button 1	**F1**	Whistle		Six to select from
Button 2	**F2**	Bell	1 beep	Manual on/off
			2 beeps	Automatic timed ring when F2 is triggered.
			3 beeps	**Rings when motor below 4 volts**
			4 beeps	Rings when motor below 8 volts
			5 beeps	Rings when motor below 12 volts
			6 beeps	Single rings
			7 beeps	Short horn
Button 3	**F3**	The Guard	1 beep	Guard's whistle
			2 beeps	"All aboard"
			3 beeps	**"All aboard" followed by guard's whistle**
Button 4	**F4**	Brake release/squeal	1 beep	**Not required**
			2 beeps	Automatic brake squeal
			3 beeps	Automatic brake squeal and release
Button 5	**F5**	Turbocharger on/off	1 beep	**Off**
			2 beeps	On
Button 6	**F6**	Engine start/stop	1 beep	**Manual**
			2 beeps	Automatic
Button 7	**F7**	Engine Type	1 beep	Engine revs up steadily with throttle
			2 beeps	Mechanical gear changes
			3 beeps	Revs up to notch 5
			4 beeps	**Revs up to notch 8**
Button 8		Engine Sound	1 beep	English Electric
			2 beeps	EMD
			3 beeps	GM
			4 beeps	Alco
			5 beeps	Railcar
Button 9		Control Mode	1 beep	**Manual**
			2 beeps	Auto horn every 20 secs
			3 beeps	Auto horn with Track Magnets
Channel up/down		Load sensitivity 1 to 5, Default=2		
			1 beep	Engine maximum sensitivity to power changes
			2 beeps	Engine average sensitivity to power changes
			5 beeps	Engine minimum sensitivity to power changes
Hold down 0			5 beeps	Re-sets sounds to factory defaults