



# SOUND CONTROLLER CP800

Thank you for purchasing your new Brimal Sound Controller. We recommend you spend some time reading this instruction manual in order that you fully understand all the operational features. You will also find some tips to help you resolve any issues.

Unpack the unit

The following items are included:

- 1) Sound Controller
- 2) Micro SD card
- 3) 6 mono jack plugs 3.5 mm
- 4) 6 Magnets 6x2mm
- 5) 6 Reed switches
- 6) 1 DC plug 2.5mm pin

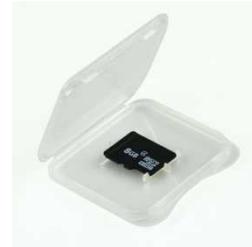


## Connection of the controller

### Micro SD card.

First insert the Micro SD card into the reader. The card will only go in one way, so make sure that the card has the notches on the left. The card will go into the reader and click when locked in place.

To release and remove the card press the card down and then lift out.



### The Power supply

There are two power sockets on the rear panel, both require a DC power socket with a 2.5mm pin. Please ensure that the power supplied is between 9v & 12v DC. This can be either from an additional power supply, or from the auxiliary output from the main layout system. You must ensure that the positive power is on the pin as the drawing below.



The two examples above are as follows.

Left image shows the 9 to 12v DC coming from the auxiliary power output on your layout.

Right image shows the power being supplied by a standalone power pack and the second power socket being used to power other equipment.

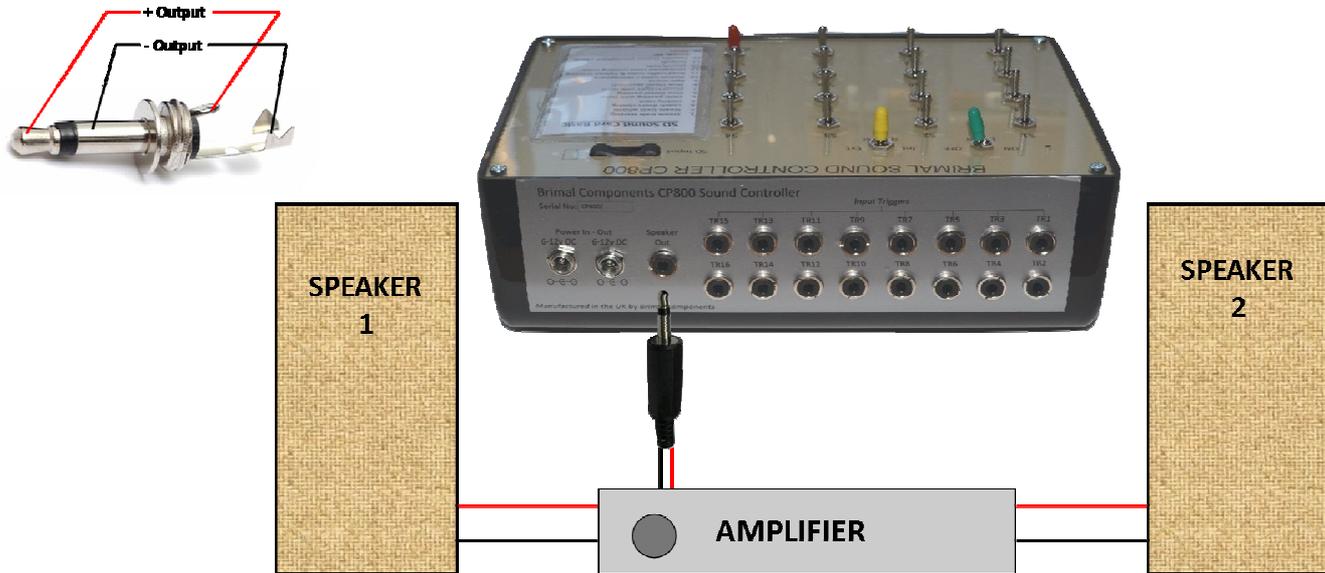
### Initial Switch On

Once you have connected the power supply and inserted the SD card, switch the power to the unit ON, and leave on for five to ten seconds, Switch OFF. (you have rebooted the microprocessor - you will not need to do this again). The next time you switch on, you can test the sounds by pulling any of the mini toggle switches down, and releasing. Each sound will last from twenty to forty five seconds. All sounds can be reset by pulling the RESET switch down for a second.

### External Amplifier & Speaker

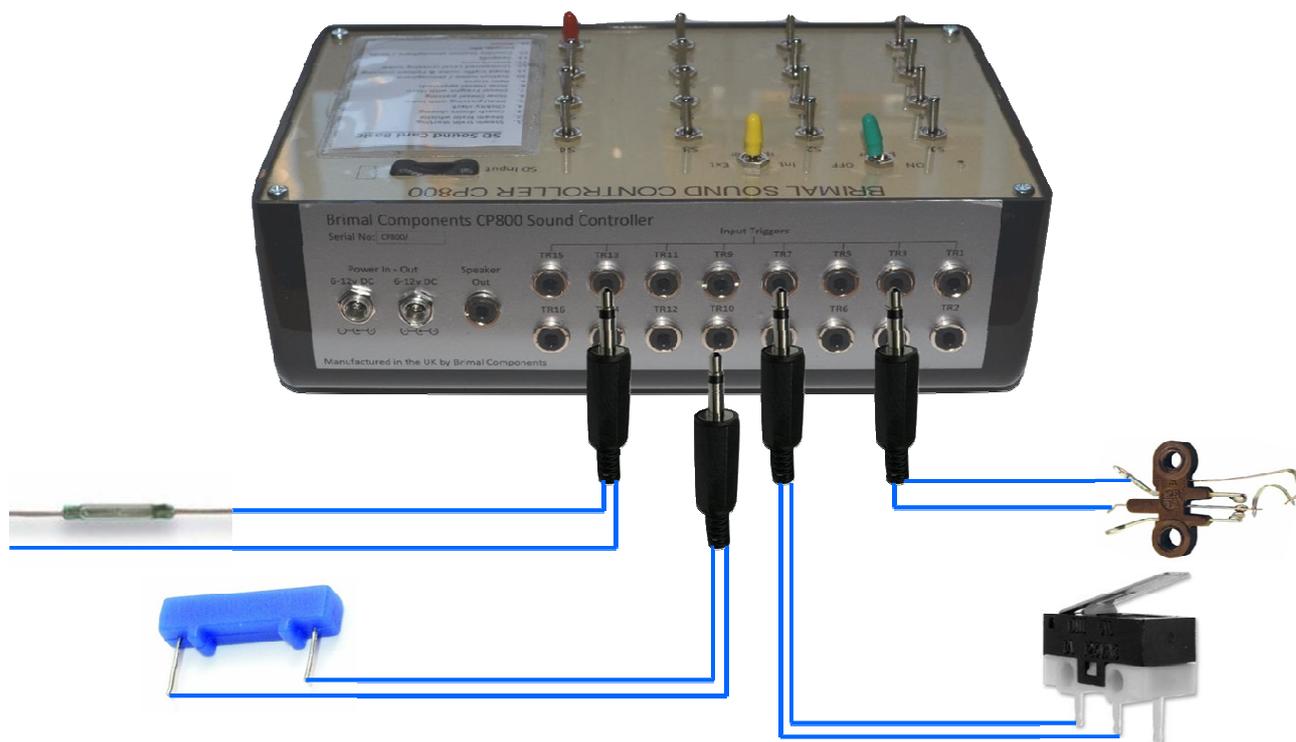
The controller has a switch on the front panel to give sound to the internal speaker, or an external speaker system. The output is via a 3.5mm jack socket with the following polarity connection.

Please ensure the jack plug is wired as the drawing below.



### Sound Trigger System

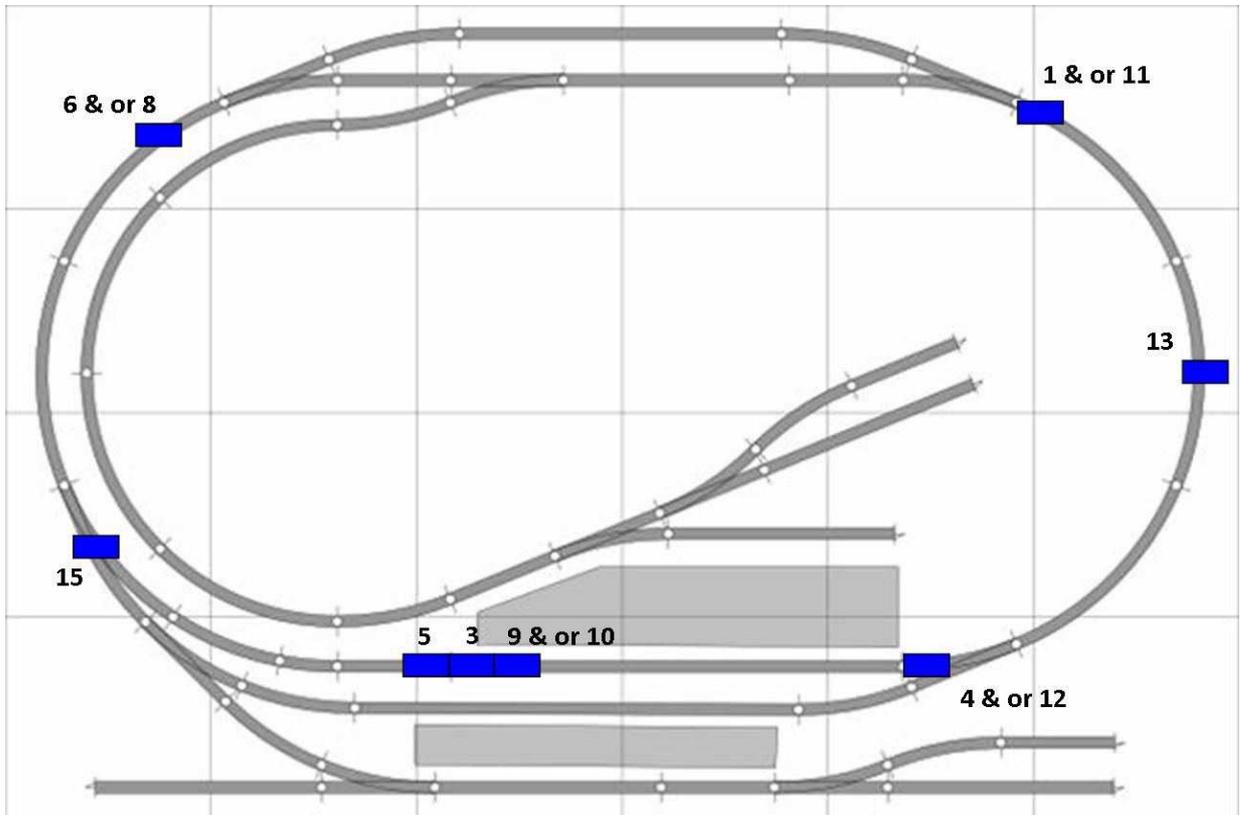
On the front panel each sound has a mini toggle switch associated to it, and the input socket on the rear panel. When the toggle switch is left in the UP position, the sound will be triggered by the sensor connected to the corresponding input socket on the rear. The input circuit must be a normally open contact. There are numerous contact types, the most common will be the reed switch which is activated by a magnet (fixed to the underside of the locomotive). These are shown in the image below on the left side.



There is no polarity with these inputs so it is not important which way around the jack plug or the sensor switch is wired. The important part is that the circuit is NORMALLY OPEN, otherwise the sound will be triggered continuously.

**Example Set Up**

Where you position the Trigger Sensors is a personal choice and will depend a lot on the size of your layout. The following is an example of a sequence to create the atmosphere.



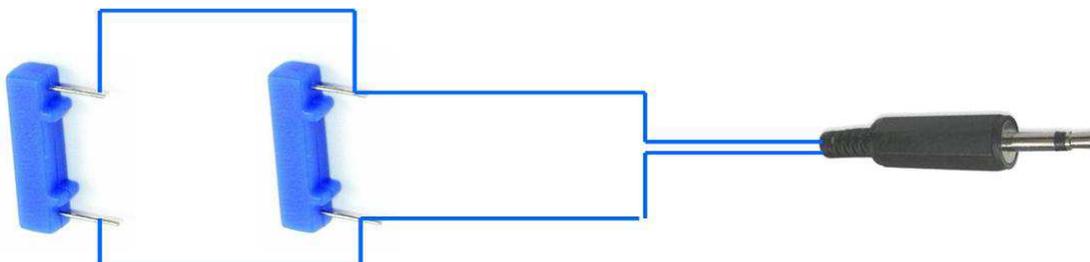
<b>CP800 DIESEL SOUND CARD</b>	
<b>1</b>	DMU Passing with Horn
<b>2</b>	Deltic Starting off
<b>3</b>	Diesel Starting up
<b>4</b>	Slow Deltic Approach
<b>5</b>	DMU Horn & Start up
<b>6</b>	Short Diesel Horn
<b>7</b>	Diesel Freight + Horn at Speed
<b>8</b>	Slow Moving Deltic
<b>9</b>	Coach Doors Closing
<b>10</b>	Station Noise Atmosphere
<b>11</b>	Level Crossing
<b>12</b>	'Next Train not Stopping'
<b>13</b>	Road Traffic & Pelican Crossing
<b>14</b>	Wagons & Couplings
<b>15</b>	Clickity Clack
<b>16</b>	RESET

This is just a small example of how the sensors can be used on a simple layout. You can use the same sound on different tracks and different situations by wiring the sensors in parallel before they go back to the control panel as shown below

### Parallel Sensors

This drawing shows how you would use 2 (or more) sensors to activate one particular sound.

*Example:* Using the layout above, Sensor on the left of the station is connected to sound 15 which is the Clickity Clack sound. Depending on the size of your layout you may want this sound continuous, this means you will need to place another sensor in the position where the Clickity Clack is about to stop. This will then reactivate the sound. The circuit below is how you do this, you can add as many sensors to the left of this circuit as you wish.



### Reset.

You can connect the RESET to a sensor if you wish. This is socket 16 on the rear. This will reset all sounds that are active at the time.

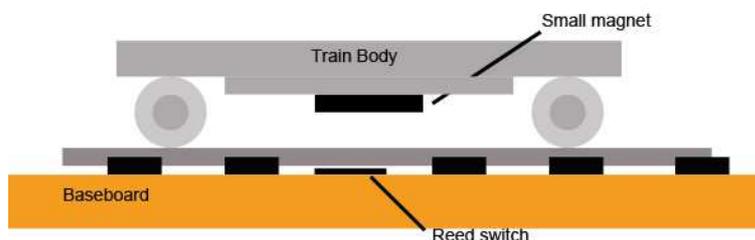
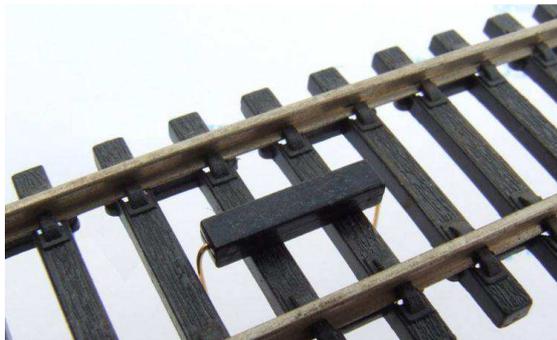
*Example:* You may have a tunnel on your layout, while the train is in the tunnel you may want there to be no sounds. Fitting a sensor at the entrance will reset all sounds to OFF as the train enters the tunnel.

or

The sounds last too long as the train arrives in the Station, A reset sensor can be placed where you normally stop the train.

### Positioning of the Reed Switch

It is important that the reed switch and the magnets are positioned correctly, so that you have clearance as the magnet passes over the reed switch without hitting it, but not too far above so that the magnet has no influence on the switch. The ideal clearance is between 2 to 4mm.



### Glass Reed Switches

If you are using glass reed switches, please note the following:

Glass reed switches are very fragile. If you need to bend or shorten the wires you must first grip the wires as close to the glass (without touching) with pliers and bend or cut the wire furthest from the glass. The pliers will prevent any strain on the glass.

Additionally, if you are soldering onto these wires, hold the wire with pliers near the glass. The pliers will soak up the heat before it allows the wire to expand and shatter the glass.



### Spares

- CP840 Steam Locomotive SD Card
- CP841 Diesel Locomotive SD Card
- CP 842 Underground Train SD Card
- CN365 Jack Plug Mono 3.5mm with Strain Relief
- CN606 DC Power Plug 5.5 Outer 2.5 Pin 10mm long
- SW925 Glass Reed Switch 180vAC 0.5A
- SW926 SPNO Encapsulated Reed Switch PPS150 10vA
- SW927 SPNO Encapsulated Reed Switch 24v ACSW932
- SW932 Neodymium Magnet 6mm x 2mm
- SW933 Neodymium Magnet 3mm x 2mm

SW052 Microswitch V4 Ultra Mini Lever PCB Mtg  
SW053 Sub Miniature Button Microswitch  
SWP100 Leaf Switch

This unit is guaranteed for 12 months from the date of purchase. If you have any problems with the unit, please contact us on Tel; 01429297277 or email us at [andrew@brimal.co.uk](mailto:andrew@brimal.co.uk)

For further information and ideas have a look at the CP800 page on [thehobbysshed.co.uk](http://thehobbysshed.co.uk)