

## **AC Sound Controller, item 1101, for conventional AC sound systems.**

### **OVERVIEW:**

The AC Sound Controller contains three push buttons to operate three basic functions. These functions are Direction, Whistle / Horn, and Bell. The AC Sound Controller is designed to handle 10 amperes maximum track current. The AC Sound Controller is a passive device until a button is depressed. This means that it can remain connected to any system without interference. It is merely a "pass through" device until a button is depressed. The AC Sound Controller operates conventional AC Sound systems operating with transformer voltages from 15 to 18 volts AC. The AC Sound Controller is made in U.S.A..

### **INSTALLATION INSTRUCTIONS:**

The AC Sound Controller, when looking at it's back, consists of a connector block for four wires. This four place connector block provides for the connection of the AC Sound Controller (refer to Fig1 and Fig2) between your existing power transformers variable output and your track. Connect two wires from the output of your variable AC power transformer to the terminals labeled "IN" ). The two terminals labeled "OUT" now become the output and are to be connected to your existing layout wiring leading to the track (where the transformer's variable connections previously were). The "A" and "U" are only for polarity reference. The "U" terminal is usually referred to as a "common" connection or "base post" for most 2 rail AF operators. The "U" post is generally the outside rails, for 3 rail operators, and the left hand rail for all 2 rail operators. The "A" post is generally the center rail, for 3 rail operators, and the right hand rail for 2 rail operators.

If the Whistle/Horn button operates the Bell, then the sound unit is most likely wired up incorrectly in the engine. You can either rewire the engine or switch the "A" and "U" output wires from the controller to the track.

Multiple AC Sound Controller units can be connected to one power transformer. This allows for segmenting the control areas. When multiple AC Sound Controller units are connected to multiple transformers, proper phasing is required. Without proper phasing, doubled voltages can appear at the trackside and shorts will appear when crossing from one block to another. To be sure of proper phasing of power transformers, connect one leg of each transformers output to the other (such as the "U" or "Base Post"). Then place a light bulb (a standard 14-18 volt lamp will do with standard train transformer voltages) between the open legs of each transformer (such as the "A" or "7-16 v Post"). With the output's set equal in voltage, check to see if the light bulb illuminates. If it does you do not have proper phasing between the transformers. To obtain proper phasing, remove the 120v plug to one transformer, rotate it, and plug it in again or swap the lead on one transformer only to the opposite lead. Recheck for lamp illumination. None should occur (assuming equal voltage settings for an output, the difference in transformer output may show a slight illumination). At this point you can mark your transformer wall plugs for proper polarity for reference in case they were unplugged from the outlet strip and replugged reversed from originally plugged. This is why newer transformers are equipped with polarized plugs.

Refer to other figures for different wiring configurations.

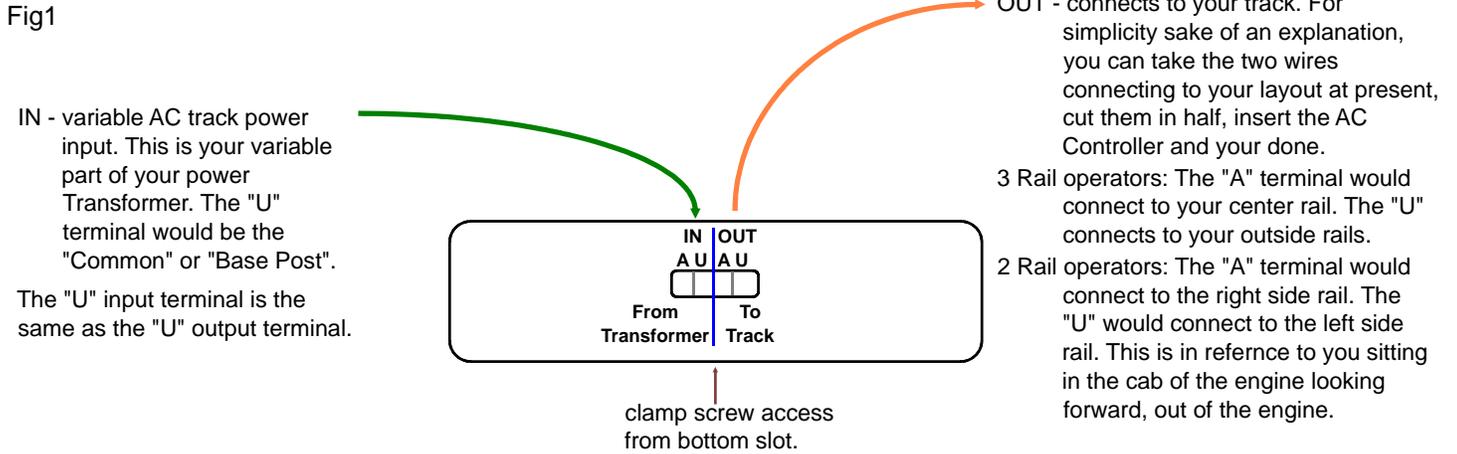
### **OPERATING INSTRUCTIONS:**

The AC Sound Controller's sole function is to embed a DC signal into the AC track power to activate the specific sound selected. The direction button interrupts track power for as long as it is held. This enables operating the "E-unit" in the locomotive to change it's direction easily and without having to change the track voltage applied. It is not suggested to leave the track voltage to full since reapplying the power would be very hard on the motor. It is best to use this for slower speed operation. The Whistle button will embed the signal for operating a Whistle or Horn. The Bell button will do the same. The signal is only present when holding the button down. A slight voltage loss will also be present when operating the Whistle or Bell controls. When no button is depressed, the AC Sound Controller merely passes the input power to the output without any change in the AC power. As stated previously, the "U" terminal is the same on input and output. The duplication is there for ease in wiring but only one must be connected to provide power to the AC Sound Controller. Otherwise it will not operate. Constant holding of the Whistle or Bell button for a long duration at very high currents is not recommended since heat is generated and unwarranted damage may occur. The Whistle and Bell buttons are for normal intermittent use.

The AC Sound Controller utilizes high reliability 10 ampere relays to switch the control signals and will yield years of enjoyment when properly utilized.

**DALLEE**  
**ELECTRONICS, Inc.**

246 W. Main St.  
Leola, PA 17540  
(717) 661-7041  
www.dallee.com



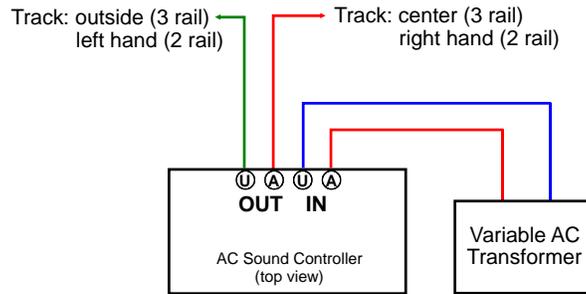
Use only stranded wires from 14 to 22 gauge.

Install by stripping insulation back 3/16", place wire in hole, run screw down (CW) to clamp in position. Screw access is from the bottom of the AC Sound Controller.

When removing wires, back screw almost all of the way out before carefully pulling the wire out.

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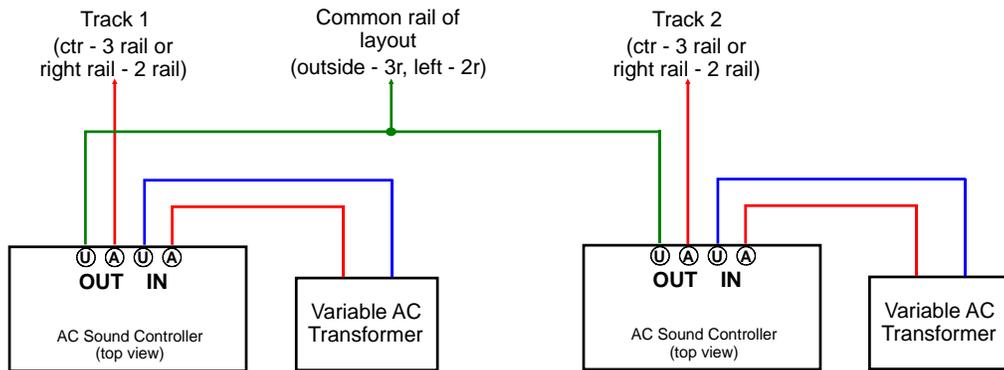
**Fig2**



**Standard Connection.**

One power source with one variable AC transformer.

**Fig3**

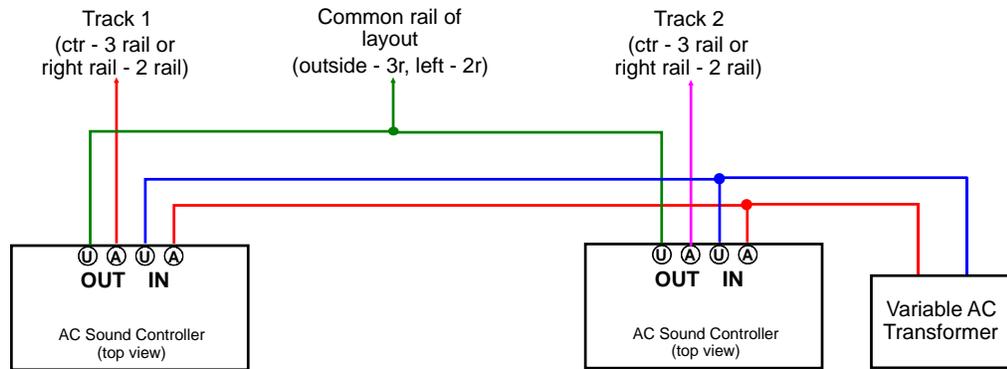


**Common rail operation with two separate power sources**

Remember to have transformers properly phased!

## AC Controller wiring instructions, cont.

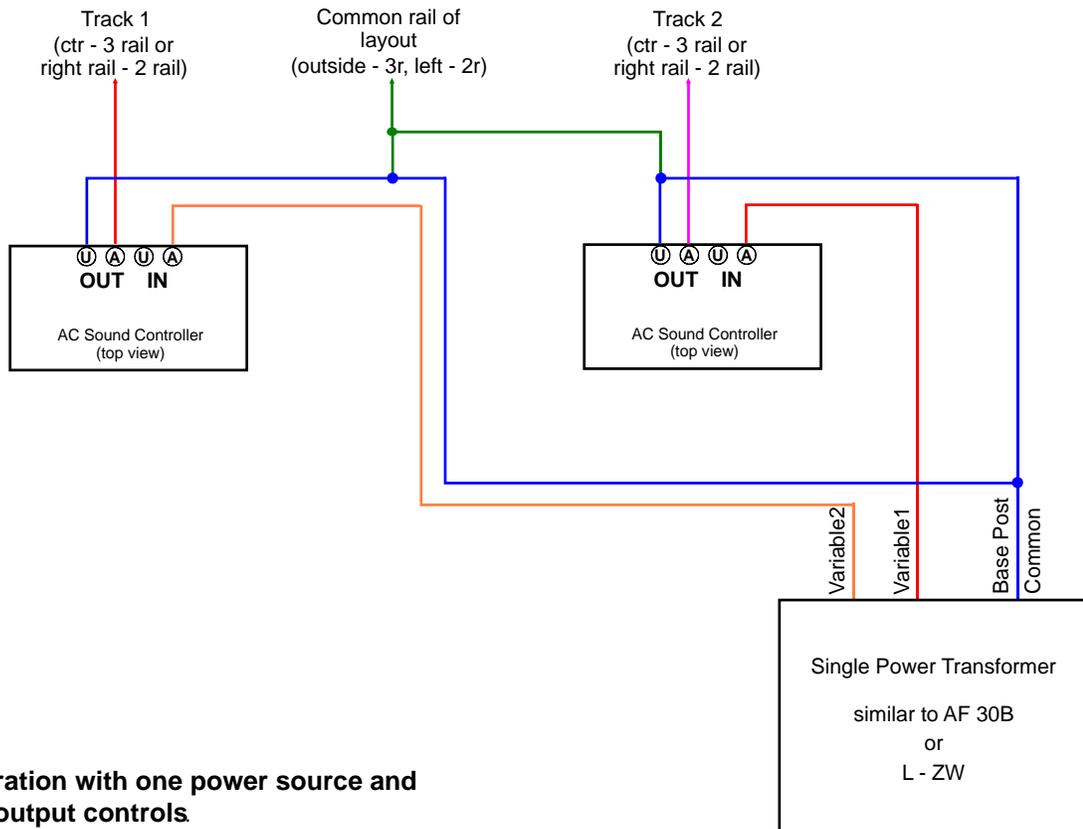
Fig4



### Common rail operation with one power source

Each Controller box shares the same AC track power but offer independent operation.

Fig5



### Common rail operation with one power source and multiple variable output controls

The AC Sound Controller connection "U" is not connected as shown since it is already internally connected.

Many older transformers feature many variable output's while only containing one power transformer. While only 1 connection is shown for the Base Post / Common terminal, multiple connections can be made as long as they all connect together when feeding the track as shown.