

# Installation Reference for AC operators

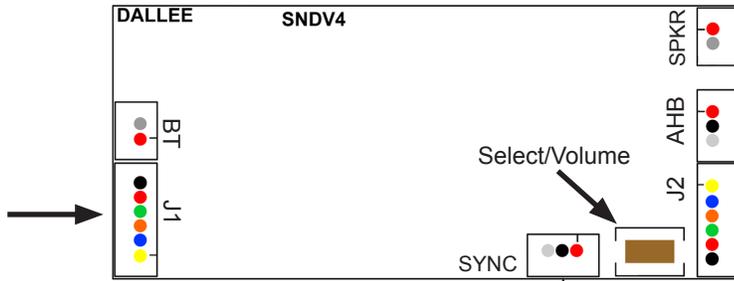
Only items needed for AC track power operation are shown. All other connections are for other types of operation.

## J1 connections:

**3 rail AC operators:**  
 Green - Chassis  
 Orange - Center Roller  
 Blue - Motor brush #1  
 Yellow - Motor brush #2

**2 rail AC operators:**  
 Green - Left Rail  
 Orange - Right Rail  
 Blue - Motor brush #1  
 Yellow - Motor brush #2

All unused wires can either be removed from wire harness by simply lifting the lock tang and sliding the wire out. Otherwise the wires will have to be clipped or properly insulated from coming into contact with other items.



**SYNC** - for steam engine sound systems only.  
 Red - power to optical pickup  
 Black - common "-"  
 White (shown as light gray) - switch sync or optical input.

Switch sync type operation uses only the white and black wires.

**Select/Volume** - see "Selecting Sounds" section.

**SPKR** - speaker

## J2 connections:

No connections needed. Red - Black are optional remote Select/Volume switch. If only two of the 8 pin wire harness is required, then item #222 or #224 (a 2 pin wire harness) may be desired to be used instead since it is a two pin wire harness. The color code will not match but that's not important, only that it is plugged into the lower part of J2 so that it connects to the marked Red & Black location.

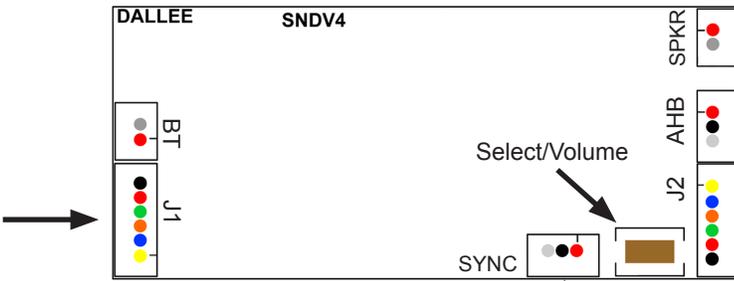
# Installation Reference for operators with Radio Receiver's

Only items needed for Radio Receiver track power operation are shown. All other connections are for other types of operation.

## J1 connections:

**Battery Powered:**  
 Black - battery "-"  
 Red - battery "+"  
 Green - n/c  
 Orange - n/c  
 Blue - Motor brush #1  
 Yellow - Motor brush #2

**Track Powered:**  
 Black - n/c  
 Red - n/c  
 Green - rail #1  
 Orange - rail #2  
 Blue - Motor brush #1  
 Yellow - Motor brush #2



**SYNC** - for steam engine sound systems only.  
 Red - power to optical pickup  
 Black - common "-"  
 White (shown as light gray) - switch sync or optical input.

Switch sync type operation uses only the white and black wires.

**Select/Volume** - see "Selecting Sounds" section.

**SPKR** - speaker

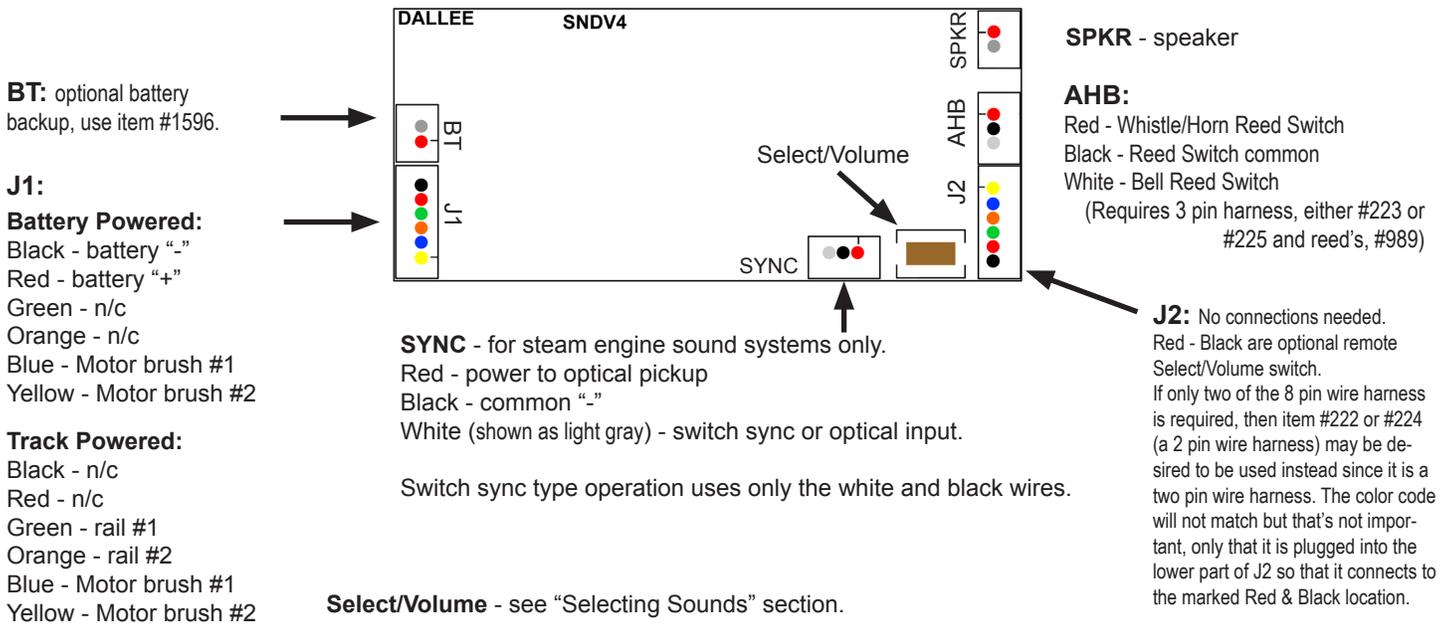
## J2 connections:

Yellow - Whistle/Horn  
 Blue - Bell  
 Orange - Cylinder Blow Down / Force N8  
 Green - n/c (reserved)  
 Red - optional remote Select/Volume switch. If only two of the 8 pin wire harness is required, then item #222 or #224 (a 2 pin wire harness), can be used in the two pin location. This way you don't have to remove/insulate the unused wires.  
 Black - Common, same as J1 Black.

J2 connections are all switched to the common, Black, wire. All inputs are momentary except for the Whistle/Horn.

# Installation for DC operators using Auto Whistle/Horn operation with reed switch track triggers.

Only items needed for DC track power operation are shown. All other connections are for other types of operation.



## Selecting Sounds:

When the sound unit is first powered up it will be set for the first Bell, first Horn, first Prime Mover (motor sound), with the Spitters “on” and at a set mid volume range. In order to change any of those settings, except the volume, you must remove the power to the system and wait for it to stop playing, which can be a while. At that point you can then proceed into setting up the sounds you want produced.

Sounds are selected via the “Select/Volume” switch located on the lower right side of the board or by a remotely wired switch/function to the Red Wire of J2 to the Black wire (ground) of the sound system.

The selection process must be done from a “dead”, no sound produced due to no input power present. After the speaker is wired to the system and a type of input power, the voltage to the board should be at least 8 volts AC or DC (depending on how you are operating the sound unit), is wired as desired, your ready to initially power up the sound unit. Again, make sure that nothing is touching the board and the wires are not touching something that they shouldn't be.

At this point you can place power to the sound unit. It will first take a few seconds to start and then after the first sounds are heard, hold down the “Select/Volume” switch. All sound will stop until you hear a “BEEP”. If you let go of the switch, you will skip entering the selection mode. You will have 10 seconds to do this during the initial power up stage. Upon hearing the “BEEP”, release the “Select” button. You will hear a Bell ringing. To select the next Bell, press and release the “Select/Volume” button. The next Bell will play. The last selection is no sound. This would be selected if you do not want any bell to play. Pressing and releasing again will take you back to the first Bell. When you arrive at the desired one, hold down the “Select/Volume” button until a “BEEP” occurs and then release it.

At this point you have arrived at the next selection, for Diesel's this is the Horn selection, Steam systems would play a Whistle. For simplicity we're going to first discuss the diesel's. After the bell has been selected, the first horn plays, pressing and releasing takes you to the next horn and so on.

After the last horn is silence, again, this would be selected if no horn is desired. The next press would take you back to the first horn. While the horn is playing, you can also use your control to play the horn. This way you can hear exactly how it would sound when selected. When arriving at the desired Horn, hold down the “Select/Volume” button until a “BEEP” is heard again. This moves you to the next selection which is the prime movers. Again, the last one is none which you would select if you didn't want any to play. Calf units would generally not have a horn or a bell but you can do as you please. After all, it's your railroad!

After arriving at the prime mover of choice, hold down the “Select/Volume” button until a “BEEP” is heard and that will advance you to the last selection which is the Spitters. You will hear a rapid play of the Spitters the next push selects “off”, press again for “on”. When your selection is made, press and hold the “Select/Volume” control until the “BEEP” is heard and then release it. The sound unit will save your settings and proceed to operational mode.

In operational mode, the “Select/Volume” button turns into a volume control. Pressing and releasing it will move the volume up. The next press will move it down. The last setting will be saved so that the next power up will be at that volume level.

All selections move rather slowly to accommodate all types of radio receivers and DCC decoders since there is a bit of latency in all of them.

Steam systems have the type of Bell, Whistle, Exhaust Chuff's, Air Pumps, and Safety Valve to select from.

Electric's have the type of Bell, Horn, and Exhaust whine to select from.