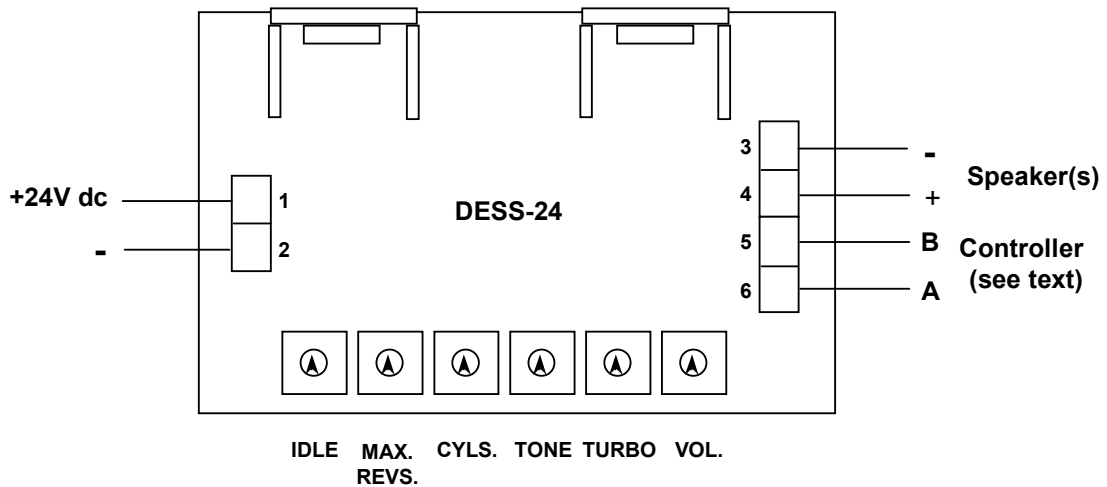




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DESS-24 DIESEL ENGINE SOUND SYSTEM



These units simulate the sound of a diesel locomotive engine. The effect varies from an idling sound when the loco is stationary, to the distinctive sound of increasing engine "revs" as the loco moves away. Variable controls are provided for altering the levels of turbo whine and cylinder rhythm, and the overall tone and volume level are adjustable.

The DESS-24 is suitable for loco mounting in ride-on locomotives running on 24V (2 x 12V traction batteries in series),

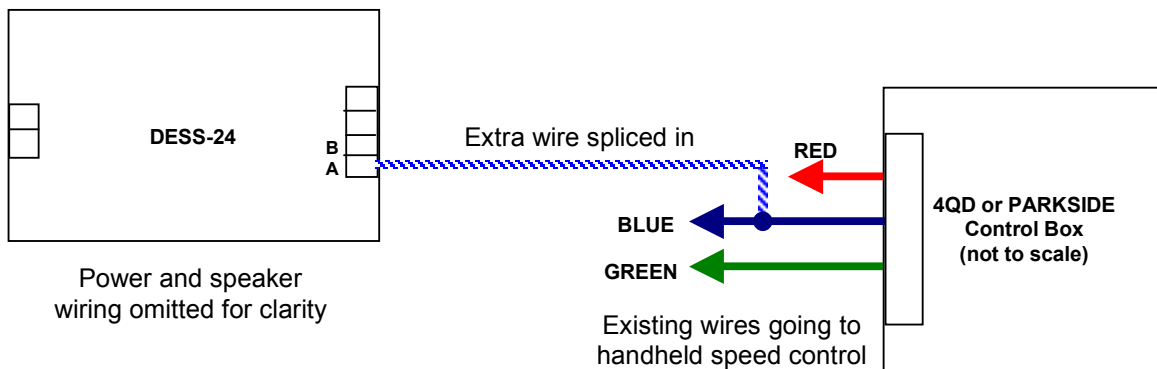
MOUNTING THE CIRCUIT BOARD. The module should be located in a well-ventilated position, which allows easy access to the controls. Use screws or bolts to mount the board, these should pass through insulated spacers to distance the board from the mounting surface. Our Module Mounting Kit (cat. no. M22) is ideal for this purpose.

Wiring to the board is done via screw terminals. We recommend using multi strand layout wire, or solid core hook up wire, rated at 1 amp or greater (3 amp layout wire is fine). Ensure that the wire insulation is stripped back sufficiently, so that none of the plastic is caught beneath the terminal screws when tightening them.

WIRING UP. Connect the + 24V and negative power terminals (1 and 2) to the 24V battery supply, with a simple on/off switch in the positive feed to the module. This is needed to disconnect battery power when the module is not in use.

The figure shows the method of connecting a **4QD** or **PARKSIDE** speed controller to the unit (if your controller is made by a different manufacturer, please contact Trax for further wiring details before proceeding).

On the control box terminal block, look for the **BLUE** wire, which leads to the remote hand control (potentiometer wiper). Ignore the red and green wires. You will need to add in an extra length of wire, connected to terminal 6 (marked **A**) of the DESS-24 module as shown:

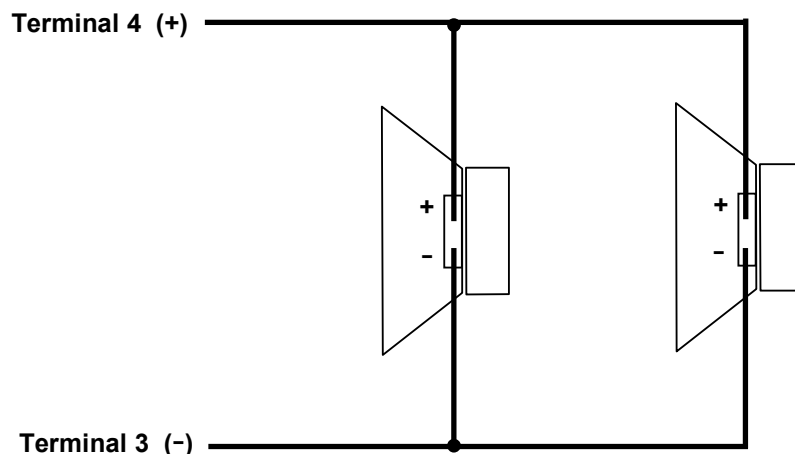


Connecting the module to a 4QD or Parkside controller

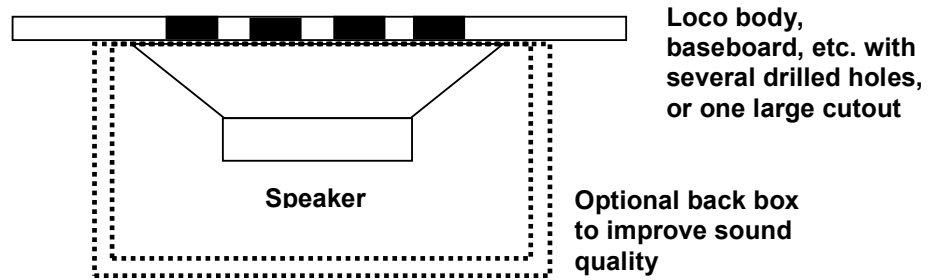
WARNING: DO NOT connect anything to terminal 5 (marked **B** on the board), because the module will already have an earth connection via the negative battery terminal.

MOUNTING AND WIRING THE SPEAKER. The unit will drive up to two 4 ohm speakers connected in parallel as shown, giving a total load impedance of 2 ohms. If using two speakers, make sure that the two positive terminals are connected the right way round, or the speakers will work "out of phase" and the sound quality will be degraded. To prevent overloading the on-board audio amplifier, do not use more than two 4 ohm speakers in parallel.

The speaker needs a "baffle" to ensure optimum volume and quality of sound, i.e. the front of the speaker should be affixed to a solid mounting surface which has several small holes drilled into it (or one large hole, slightly smaller in size than the cone of the speaker).



Speaker connections (2 x 4 ohms in parallel)



Mounting the speaker

The loco body itself could be used as a baffle, e.g. cone of the speaker could face downwards through several small holes in the floor of the model, or preferably upwards through an exhaust grille so that the sound can be heard more easily.

If there is sufficient room, a simple airtight wooden box constructed around the back of the speaker will improve sound quality and volume considerably, by not allowing sound from the rear of the speaker to meet that emanating from the front. The air in the box then acts as a “spring” for the speaker cone to move against, generating a fuller bass response.

SETTING UP. When satisfied that all wiring has been completed correctly, set the controller speed knob to minimum, and switch on the sound module, ensuring that the volume and idle controls are set to at least the halfway position. An idling effect should be heard (the sound may take a few moments to stabilize). If no sound is heard in the speaker, switch off immediately, and recheck the wiring.

Assuming the idling effect is heard, adjust the **IDLE** control to obtain a satisfactory idle speed. As the controller speed knob is advanced, the loco will move off, and the speed of the engine noise should increase.

Set the controller knob to the maximum speed setting you intend to run the loco at, then adjust the **MAX. REVS.** preset to achieve the desired maximum engine revolutions for the loco in use.

When the loco stops, the idling effect will again be heard. At this point the **CYLINDERS** preset can be adjusted to give the required cylinder rhythm. This control has the most dramatic effect on the sound quality of the unit. Note that if this control is turned fully anti-clockwise, there will be no cylinder effect, so this control works best at its half - to three-quarter maximum settings.

The **TONE** control alters the general resonance of the sound, and should be adjusted to individual preference.

The **TURBO** preset can be adjusted to apply a high-frequency whine to the sound, reminiscent of the turbo fan in some engines. This whine cuts out when the loco is at rest and the “engine” is idling, and will cut in again once the loco moves off. If the turbo is not required, the control can be set fully anti-clockwise to turn it off.

The overall sound level is adjustable, using the **VOLUME** preset.

TROUBLESHOOTING.

There is no sound from the loudspeaker when power is applied. Check all wiring, especially the power to terminals 1 and 2. If these are reversed, no damage will result, but the module will refuse to operate.

Check that the Volume, Idle and Revs. controls are not turned fully anti-clockwise. Also make sure that the rear of the circuit board is not resting on a metal surface. Use mounting bolts with spacers, to raise the board from the mounting surface.

The engine sound is running, but does not change when the speed control is advanced. Make sure that the **REVS.** preset is not turned fully anti-clockwise. Check the wiring to terminal 6. Make sure that no connections have been made to terminal 5 (marked **B** on the board), which is not used in this instance.

TECHNICAL SUPPORT. Should there be any queries concerning installation or operation of our products, please ring or fax (01603) 610956 (9 a.m. to 4.00 p.m.), and we will do our best to help. Alternatively, write to us at the address overleaf, and we will reply by return of post. You can also E-mail us at: traxcontrols@ntlworld.com

GUARANTEE. All Trax products are guaranteed for ONE YEAR from date of purchase. We will gladly replace or repair any faulty item returned within the guarantee period, provided the defect is the result of normal and proper use. If returning an item, please give full details of your set-up, and let us know exactly what went wrong. This may reduce waiting time should repairs be necessary.