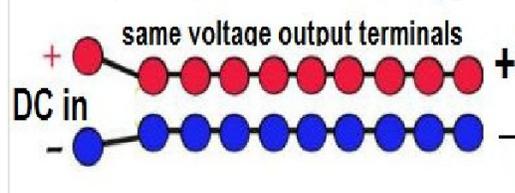


Add a Power Distribution Board for Train Accessories.

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Occasionally the need arises to supply multiple electronic accessories with the same voltage power supply to light LEDs, signals, activate switches, crossing gates and bell or other devices. A power distribution board (**PDB**) which uses one power supply to provide a constant voltage to a number of terminals is used for this purpose. Each terminal provides power to a number of individual electronic circuits all using the same input voltage. This is accomplished with the board set up in a parallel circuit arrangement as shown here..

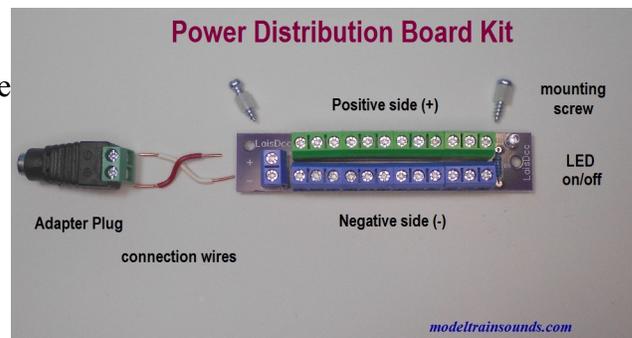


The **single power source** can be from

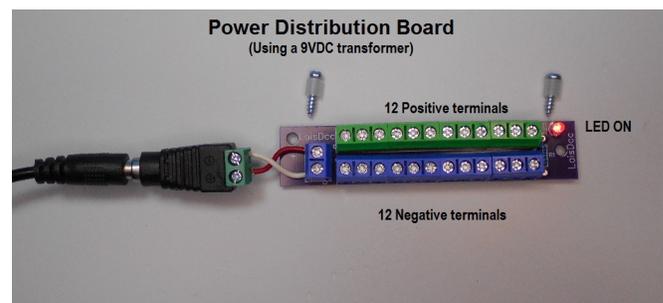
- 1) A Battery power ranging up to 12 Volts,
- 2) A plug in wall power supply transformer using household 110VAC (AC alternating current) transformed to a constant DC (direct current) with fixed voltage output usually rated from 5 to 12 Volts. Check also the amperage rating in amps or milliamps.
- 3) The 12-14 Volt AC source present on many of the older and current DC model train transformer/controllers. In this case an AC to DC converter module is required to convert the AC input to a steady DC output of desired voltage.

Such **PDB** boards are available commercially however with a few additions they can be improved for use with model train accessories. The components have been assembled into a kit that includes:-

- 1) the power distribution board (**PDB**) with 1 input and 12 output terminals.
- 2) A 2.1x5.5mm adapter plug and wires for use with most standard 110V power supply wall transformers. The output from the **PDB** terminals will be the same input voltage.
- 3) A light (LED) to indicate power ON/OFF status and show correct polarity of the board.
- 4) Screws and collars for mounting onto your control console.

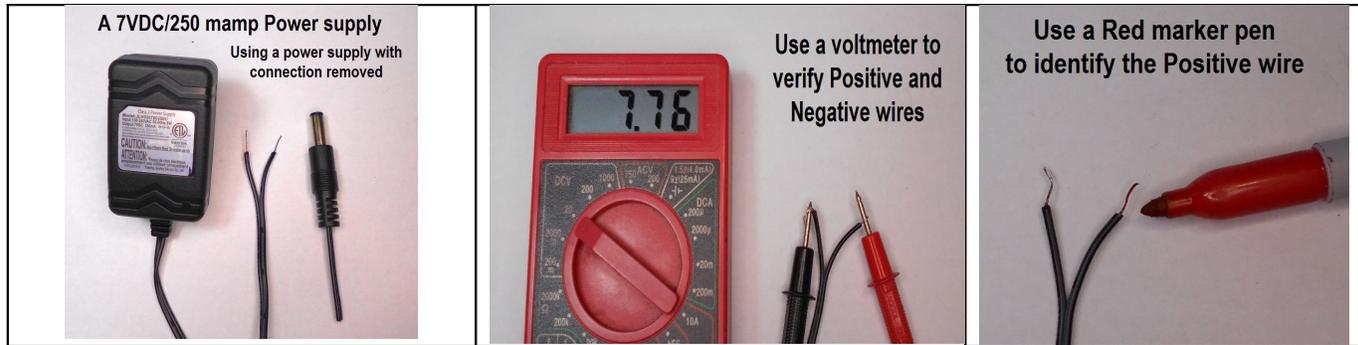


Here a 9VDC power supply is used to power the board to provide 9VDC power to the 12 available terminals with the adapter plug installed. Note the crossed wires. Red to the positive (+) side and white to the negative. The Red LED indicates ON and correctly wired.



For Power Supply units that do not have the standard diameter 2.1mmx5.5mm male plug such as this example of a 7VDC unit, the terminal plug can be cut off, the wires stripped and tinned with solder. The Positive and Negative wires can be identified using a voltmeter

which can also confirm the output DC voltage. The positive wire terminal can be marked with red ink using a permanent marker for identification and attachment to the **PDB** .



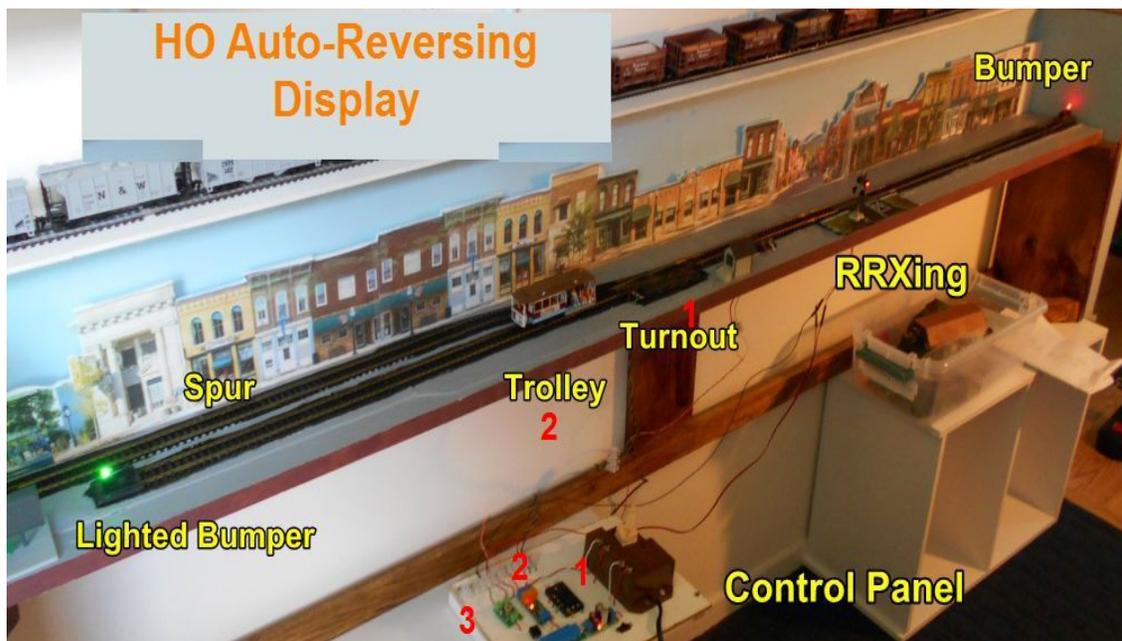
Testing The Output

The voltage output of each of the **PDB's** terminals can be confirmed using a voltmeter. All terminals should register the same voltage which should match the rated input voltage. Here a 9 Volt DC unit rated 9 Volts reads 9.3 VDC on each of the twelve terminal. Current draw will depend on the requirements of each circuit attached. Check the milliamp rating of power unit being attached which is found on the label of the input power source.



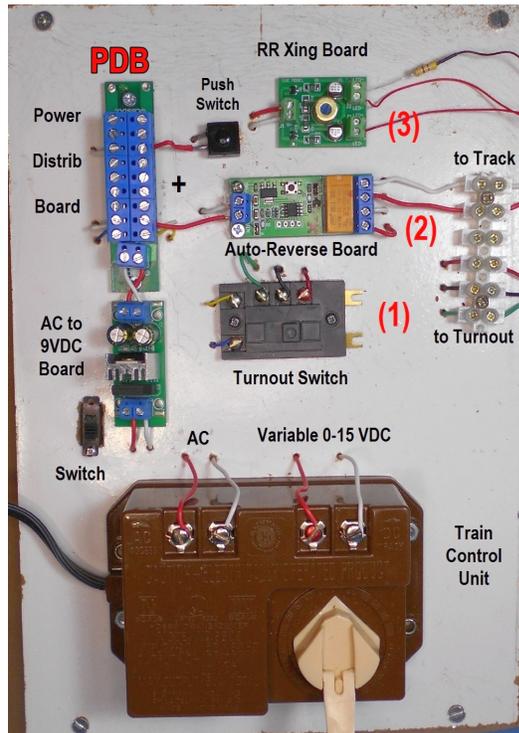
Example of using a Power Distribution Board

This HO scale Auto-Reversing shelf display uses a control panel shown below that uses a power distribution board to power the siding turnout switch (1), auto-reversing trolley (2) and railroad crossing (3). The lighted bumpers are powered from the track.



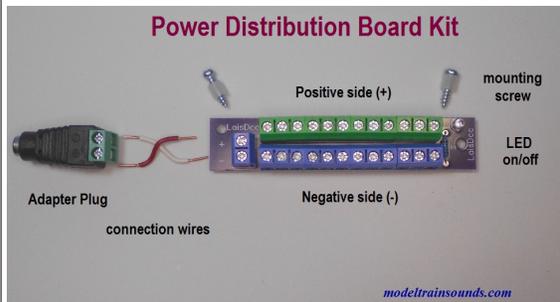
In this example the power distribution board (**PDB**) on a control panel is used to power accessories. Its power is supplied from this vintage brown Bachmann train controller. The AC accessory terminals on the left of the controller supplies AC current to an AC to 9 VDC converter board which is attached to the Power distribution board. This older version **PDB** distributes the 9 VDC to 9 output ports. Here power is supplied to

(1) a switch for operating a track turnout, (2) an auto reversing board and (3) a board that controls railroad crossing. The train controller variable output is directed through the auto-reversing board to the track. More accessories could be added to the power distribution board. The lighted bumpers use track current to operate red as the trolley approaches and green as the trolley leaves.



Items available for this Project 21

Power distribution Board with adapter plug, connections wires and mounting screws



9VDC 1000m amps wall power Transformer wall unit



12VAC to 9VDC Voltage Regulated Circuit Board LM7809
12VAC -> 9VDC (Stable)



Examples Older DC Train Controller

