

Northern Virginia NTRAK "How-To" Article

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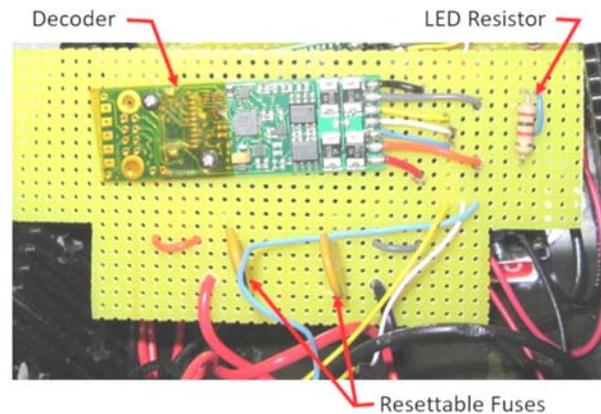
After several years of testing various "Decoder *in a Box*" designs we have a final version that will be available for use during NVNTRAK train shows. This update is provided so members can shift between digital and analog operations during a train show without requiring assistance from the show coordinator.

T-TRAK: Because of space limitations, the T-TRAK power box has a single decoder version with digital input at one end and the analog output at the other end. It plugs directly into the line between the PM42 output and the rails.

NTRAK: The DCC box in each trailer will have the three decoder box described below and a single decoder box similar to the one provided for T-TRAK. There will be UT4Ds available to run DC.

The Aristo throttles will remain in each trailer as long as they remain serviceable. The Show Coordinator has the option of using Aristos or the Decoder in a Box to provide DC during a particular setup. Using the Decoder in a Box simplifies the electrical setup and tear down.

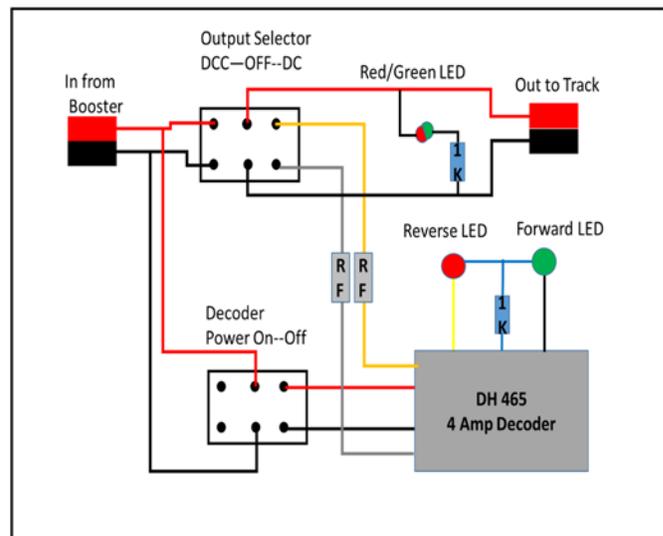
Circuit Protection: A key design concern was protecting locomotives and the decoder when the inevitable short circuit occurs when trains derail or wheels get across contacts in a turnout. The short will be on the output of the decoder instead of the input. A 1 amp N-Scale decoder could not be protected adequately so we are using 4-Amp HO/O decoders, DH-465. Resettable fuses are used on both sides of the decoder outputs to the track. The resettable fuses selected provide protection when there is excessive current, long before a locomotive will overheat. A dead short will reflect back through the decoder to trip the PM42 Power Manager.



Operating Features: The NTRAK Box has three identical circuits to power the red, yellow and blue lines. The basic features of each circuit are:

- A three position switch at the top that selects Analog, Off, or DCC operation.
- A two position switch at the bottom that controls the input DCC power to the decoder.
- A label that indicates the decoder setting to be used.
- Two lights, one red and one green, low on the box that are powered by the decoders F0 function for forward and reverse. These lights show that you have control of the decoder and direction of travel. Green is counterclockwise, and red is clockwise.
- A single red/green light that shows power to the track. Intensity varies with throttle setting in DC.

To the right is the wiring diagram for one circuit.



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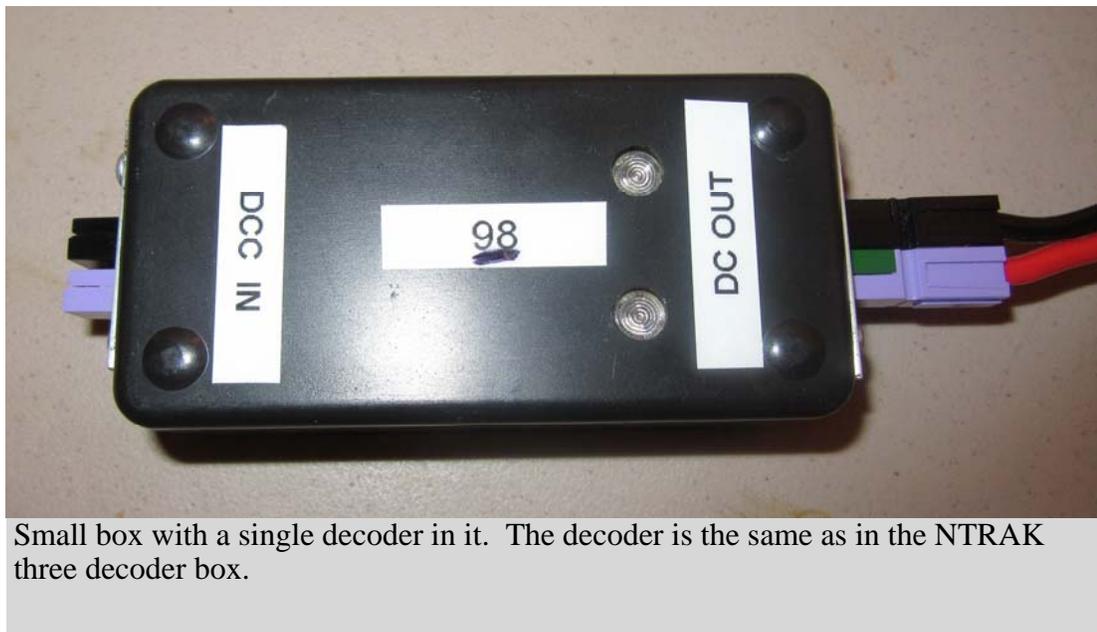
Shifting from DCC to Analog:

1. Move the decoder switch at the bottom of the box to the left, from Off to On.
2. With a throttle, such as the UT4D, select the decoder address shown on the box.
3. Turn on the lights (F0) and verify control of the decoder by changing direction and observing that the red and green lights shift.
4. Move the output selector to the left, from DCC to Analog. This is a three position switch.
5. Run Analog trains.

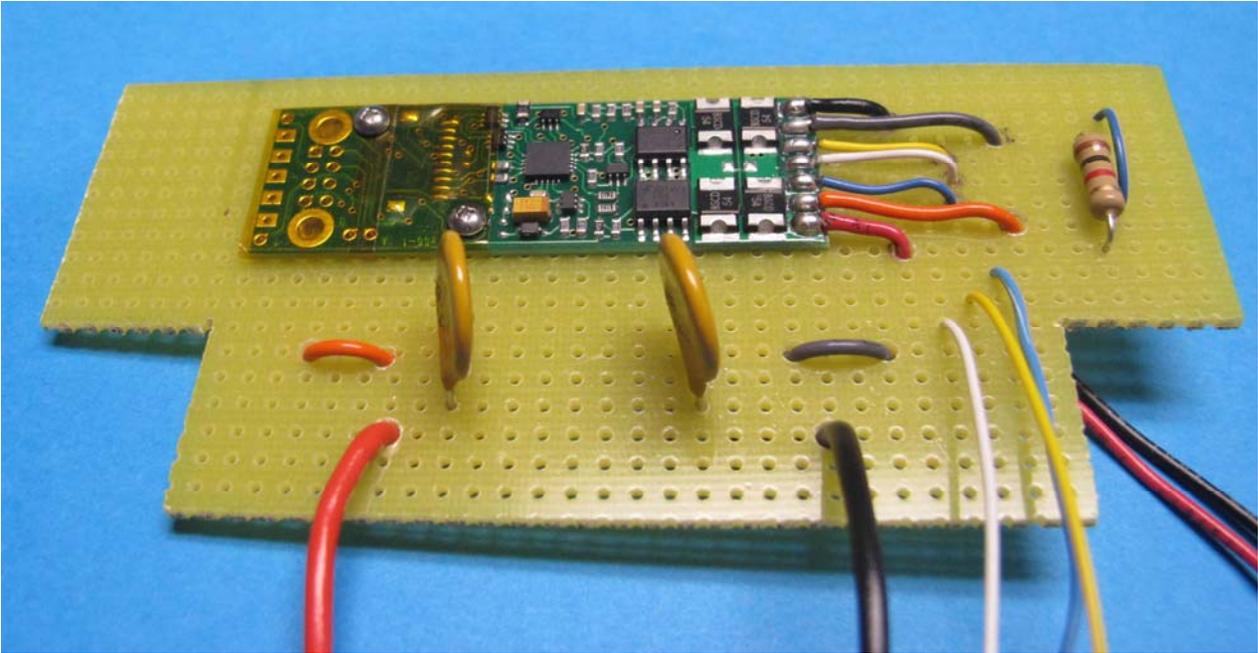


Shifting from Analog to DCC:

1. Move the output selector to the right to the DCC position.
2. Dispatch the decoder.
3. Move the decoder switch at the bottom of the box to the right, from on to off.



Small box with a single decoder in it. The decoder is the same as in the NTRAK three decoder box.



Another view of a decoder, two resettable fuses and the resistor for the LED lights.