

# Instructions for DH150A Decoder Installation

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Digitrax Command Control

## **DH150A** **Plug N' Play 1.5 Amp DCC Decoder** **for Atlas HO Scale Locomotives**

1.0 Amp (1.5 Amp Peak) Mobile DCC Decoder

Easy, no solder installation

Supports Both Short (127) & Long (10,000) Address Modes

User Programmable Address, Acceleration, Deceleration,  
Start-voltage, Mid-point voltage, Max voltage and more

Programmable from DCC compatible equipment without opening the loco

Smooth conversion to analog operation with functions operational

5 User Configurable, Independent Function Outputs Rated at 200ma  
Use These as Regular Function Leads or Generate FX<sup>tm</sup> Special Lighting Effects  
Choose from Mars, Gyalite, Single or Double Strobe, Ditch Lights and more.  
(FX can be run on F0 Fwd, F0 Rev, F1 & F2)

Smooth locomotive speed control with user selectable  
14, 28, or 128 forward & reverse speed step capabilities

User loadable speed tables for customized speed control  
with 128 speed step resolution

Supports Basic, Advanced & UniVersal Consisting

User configurable loco direction of travel, you decide  
which way is forward without rewiring the motor

Compatible with the DCC Standard

Complies with FCC Part 15, class B RFI requirements

**Made in USA** Digitrax manuals & instructions are updated periodically.  
Please visit [www.digitrax.com](http://www.digitrax.com) for the latest version.





## **Decoder Installation Instructions. For DH150A In Atlas HO-scale U33C**

1. Remove locomotive shell.
2. Note the wire connections to the circuit board inside the locomotive.
3. Carefully remove the ten black retaining clips from the circuit board. Do not lose these since you will need them to install the decoder.
4. Carefully remove the wires from the circuit board.
5. Remove the circuit board from the locomotive by lifting it up and pressing in on the two black posts near the center of the locomotive.
6. Be sure to install the decoder in the locomotive in the same orientation as the circuit board you removed. The component side of the decoder will be facing down. Before attaching the wires to the decoder be sure you are set up in the correct orientation.
7. Attach the wires from the locomotive to the decoder as shown and re-install the 10 black retaining clips.
8. Once the wires are attached, gently press the decoder down over the two black posts near the center of the locomotive.
9. Replace the locomotive's shell and you are ready to run with DCC!

There are many other locomotives that use circuit boards that are very similar to the circuit board in the Atlas U33C. We offer the DH150A and it's sister the DH150K to fit many different locomotives. Actually DH150A & DH150K are the same decoder, the "K" version is optimized for motor tabs & track pickups and comes with various spacers, screws and other hardware that makes these installations simpler for you.

Note that the DH150K lets you customize the lighting for each locomotive.

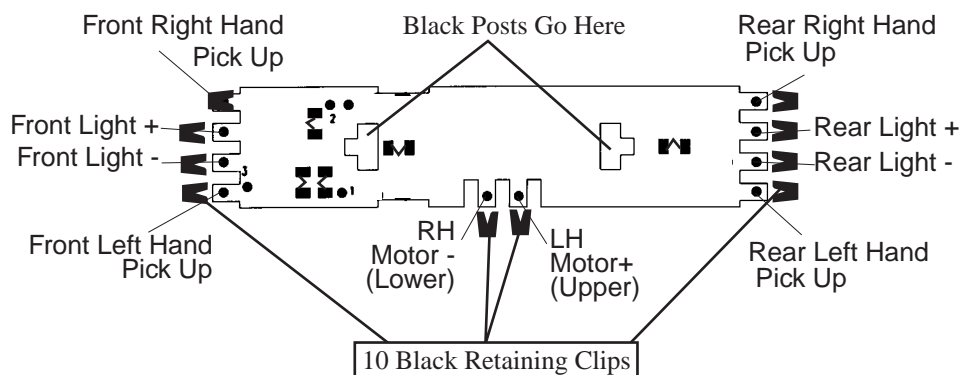
### **DH150A Fits Atlas U33C & U36C.**

**DH150K Is Optimized To Fit Atlas RS1, RS3, C424, C425, GP7, RSD4/5, RSD12, C30-7, Kato GP35, SD40, C44-9W, Stewart RS11, F3A, F3B, F7A, F7B, F9A, F9B , U25C & Baldwin AS16.**

NOTE: These decoders also fit other locomotives not mentioned above. Many locomotives were based on the Kato OEM drive mechanism that this decoder was designed for. E&C Shops next upcoming locomotive is designed with the same circuit board.

**See Digitrax Decoder Users Manual for complete decoder test procedures, installation instructions & technical information. This manual is available at no charge from your dealer. If your dealer is out of these manuals, contact Digitrax (770) 441-7992, Fax (770) 441-0759, or e-mail [sales@digitrax.com](mailto:sales@digitrax.com) and we will gladly send you a copy.**

## DH150A Installation Diagram



## Most Commonly Used CV's

Commonly Used Configuration Variables			Commonly Used Configuration Variables		
CV#	Used For	Default	CV#	Used For	Value
CV01	2-digit address	03	CV61	Directional Lights or White=F0 & Yellow=F4.	0
CV02	Start Voltage	0	CV49-54	FX Effect Set ups	See Manual
CV03	Acceleration Rate	0	CV65-95	Loadable Speed Tables	See Manual
CV04	Deceleration Rate	0			
CV05	Maximum Voltage	0			
CV06	Mid Point Voltage	0			
CV29	Configuration Register Examples	06=Advanced Mode, Analog Conversion On 04=Standard Mode (14 Speed Steps), Analog Conversion On 16=Enable Loadable Speed Table, Analog Conversion On, Advanced Mode 02=Advanced Mode, Analog Conversion Off (Recommended if Analog Conversion is not needed. 00=Standard Mode, Analog Conversion Off <b>Reverse Direction Values For CV29 in FX decoders:</b> 01=Standard Mode, Analog Conversion Off 03=Advanced Mode, Analog Conversion Off 05=Standard Mode, Analog Conversion On 07=Advanced Mode, Analog Conversion On 17=Enable Loadable Speed Table, Analog Conversion On			

Damaged decoders should be returned directly to Digitrax for repair. The standard repair charge is \$17. NOTE: DH150 decoders with circuit boards that are broken apart are not covered by our warranty. Please follow installation instructions carefully to avoid breaking the PCB.

## Using Function Outputs on the DH150A & DH150K

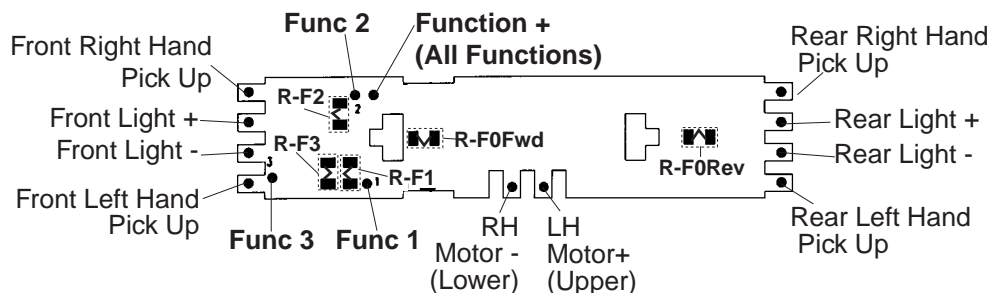
DH150 has 5 function outputs available. These function outputs are set up for 12V operation, please review your decoder manual for instructions about using other voltages. F0-Forward and F0-Reverse are set up at the factory for automatic reversing operation. If you wish to control these lights separately from your throttle, simply program CV61 to 01 and F0-reverse will run on F4 as an independent non-directional function and F0-forward will be non-directional.

Functions 1, 2 & 3 are also available on the DH150. If you wish to use these functions you will need to solder wires to the pads indicated Func 1, Func 2 & Func 3, then run the wires to the lights or other functions you wish to control. Please check the decoder manual section on lamp wiring if you are using 1.5V lamps or LED's. Current setting resistors are needed for these applications. Pads are provided on the decoder board for surface mount resistors. R-F1 are the resistor pads for Func 1, R-F2 are the resistor pads for Func 2 and so on. If you use 1.5V lamps or LED's for forward & reverse headlights, you can use the pads R-F0Fwd & R-F0Rev to install the required resistors. The pads are laid out for 1206 size surface mount resistors. If you choose to use axial resistors you can solder directly to the pads or solder & heat shrink them in the leads for the lamp. For function devices with a definite polarity like LED's the +ve leads connect to the Function + pad on the decoder.

To install resistors on the pads provided just cut the "chevron" trace that joins the two pads and solder the resistor directly to the pads.

Surface mount & axial resistors can be purchased from Digi-Key (1-800-DIGIKEY or [www.digkey.com](http://www.digkey.com)) or Radio Shack. For 1.5V lamps, we recommend 560ohm 1/4watt for GOR bulbs & 250ohm 1/4watt for GOW bulbs. Lower resistance values will increase the lamp brightness, minimum value is 100 ohms. For LED's we recommend a 680ohm 1/4 watt resistor.

F0Fwd, F0Rev, F1 & F2 can be set up with Digitrax Real FX™ features. See your Digitrax Decoder Manual for complete instructions for setting up these special lighting effects.



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