

# Instructions for DH121 Series Decoder Installation

## DH121, DH121P, DH121PS, DH121AT



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Digitrax Command Control

## DH121

### 1.5 Amp Digital Command Control Decoder

1.5 Amp (2.0 Amp Peak) Mobile DCC Decoder

Easy connect decoder wire harness

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

2 User Configurable, Independent Function Leads Rated at 200ma  
Can be used as independent functions or directional headlights

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

User loadable speed tables for customized speed control

Supports Basic, Advanced & UniVersal Consisting

Compatible with the NMRA DCC Standard

Complies with FCC Part 15, class B RFI requirements

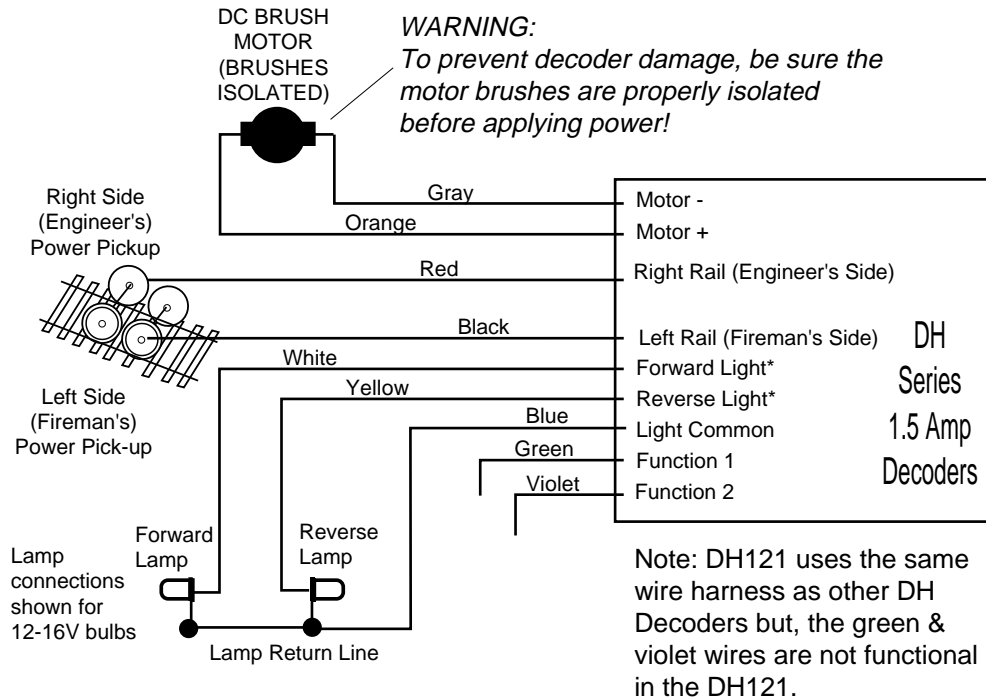
Made in USA





## Decoder Installation Wiring Diagram For DH121 Series Decoders

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 and we will gladly send you a copy.



\* On DH142 & DH121, forward and reverse lights can be run as independent functions on F0 & F4. See CV61 below and see Digitrax Decoder Manual for Complete Instructions.

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	0
CV02	Start Voltage	0		White=F0 & Yellow=F4.	1
CV03	Acceleration Rate	0	CV49-54	FX Effect Set ups	See Manual
CV04	Deceleration Rate	0	CV65-95	Loadable Speed	See Manual
CV05	Maximum Voltage	0		Tables	
CV06	Mid Point Voltage	0			
CV29	Configuration Register	06=Advanced Mode, Analog Conversion On			
	Examples:	04=Standard Mode (14 Speed Steps), Analog Conversion On			
		07=Reversed Direction, Advanced Mode, Analog Conversion On			
		16=Enable Loadable Speed Table, Analog Conversion On			

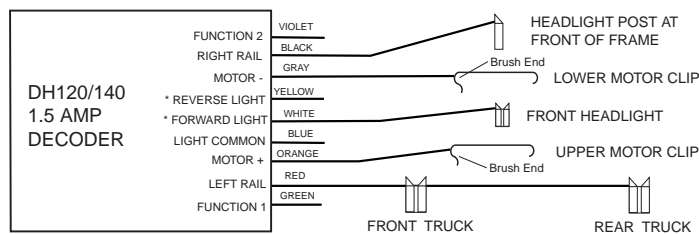
Damaged decoders should be returned directly to Digitrax for repair.  
The standard repair charge is \$17.

# Instructions for DH121AT Installation For Athearn Standard Locomotives



## Decoder Installation Wiring Diagram For DH121 & DH142 SERIES DECODERS with SOLDERLESS HARNESS FOR ATHEARN LOCOMOTIVES\*

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 and we will gladly send you a copy.



Note: DH120/121 use the same wire harness as other DH Decoders but, the green & violet wires are not functional in the DH120/121.

\* On DH142 & DH121, forward and reverse lights can be run as independent functions on F0 & F4. See CV61 below and see Digitrax Decoder Manual for Complete Instructions.

- Carefully remove the locomotive shell.
  - Remove and discard the motor connector clip.
  - Remove motor from frame by pulling the motor away from the frame. **(On newer Athearn locomotives the motor mounts may be glued into the frame. Replacement motor mounts are provided in case they are damaged during removal)** The motor mounts and the drive shafts will come out with the motor. Care should be taken not to lose any of the drive shaft parts.
  - Remove the top motor brush clip and replace it with the motor clip with the orange wire attached to it. (Make sure the brush spring and brush don't fall out while the clip is off the motor.)
- \* SW-7 and SW-1500 switchers use a slightly shorter motor and will need the new motor clips shortened and bent to match the old ones.**
- Remove the bottom motor brush clip and replace it with the motor clip\* with the gray wire attached to it. (Make sure the brush spring and brush don't fall out while the clip is off the motor.)
  - Reinstall the motor to the frame by applying steady pressure to the top of the motor until the motor mounts are completely seated in the frame. At the same time install the front and rear drive shafts.
  - Slide the connector, closest to the decoder on the RED wire, on to the front truck L-bracket. The other connector on the RED wire goes to the rear truck L-bracket.
  - The BLACK wire has a half connector than may attach to either the left or right side of the front headlight bracket. (as close to the frame as possible)

**NOTE:**

**If a connector does not fit snugly, gently squeeze with a pair of pliers until tight.**

9. Fold the copper wiper strip on the headlight back on itself approx. 1/2 in. from the headlight to double it's thickness. Cut off the excess.
10. Slide the connector with the white wire on to the copper wiper strip.
11. Mount the decoder to the top of the motor with a piece of double stick tape.
12. Bundle the excess wire into a neat bundle keeping clear of any moving parts and secure with the enclosed tie strap.

