

# Instructions for DN141E2 Decoder Installation

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Digitrax Command Control

## **DN141E2** **1 Amp Plug N' Play DCC Mobile Decoder** **for E-R Models N-scale Baldwin Sharknose Loco**

1.0 Amp (1.5 Amps Peak) Mobile DCC Decoder

Easy, no solder installation

User Scalable High Resolution Speed Stabilization (Back EMF)

Integrated Digitrax Transponder

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

Programmable from DCC compatible equipment without opening the loco

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

Automatic conversion to analog operation

4 User Configurable, Independent Functions Rated at 125ma  
Use These as Regular Function Outputs or as FXTM Outputs  
To Generate Special Lighting Effects

Choose from Mars, Gyalite, Single or Double Strobe, Ditch Lights and more

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 DCC Standards

**Made in USA**

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



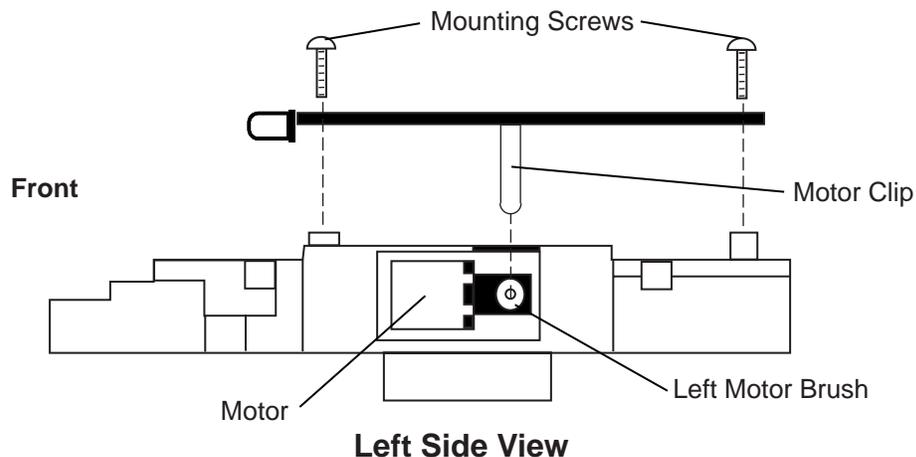
## Decoder Installation Instructions. For DN141E2 for E-R Models Sharknose

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.

### Installation Instructions

1. Remove locomotive shell by gently prying the sides out from the frame. Tilt the rear of the shell up. Work the front coupler through the hole in the pilot. Lift shell clear of frame.
2. Remove the locomotive lamp board by removing the two mounting screws holding it to the frame. Be careful not to lose the screws (you'll need them to install the decoder).
3. With the Headlight LED toward the front of the locomotive, line up the two mounting screw holes in the frame with the holes in the decoder.
4. Lower the decoder straight down onto the locomotive frame. **See Figure 1** Make sure that both the left and right motor clips are lined up and in contact with the motor brushes.
5. Replace the two mounting screws.
6. The motor clips should be centered on the motor brushes. Make sure that the motor clips do not contact the locomotive frame.
7. Replace the shell by working the front coupler through the pilot then snap the shell in place on the frame.

**FIGURE 1**



# Instructions for DN141E2

## How to set up a loco with scaleable speed stabilization

1. Install the decoder.
2. Program CV57 (Droop control) to a starting value of x05/005.  
This will enable speed stabilization.
3. Put the loco on level track and run it at about 20% of full speed. In Program Mode increase the value in CV55 (Static) from the default value of x80/128 upward until you observe the loco jumping as speed steps increase. Finish this step by programming CV55 to a value that is one less than the value before the jumping started.  
**Note: OPS MODE programing on the main line works very well here.**
4. Follow the same procedure with CV56, beginning with the default value of x30/048 and increasing it until you notice the loco oscillating, faster-slower, faster-slower, as speed is increased. Finish this step by programming CV56 to the value just before the oscillation started.
5. Follow the same procedure with CV57, beginning with the value x05/000 as programmed in step 1. Increase the value in this CV until the speed when going up hill is roughly equivalent to the speed on level track. This will yield a best droop value for the particular locomotive.
6. Keep notes about the values you program for these 3 scaleable speed stabilization control CVs so that you can use them as a starting point for setting up scaleable speed stabilization in similar locomotives.

**For more information on Scaleable Speed Stablization consult your Digitrax Decoder Manual or our web page at [www.digitrax.com](http://www.digitrax.com)**

**FIGURE 2**

Commonly Used Configuration Variables			Commonly Used Configuration Variables		
CV#	Used For	Default	CV#	Used For	Value
CV01	2-digit address	x03/003	CV61	Directional Lights	x0
CV02	Start Voltage	x00/000		White=F0 & Yellow=F4.	x1
CV03	Acceleration Rate	x00/000		Disable BEMF w/F5 ON	1x
CV04	Deceleration Rate	x00/000		Disable Vstart,Vmid,Vmax in 128 step mode	2x
CV05	Maximum Voltage	x00/000			
CV06	Mid Point Voltage	x00/000		CV49-54	FX Effect Set Ups
CV55	BEMF Static Adj.	x80/128	CV65-95	See note below for F2 FX	
CV56	BEMF Dynamic Adj.	x30/048		Loadable Speed Tables	See Manual
CV57	BEMF Droop	x00/000			
	0x=Std				
	x0=Adv. Consist				
CV29	Configuration Register	x06/006=Advanced Mode, Analog Conversion On			
	Examples:	x04/004=Standard Mode (14 Speed Steps), Analog Conversion On			
		x07/007=Reversed Direction, Advanced Mode, Analog Conversion On			
		x16/022=Enable Loadable Speed Table, Analog Conversion On			

**CV VALUES ARE SHOWN AS x## FOR HEXADECIMAL AND ### FO DECIMAL NOTATION**

### Special note on FX operation of F1 & F2 with DH142, DN142, DN141K2, DN141E2 & DN149K2

When F1 is set up for FX operation, F2 must also be used as an FX function (it can't be used as a standard on/off function). If you want to use a combination of FX and standard on/off operation with Functions 1 & 2, please use F1 for the standard on/off lead and F2 for the FX lead.

## Functions on the DN141E2

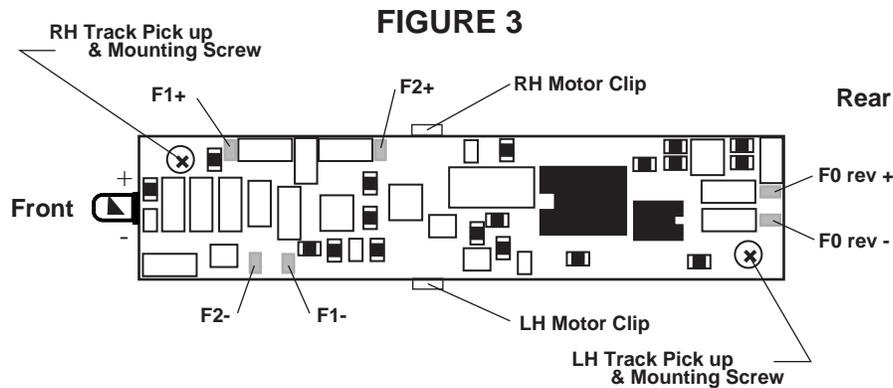
DN141E2 comes equipped with one yellow LED set up as F0 fwd, (there are solder tabs provided for F0 rev) this means that when you install the decoder your headlight will be directional.

If you wish to control these lights separately from your throttle, you can program F0 reverse to run on F4 as an independent non-directional function. (see CV61 in chart on previous page)

Function 1 & Function 2 are also available on the decoder. If you wish to use these functions you must solder wires to the pads indicated in FIGURE 3, then run the wires to the lights or other functions you want to control. If you are using 1.5V lamps or LED's, two 470 ohm current setting resistors are already connected to the F1+ and F2+ pads on the PCB for these applications. If the lamps you are using work better with different values, you can change the resistors.

All four functions can be set up as Digitrax Real FX™ functions. See your Digitrax Decoder Manual for complete instructions for setting up these special lighting effects.

**Caution: When soldering wires to the function pads, make sure these connections cannot come in contact with the locomotive frame.**



Damaged decoders should be returned directly to Digitrax for repair. The standard repair charge is \$17. Please use the original foam packing block if you do need to ship any DN141E2's for repair. Please follow installation instructions carefully to avoid breaking the PCB.

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