

1. Place the engine on its side with the screw heads up. Remove the two screws.
2. Lift off the unattached side. Leave the motor in the other side. Then slip out the light board.
3. Slip the decoder into the slot the light board was removed from. Make sure the motor power pickups on the bottom side of the decoder make contact with the power pickups on the motor.
4. Make sure the insulating washers are in place and slip the unattached side into place and secure the two sides with the screws.
5. Reattach the black plastic light shield over the rear LED. A piece of electrical tape helps hold it in place and also blocks unwanted light. See installation pictures on the TCS website for more information.

ADDITIONAL FEATURES Many additional features are built into this decoder: Decoder Lock, Variable Momentum, Loadable Speed Tables, Modifiable Momentary Pulse, Mars, Gyra and Rotary Beacon Light, and Ditch Lights. If you wish to use them, see **Programming Advanced "X" Features** at www.tcsdcc.com or get a copy at your Dealer.

Compatible with NMRA DCC standards.

Made by **TCS** in the USA.

© Copyright Train Control Systems 2005


WARRANTY This decoder is covered by a one year goof proof, no questions asked replacement warranty. Send decoders in a padded envelope or small box directly to TCS. (If returning by mail, use the P.O. Box Address, otherwise use the street address.) Please include your phone number, Email address, and street address when returning any items.

Train Control Systems
P.O. Box 341
845 Blooming Glen Rd.
Blooming Glen, PA 18911



Phone **215-453-9145**
Fax **215-257-0735**
Email tcs@ot.com
Web www.tcsdcc.com

With GOLDEN WHITE LEDs



MP15N

A drop in decoder for **Atlas N scale** with four 100mA function outputs. 1.0 amp continuous, 2.0 amp peak motor drive

This Decoder was designed specifically for the **Atlas N Scale MP-15** engine. There are two additional light functions available to add ditch lights or other lighting features.

Drop In DCC features:

- **Quiet Drive** creates **SUPER QUIET** engine performance.
- **Autodetect** for realistic throttle response when using **DC power**.
- **Dimmed Brightness** of the **Golden White LEDs** is adjustable.
- **Dither** is the ultimate in **DCC control** thru the entire speed range.
- **Variable Momentum** to form variable acceleration curves.
- **Factory Reset** is faster and easier to reset to the default settings.
- **Brake on DC** stops the train with deceleration when in a **DC block**, maintains lighting, then accelerates when DCC returns.

Plus:

- **OPS Mode Programming** allows on the main track programming.
- **All Program Modes** are supported allowing use with any controller.
- **Basic and Advanced** Consisting for use with any controller.
- **Standard 2 Digit or Extended 4 Digit Addressing.**
- **User Loadable Speed Tables** for custom speed curves.
- **14 or 28 / 128 Speed Step Control** operating at 256 speed steps.

Our Famous GOOF PROOF No Questions Asked Warranty !

WORKSHEET INSTRUCTIONS

- A blank outlined box is provided by each CV number. This is so you can preplan your decoder and have a record of your choices.
- In many cases you are recording a single value such as an address, a rate, or a limit.
- In some cases you are choosing more than one value such as actions, functions, or buttons. Each of these will have a value. Add the values of those you want active and enter that sum in the blank box.
- The other box by the CV number is the factory set value. If it is shaded, it can be reset with **Factory Reset**.

BASIC CONFIGURATION

Circle the values by all of the changes you want to make.

1	A	0	1	Reverse the direction the engine runs.
	B	2	-2	Use 14 Speed Steps instead of 28/128.
	C	4	-4	Disable analog (DC) operation.
	D	0	16	Make the Loadable Speed Tables active.
	E	0	32	Make the decoder address 128 or higher.
CV 29	6			Adjust the Default Value by the values you have circled.

ADDRESSING

2 Digit Address

Use if the address is 127 or less.

2	CV 1	3		← Record your choice here.
---	------	---	--	----------------------------

4 Digit Address

Make sure Table 1 "E" = 32.

Use your system's procedure if available.

3	Example		2147 / 256 = 8.38	Enter the wanted address on your calculator and divide it by 256 and enter the whole number (8) in CV 17.
	CV 17	0		
	2147 - 2048 = 99		Multiply CV 17 by 256 and subtract that from the wanted address and enter the result (99) in CV 18.	
CV 18	0			

Consist Address

If this is greater than 0, the regular address is unalterable.

4			Add 128 to reverse the loco when in consist. Some systems only!
CV 19	0		Use a 2 digit address when in a consist (Multiple units).

MOTOR CONTROL

Speed Graph

1 volt = 18

0 produces straight line acceleration.

6	CV 2	0		Start Volts Set the voltage when the throttle is first applied.
	CV 6	0		Mid Volts Set the voltage when the throttle is at midpoint.
	CV 5	0		Top Volts Set the voltage when the throttle is at full speed.

Momentum

The effect of engines starting and stopping heavy loads.

7	CV 3	0		Acceleration Larger values add time to each speed step.
	CV 4	0		Deceleration Larger values add time to each speed step.

Dither

Dither provides the ultimate in speed control throughout the speed range.

10	If there isn't movement at 2%, increase CV 57 by 5 until you have movement of the flywheel. To fine tune the speed, change CV 56 by 1 until it is running as desired.			
	CV 56	3		Dither Frequency The highest frequency = 1.
	CV 57	10		Dither Voltage The lowest voltage = 1.

NOTE: Both CV 56 and CV 57 must be greater than 0 for Dither to be active.

LIGHTING CONTROL

11	Light Function Wires		Choose a value.	fwd	rev	both
	CV	Value	Light Effect	←	→	↔
	CV 49	0	Front H'light			
	CV 50	16	Rear H'light			
	CV 51	32	Green Wire			
	CV 52	32	Purple Wire			
			Constant Bright Light	0	16	32
			Random Flicker (fire box)	1	17	33
			Mars Light	2	18	34
			Flashing Light	3	19	35
			Single Pulse Strobe	4	20	36
			Double Pulse Strobe	5	21	37
			Rotary Beacon	6	22	38
			Gyra Light	7	23	39
			Rule 17 (dimmable light)	8	24	40
			Momentary Pulse	9	25	41
			Ditch Light (Left or Right)	10	26	42
			Ditch Light (Other side)	11	27	43
			Constant Dim light (50%)	12	28	44

Place the value attained from the table by the function wire that will control it.

Headlight Dimming Control

Rule 17

13			Not used = 0	Dims when stopped = 16	Opposite light is dimmed = 32
	CV 61	0		Automatic Dimming Options	Dim stopped + Opposite dim = 48
	CV 64	15		Dimmed Brightness	(2 - 6 for LEDs, 12 - 18 for Bulbs)

Ditch Light Control

14	CV 63	64		Ditch Light Blink Holdover Time (12 = 1 second, 60 = 5 seconds)
	CV 117	5		Ditch Light Blink Rate (1 = slow, 12 = fast)

Analog (DC) Power Control

Turn off Black or Red wire powered functions.

17			Headlights = 1	Green = 2	Purple = 4
	CV 13	255		Activate power to light functions on DC	
			Brake on DC	Activate by subtracting 4 from CV 29 in table 1.	

Consist Lighting Control

Activate so the direction of travel lights are lit.

18			Green Wire = 1	Purple Wire = 2
	CV 21	0	Other Light Functions	
	CV 22	0	Headlight Functions	Front light = 1 Rear light = 2

Factory Reset

Sets all CVs with a shaded value back to that value.

20	CV 30	0		As soon as you enter a 2 in either CV 8 or CV 30, The reset is complete.
	CV 8	153		