

FCC COMPLIANCE

This device complies with the part 15 of FCC rule. Operation is subject to the following two conditions. (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that cause undesired operation.

RETURN PROCEDURE

If it should become necessary to return your decoder, unplug the decoder and return the decoder only. Please include a letter (printed clearly) with your name, address, a daytime telephone number, and a detailed description of the problem you are experiencing. Please also include a \$9.00 check for handling and shipping fee. **Be certain to return the decoder only.**

Send the decoder to:

Model Rectifier Corporation
Attn: Parts & Service
80 Newfield Avenue
Edison, NJ 08837-3817 U.S.A

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80 NEWFIELD AVENUE, EDISON NJ 08837-3817
Tel. 732-225-6360
PRINTED IN USA



AD332 'N' Gauge Decoder

Congratulations! You have just purchased an an advanced DCC locomotive decoder. Combined with any DCC System, our decoder will make your model railroad more realistic and exciting. Thank you for purchasing MRC products.

- Designed for N scale
- Maximum current: 0.75 amp
- Programmable for either 2-digit (1-127) or 4-digit (1-9999) addresses
- Programmable start voltage
- Programmable acceleration rate
- Programmable deceleration rate
- Programmable top voltage
- Programmable 14, 28 or 128 speed steps
- Directional lighting control for front and rear lights at 0.2 amp rate
- Compatible with NMRA DCC standard
- Complies with the Part 15 of FCC
- 28.0mm long x 8.5mm wide x 2.5mm high

INSTALLATION

It is quite a challenge to install a decoder into a standard locomotive. You should have some basic electrical knowledge and soldering skills. If you do not have the above requirements, please ask the dealer for help in installation.

Figure 1 shows the electrical circuit of most standard locomotives. The terminals of the motor and lights are directly connected to the wheel pick-ups. Each type of loco has its own method of electrical pick-up and distribution. The connection between the wheels, motor and lights could be wires, clips, the body or chassis, a PC board or any other type of conductor. Figure out your loco's electrical system and how to disconnect (isolate) the motor and lights.

Figure 1. Connection of standard locomotive. *Note: The 'X' marks indicate where to disconnect (isolate).*

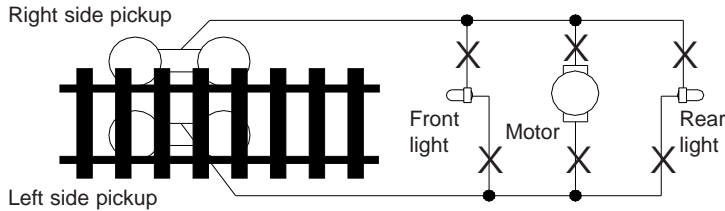
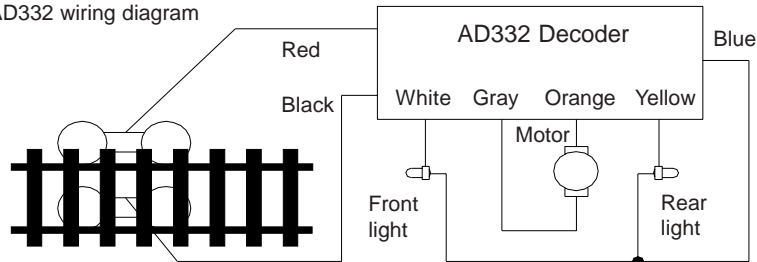


Figure 2 shows you how to wire the decoder. After disconnecting the motor terminals from pick-ups, connect the red wire to the right side pickup and the black wire to the left side pickup. Connect the orange wire to the motor terminal that originally connected to the right pickup. Connect the gray wire to the motor's other terminal. Connect the front light to the blue wire and the white wire. Connect the rear light to the blue wire and the yellow wire.

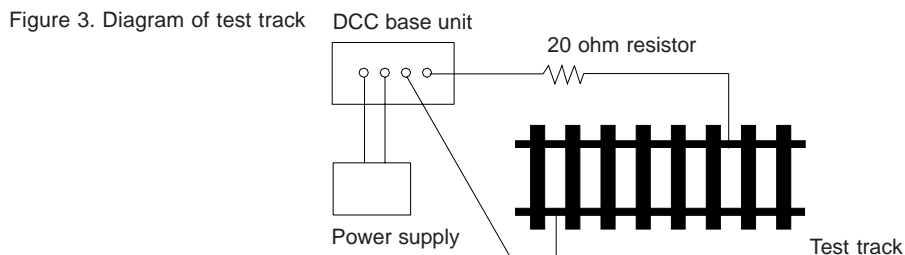
The blue wire is the common terminal for lights. You may use the black wire or the red wire to replace the blue wire. This is very useful when you find that it is hard to isolate one of the light terminals from the pickup. Wiring the bulb this way will also make the light dimmer. If your loco has only a front light, you should connect the white and the yellow wires together.

Figure 2. AD332 wiring diagram



MAKE A TEST TRACK

Before you start with your decoder installation, we strongly recommend building a test track that uses a 20-ohm resistor to limit current. **Only test your installed decoder on the test track.** The test track will prevent any damage due to an incorrectly wired decoder.



TEST

All MRC decoders have been factory programmed with address #3, 28/128 speed steps and maximum top voltage. After you have finished your decoder installation, you are ready to test it. **Never run the installed decoder on your layout without first passing the test.** You may damage the decoder if it is not wired correctly or if you have not properly isolated the motor and the lights.

Put the loco on the test track. Select the Run Mode of your DCC system and select or acquire address #3. Move up throttle and the loco should move forward. Push the light button and the front light of your loco should turn on. Push the reverse direction button. The loco should move backward and the rear light should turn on. The loco cannot get normal speed because there is a 20-ohm protection resistor in the test track. If you are able to turn on/off the front and rear lights and you are able to move the loco forward and reverse, you did a great job. Congratulations! **Do not test the loco on the test track for an extended period of time. To do so will cause the protection resistor to overheat.**

If your installed decoder does not pass the test, find the problem, correct it and test it again. As long as you test the decoder on the test track there is little chance of damaging your decoder. This is why making a test track is so important.

PROGRAMMING

The AD332 decoder supports the following register and CV programming.

MRC PRODIGY DCC and MRC Command 2000 users do not need to know all these register/CV numbers because the MRC DCC systems use model railroading terminology. It is easy to understand and easy to program.

The MRC AD332 decoder should perform well when used with other brand command systems. See your DCC command station's manual to learn how to program and operate the decoder. For more information about register/CVs and their functions, please refer to the NMRA DCC Standard & Recommended practices, RP-9.2.2 This is available directly from the NMRA or their website at www.nmra.org.

CV	Register	Description	Range	Factory Value
CV1	R1	Short address	1-127	3
CV2	R2	Start voltage	0-32	0
CV3	R3	Acceleration	0-32	0
CV4	R4	Deceleration	0-32	0
CV5	---	Max voltage	0-32	0
CV29	R5	Basic configuration	---	2
CV7	R7	Manufacturer version number	---	32
CV8	R8	Manufacturer ID	---	143
CV17	---	Long address upper byte	192-231	192
CV18	---	Long address lower byte	0-255	3
CV19	---	Advanced consist address	1-127	0
---	R6	Page number	0-31	1