LIGHT EFFECT PROGRAMMING CHART FOR CV#112

Your MRC Synchronized Diesel Sound Decoder is equipped with normal directional lighting, plus MRC light effects. By using the blue common wire and a combination of the green and brown wires on the decoder board (see wiring diagram) you can choose from ditch lights, mars light or strobe light. Your diesel loco can also have “Rule 17” directional headlights, through simple programming, without any complicated wiring.

Due to the nature of all sound decoders, the CV read back is not 100% correct. So feature this is not supported in the decoder. This is not a defect of the decoder or your DCC.

Whenever the decoder doesn’t work please use program track to re-program the loco address or program CV#125 with value 1 to restore the decoder to factory setting. This should bring the decoder to life.

TROUBLE SHOOTING

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 $15.00 check for shipping and handling.

RETURN PROCEDURE

Thank you for purchasing our highly advanced DCC locomotive sound decoder. Combined with any DCC System, our new decoder with authentic diesel sound truly will make your model railroad come to life.

• Synchronized diesel prime mover with randomly associated locomotive sounds
• User selectable 11 different horns and 7 bells
• 19 accessory functions allowing more sound control than ever
• Programmable individual sound volumes
• 1.5 amp capacity
• 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, 128 speed steps
• Selectable factory default speed curve
• Directional lighting (FO) at 0.2 amp rate
• Programmable “Rule 17” directional lighting
• Programmable for either ditch lights, mars light, or strobe light
• Supports advanced consisting (CV19)
• Supports programming on the main (OPS mode)
• Compatible with NMRA DCC standards
• NMRA 8 pin plug included for easy installation
• Complies with Part 15 of FCC
• 28mm speaker included
• Dimensions: 48.0mm x 17.0mm x 7.5mm
INSTALLATION

It is quite a challenge to install a decoder into a loco. 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 locos. The terminals of the motor and light(s) are directly connected to the wheel pickup. Each type of loco has its own method of electrical pickup and distribution. The connection between the wheels, motor and light(s) could be wires, clips, the body or chassis, PC board or any other type of conductor. First, figure out your loco’s electrical wiring and how to disconnect/isolate the motor and light(s).

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

The decoder will be inserted between the wheel pickup and the motor. The decoder will be inserted between the wheel pickup and the motor.

Figure 2 shows how to wire the decoder. After disconnecting the motor terminals from the pickup, 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 was 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 and accessory functions. You may connect the blue wire to the red wire or the blue wire to replace the blue wire. This is useful when isolating one of the light terminals from the pickup is difficult. Wiring the bulb this way will make the light dimmer. If your loco has only a front light, you should connect the white and the yellow wires together. If your locomotive has a NMRA 8 pin receptacle, remove the dummy plug. Match first pin and plug in the decoder.

Figure 2. 0001632/33 decoder wiring diagram

Each manufacturer and loco may have different ways of decoder installation. There is no standard rule for installing a decoder. It is always better to consult the loco manufacturer on how to install a decoder in that particular loco.

LIGHT EFFECTS WIRING

If your loco has ditch lights, mars light or strobe light, you can wire these lights to the 2 extra wires (brown/green) coming from the decoder. The blue decoder wire is the common wire. Then program CV #112 for the desired light effect. CV #114 controls the output voltage (brightness) of the light effects.

All the decoder’s light outputs are track output voltage (around 14V) supplied by your DCC system. They are designed for 12V light bulb. Please contact your loco manufacturer for lights’ operation voltage. If you have a 1.5V bulb or LED, you should connect a 1k ohm resistor in series to one of the leads to limit current.

MAKING A TEST TRACK

Before you begin decoder installation, we strongly recommend building a test track with a 27 ohm resistor to limit current. Only test your installed decoder on the test track. The test track may prevent damage from an incorrectly installed decoder.

Figure 3. Diagram of test track

The program track is NOT a test track. The program track does not use a current limiting resistor. So it can’t protect an incorrectly installed decoder.

Do not run the loco for an extended period of time on the test track or the resistor will overheat.

If your installed decoder does not pass the test, find the problem, correct it and test it again.

OPERATION

This decoder has start up and shut down feature. You must press any function key to start up the engine before operating the loco. To shut down the engine you must bring the loco to idle and then press F8 3 times.

This decoder can also be used in an Electric Type Traction Loco such as Trolley or GG-1 by turning off diesel sounds. To turn off the diesel prime mover sounds, program CV #122 with value 0.

If using the MRC Prodigy Advance DCC System, you can use F16 to select different bells. First use F1 to activate bell. Then use F18 to scroll through seven different bell sounds. You can use F19 to scroll through eleven different horns. When using other DCC systems you have to program CV #52 to select bell and CV #50 to select horn.

To turn on back emf speed control program CV #123 with value 1.

There are many more program features available with this decoder. Please refer to the CV Chart to explore other features of the decoder.

DEISEL SOUNDS CHART

<table>
<thead>
<tr>
<th>Function</th>
<th>Idle/Moving</th>
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<tbody>
<tr>
<td>Double click F0</td>
<td>Turns on/off accessory lighting</td>
</tr>
<tr>
<td>F2</td>
<td>Headlight on/off</td>
</tr>
<tr>
<td>F3</td>
<td>Air release while moving or prime mover rev up while idle</td>
</tr>
<tr>
<td>F4</td>
<td>Coupling air hose firing</td>
</tr>
</tbody>
</table>
| F5 | Brake release (diesels)/brake squeal (motive)
| F6 | Dynamic brake on/off |
| F7 | Air hose braking/uncoupling lever |
| F8 | Notch down (when CV122=3)/associated loco sound |
| F9 | Notch up (when CV122=3)/associated loco sound |
| F10 | Rail wheel clack (only moving) |
| F11 | Traction air compressor |
| F12 | Engine cooling fan |
| F13* | Short air release |
| F14* | Associated loco sound |
| F15* | Associated loco sound |
| F16* | Air pump |
| F17* | Flange noise |
| F18* | Change bell type |
| F19* | Horn type select |

Note: Only MRC Prodigy advanced DCC has F13-F19 accessory functions.