- MOBILE DECODER
- DCC PLUG AND PLAY
- 1 amp/2 amp PEAK
- 2 FUNCTIONS at 0.5 amps

Gaugemaster
Electronic loco controller

FEATURES
SMOOTH OPERATION
THREE SPEED STEP SETTINGS – 14, 28 or 128 steps
PLUG AND PLAY - 9 Pin to DCC Medium Plug on a 1" harness
TRANSPONDER ID EQUIPPED - For future sound projects.
ALL MODE PROGRAMMING
DECODER RESET CV - With or without speed table reset
MOTOR ISOLATION PROTECTION - To help prevent damage to your decoder
ADVANCED & UNIVERSAL CONSISTING
2 and 4 DIGIT ADDRESSING
DCC COMPATIBLE
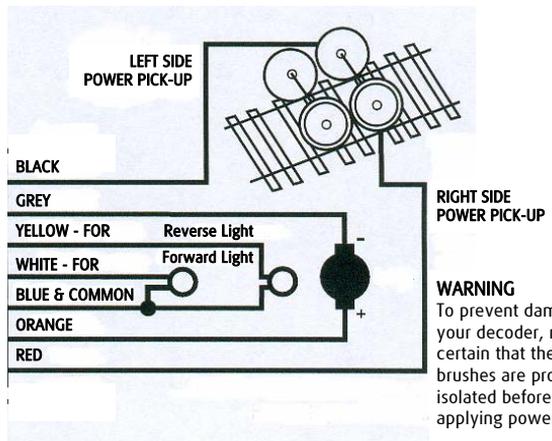**FCC PART 15, CLASS B RFI COMPLIANT**

INSTALLATION INSTRUCTIONS
1. Carefully remove your locomotive's body from it's chassis. Please take note of the orientation of the body to make re-installation easier.
2. This decoder is fitted with a DCC medium plug. Remove the jumper plug from the DCC medium socket on the locomotive circuit board and plug in the DCC plug end of the harness.
3. Replace the locomotive body. You are now ready to run your locomotive. This decoder has a factory default setting of address 03. You can easily change this address and any other features you choose to, by using your PRODIGY ADVANCE system. If your locomotive is not DCC ready, then follow the diagram below for direct connection. Be certain that the locomotive brushes are isolated from ALL other connections to the locomotive other than the grey and orange wires from the decoder.

SMALL DECODER WIRE COLOUR CODE

BLACK	Left Side Power Pick-up
GREY	Motor -
YELLOW	F0R (Reverse Light)
WHITE	F0R (Forward Light)
BLUE	Lamp Common
ORANGE	Motor +
RED	Right Side Power Pick-up

Do not hesitate to contact us for further advice on fitting decoders to your locomotives.

LEFT SIDE POWER PICK-UP

BLACK
GREY
YELLOW - FOR — Reverse Light
WHITE - FOR — Forward Light
BLUE & COMMON
ORANGE
RED

RIGHT SIDE POWER PICK-UP

WARNING
To prevent damage to your decoder, make certain that the motor brushes are properly isolated before applying power.

INSTALLATION NOTES
1.	Do not exceed the decoder's 500mA total function output rating.
2.	If you are planning on using a function output with an inductive (coil) type load, lamps or LED's - please contact us for further information on how to achieve this.

CUSTOMISING YOUR DECODER
This decoder is ready to run and will operate using it's default address of 03 with no additional programming. For a more prototypical approach to the operation of your model railway, this decoder can be customised to suit the needs of any locomotive you fit it to by programming some of the Configuration Variables (CV's) that are available.

PROGRAMMING DECODERS

The PRODIGY ADVANCE allows you to easily program most NMRA compatible decoders. It guides you step-by-step through the programming process. PRODIGY ADVANCE prides itself on simplicity of use - you do not need an engineering degree to program decoders with this system. PRODIGY ADVANCE allows you to program decoders on a separate Program Track or on the Main Track layout, all without affecting any other locomotives operating on the Main Track.

A list of common decoder terminology can be found on the next page. It is recommended that you familiarise yourself with this terminology, to further your DCC knowledge.

LOCO ADDRESS
The address is the number assigned to a decoder to identify the decoder.

START VOLTAGE
This is the voltage required to start the locomotive's motor and overcome its weight and friction to begin to make it move. You can program your locomotive with a start voltage so that it will begin to move as soon as the control knob is turned.

TOP VOLTAGE
The top voltage (top speed) is the voltage (speed) at full throttle. The PRODIGY ADVANCE top end voltage is set for maximum output. If you are operating a shunter, you may want the top end voltage to be less than full output for a more realistic performance when at full throttle.

ACCELERATION RATE
This rate simulates the drag of a heavy load as the locomotive speeds up, so when you increase the speed setting, the locomotive will gradually increase its speed.

DECELERATION RATE
This rate simulates the momentum of a heavy load as the locomotive slows down, so when you decrease the speed setting, the locomotive will gradually decrease its speed.

PROGRAMMING LOCOMOTIVES ON THE PROGRAM TRACK
1.	Make sure your WALKAROUND is allowed to program on the Program Track.
2.	Place the locomotive on the Program Track. Press **PROG** to select "Prog Prog Track" and press **ENTER**.
3.	First, "Adr" will flash, prompting you to program the locomotive address. Using **0-9**, enter the locomotive address followed by **ENTER**, or press **ENTER** to skip. Please note that if you are a beginner or only want to program the locomotive address, you can stop now as this is now complete. Put your locomotive back on the Main Track and

select the locomotive by pressing **LOCO**, then enter the locomotive address and press **ENTER**. Now you can run your locomotive. If you would like to do more then read on!

4. Next "SV" will flash, prompting you to enter the Start Voltage. Input the data then press **ENTER**.
5. Next "Acc" will flash, prompting you to program the acceleration rate. Input the data then press **ENTER**.
6. Next "dEc" will flash, prompting you to program the deceleration rate. Input the data then press **ENTER**.
7. Next "TV" will flash, prompting you to program the top voltage. Input the data then press **ENTER**.
8. Finally, "CV#" will flash, prompting you to program a CV (Configuration Variable). At this point you have already finished most of the decoder programming. You can stop programming here by pressing **ENTER**. PRODIGY ADVANCE allows you to enjoy operating your model railway without having to fully understand CV's and how they work as we like to keep things as simple as possible.
9. However, if you want to program a CV, enter a CV number and press **ENTER**. Input your CV data and press **ENTER** again. "CV#" will flash again, prompting you to program another CV. To skip this, press **ENTER**.

Please note that programming a CV with incorrect data can cause your decoder to malfunction. Read the manual that comes with your decoder carefully before programming a CV. Also, be certain to read the Configuration Variables section on the next page before attempting to program a CV. This will enable you to have a better understanding of Configuration Variables.

CONFIGURATION VARIABLES		
CV#	**REGISTER #**	**FUNCTION**
1	1	Short Address
2	2	Start Voltage
3	3	Acceleration Rate (momentum)
4	4	Deceleration Rate (momentum)
5	-	Top Voltage
6	-	Mid Voltage
7	-	Manufacturer Version #
8	-	Manufacturer ID #
17	-	Extended Address - Upper & Lower Bytes, 4 Digit Address
18	-	Extended Address - Upper & Lower Bytes, 4 Digit Address
19	-	Advance Consist
29	5	Configuration Data #1

Configuration Variables, also known as CVs, receive and hold entered data that allow the decoder to be tailored to a specific loco or accessory. Some CVs are also called registers. The Prodigy Advance DCC system allows you to perform most basic programming without having to concern yourself with CVs or registers. Of course, if you want to program CVs to custom tailor your decoders or select certain functions, PRODIGY ADVANCE has this capability.

MOST COMMONLY USED CV's

The CVs listed on the chart below are contained in almost all decoders, with additional CVs for extra functions – sound or light – in more specialized decoders. See the decoder manufacturer's instruction manual for a list of CVs contained in that specific decoder and what values to enter for those CVs.

CV #29

CV29 is the most important CV of the decoder. Improperly programming the CV29 may cause your decoder to malfunction. We do not recommend you program CV29 yourself as the unit will take care of it for you under most circumstances. When you program your decoder's address with PRODIGY ADVANCE, it will automatically program CV29. If you want to reverse the locomotive's polarity or set 14 speed steps, you have to reprogram CV29 after programming the locomotive's address. Please use the following table to reprogram CV29. The value of CV29 depends on the locomotive's address. If you would like further information on CV29, do not hesitate to contact us.

CHANGES	DECODER ADDRESS 1-127	DECODER ADDRESS 128-9999
PRODIGY ADVANCE's Default Setting	CV29 = 2	CV29 = 34
Change Polarity Only	CV29 = 3	CV29 = 35
Change to 14 Speed Steps Only	CV29 = 0	CV29 = 32
Change Polarity & 14 Speed Steps	CV29 = 1	CV29 = 33

CV #08

To reset all CV values to the initial factory settings. To reset all CV values, program CV08 to a value of 008/x08. You also have the option of resetting all values except the 28 speed step tables. To do this, program CV08 to a value of 009/x09

WARRANTY AND REPAIR

If you believe your decoder is faulty, please telephone us in the first instance. We will advise you of your best course of action. If it involves sending anything back, please send it to the address below via insured post and packed securely.

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