



GAUGEMASTER DIGITAL CONTROL

These instructions refer to the use of the following Digital items in the GAUGEMASTER range:

DCC90, DCC91, DCC92, DCC93, DCC94, DCC95, and DCC99.

Please read these instructions carefully and ensure that you are following the correct parts of the instructions for the item that you have bought. Not all of the instructions in this guide will apply to every item above. Please refer to the locomotive instructions for installation.

WARNING

THIS APPLIANCE IS FOR INDOOR USE ONLY. NOT RECOMMENDED FOR CHILDREN UNDER 14 YEARS OLD UNLESS SUPERVISED BY AN ADULT.

The unit should not be opened or disassembled as it has no consumer repairable components.



PRODIGY DIGITAL CONTROL

- DCC01 Prodigy Express Starter Package
- DCC02 Prodigy Advance2 Starter Package
- DCC04 Prodigy Advance2 Wireless Starter Package
- DCC05 Prodigy WiFi
- DCC06 Prodigy Express WiFi Starter Package
- DCC11 Prodigy Extension Plate
- DCC13 Prodigy Advance2 Wireless Walkaround
- DCC14 Prodigy Advance2 Backlit Walkaround
- DCC32 Point Decoder 4 Way w/CDU (Twin Pack)
- DCC40 Prodigy Auto Reverse Module
- DCC49 Prodigy DCC Booster Unit (8 Amp)
- DCC51 Prodigy Wireless Conversion Set
- DCC52 Prodigy Wireless Receiver
- DCC55 Prodigy Advance2 Wired Computer Interface
- DCC60 Prodigy Spare Plug
- DCC61 Medium NEM 652 Socket (5)
- DCC62 Prodigy Universal Lead (2m)
- DCC63 Prodigy Advance2 Power Supply Unit
- DCC64 Prodigy Power Pack Lead
- DCC65 Prodigy Express Power Supply Unit
- DCC66 Controller Caddy
- DCC71 Prodigy DC Adaptor Plate/Decoder Tester
- DCC72 8 to 21 Pin Adaptor
- DCC77 Prodigy Walkaround Adaptor
- DCC80 DCC Autofrog
- DCC81 Standard Point Decoder w/CDU

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DECODER ATTRIBUTES

Code	Description	Physical Size	Current Rating	Functions	Function Current Rating	Function Type	DCC99 Compatible
DCC90	Standard Decoder 8 Pin	17x28x7mm	1.5/2.0 Amps	2	0.5 Amps	FX ³	Yes
DCC91	Standard Decoder 21 Pin	21x16x4mm	1.5/2.0 Amps	2	0.5 Amps	FX ³	Yes
DCC92	Small Decoder 8 Pin	12x10x3mm	1.0/1.5 Amps	2	0.5 Amps	FX ³	No
DCC93	Small Decoder 6 Pin	10x11x3mm	1.0/1.5 Amps	2	0.5 Amps	FX ³	No
DCC94	Pro Decoder 8 Pin	17x27x7mm	1.5/2.0 Amps	6	0.5 Amps	FX ³	Yes
DCC95	Pro Decoder 21 Pin	21x16x4mm	1.5/2.0 Amps	6	0.5 Amps	FX ³	Yes
DCC99	PowerPal for 90/91/94/95	40x14x8mm	N/A	N/A	N/A	N/A	N/A

FX³ Decoders have motor isolation protection. If the decoder senses that the motor is not isolated, it will not run the motor. In this case, you will be able to control the locomotive functions but the motor will not work. See the instructions on the download section of our website for more information.

FUNCTION OUTPUTS

DCC90/91/92/93/94 only have two function outputs - forward and reverse lighting, and motor control. The DCC94/95 is set up at the factory to control six function outputs. The decoder is configured to control the lights on the factory light board through the 21MTC interface using Function 0 (FOF-forward and FOR-reverse) for directional lighting. Functions F1 (Green), F2 (Violet), F3, and F4 are also available as part of the 21MTC interface for easy hookup. Depending on your locomotive you may or may not have these functions available, refer to your locomotive documentation for more information.

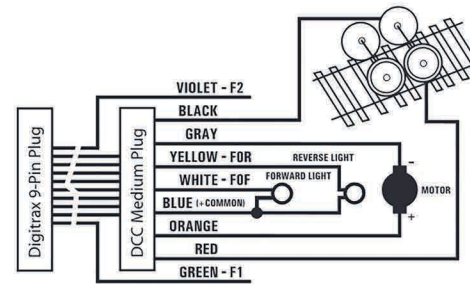
DCC99 INSTALLATION

The DCC99 PowerPal is a capacitor which allows smooth running over dirty track or bad connections. The hold up time varies based on actual decoder load and track conditions. Only use on 12-15v track power.

To install, find the 2 pin Power Pal socket (only on GM90, GM91, GM94, and GM95). On the PowerPal harness there is a 2 pin plug. Insert this plug into the socket on the decoder. No other wiring is required for operation.



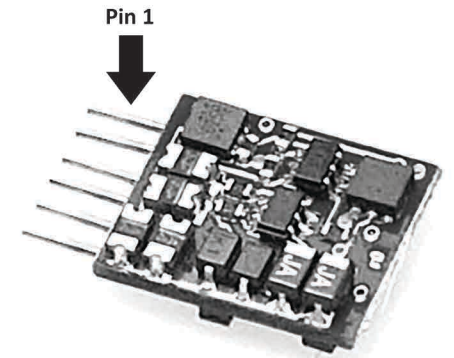
WIRING DIAGRAM FOR 8 PIN DECODERS



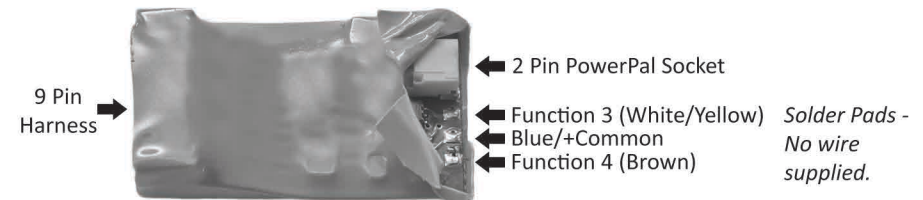
Warning: To prevent decoder damage, be sure that the motor brushes are properly isolated before applying power.

Note: The Violet and Green leads of the harness are not used by some of the Ruby Decoders.

LOCATION OF PIN 1 ON 6 PIN DECODERS



8 PIN DECODER FUNCTION OUTPUTS



CV VALUE TABLE

CV#	Feature	Default	Range	Notes	CV#	Feature	Default	Range	Notes
Locomotive Address CVs					Functions				
01	2 Digit Decoder Address	03	001-127		13	DC Functions ON not used in FX ³		Automatic	Not used in FX ³
17	4 Digit Address (High Byte)	00	0128-9983		FX³ Functions				
18	4 Digit Address (Low Byte)	00	0128-9983	CV17 and 18 are used together to program the 4 digit address.	49	F0F, forward light effect white	00		
29	Configure Register Controls Multiple Features	06	See CV29 Table	Must be set to a value that allows either 2 digit or 4 digit addressing.	50	F0R, reverse light effect red	00		
Configuration Register CV					51	F1, Function 1 green	00		Not Available on all Variants
29	Configuration Register	06			52	F2, Function 2 violet	00		Not Available on all Variants
	Address Selection, 2 or 4 digit	2 Digit	2 or 4 digit	SEE ONLINE INSTRUCTIONS FOR MORE DETAILS	113	F3, Function 3 brown	00		Not Available on all Variants
	Normal Direction of Travel	Fwd	Fwd/Rev	SEE ONLINE INSTRUCTIONS FOR MORE DETAILS	114	F4, Function 4 white/yellow	00		Not Available on all Variants
	Speed Step Control	28/128	14 or 28/128	SEE ONLINE INSTRUCTIONS FOR MORE DETAILS	115	F5, Function 5 white/green	00		Not Available on all Variants
	Speed Table On/Off	Off	Speed Table On or Off	SEE ONLINE INSTRUCTIONS FOR MORE DETAILS	116	F6, Function 6 white/blue	00		Not Available on all Variants
	Analogue Mode Conversion On/Off	On	On or Off	SEE ONLINE INSTRUCTIONS FOR MORE DETAILS	62	FX Rate and PowerPal adjust	00	00 to 255	
Locomotive CVs Control					63	Ditch Light Blink hold time	00	00 to 255	
Locomotive Motion Characteristics					Directional Headlights				
Acceleration and Deceleration					61	Directional Headlight	Directional	Map F0 Forward and Reverse	Not controlled by CV61 in FX ³ Decoders
03	Acceleration Rate	00	00 to 31	128 Steps	Scaleable Speed Stabilisation (Back EMF)				
04	Deceleration Rate	00	00 to 31	128 Steps	55	Static Compensation	128	00 to 255	
Three Step Simple Speed Table and Start Voltage					56	Dynamic Compensation	048	00 to 255	
02	Start Voltage	00	00 to 255	128 Steps	57	Speed Stabilisation-Droop	006	00 to 15	
05	Maximum Voltage	00	00 to 255	128 Steps 00, 01 and 255 = max voltage at step 28	SuperSonic (Quiet Operation)				
06	Mid Point Voltage	00	00 to 255	128 Steps 00 and 01 = Straight line curve	09	Motor Frequency SuperSonic	00	00 to 255	Default is MAX
28 Step Speed Tables with 256 Step Resolution					Advance Consisting				
65	Kick Start Value	00		128 Steps	19	Advanced Consist Address	00	00 to 255	Default is OFF
66	Forward Trim	00		128 Steps	21	Advanced Consist Function Control Override for F1-F8	00	See CV21-22 Section	SEE ONLINE INSTRUCTIONS FOR MORE DETAILS
67	First Speed Table Entry	00		128 Steps	22	Advance Consist Function Control Override for F0 and F9-F12	00	See CV21-22 Section	SEE ONLINE INSTRUCTIONS FOR MORE DETAILS
68-93	28 Step Speed Table Entries	00		128 Step Interpolated	Function Mapping				
94	Maximum Speed Table Step	00		128 Steps	33-46	Function Mapping CVs	00	See Function Mapping Section	
95	Reverse Trim	00		128 Steps	Decoder Reset to Default Values				
29	Configuration Register	06	See Above CV29	Must be set to a value that enables speed tables.	08	Reset Decoder to Factory Default CV Values	129	Set to 08 to reset all CV Values	Set to 09 to reset all CV Values except 28 step speed table
			Speed Tables are disabled		IDs				
Torque Compensation and Switching Speed					08	Manufacturer ID	65	Gaugemaster	Not affected by reset
53	FX ³ Decoders do not use CV53	NA	NA	Not Available					
54	FX ³ Decoders use CV54 to control Switching Speed and Torque Compensation	00	00 = SS Off, TC On 01 = SS On, TC On 16 = SS Off, TC Off 17 = SS On, TC Off						

WARRANTY

The warranty on this product is one year from date of purchase. If a fault develops, return the unit to your supplier within this period for replacement.