Digitrax Decoder Specification Sheet

DN166I1D 1.5 Amp Decoder for Intermountain N scale F7A & B units with wired motors produced after Jan 2014

Physical Size	0.472” x 2.165” x 0.98” 11.98mm x 54.99mm x 2.4mm	**Current Rating**	1.25/2.0 Amps

Interface	**Decoder End**	**Wires**		**Locomotive End/Plug**
Board Repl	Board Replacement			Board Replacement

PowerXtender Interface	**Decoder End**
None	None

# Functions	6	**Function Current Rating**	500mA	**Function Type**	FX^3
Prod Date	04/28/2014	**Discontinued**	Current	**Replaced By**	Current
MSRP	US$35.00	**Feature Set**	Series 6	**SKU**	

FX^3 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 loco’s functions but the motor will not work.

CVs are used for this decoder

CV#	Feature	Default	Range	Notes
Locomotive Address CVs				
01	2 Digit Decoder Address	03	001-127	
17	4 Digit Address (High Byte)	00	0128-9983	CV17 & 18 are used Together to program the 4 digit address. Current production Digitrax throttles handle this automatically. See calculator below if separate values are needed by your system for programming 4 digit address
18	4 Digit Address (Low Byte)	00	0128-9983	
29	Configuration Register Controls Multiple Features	06	See CV29 Value Table Below	Must be set to a value that allows either 2 digit or 4 digit addressing
Configuration Register CV				
29	Configuration Register	06		
	Address Selection, 2 or 4 digit	2 Digit	2 or 4 Digit	
	Normal Direction of Travel (NDOT)	Fwd	Fwd/Rev	
	Speed Step Control	28/128	14 or 28/128	
	Speed Table On/Off	Off	Speed Table On or Off	
	Analog Mode Conversion On/Off	On	On or Off	
Locomotion CVs-Control Locomotive Motion Characteristics				
Acceleration and Deceleration				
03	Acceleration Rate	00	00 to 31	128 Steps
04	Deceleration Rate	00	00 to 31	128 Steps
Three Step Simple Speed Table & Start Voltage				
02	Start Voltage	00	00 to 255	128 Steps
05	Maximum Voltage	00	00 to 255	128 Steps 00, 01 & 255= max voltage at step 28
06	Mid Point Voltage	00	00 to 255	128 Steps 00 & 01= straight line curve
28 Step Speed Tables with 256 Step Resolution				
65	Kick Start value	00		128 Step Interpolated
66	Forward Trim	00		128 Step Interpolated

67	First Speed Table Entry	00		128 Step Interpolated
68-93	28 Step Speed Table Entries	00		128 Step Interpolated
94	Maximum Speed Table Step	00		128 Step Interpolated
95	Reverse Trim	00		128 Step Interpolated
29	Configuration Register	06 Speed Tables are disabled	See Above CV29	Must be set to a value that enables speed tables
Torque Compensation and Switching Speed				
53 FX^3	FX^3 Decoders do not use CV53	NA	NA	Not Available
53 FX	FX Decoders used CV53 to designate FX effect generated on F3-Brown Wire			See instruction sheet for the FX decoder you are using
54 FX^3	FX^3 Decoders use CV54 to control Switching Speed & Torque Compensation	00	00=SS Off, TC On 01=SS On, TC On 16=SS Off, TC Off 17=SS On, TC Off	
53 FX	FX Decoders used CV54 to designate FX effect generated on F4-White/Yellow Wire			See instruction sheet for the FX decoder you are using
Functions				
13	DC Functions ON Not Used in FX^3		Automatic	Not Used FX^3
FX^3 Functions				
49	F0F, forward light effect white	00	See FX^3 section	
50	F0R, reverse light effect yellow	00	See FX^3 section	
51	F1, Function 1 green	00	See FX^3 section	
52	F2, Function 2 violet	00	See FX^3 section	
113	F3, Function 3 brown	00		Not Available
114	F4, function 4 white/yellow	00		Not Available
115	F5, Function F5 white/green	00		Not Available
116	F6, Function F6 white/blue	00		Not Available
62	FX Rate and Keep alive adjust	00	00 to 255	
63	Ditch Light Blink hold time	00	00 to 255	
	Master Light Switch			See FX^3 section

Directional Headlights, Transponding, Split Field Motor				
61	Directional Headlight	Directional	Map F0 Forward & Reverse See CV61 Section	Not controlled by CV61 in FX^3 Decoders
	Transponding	Off	Off or On See CV61 Section	
	Split Field Motor	Off	Off or On See CV61 Section	For AC Motors
Scaleable Speed Stabilization (Back EMF)				
55	Static Compensation	128	00 to 255	
56	Dynamic Compensation	048	00 to 255	
57	Speed Stabilizer-Droop	006	00 to 15	
SuperSonic (Quiet Operation)				
09	Motor Frequency SuperSonic	00	00 to 255	Default is MAX
Advanced Consisting				
19	Advanced Consist Address	00	00 to 255	Default is OFF
21	Advanced Consist Function Control Override for F1-F8	00	See CV21-22 Section	
22	Advanced Consist Function Control Override for F0 & F9-F12	00	See CV21-22 Section	
Function Mapping				
33-46	Function Mapping CVs	00	See Function Mapping Section	
Decoder Reset to Default Values				
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.
Decoder IDs				
105	User Private ID #1	00		User Defined
106	User Private ID #2	00		User Defined
07	Version ID	64	Digitrax Version ID	Read Only
08	Manufacturer ID	129	Digitrax	Not affected by reset

Information provided here is correct to the best of our knowledge.