Digitrax Decoder Specification Sheet

DN163K4A 1.25 Amp N Scale Board Replacement Decoder for Kato N Scale Glacier Express and 4-8-4 FEF Steam Locomotive



UPC: 652667-05067-8

| Physical | 0.411" x 2.351" x .061" | Current Rating | 1.0/1.25 Amps |
|----------|-------------------------|-----------------------|---------------|
| Size | 10.46mm x 59.72mm x | | |
| | 15.57mm | | |

| Interface | Decoder End | Wires | | Locomotive End/Plug |
|------------|-------------------|-------|--|----------------------------|
| Board Repl | Board Replacement | | | Board Replacement |

| # Functions | 6 | Function | 500mA | Function | FX^3 |
|------------------|------------|-----------------------|----------|-------------|---------|
| | | Current Rating | | Type | |
| Prod Date | 12/06/2011 | Discontinued | Current | Replaced By | Current |
| MSRP | US\$36.00 | Feature Set | Series 3 | | |

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 loco's functions but the motor will not work.

CVs are used for this decoder

| CV# Feature Default | | | Range | Notes | |
|---------------------|-------------------------|----|---------|-------|--|
| Locon | Locomotive Address CVs | | | | |
| 01 | 2 Digit Decoder Address | 03 | 001-127 | | |

| 17 | 4 Digit Address (High Byte) | 00 | 0128-9983 | CV17 & 18 are used |
|---|--|---------------|------------------|--|
| 18 | 4 Digit Address (Low Byte) | 00 | 0128-9983 | 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 |
| 29 | Configuration Register | 06 | See CV29 | Must be set to a value |
| | Controls Multiple Features | | Value Table | that allows either 2 digit |
| | | | Below | or 4 digit addressing |
| | iguration Register CV | 100 | | |
| 29 | Configuration Register | 06 | 2 4 5: :: | |
| | 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 | On or Off | |
| _ | On/Off | | | |
| | motion CVs-Control | | | |
| | motive Motion acteristics | | | |
| | eration and Deceleration | | 1 | |
| 03 | Acceleration Rate | 00 | 00 to 31 | 128 Steps |
| 04 | Deceleration Rate | 00 | 00 to 31 | 128 Steps |
| | e Step Simple Speed Table & St | | | |
| 02 | Start Voltage | 00 | 00 to 255 | 128 Steps |
| 05 | Maximum Voltage | 00 | 00 to 255 | 128 Steps |
| | | | | $00, 01 & 255 = \max$ |
| 0.5 | M'ID' (XII) | 00 | 00 / 255 | voltage at step 28 |
| 06 | 1 B 0 1 11 4 1/ - 14 | 1 / 1/ 1 | 1 W 1 4 - '1 E E | |
| | Mid Point Voltage | 00 | 00 to 255 | 128 Steps |
| | Wild Point Voltage | 00 | 00 to 255 | 00 & 01= straight line |
| 20 04 | - | | | |
| | ep Speed Tables with 256 Step 1 | Resolution | | 00 & 01= straight line curve |
| 65 | ep Speed Tables with 256 Step I Kick Start value | Resolution 00 | | 00 & 01= straight line curve 128 Step Interpolated |
| 65 66 | ep Speed Tables with 256 Step l Kick Start value Forward Trim | | | 00 & 01= straight line curve 128 Step Interpolated 128 Step Interpolated |
| 65 66 67 | ep Speed Tables with 256 Step I Kick Start value Forward Trim First Speed Table Entry | 00 | | 00 & 01= straight line curve 128 Step Interpolated 128 Step Interpolated 128 Step Interpolated |
| 65 66 67 68- | ep Speed Tables with 256 Step l Kick Start value Forward Trim | | | 00 & 01= straight line curve 128 Step Interpolated 128 Step Interpolated |
| 65 66 67 68- 93 | ep Speed Tables with 256 Step I Kick Start value Forward Trim First Speed Table Entry 28 Step Speed Table Entries | 00 | | 00 & 01= straight line curve 128 Step Interpolated |
| 65 66 67 68- 93 94 | ep Speed Tables with 256 Step I Kick Start value Forward Trim First Speed Table Entry 28 Step Speed Table Entries Maximum Speed Table Step | | | 00 & 01= straight line curve 128 Step Interpolated |
| 65 66 67 68- 93 94 95 | ep Speed Tables with 256 Step I Kick Start value Forward Trim First Speed Table Entry 28 Step Speed Table Entries Maximum Speed Table Step Reverse Trim | Resolution | | 00 & 01= straight line curve 128 Step Interpolated |
| 65 66 67 68- 93 94 | ep Speed Tables with 256 Step I Kick Start value Forward Trim First Speed Table Entry 28 Step Speed Table Entries Maximum Speed Table Step | O0 | See Above | 128 Step Interpolated Must be set to a value |
| 65 66 67 68- 93 94 95 | ep Speed Tables with 256 Step I Kick Start value Forward Trim First Speed Table Entry 28 Step Speed Table Entries Maximum Speed Table Step Reverse Trim | Resolution | | 00 & 01= straight line curve 128 Step Interpolated |

| FX designate FX effect generated on F3-Brown Wire | | | are | | | | |
|---|-------------------|---|-----|----------------------------------|--|--|--|
| Torque Compensation and Switching Speed S3 FX3 Decoders do not use FX3 CV53 FX3 Decoders used CV53 to designate FX effect generated on F3-Brown Wire See instruction sheet for the FX decoder you are using Switching Speed & O1=SS Off, TC Off O1=SS Off, TC | | | | | | | |
| Switching Speed NA | TD | | d | | | | |
| Sa | _ | | | | | | |
| FX3 | | | NA | NA | Not Available | | |
| FX | | | | | T (ot 11) will of | | |
| on F3-Brown Wire 54 FX³ Decoders use CV54 to control Switching Speed & Torque Compensation 53 FX Decoders used CV54 to On 16=SS Off, TC Off 17=SS On, TC Off | | | | | See instruction sheet for the FX decoder you are | | |
| FX3 | | | | | = | | |
| See instruction sheet for the FX decoder you are using | | control Switching Speed & | 00 | On 01=SS On, TC On | | | |
| FX designate FX effect generated on F4-White/Yellow Wire | | | | Off 17=SS On, TC | | | |
| Functions 13 DC Functions ON Not Used in FX³ FX³ Functions 49 F0F, forward light effect white section 50 F0R, reverse light effect yellow 51 F1, Function 1 green 52 F2, Function 2 violet 53 F5, Function 3 brown 113 F3, Function 4 white/yellow 114 F4, function 4 white/yellow 115 F5, Function F5 white/green 116 F6, Function F6 white/blue 116 F6, Function F6 white/blue 117 FX Rate and Keep alive adjust 118 Master Light Switch 119 Directional Headlights, Transponding, Split Field Motor 110 Forward & Reverse See CV61 Section 111 Not Used FX³ Not Used FX³ Not Used FX³ Not Used FX³ Not Available | 53 | | | | See instruction sheet for | | |
| Functions 13 DC Functions ON Not Used in FX³ FX³ Functions 49 F0F, forward light effect white Section 50 F0R, reverse light effect yellow See FX³ section 51 F1, Function 1 green ON See FX³ section 52 F2, Function 2 violet ON See FX³ section 113 F3, Function 3 brown ON Not Available 114 F4, function 4 white/yellow ON Not Available 115 F5, Function F5 white/green ON Not Available 116 F6, Function F6 white/blue ON Not Available 117 FX Rate and Keep alive adjust See FX³ section 63 Ditch Light Blink hold time ON ON See FX³ section Directional Headlights, Transponding, Split Field Motor 61 Directional Headlight Directional Forward & Reverse See CV61 Section Not Used FX³ Not Used FX³ Not Used FX³ Not Used FX³ Not Available FY Rate and Keep alive ON ON See FX³ See FX³ Section Not Available Not Available Not Available Forward & See FX³ See FX³ Section | FX | | | | 1 | | |
| Automatic Not Used In FX3 FX3 Functions | T | | | | using | | |
| In FX3 Functions FOF, forward light effect OO See FX3 section | | • | | Automotic | Not Head EV3 | | |
| FX3 Functions | 13 | | | Automatic | Not Used FX | | |
| white section 50 F0R, reverse light effect yellow 00 See FX³ section 51 F1, Function 1 green 00 See FX³ section 52 F2, Function 2 violet 00 See FX³ 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 Master Light Blink hold time 00 00 to 255 Master Light Switch See FX³ section Directional Headlights, Transponding, Split Field Motor 61 Directional Headlight Directional Forward & Reverse See CV61 Section Not controlled by CV61 in FX³ Decoders | FX ³ F | | | l | | | |
| 50 F0R, reverse light effect yellow 00 See FX³ section 51 F1, Function 1 green 00 See FX³ section 52 F2, Function 2 violet 00 See FX³ 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 FX³ section Directional Headlights, Transponding, Split Field Motor 61 Directional Headlight Directional Forward & Reverse See CV61 Section Not controlled by CV61 in FX³ Decoders | 49 | F0F, forward light effect | 00 | See FX ³ | | | |
| yellow section 51 F1, Function 1 green 00 See FX³ section 52 F2, Function 2 violet 00 See FX³ 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 16 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 FX³ section Directional Headlights, Transponding, Split Field Motor 61 Directional Headlight Directional Map F0 onal Not controlled by CV61 in FX³ Decoders Reverse See CV61 Section See CV61 Section Not Section | | | | | | | |
| F1, Function 1 green 00 See FX³ section | 50 | | 00 | | | | |
| Section See FX3 Section | 7.1 | - | 00 | | | | |
| Section Sect | | | | section | | | |
| 113 F3, Function 3 brown 00 | 52 | F2, Function 2 violet | 00 | | | | |
| The second color of the | 113 | F3 Function 3 brown | 00 | SECTION | 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 FX³ section Directional Headlights, Transponding, Split Field Motor 61 Directional Headlight Directional Forward & Reverse See CV61 Section Forward & Reverse See CV61 Section Reverse See CV61 Section Forward & Reverse See CV61 Section | | , | | | | | |
| 116F6, Function F6 white/blue00Not Available62FX Rate and Keep alive adjust0000 to 25563Ditch Light Blink hold time0000 to 255Master Light SwitchSee FX³ sectionDirectional Headlights, Transponding, Split Field Motor61Directional HeadlightDirectional Forward & Reverse See CV61 Section | | | | | | | |
| 62 FX Rate and Keep alive adjust 63 Ditch Light Blink hold time 00 00 to 255 Master Light Switch See FX³ section Directional Headlights, Transponding, Split Field Motor 61 Directional Headlight Directional Forward & Reverse See CV61 Reverse See CV61 Section | | , | ļ | | | | |
| Ditch Light Blink hold time 00 00 to 255 Master Light Switch See FX³ section | | FX Rate and Keep alive | | 00 to 255 | | | |
| Master Light Switch Directional Headlights, Transponding, Split Field Motor 61 Directional Headlight Directi Onal Forward & Forward & in FX³ Decoders Reverse See CV61 Section | 63 | · · | 00 | 00 to 255 | | | |
| Directional Headlight Directional Headlight Directional Headlight Directional Map F0 Not controlled by CV61 in FX³ Decoders Reverse See CV61 Section Section | | <u> </u> | | | See FX ³ section | | |
| onal Forward & in FX ³ Decoders Reverse See CV61 Section | Direct | Directional Headlights, Transponding, Split Field Motor | | | | | |
| | 61 | Directional Headlight | | Forward & Reverse See CV61 | | | |
| Transponding Off Off or On | | Transponding | Off | | | | |

| | | | See CV61 | |
|-------|--------------------------------|------|--------------|---------------------------|
| | | | Section | |
| | Split Field Motor | Off | Off or On | For AC Motors |
| | | | See CV61 | |
| | | | Section | |
| Scale | able 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 | |
| Super | rSonic (Quiet Operation) | | | |
| 09 | Motor Frequency SuperSonic | 00 | 00 to 255 | Default is MAX |
| Adva | nced Consisting | | | |
| 19 | Advanced Consist Address | 00 | 00 to 255 | Default is OFF |
| 21 | Advanced Consist Function | 00 | See CV21-22 | |
| | Control Override for F1-F8 | | Section | |
| 22 | Advanced Consist Function | 00 | See CV21-22 | |
| | Control Override for F0 & | | Section | |
| | F9-F12 | | | |
| Func | tion Mapping | | | |
| 33- | Function Mapping CVs | 00 | See Function | |
| 46 | | | Mapping | |
| | | | Section | |
| Deco | der Reset to Default Values | | | |
| 08 | Reset Decoder to Factory | 129 | Set to 08 to | Set to 09 to reset all CV |
| | Default CV Values | | reset all CV | Values except 28 step |
| | | | Values. | speed table. |
| Deco | der IDs | | | |
| 105 | User Private ID #1 | 00 | | User Defined |
| 106 | User Private ID #2 | 00 | | User Defined |
| 07 | Version ID | 64 | Digitrax | Read Only |
| | | | Version ID | |
| 08 | Manufacturer ID | 129 | Digitrax | Not affected by reset |

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