# Digitrax Decoder Specification Sheet

## DH165K1A 1.25 Amp HO Scale Mobile Decoder fits many Kato Locos

| | | | |
|---|---|---|---|
| **Physical Size** | 2.877" x .667" x .173"<br>73.076 x 16.942mm x 4.394mm | **Current Rating** | 1.25/2.0 Amps |

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

| | | | | | |
|---|---|---|---|---|---|
| **# Functions** | 6 | **Function Current Rating** | 500mA | **Function Type** | $FX^3$ |
| **Prod Date** | 06/17/2007 | **Discontinued** | Current | **Replaced By** | Current |
| **MSRP** | US$27.99 | **Feature Set** | Series 5 | | |

**$FX^3$ 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.

Series 5 decoders are compatible with Digitrax Sound Bug Sound Only Decoders

**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 | Must be set to a value that allows either 2 digit |

| | | | | |
|---|---|---|---|---|
| | | | Below | 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<br>00, 01 & 255= max voltage at step 28 |
| 06 | Mid Point Voltage | 00 | 00 to 255 | 128 Steps<br>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 & | 00 | 00=SS Off, TC On<br>01=SS On, TC | |

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|---|---|---|---|---|
| | Torque Compensation | | On<br>16=SS Off, TC Off<br>17=SS On, TC Off | |
| 53<br>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<br>See CV61 Section | Not controlled by CV61 in $FX^3$ Decoders |
| | Transponding | Off | Off or On<br>See CV61 Section | |
| | Split Field Motor | Off | Off or On<br>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 | 00 | See CV21-22 | |

| | | | | |
|---|---|---|---|---|
| | Control Override for F1-F8 | | 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.