

# Tsunami2 Diesel Quick Start Guide

For Athearn® Genesis®  
DCC & Sound equipped locomotives

Congratulations on the purchase of your Athearn Genesis locomotive, equipped with state-of-the-art Tsunami2 sound. This powerful SoundTraxx® Digital Sound Decoder (DSD) has many additional features that you might not be used to; this supplement sheet will not detail all of them, but it will provide the basics to get you started.

Please note that some of the information in the separate instruction booklet will not apply to locomotives equipped with Tsunami2 decoders.

## Athearn Genesis Sound Features and Specifications

Tsunami2 Sound Decoders have a number of great features designed to enhance your operating experience.

Many features have been programmed to operate similarly to previous SoundTraxx decoders, but some will require further explanation.

### Decoder Features:

- Prototypical diesel engine sounds with multiple horns and bells available to customize your locomotive.
- Hyperdrive2™ Technology, which includes features such as high-resolution speed steps and torque control for smooth operation at all speeds.
- Back Electro Motive Force (EMF) for consistent operating speeds regardless of track gradient or load.
- Prototype specific Hyperlighting effects such as beacons, Mars lights, ditch lights and more.

### Sound Features:

There are several sound features found in your new Tsunami2 sound equipped locomotive which can be adjusted to suit your personal preferences. You can also individually adjust the volume of each sound effect with the built-in mixer. The addition of a short horn effect will allow you to easily incorporate prototypical signaling practices into your operations. Dynamic braking sounds add prototype fidelity to mountainous running and the available manual notching allows you to control the engine RPMs, independent of speed, to simulate heavy loads or coasting downhill.

## Athearn Tsunami2 Diesel Default Sound & Light Functions

Out of the box, your Athearn Genesis locomotive with Tsunami2 sound has been set up with the following function button assignments.

Note that these default settings are different from the SoundTraxx aftermarket Tsunami2 sound.

Sound Decoder Function Assignments			
Function Key	HO Scale Default Effect	Function Key	HO Scale Default Effect
F0	Headlight	F15	Hand Brake
F1	Bell	F16	HEP Mode On/Off
F2	Horn	F17	Fuel Loading Sequence
F3	Short Horn <sup>1</sup>	F18	General Service Sequence
F4	Dynamic Brakes <sup>2</sup> or Straight to Idle <sup>3</sup>	F19	(Not Used)
F5	Lighting Effect 1 <sup>4</sup>	F20	Steam Generator On/Off
F6	Lighting Effect 2 <sup>4</sup>	F21	(Not Used)
F7	Dimmer/Cab Chatter	F22	(Not Used)
F8	Mute	F23	"All Aboard"/Coach Doors
F9	Alternate Mixer (Half Volume)	F24	(Not Used)
F10	Straight-to-8 & Sander Valve	F25	(Not Used)
F11	Brake Set/Release <sup>5</sup>	F26	Engine RPM Notch Up
F12	Brake Select	F27	Engine RPM Notch Down
F13	Couple/Uncouple	F28	(Not Used)
F14	Half Speed & Momentum Override	Emergency Stop	Red Emergency Mars Light (If equipped)

1 - The short horn function can be changed to a grade crossing horn sequence by changing CV 37 to 0. If you would like to re-map the short horn function to another key using SoundTraxx' Flex-Map™ function mapping, CV 37 must also be set to 0 to prevent the short horn function from being activated with function key 3.

2 - On locomotives with Dynamic Brakes

3 - On locomotives without Dynamic Brakes

4 - If your locomotive's prototype is equipped with flashing ditch lights, they will flash when the horn button (F2) is depressed.

5 - Functional braking is not enabled by default; to enable, see "Enabling Tsunami2 Braking Rates on your Locomotive" elsewhere in this guide.

### Decoder Features

The Tsunami2 is equipped with many new & exciting features that enhance prototypical operations, such as Dynamic Digital Exhaust, multiple braking modes, alternate horns, bells, & prime movers, and more. Please visit [www.soundtraxx.com/manuals.php](http://www.soundtraxx.com/manuals.php) and view the "Tsunami2 Diesel Users Guide" & "Tsunami2 Diesel Technical Reference" for additional information about these features.

### Changing the DCC Address

Many users prefer to change the DCC address of their locomotives to either the cab number or some other assigned number. The method by which this is accomplished will vary depending on which manufacturer's DCC system you are using. Tsunami2 sound decoders can accept 2- or 4-digit addresses.

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## IMPORTANT:

This Quick Start Guide assumes that you have some understanding of, or experience with, other SoundTraxx Digital Sound Decoders. It covers the differences you may need to know between these decoders and any you may have previously used.

### Enabling Tsunami2 Braking Rates on your Locomotive

From the factory, your Athearn® Genesis® model with Tsunami2 sound features three types of functioning brakes for more prototypical operation. If you wish to use these functional braking rates to slow and stop your model, you will need to disable the automatic brake release function found in CV 1.403. Set CV 1.403 to 0 before programming any braking rates in the CV 117 (Independent Brake Rate) or CV 118 (Automatic Brake Rate) to allow control of the brakes with function key 11.

### CV Functions and their Defaults

On page 15 of the enclosed instruction booklet, CVs 1-113, 128-152, & 193-219 remain the same for the Tsunami2 decoder. Please refer to [www.soundtraxx.com/manuals.php](http://www.soundtraxx.com/manuals.php) for information on the remaining Tsunami2 CVs that have changed.

### Calibrating SoundTraxx Dynamic Digital Exhaust (DDE)

The SoundTraxx Tsunami2 DSD found in your new Athearn Genesis locomotive is equipped with a cutting-edge new version of Dynamic Digital Exhaust. We highly recommend you automatically calibrate the DDE settings before adjusting throttle and braking control CVs as this will create an amazingly accurate representation of prototypical operation. When calibrated, DDE will allow the decoder to produce more prototypical prime mover responses when encountering changes in both grade and number of cars during operation.

Follow the steps below to automatically calibrate DDE load compensation:

1. Enter a value of 2 into CV 32 to select Indexed CV Page 2. This allows you to adjust DDE control CVs by accessing CVs 2.503-2.512 from your command station.
2. Set CV 512 (DDE Load Sensitivity) to a value of 16.
3. Run the locomotive at a moderate speed for a minute or two before continuing. If there is any build-up of lubrication or oil in the drive, running the locomotive first will provide better results during the calibration procedure.
4. Set the throttle to speed-step 1.
5. When your locomotive is on level track, enter a value of 255 into CV 503 (DDE Load Offset) to automatically calibrate the nominal low-speed load level.
6. Increase the throttle to an appropriate moderate speed for your layout (generally between speed-step 25 and speed-step 40).
7. When your locomotive is on straight, level track, enter a value of 255 into CV 504 (DDE Load Slope) to automatically calibrate the nominal high-speed load level.

**Important:** If, after the calibration is complete, you feel the need to increase or decrease the sensitivity, you can do this with CV 2.512.

### Popular CVs

Listed for your convenience are some common and popular CVs on the Tsunami2. The numbers in parentheses indicate a range of possible values for that CV.

*Horn Select:* CV 120 (0-36)

*Bell Select:* CV 122 (0-48) <sup>1</sup>

*Prime Mover Select:* CV 123 (0-3+, depending on model of decoder)

*Air Compressor Select:* CV 124 (0-3)

*CVs 128-160:* Controls the volume level of individual sound functions. Listed below are the additional sounds not shown in the instruction booklet. The values for these CVs can be set from 0-255, with 0 being muted and 255 being the max volume.

CV135: Alarm Bell

CV144: Steam Generator

CV145: Cab Door

CV147: Relays

CV148: E-Stop

CV149: Uncouple

CV150: "All Aboard!"/Coach Doors

CV153: Clickety-Clack

CV155: Sander

CV156: Fuel Loading

CV156: Air Conditioner

CV157: Wrench

CV158: Pneumatic Oiler

CV159: Toilet Dump

CV160: Cab Radio Chatter

1 - Note that the bell sound is the same for each 4 consecutive numbers, but the ring rate will change. Example, a value of 0 is an Alco bell with a slow ring rate, while values 1-3 are the same bell but with a progressively faster rate.

### Troubleshooting

If you are having problems with your locomotives operation or non-operation, please try resetting the Decoder to Factory Defaults before contacting Athearn Help for assistance.

### Resetting the Decoder to Factory Defaults

All Tsunami2 sound decoders can be reset to their factory values easily. If you have changed some CVs and are not happy with the results, or your locomotive is not responding normally, this is the first troubleshooting step that you should try.

To do this, set CV 8 to a value of 8. Once you have done this, cycle the DCC system's power off for approximately 5-10 seconds, then turn it back on. You should observe the locomotive's lights blinking 16 times after a brief delay, indicating a successful factory reset. After a successful factory reset, your locomotive will respond to address 3, and all CV values will be returned to their factory supplied default values.

Athearn Trains  
1600 Forbes Way • Suite 120  
Long Beach, CA. 90810

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