Blackstone ⬧ Models™

Tsunami® Digital Sound Decoder

Quick Start Guide

for the Blackstone Models C-19

May 2011

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All Aboard!

Overview

Congratulations on the purchase of your Blackstone Models C-19 with SoundTraxx® Tsunami® Digital Sound Decoder™ installed. The Tsunami Digital Sound Decoder (DSD) will provide all the pleasures of high quality, digital onboard sound and the benefits of today's DCC (Digital Command Control) technology.

This **Quick Start Guide** supplies essential information needed to get your locomotive up and running as soon as possible. Detailed information regarding the use and programming of the Tsunami sound system may be found in the **Tsunami User's Guide** and **Tsunami Technical Reference** which are provided in electronic form on the CD packaged with your locomotive.

If you are new to SoundTraxx Digital Sound Decoders, you should start with the **User's Guide** which will walk you through the various aspects of programming your Tsunami decoder, as well as some tips on troubleshooting. For the power user, the Tsunami **Technical Reference** will provide a list of all the CVs available for use with Tsunami decoders and their exact function and make-up for those who wish to have a complete reference for advanced programming techniques. Please note that you need to have Adobe® Acrobat Reader installed on your computer to open and print these files. This is available as a free download from www.adobe.com.

Manual updates, Technical Bulletins and Application Notes covering various topics are also published from time to time, and these may be downloaded free of charge from our website at www.soundtraxx.com.

All Aboard!

Features and Specifications

Tsunami Digital Sound Decoders have a great number of features designed to enhance your operating experience. Some features may require a little explanation.

Tsunami Features

Tsunami Digital Sound Decoders have been designed with a powerful Digital Signal Processor (DSP), which allows us to provide more features and better sound quality than in previous designs. Some of the unique features include:

Sound Features

There are many sound effects (up to 22 sound effects!) and the ability to adjust the sounds to suit your ear make the system truly customizable. You can even adjust the volume of each sound effect individually with your own built-in mixer!

The short whistle feature will allow the user to more easily incorporate signaling practices into their operations. There is also the option of replacing the short whistle function with an alternate whistle for the occasional engine which carried two whistles.

For those with limited function keys, you may wish to enable the automatic signal feature, which will activate Stop, Forward, Reverse and Grade Crossing whistle signals automatically in response to train motion.

Throttle Features

Tsunami Digital Sound Decoders have advanced throttle features as part of our Hyperdrive™ system. These features allow you to better control your locomotive speed under varying conditions.

Lighting Features

In addition to controlling the headlight and backup light, our Dyno-Light feature provides the missing element in the operation of the Dynamo, or steam generator. This mimics the effect of the gradual increase in lumens as the generator spools up and supplies power to the headlight.

Tsunami Specifications

Decoder Specifications

- Supports extended address mode for assigning any locomotive number up to 9,999.
- Supports advanced consist addressing.
- Supports 'Operation Mode Programming', allowing CVs to be changed on the mainline without using a programming track.

Throttle Specifications
- Supports 14, 28 and 128 speed step modes.
- Programmable acceleration, deceleration and starting voltage for prototypical starting and stopping.
- Use of standard and alternate speed tables.
- Load Compensation
- Silent High Frequency Motor Drive

Lighting Specifications
- Two function outputs for headlight and backup light
- Supports "Rule 17" operation or automatic direction control
- Three built-in lighting effects:
  Simple On/Off Lamp
  Dimmable light
  Dyno-Light

Sound Specifications
- Adjustable Volume Controls for all sound effects
- 1-Watt Audio Amplifier

Steam Sound Effects

- Synchronized Exhaust Chuff
- Whistle
- Airpump
- Water Stop
- Brake Release
- Snifter Valve
- Firebox Blower
- Boiler Pop Valve
- Coupler Clank
- Bell
- Short Whistle
- Dynamo
- Brake Squeal
- Side Rod Clank
- Johnson Bar/Power Reverser
- Cylinder Blowdown (Hiss)
- Fireman Fred's tool box

Quick Start

Let's Get Started!

The Tsunami Digital Sound Decoder has been installed with all the CVs programmed so you can begin using your locomotive immediately without having to worry about what adjustments to make. The decoder is set to operate using either a 12 volt DC power pack or NMRA-compatible DCC command station.

Operating with DCC

Each model has its address set to match the road number of the locomotive with the exception of unlettered versions which are set to address 3.

Since these decoders have two rather than four lighting outputs, we have made some changes to the standard function assignments so that those using command stations with limited functions keys can access some additional sound functions. The table below shows the function assignments as well as the default function assignments for after-market Tsunami decoders. Function Assignments are as follows:

| C-19 Tsunami Function Assignments		
Function Key	**Default Effect**	**After-Market Tsunami**
F0	Headlight	Headlight
F1	Bell	Bell
F2	Whistle	Whistle
F3	Short Whistle	Short Whistle
F4	Cylinder Blowdown (Hiss)	Cylinder Blowdown (Hiss)
F5	Water Stop	FX5 Output
F6	Coupler	FX6 Output
F7	Dimmer	Dimmer
F8	Mute	Mute
F9	Unassigned	Water Stop
F10	Unassigned	Injectors
F11	Brake Squeal/Release	Brake Squeal/Release
F12	Injectors	Coupler

This will help you to match the function assignments if you have other Tsunami decoders on your layout. The **User's Guide** located on the CD will give you all the information you need to adjust your decoder to suit your taste. Also you can easily restore the function mapping to the same as your other Tsunami decoders by restoring the settings in CV 30 and CVs 44-46 to the default values listed in the **Technical Reference.**

For now, simply set your controller to the appropriate address, place the locomotive on the mainline and away you go!

Programming and Reading CVs

Certain command stations also allow you to read a CV during Service Mode Programming, which is useful to verify its current setting. If you have trouble reading or verifying CVs, the problem may be due to the design of your command station and not the sound decoder itself. Tsunami and all other decoders communicate back to the command station using what's called an acknowledgment pulse, which is defined in NMRA RP-9.2.3 as "an increased load on the programming track of at least 60mA for at least 5ms." Like most decoders, Tsunami generates the acknowledgment pulse by momentarily applying power to the motor.

If your sound decoder is otherwise working properly (i.e., responds properly on the mainline to speed and direction commands) but your command station is having troubles reading CV data from the decoder, it may be due to incompatibilities between the electrical requirements of the Tsunami (which are different from conventional decoders due to the added audio circuitry) and the electrical characteristics of your programming track. In such an event, you will need to use a Programming Track Booster, such as SoundTraxx PTB-100 (P.N. 829002). The PTB-100 amplifies the programming track signals to levels that work best with Tsunami. It is easy to install (see below) and inexpensive. An advantage to using the PTB-100 is that it also provides short circuit detection and some helpful diagnostics. It works well for all other SoundTraxx decoders, too.
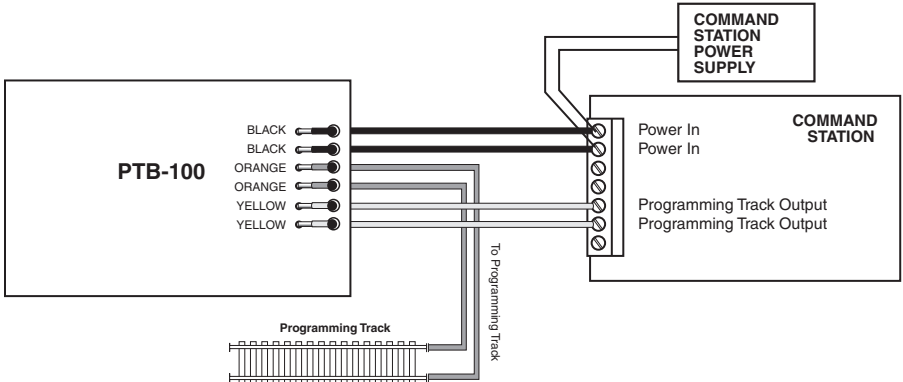
General Wiring Diagram for the SoundTraxx PTB-100

Quick Start

Operating in Analog Mode Using a DC Power Pack

Your Tsunami-equipped Blackstone Models Locomotive will also work using a conventional (DC) power pack. When analog mode is enabled, you may control your locomotive using an ordinary power-pack though operation will be a bit different than when running non-decoder equipped locomotives.

With the power pack's throttle set to zero, Tsunami will be silent as it has no power. The throttle must be turned up to around 5 volts or so to provide sufficient voltage to power up Tsunami's internal circuitry. At this point, you will begin to hear the background sounds such as the blower and airpump start.

Increasing the throttle further to around 7.5 volts or so will set the locomotive in motion, increasing speed as the throttle is increased. Note that the direction can only be changed when the locomotive is stopped.

When operating in analog mode, be careful not to exceed Tsunami's input voltage rating of 27 volts. When your track voltage exceeds 21 volts, Tsunami will automatically shut off the sound and motor and flash the front and rear lights: back down on the throttle immediately.

Important: Tsunami will work best in analog mode when using a high quality, electronically regulated power pack, preferably one that supplies smooth, filtered DC power. Older rheostat style power packs and pulse power packs will result in erratic and unreliable operation and should not be used with the Tsunami sound decoder. If your power pack provides a 'Pulse' power switch, leave it in the 'Off' position.

To run the locomotive on DC power, simply put it on the track and begin to raise the voltage. The sound module is sensitive to changes in track power. For example, whistle signals happen automatically as you increase the voltage. Refer to the full Tsunami documentation (available on the CD included with your model) for a complete explanation of DC operation and programming features.

Automatic Sound Configuration Register

CV 197 selects which automatic sound functions are enabled when the decoder is operating in analog or DC mode. This has been preset to have the Automatic Whistle Signals activated so that whenever the locomotive is stopped or started, Tsunami will produce the correct whistle signal appropriate for the direction of travel:

One Short Toot = Stop
Two Medium Toots = Forward
Three Short Toots = Reverse

There are an additional four sound features that can be programmed for automatic operation using a DCC system:

Automatic Grade Crossing Signal - When enabled, Tsunami will play a grade crossing signal (two long whistle blasts followed by a short and another long) triggered by a sudden upward spike in the throttle.

Automatic Bell - With this feature activated, Tsunami will turn the bell on and off at preset speed points such as might occur when passing through a yard or station platform.

Automatic Steam Release - If turned on, this feature will cause a short steam release to sound whenever Tsunami is brought to a stop.

Automatic Brake Squeal - The brake squeal can be activated by slowing the train down by a predetermined amount.

Additional information about automatic sound functions can be found in the **User's Guide.**

About the Whistles
The Tsunami Digital Sound Decoder installed in your C-19 has multiple whistles to choose from. If you have a DCC system, you have the option of selecting something other than the default whistle. The following table lists the available whistles, selectable by programming CV 115.

CV 115	Whistle*
0	D&RG Single Chime
1	D&RGW 463
2	D&RGW 3-Chime
3	D&RGW 488
4	D&RGW 489
5	D&RGW 497
6	ET&WNC "Tweetsie"
7	Peanut

*Default whistle will vary with road number.

DCC
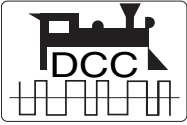
COMPATIBLE WITH
THE NMRA DCC STANDARDS
AND RECOMMENDED
PRACTICES

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