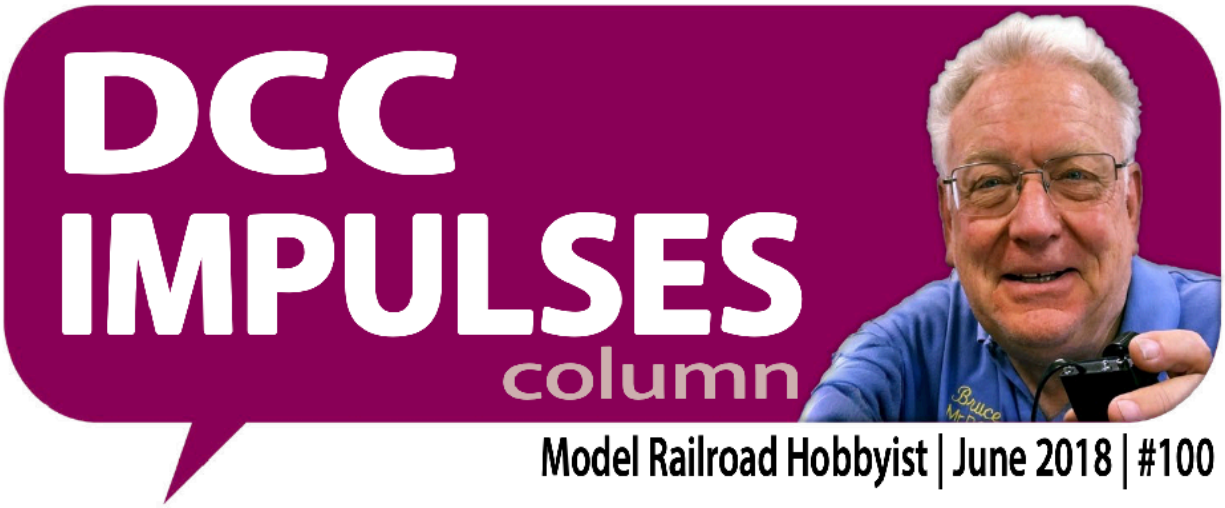


Bruce Petrarca, MMR

discusses SoundTraxx' Tsunami2 DCC sound decoders …

First, I have decided that it is the time in my life for me to concentrate on the layouts I want to work on for me and for our club (PCMRC.org). Toward that end, I have decided to retire from monthly MRH columns. My pending retirement was the subject of a thread on the MRH site (mrhmag.com/node/33079). This will be my penultimate column as the regular contributor.

Lots of ink (and electrons) have been spent discussing the Tsunami2. I'll try very hard not to plow old ground here, but share my views on this decoder, now that it has been on the market for a while. SoundTraxx recently released version 1.2 of the software [1] with a few new items, so I'll be talking about them, too.

Lastly, I'll briefly discuss an installation in a locomotive for our clubs garden layout.

Compared to the original Tsunami, what has changed?

I was a beta tester for the original Tsunami, so I have worked with them for well over a decade. Like comfortable shoes, favorite old things are hard to leave. I have learned how to work with the various Tsunami quirks by now.

Think about the technology in the world when the original Tsunami was developed and released. There wasn't a smart phone back then. The Motorola flip phones were the cat's pajamas at that point. Blu-Ray discs were just barely available, competing with the HD disc that they eventually beat out in the marketplace. Time changes things.

1. TSUNAMI2 DECODERS WITH THE VERSION 1.2 SOFTWARE STICKERS ATTACHED. SOUNDTRAXX PHOTO

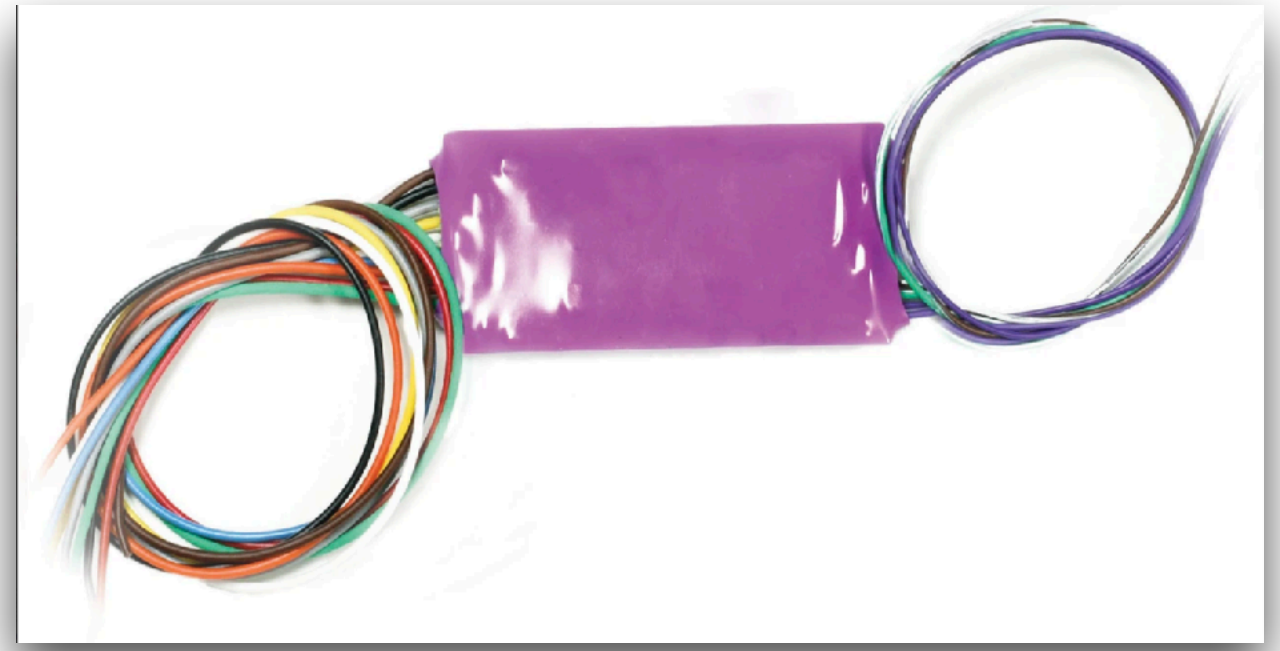
The original Tsunami was the first major DCC decoder to break through the 16-bit barrier. What a difference in sound quality it represented. Between higher definition storage and the quality of SoundTraxx recording and editing, the sound came alive. Every so often I work on a locomotive with a DSD or DSX decoder, the predecessor technology. They bring me up short every time, remembering how good we thought they were back then, and how far we've gone beyond that level.

With the Tsunami2 (TSU2), there is a monumental technology update. The original Tsunami sound quality is good; the TSU2 is better. However, it takes some really good speakers to hear the differences for the most part.

Better motor control

Out of the bag, the TSU2 decoders creep on speed step one, in comparison to the original Tsunamis that tended to run away at speed step one. One quirk I won't have to work around. Good show, SoundTraxx.

2. THE TSU-2200, THE CENTER POINT OF THE TSU2 LINE. SOUNDTRAXX PHOTO



All but the smallest TSU2 units [3] have several watts of audio power (two or three, depending upon the decoder size); the original had one watt. This change is a benefit and a curse.

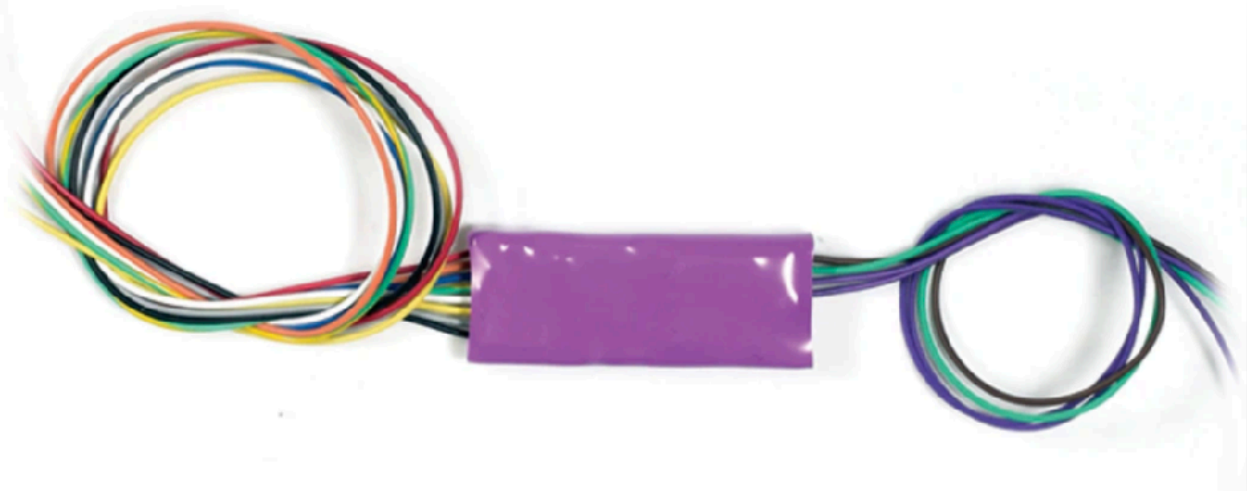
More power can translate in cleaner sound. However, the trend is to smaller speakers. Smaller speakers usually have lower power handling capabilities, necessitating careful volume settings for higher powered decoders.

If you the volume up too high, you can overdrive the speaker. Lots of not-so-good things happen: distortion, speaker damage; possibly even shorting - which can lead to decoder damage.

BEMF-controlled steam chuff

What's that? In a nutshell, the decoder reads the revolutions of the motor and determines when to create a chuff sound.

73-3. THE TSU-1100 REPLACES THE TSU-750. SOUNDTRAXX PHOTO



Again, there are good and bad sides to this feature. With no motor connected, there is no chuff, period. There is not a cam input to force the chuff, either. If you want a chuff, you gotta have a motor connected and turning.

4. TSUNAMI2 MODEL COMPARISON

Model	Total Current	Functions	Audio Watts	Size mm	MSRP
TSU-1100	1 amp	4 x 100 mA	1 Watt	27 x 10.5 x 5	$129.95
TSU-21PNEM	1 amp	6 x 100 mA	2 Watts	30.5 x 15.5 x 6.5	$109.95
TSU-2200	2 amps	6 x 100 mA	2 Watts	35 x 18 x 6	$124.95
TSU-PNP	2 amps	6 x 100 mA	2 Watts	74 x 17 x 5	$109.95
TSU-4400	4 amps	6 x 400 mA	3 Watts	69 x 30.5 x 14	$179.95

However, once you train the decoder that it takes 137 (or whatever your locomotive needs) revolutions of the motor to turn the drivers 90 degrees, the decoder will chuff exactly four times per revolution of the drivers. This is independent of the actual motor speed. No chuff cam input means that there is no way to make the chuff sound at an exact point on the driver rotation. The small increase in accuracy is not worth the effort, in my opinion, if it were offered.

More size / power levels

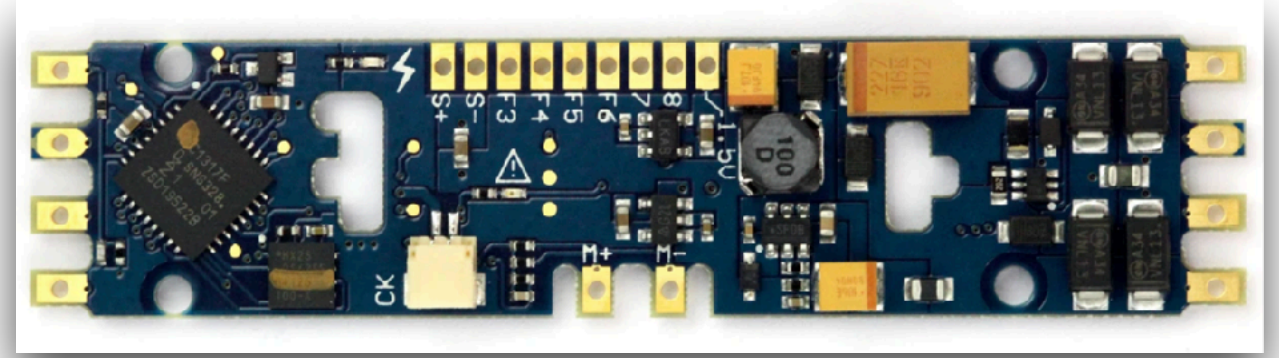
Newer technology allows the TSU2 to handle more power in a smaller package without overheating. The pricing [4] is close between models, except for the 4-amp unit for O and larger scales. This means that you can choose the decoder that fits your needs (available space and current demand) and not worry too much about breaking your budget.

The focus products in the TSU2 line are the TSU-2200 and theTSU-PNP [1]. They are pretty much the same decoder in two different form factors.

The TSU-2200 [2] is a traditional wrapped decoder with a 9-pin industry standard JST socket on one end and wires for a speaker and two functions plus a connector for a CurrentKeeper or similar device on the other.

The TSU-PNP [5] is an Atlas-style light board replacement unit with functionally the same electronics.

5. TSU-PNP IS THE REPLACEMENT LIGHT BOARD VERSION. SOUNDTRAXX PHOTO



The TSU-2200 and TSU-PNP represent the best bang for the buck within the TSU2 product line.

The 2-amp motor rating and six 100-mA functions will fulfill the needs of most medium to small locomotives.

More functions for lighting and other effects

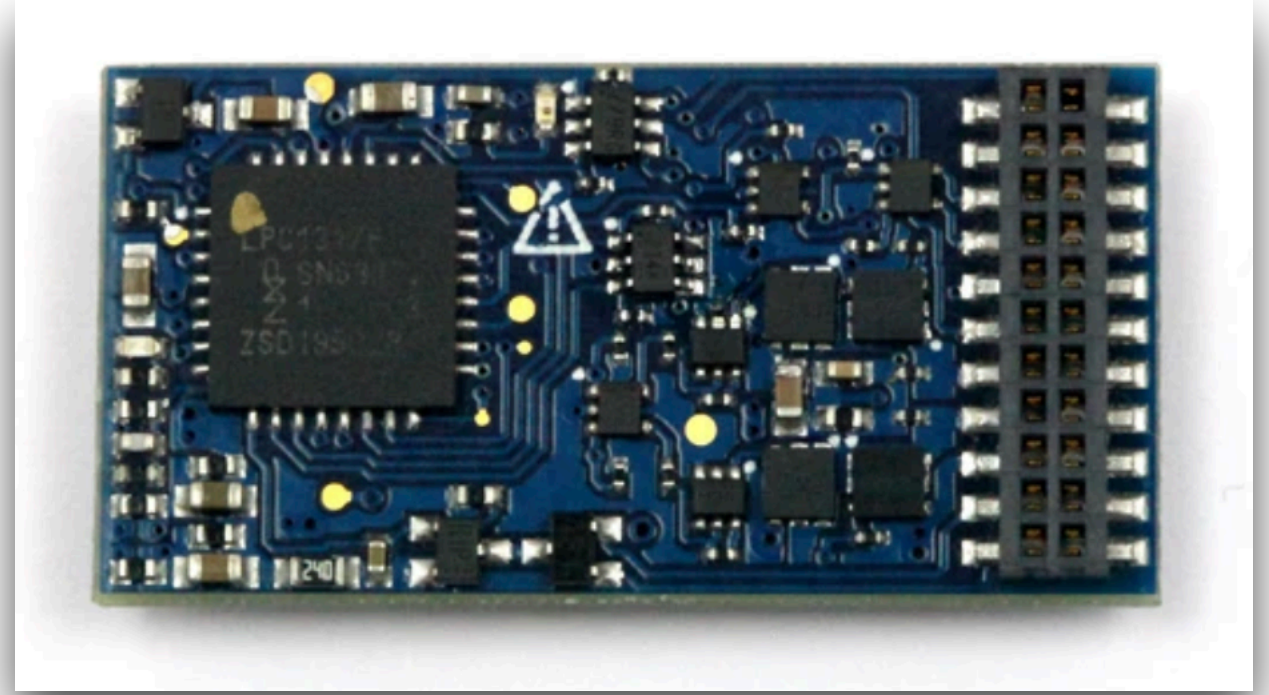
Every TSU2 has two more functions than its original Tsunami equivalent [4]. Even the TSU-1100 [3], aimed at the N-scale market, now has 4 function outputs.

Use DecoderPro

With the number of features built into the TSU2, SoundTraxx had to break into the arena of indexed CVs to be able to program the TSU2 decoders. I've discussed indexed CVs in prior

columns. My advice is use DecoderPro to set up the TSU2 decoders. Once you experience the ease of programming, I know you will use DecoderPro for everything.

6. THE TSU-21PNEM8 IS DESIGNED FOR PLUGGING INTO SOME OF THE 21-PIN SOCKETS IN THE MODERN LOCOMOTIVES. SOUNDTRAXX PHOTO



Version 1.2 software for diesel decoders

The decoder I got for this installation included the new Version 1.2 software.

The new features as delineated on the SoundTraxx.com website are shown in the sidebar.

I really like the Prime Mover Pitch Shift feature. CV 223 comes preset to 128 which is neutral pitch. Adjusting CV223 down will pitch the motor lower. Above 128, the pitch rises. This is subtle, so make big leaps (say 40 numbers) to hear the difference. Using the concept of 40 points between motor sounds, this will allow six different motor sounds for six different decoders (6 x 40 = 240) in your fleet.

NEW SOFTWARE VERSION 1.2 DIESEL FEATURES:

- **Prime Mover Pitch Shift**
- **Auxiliary HEP Generator**
- **Straight-to-Idle**
- **True-Idle**
- **Prime Electronic Bell**
- **Leslie S3LR & RS3K Airhorns**
- **Electronic Air Dryer**

If you want to know more about the new 1.2 diesel sofware updare, watch this You-Tube video: https://youtu.be/k7_xOKrCBho

You can run a large consist with each of the motors sounding slightly different.

The auxiliary HEP generator sound (a diesel-driven generator independent of the locomotive motor) and the Electronic Air Dryer sound will interest modelers of modern diesels, including passenger service locomotives.

The electronic bell (as is popular on the Alaska Railroad) and two new Leslie air horns will also hit a sweet spot for a few niche modelers.

Consider the Version 1.2 software a bit of whipped cream on top of a really fine pie. Didn't know that I needed it, but Yes, I sure would like some of it.

7. THE LGB GARDEN SCALE LOCOMOTIVE BEFORE THE TSU-4400 INSTALLATION, RUNNING UNDER AIRWIRE 900 CONTROL ON THE PCMRC LAYOUT. BRUCE PETRARCA PHOTO

"Clickety-Clack" sound effect

The TSU2 decoders ship with this effect enabled. Personally, I don't like it.

Yes, it can be tuned for the number of wheels and sizes, etc. However, I find a train with clack sounds coming from the loco but not any other car(s) unhinges me. No, I'm not putting a SoundCar decoder in every car in the fleet so they all make the clack sound.

Thankfully, as explained in the Technical Manual (soundtraxx.com/content/Reference/Manuals/Tsunami2/TSU2_diesel_technical_ref.pdf), “Entering a value of 0 into CV 3.258 will disable the clickety-clack effect.” Yup, there are those indexed CVs again. Remember DecoderPro?

8. TSU-4400 DECODERS ARE AIMED AT THE O AND LARGER SCALE MARKET. SOUNDTRAXX PHOTO

Installation in a Garden Scale LGB locomotive

This decoder [8] is destined for installation in one of the

PebbleCreek Model Railroad Club’s garden locomotives [7]. This is one of the Queen Mary series locomotives from LGB. That group of locomotives were put together with parts from several styles of diesel loco and represent a generic diesel loco. The general form and the manufacturer’s plate says Alco, but there are EMD hints, too.

I chose an EMD-style decoder (SoundTraxx #885017) with the idea of putting 645 turbo or 710 turbo motor sound into this locomotive.

Since this column is about the TSU2 product, I won’t belabor the installation details.

What’s next? Well, this locomotive [7] needs a speaker. It’s been a long time since I’ve discussed speaker technology and usage, so my final regular column will delve into a few new items I’ve experimented with, and how to work with the higher-powered audio amplifiers in the TSU2 and competitive decoders. It is coming in the August issue. No spoiler alert here. You need to tune in to see what transpires.

I feel the TSU2 decoders are a technological step forward from the original Tsunami decoders. That step comes with a price: the use of indexed CVs which, in my opinion, mandates the use of DecoderPro to set them up. The TSU2 runs cooler, has more functions, and more motor power, at a similar selling price to the original. What is not to like?

We’ll be discussing issues on the blog for this column. Please share your ideas with us all. I’d love to hear what you think. Just click on the Reader Feedback icon at the beginning or the end

of the column. While you are there, I encourage you to rate the column. “Awesome” is always appreciated. Thanks.

Until my next column, I wish you green boards in all your endeavors.