

## ESU looking into adding a graphic equalizer in the Lok 5 decoder

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**Bob**

Jul 2019

Jul '19

Guys -

I just watched a new video on MRH's Trainmasters TV in which Matt Herman of ESU USA detailed some of the changes in the Loksound 5 decoders. About 15 minutes into the interview, Matt mentioned that they are looking into adding a graphic equalizer feature in a new firmware release. Just update the decoder with the latest firmware and the decoder would get new features. Frequency adjustments would be made through ordinary CVs so we could hear changes almost instantly.

Matt also said it isn't a given that the factory will do it. They might want to do something else in the firmware, so... if we want an equalizer, we need to give feedback to Matt.

Matt's public email: Matthew.herman@esu.eu

I downloaded the data sheet for the new Atmel sound processor on Lok 5 decoders and I don't see any reason they couldn't add the feature. For the geeks out there, the 32-bit CPU runs at 48 MHz and can do an integer multiply in a single cycle. Of course, a corresponding update to the LokProgrammer software would be needed as well.

Bob  
(drooling to get this feature!)

May 5

**Craig**

Jul '19

That would really help with various speakers!!!

I sure hope they do that!!!

**hms**

Jul '19

I was watching some YouTube videos of Alco RS-1's and S-2's. Then, I listened to an ESU sound clip of a 539T. In the videos, the turbo sound was more prominent than in the ESU sound clip. The only way you might be able to change that would be with a graphic equalizer, then you could enhance the frequencies that cover the range of the turbo sound.

A graphic equalizer would of huge benefit. I also hope they do it.

**Bob**

Jul '19

Agreed on the S2/4 turbo whine. There aren't a whole lot of them running these days.

My primary interests in the equalizer are to flatten the midrange frequency response that the car body introduces, boost bass that a particular speaker can reproduce, and cut bass where it can't. There is enough power in the Loksound amplifier to overdrive a TB2008 or 1925 module.

I have been told by a friend "in the know" that some of the V4 files incorporated a fixed amount of bass boost.

Bob

**hms**

Jul '19

There is enough power in the Loksound amplifier to overdrive a TB2008 or 1925 module.  
Excellent point Bob.

I haven't gotten any distortion out of the 1925S, which is always an excellent indication, I started up the volume range for the decoder (It's something like 0 to 192) however considering the ESU amp puts out 3x the power handling capacity of the speaker I should be especially

careful.

Flattening the midrange is an excellent thought. Your thoughts on bass are also excellent. Too much bass coming out of a speaker that can't handle it, produces an annoying sound. The nice thing about sounds coming out of an engine (unlike music) is that once set, it always produces the same frequencies.



The equalizer would be the perfect manager. I did send an email to Mr. Herman. I hope other will do the same.

Jul 2019

**SNRY\_MIKE**

May 5

Being a A/V guy and working inside a lot of Audio DSP's for spaces from large auditoriums to outdoor audio events. I have also put in the EQ request. Once ESU gets the EQ in there V5 decoders to me they are then filling that missing last peace of the pie that SoundTraxx has in there decoders. I am right there with ya add it in PLEASE! a good 3 - 5 band EQ.

2/7

Jul 2019

**Bob**

May 5

Mike-

I have an inexpensive but individually-calibrated measurement microphone and TrueRTA analysis software. No doubt that's a *lot* less sophisticated than what you regularly use as an audio professional, but it gives me relative info about how various installs are doing. In a recent test, I wondered if a 1931S module firing down from the fuel tank of a GP9 produce a smoother response and more bass than a now-unobtainable QSI 2.07" "High Bass" speaker likewise firing down, mounted in the fuel tank with magnet sticking through the frame?

May 5

The answer was a resounding YES! Even if we only had an EQ in the LokSound software (sound project reload required) I could add an extra bass peak to the frequencies where the speaker can easily handle extra power, and cut response at frequencies that the voice coil for little acoustic payback.

I don't have an anechoic chamber for acoustic measurements but my models don't run in an anechoic chamber. They run on track glued to a desktop with a hard reflective surface of the backdrop.

With the smaller Tang Band speakers I find that I need to limit the Loksound volume as the audio amp in an L decoder (3 watt class D) can easily overdrive a speaker to its cone excursion limit, as mentioned earlier in this discussion thread.