What is the point of digital stompboxes?

by **superxorn** » 08 May 2014, 11:00

It seems like Boss is making the move for digital for stompboxes like overdrive too (like the od-1x). I just can't seem to get the point of that since you'll end up with a systems in all ways inferior to a multi effect. Digital stompboxes connected in serial introduces a AD and a DA conversion stage and signa loss from that, and then transfers the signal via in analog format between pedals. Any instant recall of parameters is also lost. To me it seems reasonable to either choose digital for its advantage or analog, to keep it a pure analog signal chain.

superxorn

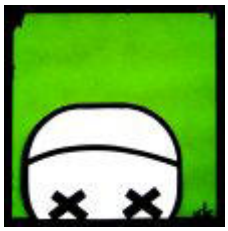
Re: What is the point of digital stompboxes?

by **natthu** » 08 May 2014, 11:30

The world is becoming digital. We're at the point where it's easier, quicker and cheaper to knock out a digital unit of whatever consumer electronic device, than it is to make an analogue one.
All our telecommunications and information pathways are digital too. It makes sense in the context of the world consumer market (which is what drives demand after all).

I don't know what signal loss you're worried about. I wouldn't have thought it would be any worse for any given number of digital pedals over the same number of analogue ones.
Most of my digital pedals sound "cleaner" than analog and I haven't noticed any signal or quality loss.
From all accounts thus far, the OD-1X sounds as good as (or possibly better than) its analogue contemporaries anyway.
I think that the days when a piece of gear's ability to maintain "a pure analog signal chain" was really a selling point are pretty much over.

I buy pedals because I like the individual packages of effects you end up with. They're fun. I find multi-effect units less fun.
If effects pedals sound good, I don't care if they are digital or analog. Currently my pedalboard has a mix of the two.



natthu

Re: What is the point of digital stompboxes?

by **sclitheroe** » 08 May 2014, 13:30

One advantage of digital stompboxes that springs to mind is that unlike a multi-effect, when I have one of more analog pedals that I want in the chain, I can position them exactly where I want them. With a digital multi, I'd be limited to however many loops it provides, and/or sticking the analog effect only in front or behind the multi.

For a gigging musician, the individual stomps, digital or not, reduce single points of failure (although, of course, the also increase the chance of failure - more individual components and connections means a great chance one will fail), since you can simply remove the one effect from your chain or turn it off if fails.

sclitheroe

Re: What is the point of digital stompboxes?

by **Dirk** » 08 May 2014, 16:51

It's also cheaper for manufacturers to provide each pedal with the same board and chipset, and just program it to whatever effect they want it to be.
Like I said before, the next logical step would be user programmable software to alter the parameters inside, kind of what TC Electronics do with their Toneprint editor software.

Dirk

Re: What is the point of digital stompboxes?

by **Pieces Of The Night** » 08 May 2014, 19:46

The main reasons for the shift to digital pedals is the companies that used to make the components that are used in pedals no longer make them. You can fit the same information that's on an ic like Raytheon RC3403AD that used to be used in analogue pedals on the head on a pin now so it makes no sense to make a large ic that has limited market use. Smaller makers can get away with using left over stock that is out there but a large company like Boss needs a large and steady supply of reliable chips.

Pieces Of The Night

Re: What is the point of digital stompboxes?

by **superxorn** » 08 May 2014, 23:48

Maybe I'll explain my reasoning a bit better. A digital pedal is basically a small computer, and for it to compute anything, the analog signal will have to be converted to digital, computed and output to analog, to be transfered to the next device. In each such conversion resolution is lost since a digital representation is only an approximation of an analog signal. Eight digital pedals would introduce sixteen such conversions. If you had a multi effect, you'd only have two, one in, one out.

Furthermore, a multi effect can reorder effects, remember all parameters and change them in real time. It can also be updated, adding more effects, patching bad ones etc.

If you had a bunch of digital stompoxes, you'd basically end up with something that could be done much better with a multi effects unit. In fact the MDP and COSM pedals coming out are basically just ripped of the flagship multi effects.

On the other hand, the real world is analog. The guitar signal, your hands, and ears are all analog. From the strum of the chord, to the speaker, the analog signal surfs the laws of electricity. I think there something neat about that.

For me, I'd rather stay analog, but if I would go digital I'd just pass digital stompboxes altogether cause you'd only have a worse signal chain, and none of the advantages of a multi effect.

superxorn

Re: What is the point of digital stompboxes?

by **fenderjapan** » 09 May 2014, 02:02

More tricks for cheaper. You can do more with more flexibility in a small box with digital than analog.

Some (myself included) would argue you sacrifice tone in favor of that flexibility.

I love my Line 6 stuff for recording... I don't have a fleet of amps and a proper set up to do recording of real amps so it works great for that. But jamming, performing, etc. I take my analog gear.

fenderjapan

Re: What is the point of digital stompboxes?

by **natthu** » 09 May 2014, 08:40

> *superxorn wrote:*
> *...In each such conversion resolution is lost since a digital representation is only an approximation of an analog signal.*

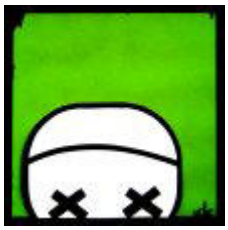
That's not necessarily true if the sample rate is high enough and the AD/DA converters are good quality.

The video in this thread shows a good example of how digital to analog conversion is commonly misconceived to always include signal degradation. (I know it's not exactly the thing we're talking about, but you get the idea).

Basically, I'm not convinced conversion between analog and digital *necessarily* results in signal degradation. I think you're making a lot of assumptions to make that statement.
Sure, there are plenty of examples of terrible digital pedals which use crappy converters, so they do lose quality, but I don't think it's true for *all* digital pedals.

> *superxorn wrote:*
> *...a multi effect can reorder effects, remember all parameters and change them in real time. It can also be updated, adding more effects, patching bad ones etc.*

> *superxorn wrote:*
> *If you had a bunch of digital stompoxes, you'd basically end up with something that could be done much better with a multi effects unit.*



natthu

Re: What is the point of digital stompboxes?

by **superxorn** » 09 May 2014, 10:15

Thanks for an interesting video The digital domain is finite, and converting - even if it were perfect - it to digital is a loss of the original data. Better converters with higher sample rate and bit depth loses less, but will still lose content, especially as the signal goes beyond a simple sine wave. 16 conversions will allways be worse than two. Then the advantage of lossless digital signal trasfer is also lost for no reason.

I don't prefer multi effects, and I don't own any, but I do have too many pedals. It is just that I find that individual digital stompboxes are pointless and instead of stocking up on those, i'd rather just get a multi effects unit instead for better functionality and sound quality. I just go to thinking when seeing a shift in technology by Boss.

That you prefer patch cables and knobs is fine (well whatever you prefer is fine by me). I do too

superxorn

Re: What is the point of digital stompboxes?

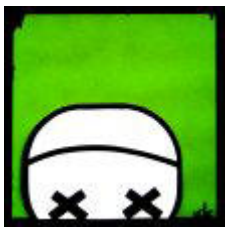
by **natthu** » 09 May 2014, 13:03

Whatever difference of opinion we have on digital pedals, on a practical level I think we can probably agree that there are many which do lack the minimum quality of D/A conversion required to fool your ears into thinking they produce no loss of signal... ie there are loads of crappy sounding digital pedals out there

At least they are improving (IMO), and I guess the shift of technology by Boss is a part of that.

> *superxorn wrote:*
> *....I do have too many pedals.*

A couple of years ago I probably would have argued that one cannot have "too many pedals".... but at the moment I feel we're in the same boat... I also have too many pedals.
This forum is pretty much a support group for those of us with this problem (although some of the members here will disagree that it's a problem)



natthu

Re: What is the point of digital stompboxes?

by **sclitheroe** » 10 May 2014, 02:21

> *superxorn wrote:*
> *On the other hand, the real world is analog. The guitar signal, your hands, and ears are all analog. From the strum of the chord, to the speaker, the analog signal surfs the laws of electricity. I think there something neat about that.*

If it helps, digital is analog too. It's all electrons flowing around. Just in a very controlled manner. But even then, there's no such thing as a purely digital signal - there's a slope on them there 1's in the digital waveform, it's not straight up and down like in the pictures.

Accepting that may help with the digital therapy

sclitheroe

Re: What is the point of digital stompboxes?

by **fuzzbuzzfuzz** » 10 May 2014, 10:09

The simple answer is that digital pedals can recreate complex/expensive/obsolete/bulky effects from the days of yore (a Leslie/Tape Echo etc) - given there is a very high demand for those sounds. It is not possible with analog tech.

And in their own right digital pedals - e.g a DD-3 Digi Delay have their own unique sound set - again which cannot be replicated analog style. The success of Strymon, Eventide etc is testament to that fact. Crafting and recreating complex sounds in a small package and allowing greater flexibility in user tweaking of such sounds is the digital pedals forte.

fuzzbuzzfuzz

Re: What is the point of digital stompboxes?

by **superxorn** » 11 May 2014, 14:17

I have nothing against digital technology and I know its advantages. Strymon and other SHARC-based platforms are sure doing well. But Boss has a long standing tradition of producing top of the notch analog pedals using discrete electronics with OP-amps etc.

Now, when they start producing pedals with the exact same digital platform, just with another paint job (and a silver screw!) and software ripped of their multis, it all falls flat to me.

For the price of a few stompboxes you'd have their flagship multi with much better functions, more simulations and better fidelity due to not having a multitude of digital / analog conversions. Maybe I should just cave in and buy a GT-100 ... nah!

superxorn