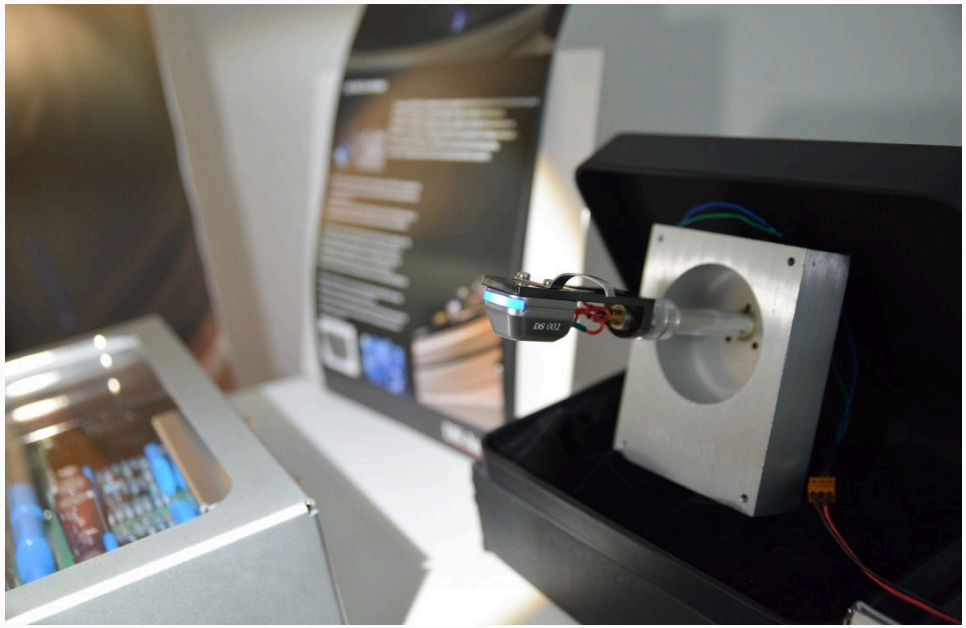


DS Audio DS Audio Story No.02

Why we published the circuit diagram

Phono equalizers compatible with optical cartridges: 18 brands, 26 models (as of November 2026)





From a unique cartridge to a popular one

An optical cartridge will not play without its own dedicated equalizer. Connect it to an MM/MC phono stage and you get no sound at all. So anyone who bought an optical cartridge also had to buy a DS Audio equalizer. At the time, DS Audio was the only company in the world that made one.

Selling the cartridge and the equalizer as a set was not bad business. But something about it bothered me for a long time. If nothing changed, the optical cartridge would remain a DS Audio-only product, and go the same way as the photoelectric cartridges Toshiba and Sharp made forty years ago, which eventually disappeared.

It became clear to me at the HIGH END show in Munich. Walking the halls, I noticed something: the only rooms playing an optical cartridge were those of DS Audio distributors. One manufacturer told me he personally loved optical cartridges, and even thought they sounded better than MC. Yet in his own room, an MC cartridge was playing. To sell his own phono stage, he had no other choice.

Left alone, this would never change. So I decided to publish the circuit diagram of our optical cartridge equalizer on our website.

HIGH END Munich. The DS002 on display in the DS Audio room.

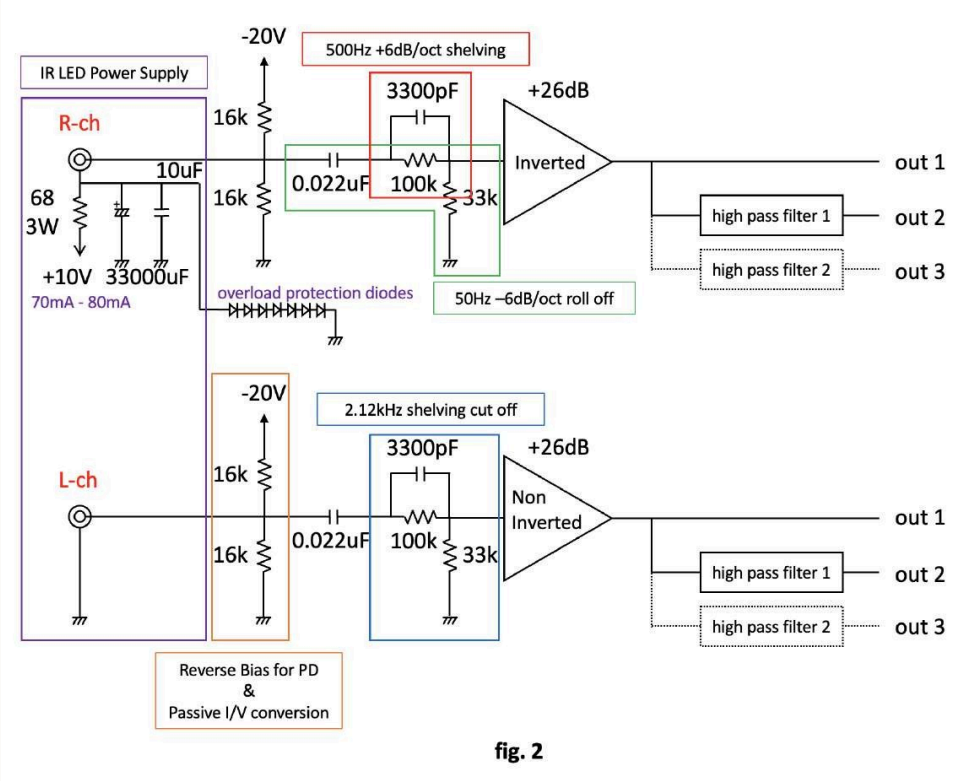


fig. 2

“This is crazy”

At first, many people were against it. Distributors and dealers alike told me: “This is crazy.” “You sell them as a set. You will stop selling equalizers.” “Why would you create your own competitors?” They had a point.

But what I wanted was to turn the optical cartridge from a “unique” cartridge into a “popular” one: a third choice after MM and MC, one people pick as a matter of course. As long as DS Audio alone made both the cartridge and the equalizer, the optical cartridge would stay a curiosity. If customers could not choose their equalizer, it could never become popular. So I went ahead despite the objections. Looking back, it was the best decision I have made since starting DS Audio.

Manufacturers who want to build a compatible equalizer often ask me: “How much is the license fee?” The answer is zero. The purpose is not license income. We do this for a dream: to turn the optical cartridge from something unique into something popular. For that, we need a circle of partners that reaches around the world.

An example of the published phono equalizer circuit for optical cartridges.



The first partner, and three years waiting for the next

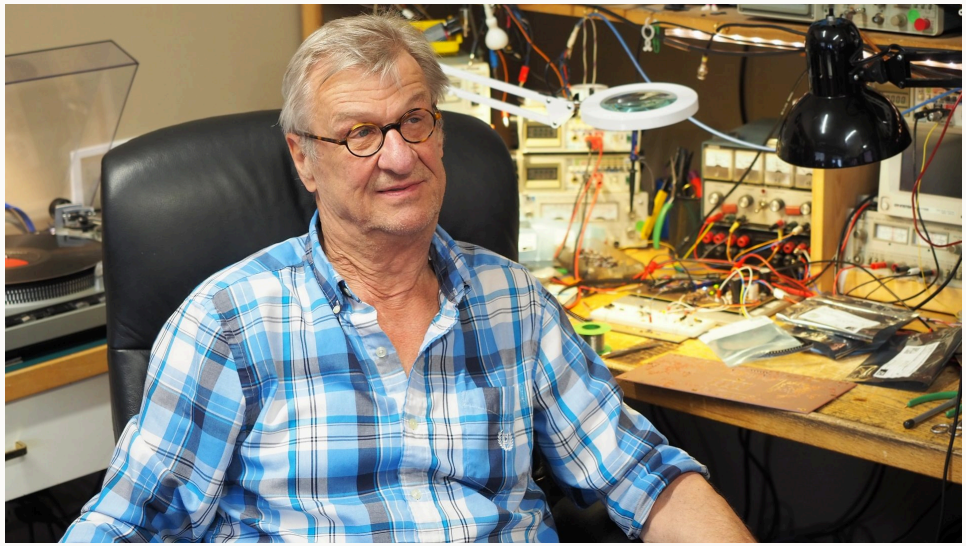
The first to raise their hand was SOULNOTE. A member of SOULNOTE's sales team came to us and said, "We want to add an optical cartridge input to our phono equalizer." That became the E-2: a phono stage with an optical input alongside MM and MC, and the first product of its kind made by a company other than DS Audio.

Through the E-2, the same cartridge expressed a completely different world from our own equalizer. If many manufacturers drew out the qualities of the optical cartridge in their own ways, it would become far more interesting. That was why I had published the circuit, and the E-2 convinced me I had been right.

Once one company had done it, I thought the second would follow quickly. It didn't. Inquiries came from time to time, but few made it as far as a product. Honestly, I could not picture how this would spread.

I knew why. Only DS Audio makes optical cartridges. With MC, if one maker disappears, you can keep using cartridges from others. With optical, if DS Audio ever stopped making cartridges, the optical input on a compatible equalizer might one day become unusable. If I were an amplifier maker, I would hesitate too.

SOULNOTE E-2.



“A game changer”

In the autumn of 2018, a message arrived through the inquiry form on our website. It came from EMM Labs, the company led by Ed Meitner. They were planning to add an optical cartridge input to their phono equalizer, and asked whether they could buy a cartridge for development.

We sent a cartridge to Canada right away. On December 15, an email arrived from Ed himself.

> Last night was the first time I had an opportunity to listen to the optical cartridge. The setup is experimental boards on my bench. […] Not an opportune setup but nevertheless what I heard was simply stunning. Well beyond expectations. I had a great time discovering old LP from my young years. […] My congratulations, it’s a game changer.
>
> — Ed Meitner

Recognition from someone the industry calls a legend. I had never dreamed of it, and I was truly happy.

Ed Meitner at his workbench in Calgary.



“Once you hear an optical cartridge, there’s no going back to MM/MC”

Some time later, EMM told us over Skype that they wanted to release a phono equalizer dedicated to optical cartridges. Ed’s thinking was this: once you hear an optical cartridge, there is no going back to MM/MC. People who have heard it stop using their MM/MC inputs, so rather than spend cost, development and board space on them, he wanted an equalizer for optical cartridges only.

It would be a direct rival to a DS Audio product, so I think they also wanted to show us some consideration. We had no objection at all. We don’t see them as competitors, and more partners helping the optical cartridge grow is something to be grateful for.

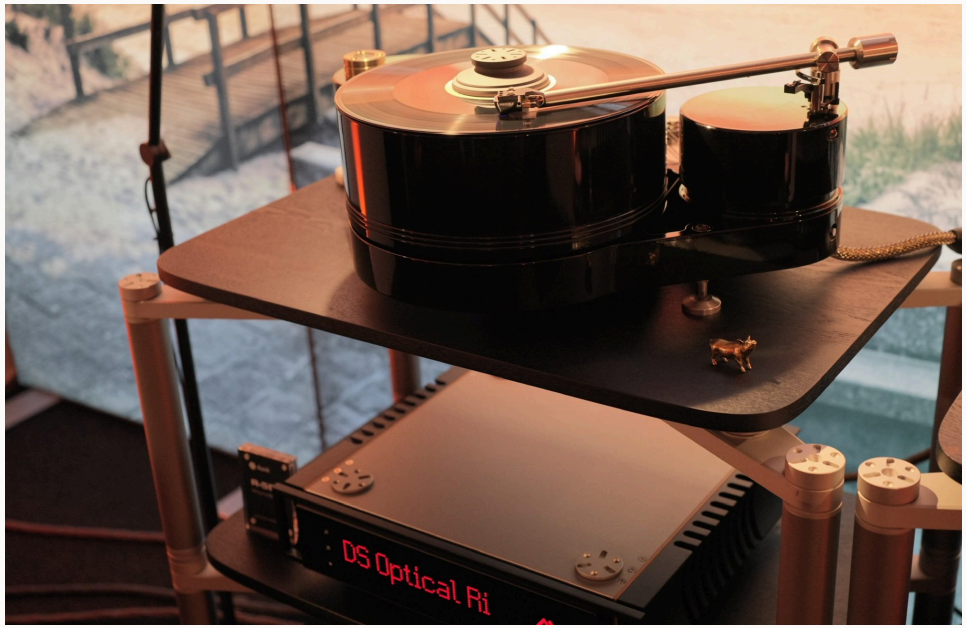
Still, I asked: are you really going to do this? The overwhelming majority of listeners use MM or MC. Without those inputs, they will never be your customers. Does that make business sense? Shouldn’t you include MM/MC inputs? I would say the same thing today.

Ed did not change his mind. He believed in the optical cartridge that much. I was moved.

In 2020, EMM Labs released the DS-EQ1. It has no MM or MC inputs.

EMM Labs DS-EQ1.



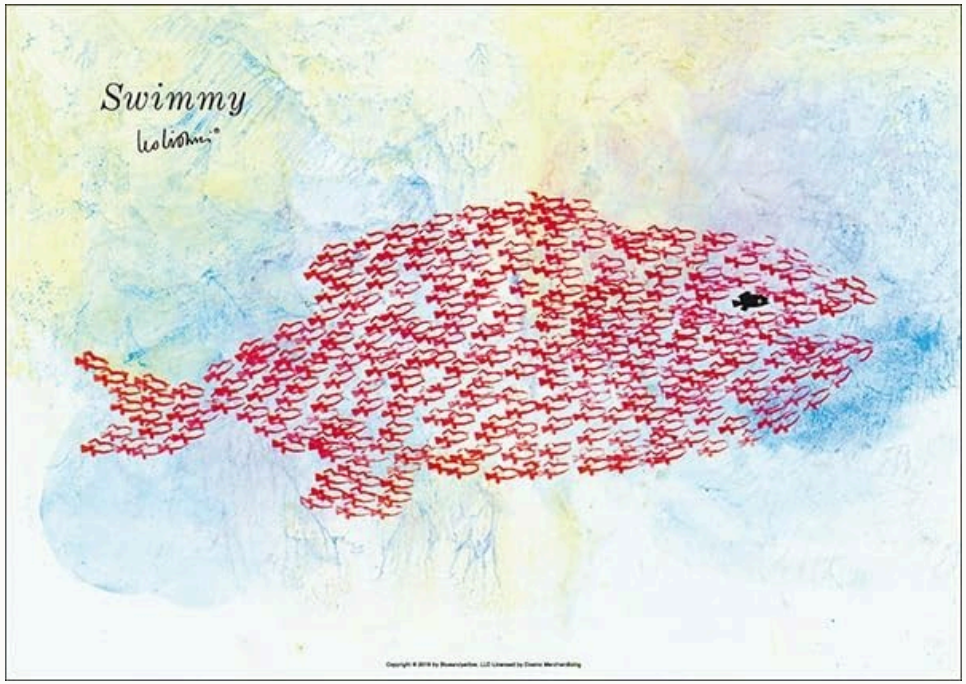


From addition to multiplication

At HIGH END Vienna this year, DS Audio cartridges were playing in fourteen rooms. In the rooms of manufacturers other than DS Audio, their own people were explaining the appeal of the optical cartridge in their own words. Nearly ten years have passed since that day in Munich when I noticed the optical cartridge was playing only in our distributors' rooms.

Before other companies joined, it was always addition. Only DS Audio, its distributors and its dealers worked hard to tell people about the optical cartridge. It added up little by little, but never went beyond addition. With more partners, it became multiplication. When SOULNOTE releases a compatible model, SOULNOTE, its distributors and its dealers talk about the optical cartridge. With ESOTERIC, it is ESOTERIC, its distributors and its dealers. Today there are 18 brands and 26 compatible models, each with its own distributors and dealers behind it. From addition to multiplication: the change is enormous. And of course, without the distributors and dealers who believed in the optical cartridge from the very beginning and helped us spread it, DS Audio would not be where it is today.

HIGH END Vienna 2026. Top: the MAVIS (Vietnam) room. Bottom: the Audio Group Denmark room. DS Audio cartridges playing in both.



Swimmy

There is a picture book I read in elementary school, about a small black fish called Swimmy. The little fish gather together and swim in the shape of one big fish. After my child was born, I read it to my child as well.

Had we not published the circuit diagram and kept the optical cartridge to DS Audio alone, I think it would still be a small fish. Today it has grown into a much bigger one.

But we are only getting started. One day, the optical cartridge will no longer be a rarity, but chosen as naturally as MM or MC. I truly want to make that day happen, together with partners around the world.

If you are a manufacturer interested in making a product compatible with optical cartridges, please get in touch.

Tetsuaki Aoyagi

Founder, DS Audio

DS Audio

"Swimmy" by Leo Lionni.

Comments and questions are welcome at ds-audio-w.biz/contact.


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