

The amplifiers of “Temporal Coherence”

Background

Audio remains a challenging subject with many aspects which are not understood. As an example: loudspeakers have distortion figures which are much higher than those of most good amplifiers. Yet, differences between amplifiers are audible. This indicates that other aspects than just distortion figures play an important role. We have addressed this issue already some time ago in a paper (An innovative approach to suppress the distortion of electronics), which can be downloaded for free from our website www.temporalcoherence.nl. An important issue is, in our view, that the whole audio system is optimised and that not only a part is looked at. This means that except a.o. the interaction between the amplifier and the loudspeaker, also the way our hearing works should be taken into account.

Design philosophy

The starting point of our designs is human hearing. On the one hand it shows that human hearing is especially sensitive to small impurities, on the other hand it is not able to discern some phenomena (due to masking). Both play a crucial role in the design philosophy of “Temporal Coherence”. The (unavoidable) distortion is optimised in such a way that it is masked as much as possible by our hearing, while other -in the professional jargon called “correlated”- signal disturbances are suppressed as much as possible. This greatly improves the perceived sound quality.

Most designers use a pure ohmic load of the amplifier. They assume that the loudspeaker behaves like a pure resistor. But anybody who has looked deeper into this matter knows that a loudspeaker is everything but a pure resistor, it is a complex load, causing phase shifts between voltage and current. It is, in our view, crucial in the amplifier design that it is able to handle such complex loads well. So for “Temporal Coherence”, this is the starting point.

Concepts

The above described design philosophy is the basis of the concepts of the electronics of “Temporal Coherence”. Added to this is that a number of innovations have been applied to reduce the distortion of the individual amplification stages as much as possible. An important consequence of this is that all our amplifiers have to be build using discrete components, as no integrated circuits (IC’s) are available which include these innovations. Only with discretely built up circuits we can be certain that all our requirements are met.

An often disregarded part of an amplifier is its power supply. In our opinion “no piece of equipment can operate any better than its power supply”, which is why we spent much attention to it. This makes our equipment more expensive, but to save on it would be “wrong savings”. One of the positive consequences of this approach is that many listeners are amazed by the “tranquillity” in the sound and by the “well controlled” lows in the resulting reproduction.

Realisation

The “stand alone” electronic products of “Temporal Coherence” (see below) are built by hand after the testing and approval of the individual printed circuit boards. Much attention is paid to prevent as much as possible parasitic, correlated signal disturbances.

Of course, equipment of this price range should not only sound well, but also look well. "Temporal Coherence" has given much attention to the looks and the mechanical strength of the housings, in order to make sure that our equipment is not only a joy for the ear, but also to the eye. The housings come in neutral black, the front can be delivered in "silver" or "black", dependent on which colour suits best with your other equipment and your interior style. There is no difference in price between the two options.

Products

In addition to our active systems "Temporal Coherence" produces, the following equipment:

Headphone amplifier

Optimised for headphones with an impedance $> 30 \Omega$
Bandwidth 5 – 150 000 Hz
Conceptually based on our power amplifier

Control amplifier

6 inputs at line level
1 output to power amplifier, Diamant or Pyramide active system (volume controlled)
1 output to headphone amplifier (volume controlled)
1 output for (DAT) recorder (not volume controlled)
2 outputs which can be configured according to the customers' wishes
Wireless remote control
Input selection by relays
Passive volume and balance control by means of resistors and relays
Switchable rumble filter at 34 Hz (first order)
Bandwidth 2 – 200 000 Hz

Stereo power amplifier

Output power 2 x 70 W into 6Ω
Power bandwidth 5 – 50 000 Hz
Bandwidth 5 – 150 000 Hz

Reviews of our equipment can be found on our website www.temporalcoherence.nl