

*the AudioSense music system with DEQX HDP3 preamplifier/DA converter/equalizer/electronic crossover, AudioSense loudspeakers and amplifying electronics.*

# CUSTOM-MADE HIFI..... of course!

Just what have we, music lovers, been doing for over half a century! Let's face it: the final link in our reproduction chain, the loudspeaker, is still somewhat of an archaic 1920's product. Air is set in motion, producing musical oscillations, with a medium - the loudspeaker cone - which is many times heavier than the air it must displace (...owners of electrostatic speakers with their light membranes may lean back with contentment....).

BERT OLING

translated by

MAARTEN  
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**O**K, we have developed superior new cone materials: rigid, light and almost resonance-free. Thus our modern speaker units perform considerably more faithful to the original and so require much less correction. Also, our speaker enclosures are built much better and more rigid resulting in less cabinet coloration..... BUT.... in most cases the music signals travel in their intricate spectrum to the loudspeakers via the speaker cables and then must pass the crossover filter... This filter ensures that the speaker units receive the right musical information: the treble speaker must not be overloaded with bass because this will soon harm the integrity of the reproduced sound. The cross-over filter is a complex multi-task unit. There's nothing wrong with that, you would argue, after all it works, doesn't it? But if you reason with common sense, you will see that it is all wrong indeed: the interaction of coils, capacitors and resistors, takes place in the music system where it is quite illogical, putting it mildly. Just imagine that in the car world they would decide to build stationary engines in our four-wheel 'biscuit tins', leaving out the accelerator and clutch in favour of an elaborate brake system, as well as anchor and drogue parachute!

In short, your loudspeaker units are driven and controlled quite indirectly. The control of their behaviour is quite limited and correction of misbehaviour is wellnigh impossible.

Therefore, I always follow with sheer bewilderment the discussions about cables, modifications and other chit-chat in various forums. I especially feel this way when a participant proudly specifies the components of his sound system with nice passive multi-unit loudspeakers as the final link. Of course, the crossover filter has been modified, the transformer core replaced by an air coil, and the metallized polypropylene condensers replaced by oil-filled paper foil condensers with silver leads. Such spaciousness and transparency! The electrical properties meanwhile yield a frequency curve very different from what the manufacturer intended, but this is simply taken for granted..... long live HiFi!

## **Different.... but better?**

Yes indeed! Active loudspeakers have been available for decades. Amplifiers and speaker units are integrated in the enclosures. Mostly, each speaker unit has its own dedicated amplifier preceded by an active filter. The advantages are considerable: the efficiency improves significantly, and with an active filter you can much better adapt the characteristics of the sound system and make compensations for any shortcomings. The direct control of the loudspeakers also facilitates protection against possible overloading and abuse. It is hard to make any adjustments of the speakers to the acoustics of the listening room as well as to the listening position in that room.

Just advantages? No, that would be too good to be true. First of all there is a technological reason for the fact that there are so few active loudspeakers. Designing and building speakers is a discipline clearly different from developing amplifying electronics. The main points are also quite different:



high-grade loudspeakers are developed by small and medium-sized companies mostly based in Europe, as opposed to the Far East where most medium-grade electronics originate. Technically it is a tricky business in some ways. The inside of a loudspeaker cabinet is a very restless environment from a mechanical point of view. This demands quite an effort on the part of the designers to avoid micro-phonism affecting electronic performance. The choice and mounting of components is crucial, too. This means that a good active loudspeaker will never be cheap. However, the main hurdle is, of course, the consumer, the user of the product. The HiFi aficionado loves his freedom to choose the electronics he wants. The same goes for his choice of loudspeakers. But the true market figures sometimes show a different picture. Until recently the active Beolab 8000 speaker (commonly known as the 'organ pipe') was the best sold unit in the segment above 3000 euro per pair. Some of the manufacturers of active speakers are Bang & Olufsen, Meridian, Dynaudio, Quad, and in the past, of course, the MFB (Motional Feedback) models made by Philips.

### Can we do better?

Surely, with the DEQX HDP3 preamp-processor, the AudioSense loudspeaker and amplification system, distributed and manufactured in this country by AudioSense. The driving force behind AudioSense is Rudo Meijer, both an enthusiastic music lover and dedicated musician. He could have opted just to distribute the Australian DEQX products in the Benelux, but he soon realized that the potential of this unique product would perfectly match the speakers he developed with electronics based on the Hypex UcD modules. Reading the information on Rudo's website and that of DEQX, I knew right away that we were dealing with a unique product.

It looks so simple: DEQX means Digital Equalization cross(X)over, but behind it is a world of technology which is second to none.

This preamp-processor can correct everything endangering our HiFi musical enjoyment and in real time, too. The members of the HiFi congregation will, however, insist that their signal path is to be pure, without any digital processing, relying exclusively on the beneficial musicality of high-grade copper in their trans-formers, the prewarmed electrons in their SET amplifier, preceded by a volume control with specially selected tantalum resistors. Their listening room has to be tuned with the help of Tibetan scales and they only listen after 9 pm when the lighting system is supposed to be 'quiet'. A correct reproduction of the original music is just a coincidence here and may even be totally absent. But they are not really bothered as long as it 'sounds right' to them. If people want to listen to music intuitively this way, they are, of course, free to do so! But it has little to do with the original aim of truly faithful sound reproduction. HiFi requires a reproduction chain by which the music can reach our ears without loss of quality or with undesirable distortion. This is, of course, the subject of all sorts of chit-chat. The discussions found on the internet are most amusing and the gist of the argument is mainly that engineers do mani-pulate sound during recording sessions. Just one answer is appropriate here: a good sound system will reproduce any recording flaws or manipulations and some systems enable us to correct them.

The DEQX system does have that potential.

### The DEQX HDP3 preamp-processor explained for laymen.....

It is actually quite remarkable that one of the major problems of sound reproduction in the living room, i.e. the relationship between room



A passive crossover: coils, capacitors and resistors



DEQX HDP3 with the options balanced out and digital out for 3 separate DAC's

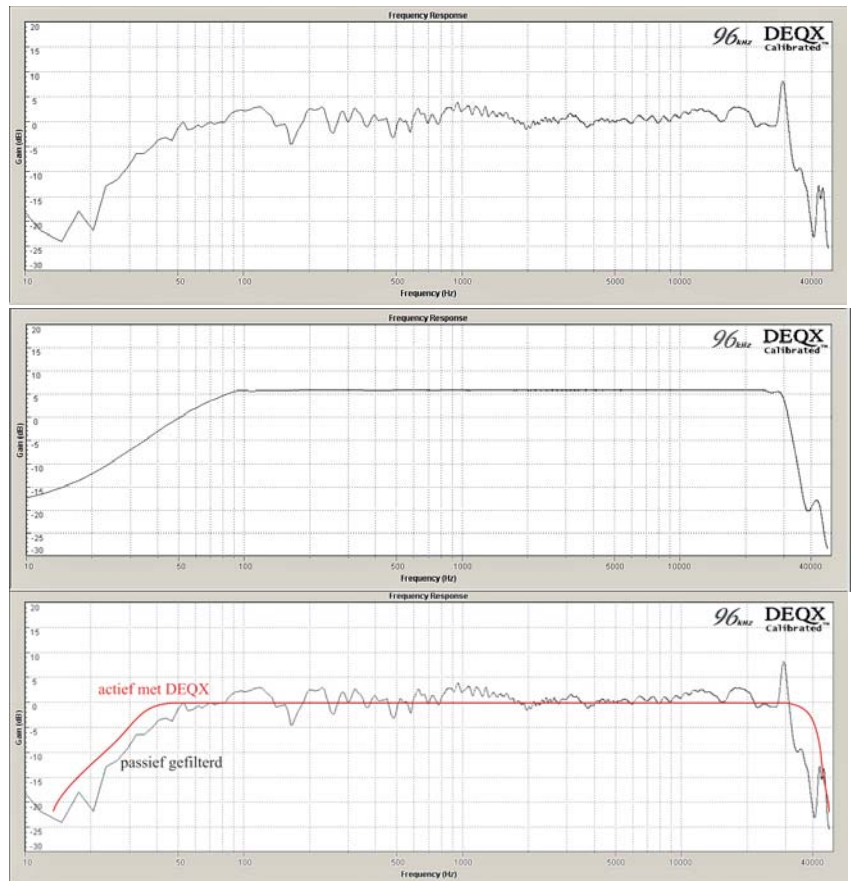
acoustics and loudspeaker, has been so neglected. Few music lovers have read the article by the late Henri van Hessen (of the former Transtec company) on this subject. His brochure entitled "This is your living room speaking to you!" was a true 'ear opener'. Back then Transtec imported the Sigtech room correction processor with which amazing results could be obtained. The DEQX is, of course, a more modern product with sophisticated ICs, enabling the listener to carry out precise and fast corrections. But apart from that the DEQX has much more to offer. First of all, the HDP3 is a preamp with a number of analogue and digital inputs and outputs, both balanced (XLR) and unbalanced (cinch). So far so good, but let's now look at the inside. The analogue processing is without compromise and the conversion of analogue to digital is top notch. The digital processing by two SHARC DSPs leaves nothing to be desired. The same goes for the digital to analogue conversion, and behind the DACs are the volume controls, so no resolution is lost there. A generous PSU is embedded with active and passive power supply decoupling where necessary. This means that the HDP3 does not add anything to the signal, and this is where the magic really starts. With the supplied measuring microphone you can carry out measurements in your listening room and, if necessary, make corrections in the frequency and time domain. As a layman you may think this a terribly complicated task, but with the supplied software installed in your computer it is a nice and satisfying job. The same goes for the elaborate built-in room correction mode, enabling you to correct any drawbacks in your room acoustics. Modern sparsely furnished rooms are often disastrous for good sound reproduction. Resonances and other effects are harmful and can be corrected effectively, but don't forget that a rug and curtains are also helpful (as well as

decorative) in this respect. Further, recordings may be corrected to enhance their fidelity after which they may be rerecorded and stored.

A number of corrective properties are also found in the products of other manufacturers such as Class and Meridian, but the true bonus of the HDP3 is the electronic 3-way crossover filter, enabling custom-made high fidelity not found anywhere else.

### The added value of AudioSense

Added value indeed. Of course, you can buy only the DEQX preamp-processor. You then have the possibility to solve quite a few problems in the relationship between your loudspeakers and your listening room. In addition, you may enhance sound material of mediocre quality, and produce material with specific effects, e.g. for a dance party. But the DEQX's best feature by far enables you to replace those lamentable passive crossover filters in loudspeakers by direct control from 'dedicated' power amplifiers, driven without any loss by the DEQX preamp-processor with its perfectly adjustable electronic crossover filter. Rudo facilitates your choice by offering just two loudspeaker systems. The 2-way system has built-in Hypex UcD amplification electronics and the bigger 3-way system has power amplification (6 x Hypex UcD) in one or two separate enclosures. These AudioSense loudspeakers feature a first-rate chassis while the enclosures show the hand of a master cabinet-maker. The enclosures can be finished in accordance with your wishes, thus the system will be an optimal sonic and visual combination in your home, installed and calibrated by Rudo himself. So it's all custom-made indeed, but now the question is: for whom? Every serious music lover, with a sufficient budget, looking for optimal sound reproduction in his or her home should definitely consider the AudioSense option.



**Oling goes to the mountain and listens to music**

In the summer of 2008 I visited Rudo for a listening session with his complete system. The 3-way AudioSense set was installed in his home, located somewhere along the elevated borders of the Veluwe. There was a variety of source material: classical, pop, jazz and folk, as well as high-grade FLAC 24 bit/96 kHz pieces from a music server. I am always quite curious to find how someone will present ‘his’ music and this proved to be a special experience indeed. Demonstrations usually take place with the wrong music, too loud and in poor listening environments, but the ambiance here (30 sq. m.) was pleasant and quiet. The volume of the music was just right, not a ‘wall of sound’ in which delicate details are lost. Direct and indirect sound was well-balanced offering lots of natural detail and ‘colour’, but not the overdetailed ‘magnifying glass’ HiFi. Not the pinpoint stereo image in which you are supposed to hear that the singer sits on a high bar stool (yes, clearly an Ikea one!), while you are just listening to a regular multimike and heavily processed recording. The AudioSense system, however, simply delivers a stereo image with the right balance between depth and width.

Rudo is rather a presenter of music than a talker, so you soon discover that you experience an extraordinary sound system, fully capable of handling the current and future high-resolution downloads as well as our existing LP and CD collections. Actually Rudo aims at the opposite of the fast-moving world of MP3: back to basics with a kind of ‘slow food’ HiFi experience.

**Wishes.....**

Surely. On his informative website ([www.AudioSense.nl](http://www.AudioSense.nl)) Rudo tells about his experiences with various illustrious loudspeakers of which he replaced the passive crossover filter by a DEQX/AudioSense setup. In the nineties and later, fabulous loudspeakers appeared with excellent chassis and in beautiful cabinets, just very much limited by their crossover filters. I hope ever to attend a listening session with 2 first-rate loudspeakers: one pair with their original crossover filters and the other driven and actively filtered by AudioSense/DEQX. How about an A-B comparison at the VAD show?

Measured passive crossover and active filter setting as proposed by the DEQX software

left: DEQX with the AudioSense 6 channel power amplifier with very short interconnects

Importer-distributor: AudioSense (NL) [www.AudioSense.nl](http://www.AudioSense.nl)  
[www.DEQX.com](http://www.DEQX.com)

Price: from approx. € 7500 for a complete system including active loudspeakers and cables, € 4050 for the DEQX Hp3.