



TEST.

Velodyne Digital Drive Plus 10 - an approach

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From the picture above, you might already realise that this is not one of the usual tests. In addition to the Velodyne DD+ 10 - or more precisely two of them - it is also about the criminally underestimated sonic advantages of subwoofers in pure high-end audio systems. In a familiar form, our colleague Roland Dietl will soon devote himself to the Velodyne.

Actually, I should have known Back in 1996 - at that time still in a printed Hi-Fi publication - I wrote a plea for subwoofers in music systems. At that time I owned a pair of Roksan Darius loudspeakers with somewhat limited deep bass capabilities. Each of the four different subwoofers presented supported the frequency range in which a lot of instruments are active - and not only church or concert organs. But even then I noticed that the powerful woofers also provide a much more credible illusion of the acoustic space, and that even recordings with voice and guitar alone can definitely benefit from a subwoofer inconspicuously integrated into the sound image. Then for me came the time of loudspeakers with a rich bass foundation: from the Trenner & Friedl Gordon to two LumenWhites - the WhiteLight and the DiamondLight - and the Kawero! Classic and Göbel Epoque Aeon Fine, to name only the most impressive in retrospect. Then the subject of subwoofers fell into oblivion for me.

But this has since changed, and fortunately so for me. First of all, subwoofers - and specifically those from Velodyne - were back in the spotlight when Hifistatement took part in the High End Society's "Sounds Clever" campaign, which was very positive for our industry, almost two years ago. The aim was to put together the best-sounding system for an acoustically only vaguely known room with a budget of 5,000 euros. Helmut Baumgartner and Roland Dietl, who both run systems at home with more or less large main speakers and a subwoofer each, favored a combination of two-way speakers on stands plus a subwoofer for our demonstration in order to be able to react better to the sonic vagaries of the demonstration booth. Since Velodyne is one of the most experienced manufacturers and its portfolio includes reasonably priced subwoofers, we chose the Impact 12 MKII. BaseAnd according to the verdict of most visitors, our decision was probably spot on: the chain made music at a level that one would not necessarily expect in this price range.



In the listening room, the two Velodynes are not obtrusive. In combination with the Göbels, a white version would be desirable

I can't remember whether it was because Göbel High End offers a "small" subwoofer, the Aeon Baforce Petit, in the Epoque line, from which my speakers also come, or because the three partly active, partly passive seven-inchers on the front - the corresponding equipment on the back is not visible from the listening position - of each Aeon Fine seem unimpressive to me, but suddenly I thought it was a good idea to experiment with subwoofers in my listening room again. Since the physical size of my listening room is nowhere near as large as imaginary stages suggest during successful recordings, I searched the Velodyne range for very high quality, but not very space-

consuming models and found the Digital Drive Plus 10 with impressive specs. Of course, the 15- or 18-series models are even more imposing, but two of them would at least visually overload my room. If, while experimenting with the 10s, it turns out that one of them produces similarly positive results as their two, I can always try a larger model.

One reason for choosing the DD+ 10 was its DSP-based calibration program. However, since this relies on signals from an included CD and a CD player hasn't been in my system for years, Maximilian Merk, the Audio Reference employee responsible for my region, installed and adjusted the subwoofers according to his experience. Each of the two Velodynes was connected via an XLR cable to the Audio Exclusive R7 preamplifier, which fortunately has two balanced outputs of equal value, so that an unaffected signal was still available for the Einstein power amplifier. The result was quite positive, but with such sensitive settings as those of the phase in 15-degree steps, I didn't want to rely solely on my ears. Later, I retrieved a 20+ year old NAD CD player from the basement, which immediately played the CD without any problems despite the long period of inactivity. In the meantime, I had also installed Velodyne's setup program on my Windows laptop. There is no version for Mac, but from the middle of the year firmware and software should be available that will enable setup of Velodyne's DD+ models via smartphone.



The clearly arranged control panel on the front of the DD+ 10

With the help of sweep tones on the CD, the supplied measuring microphone, and a Windows computer, I then allowed the two subwoofers to calibrate themselves, one after the other, using the Auto-EQ^{Plus} program. Since my

listening position is not quite on the symmetry axis of the room, because one should still be able to hear well from an armchair next to the listening position - after all, enjoying music is not a hobby only for autistic people - this resulted in two different volume settings: the woofer on the left indicated "0", the one on the right "1". And that almost borders on refusal to work. Unfortunately, the automatic calibration does not work with my speakers, which radiate the low frequencies to the front and back, and with my room. This is exactly the reason why Roland Dietl will introduce you to the Velodynes in the usual manner and of course with pictures in the usual quality from our photo studio. Of course, this also includes a description of the technology and the diverse features of the DD+ 10, so I can devote myself to the very special acoustics in my listening room.

I almost gave up after the failed automatic calibration - and deprived myself of a lot of fun. Finally, I asked Helmut Baumgartner, who has been using a Velodyne for years, to use his measuring equipment to find out what was happening acoustically in my room. There is a peak around 30 to 45 Hertz, after which the level drops very steadily. The Velodyne's lowest frequency of use is 40 hertz, and in my room I really don't need a bass boost there: so Auto-EQ^{Plus} has done everything right. However, the programme still provides eight parametric equalisers, and with some of them Helmut Baumgartner shifted the application frequency to around 30 Hertz. Downwards, the subwoofer was not limited, so that it works in a range from 30 to below 15 Hertz. The level was, of course, not raised to the room-conditioned boost at the main speaker, but below 30 Hertz it corresponds to the average volume in the remaining frequency range.

So much fuss for 20 additional hertz? Yes, and again yes! With this moderate setting, no one should expect more pressure in the low frequency range. The Goebel seems not to lack that. And the last few hertz are not produced by almost any instrument, yet they provide for a more extended spatial illusion. It now seems more natural and self-evident. It seems to me that this can be explained halfway conclusively with this popular example: Even blindfolded, one immediately has an impression of the size of a room one is entering. When one enters a church, the size of the room is revealed by the minimally resonating enormous volume of air stimulated, for example, by the closing of a door. It makes no difference whether we perceive the vibrations with our body or with our hearing. This cannot be countered with the argument that in a listening room with moderate dimensions, the long wave corresponding to a very low frequency cannot build up completely. We also react to the pressure changes - - even at a barely perceptible level.



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The Velodyne offers the necessary inputs and outputs for all conceivable connections

Much more difficult for me to explain are the acoustic effects that the minimal downward extension of the frequency response causes in other frequency ranges: transients seem even more realistic, the imaging of instruments and voices appears clearer and more precisely delineated. In addition, thanks to the two Velodynes, the overall sound image seems more cohesive, a touch smoother and more natural to me - a term I am reluctant to use in sound descriptions. But here I simply can't get around it.

So far, I have always used both Velodynes, one per stereo channel. Now that I'm slowly realising that I don't want to do without subwoofers in the future, the question naturally arises whether it's really necessary to invest in two - especially since my room isn't exactly the largest. So, I connect the XLR cable, which was previously connected to the left DD+ 10, to the right and increase the level there. Even a single Velodyne provides a more intense musical experience than the Aeon Fine alone. Nevertheless, there is no doubt that two subwoofers provide an even more credible spatial representation - even if, according to all theory, the frequencies emitted by the two subs should no longer be locatable. Is this due to the more even excitation of the room? Never mind, let's continue with two DD+ 10s.



The diaphragm of the massive bass driver consists of a laminate of fiberglass and Rohacell

Initially, I had only heard files from Melco or Qobuz over the system playing with even greater excitement with the Velodynes. With additional very low-frequency bass energy in the listening room, there is the danger that a not ideally tuned tonearm / cartridge combination could lead to feedback. I then

very carefully tried the Thiele TA01 in conjunction with a Lyra Etna. In doing so, I didn't even start with very low levels. I took the precaution of placing my thumb on the mute button of the remote of the Audio Exclusive R7. This would have been an easy way to prevent an acoustic disaster by quickly muting the preamp. But my concerns proved unfounded. The placement of the LaGrange on the Artesania audio rack and the arm/system combination proved immune to low-frequency excitation. Gradually, I could begin to enjoy the gain in room size, clarity and intensity of impulses thanks to the Velodynes, even during record playback. However, the remote control was still within reach.

Only once did I have my thumb directly on the mute button again: Maximilian Merk was visiting to find out about the current status of the settings and had brought Peter Gabriel's album *Up* with him. The deepest electronic sounds can be heard on "Sky Blue" - ideally suited for testing, but otherwise rather nothing for me. The Thiele TA01 and the Etna mastered the enormous demands completely unimpressed and the Velodynes and Aeon Fines didn't show any distress: There was nothing boomy, the sounds came across very differentiated and clean. One could enjoy all the advantages that an almost unlimited low-frequency reproduction brings with it, without the sound seeming even slightly thickened. By the way, I didn't need to press the mute button here either. After so much electronic sound we deserved something special: Wolfgang Puschnig's "Peace" from the album *Chants*, not from the hard disk, but from tape. Quinton Records gave me a copy of the mix-down years ago, that is, the first two-channel version of the recording, free of any compression or final mastering interventions. I like to use the title to show what sonic potential lies in such seemingly antiquated technology as tape machines. I have never heard the piece sound as good as with the two Velodynes. A dream!



The voice coils of the drivers of the Velodyne and the Aeon Fine are approximately in one line

The question still remains how the sonic gain due to the two subwoofers is to be classified. For me, the differences between the reproduction with and without are clearer than, for example, the differences in sound between Lan switches such as the Telegärtner M12 Switch Gold and the SOTM sNH-10G i plus sCLK-OCX10 or the SOTM-Duo and the Ansuz Acoustics PowerSwitch D-TC Supreme. The price difference between the switches approaches in the first case the investment necessary for the purchase of a DD+ 10, in the second case it is greater than the sum to be paid for two Velodyne. Even if you put the costs of cables and other high-end accessories in relation to the possible sound improvements, there is a lot to be said for buying subwoofers, especially since the optimal solution can be achieved with two of them step by step. Do you have to think about it for a long time?

By the way, while writing this article I listened to the album Travel Guide by the three guitarists Ralph Towner, Wolfgang Muthspiel and Slava Grigoryan, and turned the Velodynes on and off every now and then. And even if guitar sounds don't romp in frequency ranges where the DD+ 10 are active, the ECM production was simply more fun with subwoofers.

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About subwoofers in general: This is not about bass spectacles, but solely about an even more intense music enjoyment. If you haven't heard it, it's hard to imagine what an extra 20 Hertz can do even to a floor-standing loudspeaker with a good bass response. You should experience it yourself! For me it's clear: More than 60 years without absolute low bass are enough: I don't want to do without subwoofers in the listening room anymore.

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about the Velodyne DD+ 10: They are delivered including all accessories necessary for their integration into the listening room. Under normal circumstances, the sophisticated Auto-EQ^{plus} program should make calibration a breeze. However, thanks to the program's flexibility, inspiring results are possible even in more complicated cases, as in my listening room. The DD+ 10 are - even in the literal sense - brilliantly finished and acoustically convincing to 100%. Pure High End!