

## First review worldwide: Velodyne Acoustics Impact X



# Active subwoofer for full music and movie enjoyment

► Velodyne Acoustics wants to make rich low bass accessible to a wider clientele with the new Impact X subwoofers. But how well can power and control be reconciled below the 1,000-euro threshold? AV-Magazin took a closer look at the 12-inch model. (Image credit: Velodyne Acoustics)

If a few strings are missing from the bass guitar and primeval lizards come along on velvet paws, an essential component of the whole has been lost - sooner or later, there is no getting around this admission. With films, the right acoustic atmosphere is the salt in the soup, and the musical experience is less emotional without the lowest

### Key facts Velodyne Impact X 12"

- Active subwoofer
- 265 mm (12 in) paper cone
- Downfiring reflex port
- RCA input
- Speaker-level inputs
- LFE input
- Remote control
- 300 watts continuous output power
- 600 W impulse output power
- Class D power amp
- Stepless low pass crossover setting
- Stepless volume control
- Switchable phase

octaves. In principle, subwoofers offer a solution, but in practice it is sometimes difficult to achieve a real improvement. If a subwoofer brings power into play, but lacks precision or is too loud, the extra bass quickly becomes a disturbing factor. For a holistic, fully convincing and thus sustainably thrilling sound experience, a subwoofer must lay a solid foundation and blend seamlessly into the sound of the loudspeakers. This has been the guiding principle of Velodyne Acoustics for almost forty years. The company's founder, David Hall, and his team of engineers have never focused on superficial effects, but have always regarded a bass loudspeaker as a precision instrument. Numerous developments and patents, such as the "digital drive" technology, line the path of a company that for a long time could not really make friends with more affordable price regions and living room-friendly formats.

Despite its reputation among audiophiles in particular, Velodyne's unwillingness to compromise and its pioneering role almost doomed the company a few years ago, but then discussions between David Hill and Audio Reference CEO Mansour Mamaghani deepened about how best to adapt to changing market conditions without undermining the core of the brand. Finally, on 22nd November 2019, negotiations came to a conclusion, as a result of which Mansour Mamaghani acquired Velodyne Acoustics including all rights. Since then, the long-standing German distributor has been using his intimate knowledge of the company and the market to further consolidate the company's position and tap into new groups of buyers. The models of the new Impact X series clearly document that proven virtues continue to set the tone: as comparatively affordable offerings, they concentrate on essential technological aspects, while at the same time presenting themselves as timelessly stylish with a choice of matt white or matt black lacquered cabinets.

## Design

The Impact X subwoofers succeed the Impact and Impact MKII models and, like their predecessors, are available in 10-inch and 12-inch sizes - we picked the large model. At around half a metre deep, 36 centimetres wide and 42 centimetres high, this rather stately model is of course not quite as easy to hide as the tiny MicroVee's, but thanks to its understated elegance, it blends in easily in living rooms with different furnishing styles. If you don't want to put the impressive driver on display, you can reach for the supplied front cover, which has a fine textile



**Consistent resonance optimisation: The feet of the Impact X are made of an elastomer (Image credit: Velodyne Acoustics)**

covering in the same colour as the cabinet. Its frame is made of five-millimetre-thick MDF and is held in place by solid rubberised pegs in the corresponding slots on the baffle to prevent the cover from resonating. The cabinet is also made of MDF - with a continuous thickness of 20 millimetres to minimise resonance.

## Technology

The Impact X subwoofers are manufactured by a selected partner based in China, while development took place in close dialogue between the engineering team in Morgan Hill, California, and the Hamburg headquarters. Particular attention was paid to optimally matching all mechanical and electronic components to ensure the lowest possible distortion. On the electronics side, a very powerful DSP from Analog Devices is responsible for this, which also protects the subwoofer from overdriving and overheating. It controls a newly developed Class D amplifier section that, according to the manufacturer, provides more than a comfortable 300 watts of continuous output power; for impulse peaks, even up to 600 watts of power are available. Despite the relatively tight budget, Velodyne Acoustics

uses an elaborately designed circuit in view of the sonic importance of the amplifier stage, at the centre of which are four 180 V MOSFET transistors, each delivering 34 amps of current. To ensure superior power



**The membrane of the Impact X is made from reinforced cellulose. The robust enclosure is available in white and black lacquer. A front cover in the same colour as the housing is included in the scope of delivery (Image credit: Velodyne Acoustics)**



reserves in all operating situations, the power supply is no less lavishly dimensioned: The heart of the switching power supply is a 650 V MOSFET stage that supplies 17 amps of current to the switching amplifier.

The drivers have also been completely redesigned for the Impact X series, taking into account, among other things, that they work together with a reflex port here. Its ventilation opening is located centrally on the underside of the cabinet, which is advantageous for even sound excitation in the room. The reflex port is rounded on both sides to avoid airflow noise. Compared to the forces acting directly on the driver, the air flows in the reflex port are of course harmless; therefore, all components of the long-throw woofer have been carefully designed to withstand the enormous mechanical stress. For this reason, the heavy, double-vented basket is made of hardened steel, while the spider is made of a material blend of cotton and polymers, which has a favourable ratio of mass and stability. For the wide circular surround, the engineers use nitrile rubber, which as a synthetic material is more durable than natural rubber. The diaphragm of the driver, with a nominal diameter of 26.5 centimetres, is formed from cellulose pulp for sound quality reasons, which is sealed with a special coating for stiffening. On the drive side, two large ferrite magnets and a 50 mm voice coil, which is wound in four layers of high-purity copper, keep the large diaphragm moving.

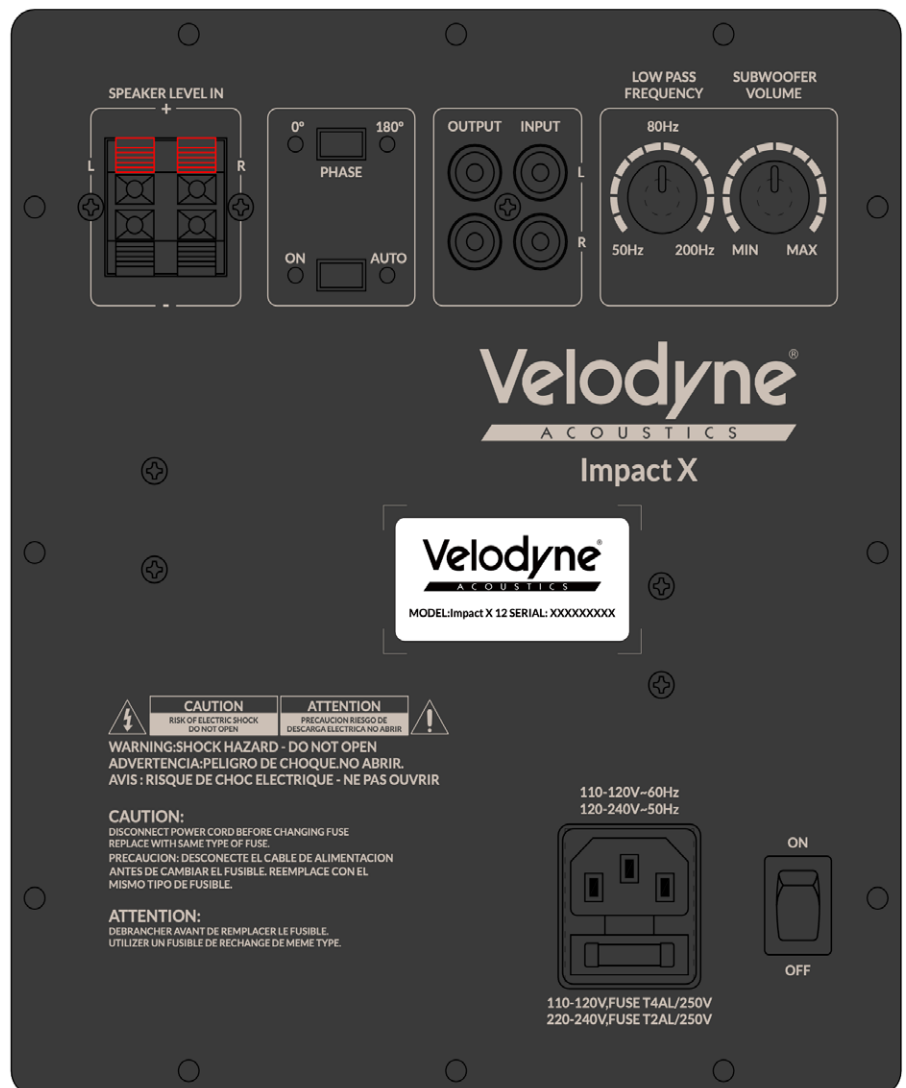
## Features

- Speaker-level inputs
- Stereo RCA input
- LFE input
- Remote control
- Phase inverter switch
- Stepless low pass crossover setting
- Stepless volume control
- Stereo RCA output
- LFE output
- Automatic switch-on / switch-off

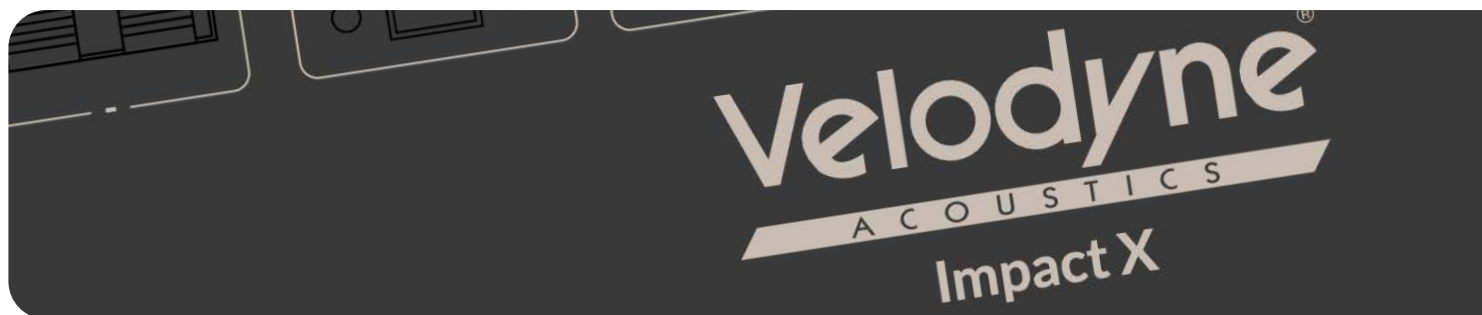
## Connection options

The rear panel provides speaker-level inputs and a pair of RCA inputs for connection to an amplifier or AV receiver. When connecting to an AV receiver, it may be necessary to switch off its bass management. The integration into a stereo system with a classic integrated amplifier or a pre-end combination can first be done via the speaker level inputs. In this case, a second pair of speaker cables is routed from the outputs

of the amplifier to the speaker-level inputs of the subwoofer - this connection variant is generally possible regardless of the equipment of the amplifier. If the amplifier has a subwoofer or preamplifier output, the RCA input of the Impact X can also be used, whose socket for the left channel can also serve as an LFE input. In this way, the Impact X opens up all common connection options and distinguishes itself in this respect within its price class.



Speaker-level inputs and a stereo RCA input, which can also be used as an LFE input, are available for connection to an amplifier or receiver (Image credit: Velodyne Acoustics)



## Sound settings

A handy remote control in credit-card format is included in the scope of delivery, which makes it possible to adjust the sound directly from the listening position. In addition to the stepless control of frequency and volume, which can also be done with rotary controls on the rear panel, the remote control also allows phase switching. Alternatively, a switch on the back of the unit is available for phase reversal. On top of these basic settings, the Impact X offers four sound modes that can be used to adjust its



The handy remote control allows all settings to be made conveniently from the listening position (Image credit: Velodyne Acoustics)

signal processing to different situations and personal preferences: Mode 1 provides a linear output at maximum level, while Movie Mode (2) and Rock/Pop Mode (3) optimise the frequency response for the respective application scenarios. In addition, there is a night mode (4) that moderately reduces the volume and adjusts the frequency response so that the Impact X can be used late at night with a clear conscience. In fact, the night mode proves to be very useful in practice: the benefits of subwoofer operation remain clearly perceptible, the sound image is still intact.

## Listening

When choosing a suitable subwoofer, apart from the available space, there is always the question of the right size, because some subwoofers are simply too much of a good thing in smaller or medium-sized rooms, whereby the quality of the subwoofer and its fine-tuning possibilities naturally play an important role. On the other hand, there is no substitute for a certain amount of diaphragm area, and the 12 inch is particularly interesting because it is a viable concession to practical requirements, but at the same time it has the flair of superior displacement.

This is immediately palpable when the double basses kick in during Sergei Rachmaninoff's Symphonic Dances, the Impact X endowing them with unconditional authority. At the same time, it unfolds a rich spectrum of timbres within the low octaves, giving the cellos a wonderfully creamy character and allowing them to literally blossom in all their tonal shades. In the second movement, too, the subtle presence of the Impact X makes its impact; after the lively forte passages, the orchestra's exhalation now becomes almost palpable, the vibrating air in the hall tangible as the notes fade away. It is this special atmospheric intensity of the performance that characterises the sonic benefit of a subwoofer, and the Impact X has already presented itself as a prime example of this. When the orchestra

swells more and more in the third movement, the temptation to create concert-like volume becomes irresistible. The Impact X is completely unimpressed by this and remains fused with the speakers to form a sonic unity. The fulminant power of the large orchestra becomes an immediate experience that reaches its emotional climax when the tension is finally released in the furious finale: The timpani beats sound phenomenally powerful and dry-as-dust rumbling.

Makoto Ozone then plays Prokofiev's Piano Sonata No. 7, Opus 83 in B flat major from his recently released album "Ozone 60". In this excellent recording, the Impact X once again impressively demonstrates its suitability for audiophile purposes during the first few bars, and its support is also noticeable here through an increase in authenticity: The resonance of the instrument body sounds more organic and present, making its dimension effortlessly comprehensible. Indeed, the contour of the concert grand piano now seems even more sharply defined. Meanwhile, on "Gotta Be Happy", the lower notes on the keyboard reveal that the Impact X can perform at lightning speed, allowing the unbridled joy of the Japanese jazz and classical pianist to shine through. A completely different kind



Japanese pianist Makoto Ozone excels at jazz and classical music with his improvisational talent. The Impact X brings more atmosphere to such recordings as well

of test is the electro track "Limit To Your Love" by James Blake; the bass runs contained therein are among the deepest I have ever encountered. In short: the Impact X is made for such an extraordinary challenge, it pushes menacingly powerful, downright monumental-looking low-frequency structures into the room and at the same time displays an extra portion of nonchalance that doesn't leave a dry eye in the house. Congratulations to Velodyne Acoustics on this superb subwoofer!

### Sound

- Very deep, powerful reproduction
- Excellent tonal differentiation
- Outstanding impulse behavior
- Rock-solid level stability

### Characteristics

Active subwoofer, 265 mm (12 in) paper cone, downfiring reflex port, RCA input, speaker-level inputs, LFE input, remote control, RCA output, 300 watts continuous output power, 600 W impulse output power, class D power amp, stepless low pass crossover setting, stepless volume control, switchable phase, LFE output, automatic switch-on / switch-off, dimmable and switchable display

### Verdict

The Velodyne Impact X is very well made and has everything you need to integrate it into stereo and home cinema systems. The tuning of its four presets is fully convincing, and the night mode proves to be absolutely practical. With the handy remote control, all settings can be made comfortably from the sofa. In terms of sound, the Impact X is distinguished by its seamless power delivery with enormous depth and remains controlled and agile even under extreme stress. Thanks to its precision, it blends with different speakers to form an acoustically homogeneous whole. In addition, the Impact X can finely differentiate tonal gradations in the upper bass range and therefore enables demanding music listeners to give smaller speakers a little more support. ◀

Review by Marius Donadello  
Translation by the author

### Technical specifications and general information\*

|                         |  |
|-------------------------|--|
| Distributor             | Audio Reference GmbH, Hamburg  |
| Manufacturer            | Velodyne Acoustics GmbH, Hamburg   |
| Model                   | Impact X 12"   |
| Product category        | active subwoofer   |
| Price                   | 899 EUR  |
| Warranty                | 3 years (registration required)  |
| Delivery scope          | mains cable 2 m, remote control, instruction manual, warranty claim card |
| Finishes                | lacquer black, lacquer white   |
| Principle               | active, frontfiring, downfiring reflex port                              |
| Input                   | 1x speaker-level inputs, 1x stereo RCA input / LFE                       |
| Output                  | 1x stereo RCA output / LFE   |
| Drivers                 | 1x 265 mm (12 in) reinforced paper cone, long-throw                      |
| Frequency response      | 29 Hz - 180 Hz (+/- 3 dB)  |
| Power output            | 300 Wrms, 600 watts impulse  |
| Low pass crossover      | stepless setting, 50 - 180 Hz (12 dB / octave)                           |
| Dimensions (W x H x D); | 360 x 420 x 510 mm (with feet and connections)                           |
| Weight                  | 18 kg  |

\*Manufacturer's information

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Highlight

## Velodyne Impact X 12"

Audio Reference

040 53320359, [www.audio-reference.de](http://www.audio-reference.de)

Product category: active subwoofer

Weighting: Sound quality 50%, Features 20%, Usability 20%,  
Workmanship 10%

0 % 100 %

Sound quality

superb

Features

very good – superb

Usability

very good

Workmanship

very good

Price

899 Euro

Class

Top class

Price-performance

very good

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Velodyne Impact X 12"  
superb