buchardt

DENMARK

Sub10 Manual

Wireless DSP Subwoofer

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1. Introduction

The Sub10 is a unique subwoofer that can be used in multiple ways. It boasts advanced features to help it adapt to your specific situation and placement requirements. It can be oriented as desired, either standing upright, on its sides or placed on its back. The shallow design enables the subwoofer to be positioned directly against a wall, taking up very little floor space. Since the woofer is nearly aligned with the wall in this configuration, you get a better impulse response by avoiding delayed bass bouncing back off the wall it's placed against, resulting in fewer phase issues.

Features

- **Bass-management:**
  Configurable bass-management system to freely setup crossovers, phase, and level.

- **App support:**
  Easy control of the Sub10 through The Buchardt APP. Personalize your settings to get the best listening experience.

- **DSP functions for manual EQ and Room Correction:**
  Adjust using multiple EQ filters and our automatic Room correction, LLE slider and distance settings for better intergration

- **Standby mode:**
  Standby mode can be adjusted to match your use of the product.

2. Sub10 Overview

2.1 Included in the box

1x Sub10

1x Power cable (UK, EU, US)

2x 90 degree RCA adaptors

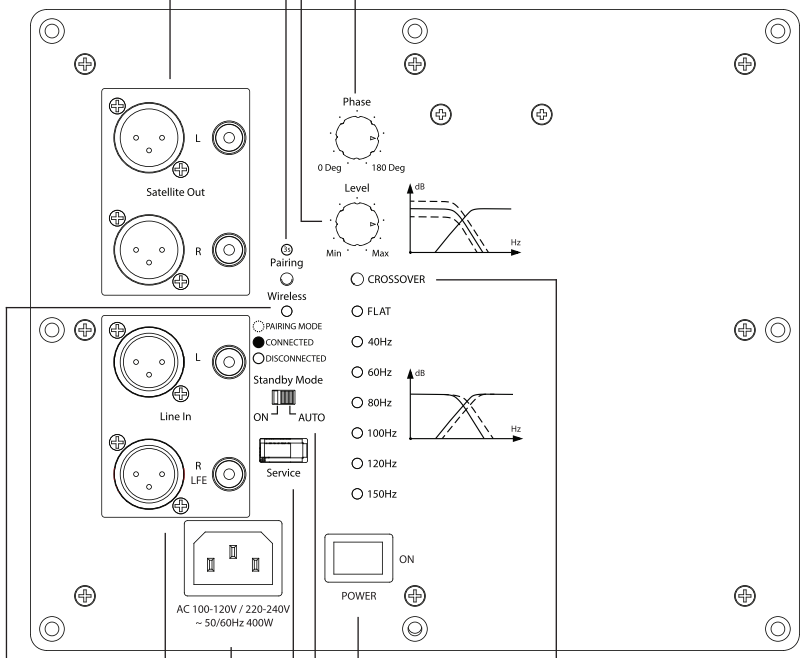
1x Grille

8x Feet

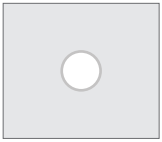
1x USB stick for Mastertunings

2.2 Sub10 Layout

Back

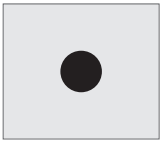


2.3 WiSA LED indications



Solid white: Connected

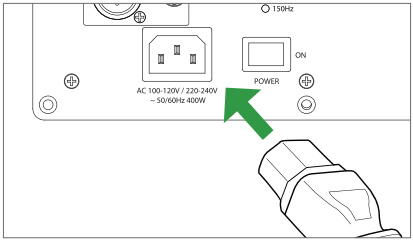
White blink: Pairing mode



LED OFF: Disconnected

3. How to set up

3.1 Setting up the Sub10

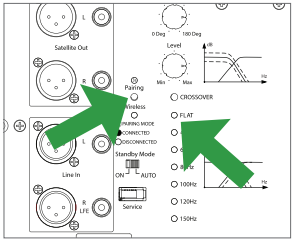


Connect power supply

- Plug the included *power cable* into the Sub10.
- Turn ON using the power button.

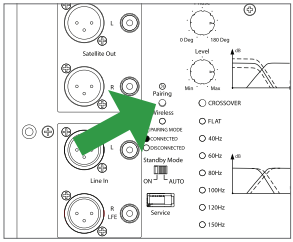
3.2 Pair with transmitter using WiSA

The Sub10 can be paired with any WiSA transmitter.



Transmitter with bass-management

- Set crossover on the Sub10 to FLAT.
- Press and hold the pairing button for 3 seconds. WiSA LED should now flash.
- Follow the instructions of the WiSA transmitter to complete pairing.

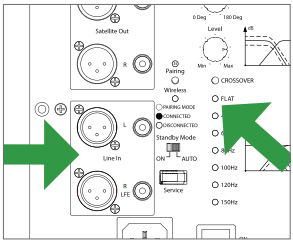


Transmitter without bass-management

- Press and hold the pairing button for 3 seconds. WiSA LED should now flash.
- Follow the instructions of the WiSA transmitter to complete pairing.

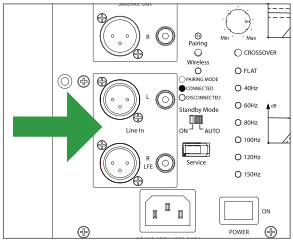
3.3 Connect wired to preamp/subout

The Sub10 can be connected to any Amplifier, Pre-amplifier or streamer with preouts or subouts using XLR or RCA cables.



Preamp with bass-mangement

- Set crossover on the Sub10 to FLAT.
- Use XLR or RCA cables to connect the Sub10's Line In to a Preout/subout on an amplifier/Pre-amplifier



Preamp without bass-management

- Use XLR or RCA cables to connect the Sub10's Line In to a Preout/subout on an amplifier/Pre-amplifier

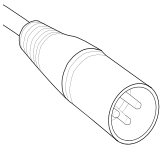
3.4 Connecting satellite speakers

The Sub10 can be connected between a pre-amplifier and a power-amplifier or powered speakers to apply the Sub10s DSP features and crossover to your satellite speakers.

Connect the Sub10's left/right Line In to the pre-amplifier's preouts. Then connect the Sub10 left/right Satellite Out to your power-amplifier or powered speakers. The crossover between the satellite and subwoofer will be determined by the Sub10's crossover settings. The Room Correction and other DSP settings within the Sub10 will also be applied to the satellite speakers in this case. Room Correction operates up to 300 Hz.

4. How to use

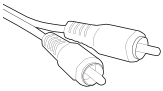
4.1 Audio playback



XLR

- Any source with XLR output can be connected to the Sub10 through the Line In ports.

NB: XLR input supports up to 5Vrms



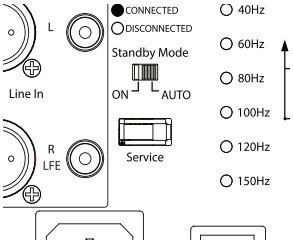
RCA

- Any analogue source with RCA output can be connected to the Sub10 through the Line In ports.

NB: RCA input supports up to 2.5Vrms

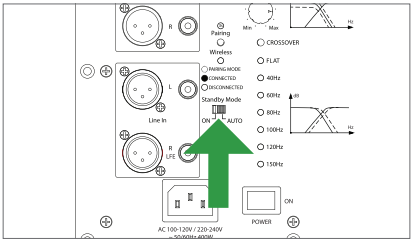
4.2 Mastertuning installation

Mastertunings are downloadable files that can be loaded into the Sub10 using a USB stick (included). It's very easy and fast to change Mastertunings, which can completely change the behavior of the Sub10 depending on the needed use case. Visit our download section on our website to find our selection of Mastertunings, which are downloadable .bin files that are copied onto the USB stick.



- **Instert the USB stick to the SERVICE port while the Sub10 is powered off.**
- **Turn on the Sub10 and control the Crossover LEDs do a single sweep which indicate installation successfully done**

4.3 Automatic Standby



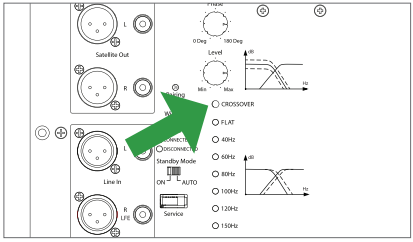
Standby mode ON/Auto

- When set to Auto, the subwoofer will enter standby automatically after 20min without signal. When set to ON, the subwoofer will remain ON always until power is removed.

Power consumption in Normal Standby mode is less than 0.5W.

Power consumption in WiSA Standby mode is less than 2W.

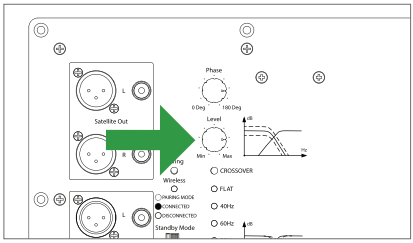
4.4 Manual Crossover



Adjust crossover

- To adjust the subwoofers crossover frequency, push the button to set the corresponding frequency.
- Via rearplate operation, the 4th order highpass and lowpass filters are adjusted together, giving them both frequency according to the showing.
- The frequencies can be adjusted freely and individually via the Buchardt APP.

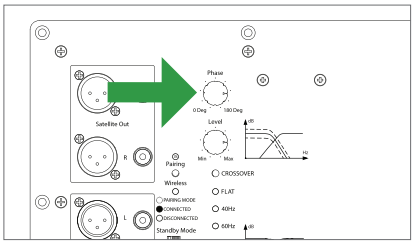
4.5 Level adjustment



Adjust the output level

- Adjust the subwoofer output level by rotating the knob.
- The adjustment is used to align your subwoofers output level with your main speakers level.

4.6 Phase adjustment



Adjust the subwoofer phase

- Adjust the subwoofer output phase by rotating the knob.
- The adjustment is used to align the subwoofer with your main speakers.

- **Tip:**
- Sub10 also has a very effective latency/distance setting within the Buchardt app to fine-tune your satellite speaker matching.

4.7 Setup tips

How to set up the Sub10 in your room:

The Sub10 is very versatile, and by combining the subwoofer with the Room Correction feature, users are afforded great freedom to place the subwoofer in the room, as Room Correction will help correct most of the issues introduced by bad placement. However, an optimized placement and initial setup are still recommended before engaging Room Correction, for optimal results.

What is the goal of this process, and how does a system with a well-integrated subwoofer sound?

The goal throughout this process should be to not be able to discern when the subwoofer is playing. You want a seamless transition between the speakers and the subwoofer so that it sounds like all the music is coming solely from the speakers when playing music.

First step:

You can go two ways here: the simple and the advanced.

The simple way: Place the Sub10 in the location you wish to have it and jump to the “Second step” in this guide.

The advanced (optional) way, for best results:
Place the subwoofer in the listening position, connect it to power, and start playing music you know very well with good bass output. Set the crossover to the desired frequency; recommendations for Buchardt Audio speakers can be found below. Set the phase on the subwoofer to 0, and the volume to 50%.

Now, go to the spots you consider for placing the subwoofer while the music is playing. Try to position your head as close to the desired position of the subwoofer as possible for the best results. Once your head is positioned, listen to the music and start moving around. Listen for the spot that has the most linear bass response, where all notes are played at a fairly even volume. Try multiple spots in the room if you have that option; the more you try, the better the end result will be.

Mark the spot that has the most even and smooth bass response, disconnect the subwoofer, and then place it on the marked spot. Now, you will hear the same even and smooth bass response in the listening position.

Good starting points for subwoofer placement are around 25% or 33% of the room’s width (on the axis with the speakers) if you have one subwoofer, and near both speakers or in the front corners if you have two.

Second step:

Set the crossover frequency for the subwoofer and speakers (Skip this if you did the “first step” the advanced way):

We recommend using the lowest frequency that your speaker allows. Check the specifications for your speakers to find out where they roll off, and set the crossover frequency to approximately the same.

For Buchardt Audio standmount speakers, we recommend using 60Hz-80Hz as a crossover point. If you play loud, go with 80Hz. For floorstanders, we recommend 40Hz.

We also recommend experimenting with this setting and hearing what works best in your room. This is a good starting point and should provide excellent sound in most conditions.

Listen to well-known music again, focusing on the bass notes and how evenly they are reproduced. Now change the phase on the subwoofer to 180 and compare this to the 0 setting to determine which setting gives the best result. Once you know if 0 or 180 sounds the best, you can continue tweaking the phase in smaller steps to see if this provides better results.

The last piece of the second step is to set the distance from your listening position to the subwoofer. This can be done in the Buchardt App.

Third step:

At this point, the sound should already be quite good.
Now you adjust the subwoofer's volume to match your preference. Again, focus on getting a sound where you cannot hear the subwoofer itself, but where it still provides good extension to the bass. If you are a bass head, you can give it a bit of extra volume!
Lastly, open the Buchardt app, connect to the subwoofer, and perform the Room Correction measurement. If you are using the Sub10 with the Buchardt Audio I150 amplifier or the Platin hub/ Primare SC15 MKII, we recommend conducting the Room Correction from these devices instead of on the subwoofer itself, for the best results.
You can find further information about the Buchardt Audio Room Correction feature on the official Buchardt Audio YouTube channel.

Done.

Congratulations, you should now have a well-integrated subwoofer, providing great bass extension for your speakers.
Over the next period, you might notice that the bass has been tuned a bit high, and you want to turn down the volume a bit. This is normal, as in the process of setting up the subwoofer, it is very easy to become extremely focused on the bass and therefore turn it up higher than what you normally would.

Generally speaking...

- Crossover frequency:
The higher you set it, the more headroom the speakers will have. However, since it is the lowest frequencies that demand the most from the woofers on the speakers, setting the crossover at 40-80Hz will make a significant difference. Beyond that point, the difference decreases rapidly, and if you set it too high (above 80-100Hz), you risk sending directional sound to the subwoofer, which is not beneficial for the sound stage performance of the system. Therefore, we generally recommend using a low crossover point in the 40-60Hz range.

- Placement vs. Room Correction:
A good placement of the subwoofer still matters, even though we have our advanced Room Correction feature. This is because the more the Room Correction feature has to correct the sound, the less headroom the subwoofer will have at certain frequencies. The Sub10 is an extremely powerful subwoofer for its size, but good placement can help it perform even better.
You can still expect great results by just placing the subwoofer where you want it for practical reasons, and then rely on adjusting settings and using Room Correction. But if you want the absolute best the Sub10 has to offer, good placement is needed.

- A bit about theoretical correct subwoofer placement.
There is a lot of theory about subwoofer placement, mathematical calculations, and studies over time that can be followed for good subwoofer placement. While it is great to know more about the subject, please be aware that most theories assume that the room used is completely symmetrical, has no odd angles or openings, and uses similar construction materials throughout. Not many homes are like this in practice, so we highly recommend experimenting in your room and finding the best setup here.

- Using multiple subwoofers
To achieve the most even frequency response from two subwoofers, placing them mid-wall is a very good option. This can be on either the side walls or the front and back wall. Alternatively, you can position them in two opposite corners if placing them mid-wall is too impractical; however, this requires a square room.

If placing the subwoofers at the front, either at 25% or 33% width of the room, it can also be beneficial to try moving one of the subwoofers into a corner instead. In some situations, this adjustment can improve the frequency response, so it is worth experimenting with.

- Song recommendation for testing:
Something you know! That's the most important aspect, as you need music or sound you know very well to best hear differences in the changes you make to the system. It should have a very good and extended low end, of course.

Tone sweeps can also be a helpful tool, but don't be alarmed if you hear significant dips and peaks, even after performing all the recommended steps, as room acoustics still play a very significant role in frequency reproduction. One track we often use is "Teitur - Stormy Weather". This track starts with a few different bass notes. You can listen to this on headphones and hear the loudness of each bass note. If you hear all notes in your room at equal loudness, you have a respectable performance.

5. Trouble shooting

5.1 Factory reset

- To perform a factory reset press and hold the crossover button for 10 seconds.

- If you do not have sound over WiSA, check the parring indicator. If its not solid white, try to do a repair.

- If you do not see the Sub10 in the app, you can click the logo to refresh. The Sub10 uses Bluetooth to communicate with the app, so make sure you allow Bluetooth to be used when you open the app for the first time.

6. Safety & Warnings

6.1 Important Safety Instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do no use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves or other apparatus (Including amplifiers) that produces heat.
9. Do no defeat the purpose of the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a grounding plug. The wide blade or the third plug is provided for your safety. If the provided plug does not fit into our outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched, particularly plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracked, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

13. Unplug this apparatus during lightning storms or when unused for a long period of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply cold or plug is damaged, liquid has been spilled or object have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

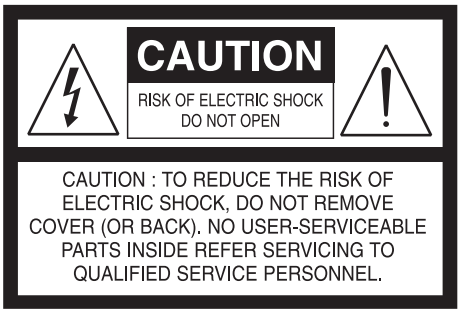
6.2 Warning

To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.

The apparatus shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus.

Where the MAINS plug or an appliance coupler is used as the disconnect device, the disconnect device shall remain readily operable.
A warning that an apparatus with CLASS I construction shall be connected to a MAINS socket outlet with a protective earthing connection.

This symbol is intended to alert the user to the presence of important operating and maintenance instructions in the literature accompanying this product.

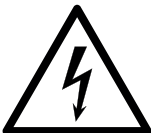


ATTENTION: RISQUE DE CHOC ÉLECTRIQUE NE PAS OUVRIR.

WARNING: The terminals marked with this symbol are hazardous live. External wiring connected to these terminals requires installation by an instructed person or the use of ready-made leads or cords.

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.
ATTENTION: AFIN DE RÉDUIRE LES RISQUES D'INCENDIE OU DE CHOC ÉLECTRIQUE, NE PAS EXPOSER CET APPAREIL À LA PLUIE OU.

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE THE COVER. NO USER-SERVICABLE PARTS IINSIDE. REFER SERVICING TO QUALIDIED SERVICE PERSONNEL.
ATTENTION: AFIN DE RÉDUIRE LES RISQUE DE CHOC ÉLECTRIQUE, NE PAS RETIRER LE CAPOT. AUCUNE PIÈCE À L'INTÉRIEUR. CONFIER L'ENTRETIEN DE PERSONNEL QUALIFIÉ.



The lightning flash arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated dangerous voltage within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

6.3 Compliance

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/ TV technician for help.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter.

The antennas used for this transmitter must be installed to provide a separation distance of at least 20cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

IC

This device complies with CAN ICES-003 (B)/NMB-003(B).
This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:
(1) This device may not cause interference.
(2) This device must accept any interference, including interference that may cause undesired operation of the device.

Cet appareil est conforme à la norme CAN ICES-003 (B)/NMB-003 (B).
Cet appareil contient des émetteurs / récepteurs exempt (s) de licence qui sont conformes aux RSS exemptes de licence d'Innovation, Sciences et Développement économique Canada. Son fonctionnement est soumis aux deux conditions suivantes:
(1) Cet appareil ne doit pas provoquer d'interférences.
(2) Cet appareil doit accepter toute interférence, y compris les interférences susceptibles de provoquer un fonctionnement indésirable de l'appareil.

RF Exposure
This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance of 20cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Cet équipement est conforme aux limites d' exposition aux rayonnements de la IC établies pour unenvironnement non contrôé. Cet équipement doit être installé et fonctionner à au moins 20cm de distance d'un radiateur ou de votre corps.

7. Cleaning & Returns

7.1 Cleaning & Returns

Cleaning

Cleaning the Sub10 should be done using a soft and dry cloth. Do not touch driver cones or domes as they can be damaged.
For long-lasting visual appearance, keep the Sub10 away from direct sunlight, as this will fade the finish over time.

Returns

Buchardt Audio offers a 45-day trial period on the product. Once the product arrives at the receivers doorstep, the 45-day trial starts. Should you want to return the product within the 45-day time span, all you have to do is contact us by email.
We will then provide you with a return label or arrange a pickup, depending on your location. After verifying that the product is in good condition, we will start the refund process, which takes 3-10 days. Please check our website regarding the cost of return at www.buchardtaudio.com

Company Information:
Buchardt Audio ApS
Korshoejvej 6
8600 Silkeborg
Denmark
Info@buchardtaudio.com

For documentation, returns, warrenty and other information see:
https://buchardtaudio.com/

Check out our youtube channel for visual guides, tips and tricks.

-Buchardt app info
The Buchardt App is available for both Android and iOS, and can be downloaded on Google Play or Apple App Store.