If you’re an audiophile and love bass beats or spend a lot of time in a music studio, you might own a subwoofer.

Subwoofers boost bass frequencies, and subsystems can be tricky to get the hang of it if you’re new to them. You could have the best or most expensive subwoofer in the market, but you won’t be getting the best performance out of the speakers unless you calibrate it properly.

# HOW TO CALIBRATE STUDIO SUBWOOFER

Luckily, this article will cover everything you need to know about how to calibrate subwoofer systems. Whether you’re setting up your new subwoofer in a music studio, a guest room, or simply in your own music space, you’ll need an excellent guide to educate you on the hows and whys of calibration.

Keep reading to learn all about calibrating studio monitors with subwoofers!

## Pre-Checks And Equipment Requires

Before you get to the actual work, you should be sure of a couple of things while setting up your subwoofer and monitor system. So keep an eye out for the following.

**1. SPL Meter**

An SPL (Sound Pressure Level) meter is a device used to measure sound levels. Usually, a good SPL meter has a strong mic that can pick up a wide range of frequencies.

You can pick up an SPL meter from the store or buy one online, but you could get an SPL smartphone app if you’d prefer not to make an extra purchase. The app on your phone can be set up to match your subwoofer frequency levels and tell you what frequencies are registering.

**2. Proper Placement**

This is vital for getting good quality audio out of any subwoofer. You may have to experiment a bit, but it's best not to place a sub in corners or near the wall. Keep some distance.

For accurate subwoofer placement, studio rooms must be large enough to accommodate a triangular placement of monitors and the sub.

You can be more casual about where you place your subwoofer in home studios since it's unlikely you'll be working with several sets of speakers and monitors.

**3. Zero Out The Board**

An essential step in pre-calibration is ensuring that all the sub-settings are normal and that no added effects have been used. Keep your sub at phase zero. Then you can begin from scratch.

**4. Tone Generator**

Some subs have built-in tone generators, a kind of device that converts electronic signals into audio. You can use online ones to test your sub-signals or buy them in the form of hardware or software.

# STEPS TO CALIBRATE STUDIO SUBWOOFER

After you're done with studio subwoofer placement and other pre-checks, it's time to calibrate the subwoofer. This may take a little bit of testing out, as calibration is a process that requires a bit of experimentation and fine-tuning.

**Step 1: Connect The Studio Monitor And Subwoofer**

To start with subwoofer calibration, ensure to connect your subwoofers and studio monitor. Check the rear panel of the subwoofer to see which inputs and outputs are available (for example, TRS, RCA, XLR, and so on).

You may have to acquire the necessary cables, or they might be provided with the sub you buy. If you have multiple subwoofers and multiple monitors, it'll take a while to set things up neatly.

A good cable management system is advised, especially in a small studio. Most subs have their controls and inputs/outputs on the rear panel, so keep your cable area neat to avoid further confusion. However, sometimes some subs do place some controls on the front.

## Connect The Studio Monitor And Subwoofer

### Step 2: Calibrate The Studio Monitor And Subwoofer

There are two things to consider when calibrating. The first is the subjective calibration standard, and the other is the Empirical calibration standard.

**Subjective Calibration:**

This refers to calibrating two speakers, standing equidistant from them, with your SPL meter held at arm's length until it reads the calibration you'd like. If you have several monitors with different speakers or subs, you should calibrate each speaker differently.

However, it's essential to maintain the same calibration level for each set of speakers. Otherwise, there will be acoustic interference when you try to play or mix sound. This can change the quality or accuracy of the audio, so make sure you're calibrating the subs individually and that they all have the same reading on your SPL meter.

**Empirical calibration:**

Empirical standard calibration, on the other hand, isn't as subjective. The DAW (Digital Audio Workstation) should give you a reading of 0dB in this instance instead of the 85dB a calibrated speaker should read via your SPL meter.

# Subwoofer and Speaker Calibration Software

At this stage, your speakers need to be connected to your monitor or monitors, and then you can turn the input and the output sensitivities to the lowest levels. Your mixer should also be at zero (if you're using a mixer).

Using the pink-noise bandwidth sample, set the output level source to 'unity,' and you should hear no pink noise. Once you've established that, you can keep increasing sensitivity till you reach 82dB on each speaker.

You should be in your natural listening position for both processes when you make the calibrations. Otherwise, you might end up with different results depending on where you are in the room.

Make sure you calibrate the speakers from the same position, and once they reach the level of 85dB, you'll know you're done. However, the 85dB mark is just the standard. You can calibrate to whatever audio level you like.

In case your sub has a variable lowpass filter, you can keep the frequency setting at its highest so that you get a good amount of overlap between your sub and your audio system. You can try playing some music that's loaded with bass to see how your subs are doing.

If everything sounds good and you can hear the lower frequencies, you're on the right track. So now you know all about subwoofer calibration!

**Step 3: Final Settings And Tuning**

Some monitors and subs have highpass filters, which will help your subs and monitors work together more seamlessly to produce better crossover. Highpass filters prevent lower frequencies from being interfered with by the monitor systems.

If you have a sub with a variable lowpass filter, it becomes easier to control these lower frequencies and encourage better crossover frequencies.

Frequency results also depend on your studio monitor and your subs. It could be that your monitors can't handle frequencies below or above a certain level or that your subwoofer can't either.

So be careful before you purchase a whole setup and look carefully at the speakers and systems you're about to buy. When you're setting up your systems, try to make the frequency crossover as seamless as possible.

## Subwoofers Tuning

If your sub can handle a lowpass frequency of up to 80Hz, you can set up the monitors to a highpass frequency. Play a bit of music, adjust the settings, and see what sounds good. You'll soon be able to figure out what works for you, depending on whether you just want to play music or mix and produce it as well.

If the 85dB setting turns out to be too much for a studio or your home, you can dial it down to around 79dB, which means your sub speakers should each have a frequency reading of around 76dB.

# CONCLUSION

Now you know how to calibrate studio monitors and subwoofer calibration! Yes, it might seem slightly intimidating at first, but once you've given it a go and play around with sounds that work naturally for you, it should be smooth sailing.

And when you've found a calibration setting that works for you, you'll enjoy listening to deep, rich bass music the way it's meant to be heard. The proper calibration settings will ensure that you benefit from your new technology, rather than giving you a muddy sound without good lows.

You should easily pull off the calibration process with this guide. Good luck!