

Product Guide



Model SW2 – signal processor for subwoofers.

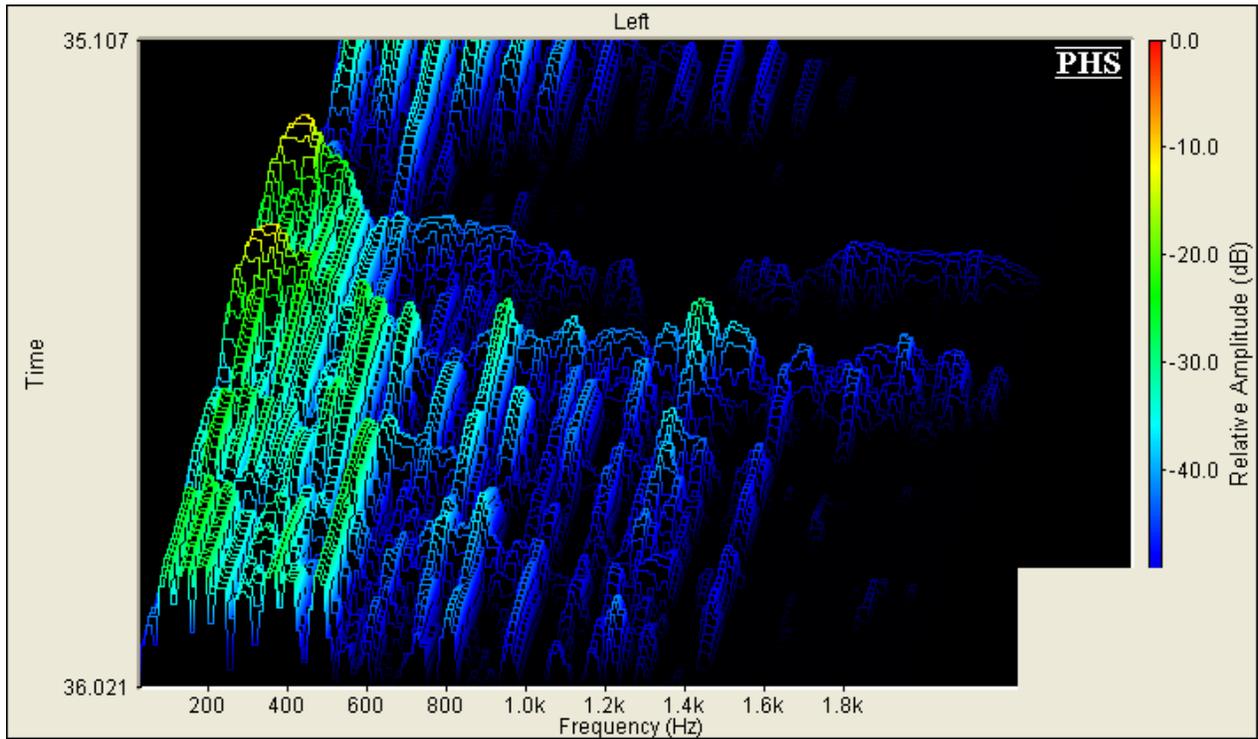
This device was designed to overcome the smearing effects of all crossovers and low-pass filters. All crossovers have an accidental side effect of phase shifting the input signal. To be more precise, the filters cause a time delay that varies based upon frequency. The lower the frequency, the longer the delay.

This delay is imperceptible for sine waves (pure bass notes) because the delay is a fraction of a second, but percussion instruments, collisions and explosions present bass signals that are composed of a large mixture of sine waves. This mixture is smeared when passed through the filter and the net effect is to spread out and flatten the signal. The “attack” and the acoustical energy of these signals are then lost.

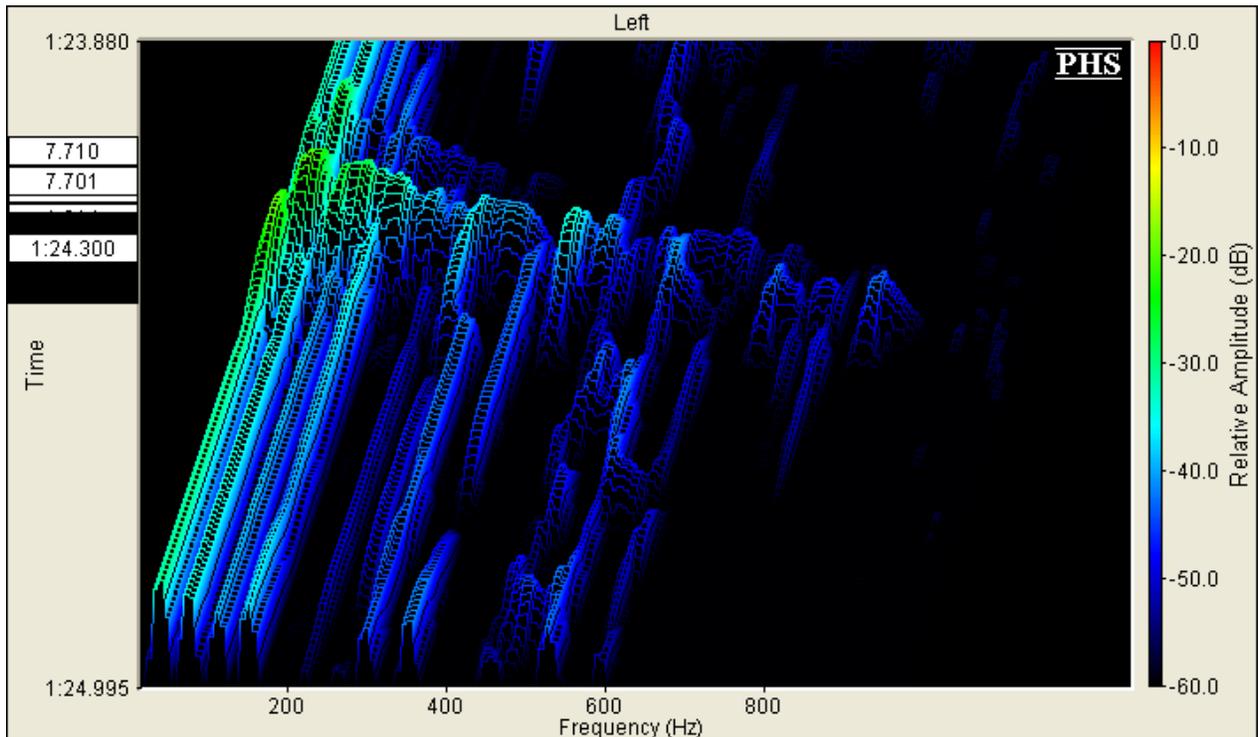
The technology does not exist to fully restore these signals, but SW2 instantly sharpens these strong transient signals before they are smeared, and thus restores the initial burst of energy that is inherent in collisions, explosions and percussion instruments.

Within the images below, the green and yellow - high amplitude portion of the signal reveals the dynamics that are magnified by SW2 prior to being smeared by your subwoofer’s low-pass filter.

Dynamics of a bass drum magnified by SW2.



Dynamics of a floor tom-tom magnified by SW2.



CAUTION:

Installing this device is simple, but the sensitivity **must be set carefully**. It must be set while listening to music at high volume. This is because the dynamics of movies and music are buried within the signal and are not visible at lower volumes.

At low and medium volume, SW2 passes the input signal straight through to its output, by design. This is because the dynamics only stand-out at higher volume, and consequently SW2 can't magnify them. This is the same reason that very old recordings seem "flat". They were recorded with a very limited dynamic range because the audio equipment of that era was not designed to handle high power.

WARNING:

What this means is... **if you do not regularly listen to movies or music at higher volume, this device will appear to be doing nothing at all**. Let us now mention that most audio recordings are balanced to be played back at higher volume. If they weren't recorded this way, everyone that used "average" quality audio equipment would be hearing distortion. That is unacceptable for the normal consumer.

For this reason, SW2 is designed for use with subwoofers having at least 300 watts of continuous power. Distortion will occur in lower powered subwoofers because of the added dynamics delivered by SW2. If your subwoofer does not state its power rating as "continuous" or "rms", then you will need at least a 500 watt peak power rating.

SET UP:

- 1) Unplug the RCA cable from behind your subwoofer (this is connected to the sub-out or pre-out jack on your receiver).
- 2) Plug that cable into SW2 at the top where it is marked "RCVR".

- 3) Connect the cable supplied between SW2 at the bottom where it is marked "SUB" and the Left or Right input jack on your subwoofer. Avoid plugging into the LFE input on the subwoofer. On many subwoofers, the LFE input will bypass the subwoofer's internal low-pass filter. The output of SW2 needs to be low-pass filtered.
- 4) Connect the power supply that was included.
- 5) Initially set SW2's sensitivity knob to the 11 o'clock position. The sensitivity knob on SW2 is not a volume setting. You will destroy the signal by turning this knob all the way up. It only exists to accommodate a wide variety of audio equipment. For example: when your front left and right speakers are inefficient (power hungry), the corresponding sub-out or pre-out signal from the receiver is very strong. In this case, you may need to turn SW2's knob down to the 9 o'clock position. Alternatively, if you are using a long interconnect cable (some are 75 feet), your signal is weakened by the long distance. In this case, you may need to adjust the setting to the 2 o'clock position.
- 6) Listen to a few songs at high volume and pay attention to the drums. Rotate the sensitivity knob back and forth a bit and you will find the point where the drums have the correct dynamics.

You will get cleaner bass by using the receiver's preamplifier output signal (PRE-OUT front) instead of its sub-out signal. This is because the sub-out signal has been generically pre-filtered to an 80 hz corner frequency with a low slope roll-off. This is great for the average person who does not care much about how the subwoofer's output is blended to the front speaker's output, but it is not recommended for the person with a high quality subwoofer that contains an adjustable low-pass filter which was specifically designed to work with this driver and this enclosure.

If you have a full signal to your front speakers (the receiver's internal front speaker setting must be set to LARGE), we strongly urge you to connect your sub to the pre-out left or right jack on your receiver. At these low frequencies, the bass signal is identical in the left and the right output jack.

SPECIFICATIONS:

Frequency Response: 22 hz – 120 hz +/- 1 db.

THD: .004%

Power supply: 12v A/C, 200 ma.

Power consumption: < 1 watt.

For indoor use only.

For use only with subwoofers having at least 300 watts of continuous power.

This device will not connect to BOSE equipment, or any other equipment that does not connect using RCA jacks.

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Trademark: Pro Bass.

