

# STA-800D/1000D EQUIPPED SUBWOOFERS

*Models: PB12-Plus, PC12-Plus,  
SB13-Ultra, PB13-Ultra, PC13-Ultra*



**SVS** SOUND  
R|EVOLUTION

Safety Instructions .....	3-4
Welcome .....	5
About Your SVS Subwoofer .....	6
Connectivity & Panel Operations .....	7-12
Integrated Function Controller .....	13-20
Setup, Calibration & Integration .....	21-26
Port Tuning .....	26-27
Setup & Use of PEQ .....	28-33
Room Compensation .....	34
Terms & Conditions .....	35

## Important Safety Instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of any polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two prongs and a third grounding point. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at 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, bracket, 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 void injury from tip-over.

## Important Safety Instructions

13. Unplug this apparatus during lightning storms or when unused for long periods 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 cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. **WARNING:** To reduce the risk of fire or electric shock, this apparatus should not be exposed to rain or moisture and objects filled with liquids, such as vases, should not be placed on this apparatus.
16. To completely disconnect this equipment from the mains, disconnect the power supply cord plug from the receptacle.
17. The mains plug of the power supply cord shall remain readily operable.



**CAUTION**  
RISK OF ELECTRIC SHOCK

The lightning flash with arrowhead symbol within an equilateral triangle, is intended to alert the user to the presence of un-insulated “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 product.

At SVS, you can actually hear the tireless research and design efforts built into our subwoofers and speakers. Years are spent developing any SVS product. These days our teams work typically span from our Ohio headquarters to all corners of the USA and of course with the finest component suppliers in Asia and Europe as well. Nearly nothing in our speakers is an “off the shelf” part. We spend more and tend to overbuild our stuff, because that’s how our customers like it.

SVS is committed to making better sound systems with elegant looks, robust construction, world-class technology and materials. We believe you deserve nothing less. This manual and the printed Quick Start sheet will help integrate your speakers and subwoofer quickly and with professional results. Armed with only a few basic tools, such a sound pressure level (SPL) meter, and the test tones built in to most audio/video receivers (AVR), you will achieve smooth, detailed and powerful reproduction of all your favorite music and movie audio. Expect to hear things you never heard before... and expect not to hear some of the artifacts you might have accepted in the past from inferior brands.

Have a question about your surround sound system? For more information about SVS products check out our US website, or speak with the exclusive dealer for your region. Regardless, contact us via phone or email should you have questions about our products. SVS was founded by audio enthusiasts — our dedication to customer service is the only thing rivaling the products we create.

The SVS Team, Ohio, USA  
June 2011  
[www.svsound.com](http://www.svsound.com)



## About your SVS Subwoofer

There maybe be other subwoofers that look like them, but virtually none work like them. SVS subwoofers are decidedly different in how they are designed, produced, sold, and the exceptionally high quality components we use. You could have spent much more on other brands and still not come close to the performance our products provide. What makes a subwoofer an SVS?

Quality components, sane prices. You might be surprised at how inexpensive the components in some not-so-inexpensive subwoofers are. At SVS, performance is king... not cutting a few dollars from our cost to build. We range the world with our engineers and use the best stuff and best suppliers in the business.

Innovative designs, rich materials. We test all our materials and features in the real world and build stuff our own in-house enthusiasts would buy with our own hard-earned money! "Over-built" SVS cabinet construction ensures rigid cores for decades of solid performance. All our subwoofers offer computer controlled panel cutting, steel fasteners recessed components, custom parts made just for us at every turn. Tap the side of your sub, look at the solid construction, or remove your powder-coated grill. You'll know what we mean.

Sealed, or vented; down-firing or front-firing cabinets. An SVS tradition. Offering a variety of form factors which provide exceptional performance yet also a compact foot print which complements your room style.

Features and controls. Variable phase, defeat-able crossovers, even power saving auto-on mode. Flexible hookup options mean your SVS subwoofer can adapt to your space. Spend time exploring this guide and contact your dealer if you require assistance on any feature.

World class driver power. SVS woofers have arguably been the industry's best for a decade. Now our advanced amplifiers raise the bar to new levels with digital signal processing (DSP) tuned pre-amps. With all new power stages, more sophisticated protection our subs achieve exceptional depth, tremendous power and flat, natural sound that defies price points or sometimes even words. To hear everything your favorite movies and music have to offer you need the most refined power available. SVS Sledge™ DSP amps push our exclusive woofers like nothing else can.

## Operation of the Power Mode Switch

NOTE: Depending on the version of the STA-800D/STA-1000D amplifier, the LCD display may or may not light when power is first applied. Even if the LCD display does not light when power is applied, if the amplifier is in the AUTO mode, it will play source material when a suitable signal is applied.

To manually come out of Standby when in AUTO mode, press and hold the IFC knob for several seconds until the display lights. Note that menu operations are not possible when the amplifier is in Standby.

In AUTO mode If power is removed from the amplifier either through the main power rocker switch, or by loss of power from the mains (wall outlet) and then restored, the amplifier will either turn back on or come up in Standby. If it comes up in the on state, it will revert to Standby after a period of time if no signal is presented at the inputs.

When the AUTO/ON Switch is in the ON position and power is applied to the amplifier via the main power switch, the amplifier will NOT turn on. In order to turn the amplifier on, the IFC knob must be pressed and held in for several seconds. When the amplifier turns on, the LCD display will illuminate at the WELCOME screen for a few seconds. The amplifier will stay on until either the IFC knob is pressed and held until the LCD display goes dark, when power is removed from the amplifier using the main power switch, or power is removed from the mains (wall outlet).

If power is removed from the amplifier either through the main power switch or by loss of power from the mains (wall outlet) and then restored, the amplifier will not turn back on until the IFC knob is pressed and held as noted above.

It is important to note in case of a power outage, it will be necessary to manually turn the amplifier on by pressing and holding the IFC knob as noted above. STA-800D and STA-1000D Connectivity and Panel Operation.

## STA-800D and STA-1000D Connectivity and Panel Operation Inputs

There are two types of physical input connectors on the STA-800D/STA1000D; Balanced XLR and single-ended (also referred to as low level or line level). There are inputs for Left and Right main channels for both types of connectors. There is also a switch below the input connectors labeled "Input Level". This switch can be used to select either consumer audio (Normal) or pro audio (Hi-Level) voltage levels depending on the source device.

The input signal(s) can have a High Pass filter applied which affects the signal that appears on the STA-800D/STA-1000D's outputs. The input signal can also have a Delay applied independent of the High Pass filter which can be used to add delay to the Left and Right main speakers to accommodate preamps that have no digital capability. See the next section that discusses the Integrated Function Controller for a more detailed discussion on using the High Pass filter and Delay functions.

### Input Configuration

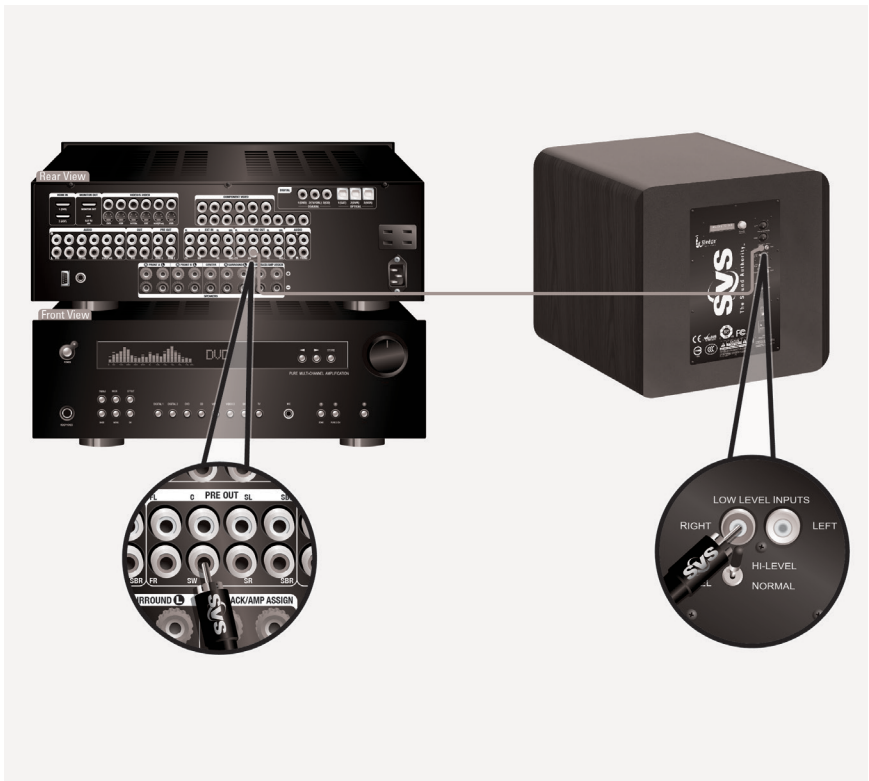
Typically for most AVRs and pre/pros that have bass management capability, connectivity to the STA-800D/STA-1000D would be via a single balanced or single-ended (RCA) connector from the Subwoofer Pre Out on the AVR or pre/pro to either the Left or Right amp input (Fig. 4). This assumes the AVR or pre/pro does bass management for the SAT speakers connected to it, handles the merging of any LFE (.1 channel in multi-channel audio) content with the bass from the SAT speakers, and manages the proper delay of all speakers and the subwoofer through a distance or time delay function for each utilized audio channel.





## Connectivity & Panel Operations

Alternatively, for two-channel preamps that do not have (or do not use) any digital management, the typical connectivity scenario would be to use both the main channel Left and Right inputs into the STA-800D/STA-1000D (Fig. 5). In this case the subwoofer would sit between the main L/R outputs of the preamp and the L/R inputs of the STA-800D/STA-1000D, with the L/R outputs of the STA-800D/STA-1000D going to the inputs of the power amplifier for the system's L/R main speakers. To then integrate the main speakers and the subwoofer, the High Pass Filter, Low Pass Filter, and optionally the Delay feature of the STA-800D/STA-1000D amp would be used. See the following section on the use of the Integrated Function Controller for more information on using and setting these functions.





## Connectivity & Panel Operations

If you have one of SVS's AS-EQ1 high-resolution, multi-subwoofer Equalizers, see Figure 6 for proper connectivity with one or more subwoofers. Also refer to your AS-EQ1 Operator Manual for detailed information on connectivity and setup of the AS-EQ1 into your listening environment.



## Power Mode Switch

The Power Mode switch allows the STA-800D/STA-1000D to either stay on all the time, or go into Standby if no signal is being received. When in Standby mode and a signal is detected on one of the inputs, the STA- 800D/STA-1000D will turn on and begin playing the material on its active input(s).

## Outputs

There are two types of physical output connectors on the STA-800D/STA1000D; Balanced XLR and single-ended with RCA connectors (also referred to as low level or line level). There are outputs for Left and Right main channels for both types of connectors.

The output connectors are typically used to either daisy-chain additional subwoofers with single or dual unfiltered outputs, or as the input to a power amplifier for the Left and Right main channels after using the High Pass Filter and (optionally) Delay functions with two channel analog preamps (see discussion above under “Inputs”).

## Main Power Switch

Use this switch to apply power to the STA-800D/STA-1000D amplifier.

## Power Cord

Plug the power cord into a wall outlet. Do not use extension cords to lengthen the cord. Do not plug into accessory outlets on the back of an AVR or pre/pro.

## Integrated Function Controller

This SVS Subwoofer is equipped with an advanced digital amplifier, the SVS STA- 800D/ STA-1000D Sledge™ DSP Amplifier. The STA-800D/STA-1000D Sledge™ amp is not only digital for amplification, but also for all amplifier control functions. Notice there is a single knob and a two line LCD display that allow you to set the various Functions and their parameters of the SVS Subwoofer. This knob and the LCD screen are referred to as the “Integrated Function Controller” or IFC for short.

The IFC replaces individual switches and knobs found on conventional subwoofer amplifiers. The straight-forward menu structure and intuitive dialog makes setting up and maintaining the SVS sub much easier than with past analog amps with a myriad of confusing and less accurate controls.

The IFC knob has three actions associated with it:

1. It can be turned both clockwise and counter-clockwise to either adjust a Function's settings, or to advance to a sub-menu within a Function.
2. It can be pushed in once (single-click) to select a (sub) function or to move forward and back- ward within the IFC's menu structure
3. It can be pushed in twice in rapid succession (double-click) to quickly return to the top-level menu structure.

The two line LCD display has two context modes:

1. Top-level menu screens.
2. Function/Sub-function screens.

The top-level menu screens allow the selection of major control Functions within the STA-800D/STA-1000D. When power is first applied to the subwoofer, the STA-800D/ STA-1000D will display a WELCOME menu showing the Model name of the subwoofer. If nothing is done for 30 seconds while in the WELCOME screen, the LCD backlight will automatically go off. While in the top-level menu context, if nothing is done for 10 seconds, the display will revert back to the WELCOME screen.

There are up to eight Functions within the top-level menu structure that allow configuration of the subwoofer. These Functions include:

- Volume (dB)
- High pass filter adjustment (disable/enable, frequency, and slope)
- Low pass filter adjustment (disable/enable, frequency, and slope)
- Phase setting (degrees)
- High pass delay (milliseconds)
- Room compensation (disable/enable, frequency, and slope)
- Subwoofer tune (sealed, 16Hz, 20Hz)
- Parametric EQ (PEQ) 1 and PEQ 2 (frequency, level and Q for each)

The following section describes each Function in detail, along with its use and available settings/values. Once familiar with the operation of the IFC on the SVS subwoofer, there is a block-level diagram included at the end of the section if needed for quick reference.

## **Volume**

From the IFC WELCOME screen, single-click the IFC knob and the display should read "MENU/VOLUME". Single-click the IFC knob to select the Volume Function. Turn the IFC knob clockwise to increase the Volume of the subwoofer, or counter-clockwise to decrease the volume. Single-click OR double-click to return to the top-level menu. The range of adjustment of this control is -100 to 0 dB in 1 dB increments.

## **High Pass Filter (HPF) Adjustment (STA-1000D)**

The output (both single-ended RCA and Balanced) can have a High Pass Filter applied. The HPF Function controls the High Pass frequency and the associated slope of the roll off for the output connectors on the STA-1000D.

From the IFC WELCOME screen, single-click the IFC knob and rotate the IFC knob one click clockwise so the display reads "MENU/HIGH PASS". Single-click the IFC knob to get to the HPF Function menu. If the HPF is disabled, a message to that effect will be displayed.

If the HPF is disabled, turn the IFC knob clockwise which will display the High Pass Frequency submenu. To set the HPF frequency to a value other than what is currently displayed, single-click the IFC knob and then rotate the knob clockwise or counter-clockwise to set the desired frequency. Frequency choices include 31, 40, 50, 63, 80, 100,

and 125Hz. Single-click the IFC knob to return to the High Pass Function menu. Turn the IFC knob to move to the High Pass Slope submenu and single-click to change the slope value. The High Pass Slope defines the slope of the attenuation curve below the selected frequency. Two choices are available; 12 dB per octave and 24 dB per octave. To disable the HPF, rotate the IFC knob until the message "HIGH PASS DISABLE?" is displayed. Single-click the IFC knob to disable the HPF, and single-click again to get to the top-level menu. If the HPF disable feature is selected accidentally, double-click the IFC knob to return to the top-level menu.

## Low Pass Filter (LPF) Adjustment

The LPF Function sets the frequency and slope for the low frequencies that will be played by the subwoofer.

From the IFC WELCOME screen, single-click the IFC knob and rotate the IFC knob two clicks clockwise until the display reads "MENU/LOW PASS". Single-click the IFC knob to get to the LPF Function menu. If the LPF is disabled, a message to that effect will be displayed.

If the LPF is disabled, turn the IFC knob clockwise which will display the Low Pass Frequency menu. To set the LPF frequency to a value other than what is currently displayed, single-click the IFC knob and then rotate the knob clockwise or counter-clockwise to set the desired frequency. Frequency choices include 31, 40, 50, 63, 80, 100, and 125Hz.

Single-click the IFC knob to return to the Low Pass Function menu. Turn the IFC knob to move to the Low Pass Slope submenu and single-click to change the slope value. The Low Pass Slope defines the slope of the attenuation curve above the selected frequency. Two choices are available; 12 dB per octave and 24 dB per octave.

To disable the LPF, rotate the IFC knob until the message "LOW PASS DISABLE?" is displayed. Single-click the IFC knob to disable the LPF, and single-click again to get to the top-level menu. If the LPF disable feature is selected accidentally, double-click the IFC knob to return to the top-level menu.

## Phase Degree

The Phase Degree Function allows the adjustment of timing for the arrival of bass information from the subwoofer to the listening position. This allows for a finer degree of subwoofer integration with the main speakers.

From the IFC WELCOME screen, single-click the IFC knob and rotate the IFC knob three clicks clockwise until the display reads "MENU/PHASE DEGREE". Single-click the IFC knob to select the Phase Degree Function. Rotate the IFC knob to select the appropriate value and single-click to select. If the Phase Degree Function is selected accidentally, double-click to return to the top-level menu.

The range of adjustment of this control is 0 degrees to 180 degrees in 15 degree increments.

## **High Pass Delay (STA-1000D)**

The High Pass delay Function is a unique capability that allows the sound from the main speakers to be delayed. This feature allows users who have no means of time aligning their speakers and subwoofer through their AVR or pre/pro (common with two channel analog systems) to add a delay-inducing component to their subwoofer path such as a digital equalizer. The High Pass Delay affects the Output whether or not the High Pass Filter in the STA-1000D is enabled or disabled.

In order for the High Pass Delay to function, the subwoofer must be placed between the output of the preamp/processor and the input of the power amplifier for the selected channel (front left or right) using either the single-ended (RCA) or Balanced inputs and outputs on the STA-1000D.

From the IFC WELCOME screen, single-click the IFC knob and rotate the IFC knob four clicks clockwise until the display reads "MENU/HIGHPASS DELAY". Single-click the IFC knob to select the High Pass Delay Function. Rotate the IFC knob clockwise or counter-clockwise to adjust the High Pass Delay value.

The range of adjustment of this control is 0 to 10 milliseconds in 1 millisecond increments.

## **Room Gain Comp**

The Room Gain Comp (Compensation) Function allows the subwoofer to be set to compensate for the increase in low frequency sound based upon the size of the room if it is felt there is too much bass. Small rooms will have a greater increase in low frequency sound than larger rooms. There is no need to use this control unless it is felt there is too much low frequency energy being generated in the listening environment.

This function operates by setting a corner frequency of 40Hz (small size rooms), 31Hz (medium size rooms), 25Hz (large size rooms) or Disabled (no compensation), and allows a target slope of either 6 dB per octave (first order) or 12 dB per octave (second order) roll off from the selected corner frequency. This has the effect of attenuating the lower



frequencies below the selected corner frequency at a rate commensurate with the selected slope.

From the IFC WELCOME screen, single-click the IFC knob and rotate the IFC knob five clicks clockwise until the display reads "MENU/ROOM GAIN COMP". Single-click the IFC knob to get to the Room Gain Comp Function menu. If the Room Gain Comp feature is disabled, a message to that effect will be displayed.

If the Room Gain Comp feature is disabled, turn the IFC knob which will display the Room Gain Comp submenu. To set the Room Gain Comp frequency to a value other than what is currently displayed, single-click the IFC knob and then rotate the knob clockwise or counter-clockwise to set the desired frequency. Frequency choices include 25Hz, 31Hz, and 40Hz.

Single-click to return to the Room Gain Comp Function menu. Turn the IFC knob to move to the Room Gain Comp Slope submenu and single-click to change the slope value. The Room Gain Comp Slope defines the slope of the attenuation curve below the selected frequency. Two choices are available; 6 dB per octave and 12 dB per octave. To disable the Room Gain Comp feature, rotate the IFC knob until the message "ROOM GAIN COMP DISABLE?" is displayed. Single-click the IFC knob to disable the Room Gain Comp feature and single-click again to get to the top-level menu. If you get to the Room Gain Comp Function accidentally, double-click the IFC knob to return to the top-level menu.

### **Subwoofer Tune (Ported Subwoofers Only)**

Note: This Function is active only in ported subwoofers and is inactive in sealed subwoofers.

The Subwoofer Tune Function allows the STA-800D/STA-1000D's subsonic filter to be set based upon how the ports have been blocked on a ported subwoofer.

From the IFC WELCOME screen, single-click the IFC knob and rotate the IFC knob six clicks clockwise until the display reads "MENU/SUBWOOFER TUNE". Single-click the IFC knob to select the Subwoofer Tune Function. Rotate the IFC knob clockwise or counter-clockwise to adjust the Subwoofer Tune setting. Single-click to select the desired tuning frequency. Single-click again to return to the top-level menu. If this function is selected accidentally, double-click to skip the function and return to the top-level menu.

The range of adjustment of this control is 20Hz (all ports open), 16Hz (one port blocked) or Sealed (all ports blocked).

## P-EQ (Parametric EQualizer)

Note: Setting the Level of PEQ1 (STA-800D/STA-1000D) or PEQ2 (STA-1000D) to 0 effectively disables it.

The P-EQ Function allows room modes that exaggerate certain bass frequencies in a room to be reduced to by up to 12 dB. Dips in frequency response can be boosted by up to 3 dB. The result of a reduction tames boominess and “one note bass” phenomenon that occur when a narrow range of bass frequencies are significantly louder than surrounding frequencies. Boosting a dip can bring forward frequencies that are masked by normal levels around the dip.

The STA-800D has a single PEQ filter and the STA-1000D has two PEQ filters. PEQ1 and PEQ2 can be set independently from each other, allowing for more flexibility in setting up the SVS subwoofer in any particular listening environment. Both PEQ1 and PEQ2 operate identically.

Refer to the section later in this guide titled “Advanced Features: Parametric Equalizer (PEQ)” for more details on how to actually use the PEQ features of the STA-800D/STA-1000D.

From the IFC WELCOME screen, single-click the IFC knob and rotate the IFC knob seven clicks clockwise until the display reads “MENU/P-EQ”. Single-click the IFC knob to select the PEQ1 Function or rotate the IFC knob clockwise or counter-clockwise and single-click to select PEQ2 Function.

From the PEQ1/PEQ2 Function menu, single-click to select the desired PEQ band Frequency menu (to skip to the Level Menu or Q Menu, turn the IFC knob the appropriate number of turns). Single-click to change the PEQ band center frequency. When selected, the display will be blinking and the value will change as the IFC knob is turned. Available center frequencies include 31, 35, 40, 46, 50, 56, 63, 70, 80, 90, 100, 112, or 125Hz. To save the displayed frequency, single-click the IFC knob. To proceed to either the Level Menu or Q Menu rotate the IFC the required number of turns.

To adjust the Level, single-click the IFC knob when the display reads PEQ1 or PEQ2 LEVEL. The screen will begin to flash and you can change the Level of the PEQ filter by turning the IFC knob clockwise or counter-clockwise.(NOTE: To disable the PEQ1 or PEQ2 filter, set the level to 0 dB.) The Level can be adjusted from +3 to -12 dB in 1 dB increments. To save the displayed level, single-click the IFC knob. To proceed to the Q Menu, rotate the IFC knob.

Note: Some dips are actually nulls and boosting a null will not produce an increase in level when a positive value is applied. To limit potential damage to the subwoofer, the amount of boost has been limited to +3 dB.

## Integrated Function Controller

To adjust Q (width) for the PEQ1 or PEQ 2 filter, single-click the IFC knob when the display reads PEQ1 or PEQ2 Q. The screen will begin to flash and you can change the Q of the PEQ filter by turning the IFC knob clockwise or counter-clockwise. Q values can be set to 2.0, 2.4, 2.9, 3.6, 4.8, 5.7, 7.2, 9.6, or 14.4. To save the displayed Q value, single-click the IFC knob.

At this point, a single-click will return to either the PEQ1 or PEQ2 Function Menu unless the Level is set to 0 dB. If that is the case, a single-click will return to the PEQ Menu where the PEQ1 or PEQ2 function can be selected. To return to the top-level menu, double-click the IFC knob.

### Integrated Function Controller Summary:

Menu Function	Units of Measure / Range of Values	Model Availability
Volume	dB / -100 to 0	All
High Pass Filter	Frequency: Hz / 31, 40, 50, 63, 80, 100, 125 Slope: dB per Octave / -12, -24, Disabled	SB13-Plus, PB13-Ultra PC13-Ultra
Low Pass Filter	Frequency: Hz / 31, 40, 50, 63, 80, 100, 125 Slope: dB per Octave / -12, -24, Disabled	All
Phase Degree	Degrees / 0-180° with 15° increments	All
High Pass Delay	Milliseconds / 0-10 with 1 millisecond increments	SB13-Plus, PB13-Ultra PC13-Ultra
Room Gain Comp	Corner Frequency: Hz / 25 (Large), 31 (Med), 40 (Sm) Slope: dB per Octave / -6, -12, Disabled	All
Subwoofer Tune <i>(ported subs only)</i>	Milliseconds / 0-10 with 1 millisecond increments	SB13-Plus, PB13-Ultra PC13-Ultra
P-EQ <i>(P-EQ1 and P-EQ2)</i>	Frequency: Hz / 31, 35, 40, 46, 50, 56, 63, 70, 80, 90, 100, 112, 112, 125 Level: dB / +3 to -12 with 1 dB increments Q(width): QF / 2.0, 2.4, 2.9, 3.6, 4.8, 5.7, 7.2, 9.6, 14.4	P-EQ1: All P-EQ2: SB13-Plus, PB13-Ultra PC13-Ultra
Operating Temperature	Can be as high as 40°C/104°F during aggressive play	All

## SVS STA-800D/STA1000D DSP Subwoofer Amplifier Function Chart

### WELCOME TO SVS (MODEL NAME)

\* When power is on, screen will show welcome menu. After users turn or click, it will go into MENU frame.  
 \* At MENU frame, inaction for 10 seconds will default back to welcome menu.  
 \* At welcome menu, inaction for 30 seconds will turn off the led backlight.

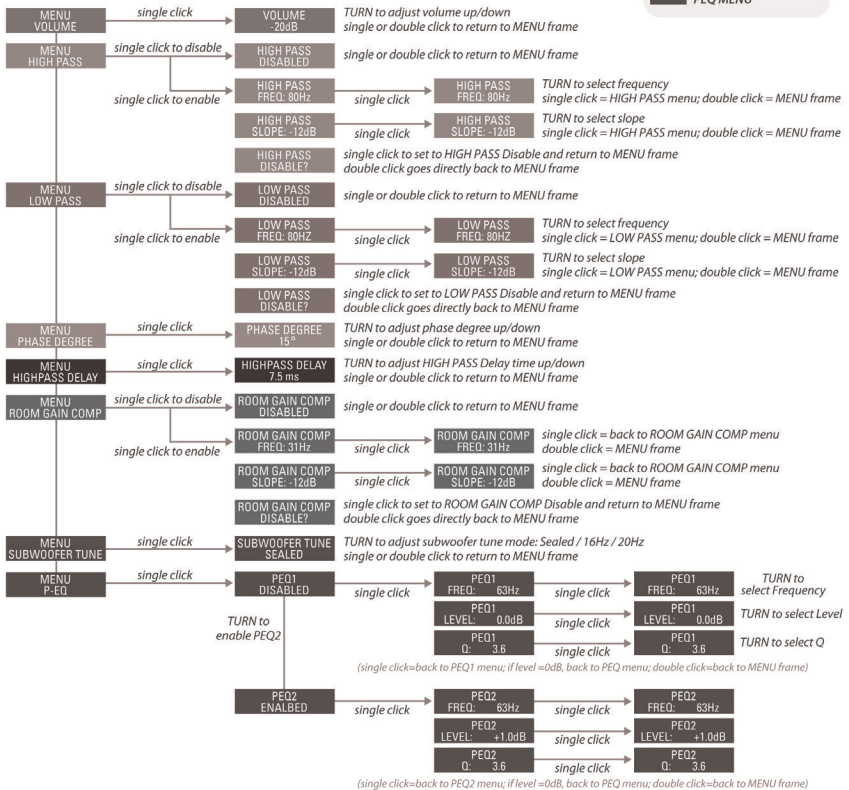
NOTE: Turning the knob navigates through the menu or function frame and may also be used to fine tune a specific parameter within a sub-frame. Clicks refer to pushing the knob in and releasing.

### Legend

- VOLUME
- HIGH PASS
- LOW PASS
- PHASE DEGREE
- HIGH PASS DELAY
- ROOM GAIN COMP
- PEQ MENU

### MENU Frame

### FUNCTION Frame



Before using your new subwoofer, it is important to get it set up and integrated into the rest of your audio or home theater system to ensure optimum results. Failure to properly set up and calibrate your new subwoofer may result in too much, too little, or boomy bass -- none of which provides the best overall listening experience.

There are multiple ways to set up and calibrate your subwoofer depending upon what type of equipment you have and how many subwoofers you will be using. Each common scenario will be covered below, however if you have questions about your specific situation that are not covered here, contact SVS Technical Support at [techsupport@svsound.com](mailto:techsupport@svsound.com).

## **Unpacking and Subwoofer Location**

If you have not already done so, take a few minutes to carefully unpack your new subwoofer. Try to avoid damaging the shipping materials and keep the box and internal cushioning for a short time just in case you need to return the sub for any reason.

There continues to be much discussion about subwoofer placement. If you have done your research and determined the best place for your sub(s) in your room, that's great. If not, we recommend starting in a corner, especially in large rooms, leaving at least five to six inches in back for cable hookups and to access controls.

Corners provide the most reinforcement for both sub level and extension, and in most rooms provide good response in most listening positions. However all the things that make a corner good can also work against you in some cases, causing locations in the room where bass may sound overly loud compared to other locations or inversely, bass may be lacking the punch you expect. If you find there is too much bass at certain frequencies or bass response is uneven in the room, experiment with different placement options around the room. There is surprisingly little difference between the front and the back of a room when the subwoofer is properly calibrated so feel free to try any location that is convenient or meets aesthetic criteria for placement in the room.

The STA-800D/STA-1000D amplifier also offers room correction features to help with location and placement. These include two single-band PEQs (PEQ1 and PEQ2), as well as a Room Compensation filter that can attenuate overly loud bass caused by room gain. Refer to the section of this manual that discussed the Integrated Function Control (IFC) for more information on these features. SVS also offers an advanced digital subwoofer equalizer based on Audyssey MultEQ technology, the AS-EQ1. See the SVS web site for more information on this product if interested.

## Power and Signal Connection

Before making any power or signal connections, make sure all equipment in the chain is turned off. Plug the subwoofer into a power outlet that is capable of a peak draw of 1100 watts. Using convenience outlets located on some AVRs or pre/pros is NOT recommended for your subwoofer as these outlets are not meant for high current devices.

For a discussion of the audio connections available on your subwoofer, see the section earlier in the manual entitled “Connectivity and Panel Operation”.

From an audio signal connection perspective, there are two primary ways you can connect the subwoofer based upon the capabilities of the AVR, pre/pro, or preamp you are using in your listening environment:

**1) Bass Management and time alignment performed in the AVR or pre/pro.** In this configuration it is assumed that the subwoofer will be passed a signal intended strictly for the subwoofer – in other words there is no additional higher-frequency information that needs to be accounted for.

Normally, you would use a single RCA (single-ended) or XLR (balanced) cable from your AVR or pre/pro’s “Sub Pre Out” connector and attach it to either the Left or Right Input on the STA-800D/STA-1000D amplifier. If you have multiple subwoofers you can split the signal at the AVR or pre/pro using a “Y” adapter, or you can daisy-chain an additional subwoofer through an Output connector on the STA-800D/STA-1000D amplifier with the HPF disabled if so equipped.

Using the Integrated Function Controller, set the following values as starting points for initial set up (factory defaults assuming no ports blocked if applicable):

### Bass Management & Time Alignment (AVR/PrePro):

Function	Value
Volume	-20 dB
High Pass Filter	Disabled
Low Pass Filter	Disabled
Phase	0
High Pass Delay	0
Room Compensation	Disabled
Subwoofer Tune (N/A for Sealed Subs)	per port blockage configuration
PEQ1/PEQ2	Disabled

## 2) Bass Management and (optionally) time alignment performed in subwoofer.

In this configuration, it is assumed that due to the lack of bass management and time alignment capability in a preamp (typical for 2 channel analog systems) these functions will be handled using the features of the STA-800D/STA-1000D amplifier.

If you are using one subwoofer for the bass of both Left and Right Channels, connect the Left and Right Preamp Outputs for these channels to the corresponding Inputs of the STA-800D/STA-1000D, and the Outputs of the STA-800D/STA-1000D to the Inputs of the power amplifier for the main Left and Right speakers. If you are using two subwoofers (one for each channel), connect the Left Output to one sub and the Right Output to the second sub. Connect the sub Outputs to the respective inputs on the power amplifier.

Using the Integrated Function Controller, set the following values as starting points for initial set up:

### Bass Management & Time Alignment (SUBWOOFER):

Function	Value
Volume	-20 dB
High Pass Filter	Enabled, Freq: 80Hz, Slope -12
Low Pass Filter	Enabled, Freq: 80Hz, Slope -24
Phase	0
High Pass Delay	Speakers closer than sub, 1ms/ft of difference
Room Compensation	Disabled
Subwoofer Tune (N/A for Sealed Subs)	per port blockage configuration
PEQ1/PEQ2	Disabled

## Calibrating the Subwoofer

In order to get the best experience from your new SVS subwoofer, it is important to calibrate it with the rest of your speakers. To do this correctly you either need an AVR or pre/pro with "Auto Setup" capability, or you will need a Sound Pressure Level (SPL) Meter (preferably with Analog display) like those sold by Radio Shack as well as a source of test tones.

It is highly unlikely the subwoofer level can be set correctly using hearing alone due to the difference in hearing capability of individuals, as well as the decreased level of hearing sensitivity in the lower frequencies. There-fore it is highly discouraged to use your ears as a substitute for the SPL meter.

If you have two or more subwoofers in your system, it is important that they be level-matched (set at the same level relative to one another) before starting the calibration process. If the subs are not level-matched, there is a risk of unbalanced bass and potential subwoofer localization in your listening environment. This level-matching process is best performed using auto setup or a SPL meter as discussed above.

**1) AVR or pre/pro with auto setup capability.** Many AVRs and pre/pros newer than 2004 to 2005 have some form of auto setup capability that does a good job of setting channel levels and speaker distances, making calibrating your subwoofer very easy. Review the documentation that came with your AVR or pre/pro on how to run the auto setup feature and after connecting your subwoofer and setting the initial values as shown above, run the auto setup routine.

At the completion of running the auto setup routine, there are two things you should check in your AVR or pre/pro's Manual Speaker Setup Menu to make sure your subwoofer has been integrated properly:

a) Check to see your speakers are all set to Small with a suggested crossover of no lower than 80 Hz. If already Small and the crossover is higher than 80 Hz the setting should be left as is.

b) Check to make sure your subwoofer Trim value does not exceed the positive or negative limits of Trim (typically +12 dB to -12 dB but may be different based upon your equipment). A value at the negative limit (example, -12 dB) indicates the Volume on the subwoofer was set too high. Lower the Volume on the

subwoofer and re-run the auto setup routine. If the subwoofer trim is at the positive limit, raise the Volume on the subwoofer and re-run the auto setup routine.

**2) AVR or pre/pro without auto setup capability.** Older AVRs or pre/pros may not have auto setup capability. In that case, you will need a Sound Pressure Level (SPL) meter and a source of test tones used to set speaker levels. SPL meters can be purchased at Radio Shack, usually for less than \$50. Even older multi-channel receivers and pre/pros have built in test tones but if yours doesn't, calibration disks are available that have the tones needed to accurately set speaker and subwoofer levels. SVS typically recommends the AVIA II Guide to Home Theater by Ovation Software as a good calibration disk. Before starting, familiarize yourself with your AVR or pre/pro's setup and configuration menu. Of particular importance are the menus dealing with setting up your speakers (distance, level, size, crossover, etc.). Once you have read and feel comfortable with setting up your speakers, you are ready to begin.



## Setup, Calibration & Integration

Start by making sure your AVR or pre/pro knows you have a subwoofer in your system. Sometimes the menu item will be "Subwoofer = Yes, or "SUB ON", etc. Ensure all speakers are set to Small and have crossovers set no lower than 80 Hz (a speaker set to Small – as opposed to Large or Full Range – will cause bass frequencies below the selected crossover to be routed from the speaker to the subwoofer).

a) Make sure you have a known good battery in the SPL meter (use the Battery Function). Set the "Weighing" switch to "C", and the "Response" switch to "Slow".

b) Set the "Range" dial to "70" to start. Consequently, when the meter displays "0", that will indicate 70

dB. When the meter reads "5", that will indicate 75 dB. When the meter reads "-3" (left of "0"), that will indicate 67 dB.

c) In the AVR or pre/pro speaker setup menu, set the value of the subwoofer trim to -3 db. Set the Master Volume (main volume control) of the AVR or pre/pro to 0.0 dB. In most units, this will produce a reading of close to 75 dB on the SPL meter when playing the test tones on your speakers.

d) Place the SPL meter in your main listening position, ideally on a tripod (the Radio Shack SPL meter will mount to a standard camera tripod adapter) with the unit pointed straight up (microphone pointed at the ceiling). Adjust the tripod so the microphone is roughly at ear height.

e) Using the Manual Speaker Setup menu of your receiver or pre/pro, play the speaker level-matching test tone and adjust each speaker to read 75 dB ("5" on the meter with the range switch set to 70) using the speaker Trim controls found in the menu for each channel. When playing the test tone for the subwoofer, use the VOLUME control on the STA-800D/STA-1000D to raise or lower the level of the subwoofer to read 75 dB leaving the subwoofer Trim control in the AVR or pre/pro set to -3 dB. (Note the meter may fluctuate by several dB when measuring the subwoofer. This is normal and what you are seeing are room modes in play. Use the average of the swings to determine the volume of the subwoofer.)

If you have two subwoofers, you should first set each sub to 75 dB with the other off, then split the difference between the two when making level adjustments with them both on. For example, if you need to lower the level of the combined two subs by 4 dB, lower each sub by 2 dB.

f) From this point forward to add to or decrease the level of your subwoofer(s), use the

subwoofer Trim in your receiver. In some cases the level of your subwoofer Trim may exceed +/- 5 dB after tweaking your sub level to taste. If this occurs, use your SPL meter and a combination of the subwoofer Trim in your AVR or pre/pro and the VOLUME control on the STA-800D/STA-1000D to get the subwoofer Trim back to -3 dB while reading your desired subwoofer level on the SPL meter.

## Advanced Features: Port Tuning (Ported Subwoofers Only)

Your new SVS ported subwoofer comes with custom foam port plugs and a variable subsonic filter which allows your sub to be “tuned” to even lower frequencies than its stock configuration. For most people and most rooms, the sub is already configured for the best blend of extension (how deep and how low your sub goes) and output (how loud it will play). However, bass is a very personal and subjective taste, and no two rooms will react exactly the same with any subwoofer.

There are some compromises when tuning a sub lower than its standard configuration. Installing one port plug takes some capacity from the upper reaches of bass but will allow the subs to play at lower frequencies. Installing three port plugs effectively configures your sub to a sealed configuration, including the lower frequency roll off going from 24 dB per octave (ported) to 12 dB per Octave (sealed). Again the tradeoff is output versus extension. Let your ears be your guide.

To insert one or three port plugs, first remove the grill. The box sub grill is attached magnetically and will pull off easily. The cylinder sub grill can be pried off using your fingers or a small flat blade screwdriver (gently!) around the edges of the grill, slowly working it off around the entire perimeter. After the grill has been removed, take a port plug and squeeze the foam on one end and press the plug into the port flare. The plug should be recessed  $\frac{3}{4}$ " to 1" into the mouth of the port.

To remove a port plug, insert your fingertips into the port flare, squeezing and pulling on the foam plug at the same time.

### Port Tuning:

SVS Ported Subwoofer Tuning	Subwoofer Tune Setting
Stock Tune (no ports blocked)	20Hz
One port blocked	16Hz
Two ports blocked	N/A (not supported)
Three ports blocked	Sealed

## Port Tuning

To avoid potentially damaging your subwoofer, be sure to select the proper subsonic filter setting that coincides with your new subwoofer's tuning point. The subsonic filter is adjusted using the "Subwoofer Tune" function accessible by using the Integrated Function Controller (IFC) on your STA-800D/STA-1000D Sledge™ amplifier.

See the section above on how to use the IFC to change the value of the Subwoofer Tune.

NOTE: It is strongly recommended you do NOT run a lower subsonic filter point than your port plug configuration would dictate. Failure to properly align Subwoofer Tune and port plug configuration can potentially result in serious damage to your subwoofer, especially if run at higher sound pressure levels.

## Advanced Features: Parametric Equalizer (PEQ)

**Important Note:** Until you are ready to use the PEQ feature set, it should be disabled and setting the Level in both PEQ1 and PEQ2 to 0. See the discussion above on the Integrated Function Controller for instructions on how to Disable and set the PEQ Level, as well as selecting the Frequency and Q values.

**Background Information:** Direct and reflected bass waves in the listening room will create “standing waves” and associated peaks and nulls in the subwoofer frequency response (FR). The PEQ allows you to reduce the severity of a peak in the subwoofer frequency response up to -12 dB, and to boost a dip in frequency response up to + 3dB, thus obtaining a more accurate sound. The STA-800D/STA-1000D Sledge™ amplifier in your subwoofer contains two PEQ filters labeled PEQ1 and PEQ2 so you can implement one (STA-800D) or two (STA-1000D) different sets of cut or boost.

**Control Explanation:** The PEQ has three controls: Frequency, Bandwidth, and Level.

The Frequency control (labeled “FREQ:” ) selects the center frequency where the PEQ cut will take effect, and has several discrete frequencies to choose from. These include: 31, 35, 40, 46, 50, 56, 63, 70, 80, 90, 100, 112 and 125 Hz.

The Bandwidth control (labeled “Q:”) affects the width of the PEQ cut or boost. The higher the Q value, the narrower the bandwidth of the cut/boost and conversely, the lower the Q value the wider the bandwidth

of the cut or boost. In most cases, it is best to start with a high Q setting (narrow bandwidth) and widen out (lower Q) as the results are observed. To better understand the relationship between Q values and octave bandwidth, browse the following link:

<http://www.sengpielaudio.com/calculator-bandwidth.htm>

The following table summarizes bandwidth of the Q settings in the STA-800D/STA-1000D Sledge™ amplifier:

**Bandwidth of Q Settings:**

Q Value	Octave Bandwidth	Q Value	Octave Bandwidth
2.0	0.7140	5.7	0.2528
2.4	0.5969	7.2	0.2002
2.9	0.4950	9.6	0.1502
3.6	0.3995	14.4	0.1002
4.8	0.3000		

## Setup & Use of PEQ

The Level control (labeled "Level:") determines the amount of cut or boost applied to the frequency response, centered on the FREQ: frequency and Q: wide. If Level is set to 0, the specific PEQ filter is disabled. Cuts of up to -12 dB and boost of up to +3 dB are allowed.

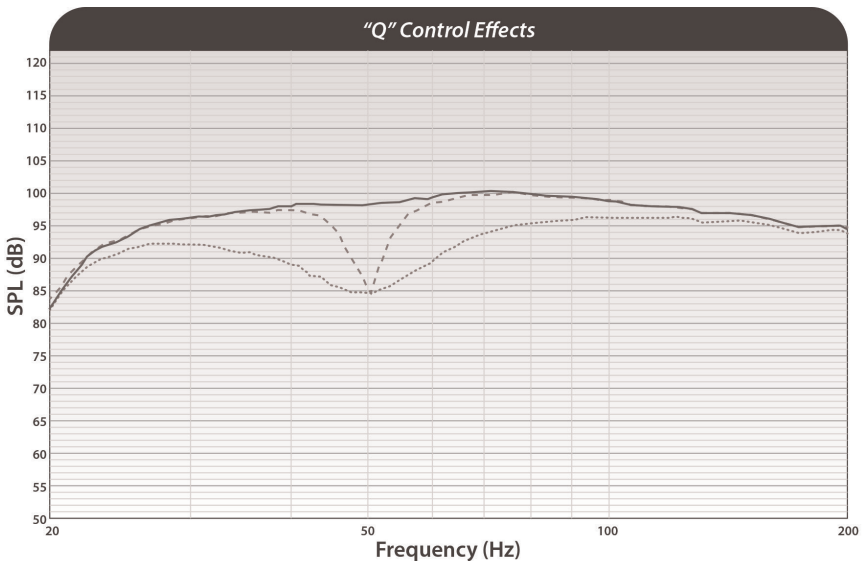
Below is a frequency response graph of a subwoofer as measured under quasi-anechoic conditions. This set of curves illustrates how the PEQ function works and what type of effect you can expect from various Q settings.

Solid Line: Native frequency response of the subwoofer.

Dashed Line: Frequency = 50 Hz, Q = 14.4, LEVEL = -12 dB

Dotted Line: Frequency = 50 Hz, Q = 2.0 LEVEL = -12 dB

### "Q" Control Effects



## Measuring In-Room Frequency Response:

In order to use the PEQ effectively, you must measure the in-room FR of the subwoofer at the listening positions. This can be done manually using test tones and a spreadsheet, or it can be accomplished using software such as "TrueRTA", or "Room EQ Wizard (REW)". SVS does not provide technical support on the setup and use of any software, but it can make measuring the subwoofer FR easier and faster than manual methods. An active user forum for REW exists on the Home Theater Shack web site, <http://www.hometheatershack.com/forums/rew-forum/>

To measure the subwoofer FR using a manual method, you will need a SPL meter, a basic working knowledge of Microsoft Excel (or other spreadsheet program), and a means to generate sine wave test tones. There are several sources of sine waves and/or tone generators on the internet. A popular tone generator is the NCH Tone Generator ( <http://www.nch.com.au/tonegen/index.html> ) which is available for time-limited trial use, and may also be purchased for a nominal fee. You can download working Excel spreadsheets

from the SVS web site at:

[http://www.svsound.com/techsupport/Subwoofer\\_Frequency\\_Response.xlsx](http://www.svsound.com/techsupport/Subwoofer_Frequency_Response.xlsx)

and

[http://www.svsound.com/techsupport/Speaker\\_And\\_Subwoofer\\_Combined\\_Frequency\\_Response.xlsx](http://www.svsound.com/techsupport/Speaker_And_Subwoofer_Combined_Frequency_Response.xlsx)

Place the SPL meter on a tripod and set the controls to C-weighted, Slow, and the 70 dB scale (you may need to alter the dB scale during the measurement process). Place the meter at head level at the primary listening position with the meter pointed toward the ceiling at a 90 degree angle.

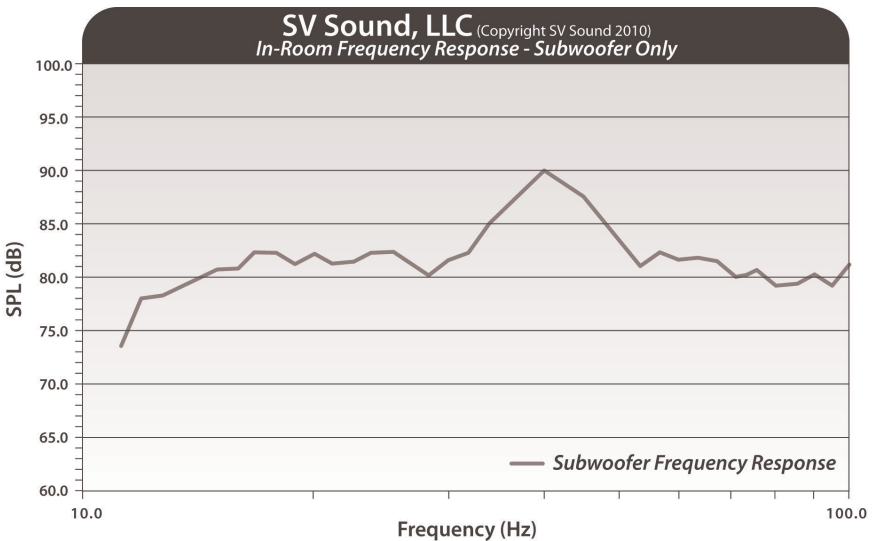
To set the overall test level, play a 25 Hz frequency and adjust the subwoofer Volume (option 1 below) or the processor master volume (option 2 below) until the SPL meter reads about 75 dB at the listening position.

Run each tone only long enough to get a stable reading from the meter (about 5-6 seconds), and then give the subwoofer about 10 seconds to cool off between test frequencies.

### Option 1: Measure the FR of Subwoofer Only Using Excel Spreadsheet:

To measure the FR of the subwoofer only, connect your sound card output directly to a line level input on the subwoofer. Use the Excel spreadsheet named Subwoofer\_Frequency\_Response (link provided above), which will plot the frequency response of the subwoofer from 11.2 Hz to 100.8 Hz. Input your raw (direct read) values from your SPL meter into the green band of frequencies in the Raw SPL Data worksheet, and the Frequency Response worksheet will plot the FR of the subwoofer.

Below is an example of a subwoofer FR. Notice the large peak from 35 - 55 Hz.



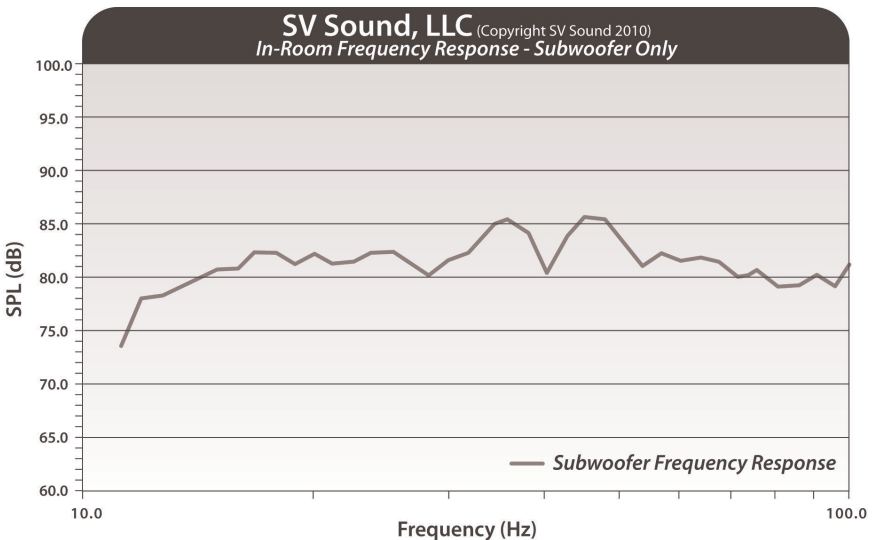
To correct a peak such as that above, start by setting the Frequency to 40 Hz, the Q to 14.4, and the Level to -10 dB. Re-measure and re-plot from 30-70 Hz to evaluate the effect.

## Option 2: Measure the Combined FR of the Speakers and Subwoofer using Excel Spreadsheet:

To measure the combined FR of the front speakers and subwoofer (to include the digital crossover in your processor), connect your sound card output to an analog input on your processor. Make sure the analog input is configured to use the digital crossover between the speakers and the subwoofer. Use the Excel spreadsheet named *Speaker\_And\_Subwoofer\_Combined\_Frequency\_Response* (link provided above), which will plot the frequency response from 11.2 Hz to 201.6 Hz. Input your raw (direct read) values from your SPL meter into the green band of frequencies in the Raw SPL Data worksheet, and the Frequency Response worksheet will plot the combined FR of the speakers and subwoofer.

## Adjusting The PEQ:

Identify the largest/widest peak in the response and target it for reduction with the PEQ control. When making adjustments to the PEQ control, there is no need to re-plot the entire FR for interim adjustments - simply re-plot the affected section of the curve to verify your PEQ adjustments are having the desired effect. When you are done making adjustments, you can re-plot the entire frequency response to obtain a final curve.

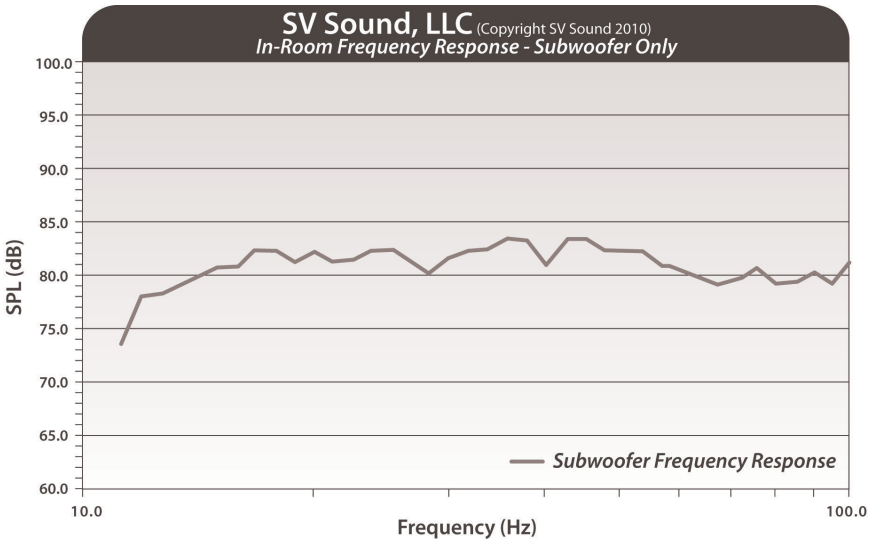




## Setup & Use of PEQ

Set the Frequency control to the approximate center frequency of the largest peak. Set the Q control to 14.4 (narrowest bandwidth), and set the Level control to -6 dB. Play the test tones again and re-measure and re-plot the affected portion of the FR curve and visually evaluate your results. Simple trial/error will then allow you to adjust all three controls to shape the PEQ cut to achieve the desired effect.

The previous image shows the results of the first PEQ cut attempt. The Frequency and Cut effect look correct, but the Q is too narrow. Adjust the Q to 9.6 and try again.



The graph above illustrates the results of the wider Q setting. Notice how the cut effect is wider. This is now a satisfactory result.

## Advanced Features: Room Compensation

In typical home theaters a phenomenon known as “room gain” can play a major role in how accurately bass is produced.

When any subwoofer produces notable bass energy below 40Hz, the output you will perceive is different than the sub’s normal output would be (if unaffected by your room’s walls).

The difference in actual bass, versus theoretical (quasi-anechoic/anechoic) bass response, can be thought of as rising SPL levels in the room as frequency decreases. The smaller the room, the more room gain comes into play – e.g. louder levels as frequency decreases as compared to larger spaces where the effect is less noticeable. Room gain can create excessive deep bass which can sound exaggerated simply due to interaction with your room.

If you find your bass is excessive and lowering the level of the subwoofer using the subwoofer trim in your AVR or pre/pro does not have the desired effect, you should try using the Room Compensation control in your STA-1000D amplifier. To enable and adjust your Room Compensation control, see the section earlier in this manual on the Integrated Function Controller (IFC).

Use the table below as a guide to select the appropriate Room Compensation corner frequency for your specific listening environment.

### Room Compensation:

Approximate Room Size	Room Comp Setting (Corner Frequency)
Greater than 2400ft <sup>3</sup> (68m <sup>3</sup> )	25Hz
1400ft <sup>3</sup> - 2400ft <sup>3</sup> (40m <sup>3</sup> - 68m <sup>3</sup> )	31Hz
less than 1400ft <sup>3</sup> (40m <sup>3</sup> )	40Hz

To rapidly roll off the lower frequencies below the selected corner frequency, select -12 dB per octave slope. For a more gradual roll off, select -6 dB per octave slope. For example if the corner frequency selected is 40Hz, the subwoofer output level would be down 12 dB at 20Hz if -12 dB was selected, or down 6 dB at 20Hz if -6 dB was selected.

## Terms & Conditions

**Terms and Conditions:** Details are available on request, please contact your Dealer for more. Note that these terms and conditions do not affect your statutory rights.

**Shipping:** When you receive your new subwoofer, please check to ensure there is no damage. If after unpacking you discover any damage that may have been caused by transportation on your product, we request you contact SVS or if outside the USA your Dealer immediately and if possible, provide a photo of damage in question to them to ensure the fastest possible correction to the situation.

**Warranty:** The product has a 3 year warranty against defects in materials and workmanship. Upon return, the products will be repaired, and redelivered. Naturally, this warranty does not cover any product subjected to misuse or accidental damage.

**The bottom line:** We're proud of our products and want you to be as happy owning one, as we are selling one (or more) to you. E-mail your Dealer if you have any warranty question or contact SVS directly if in North America.

SVS™

6420 Belmont Avenue, Girard, Ohio 44420

Fax: 703-997-2603

Phone: 877-626-5623

Email: [custservice@svsound.com](mailto:custservice@svsound.com)

Technical Support: [techsupport@svsound.com](mailto:techsupport@svsound.com)

