

**SE-10SW / SE-10SWD  
Product Manual**

## **Specifications**

- Baffle Dimensions 19.5"W x 19.5"H x 1.8"D
- Mounting Depth 3-3/8" (Minimum Depth Required)
- Mounting Hole Dimensions 14-1/2"W x 16-1/4"H (1-1/4" Max. wall material thickness)
- Frequency Range\* 20Hz to 500Hz \*(Dependent on configuration)
- Nominal Impedance 8 $\Omega$
- Power Handling 150 Watts Max. Total
- Weight Approx. 10 lbs.

## **Options**

- The STUD Woofer is available in two versions:  
Model SE-10SW Single Voice Coil (SVC)  
Model SE-10SWD Dual Voice Coil (DVC)
- MX-10 Crossover — Passive 100Hz Low-pass filter with 100Hz High Pass output (Use two for SE-10SWD DVC version).

## **IMPORTANT (Before You Begin)**

- Pre-read the instruction manual, especially the "Installation" section. If you feel uncomfortable with any part of the installation then consult or hire a professional.
- Check to be certain that the hardware pack is complete. Contact your dealer if you need any parts.
- The MX-10 Passive Crossovers are sold separately since they are not needed in all installations. Contact your dealer if your installation requires them.

# Hardware Pack Contents



Grille Removal Tool (1)



Foam-Rubber Bumper (4)



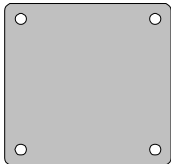
Grille Retention Gum (2)



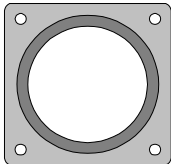
Port Attachment Screw (8)



Baffle Attachment Screw (10)



Port Blank (2)



Port (2)



Baffle Gasket Strip (4)

## **Planning**

- This is too broad a subject to fully cover in this manual but we will provide some suggestions that will help you in optimizing your installation.
- If you are in the construction phase of the home you can do a little extra to ensure maximum performance of your STUD Woofer. Some things that you may want to consider are having the drywall installer use screws instead of nails to attach the sheet rock. This should be done on both the front and back of the wall and the spacing of the screws should be minimized like on the perimeter of a ceiling board. Consider using at least 5/8" sheet rock on the walls where the main speakers and the STUD Woofer will be located. In addition, consider putting fiberglass insulation in the wall at this time. Don't be concerned if the drywall is attached with nails. Our test wall was constructed with nails in the poorest manner possible to represent the lowest quality possible and we had great results.

### **STUD Woofer Placement:**

- Since placement is both a function of aesthetics and function, you will need to decide what compromises you are willing to make.
- The STUD Woofer should be placed approximately 7 to 11 inches above the floor, as measured to the bottom of the baffle.
- The STUD Woofer requires that the framing behind the wall be located on 16 inch, center-to-center intervals. It is possible to add additional framing within a wall to attach the STUD Woofer. It is best if this is done during construction.
- There must be 19.5" of clear space on the face of the wall (2.5" on either side of the stud centerline for the baffle).
- The STUD Woofer can be located on ceilings where the

joists are spaced on 16-inch centers. Other spacings require additional framing to attach the woofer.

- The STUD Woofer can be located in virtually any part of a room, though, the optimum acoustic location for the STUD Woofer(s) is usually on the same listening plane as your main left and right (satellite) speakers. Ideally, a pair of woofers, one located near each of the front speakers, provides the best performance. However, a single woofer offers a very close second and is often preferred.
- In single woofer installations, the optimum acoustic location is also along the same plane as the main speakers. Placing the woofer between the two speakers is usually best, but placing it to one side should yield near equal performance.
- If your options for placement of the STUD Woofer require placement behind or alongside your listening position, this will also work, though there may be some slight disembodiment from the sound coming from your main listening speakers. Lowering the crossover frequency and increasing the cut-off rate can help resolve this phenomenon.
- The STUD Woofer can be located behind furniture with an expected *small* amount of attenuation. The furniture must not be pushed against the face of the STUD Woofer.
- Something else that should be considered when selecting a location for the STUD Woofer, is what is within the location of consideration on both sides of the wall? Avoid placing the woofer on a wall, or on the immediate opposite side of a wall, from wall hangings that can cause annoying vibrations. As with all in-wall speakers, a certain amount of wall vibration will occur.
- The STUD Woofer must not share the same wall-cavity air space with another speaker, and it is best if the STUD Woofer is not placed in a return-air cavity or other type of functional wall cavity. It is also advisable that it not be placed in wall cavities with plumbing. (Remember that multilevel

homes can have plumbing passing from other levels). If you wish to place the STUD Woofer within the same vertical wall cavity as another speaker, then read the recommendations in the "Installation" section of the manual regarding blocking.

- Exterior walls are acceptable for locating your STUD Woofer. However, local codes may have restrictions with regard to penetration of the vapor barrier, and the woofer may need to be used without ports (with port blanks) depending on whether it is acceptable to circulate air through the wall. Exterior walls sometimes have the advantage that they are constructed from 2x6 studs and offer a good acoustic environment. In addition, exterior walls usually contain fiberglass insulation. Finally, vibrations at the back wall are not transferred to other interior living spaces.

**Wiring Considerations:**

- If the STUD Woofer is being installed in an existing home then it will be necessary to run wire to, and possibly from, the woofer. Make a plan as to how you will get the wire to the woofer. It is likely that this may influence the location of your STUD Woofer.
- Remember that you will have easy access within the wall after you have cut the hole for mounting the woofer. This will aid in running wire. However, do not use this as a substitute for inadequate planning.

## **Baffle Preparations**

- If you plan to paint the STUD Woofer baffle prior to installation, then mask off the entire black face of the baffle and the woofer, both front and back. (The grille should be removed and painted separately). The baffle will accept any common paints. Do not install baffle or grille until paint has fully cured.
- Apply the four (4) adhesive backed gasket strips to the 1/4" wide flange on the backside of the baffle.
- Attach the crossover network(s) to the back of the baffle with the screws provided with the crossovers. There are four mounting posts provided for each crossover.
- Connect the crossover(s) to the woofer using a short piece of 2-conductor wire. Disregard this step if you are not using the passive MX-10 crossover(s). The crossover's woofer output is labeled "OUTPUT TO SUB." Make sure the Red terminal of the crossover's output is connected to the Red terminal of the woofer, and Black to Black. If you have a DVC version, then connect the second crossover to the other set of woofer inputs in the same manner.
- Do not install the ports or port blanks at this time. This will be done after the woofer is mounted.

## **Installation**

- Determine the location for the STUD Woofer. See “[Planning Installation](#).” (See page 18 for drawing of general layout.) Make certain the studs are located on a 16” interval. There must be 19.5” of clear space on the face of the wall (2.5” on either side of the stud centerline for the baffle).
- The STUD Woofer must not share the same wall-cavity air space with another speaker, and it is best if the STUD Woofer is not placed in a return-air cavity or other type of functional wall cavity. It is also advisable that it not be placed in wall cavities with plumbing. (Remember that multilevel homes can have plumbing passing from other levels).
- If the STUD Woofer is placed on the same vertical wall cavity as another speaker, then a block must be used to divide the air space within the cavity. In such case, the STUD Woofer should be given the maximum available operating space. If a block was not installed prior to the final construction of the wall, then it can be installed afterward through the hole of the satellite speaker. The block should be glued in place and sealed with silicone glue around its perimeter. Do not stress the sheet rock or studs during the installation of the block or this could cause the drywall to show small cracks.
- Place a couple of marks on the wall to indicate the approximate centerline of the two wall studs to which the STUD Woofer will be attached. These marks should be placed around the height you expect to mount the speaker.
- The STUD Woofer, like most woofers, performs best when it is located near the floor. Draw a horizontal line extending from stud to stud where you want the lower part of the speaker opening. We recommend that the lower part of the opening be placed 8” to 12” above the floor. The STUD Woofer baffle will extend 1-5/8” below this mark. We recommend using a level or measuring from a solid reference surface such as a hard floor or baseboard. (Remember that if you measure from the baseboard, you must subtract the height of the baseboard from the measurement).



- Place a second line 16-1/4" above the lower one. This will be the top of the speaker opening. Double check to make sure the distance between the two lines is 16-1/4".
- Cut the lower line beginning at its center and cut toward a stud. **Be careful not to cut through any electrical wiring that may be stapled to the side of the stud.** This can be avoided by cutting an inspection hole within the area that you are removing and checking for any hazards. When you approach the stud, make your cut only deep enough to detect the side of the stud. We recommend a small wallboard saw for this. Use power tools only if you are cutting through material harder than sheet-rock or you are very experienced. When you reach the stud, measure 14-1/2" back toward the other stud and make a mark. This mark is for reference.
- Cut the lower line in the other direction. If you find that you are cutting beyond the 14-1/2" mark by more than a half inch, then you may be in a wall cavity that is not 16" wide center-to-center. Double-check your work. It may be that you will need to place a block along one side of the cavity in which to screw the STUD Woofer.
- Cut upward along the edge of one of the studs until you reach the upper line. Finish cutting the remaining 14-1/2"W x 16-1/4"H hole.
- If you have not run the wire yet, do so at this time. (See "Wiring").
- If your wall cavity does not contain fiberglass, insert fiberglass insulation into wall cavity at this time. This optional step will enhance the performance of the STUD Woofer. You may use R-11 or R-13 for 2x4 walls and R-19 or R-21 for 2x6 walls. Backed insulation works fine if the backing is faced away from the room. Slide a bat of insulation as far up the wall as possible. Do your best to slide a full-length piece into the wall. Use a yardstick to assist in pushing it as far as

possible. Don't be discouraged if you don't get a full-length piece into the wall. Carefully cut it to length and slip the remainder down the base of the wall.

- When the STUD Woofer is used with its ports installed, care must be taken to ensure that there is a free flow of air from the back of the woofer to the port openings. It may be necessary to remove a little insulation around the ports to ensure that the ports are not blocked. The best way to do this is to use a sharp knife, cut horizontally across the insulation just above the centerline of the mounting hole and just above the bottom of the mounting hole. Do not try to cut all the way through the insulation. Remove about a half layer of insulation between the two cuts.
- Perform "Baffle Preparations" if they have not yet been done. (See "[Baffle Preparations](#)").
- If you are installing the STUD Woofer into a wall with hard or dry studs, it is recommended that the five mounting holes in each stud be predrilled. Use the baffle as a template by setting it into the wall opening, positioning it (level it), and marking the holes. Push the mounting screws through the mounting holes and make impressions in the wall. You may snug up a couple of the toggle clamps at the top and bottom of the baffle to temporarily hold the speaker while this is performed. It is easy to overtighten the toggle clamps and break the dry-wall, so use care when tightening them. Remove the STUD Woofer and drill ten 1-3/8" deep, 3/32" or 7/64" holes. Liquid soap may also be applied to the screws to ease installation.
- Make all wiring connections to the input of the speaker or the crossover. The wiring should be done according to your particular installation. (See pages 16 and 17 for wiring options).
- Place the STUD Woofer into the speaker opening. Position the baffle and install five mounting screws along each side of the baffle.
- Snug all ten (10) baffle attachment screws. When all screws

are snug, tighten them so that the baffle is clamped tight to the wall. If any of the screws becomes difficult to turn, remove the screw and apply liquid soap.

- Snug the six (6) toggle clamps. Alternate between clamps. The clamps should share the work of pulling the drywall tight against the baffle. In other words, each clamp should be advanced a little, then another, alternating until the drywall is snug against the baffle and all clamps are snug.

### **Final Assembly**

- Select the port configuration from *Table 1* based on your wall dimensions.
- If using ports, temporarily fit the ports in position and check to see if the rear port-openings are blocked by insulation. If so, remove port and use convenient instrument to clear away insulation.
- Install the ports or the port-blanks with the eight (8) short port attachment screws provided.
- Break or cut the grille retention gum into 8 or 12 pieces. These will be used to secure the grille and to reduce the chance of grille vibration. Press the pieces, two or three per side, into the groove along the inside edge of the face of the baffle. Separate them with even spacing. (See Page 19).
- Carefully press the grille into the face of the baffle. Press along the edge of the grille until it is fully seated. Work in small even increments around the perimeter of the grille. If too much force is applied or the grille is forced at one location, it may become distorted. If this occurs, it can be straightened by removing the grille, laying it face down on a firm flat surface and pressing the distorted area straight. A

small tool is provided for the removal of the grille. It is an L shaped wire with a ring at one end. Slip the end of the L into a hole at the edge of the grille and pull slowly. When removing the grille, it again should be backed out in small even increments around its perimeter, or distortion may occur.

- Perform any remaining system connections and test the system at a low listening level first.
- Enjoy!

<b>Table 1 Porting Recommendations</b>				
2x4 wall (Less than 6' High)	2x4 wall (6' to 8' High)	2x6 wall (Less than 4' High)	2x6 wall (4' to 8' High)	Infinite Baffle >5ft <sup>3</sup>
Blanks	Ports	Blanks	Ports	Always use Blanks

Select the port configuration from *Table 1* based on your wall dimensions. Note, wall heights should be measured with respect to internal sizes. This accounts for fire blocking which is found in many common walls.

The STUD Woofer is not recommended in wall cavities less than 1.4 Cubic feet.

### **Operation**

If grille humming is heard at high output levels, four adhesive-backed foam bumpers have been provided in the hardware package to reduce vibration. They need only be used if it is found necessary. Carefully remove the grille as outlined in "Final Assembly." Attach one bumper to the face

of the baffle just above the center top-edge of the woofer. Begin by using only one, and add additional bumpers around the perimeter of the woofer if it is found necessary.

## **Wiring**

- If you are using a crossover mounted on the back of the STUD Woofer baffle, then there are two basic wiring options. The first is to connect the output of your system to the “IN” terminals of the crossover and connect the “OUTPUT TO SUB” terminals to the input terminals of the woofer. The main (satellite) speakers are then connected either in parallel with the system outputs or to a second amplifier. (See Page 16 –17)
- The other basic crossover wiring scheme is to connect the output of your system to the “IN” terminals of the crossover and connect the “OUTPUT TO SUB” terminals to the input terminals of the woofer. The main (satellite) speakers are then connected to the “OUTPUT TO SATELLITES” terminals on the STUD Woofer crossover. The advantage to this option is that it reduces the amount of deep bass information to your satellites and helps to prevent damage from bass overload.
- There is only one wiring option if you are not using a passive crossover, and that is to connect the STUD Woofer directly to the output of an amplifier that is passing only low frequency information.

## A Few Words about the STUD Woofer®

We designed the STUD Woofer to apply coherently to all aspects of subwoofer utilization and for people who want an In-Wall subwoofer that is a near equal to the sound quality of the best cabinet style subwoofers without the inconvenience of fitting another “box” into their living space.

### **Simple 2 channel amplifier sub – satellite systems:**

- One (1) dual voice coil unit with two (2) crossovers
- Two (2) single voice coil units each with one (1) crossover

### **Elaborate Multichannel Home Theater surround sound systems:**

- With amplified mono low pass output systems use one single voice coil unit with no crossover.
- With amplified stereo low pass output systems use either one (1) dual voice coil unit or two (2) single voice coil units with no crossovers.
- With surround sound systems that have a low-level type (un-amplified) low pass output that are typically used with powered subwoofers, use a dedicated amplifier either mono or stereo whichever the case may be.

The STUD Woofer is completely an American design. It delivers honest to goodness bass response, with smooth, musical, textured characteristics.

One (1) single or dual voice coil unit will provide very satisfying bass (typically 3 dB down at 30 Hz in a standard 2” x 4” wall cavity).

Two (2) single voice coil STUD Woofers in true stereo will provide a level of bass response that will rival *within reason* any freestanding unit satisfying the majority of **audiophile** oriented Home Theater customers maintaining an “In-Wall” type installation all at a very reasonable cost.

## Recommended OEM In-Wall Speakers for use as Satel-



**SE-694TC** *ferro fluid titanium dome tweeter*

5 1/4" 2-Way  
Frequency Response: 60 Hz - 21,000 Hz  
Power Handling: 30 watts nom. 60 watts max.  
8 Ohms  
Cut-out dimensions: 5 9/16" W x 8 1/4" H  
Overall dimensions: 6 5/8" W x 9 1/4" H



**SE-790TC** *butyl surround & ferro fluid titanium dome tweeter*

6 1/2" 2-Way  
Frequency Response: 45 Hz - 21,000 Hz  
Power Handling: 30 watts nom. 60 watts max.  
8 Ohms  
Cut-out dimensions: 7 3/8" W x 10 7/8" H  
Overall dimensions: 8 5/8" W x 12 1/8" H



**NeC-5.25** *butyl surround & ferro fluid titanium dome eyeball tweeter*

5 1/4" 2-Way  
Frequency Response: 60 Hz - 21,000 Hz  
Power Handling: 30 watts nom. 60 watts max.  
8 Ohms  
Cut-out dimensions: 5 9/16" W x 8 1/4" H  
Overall dimensions: 6 5/8" W x 9 1/4" H



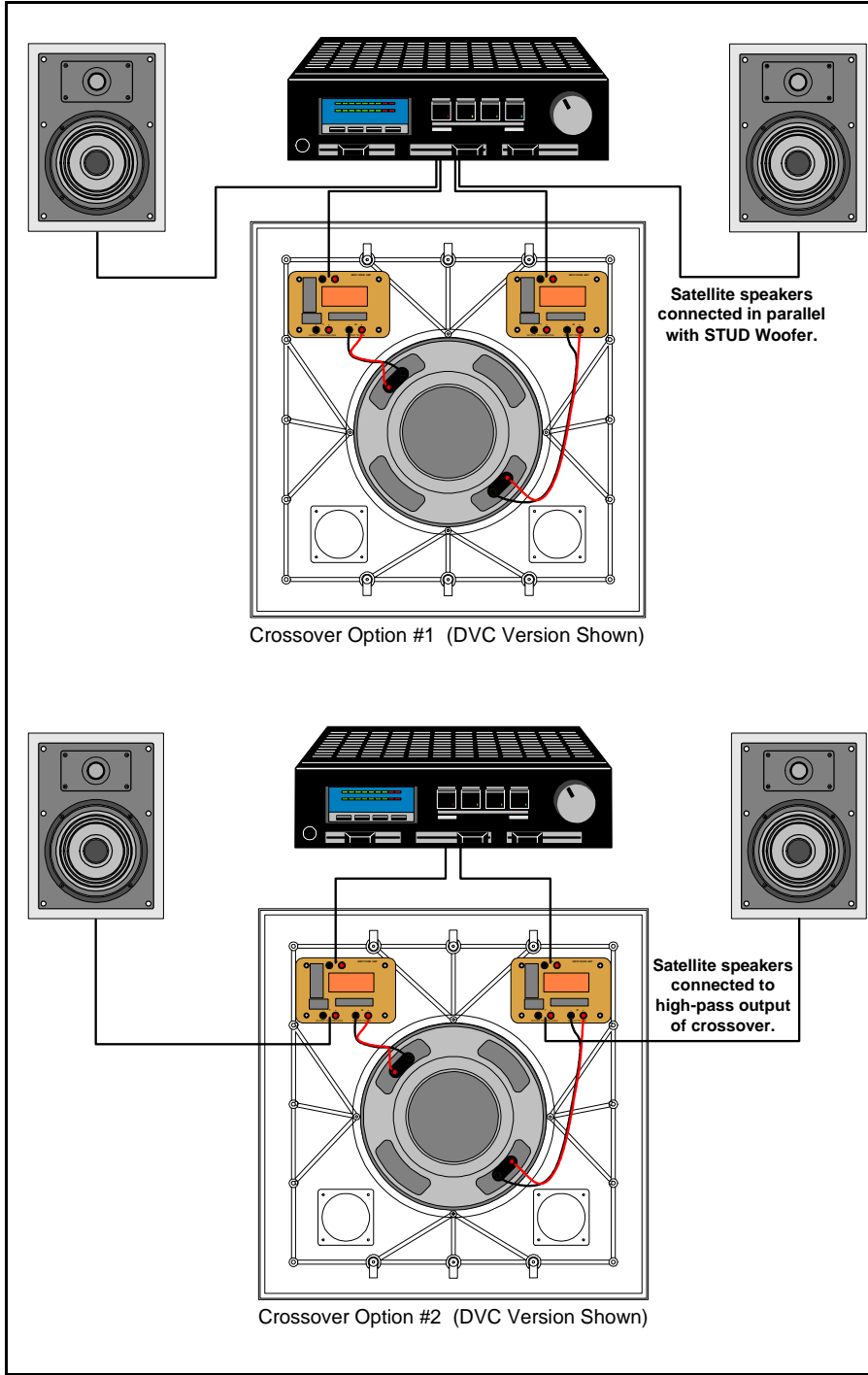
**NeC-5.50** *butyl surround & ferro fluid titanium dome eyeball tweeter*

5 1/2" 2-Way  
Frequency Response: 55 Hz - 21,000 Hz  
Power Handling: 35 watts nom. 70 watts max.  
8 Ohms  
Cut-out dimensions: 6 1/4" W x 9 3/4" H  
Overall dimensions: 7 3/8" W x 10 7/8" H

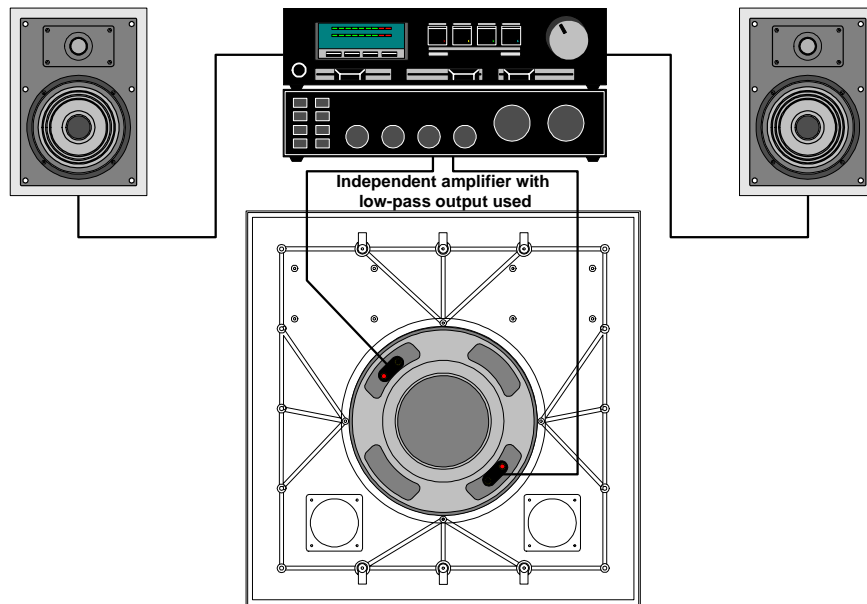


**NeC-6.50** *butyl surround & ferro fluid titanium dome eyeball tweeter*

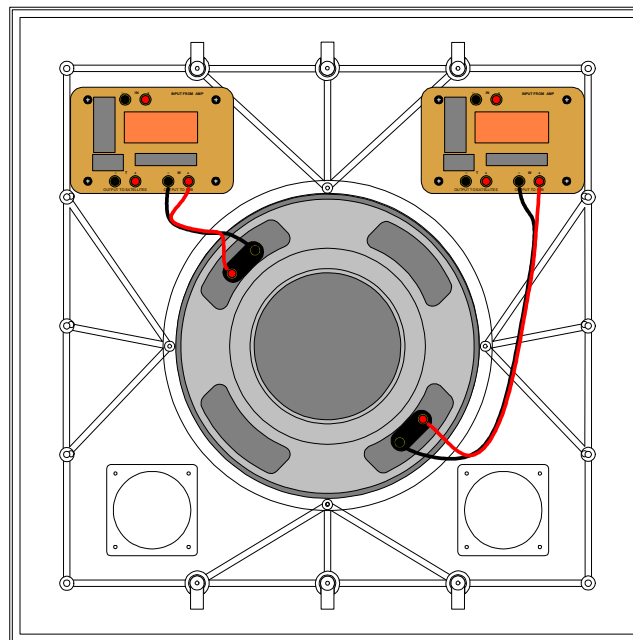
6 1/2" 2-Way  
Frequency Response: 45 Hz - 21,000 Hz  
Power Handling: 40 watts nom. 80 watts max.  
8 Ohms  
Cut-out dimensions: 7 3/8" W x 10 7/8" H  
Overall dimensions: 8 5/8" W x 12 1/8" H







Connections Without Passive Crossover (DVC Version Shown)



Typical connection of crossovers to DVC STUD Woofer.  
The SVC version is similar, but with only one crossover.

