



ONE SYSTEMS[®]
ACOUSTIC EXCELLENCE[®]

108/HTH Interchangeable High Frequency Horns

February 2015

One Systems[®] offers several direct weather, high performance loudspeakers that incorporate fully rotatable and interchangeable high frequency horns. The 108/HTH is a very high performance, yet compact professional loudspeaker system that is shipped with two high frequency horns. A 60 degree by 40 degree horn (ETS-60/40) is factory installed and a 105 degree by 60 degree horn (ETS-105/60) is also included in the shipping carton. Both horns can be rotated to achieve optimized coverage patterns.

Since each horn produces different acoustic loading for the compression driver, the 108/HTH passive crossover must be "re-configured" to provide both the proper crossover frequency, as well as the proper amplitude shading for each horn pattern. This process is very simple and straightforward.

The following steps are to be done in order to accomplish this process:

1. To change the horn in the 108/HTH, first the grill must be removed.
2. Once the grill is removed the horn/driver assembly that is installed in the enclosure must be removed. Care should be taken to avoid stressing the wires that connect the compression driver to the crossover assembly.
3. Disconnect the two wires from the compression driver, observing the polarity of each wire. The orange wire is positive and the yellow wire is negative.

NOTE: The wiring for the ETS-60/40 horn requires the orange wire to be on the positive terminal of the compression driver and the yellow wire to be on the negative terminal.

When the ETS-105/60 horn is used the wiring must be *reversed*. (The orange wire must be on the **NEGATIVE** terminal and the yellow wire must be on the *positive* terminal)

4. Remove the compression driver from the horn by loosening and removing the 4 nuts that secure the driver to the horn.
5. Install the new high frequency horn on the driver and securely tighten the 4 nuts on the threaded studs. (**NOTE:** Do not over tighten the nuts!)

6. Before the new horn/driver assembly can be installed in the 108/HTH enclosure the internal passive crossover must be "re-configured" to provide the proper crossover frequency and electrical loading for the specific horn being installed.

As noted above there are two high frequency horns available for the 108HTH, the ETS-60/40 (factory installed) and the ETS-105/60. There is one jumper on the 108/HTH crossover printed circuit board. This jumper must be moved when the high frequency horn is changed.

Please see the picture below. This illustrates the side of the printed circuit board that is seen when the high frequency horn is removed. This is seen by looking thru the hole in the 108/HTH enclosure where the horn was mounted. The jumper is shown in the picture below.



The jumper is shown in the image above

When the ETS-60/40 high frequency horn is used the jumper must be moved so that the jumper makes connection from position 1 to position 2. When the ETS-105/60 high frequency horn is used the jumper must be configured so that it makes connection from position 1 to position 3 on the printed circuit board.

7. Once the jumper has been configured for the desired high frequency horn, the wires from the printed circuit board to the compression driver should be reconnected, making sure that you have observed the correct polarity as noted below.

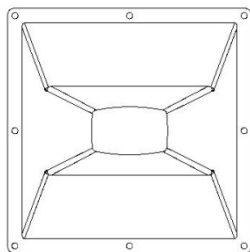
NOTE: The wiring for the ETS-60/40 requires the orange to be on the positive terminal of the compression driver and the yellow wire to be on the negative terminal.

When the ETS-105/60 horn is used the wiring must be *reversed*. (The orange wire must be on the *negative* terminal and the yellow wire must be on the *positive* terminal).

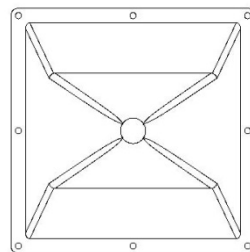
The reverse polarity wiring for the ETS-105/60 is required to offset the signal delay associated with the shorter horn. This polarity reversal maintains comparable signal delay between the high frequency horn and the woofer.

8. The fully wired high frequency horn/driver assembly should now be mounted back in the 108/HTH enclosure. It is important to insure that the desired horizontal and vertical included angles of the horn be oriented relative to the enclosure. (This orientation will be determined by the required radiation pattern and the orientation of the enclosure relative to the acoustic space) Securely tighten the bolts that hold the horn/driver assembly in the 108/HTH, but do not over tighten them.
9. Replace the 108/HTH grill assembly

Note: The image below shows the ETS-105/60 horn oriented with the 105 degree included angle in the horizontal plane and the ETS-60/40 with the 60 degree included angle in the horizontal plane.



ETS-105/60



ETS-60/40