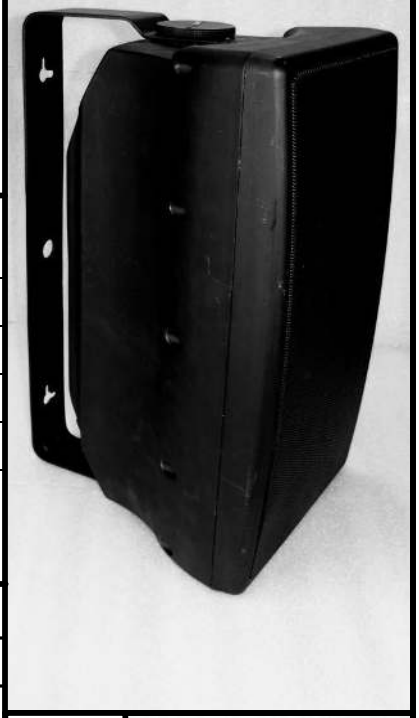
INSTALLATION SHEET FOR 0S-150TB AND OS-150TW 150 WATT INDOOR/OUTDOOR SPEAKERS

The OS-150TW (white) and OS-150TB (black) speakers may be mounted indoors or protected (covered) outdoors. The models are identical except for color. In this installation sheet, the speaker will be referred to simply as the OS-150T. The front of the speaker (See Figure 1) is protected with an aluminum fine mesh grille with a weather resistant scrim material behind the grille. The speaker and grille may be wiped down for cleaning, but the use of a power washer or other high pressure cleaning equipment will void the speaker's warranty. The rear of the speaker (See Figure 2) includes a U-bracket and an input selector switch.

FIGURE 1



ELECTRICAL SPECIFICATIONS

Power Rating: 150W RMS (RS426B test procedure).

Impedance: 8-ohms nominal (minimum impedance 8.6 ohms @ 274 Hz).

Frequency Response: 65Hz-20kHz ± 6dB

Sensitivity: 91.0dB log average SPL (at 8 ohms) @1W/1M

Dispersion: 80° vertical X 80° horizontal conical dispersion (-6dB down at 2kHz).

Woofer: 8" polymer coated paper composite cone with cloth surround.
HF Compressions Driver: Titanium diaphragm with 1" voice coil & ferrite magnet.
Input: Screw terminals – capable of attaching (2) #12 stranded conductors.

INPUT SELECT SWITCH - TRANSFORMER TAP SETTINGS

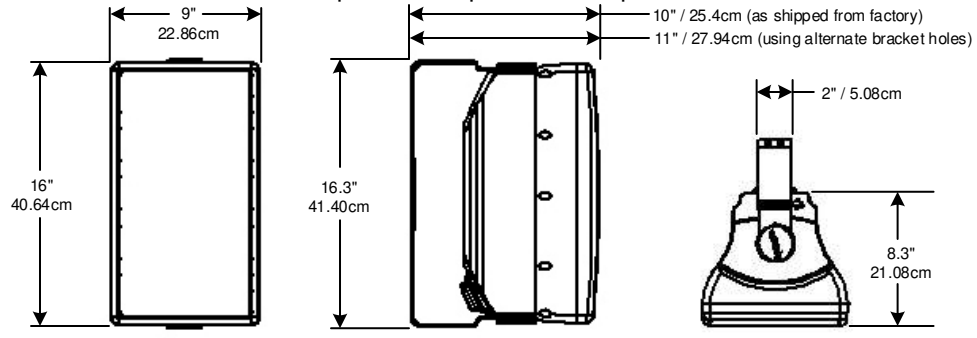
TAP	25V LINE	70V LINE	100V LINE
A	7.5W	60W	DO NOT USE
B	3.8W	30W	60W
C	1.9W	15W	30W
D	.94W	7.5W	15W
E	.48W	3.8W	7.5W

8-ohm switch position bypasses the transformer.

FIGURE 2

MECHANICAL SPECIFICATIONS

Complete OS-150T weight: 18.0 lbs. (8.165 Kg.)
Enclosure: Weather-resistant UV-resistant talc impregnated polypropylene.
Front Grille: Weather-resistant UV-resistant powder coat painted aluminum.
U-Bracket: Weather-resistant plated and powder coat painted steel.



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Instruction Sheet
IS-OS150
Issued: 1-13-16

SAFETY NOTICE: **Speaker installation should only be performed by experienced qualified professionals with knowledge of the proper load-rated hardware and safe mounting and rigging techniques. The speaker system must be mounted in accordance with all local, state, and federal codes and regulations and the installation must conform to industry standard practices. It is the responsibility of the installer to consult a licensed mechanical or structural engineer to evaluate and certify the structural integrity and safety of any mounting method before installation. Lowell Manufacturing is not responsible for the use, misuse, or misapplication of this loudspeaker product.**

Speaker Mounting:

The OS-150T includes a heavy steel plated and powder coat painted U-bracket that allows the OS-150T to be mounted vertically (See Figure 3) or horizontally (See Figure 4). Only install the OS150T in a protected (covered) outdoor location and tilt the speaker slightly downward to prevent moisture from collecting in the drivers. The U-bracket includes a 5/8" diameter center hole that may be used to route the speaker cable into the wall. The bracket also includes vertical and horizontal mounting slots that make it possible to secure the mounting bolts to the wall and then slide the bracket over those bolts to hang the speaker (See Figure 5). Be sure to securely tighten the bolts after the speaker is in place. Some installers prefer to remove the bracket and mount it to the wall first. That makes it easy to lift the speaker and attach it to the bracket by replacing the bracket knobs.

The two angle adjustment knobs may be removed and then refastened through the optional mounting holes in the U-bracket to allow horizontal shelf mounting with the maximum downward tilt angle of 40 degrees down from horizontal (See Figure 6).

The optional U-bracket mounting holes can also be used to mount the speaker in the vertical orientation (so the speaker can be adjusted horizontally to the right or left) but by attaching the top knob to the furthest hole from the rear of the bracket and by attaching the bottom knob to the closest hole in the bracket (See Figure 7), an automatic 4 degree downward tip of the speaker will result. A 4 degree upward tilt can also be achieved by attaching the top knob to the closest hole from the rear of the bracket and by attaching the bottom knob to the furthest hole in the bracket See Figure 8).

Lowell Manufacturing recommends that a safety cable be used when speakers are installed over-head. The OS-150T has four (4) ¼"-20 tapped insert points on the rear of the speaker. When mounting the speaker using the U-bracket that is included, one or more of those ¼"-20 tapped insert points can be used to attach a safety cable .

FIGURE 3

FIGURE 4

FIGURE 5

FIGURE 6

FIGURE 7

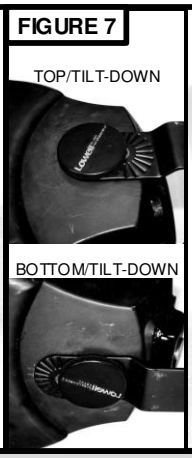

FIGURE 8

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For some OS-150T installations, the installer may choose to use an omni-style bracket (by others) to mount the OS-150T instead of using the U-bracket that is included. When an omni-style bracket is used, remove the two bracket knobs, discard the U-bracket, and then replace the bracket knobs in the tapped holes. The OS-150T has four (4) ¼"-20 tapped insert points on the rear of the speaker that are spaced to accept an Omnimount® 25.0W bracket (see Figure 9) or Adaptive Technologies Group MM-016-BT bracket (see figure 10). When another manufacturer's omni-style bracket is used to mount the OS-150T overhead, one of the U-bracket knob 5/16"-18 insert points should be used to attach a safety cable.

Due to its 70° square linear dispersion pattern (same vertical dispersion as the horizontal dispersion), the OS-150T is ideal for use in open architecture ceilings firing straight down in a distributed speaker system (See Figure 11). The maximum recommended center-to-center spacing is given in the table below for edge-to-edge spacing at a 4' average listening level. Note that center-to-center spacing that is closer than the maximum given in the table, will result in desirable overlapping coverage. Spacing that is farther apart than the maximum given in the table, will result in undesirable dead spots between the speakers where the coverage is not optimized for listening. The paper at the link below explains the "linear dispersion" concept for distributed systems.
http://www.lowellmfg.com/tinymce/jscripts/tiny_mce/plugins/filemanager/files/LowellDSSS.pdf

FIGURE 9

FIGURE 10

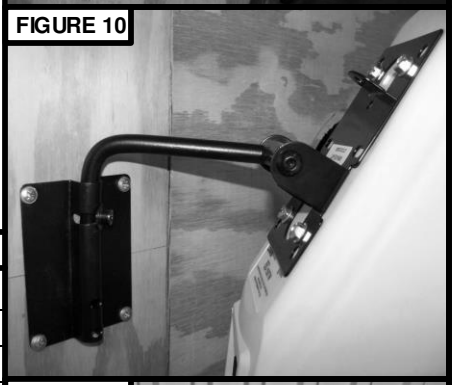
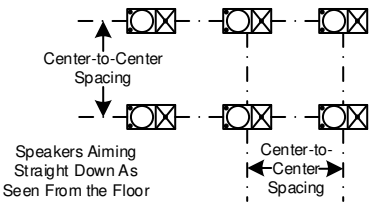


FIGURE 11

Note: Safety cable is not shown.



Spacing = Maximum center-to-center spacing for edge to edge coverage at 4' listening level.

Height = Face of speaker from the finished floor.

Height	Spacing	Height	Spacing	Height	Spacing
8 Ft.	5.6 Ft.	16 Ft.	16.8 Ft.	24 Ft.	28 Ft.
9 Ft.	7 Ft.	17 Ft.	18.2 Ft.	25 Ft.	29.4 Ft.
10 Ft.	8.4 Ft.	18 Ft.	19.6 Ft.	26 Ft.	30.8 Ft.
11 Ft.	9.8 Ft.	19 Ft.	21 Ft.	27 Ft.	32.2 Ft.
12 Ft.	11.2 Ft.	20 Ft.	22.4 Ft.	28 Ft.	33.6 Ft.
13 Ft.	12.6 Ft.	21 Ft.	23.8 Ft.	29 Ft.	35 Ft.
14 Ft.	14 Ft.	22 Ft.	25.2 Ft.	30 Ft.	36.4 Ft.
15 Ft.	15.4 Ft.	23 Ft.	26.6 Ft.	31 Ft.	37.8 Ft.

A sound system should be able to achieve a minimum sound pressure level at every listeners position of at least 10dB above the loudest expected ambient noise level. To assist the designer with those calculations, the on-axis maximum sound pressure level for the OS-150T is given in the table below for the selector switch in the 8-ohm position (150 watt input) and for each of the possible transformer tap input selector switch positions.

Power Input / Distance	2 Feet	4 Feet	8 Feet	16 Feet	24 Feet	32 Feet	48 Feet	64 Feet	96 Ft.	128 Ft.
150 Watts	117dB	111dB	105dB	99dB	95.5dB	93dB	89.5dB	87dB	83.5dB	81dB
60 Watts	113dB	107dB	101dB	95dB	91.5dB	89dB	85.5dB	83dB	79.5dB	77dB
30 Watts	110dB	104dB	98dB	92dB	88.5dB	86dB	82.5dB	80dB	76.5dB	74dB
15 Watts	107dB	101dB	95dB	89dB	85.5dB	83dB	79.5dB	77dB	73.5dB	71dB
7.5 Watts	104dB	98dB	92dB	86dB	82.5dB	80dB	76.5dB	74dB	70.5dB	68dB
3.8 Watts	101dB	95dB	89dB	83dB	79.5dB	77dB	73.5dB	71dB	67.5dB	65dB
1.9 Watts	98dB	92dB	86dB	80dB	76.5dB	74dB	70.5dB	68dB	64.5dB	62dB
.94 Watts	95dB	89dB	83dB	77dB	73.5dB	71dB	67.5dB	65dB	61.5dB	59dB
.48 Watts	92dB	86dB	80dB	74dB	70.5dB	68dB	64.5dB	62dB	58.5dB	56dB

Wiring Entry Cover:

A weather resistant wiring entry cover has been provided on the rear of the OS-150T (See Figure 12). Note that the rear cover plate can be rotated 180 degrees to shift where the wiring entry hole is located in relation to the input terminals. As shipped from the factory, a black rubber grommet with a ¼" diameter cable hole is provided. For outdoor installations, if cable smaller than ¼" in diameter is used, silicone sealant should be used to fill the hole in the rubber grommet to insure a water tight seal around the cable. If cable with a diameter larger than ¼" is used, the hole in the rubber grommet can be drilled out to accommodate the larger wire. In any case, if the rubber grommet does not provide a water tight seal around the cable, use silicone sealant to seal the hole. Removing the rubber grommet will reveal a 7/8" diameter hole in the metal wiring entry cover that can be used to attach ½" water-tight conduit. If it is desired to use larger water-tight conduit, a larger hole may be punched by the installer in the wiring entry cover for that purpose. For indoor dry installations, a ½" Romex type connector (furnished by the installer) can be used in the 7/8" hole as a strain relief if desired.

Wiring Termination:

A barrier strip with the speaker input terminals is located underneath the wiring entry cover. Polarity of the terminals is indicated by a "+" and "-" that are embossed in the rear of the enclosure directly below the terminals. The screws on the terminals can accommodate a maximum of 2) 12 gauge stranded conductors if in and out parallel wiring to the next speaker in the string is desired (See Figure 13 for parallel wiring).

Input Select Switch:

An input select switch is provided on the rear of the OS150T speaker. With this switch in the 8-ohm position (See Figure 14), the transformer is disconnected internally for a direct to the crossover connection and the speaker power rating is 150W. With the input select switch in the A-E positions, the speaker power is determined by the driving voltage as shown on the table near the select switch on the rear of the OS150T speaker (and as shown on the table in the electrical specification section on page 1 of this installation sheet). For example when feeding the OS-150T with a 70V amplifier, setting the input select switch on the "A" position will be selecting a 70V 60W input tap on the line matching transformer (see Figure 15).

WARNING: DO NOT SET THE INPUT SELECT SWITCH ON THE 8Ω POSITION WHEN OS-150T IS CONNECTED TO A 25V, 70V, OR 100V SOUND SYSTEM.

Speaker Painting:

The OS-150T speaker may be painted if desired. Use the grille removal tool provided to hook the front grille and pull it free from the cabinet. Carefully remove the scrim material before painting. Be careful not to plug the grille holes with paint. Use a light coat of general purpose spray adhesive to replace the scrim material on the inside of the grille (again being careful not to plug the holes). When painting the enclosure, mask the speaker components and the port holes so no paint gets on the speaker drivers or inside the speaker cabinet. Also mask the wiring input terminals. After light sanding, the metal U-bracket and metal wiring cover may be painted without a primer coat, but light sanding and a primer coat are recommended on the bracket knobs and enclosure to help the paint to adhere to the plastic. For an outdoor installation, be sure to use paint rated for outdoor use.

FIGURE 12

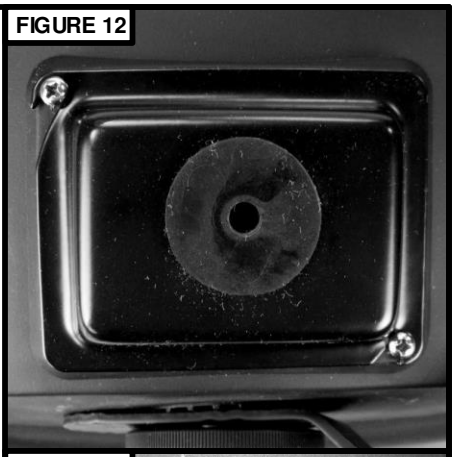


FIGURE 13

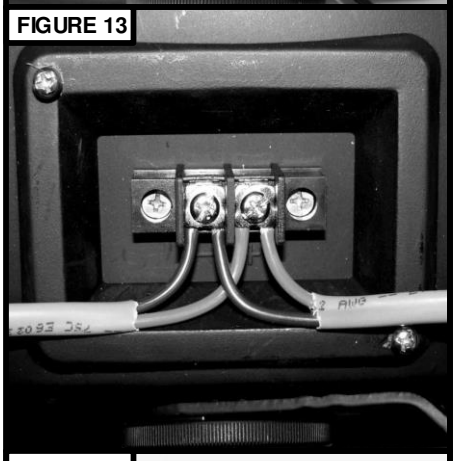


FIGURE 14

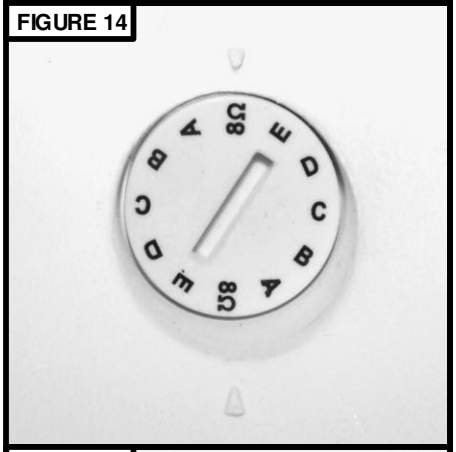


FIGURE 15