

WALL MOUNT SPEAKER 6W (UL)

BS-680U

For Indoor Use Only

Thank you for purchasing TOA's Wall Mount Speaker 6W (UL).

Please carefully follow the instructions in this manual to ensure long, trouble-free use of your equipment.

1. SAFETY PRECAUTIONS

- Before installation or use, be sure to carefully read all the instructions in this section for correct and safe operation.
- Be sure to follow all the precautionary instructions in this section, which contain important warnings and/or cautions regarding safety.
- After reading, keep this manual handy for future reference.

Safety Symbol and Message Conventions

Safety symbols and messages described below are used in this manual to prevent bodily injury and property damage which could result from mishandling. Before operating your product, read this manual first and understand the safety symbols and messages so you are thoroughly aware of the potential safety hazards.

WARNING

Indicates a potentially hazardous situation which, if mishandled, could result in death or serious personal injury.

CAUTION

Indicates a potentially hazardous situation which, if mishandled, could result in moderate or minor personal injury, and/or property damage.

WARNING

When Installing the Unit

- Install the unit only in a location that can structurally support the weight of the unit and the mounting bracket. Doing otherwise may result in the unit falling down and causing personal injury and/or property damage.
- Do not use other methods than specified to mount the bracket. Extreme force is applied to the unit and the unit could fall off, possibly resulting in personal injuries.
- Tighten all screws securely. If any is loosely fixed, this may cause the speaker cabinet or baffle to fall, resulting in personal injury.

CAUTION

When Installing the Unit

- To avoid electric shocks, be sure to switch off the amplifier's power when connecting speakers.
- Avoid touching the unit's sharp metal edge to prevent injury.

When the Unit is in Use

- Do not operate the unit for an extended period of time with the sound distorting. This is an indication of a malfunction, which in turn can cause heat to generate and result in a fire.
- Do not stand or sit on, nor hang down from the unit as this may cause it to fall down or drop, resulting in personal injury and/or property damage.

2. FEATURES

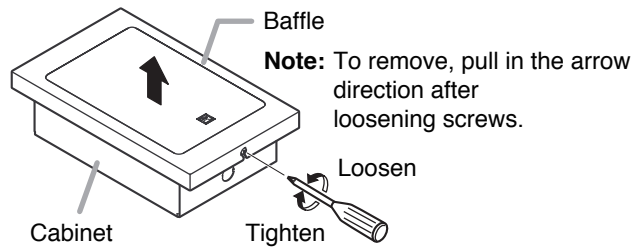
- Constructed with metal cabinet, the speaker is ideal for use in a voice alarm system.
- Can be surface- or flush-mounted to the wall.
- Either concealed in-wall wiring or exposed wiring can be used for speaker cable connection.
- The speaker structure of direct wall-mounting with screws prevents the speaker from falling easily even if an outward force is applied to.
- The input impedance can be easily changed by changing the tap position of the transformer.
- The built-in 16 cm (6") double cone speaker unit delivers high quality sound.
- The push-in type input connector makes cable connections easy and allows bridge wiring.
- The BS-680U is certified to UL 1480 UUMW and ULC-S541 standards, and for indoor use only.

3. INSTALLATION

Note that the mounting holes except hanging holes in the cabinet are covered with tape when shipped from the factory. Never remove the tape on your own before installation.

Note: Local codes may require other installation methods. Check with authority having jurisdiction to determine acceptability of the mounting methods shown here.

Step 1. Loosen one each of the screws on both sides of the speaker, then remove the baffle. You can remove the baffle by loosening the screw without taking it out.



Step 2. Install the cabinet on the wall.

The cabinet has knockout holes ($\varnothing 20.5$ mm or $\varnothing 0.81$ ") for cable routing. Remove the desired knockout hole depending on the wiring method, and route cables.

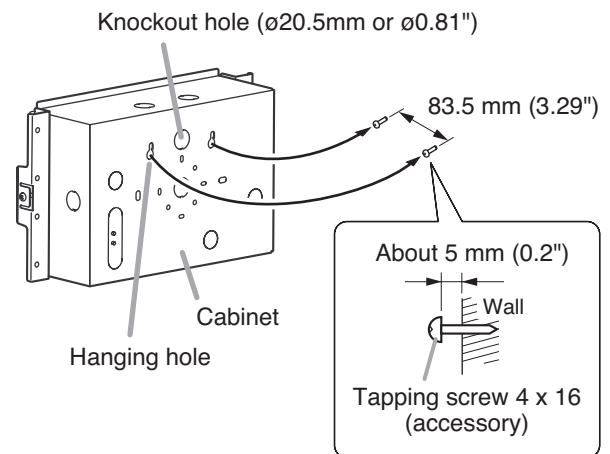
2-1. (Recommended Basic Way of Installation)

When installing the cabinet on the wall using the hanging holes:

- (1) Fix 2 supplied screws to the wall leaving about 5 mm (0.2") sticking out.
- (2) Remove the cabinet's knockout, then run the cables routed from the wall through this hole. In the case of exposed wiring, fit the supplied rubber grommet into the knockout hole.
- (3) Hook the cabinet onto the stick-out screws, then tighten the screws.

Note: Cut a hole in the grommet's thin membrane to match the cable size.

Tip: Owing to its shape, the hanging hole will prevent the cabinet from falling easily even if an outward force is applied to.



2-2. When installing the cabinet on the wall using other holes than hanging holes:

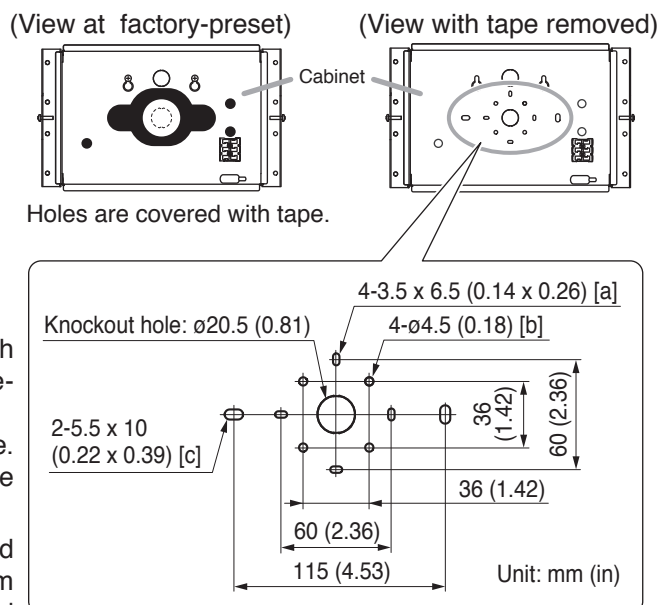
- (1) Remove the cabinet's knockout, then run the cables routed from the wall through this hole. In the case of exposed wiring, fit the supplied rubber grommet into the knockout hole.

Note: Cut a hole in the grommet's thin membrane to match the cable size.

- (2) Install the cabinet on the wall using the mounting holes [a], [b] or [c] shown at right.

Notes

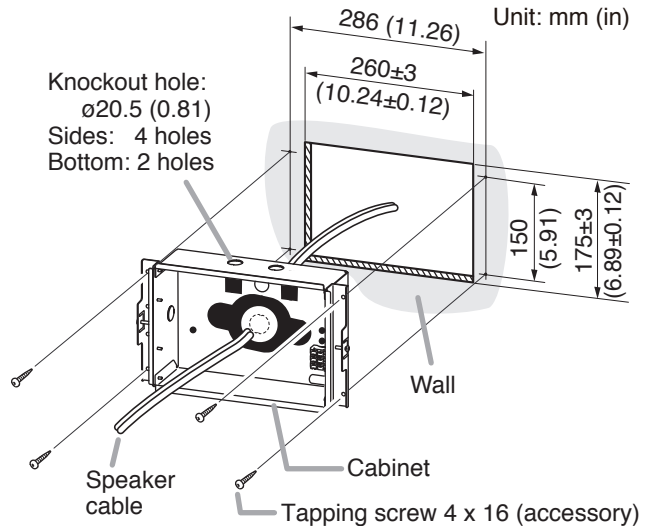
- When the holes to use are covered with tape, break through the tape with a fine-tipped object to expose the holes. Leave the unused holes covered with tape. In addition, cover 2 hanging holes with the supplied 2 pieces of sponge tape.
- Since no mounting screws are supplied with the speaker, separately prepare them appropriate for the construction of wall and its thickness.



2-3. When mounting the cabinet into the wall:

- (1) Make a mounting hole of 260 x 175 mm (10.24" x 6.89") in the wall.
- (2) Cover 2 hanging holes with the supplied 2 pieces of sponge tape. Leave the unused holes covered with tape.
- (3) Remove the cabinet's knockout hole, run the cables through this hole, then install the cabinet using 4 supplied screws (tapping screw 4 x 16).

Note: Fit the supplied rubber grommet into the knockout hole. Cut a hole in the grommet's thin membrane to match the cable size.



Step 3. Perform wiring.

- 3-1.** Connect both the lead-in and lead-out cables to the push-in connector attached to the cabinet.

[Applicable cable]

- Solid copper wire: $\varnothing 0.8 - 2.0$ mm (AWG 20 - 12)
- Stranded copper wire: $0.5 - 2.0$ mm² (AWG 20 - 14)

Note: Do not solder the end of stranded cable.

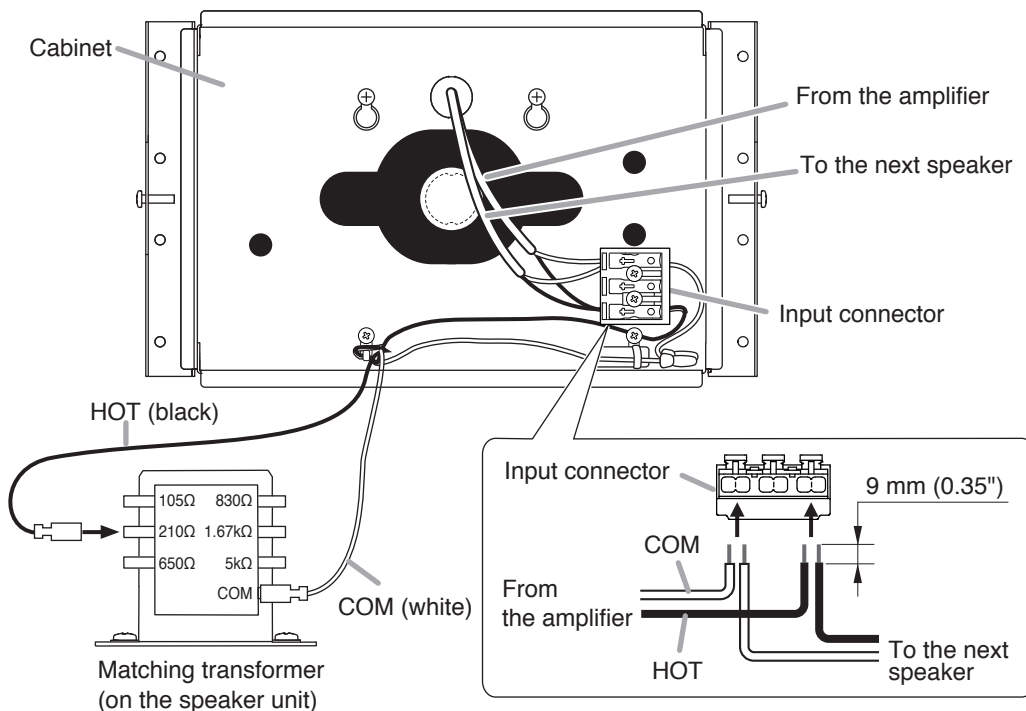
- 3-2.** Insert the fasten terminals fitted with the HOT (black) cable from the input connector and COM (white) cable from the capacitor into the taps of the transformer on the speaker unit. Connect the COM cable to the transformer's COM tap, the HOT cable to the desired transformer's input tap. (Refer to the figure below.)

The relationship between impedance and input power is shown below.

Input Power	25 V Line	70 V Line
6 W	105 Ω	830 Ω
3 W	210 Ω	1.67 k Ω
1 W	650 Ω	5 k Ω

Caution

When connecting the speaker to the amplifier, be sure to match both impedance and voltage line (25 V or 70 V) each other. Otherwise, the speaker or amplifier may fail.

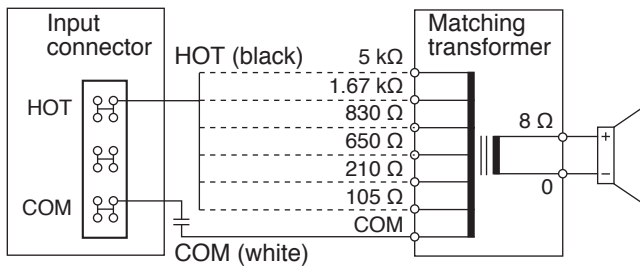


CAUTION

To conform with UL 1480 UUMW/ULC-S541, requirements for fire alarm signaling speaker, field wires must be connected as shown above. And, installation must comply with all National and Local Building Codes, also NFPA guidelines or CAN/ULC-S524.

- Step 4.** Replace the baffle to the cabinet, then tighten 2 screws loosely attached on both sides of the cabinet.

4. WIRING DIAGRAM



5. SPECIFICATIONS

Rated Input	6 W
Rated Impedance	70 V line: 830 Ω (6 W), 1.67 kΩ (3 W), 5 kΩ (1 W) 25 V line: 105 Ω (6 W), 210 Ω (3 W), 650 Ω (1 W)
Sensitivity	94 dB (1 W, 1 m) (500 Hz – 5 kHz, pink noise)
Frequency Response	150 Hz – 20 kHz (at 20 dB below peak)
Speaker Component	16 cm (6") double cone type
UL Code	UL 1480 UUMW, ULC-S541
Applicable Cable	Solid copper wire: $\varnothing 0.8 - 2.0$ mm (AWG 20 – 12) Stranded copper wire: $0.5 - 2.0$ mm ² (AWG 20 – 14)
Connection	Push-in connector (bridging terminal)
Operating Temperature	-10 to +50°C (14 to 122°F)
Finish	Baffle, Cabinet: Steel plate, white (RAL 9010 equivalent), powder coating Grille: Surface-treated steel plate mesh, white (RAL 9010 equivalent), paint
Dimensions	310 (w) x 190 (h) x 90 (d) mm (12.2" x 7.48" x 3.54")
Weight	2.6 kg (5.73 lb)

[Sound pressure level at 10 ft]

Voltage	70 Vrms			25 Vrms		
	6 W	3 W	1 W	6 W	3 W	1 W
Tap						
SPL per UL Reverberant Room (dBA)	85.8	84.4	79.5	85.9	83.3	78.9
SPL per ULC Anechoic Room (dBA)	91	88	85	91	88	84

[Directional characteristics]

Horizontal Axis	
Angle	dBA
0° (on axis)	0 (reference)
±60°	-3
±80°	-6
±90°	-8

Vertical Axis	
Angle	dBA
0° (on axis)	0 (reference)
±47°	-3
±80°	-6
±90°	-8

Note: The design and specifications are subject to change without notice for improvement.

• Accessories

Rubber grommet	2
Tapping screw 4 x 16	4
Sponge tape	1 sheet (2 pieces)