

WALL MOUNT SPEAKER**BS-250AB-EB**

Thank you for purchasing TOA's Wall Mount Speaker.

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

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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.

 **WARNING**

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

When Installing the Unit

- Refer all installation work to the dealer from whom the speaker was purchased. Installation work requires extensive technical knowledge and experience. The speaker may fall off if incorrectly installed, resulting in possible personal injury.
- Install the speaker only in a location that can structurally support the full weight of the unit and mounting bracket. Doing otherwise may result in the speaker falling down and causing personal injury and/or property damage.
- Since the unit is designed for in-door use, do not install it outdoors. If installed outdoors, the aging of parts causes the unit to fall off, resulting in personal injury. Also, when it gets wet with rain, there is a danger of electric shock.
- Do not use other methods than specified to install the speaker. Extreme force is applied to the speaker and the speaker could fall off, possibly resulting in personal injuries.
- Use screws that are appropriate for the wall's material and structure. Failure to do so may cause the speaker to fall, resulting in material damage and possible personal injury.
- Ensure that all screws are securely tightened. If they are loose after installation, the speaker could fall down, possibly resulting in personal injury.
- Do not mount the speaker in locations exposed to constant vibration. The speaker or its mounts can

Traceability Information for Europe (EMC directive 2004/108/EC)

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Suederstrasse 282, 20537 Hamburg,
Germany

be damaged by excessive vibration, potentially causing the speaker to fall, which could result in personal injury.

- Do not use anti-rust lubricant. If it contacts resin or rubber parts, they could deteriorate and cause the speaker to fall, possibly resulting in personal injury.
- Do not install the speaker in indoor swimming pools or such locations where liquid chemicals are used. The parts deteriorate if corroded, causing the speaker to fall, which could result in personal injury.

When the Unit is in Use

- If any of the following irregularities occurs, immediately switch off the amplifier's power, and inform the shop from where the speaker was purchased. Further using the speaker may result in fire or electric shock.
 - If you detect smoke or a strange smell coming from the speaker
 - If water or any metallic object gets into the speaker
 - If the speaker falls, or the speaker case breaks
- To prevent a fire or electric shock, never open nor remove the speaker case. Refer all servicing to your nearest TOA dealer.

CAUTION

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

When Installing the Unit

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

When the Unit is in Use

- Do not operate the speaker for an extended period of time with the sound distorting. Doing so may cause the speaker to heat, resulting in a fire.
- Do not stand or sit on, nor hang down from the speaker as this may cause it to fall down or drop, resulting in personal injury and/or property damage.
- Have the speaker checked periodically by the shop from where it was purchased. Failure to do so may result in corrosion or damage to the speaker or the mounts that could cause it to fall, possibly causing personal injury.

2. GENERAL DESCRIPTION AND FEATURES

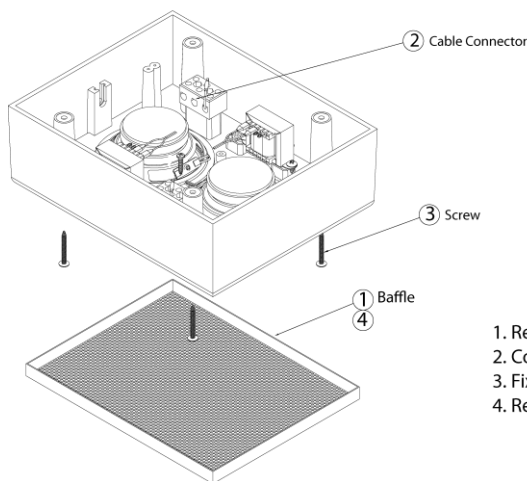
The BS-250AB-EB is a wall mount box speaker specially designed for voice alarm applications in buildings and installations where an A/B wiring is required. The speaker is certified according to the European Standard EN 54-24: 2008, and compliant with the British Standard BS 5839-8: 2008 14-8.

This model features:

- Two separate 100 V transformer and two speaker.
- Cabinet made of fire-resistant ABS resin, grille made of steel
- The cabinet can be installed in a vertical or horizontal orientation.
- Concealed in-wall wiring can be used for speaker cable connection.
- For direct wall-mounting with its screws preventing the speaker from falling.
- The input impedance can be easily changed by changing the tap position of the transformer.
- The full range 4-inch dual cone speaker units deliver high quality sound.
- Two ceramic screw terminals (steatite) for easy cable connections and two thermal fuses.
- Fire resistance according to UL 94-V0

3. INSTALLATION

Step 1. Remove the baffle.
Use a thin screw driver or a thin tip to remove.

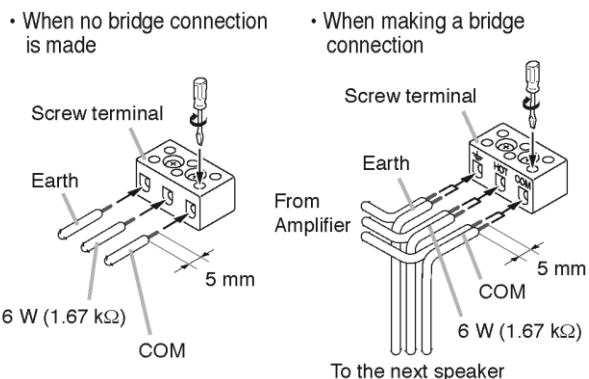


1. Remove the baffle.
2. Connect the input and output cable.
3. Fix the speaker onto the wall with 4 screws.
4. Replace the baffle on the speaker.

Step 2. Make wiring.

2-1. Insert the lead-in cables (cables from the amplifier) and lead-out cables (cables to other speakers) into the screw terminals attached to the cabinet for each of the two built-in speakers.

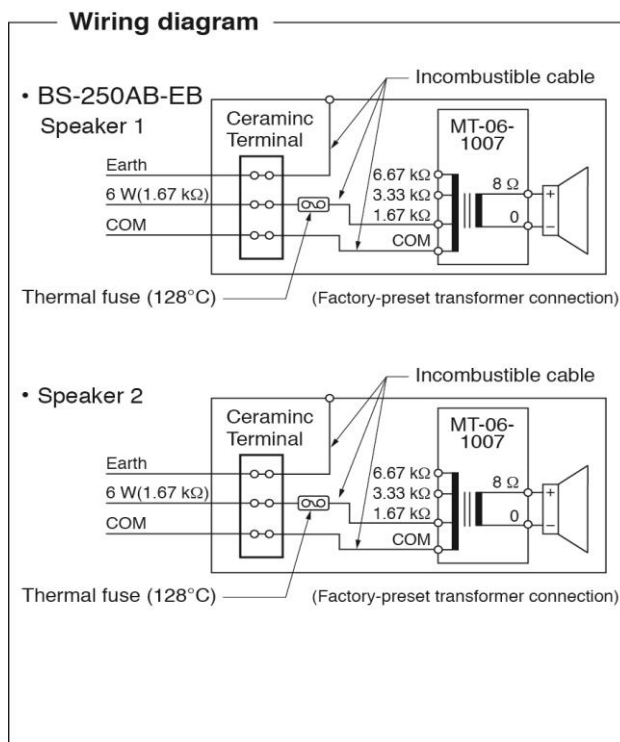
[BS-250AB-EB terminal block (1.67 kΩ use)]



2-2. Insert the fastens fitted at the ends of the HOT and COM cables from the screw terminals inside the cabinet into the taps of the matching transformer. Connect the COM cable to the transformer's COM tap, and the HOT cable to the desired transformer's input tap (Refer to the figure at right.) The table below shows the relationship between impedance and input power.

Matching transformer connection

Impedance	1.67 kΩ	3.33 kΩ	6.67 kΩ
100 V line	6 W	3 W	1.5 W



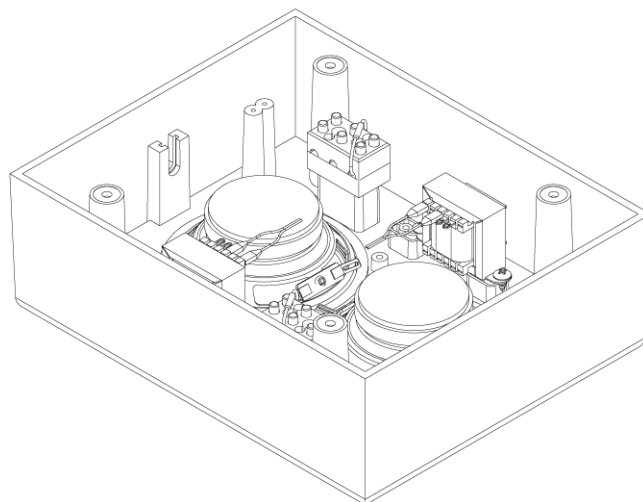
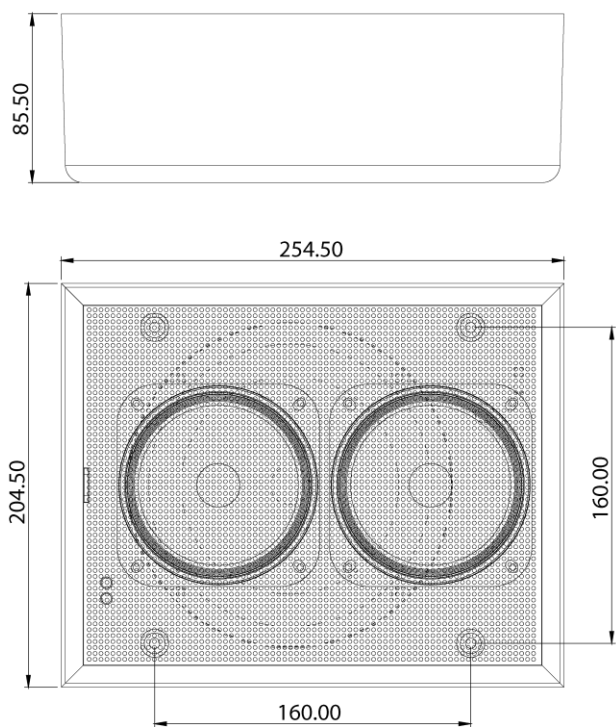
Step 3. Install the cabinet to the wall. 4 slotted or counter sunk head screws 4 x 35 up to 4.5 x 45 are required

Notes

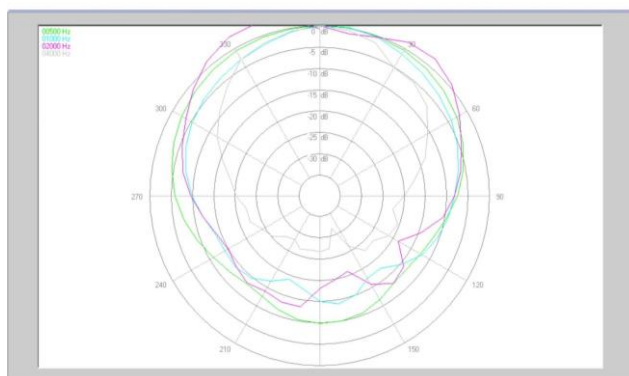
- Screws are not supplied. Make sure the screws are appropriate for the weight of the speaker and for the structure of the wall.
- The speaker can be installed in a vertical or horizontal orientation. Concealed in-wall wiring is recommended for speaker cable connection.

Step 4. Replace the baffle.
Push the baffle slightly into the cabinet.

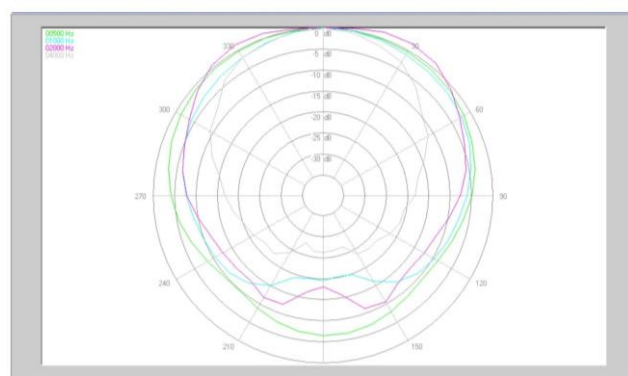
4. DIMENSIONAL DIAGRAM



5. POLAR PATTERN

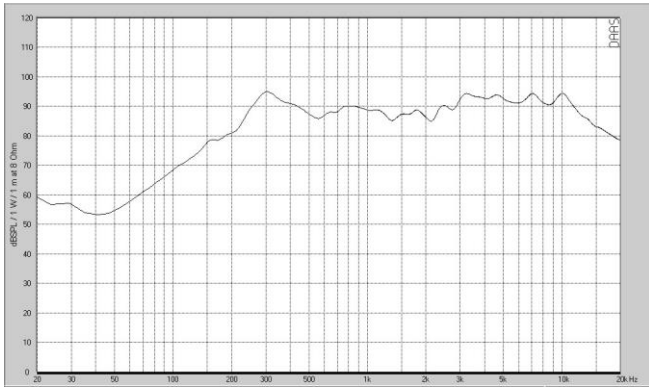


Horizontal polar diagram

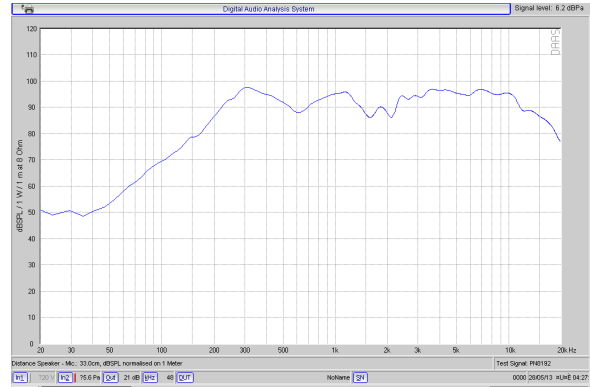


Vertical polar diagram

6. FREQUENCY RESPONSE (1 W, 4 m)



Single Speaker



Double Speaker

7. SPECIFICATIONS

Model	BS-250AB-EB	
Standards	Certified to the European Standard EN 54-24: 2008 Loudspeaker for voice alarm systems for fire detection and fire alarm systems	EN 54-24 Certificate 1488/CPD/0336/W
	In compliance with the British Standard BS-5839-8: 2008	
Environment Type	Type A	
Rated Noise Power	2x 6 W (100 V line)	
Rated Impedance	100 V line: 1.67 kOhm (6 W), 3.33 kOhm (3 W), 6.67 kOhm (1.5 W)	
Sensitivity S.P.L.	79 dB (1 W, 4 m, 100 Hz to 10 kHz pink noise)	
	86 dB (at rated noise power, 4 m)	
Frequency Response	150 Hz – 20 kHz (–10 dB from sensitivity)	
Coverage Angle (–6 dB)	Horizontal: 200° (500 Hz), 160° (1 kHz), 150° (2 kHz), 90° (4 kHz) Vertical: 200° (500 Hz), 170° (1 kHz), 150° (2 kHz), 80° (4 kHz)	
Speaker Component	2 x 10 cm (4") cone speaker	
Operating Temperature	-10°C + 55°C	
Cable Connection	Screw terminal (ceramic)	
Applicable Cable Size	Conductor size : 0.8 – 2.5 mm ² (cross section)	
Finish	Baffle	Steel, white
	Cabinet	Fire resistant ABS resin, white
Dimensions	254.5 (H) x 204.5 (W) x 87.5 (D) mm	
Weight	1.75 kg (3.86 lb)	
IP Grade	IP 32	

Notes

- The design and specifications are subject to change without notice for improvement.
- The Specifications data was measured in an anechoic chamber, according to EN 54-24.
- Reference axis: Axis is on the center of grill surface and perpendicular to the grill surface.
- Reference plane: Plane is on the grill surface and perpendicular to the reference axis.
- Horizontal plane: Plane is containing the reference axis and perpendicular to the reference plane.