TOA

2WAY COAXIAL HORN SPEAKER 60W
CS-761BS-B, CS-761BS-W
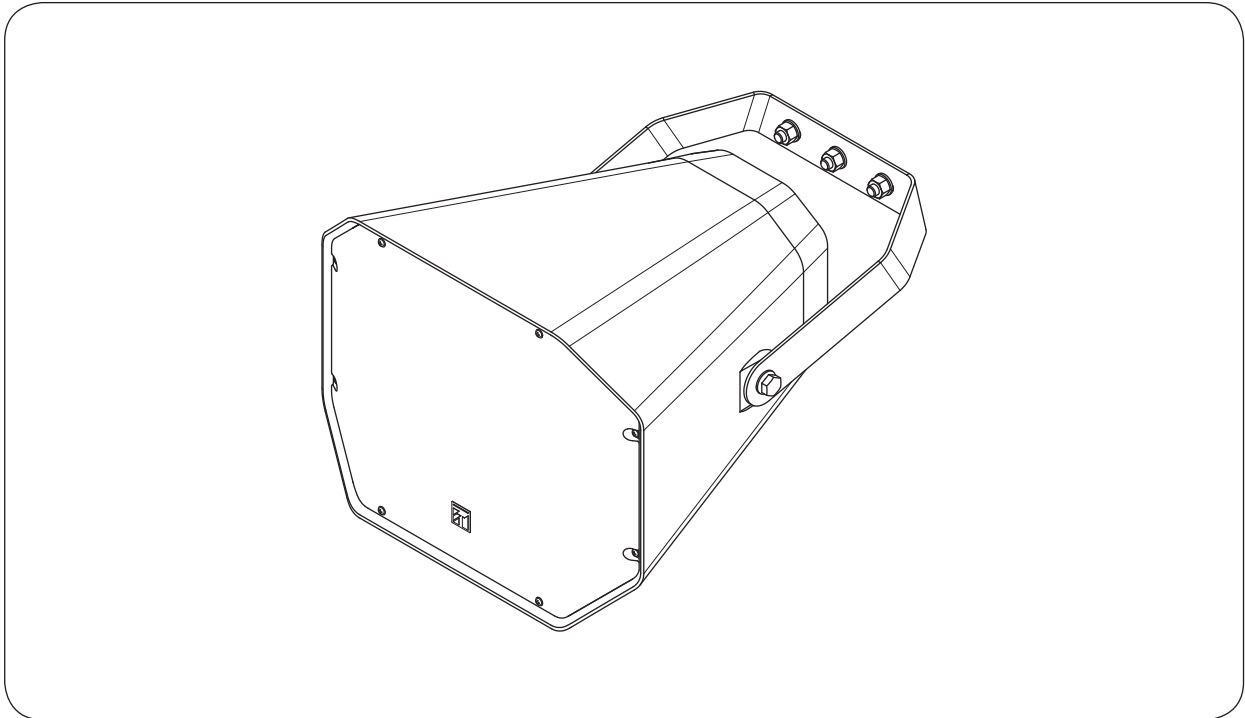
TABLE OF CONTENTS

Thank you for purchasing TOA's 2Way Coaxial Horn Speaker 60W.
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.

⚠ WARNING

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

• When using the unit mounted on a speaker stand, avoid installing or mounting the unit in unstable locations, such as on a rickety table or a slanted surface. Doing so may result in the unit falling down and causing personal injury and/or property damage.

• 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.

• When installing the unit in the snowy area, take appropriate measures to prevent snow from lying on the unit. If the snow lies on the unit, the unit may fall, causing personal injuries.

• Owing to the unit's size and weight, be sure that at least two persons are available to install the unit. Failure to do so could result in personal injury.

• 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.

• Use nuts and bolts that are appropriate for the ceiling's or wall's structure and composition. Failure to do so may cause the speaker to fall, resulting in material damage and possible personal injury.

• Tighten each nut and bolt securely. Ensure that the bracket has no loose joints after installation to prevent accidents that could result in personal injury.

• Use the specified mounting bracket in combination. Doing otherwise may cause the unit or component to fall off, resulting in personal injury.

• Do not mount the unit in locations exposed to constant vibration. The mounting bracket can be damaged by excessive vibration, potentially causing the unit 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 unit to fall, possibly resulting in personal injury.

• Avoid installing the speaker in locations close to the seashore or in indoor swimming facilities that are not well ventilated. In such locations, the bracket may be vulnerable to corrosion, eventually allowing the speaker to fall resulting in personal injury.

⚠ CAUTION

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

• To avoid electric shocks, be sure to switch off the unit's power when connecting speakers.

• Do not place heavy objects on the unit as this may cause it to fall or break which may result in personal injury and/or property damage. In addition, the object itself may fall off and cause injury and/or damage.

• Do not operate the unit for an extended period of time with the sound distorting. Doing so may cause the connected speakers to heat, resulting 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.

• Have the unit checked periodically by the shop from where it was purchased. Failure to do so may result in corrosion or damage to the speaker or its mounting bracket that could cause the unit to fall, possibly causing personal injury.

2. GENERAL DESCRIPTION

The CS-761BS-B/761BS-W is a 2-way speaker featuring a coaxially positioned 16 cm cone speaker and 2.5 cm tweeter. This speaker provides high-quality sound broadcasts with excellent clarity, not only indoors, but also in semi-outdoor facilities such as multistory parking structures, and even in outdoor applications such as sports grounds and parks. It complies with IP66 Dustproof and Waterproof Standards.
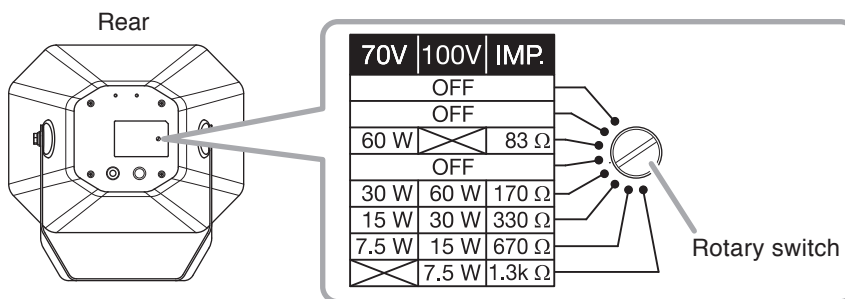The CS-761BS-B/761BS-W is certified to the European Standard EN 54-24: 2008.

3. FEATURES

- Coaxial two-way speaker construction enables high-quality sound, highly intelligible broadcasts that can even be used for music output.
- High-powered 60 W rated input.
- Directivity angle of 90° horizontal × 80° vertical.
- Dustproof and waterproof construction complies with the IP66 Standards.
- Certified to EN 54-24, and ISO 7240-24, and compliant with BS 5839-8.
- Can be mounted to a wall, ceiling, pole*[1] or speaker stand*[2].

*[1] Optional SP-201 Speaker Mount Bracket and YS-60B Pole Band required.
*[2] Compatible with optional ST-34B Speaker Stand. However, this must not be used in permanent installations.

4. CHANGING IMPEDANCE

To change the speaker's impedance, rotate the rotary switch located on the rear of the unit using a slotted screwdriver, and set the impedance for the desired input wattage (factory-preset to 170 Ω).
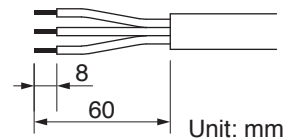
Rear

70V	100V	IMP.
OFF		
OFF		
60 W	⨉	83 Ω
OFF		
30 W	60 W	170 Ω
15 W	30 W	330 Ω
7.5 W	15 W	670 Ω
⨉	7.5 W	1.3k Ω

Rotary switch

Note: Do not set to the ⨉ marked position, as this could result in speaker failure.

5. WIRING

The speaker cable is not connected to the speaker unit when shipped from the factory.
Follow one of the procedures below to connect the speaker cable to the speaker unit.
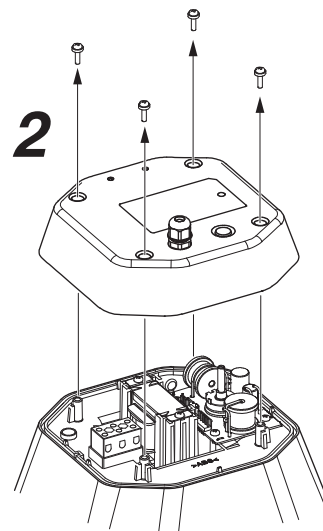
5.1. When No Bridge Connection is Required

Step 1. Strip the speaker cable jacket as shown at right.

8
60
Unit: mm

Step 2. Detach the rear case.
Remove the 4 screws holding the rear case.

> **Note**
> Gaskets are used to seal the unit's rear case and screw holes. Since these must be used again when reattaching the rear case, take care not to lose or damage them.

2

Step 3. Run the speaker cable through the cable gland.

Step 4. Connect the speaker cable according to the polarity indication at the screw terminal.

Screw terminal

HOT

COM

HOT   COM

3

EARTH

4

Speaker cable
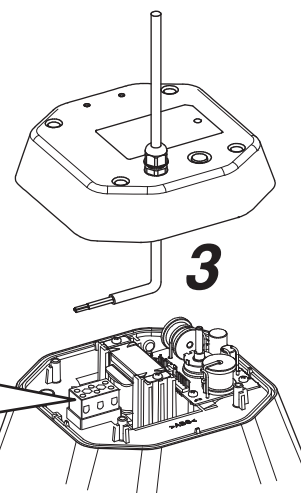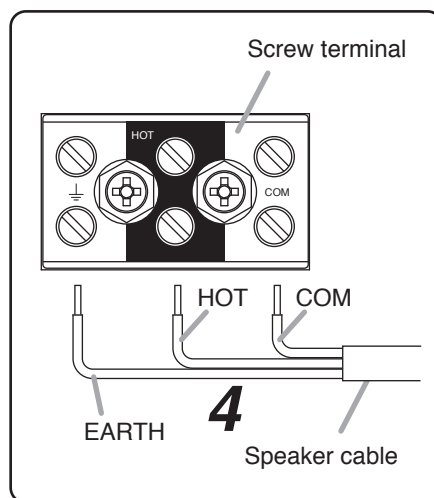
Step 5. Attach the rear case.
Secure the rear case using the 4 supplied screws.
In this case, take care not to pinch the wiring, and check that the waterproof gasket is secured into place.
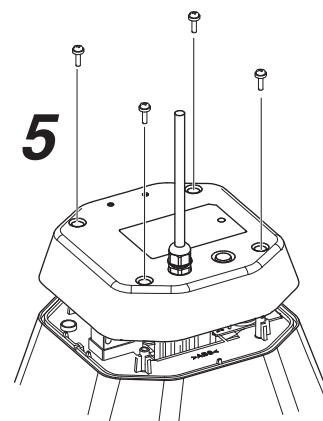
> **Note**
> If wiring or the waterproof gasket is pinched between the rear case and the unit case, this causes water or moisture to get inside the rear case.

5

Step 6. Securely tighten the cable gland.
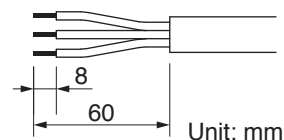
> **Note**
> If loosely tightened, water or moisture may get inside the rear case.

5.2. When Bridge Connection is Required

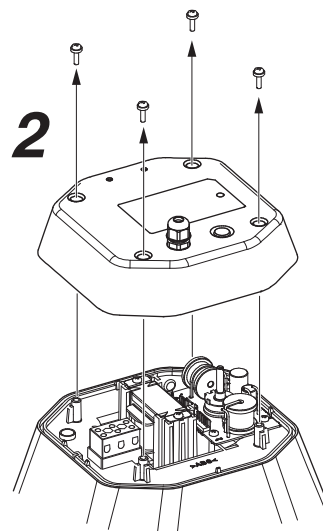**Step 1.** Strip the speaker cable jacket as shown at right.

8
60
Unit: mm

Step 2. Detach the rear case.
Remove the 4 screws holding the rear case.

Note
Gaskets are used to seal the unit's rear case and screw holes. Since these must be used again when reattaching the rear case, take care not to lose or damage them.
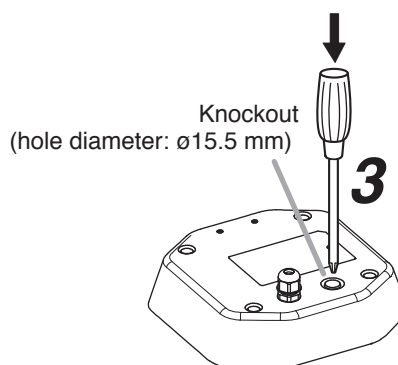
2

Step 3. Punch a knockout hole.
Punch out the knockout on the rear case by tapping the center of the knockout with a screwdriver or other tool.

Note
Clean burrs off the knockout hole after removing the knockout. If the cable gland is attached with the burrs left in the hole, water may get inside the rear case.

Knockout
(hole diameter: ø15.5 mm)

3

**Step 4.** Mount the cable gland to be added.

Notes
· Prepare the cable gland of PGB9-09 size separately.
· Ensure that the cable gland is securely tightened. If loosely tightened, water may get inside the rear case.

4
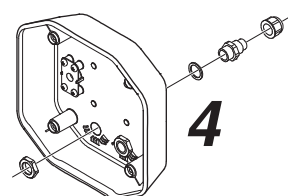
Step 5. Run one each of speaker cables through the cable gland.

Step 6. Connect the speaker cables with the same polarity to each terminal according to the polarity indication at the screw terminal.

HOT
COM
Screw terminal

HOT   COM
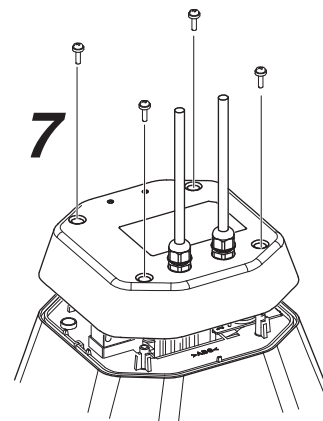
6

EARTH

Speaker cable

5

5
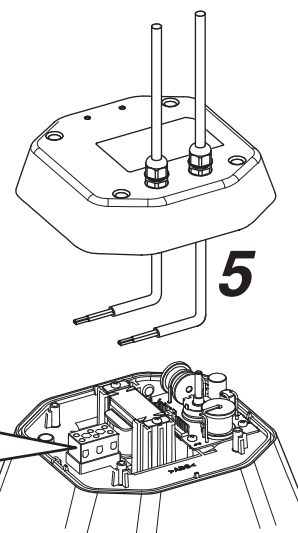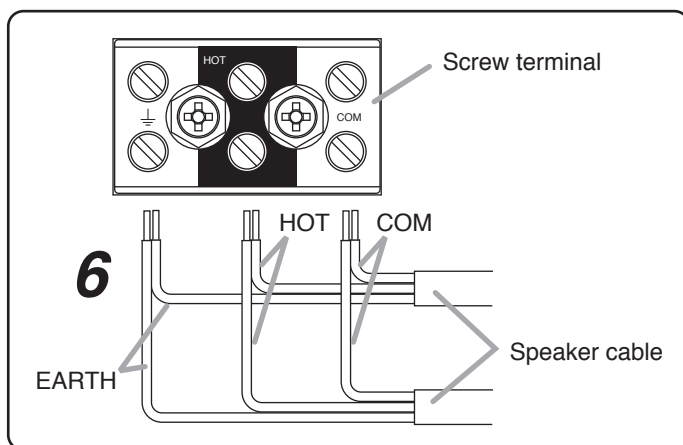
Step 7. Attach the rear case.
Secure the rear case using the 4 supplied screws.
In this case, take care not to pinch the wiring, and check that the waterproof gasket is secured into place.

Note
If wiring or the waterproof gasket is pinched between the rear case and the unit case, this causes water or moisture to get inside the rear case.


Step 8. Securely tighten the cable glands.

Note
If loosely tightened, water or moisture may get inside the rear case.

6. INSTALLATION PRECAUTIONS

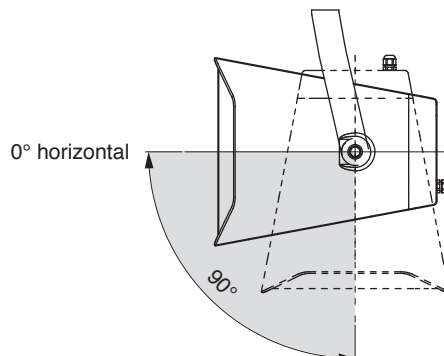· Only install the unit in locations with an ambient operating temperature range of –10 to +50°C. Failure to follow this instruction could result in speaker malfunction or failure.
· Set the speaker orientation within the shaded ▭ range shown in the figure below.

[Wall or Pole Mounting]
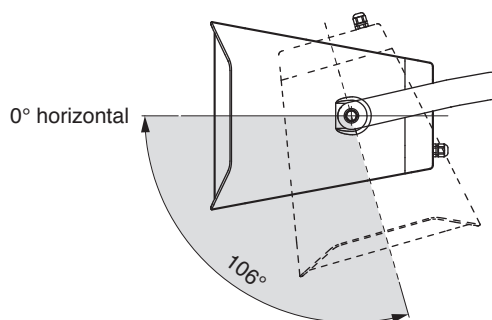
0° horizontal to 106° downward facing
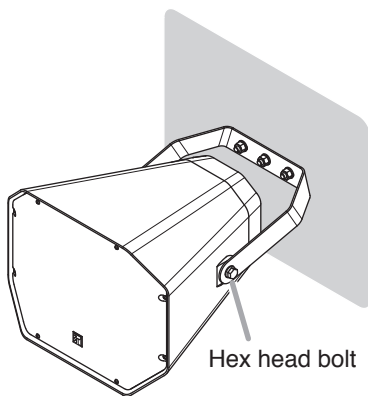
[Ceiling Mounting or Under Eaves]

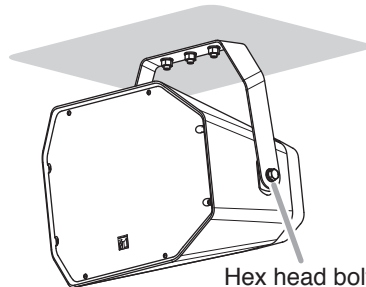
0° horizontal to 90° downward facing

7. INSTALLATION

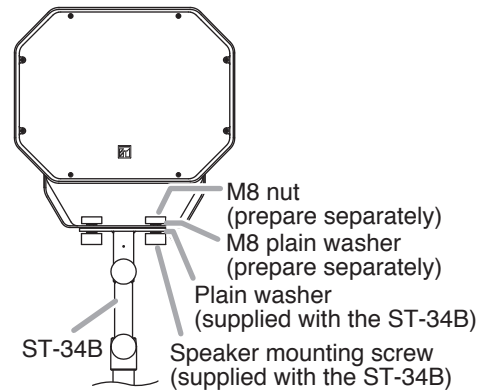**[Wall or Pole Mounting]**   **[Ceiling Mounting or Under Eaves]**   **[Stand Mounting]**

Hex head bolt

Hex head bolt

M8 nut
(prepare separately)
M8 plain washer
(prepare separately)
Plain washer
(supplied with the ST-34B)
ST-34B
Speaker mounting screw
(supplied with the ST-34B)

Step 1. Secure the speaker mounting bracket to the wall, ceiling, pole, or speaker stand in two or more places.

⚠ WARNING

- The nuts and bolts used to mount the unit to a wall, ceiling, pole, or speaker stand are not supplied with the unit. These parts must be prepared separately and must be robust enough to support the unit's weight, carefully considering the material, strength and total weight of the installation location.
- Be sure that two or more persons are involved in speaker installation to ensure that the unit is supported safely without detaching the mounting bracket from the speaker.
- Tighten each nut and bolt securely, taking ample measures to prevent them from accidentally loosening over time.

For pole mounting applications, please refer to the instruction manual for the SP-201 Speaker Mount Bracket.

Use M8 bolts when mounting to the ST-34B Speaker Stand. Using the speaker mounting screws and plain washers supplied with the ST-34B, mount the speaker to the stand by tightening the separately procured nuts from the speaker mounting bracket side.

[Mounting Dimension]

56 mm   56 mm
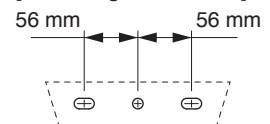
Note
Be sure to attach at both sides.

Step 2. Loosen the hex head bolts on both sides to adjust the angle, then retighten the bolts.
Recommended hex head bolt tightening torque (15N•m)
Notes
- Do not detach the hex head bolts.
- The hex head bolts are loosely tightened when the unit is shipped from the factory. Be sure that they are firmly tightened after unit installation.
- Take care not to overtighten.

8. WIRING DIAGRAM

Screw terminal

Thermal fuse
(84 ºC or 183.2 ºF)

Rotary switch

Matching
transformer

Network

Earth

HOT (+)

COM (−)

HOT (black)

COM (white)

1.3 kΩ
670 Ω
330 Ω
170 Ω *
83 Ω
COM

8 Ω

0

\+

−

* Factory-preset
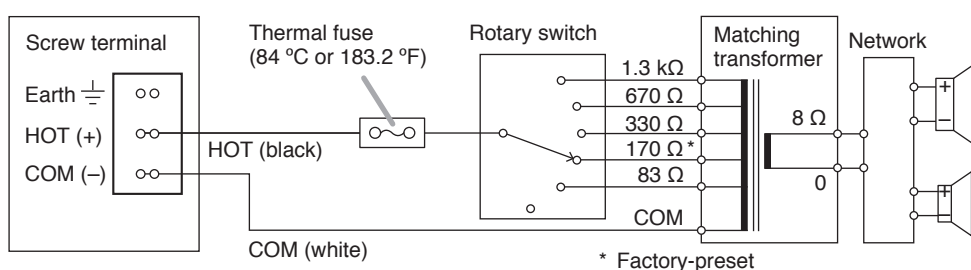
9. FREQUENCY RESPONSE (1 W, 4 m)

[dB]

Frequency - SPL

[Hz]

10. DIMENSIONAL DIAGRAM

[Front]

[Side]

310

367

[Rear]

Rotary switch

[Bottom]

388

[Mounting bracket]

56   56

45   Φ11   2-11 x 21

Unit: mm

8
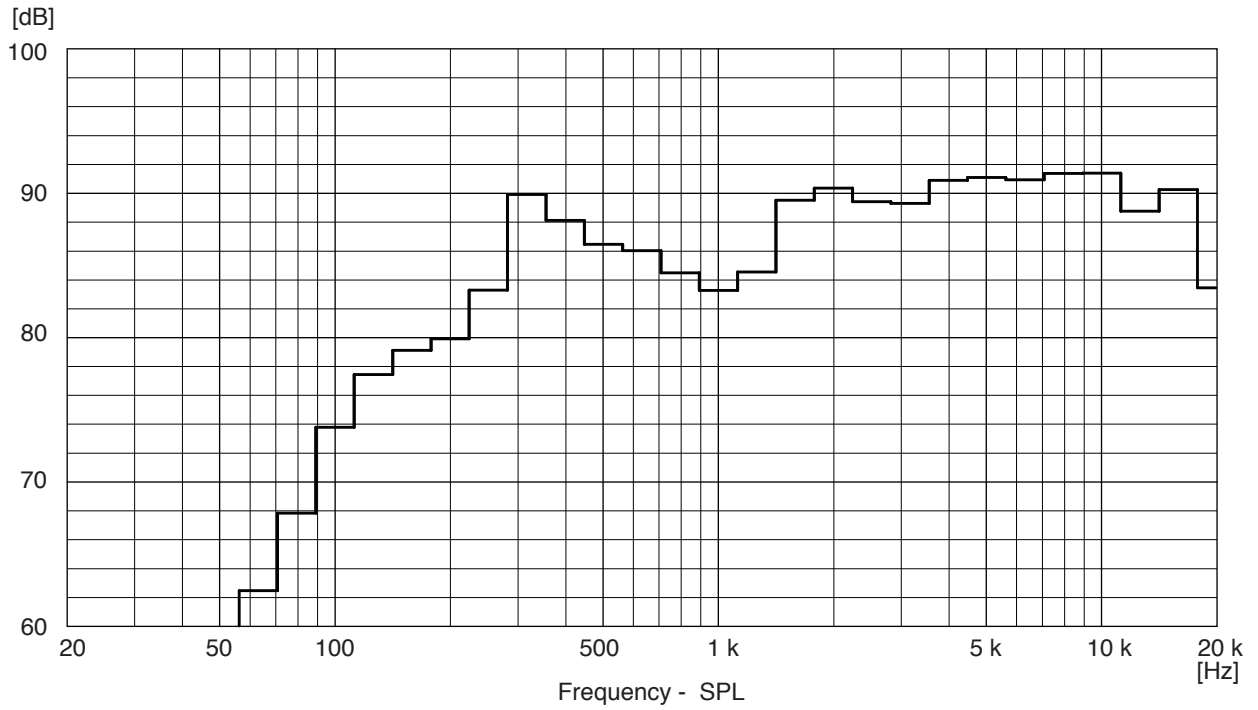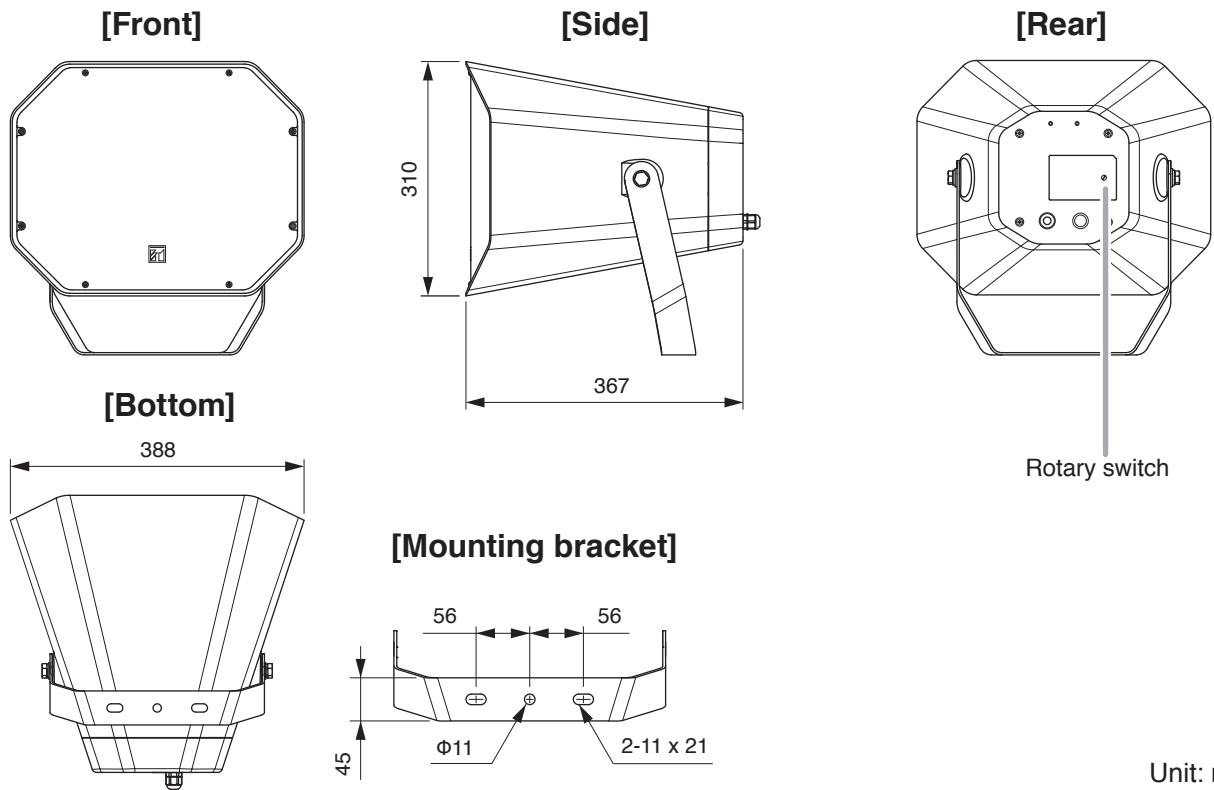
11. SPECIFICATIONS

Model No.	CS-761BS-B	CS-761BS-W
Standards	Certified to the European Standard EN 54-24: 2008 Loudspeaker for voice alarm systems for fire detection and fire alarm systems DoP Number: 21-001	CE 1438
	In compliance with the British Standard BS-5839-8: 2008	
Rated Input	60 W	
Rated Impedance	100 V line: 170 Ω (60 W), 330 Ω (30 W), 670 Ω (15 W), 1.3 kΩ (7.5 W) 70 V line: 83 Ω (60 W), 170 Ω (30 W), 330 Ω (15 W), 670 Ω (7.5 W)	
Sensitivity	100 dB (1 W, 1 m) (1 kHz – 10 kHz, pink noise) 99 dB (1 W, 1 m) (100 Hz – 10 kHz, pink noise) 87 dB (1 W, 4 m) (100 Hz – 10 kHz, pink noise)	
Maximum Sound Pressure Level	117 dB (60 W, 1 m) (1 kHz – 10 kHz, pink noise) 103 dB (60 W, 4 m) (100 Hz – 10 kHz, pink noise)	
Frequency Response	100 Hz – 20 kHz	
Coverage Angle (–6 dB)	Declared value according to EN 54-24 Horizontal: 135° (500 Hz), 70° (1 kHz), 70° (2 kHz), 90° (4 kHz) Vertical: 160° (500 Hz), 85° (1 kHz), 110° (2 kHz), 105° (4 kHz)	
Environmental Type	Type B (outdoor applications)	
Speaker Component	Low frequency: 16 cm cone-type, High frequency: 2.5 cm tweeter	
Operating Temperature	–10 to +50 °C (14 to 122 °F)	
Dust/Water Protection	IP66	
Applicable Cable	Size: PG 9 One cable gland is factory-installed. For bridge connection, one cable gland can be added.	
Applicable Cable Size	Outer diameter: ø4.5 – 8.2 mm Conductor: Solid wire or 7-core wire No bridge connection: 0.8 – 10 mm^2 for solid wire, 0.8 – 8 mm^2 for 7-core wire Bridge connection: 0.8 – 2.5 mm^2 for solid wire, 0.8 – 1.5 mm^2 for 7-core wire	
Cable Connection	Screw terminal (steatite), can be bridge-connected	
Finish — Enclosure	ABS resin, black (RAL 9011 equivalent), paint	ABS resin, white (RAL 9010 equivalent), paint
Finish — Punched net	Steel plate, black (RAL 9011 equivalent), paint	Steel plate, white (RAL 9010 equivalent), paint
Finish — Bracket	Stainless steel, black (RAL 9011 equivalent), powder coating	Stainless steel, white (RAL 9010 equivalent), powder coating
Dimensions	388 (w) x 310 (h) x 367 (d) mm	
Weight	7.6 kg	

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 horn-mouth and perpendicular to the horn-mouth.
- Reference plane: Plane is on the horn-mouth and perpendicular to the reference axis.
- Horizontal plane: Plane is containing the reference axis and perpendicular to the reference plane.
- Other technical data: See the specification sheet of CS-761BS-B and CS-761BS-W.

• Optional products
Speaker Mount Bracket: SP-201
Pole Band: YS-60B
Speaker Stand: ST-34B

Traceability Information for Europe	

Manufacturer:
  TOA Corporation
  7-2-1, Minatojima-Nakamachi, Chuo-ku, Kobe, Hyogo, Japan
	Authorized representative:
	  TOA Electronics Europe GmbH
	  Suederstrasse 282, 20537 Hamburg, Germany