

**CEILING MOUNT SPEAKER**
**PC-1860EN  
PC-2360EN**

Thank you for purchasing TOA's Ceiling Mount Speaker.  
Please carefully follow the instructions in this manual to ensure long, trouble-free use of your equipment.

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		احتياطات تتعلق بنواحي السلامة	

**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 ceiling'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.

**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



## WARNING

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

### When Installing the Unit

- Do not mount the speaker in locations exposed to constant vibration. The speaker or its mounts can 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.

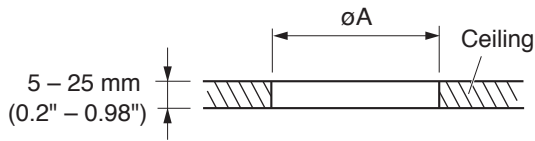
## 2. GENERAL DESCRIPTION AND FEATURES

The PC-1860EN and PC-2360EN are certified according to the European Standard EN 54-24: 2008. Integrated with a speaker unit and panel, the PC-1860EN and PC-2360EN Ceiling Mount Speakers are of metallic construction and ideal for use in a voice alarm system. They feature spring catch mechanism for easy speaker mounting to the ceiling. The input impedance can be easily changed by changing the tap position of the transformer. The push-in type input terminal block makes cable connections easy and allows bridge wiring.

### 3. INSTALLATION

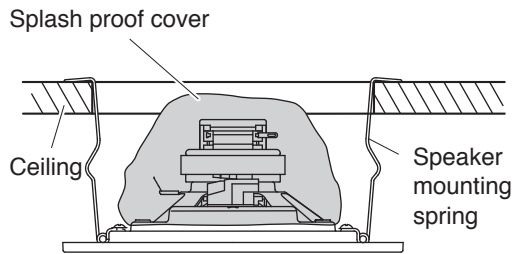
All the figures in this section show PC-1860EN.

**Step 1.** Using the supplied paper pattern as a guide, open a mounting hole of the dimension specified below in the ceiling.



Model No.	øA
PC-1860EN	ø150 ±3 mm (ø5.91" ±0.12")
PC-2360EN	ø200 ±3 mm (ø7.87" ±0.12")

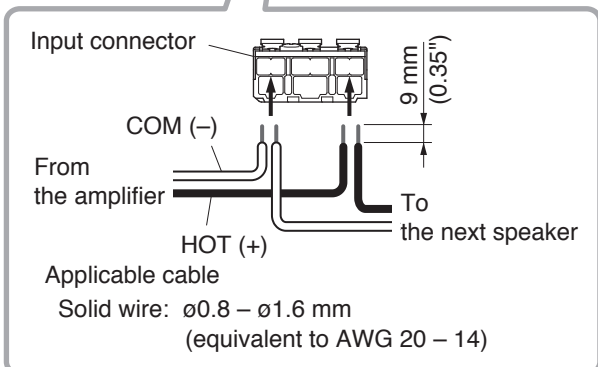
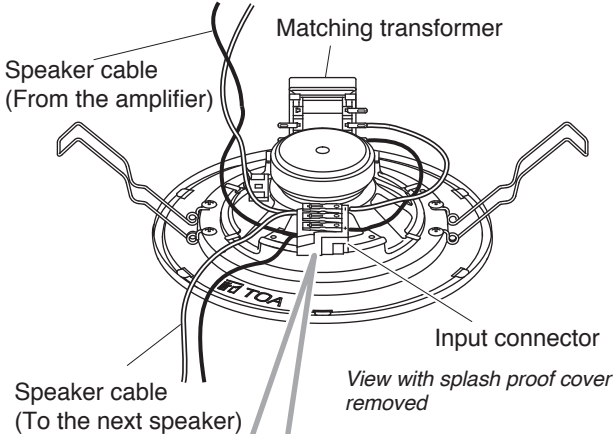
**Step 2.** Hook the speaker mounting spring into the mounting hole in the ceiling.



**Step 3.** Make wiring.

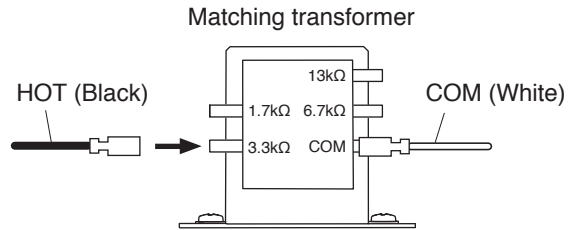
**3-1.** Insert the lead-in cables (cables from the amplifier) and lead-out cables (cables to other speakers) into the input connector.

[When making a bridge connection]



**3-2.** Change the input impedance as needed.

The speaker's input is factory-preset to 1.7 kΩ. When changing the input impedance, detach the black wire connected to the matching transformer, and reinsert it into the desired input tap referring to the tables below.



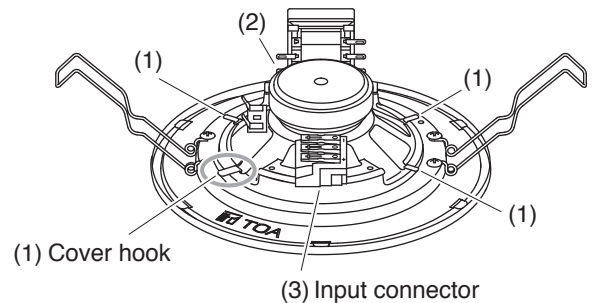
Impedance	1.7 kΩ	3.3 kΩ	6.7 kΩ	13 kΩ
100 V line	6 W	3 W	1.5 W	0.8 W
70 V line	3 W	1.5 W	0.8 W	0.4 W

**Step 4.** Mount the splash proof cover.

#### Important

Hook the splash proof cover at every points marked with arrows in the figure below. The splash proof cover is compliant with the dust/water protection rating IP21C.

Check that the cover is securely fixed to all hooking positions to protect the speaker unit, transformer, and connection terminal from water splash.



(1) Hook the splash proof cover to the cover hook.

(2) Hook the splash proof cover under the Matching transformer.

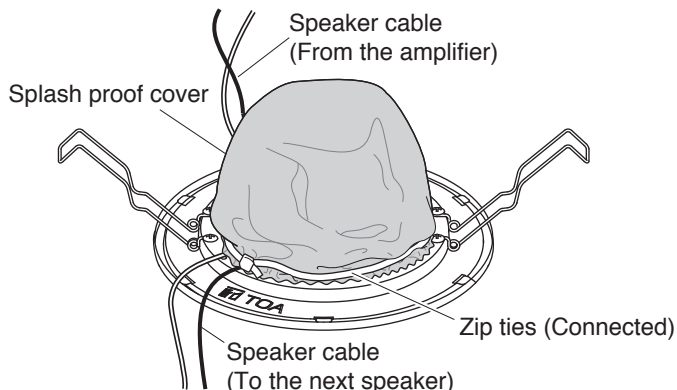
(3) Hook the splash proof cover under the Input connector.

**Step 5.** Fix the splash proof cover with supplied zip ties.

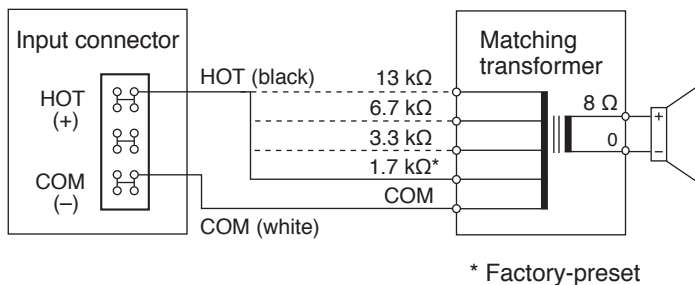
**Step 6.** Push the panel surface into the mounting hole.

**Important**

After mounting the splash proof cover, it has to be fixed with supplied zip ties to avoid access to the input terminal.

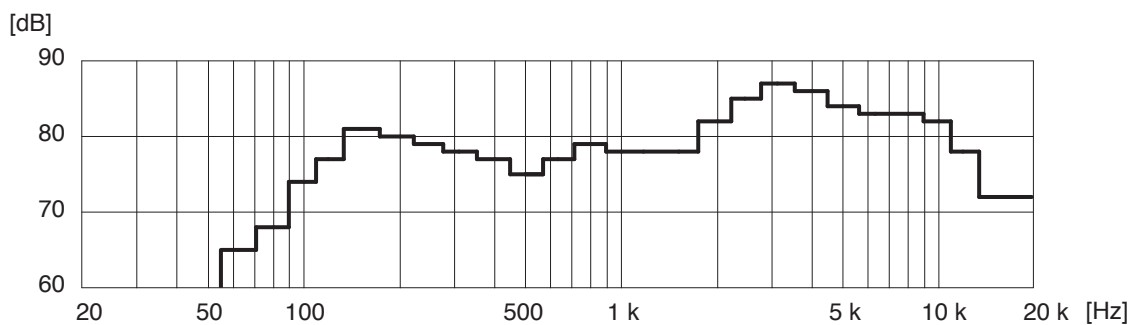


**4. WIRING DIAGRAMS**

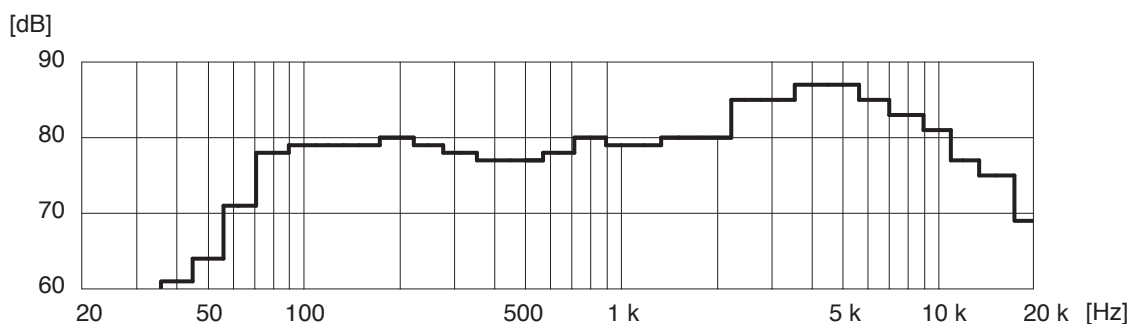


**5. FREQUENCY RESPONSE (1 W, 4 M)**


**5.1. PC-1860EN**



**5.2. PC-2360EN**



## 6. SPECIFICATIONS

Model No.	PC-1860EN	PC-2360EN
Standards	Certified to the European Standard EN 54-24: 2008 Loudspeaker for voice alarm systems for fire detection and fire alarm systems 	
Rated Input	6 W (100 V line), 3 W (70 V line)	
Rated Impedance	100 V line: 1.7 kΩ (6 W), 3.3 kΩ (3 W), 6.7 kΩ (1.5 W), 13 kΩ (0.8 W) 70 V line: 1.7 kΩ (3 W), 3.3 kΩ (1.5 W), 6.7 kΩ (0.8 W), 13 kΩ (0.4 W)	
Sensitivity	94 dB (1 W, 1 m) (500 Hz – 5 kHz, pink noise) 92 dB (1 W, 1 m) (100 Hz – 10 kHz, pink noise) 80 dB (1 W, 4 m) (100 Hz – 10 kHz, pink noise)	
Maximum Sound Pressure Level	99 dB (6 W, 1 m) (100 Hz – 10 kHz, pink noise) 87 dB (6 W, 4 m) (100 Hz – 10 kHz, pink noise)	
Frequency Response	80 Hz – 20 kHz (peak –20 dB)	60 Hz – 20 kHz (peak –20 dB)
Coverage Angle (–6 dB)	Horizontal and Vertical: 165° (500 Hz), 175° (1 kHz), 165° (2 kHz), 70° (4 kHz) according to EN 54-24	Horizontal and Vertical: 160° (500 Hz), 170° (1 kHz), 160° (2 kHz), 60° (4 kHz) according to EN 54-24
Environmental type	A (indoor applications)	
Speaker Component	12 cm (5") cone-type	16 cm (6") cone-type
Operating Temperature	–10 to +50 °C (14 to 122 °F)	
Dimensions for Fixing Hole	Mounting hole: $\varnothing 150 \pm 3$ mm ( $\varnothing 5.91'' \pm 0.12''$ ) Ceiling thickness: 5 – 25 mm (0.2" – 0.98")	Mounting hole: $\varnothing 200 \pm 3$ mm ( $\varnothing 7.87'' \pm 0.12''$ ) Ceiling thickness: 5 – 25 mm (0.2" – 0.98")
Speaker Mounting Method	Spring clamp	
Applicable Cable	Solid wire: 0.5 – 3 mm <sup>2</sup> (AWG 20 – 12)	
Connection	Push wire connection (Bridging terminal-2 branch type)	
Finish	Frame: Steel plate, white (RAL 9016 equivalent), paint Grille: Steel net, white (RAL 9016 equivalent), paint	
Dimensions	$\varnothing 180 \times 70$ (d) mm ( $\varnothing 7.09'' \times 2.76''$ )	$\varnothing 230 \times 76$ (d) mm ( $\varnothing 9.06'' \times 2.99''$ )
Weight	560 g (1.23 lb)	740 g (1.63 lb)

### 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.
- Other technical data: See the specification sheet PC-1860EN/PC-2360EN.

### • Accessories

#### [PC-1860EN]

Paper pattern ..... 1  
 Zip tie ..... 2

#### [PC-2360EN]

Paper pattern ..... 1  
 Zip tie ..... 3

