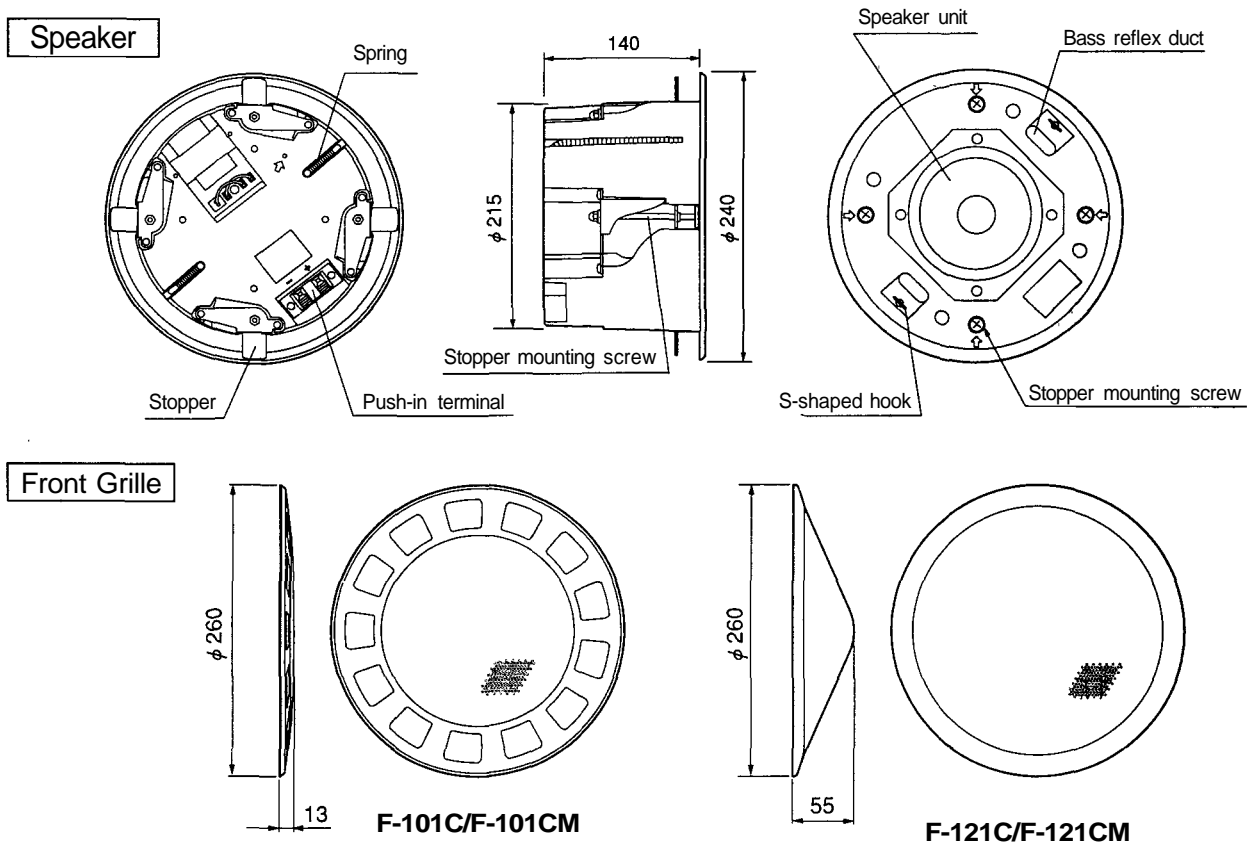


CEILING SPEAKER SYSTEM

F-101C, F-101CM F-121C, F-121CM

An optional electronic controller AC-120 is required when using the F-121C or F-121CM. For details, refer to the section "7. System Examples".

1. Nomenclature and Dimensional Diagrams



2. Features

- Bass-reflex design with high power rating and wide range.
- Full-range 12 cm speaker.
- Can be easily mounted on the ceiling or wall.
- Unique acoustic construction employing a diffuser provides extremely wide area coverage and wide directivity, resulting in uniform sound pressure level in any locations. (F-121C and F-121CM)
- Optimum frequency response with use of the AC-120. (F-121C and F-121CM)

2. SAFETY PRECAUTIONS

- Be sure to read the instructions in this section carefully before use.
- Make sure to observe the instructions in this manual as the conventions of safety symbols and messages regarded as very important precautions are included.
- We also recommend you keep this instruction 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 so you are thoroughly aware of the potential safety hazards as well as understand the safety symbols and messages.



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

- Install the unit only in a location that can structurally support the weight of the unit. Doing otherwise may result in the unit falling down and causing personal injury and/or property damage.
- To prevent personal injuries due to the fall of the speaker, be sure to fix the speaker by means of four stoppers and connect a safety wire.

CAUTION

- Avoid installing the unit in humid or dusty locations, in locations exposed to the direct sunlight, near the heaters, or in locations generating sooty smoke or steam as doing otherwise may result in fire or electric shock.
- Do not operate the speaker 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.

3. Impedance Switching (F-101CM and F-121CM)

The input impedance of the F-101CM and F-121CM is factory-preset to 3.3 k Ω (3 W for 100 line).

When changing the impedance, first confirm whether the speaker line is 70 V or 100 V line. Then disconnect the red lead wire connected to the current transformer tap, and reconnect it to the desired tap.

[Precaution]

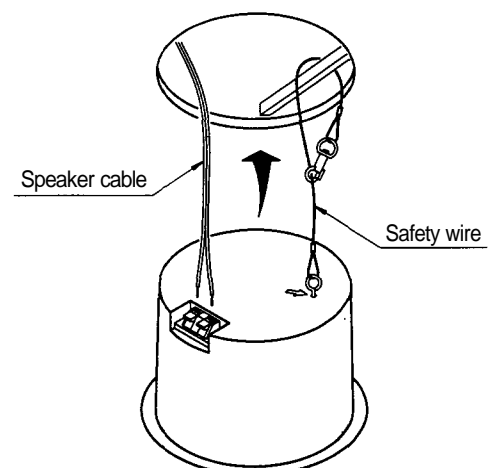
When using a 100 V speaker line, do not connect to the "250 Ω " tap as the speaker or power amplifier may fail.

4. Installation

1. Make a 218 mm diameter mounting hole in the ceiling using the supplied template (paper pattern).
2. Wrap the safety wire attached to the speaker around a strong ceiling beam and secure by snapping the wire endpiece onto the wire.
3. Connect the speaker cable to the push-in terminal.

Note

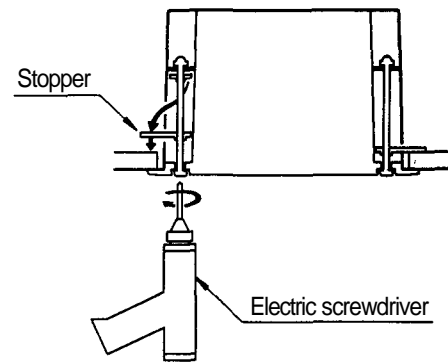
Change the impedance of the F-101CM or F-121CM at this stage as required, because the change cannot be made once the speaker has been installed.



- Insert the speaker in the ceiling hole taking care not to touch the speaker unit directly.
- Using an electric screwdriver, tighten four stopper mounting-screws (Phillips screws). Within five to ten seconds after the stopper begins to lower, it will clamp the ceiling panel and the electric screwdriver will automatically stop.

Note

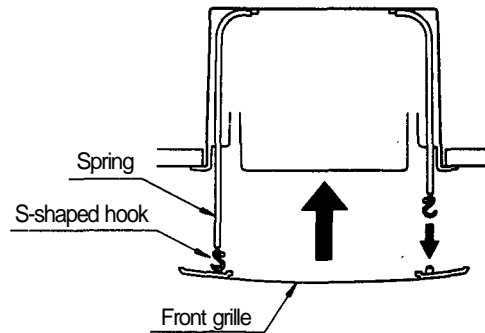
To remove the speaker, rotate the four stopper screws counterclockwise. (The stopper rises and returns to its housing position within the speaker box.)



Note

Use an electric screwdriver to tighten the stopper screws. (Tightening torque: 10-15 kg f • cm)

- Pull out an S-shaped hook (2 places) from the speaker front, and hook them into the corresponding hooks on the back side of the grille. Then fit the grille flush with the speaker.



5. Overload Protective Circuit (F-101C and F-121C)

Both the F-101C and F-121C are equipped with a circuit to protect them against extremely large input. If the sound volume drops during use, this means that the protective circuit is in operation. In such a case, turn down the volume and wait till the protective circuit is automatically reset (10 seconds after turned down). After the circuit is reset, keep the volume slightly lower than before.

6. Specifications

Model No.	F-101C	F-101CM	F-121C	F-121CM	
Enclosure Type	Bass-reflex type				
Speaker Unit	Full-range 12 cm cone speaker				
Power Handling Capacity	40 W (continuous pink noise) 120 W (continuous program)	20 W (rated input)		40 W (continuous pink noise) 120 W (continuous program) 20 W (rated input)	
Impedance	8Ω	100 V line	70 V line	100 V line	70 V line
		500 Ω (20 W)	250 Ω (20 W)	500 Ω (20 W)	250 Ω (20 W)
		1 kΩ (10 W)	500 Ω (10 W)	1 kΩ (10 W)	500 Ω (10 W)
		2 kΩ (5 W)	1 kΩ (5 W)	2 kΩ (5 W)	1 kΩ (5 W)
		3.3 kΩ (3 W)	1.7 kΩ (3 W)	3.3 kΩ (3 W)	1.7 kΩ (3 W)
		10 kΩ (1 W)	5 kΩ (1 W)	10 kΩ (1 W)	5 kΩ (1 W)
Output Sound Pressure Level	90 dB (1 W, 1 m)				
Frequency Response	80 - 18,000 Hz				
Dimensions	Front grille diameter: 260 mm, Ceiling mounting hole diameter: 218 mm Ceiling depth: 160 mm (maximum), Usable ceiling board thickness: 5-35 mm				
Weight	2.5 kg	2.8 kg	2.5 kg	2.8 kg	
Color	Speaker box: Black, Front grille: White				
Accessories	Template x 1, Instruction manual x 1				
Others				Electronic controller AC-120 (option)	

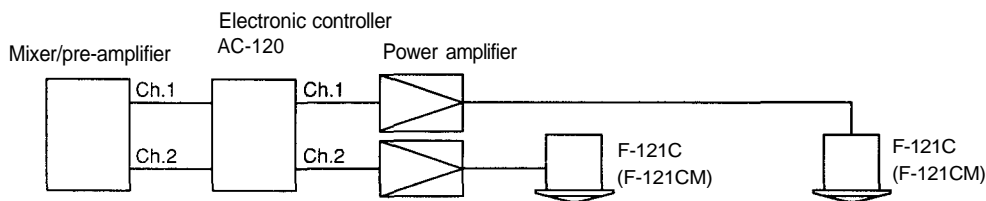
Note: This specification is subject to change without notice.

7. System Examples (F-121C and F-121CM)

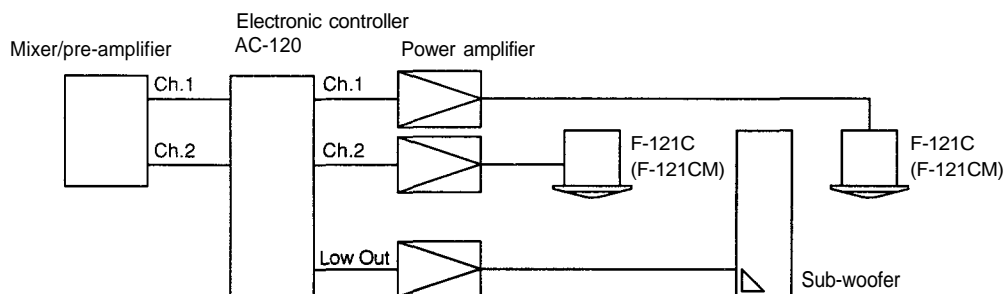
When using the F-121C or F-121CM, an optional electronic controller AC-120 is required. The AC-120 has internal equalizing filters designed exclusively for both the F-121C and F-121CM.

Note: Set the AC-120's mode switch to F-120C position.

■ System employing no sub-woofer



■ System employing a sub-woofer



When using TOA's digital signal processor instead of the AC-120, it is recommended that frequency characteristics be set as shown in the following tables:

- Filter characteristics for F-121C/F-121CM (normal mode)
(Setting for ordinary applications)

Filter	Frequency	Gain	Q
PEQ	85 Hz	+11.5 dB	2.871
	212 Hz	-2.5 dB	0.667
	900 Hz	-8 dB	2.871
	10 kHz	+8 dB	0.267
HPF	37.5 Hz	—	0.7
	37.5 Hz	—	0.5
LPF	20 kHz	—	0.7

- Filter characteristics for F-121C/F-121CM (low-frequency cut mode)
(Setting for speech applications)

Filter	Frequency	Gain	Q
PEQ	80 Hz	+6.5 dB	1.414
	180 Hz	-4.5 dB	0.667
	900 Hz	-7.5 dB	2.871
	11.2 kHz	+8 dB	0.267
HPF	45 Hz	—	0.7
	45 Hz	—	0.5
LPF	20 kHz	—	0.7

- Filter characteristics for sub-woofer

Filter	Frequency	Gain	Q
PEQ	112 Hz	+2.5 dB	0.667
LPF	100 Hz	—	0.5

