



# F SERIES CEILING SPEAKERS

**F-122CU**

**F-1522SC**

**F-2322C**

**F-2352C**

**F-2352SC**

**F-2852C**

**TOA F SERIES CEILING SPEAKERS** are ideal for music and paging applications such as audio/visual, business music or retail sound systems. The new lineup consists of six models with features and price points to suit premium-to-economy applications; all built with the same high quality and reliability the industry has come to expect from TOA products. Key benefits include smooth off-axis coverage, versatile range of models, ease of installation, and competitive pricing.

For premium wide-dispersion performance, the new F-122CU is a 5" full-range processed ceiling speaker, UL1480/2043-Listed for Fire Protective, General Purpose Signaling and Air-Handling Spaces. Other new full-range models include the F-2322C with 5" full-range driver and the ultra-compact F-1522SC with 4" full-range driver.

Three new two-way co-axial models include the F-2852C with 6.5" cone driver, the F-2352C with 5" cone driver and the economy F-2352SC with 5" cone driver. Each model has a special diffusor with built-in dome tweeter for superior co-axial performance.

The F-122CU, F-2322C, F-2352C and F-2852C all include integral metal back-cans with safety cable, quick-mount hardware and removable Phoenix-style connectors with loop-through points for adjacent speakers. Built-in overload protection circuitry ensures outstanding reliability.

All six new models include built-in multi-tap transformers with 8/16 ohm direct modes, front baffle power tap selection and double-locking, paintable grilles.

Accessories include HY-TB1 tile bridge rails, HY-TR1 trim ring and HY-BC1 surface back-can.

The F Series ceiling speakers are individually packaged and backed with a five year warranty.

## Related Products

**BG-M Series** Mixer/Amplifiers  
**BS-1030** Wall/Ceiling-Mount Box Speaker  
**FB-100** Corner-Mount Subwoofer  
**HB-1** In-Wall Subwoofer



## HIGHLIGHTS

- Superior Sound Quality
- Wide-Dispersion, Smooth Off-Axis Coverage
- Fast And Easy Installation
- UL-Listed And Compliant Models
- Built-In 25/70.7 V Multi-Tap Transformer
- Low Impedance Mode (8/16 Ohms)
- Convenient Power Tap Selector On Front Baffle
- Integral Metal Back-Can And Safety Cable
- Low-Profile, Paintable Grille
- Overload Protection Circuitry
- Mounting Hardware Included
- Competitive Pricing
- Individually Packaged
- Five Year Warranty

### F-122CU

FULL-RANGE PROCESSED CEILING SPEAKER (5")

- UL1480/2043-Listed
- 5" full-range driver
- Wide-dispersion: 180° (1-4k Hz avg.)
- Optimized equalization with model E-03R module or AC-120 processor
- Power Handling: 30 W (xfmr) / 120 W (8 ohms)

### F-2352C

CO-AXIAL CEILING SPEAKER (5")

- Co-axial: 5" cone driver and dome tweeter
- Wide-dispersion: 170° conical (1-4k Hz avg.)
- Power Handling: 30 W (xfmr) / 120 W (8 ohms)

### F-2852C

CO-AXIAL CEILING SPEAKER (6.5")

- Extended bass response
- Co-axial: 6.5" cone driver and dome tweeter
- Wide-dispersion: 120° conical (1-4k Hz avg.)
- Power Handling: 60 W (xfmr) / 180 W (8 ohms)

### F-2322C

FULL-RANGE CEILING SPEAKER (5")

- 5" full-range driver
- Wide-dispersion: 170° conical (1-4k Hz avg.)
- Power Handling: 30 W (xfmr) / 120 W (8 ohms)

### F-2352SC

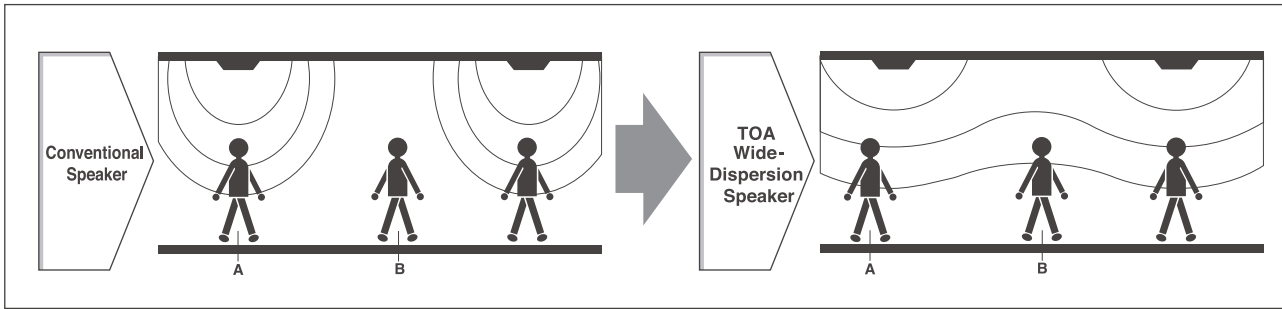
LOW POWER CO-AXIAL CEILING SPEAKER (5")

- Co-axial: 5" cone driver and dome tweeter
- Wide-dispersion: 155° conical (1-4k Hz avg.)
- Power Handling: 6 W (xfmr) / 18 W (8 ohms)

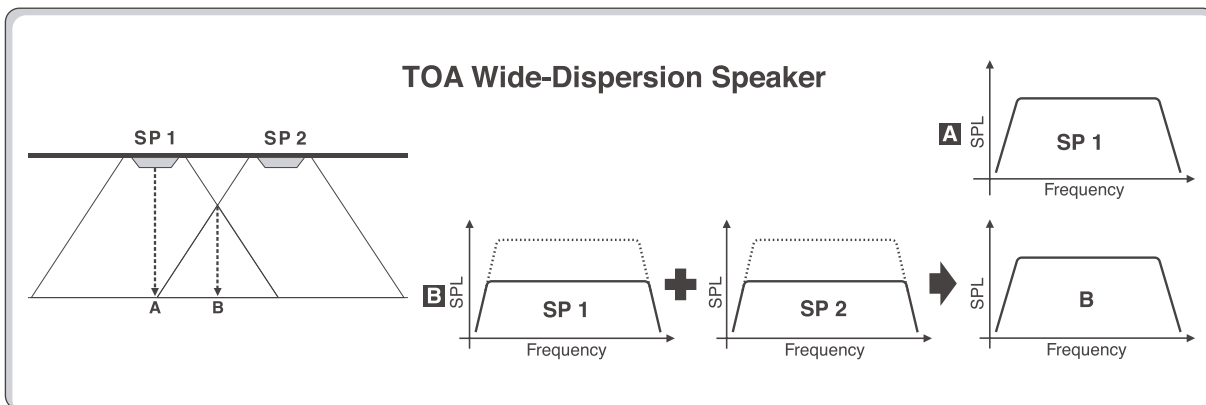
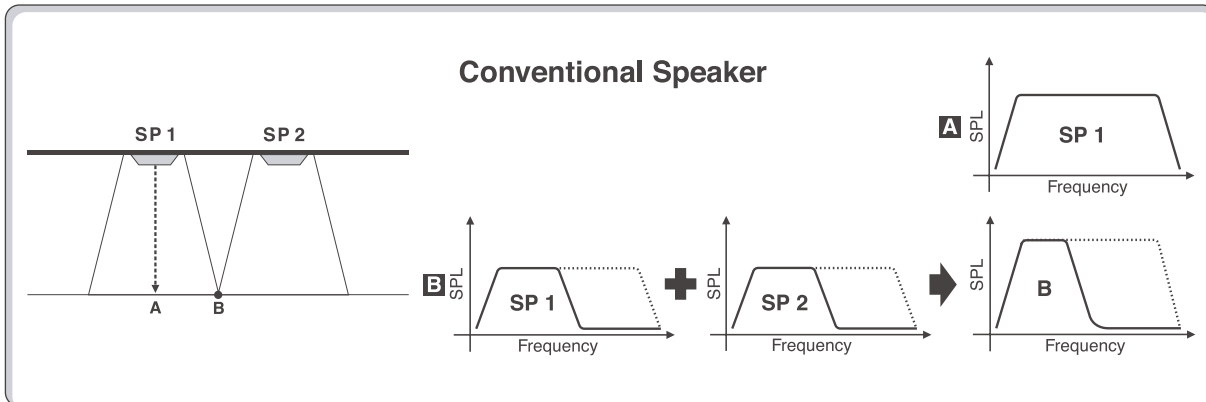
### F-1522SC

COMPACT FULL-RANGE CEILING SPEAKER (4")

- 4" full-range driver
- Wide-dispersion: 160° conical (1-4k Hz avg.)
- Power Handling: 6 W (xfmr) / 18 W (8 ohms)



Conventional ceiling speakers typically exhibit pronounced high frequency roll-off as you move away (off-axis) from the area directly beneath the speaker (on-axis) resulting in "dead spots" between speakers, poor intelligibility and on-axis "hot spots". The TOA F Series ceiling speakers provide up to 180° of high frequency coverage allowing you to use fewer speakers for the most cost-effective installation.



#### APPLICATIONS

Airports  
Audio/Visual  
Bars / Lounges / Nightclubs  
Convention Centers  
Corporate Boardrooms  
Hotels / Hospitality  
Houses of Worship  
Museums

Offices  
Patios  
Residential Spaces  
Restaurants  
Retail Stores  
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Theaters  
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# F-122CU

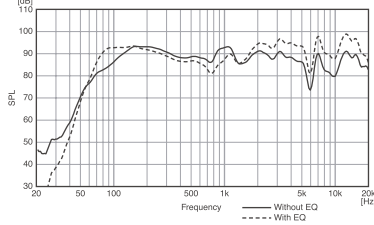
## 5" FULL-RANGE, 30 W



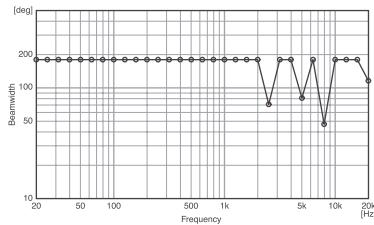
### FULL-RANGE PROCESSED CEILING SPEAKER (5")

- Ideal for applications requiring premium sound quality
- Special diffuser provides wide off-axis high frequency response
- UL-Listed for Fire Protective, General Purpose Signaling and Air-Handling Spaces (UL1480 UUMW/UEAY, UL2043)
- Ported bass-reflex design
- 5" full-range driver
- Wide-dispersion: 180° (1-4k Hz avg.)
- Frequency Response: 70 to 20k Hz
- Sensitivity: 90 dB SPL (1 W, 1 m)
- Continuous Power Handling: 120 W
- Built-in 25/70.7 V transformer (30 W max.) with 8/16 ohm direct modes
- Convenient power tap selector on front baffle
- Integral metal back-can and safety cable
- Removable terminal block with loop-through terminations
- Low-profile, paintable grille
- Overload protection circuitry
- Mounting C-ring included
- Optimized equalization with E-03R module or AC-120 dual channel processor
- Optional HY-TB1 tile rails, HY-BC1 surface-mount back-can and HY-TR1 trim ring
- Five year warranty

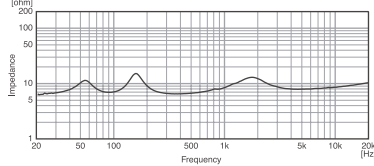
**SPL vs. Frequency**



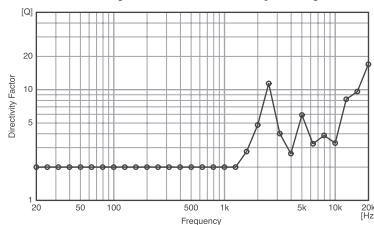
**Beamwidth vs. Frequency**



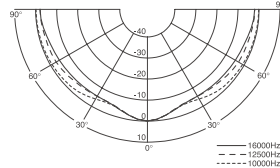
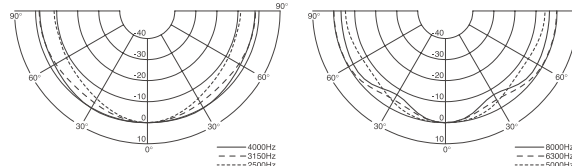
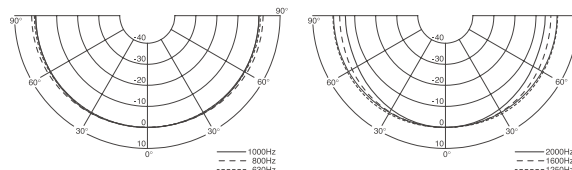
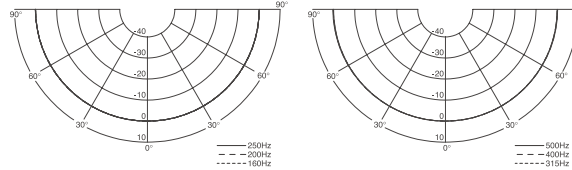
**Impedance vs. Frequency**



**Directivity Factor vs. Frequency**



**Polar Response**



# F-2352C

## 5" CO-AXIAL, 30 W

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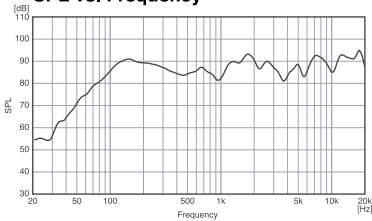
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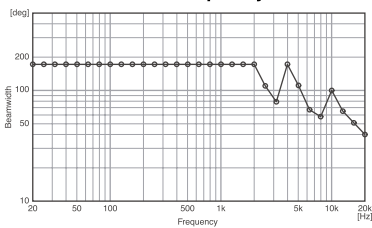
### CO-AXIAL CEILING SPEAKER (5")

- Special diffuser provides wide off-axis high frequency response
- Ported bass-reflex design
- Co-axial: 5" cone driver and dome tweeter
- Wide-dispersion: 170° conical (1-4k Hz avg.)
- Frequency Response: 70 to 20k Hz
- Sensitivity: 90 dB SPL (1 W, 1 m)
- Continuous Power Handling: 120 W (8 ohms)
- Built-in 25/70.7/100 V transformer (30 W max.) with 8/16 ohm direct modes
- Convenient power tap selector on front baffle
- Metal back-can and safety cable
- UL Compliant for Air-Handling Spaces (UL2043)
- Removable terminal block with loop-through terminations
- Low-profile, paintable grille
- Overload protection circuitry
- Mounting C-ring included
- Optional HY-TB1 tile rails, HY-BC1 surface-mount back-can and HY-TR1 trim ring
- Five year warranty

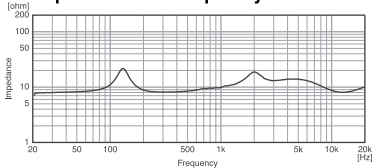
#### SPL vs. Frequency



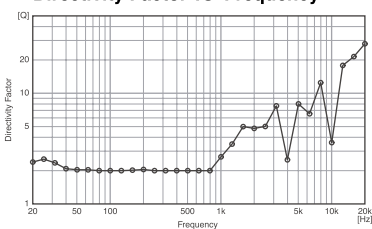
#### Beamwidth vs. Frequency



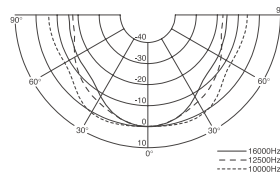
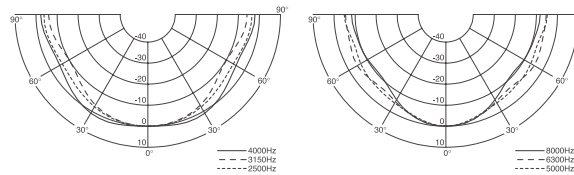
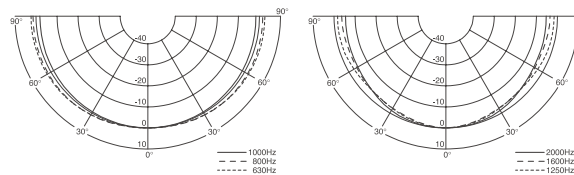
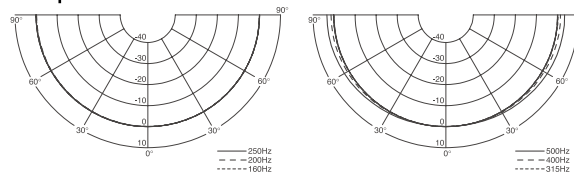
#### Impedance vs. Frequency



#### Directivity Factor vs. Frequency



#### Polar Response





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F-2852C

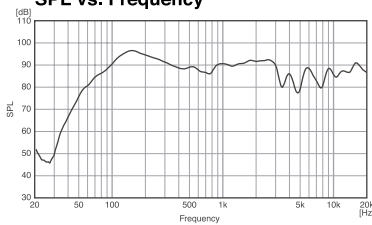
6.5" CO-AXIAL, 60 W



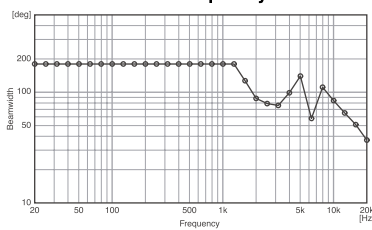
CO-AXIAL CEILING SPEAKER (6.5")

- Ideal for high ceiling applications
- Special diffuser provides wide off-axis high frequency response
- Ported bass-reflex design
- Co-axial: 6.5" cone driver and dome tweeter
- Wide-dispersion: 120° conical (1-4k Hz avg.)
- Frequency Response: 60 to 20k Hz
- Sensitivity: 91 dB SPL (1 W, 1 m)
- Continuous Power Handling: 180 W (8 ohms)
- Built-in 25/70.7/100 V transformer (30 W max.) with 8/16 ohm modes
- Convenient power tap selector on front baffle
- Metal back-can and safety cable
- UL Compliant for Air-Handling Spaces (UL2043)
- Removable terminal block with loop-through terminations
- Low-profile, paintable grille
- Overload protection circuitry
- Mounting C-ring included
- Optional HY-TB1 tile rails
- Five year warranty

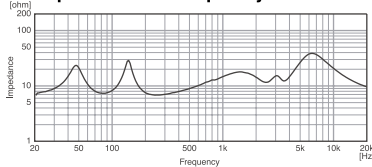
SPL vs. Frequency



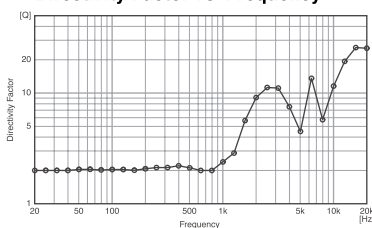
Beamwidth vs. Frequency



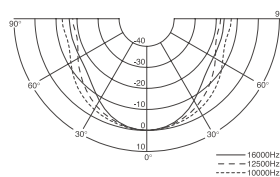
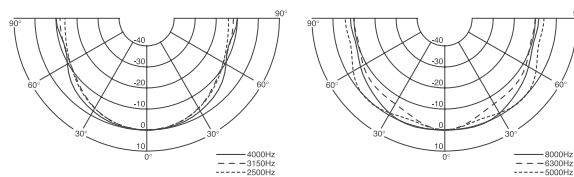
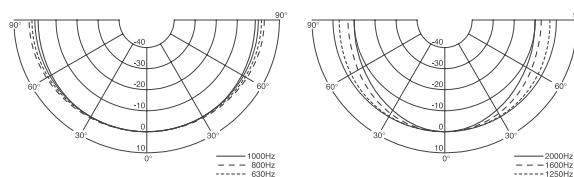
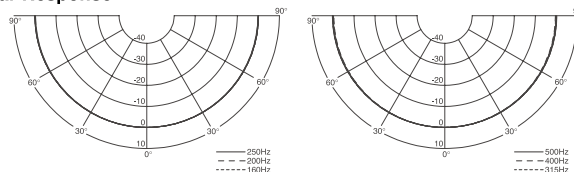
Impedance vs. Frequency



Directivity Factor vs. Frequency



Polar Response

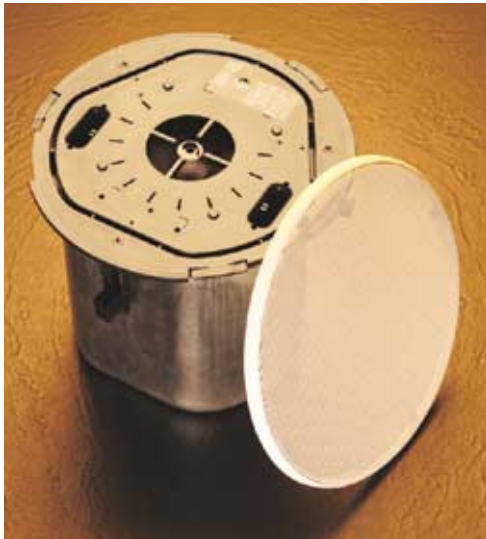


# F-2322C

## 5" FULL-RANGE, 30 W

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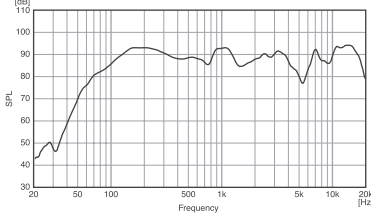
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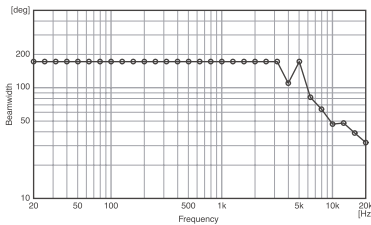
### FULL-RANGE CEILING SPEAKER (5")

- Ported bass-reflex design
- 5" full-range driver
- Frequency Response: 70 to 20k Hz
- Wide-dispersion: 170° conical (1-4k Hz avg.)
- Sensitivity: 90 dB SPL (1 W, 1 m)
- Continuous Power Handling: 120 W (8 ohms)
- Built-in 25/70.7/100 V transformer (30 W max.) with 8/16 ohm direct modes
- Convenient power tap selector on front baffle
- Metal back-can and safety cable
- UL Compliant for Air-Handling Spaces (UL2043)
- Removable terminal block with loop-through terminations
- Low-profile, paintable grille
- Overload protection circuitry
- Mounting C-ring included
- Optional HY-TB1 tile rails, HY-BC1 surface-mount back-can and HY-TR1 trim ring
- Five year warranty

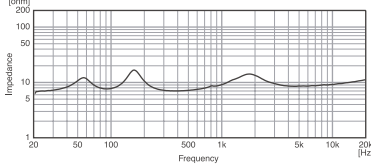
#### SPL vs. Frequency



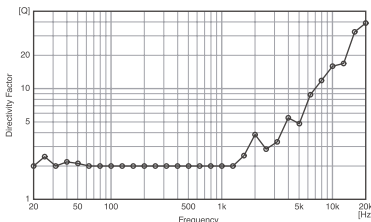
#### Beamwidth vs. Frequency



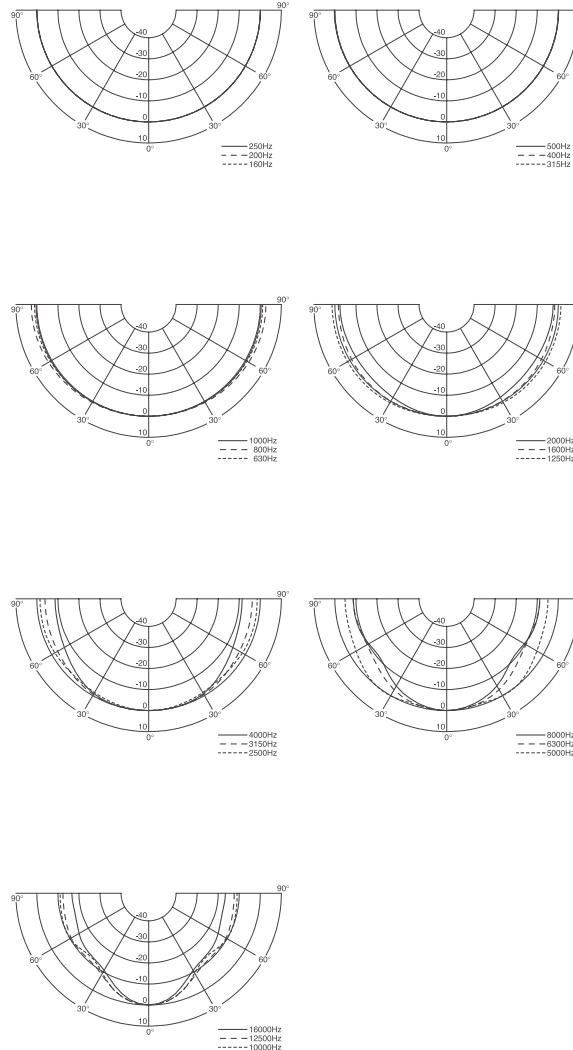
#### Impedance vs. Frequency



#### Directivity Factor vs. Frequency



#### Polar Response





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F-2352SC

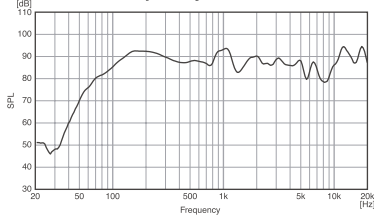
5" CO-AXIAL, 6 W



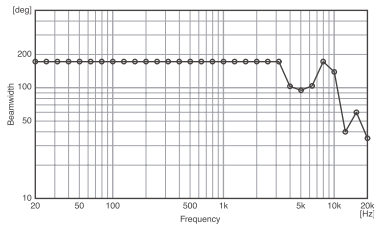
LOW POWER CO-AXIAL CEILING SPEAKER (5")

- Special diffuser provides wide off-axis high frequency response
- Co-axial: 5" cone driver and dome tweeter
- Wide-dispersion: 155° conical (1-4k Hz avg.)
- Frequency Response: 80 to 20k Hz
- Sensitivity: 89 dB SPL (1 W, 1 m)
- Continuous Power Handling: 18 W (8 ohms)
- Built-in 25/70.7/100 V transformer (6 W max.) with 8/16 ohm direct modes
- Convenient power tap selector on front baffle
- Four pole push-terminal input connector
- Low-profile, paintable grille
- Dust cover to protect components
- Optional HY-BC1 surface-mount back-can and HY-RR2 mounting C-ring
- Five year warranty

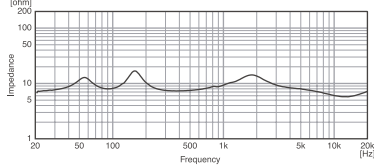
SPL vs. Frequency



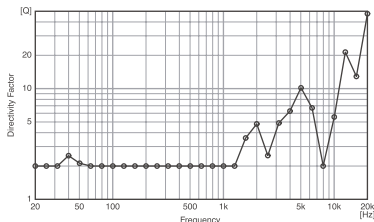
Beamwidth vs. Frequency



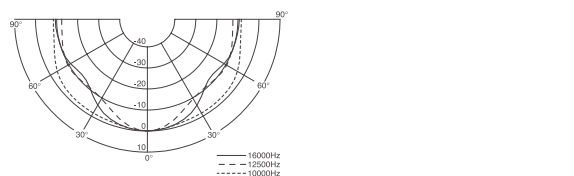
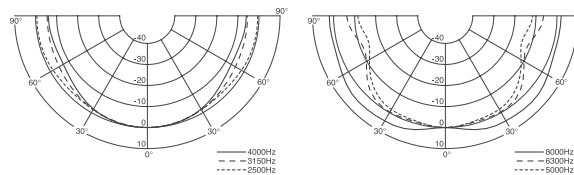
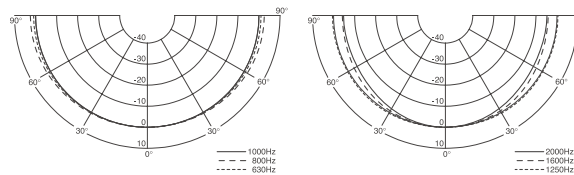
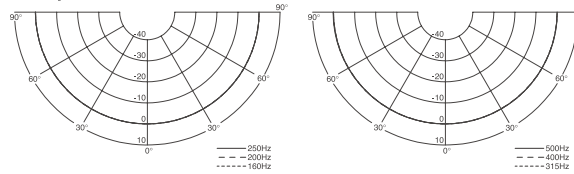
Impedance vs. Frequency



Directivity Factor vs. Frequency



Polar Response



# F-1522SC

## 4" FULL-RANGE, 6 W

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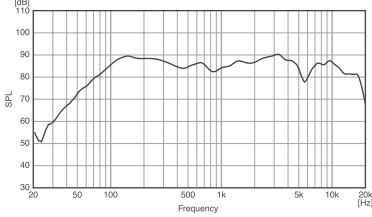
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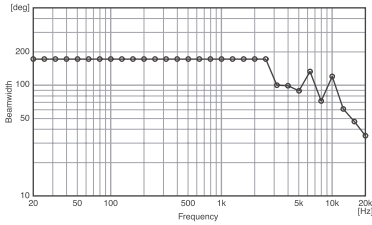
### COMPACT FULL-RANGE CEILING SPEAKER (4")

- Ultra-compact – only 4.2" (106 mm) deep!
- 4" full-range driver
- Wide-dispersion: 160° conical (1-4k Hz avg.)
- Frequency Response: 65 to 18k Hz
- Sensitivity: 88 dB SPL (1 W, 1 m)
- Continuous Power Handling: 18 W
- Built-in 25/70.7/100 V transformer (6 W max.) with 8/16 ohm direct modes
- Convenient power tap selector on front baffle
- Four pole push-terminal input connector
- Low-profile, paintable grille
- Dust cover to protect components
- Optional HY-RR1 mounting C-ring
- Five year warranty

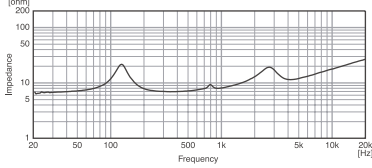
**SPL vs. Frequency**



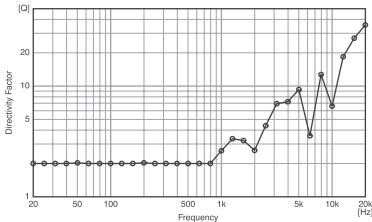
**Beamwidth vs. Frequency**



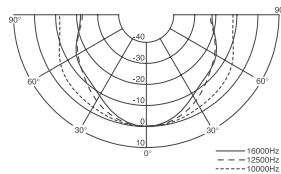
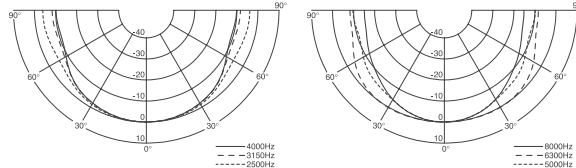
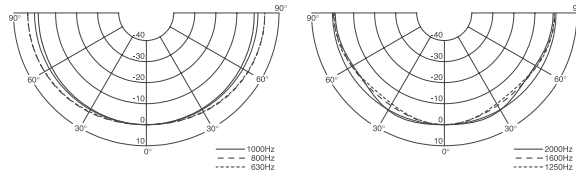
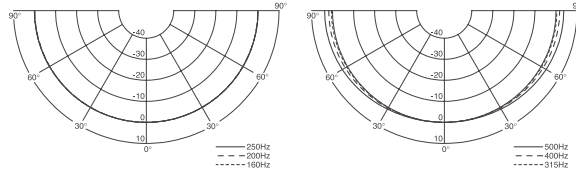
**Impedance vs. Frequency**



**Directivity Factor vs. Frequency**



**Polar Response**



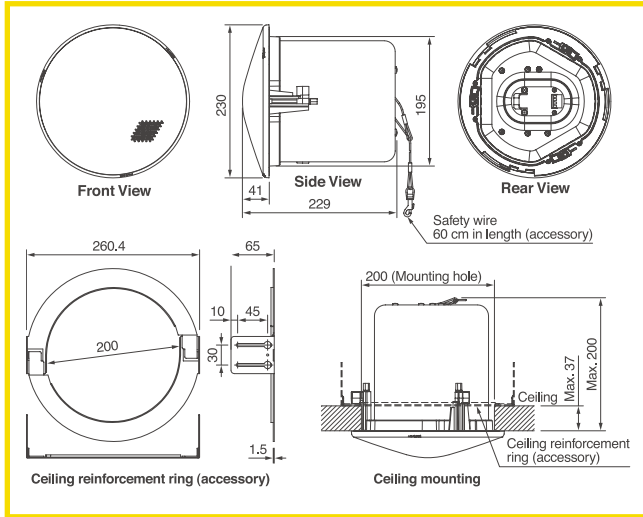




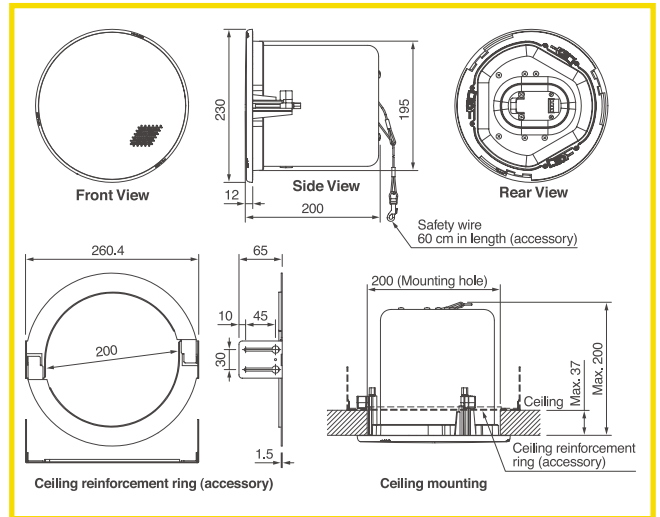
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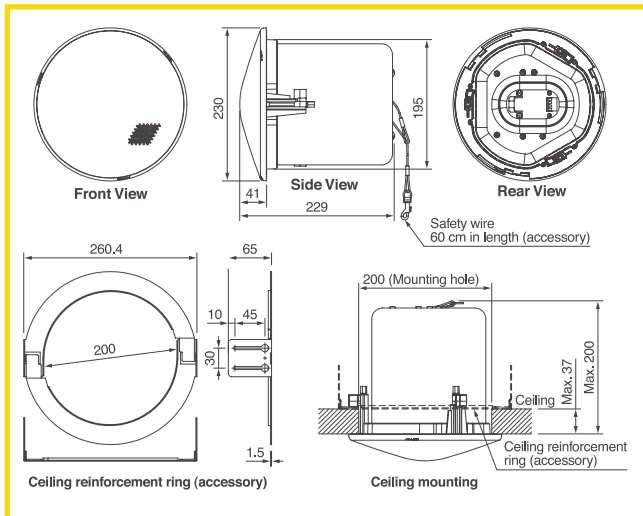
# DIMENSIONAL DRAWINGS



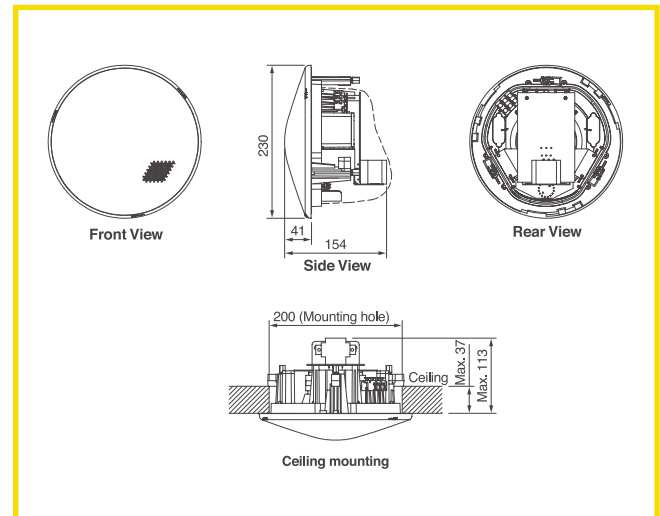
**F - 1 2 2 C U (5" FULL-RANGE, 30 W)**



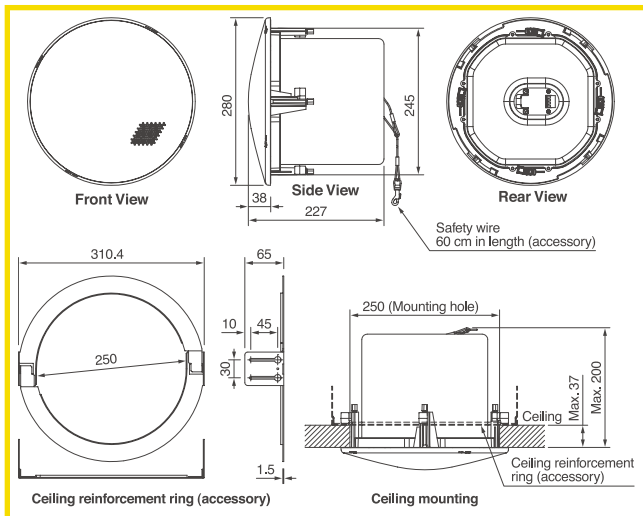
**F - 2 3 2 2 C (5" FULL-RANGE, 30 W)**



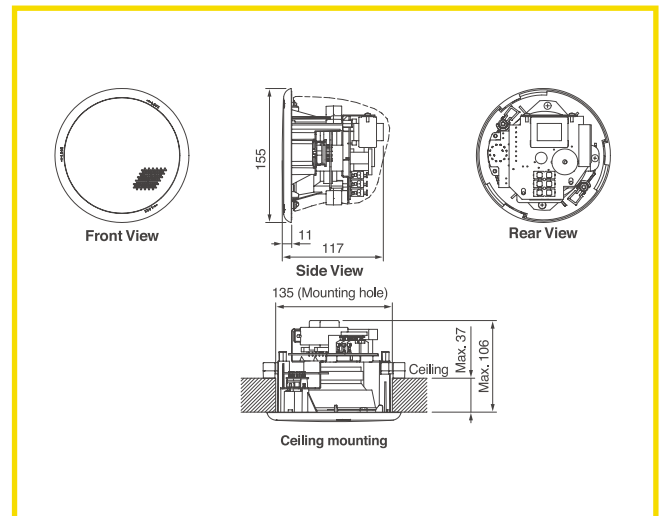
**F - 2 3 5 2 C (5" CO-AXIAL, 30 W)**



**F - 2 3 5 2 S C (5" CO-AXIAL, 6 W)**



**F - 2 8 5 2 C (6.5" CO-AXIAL, 60 W)**

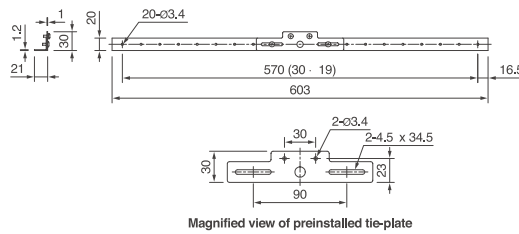
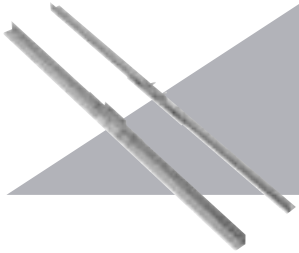


**F - 1 5 2 2 S C (4" FULL-RANGE, 6 W)**

## HY - T B 1

### TILE BRIDGE SUPPORT RAILS

- Required for T-bar ceiling mounting (24")
- Fits models F-122CU, F-2322C, F-2352C, F-2852C, and F-2352SC

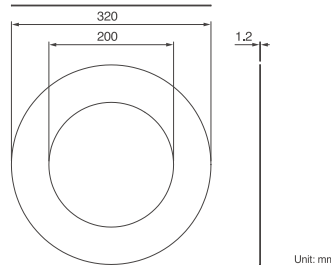


Unit: mm

## HY - T R 1

### TRIM RING

- For covering existing holes (11.8" max.) in retrofit applications
- Fits models F-122CU, F-2322C, F-2352C, and F-2352SC

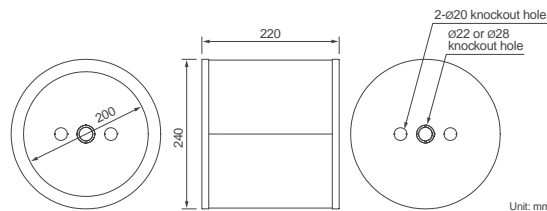
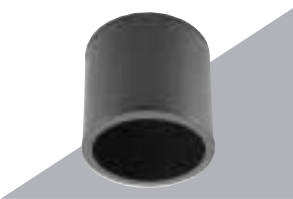


Unit: mm

## HY - B C 1

### SURFACE BACK-CAN

- For surface-mount applications in open ceilings
- Low-gloss black paint finish
- Fits models F-122CU, F-2322C, F-2352C and F-2352SC



Unit: mm

## AC - 1 2 0

### DUAL CHANNEL PROCESSOR FOR F-122CU



## E - 0 3 R

### 900 SERIES PROCESSOR MODULE FOR F-122CU





F SERIES  
CEILING SPEAKERS

Tel: 800-733-7088  
Fax: 800-733-9766  
www.toaelectronics.com

# RELATED PRODUCTS

## B G - M SERIES

### MODULAR MIXER/AMPLIFIERS

- Compact five channel mixer/amplifiers
- Four models: BG-1015 (15 W), BG-1030 (30 W), BG-1060 (60 W), BG-1120 (120 W)
- 900 Series module slot
- Mic, Tel, Program and Aux inputs
- Music-on-hold output
- 25 V, 70.7 V and 4 ohm speaker outputs
- Optional rack-mount kit
- UL/cUL listed
- Five year warranty



## B S - 1 0 3 0

### WALL/CEILING-MOUNT BOX SPEAKER

- Indoor and outdoor applications
- Mounting bracket included
- Paintable enclosure
- Two-way, bass-reflex design
- 70.7/100 V transformer (30 W max.) and 8-ohm direct mode
- Screwdriver-adjustable tap settings
- Black (BS-1030B) and White (BS-1030W)
- Five year warranty

## F B - 1 0 0

### CORNER-MOUNT SUBWOOFER

- Compact cabinet design fits flush into corners
- Tuned, ported enclosure for deep bass and low distortion
- Acoustic bandpass filter design
- Floor, wall, corner or ceiling-mount
- High power handling (450 W Cont. Program)
- Extended low frequency response
- Heavy-duty loudspeaker component
- Solid, vibration-free construction
- Paintable black finish
- Removable terminal block with loop-through terminations
- Six rigging points for suspended mounting
- Five year warranty



## H B - 1

### IN-WALL SUBWOOFER

- Low frequency enhancement for a wide variety of speaker system applications
- Minimum-depth design allows recessed, flush-mount installation
- Wall and ceiling-mount
- Tuned, ported enclosure
- Acoustic bandpass filter design
- High power handling (240 W Cont. Program)
- Heavy-duty loudspeaker component
- Solid, vibration-free steel enclosure
- Removable terminal block
- Paintable grille
- Mounting bracket included
- Five year warranty



**TOA ELECTRONICS, INC.**  
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 TEL: 800-733-7088  
 FAX: 800-733-9766  
[www.toaelectronics.com](http://www.toaelectronics.com)



# F SERIES CEILING SPEAKERS

Model	F-2852C	F-2322C	F-2352C	F-122CU	F-2352SC	F-1522SC
<b>Type</b>	Co-axial	Full-Range	Co-axial	Full-Range	Co-axial	Full-Range
<b>Enclosure</b>	Bass-reflex type					—
<b>Rated Input</b> (high impedance)	60 W	30 W	30 W	30 W	6 W	6 W
<b>Dispersion</b> (1 to 4k Hz avg.)	120 degrees	170 degrees	170 degrees	180 degrees (hemispherical)	155 degrees	160 degrees
<b>Power Handling Capacity</b>						
<b>Continuous Pink Noise:</b>	90 W (8 ohms) 60 W (16 ohms)		60 W (8 ohms) 30 W (16 ohms)		9 W (8 ohms) 6 W (16 ohms)	
<b>Continuous Program:</b>	180 W (8 ohms) 120 W (16 ohms)		120 W (8 ohms) 60 W (16 ohms)		18 W (8 ohms) 12 W (16 ohms)	
<b>Impedance</b>						
<b>70.7 V:</b>	60 W (83 ohms) 30 W (170 ohms) 15 W (330 ohms) 7.5 W (670 ohms) 1.5 W (3.3k ohms)		30 W (170 ohms) 15 W (330 ohms) 5 W (1k ohms) 1.5 W (3.3k ohms) 0.5 W (10k ohms)		6 W (830 ohms) 3 W (1.7k ohms) 1.5 W (3.3k ohms) 0.5 W (10k ohms) 0.25 W (20k ohms)	6 W (830 ohms) 3 W (1.7k ohms) 1.5 W (3.3k ohms)
<b>25 V:</b>	7.5 W (83 ohms) 3.7 W (170 ohms) 1.9 W (330 ohms) 0.9 W (670 ohms) 0.2 W (3.3k ohms)		3.7 W (170 ohms) 1.9 W (330 ohms) 0.6 W (1k ohms) 0.2 W (3.3k ohms) 0.06 W (10k ohms)		0.75 W (830 ohms) 0.4 W (1.7k ohms) 0.2 W (3.3k ohms) 0.06 W (10k ohms) 0.03 W (20k ohms)	0.75 W (830 ohms) 0.4 W (1.7k ohms) 0.2 W (3.3k ohms)
<b>100 V:</b>	60 W (170 ohms) 30 W (330 ohms) 15 W (670 ohms) 3 W (3.3k ohms)	30 W (330 ohms) 10 W (1k ohms) 3 W (3.3k ohms) 1 W (10k ohms)		—	6 W (1.7k ohms) 3 W (3.3k ohms) 1 W (10k ohms) 0.5 W (20k ohms)	6 W (1.7k ohms) 3 W (3.3k ohms)
<b>Low Impedance</b> (adjustable)	8 and 16 ohm direct mode (transformer bypass)					
<b>Sensitivity</b> (1 W, 1 m)	91 dB SPL	90 dB SPL	90 dB SPL	90 dB SPL	89 dB SPL	88 dB SPL
<b>Frequency Response</b> (1/2 space)	60 - 20k Hz (-10 dB) 45 - 20k Hz (-20 dB)		70 - 20k Hz (-10 dB) 50 - 20k Hz (-20 dB)		80 - 20k Hz (-10 dB) 50 - 20k Hz (-20 dB)	65 - 18k Hz (-10 dB) 45 - 20k Hz (-20 dB)
<b>Speaker Component</b>						
<b>High Frequency</b>	Dome-type	4.72" (12 cm) cone-type	Balanced dome-type	4.72" (12 cm) cone-type	Balanced dome-type	3.94" (10 cm) cone-type
<b>Low Frequency</b>	6.3" (16 cm) cone-type		4.72" (12 cm) cone-type		4.72" (12 cm) cone-type	
<b>Mounting Hole</b> (maximum ceiling thickness 1.46" / 37 mm)	9.84" (250 mm)	7.87" (200 mm)				5.31" (135 mm)
<b>Input Terminal</b>	Removable locking connector (Phoenix-type) with screw-down terminals (2 input terminals and 2 bridge terminals)				Push-in connector (Bridging terminal-2 branch type)	
<b>Usable Cable</b>	Stranded / solid copper wire: AWG No. 24 - 14				Solid copper wire: AWG No. 20 - 15 Stranded copper wire: AWG No. 18 - 17	
<b>Enclosure</b>	Steel plate, plating				—	
<b>Baffle</b>	Fire-resistant ABS resin (resin material grade; UL-94 V-0 or equivalent), black					
<b>Rim</b>	Fire-resistant ABS resin (resin material grade; UL-94 V-0 or equivalent), white, paint					
<b>Punched Net</b>	Steel plate, white, paint					
<b>Dust-proof Bag</b>	—				Artificial fiber, black	
<b>Dimensions</b> (grille diameter x depth)	11.02" x 8.94" (280 x 227 mm)	9.06" x 7.87" (230 x 200 mm)	9.06" x 9.02" (230 x 229 mm)	9.06" x 9.02" (230 x 229 mm)	9.06" x 6.06" (230 x 154 mm)	6.10" x 4.61" (155 x 117 mm)
<b>Weight</b> (including mounting accessories)	11.24 lbs (5.1 kg)	8.16 lbs (3.7 kg)	8.16 lbs (3.7 kg)	8.16 lbs (3.7 kg)	3.31 lbs (1.5 kg)	2.2 lbs (1 kg)
<b>Accessories</b>	Grille/Panel, Ceiling Reinforcement Ring, Safety Wire, Cutout Paper Pattern				Grille/Panel, Cutout Paper Pattern	
<b>Options</b>						
Surface-Mount Back Can	—	HY-BC1	HY-BC1	HY-BC1	HY-BC1	—
Tile Bar Bridge	HY-TB1	HY-TB1	HY-TB1	HY-TB1	HY-TB1	—
Trim Ring	—	HY-TR1	HY-TR1	HY-TR1	HY-TR1	—
Ceiling Reinforcement Ring	—	—	—	—	HY-RR2	HY-RR1
Electronic Controller	—	—	—	AC-120 or E-03R	—	—