



## INTRODUCTION

The Prommercial® CM860 and CM660 are designed for a wide range of commercial applications. When properly installed, this product will provide years of high quality sound reproduction.

To obtain the full potential of this Sound Advance speaker, please read all instructions before starting the installation.

## PARTS LIST

Each Sound Advance CM860 and CM660 speaker package includes the following items:

- (2) Sound Advance CM860 or CM660 speakers
- (4) Tile support rails
- (2) C shaped tile supports
- (2) Paint plugs
- (1) Cutout template

## OPTIONAL ACCESSORIES CM860

**FlexBracket** (part number 901358): Plastic template to reserve a hole for the speaker in new construction. Designed to be used with the RotoLock® mounting system.

**Coverplate** (part number 91457): Designed to cover the hole made by the FlexBracket until the speaker is installed.

## OPTIONAL ACCESSORIES CM660

**FlexBracket** (part number 901315): Plastic template to reserve a hole for the speaker in new construction. Designed to be used with the RotoLock® mounting system.

**Coverplate** (part number 900643): Designed to cover the hole made by the FlexBracket until the speaker is installed.

**Adapter Ring** (part number 900768): A plastic ring used to cover the 13" diameter hole created by low-grade commercial speakers.

## INSTALLATION INSTRUCTIONS

CM860 & CM660 PROMMERCIAL® SPEAKERS

## SAFETY AGENCY COMPLIANCE

### Sound Advance CM860 Speakers

**UL-2043:** Suitable for use in air-handling spaces.

**NFPA-70:** 2002 National Electrical Code

**NFPA-90A:** Installation of Air Conditioning and Ventilation Systems, Section 2-3.10.1(A)

Listed **UL-1480** Standard For Safety For Speakers for Fire Alarm, Emergency, and Commercial and Professional Use. Suitable for use in air-handling spaces.



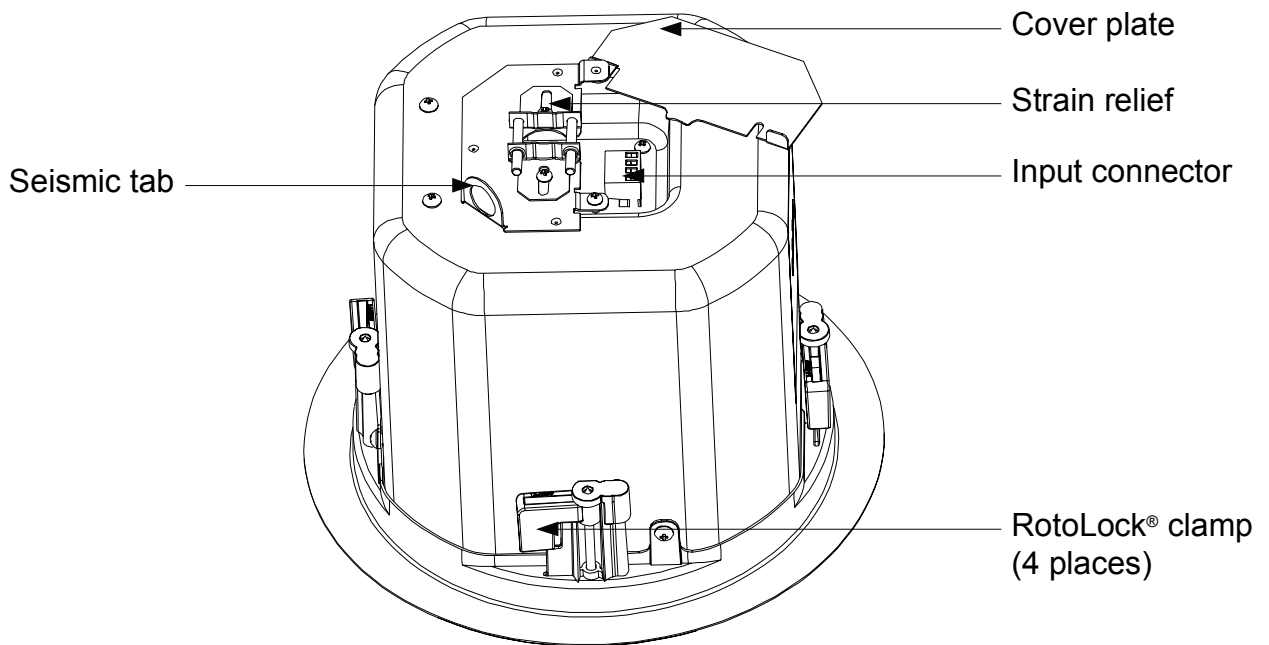
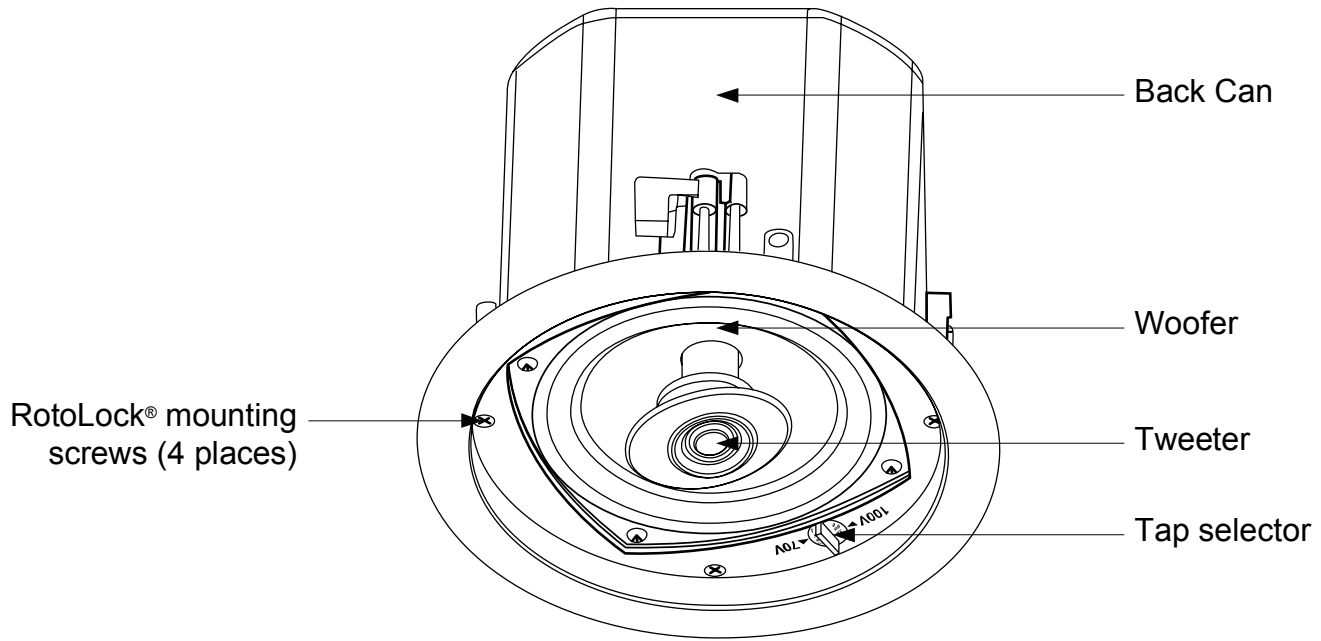
## SAFETY AGENCY COMPLIANCE

### Sound Advance CM660 Speakers

**NFPA-70:** 2002 National Electrical Code

Listed **UL-1480** Standard For Safety For Speakers for Fire Alarm, Emergency, and Commercial and Professional Use.

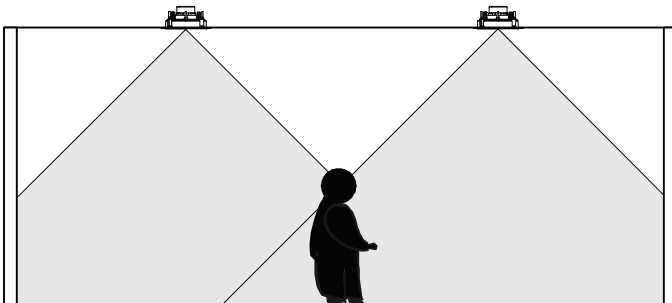




## DISTRIBUTED AUDIO PLACEMENT

The Sound Advance Prommercial series speakers possess extremely smooth and predictable off-axis frequency response. The chart below shows how far apart the speakers can be placed in a distributed audio system. The calculations are based on +/- 45 degrees of coverage from the speaker, and listener ear heights of 62" for standing and 40" for seated.

Speaker spacing in feet for a distributed audio system		
	Standing Listener	Seated Listener
8 foot ceiling	5.7'	9.5'
10 foot ceiling	9.7'	13.5'
12 foot ceiling	13.7'	17.5'
14 foot ceiling	17.7'	21.5'



Distributed Audio Placement

## AMPLIFIER SELECTION

When choosing an amplifier the maximum number of speakers and the output level of each speaker must be known. The sum of the tap settings should never exceed 80% of the amplifier's rated output. For example, if there are 5 speakers and the taps are set at 15 watts, the load would be 75 watts (5 x 15 watts = 75 watts). To arrive at the needed power for this number of speakers, simply divide the total load by .8. In this case, 75 / .8 = 93.75 watts. Therefore, a standard 100 watt amp would safely drive this load. To calculate the amount of usable power an amp offers, simply multiply the rated output by .8, i.e., 100 watts x .8 = 80 watts.

## WIRE GAUGE — 70/100 VOLT SYSTEM

The most common wire used on commercial 70 volt systems is 18 gauge, 2 conductor, stranded, and jacketed without a shield.

The wire starts at the amplifier location and is paralleled at each speaker location.

Wire length using 18 gauge is appropriate up to 700 feet with a 100-watt load. If you double the load (sum of your tap settings), you will reduce the footage by half, to 350 feet. Conversely, if you halve the load, you may double the acceptable wire length, i.e., a 50 watt load is safe over 1400 feet of 18 gauge. Stepping up to 16 gauge wire extends the allowable run length by approximately 35%. For example, a 100-watt load can go 700 feet on 18 gauge; the same load may be placed on 1100 feet of 16 gauge.

## WIRE GAUGE — 8 OHM SYSTEM

When using the CM860 and CM660 in an 8 ohm system the total wire resistance should be less than 10% of the speaker impedance. The CM860 and CM660 nominally 8 ohms impedance, so your total wire resistance should be no more than 0.8 ohms.

In simple terms, the extra resistance from the wire will have a very negative affect on the sound quality of the speaker. The sound can be less dynamic, definition of bass frequencies can be reduced, and in extreme cases, the high frequencies can be attenuated. Amplifier power is also wasted in the wire, reducing the maximum output level of the system.

Please refer to the following chart when deciding on the appropriate wire gauge for your installation.

Wire resistance in Ohms vs. length of cable run						
Distance in Feet	50'	100'	150'	200'	250'	300'
20 gauge	.86	1.73	2.59	3.45	4.32	5.18
18 gauge	.65	1.30	1.94	2.59	3.24	3.89
16 gauge	.43	.85	1.28	1.71	2.14	2.56
14 gauge	.27	.54	.81	1.08	1.35	1.62
12 gauge	.17	.34	.51	.68	.85	1.02
10 gauge	.11	.22	.33	.44	.56	.67

## PAINTING THE SPEAKERS AND GRILLES

The Sound Advance CM860 and CM660 speakers feature a tough weather-resistant ABS finish that may be painted to color match their surroundings. Use a weather-resistant outdoor paint and a spray gun. First remove the grille by carefully prying it away from the baffle. The driver components must be protected from paint when spraying. If necessary, you can fashion plugs by placing the speaker grille on a piece of cardboard and tracing around the outside of the grille. Cut just inside the line you drew on the cardboard and place the paint plug on the speaker baffle. Remove the paint plug when you are finished painting.

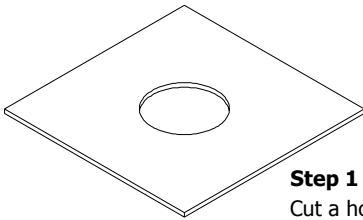
The metal grilles may also be painted. Use very thin paint (5:1). It will be easier to paint the grille while it is off the speaker. Avoid plugging up the holes with excess paint.

## MAINTENANCE

No maintenance is required when installed in accordance with installation and wiring guidelines described in this manual.

# INSTALLATION INSTRUCTIONS

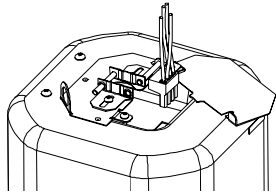
## CM860 & CM660 PROMMERCIAL SPEAKERSS



### Step 1

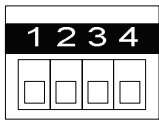
Cut a hole in the drywall using the supplied cutout template.

NOTE: For drop-ceiling instructions refer to page 5.



### Step 2

Remove the speaker from the packaging, open the terminal cover plate door and remove the green input connector.

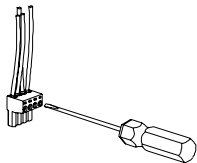


### Step 3

Connect the wires from your amplifier to the input connector.

- Pin 1 + Positive Loop Thru connector
- Pin 2 + Positive Input
- Pin 3 - Negative Input
- Pin 4 - Negative Loop Thru connector

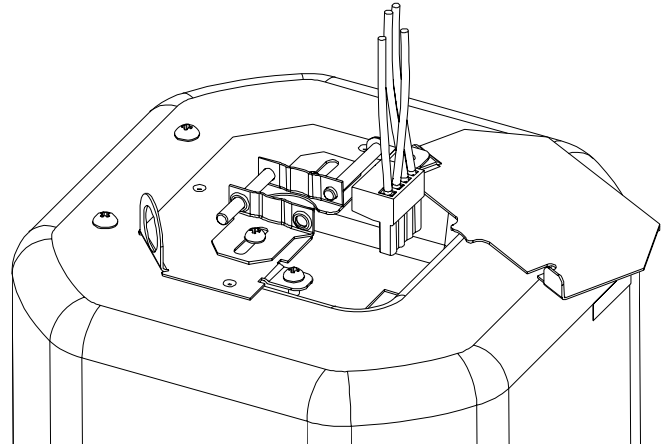
Strip approximately 3/16" of the insulation off each wire. Insert the wire into the correct square opening on the connector. Use a small flat head screwdriver to tighten the corresponding screw to secure the wire.



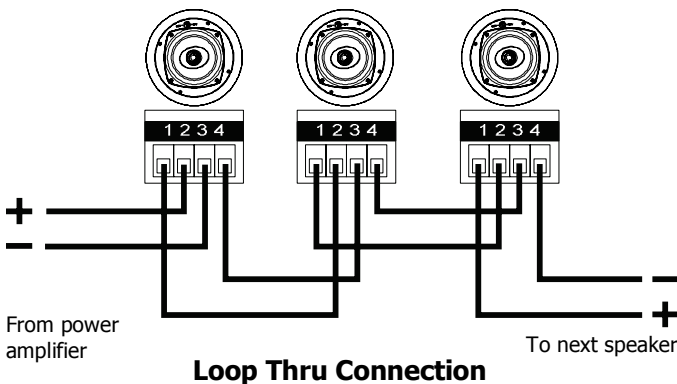
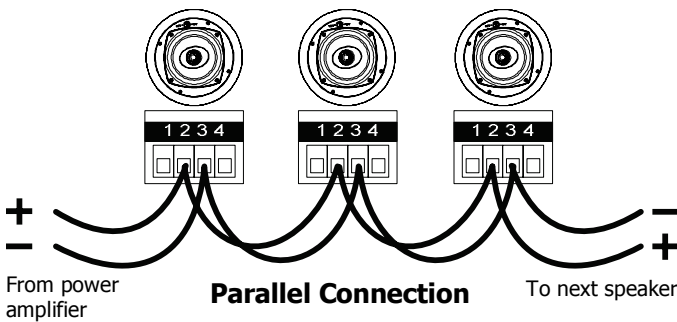
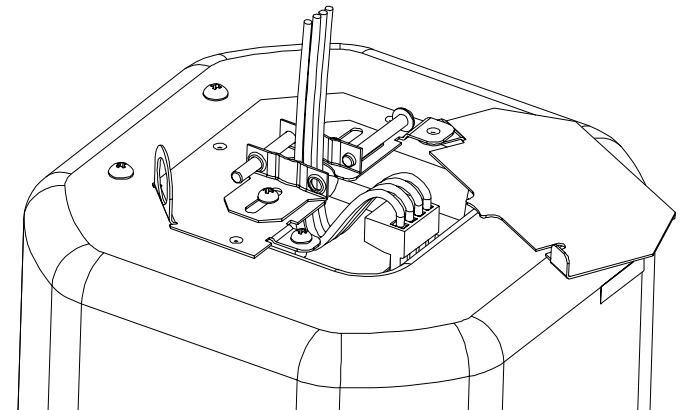
When using multiple speakers you can connect the speakers either in parallel or in the loop thru method as shown below.

### Step 4

Once all the wires are terminated. Plug the green input connector into the back of the speaker.

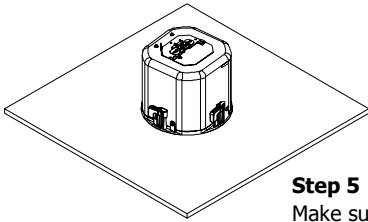


Route the wires through the Strain Relief Fitting on the back of the speaker. Tighten the screws on the strain relief to clamp the wires. Make sure not to over-tighten the screws and damage the wire.



## **INSTALLATION INSTRUCTIONS**

CM860 & CM660 PROMMERCIAL SPEAKERS



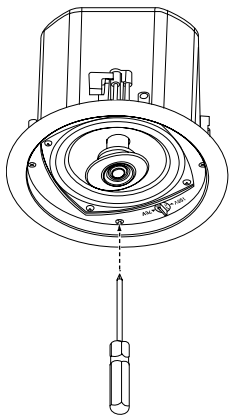
### **Step 5**

Make sure the RotoLock clamps are in the full clockwise position so that all the clamps are tucked within the cutout border. Insert the speaker into the hole in the ceiling.

Note: The maximum clamp thickness is 1-1/4" (32mm)

## **SAFETY PRECAUTION**

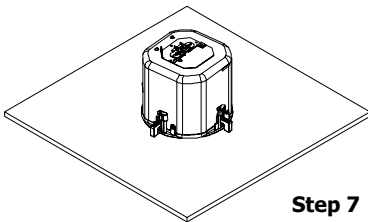
**Attaching the seismic tab to a support line is highly recommended for additional safety**



### **Step 6**

Tighten the four screws on the front of the baffle. The RotoLock clamps will rotate into position automatically and begin clamping. When you notice resistance on the four screws, the speaker has been clamped successfully.

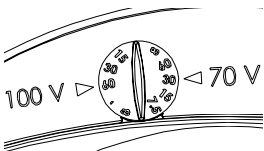
The flange is designed to flex and conform to any small imperfections in the ceiling surface. The screws should not be tightened so far that the flange bows out.



### **Step 7**

At this step in the installation the transformer tap selector can be set. Depending on your installation you may wait to set the volume of each speaker until the system is completely installed.

After the speaker is installed, and transformer tap adjustments are made, the grille can be installed. Insert about half of the grille into the groove at the edge of the speaker. Gently fit the remaining half of the grill into the speaker by working your hands around the speaker fitting the grille into the groove as you go along.



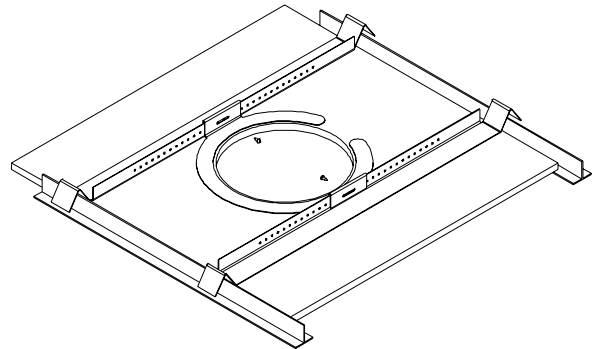
Note: The torque applied to the mounting screws can be adjusted for proper grille fit.

## **DROP CEILING INSTALLATION**

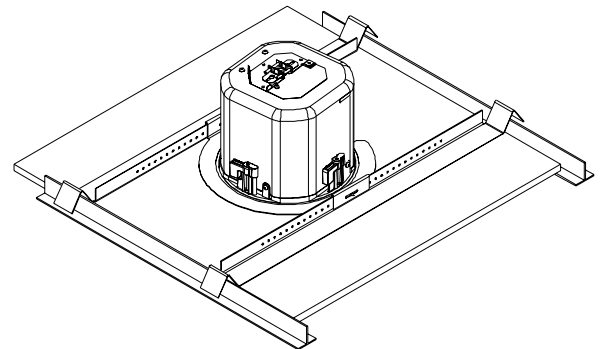
CM860 & CM660 PROMMERCIAL SPEAKERS

The included C-bracket and tile support rails should be used in all suspended ceiling installations. The C-bracket and tile support rails can also be used in installations when the speakers are mounted into material that will not support their weight.

Insert the two tile support rails and C-bracket through the hole you have cut, placing them as shown. Using the two screws that are supplied, screw the C-bracket to the tile support rails as shown.

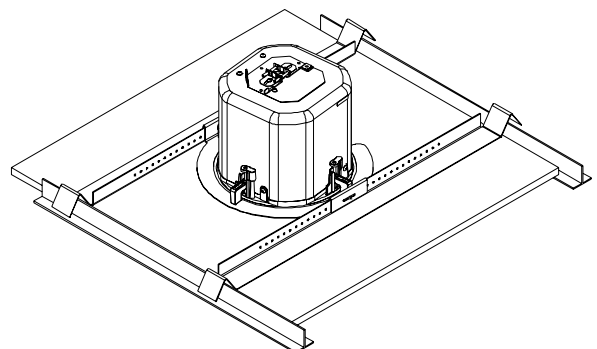


After the C-bracket and tile support rails are installed follow Step 2 through Step 7 in the standard installation instructions.



## **SAFETY PRECAUTION**

**Attaching the seismic tab to a support line is highly recommended for additional safety**



# S P E C I F I C A T I O N S

## Sound Advance Prommercial CM860

### ARCHITECTURAL SPECIFICATIONS

The loudspeaker shall be of the two way type comprising a single flush mount enclosure containing one 8" (203mm) low frequency transducer and one coaxially mounted 1" (25mm) pivoting high frequency transducer.

Frequency response shall be 50Hz – 20kHz. Total power handling shall be 70 watts RMS and 140 watts program. Sensitivity measured with 2.83 volts input at 1 meter on axis averaged between 50Hz – 20kHz shall be 90dB. The unit shall be supplied with a line matching transformer suitable for 100 volt or 70 volt with a front mounted control allowing user selectable power taps of 60W, 30W, 15W, 7.5W and a 8 ohm bypass.

The back can shall be constructed from deep drawn steel. The baffle shall be injection molded using fire rated ABS that meets UL94V-0. Wire shall be terminated in an enclosed area on the rear of the back can. Strain relief shall be provided for wire. A support hook shall be provided on the rear of the back can to allow additional support when necessary.

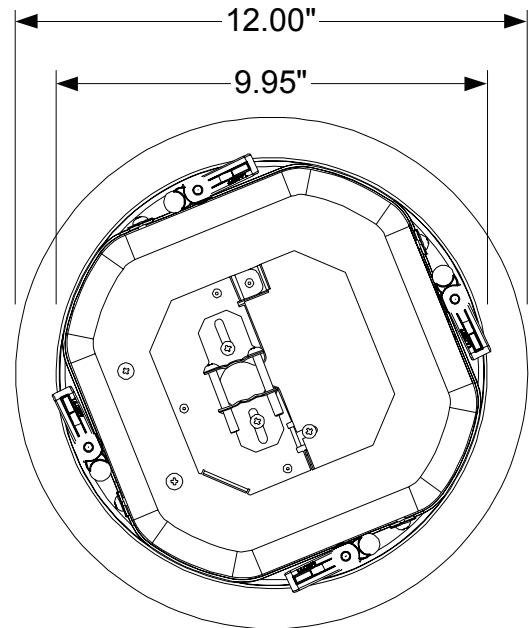
The system shall include a support backing plate to reinforce the ceiling material and tile support rails which can all be installed from beneath the ceiling tile.

External dimensions shall be 12" (305mm) in diameter x 9-1/2" (241mm) mounting depth. The total enclosure shall weigh 11 lbs. (4.99 kg) per unit.

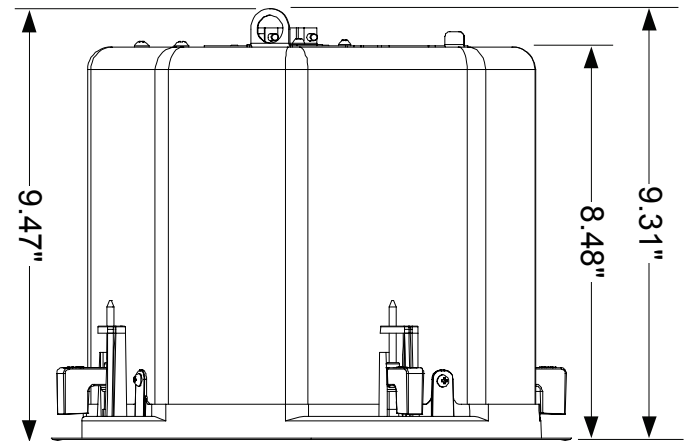
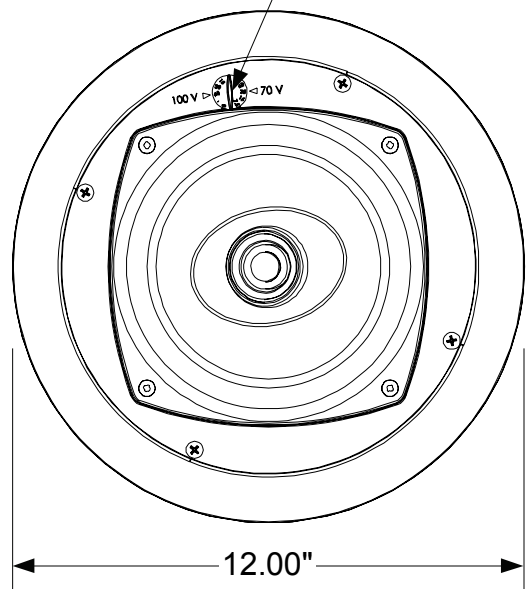
The loudspeaker shall be the Sound Advance Prommercial CM860. No other system shall be acceptable unless the above combined performance specifications are equaled or exceeded.

### PRODUCT SPECIFICATIONS

Tweeter	1" (25mm) Pivoting Cloth dome
Woofer	8" (203mm) Polypropylene cone with a rubber surround
Frequency Range	50Hz – 20kHz ±10dB
Nominal Sensitivity	90dB 1w 1m
Nominal Coverage angle	120.0 degrees conical
Directivity Factor	5.9 averaged from 500 Hz to 4 kHz
Directivity Index	4.6 averaged from 500 Hz to 4 kHz
Transformer Taps	70 volt - 60W, 30W, 15W and 7.5W 100 volt - 60W, 30W and 15W
Power Capacity	140 watts maximum program power 70 watts continuous Pink noise
Enclosure	Back can: Deep drawn steel Baffle: ABS meets UL94V-0 fire rating
Grille	Paintable weather resistant aluminum
Termination	Locking removable quick connect with two input terminals and two loop through terminals
Speaker Dimensions	12" (305mm) x 9-1/2" (241mm)
Cut-out Dimensions	10" (254mm) diameter
Product Weight	11.0 lbs (4.99 kg) each
Shipping Weight	25.0 lbs (11.35 kg) per pair
Included Accessories	C - support plate 2 international compatible tile support rails Cut-out template Paint plug Removable quick connect wire terminator
Certifications	UL 2043 UL 1480 CE



**Transformer Tap Switch**  
70 volt - 60W, 30W, 15W, 7.5W  
100 volt - 60W, 30W, 15W  
8 Ohm



# SPECIFICATIONS

## SOUND ADVANCE

### Prommercial CM660

#### ARCHITECTURAL SPECIFICATIONS

The loudspeaker shall be of the two way type comprising a single flush mount enclosure containing one 6-1/2" (165mm) low frequency transducer and one coaxially mounted pivoting 3/4" (19mm) high frequency transducer.

Frequency response shall be 65Hz – 20KHz. Total power handling shall be 70 watts RMS and 140 watts program. Sensitivity measured with 2.83 volts input at 1 meter on axis averaged between 65Hz – 20KHz shall be 89dB. The unit shall be supplied with a line matching transformer suitable for 100 volt or 70 volt with a front mounted control allowing user selectable power taps of 60W, 30W, 15W, 7.5W and a 8 ohm bypass.

The back can shall be constructed from deep drawn steel. The baffle shall be injection molded using fire rated ABS that meets UL94V-0. Wire shall be terminated in an enclosed area on the rear of the back can. Strain relief shall be provided for wire. A support hook shall be provided on the rear of the back can to allow additional support when necessary.

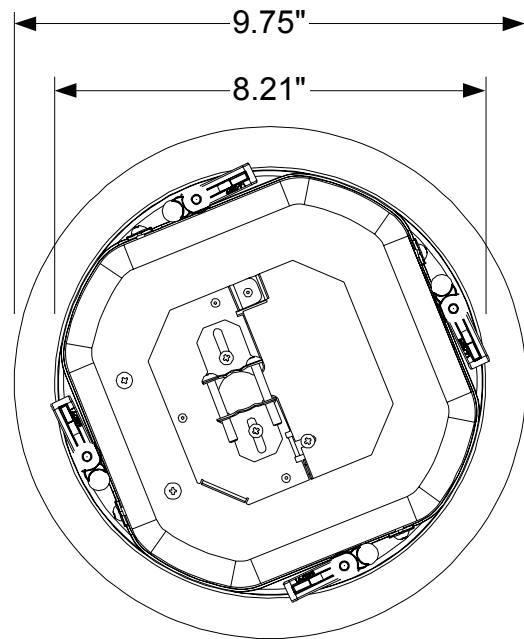
The system shall include a support backing plate to reinforce the ceiling material and tile support rails which can all be installed from beneath the ceiling tile.

External dimensions shall be 9-3/4" (248mm) in diameter x 7-1/2" (190mm) mounting depth. The total enclosure shall weigh 8 lbs. (3.63 kg) per unit.

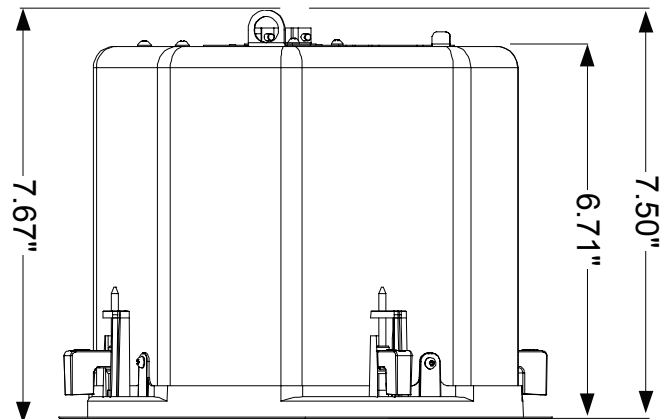
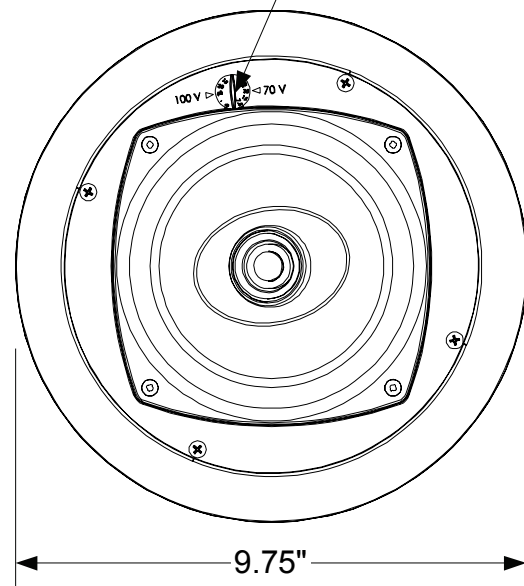
The loudspeaker shall be the Sound Advance Prommercial CM660. No other system shall be acceptable unless the above combined performance specifications are equaled or exceeded.

#### PRODUCT SPECIFICATIONS

Tweeter	3/4" (19mm) Cloth dome
Woofers	6-1/2" (165mm) Polypropylene cone with a rubber surround
Frequency Range	65Hz – 20kHz ±10dB
Nominal Sensitivity	89dB 1w 1m
Nominal Coverage angle	120.0 degrees conical
Directivity Factor	5.9 averaged from 500 Hz to 4 kHz
Directivity Index	4.6 averaged from 500 Hz to 4 kHz
Transformer Taps	70 volt - 60W, 30W, 15W and 7.5W 100 volt - 60W, 30W and 15W
Power Capacity	140 watts maximum program power 70 watts continuous Pink noise
Enclosure	Back can: Deep drawn steel Baffle: ABS meets UL94V-0 fire rating
Grille	Paintable weather resistant aluminum
Termination	Locking removable quick connect with two input terminals and two loop through terminals
Speaker Dimensions	9-3/4" (248mm) x 7-1/2" (190mm)
Cut-out Dimensions	8-1/4" (210mm) diameter
Product Weight	8.0 lbs (3.63 kg) each
Shipping Weight	19.0 lbs (8.61 kg) per pair
Included Accessories	C - support plate 2 international compatible tile support rails Cut-out template Paint plug Removable quick connect wire terminator
Certifications	<b>NOT SUITABLE FOR AIR HANDLING SPACES</b> UL 1480 CE



**Transformer Tap Switch**  
70 volt - 60W, 30W, 15W, 7.5W  
100 volt - 60W, 30W, 15W  
8 Ohm



## TECHNICAL ASSISTANCE AND SERVICE

The Technical Assistance Department at Sound Advance is available at (800) 592-4644 or (949) 492-5449 to answer any questions concerning the operation and installation of your speakers between the hours of 7:00 AM and 5:00 PM Pacific time, Monday through Friday, except holidays.

In the event your unit should need repair or service, you may return the unit to your authorized dealer or use the following guidelines:

1. Be prepared to state the model number and / or serial number, date of purchase and dealer's name and address when calling.
2. Contact Sound Advance directly at (800) 592-4644 or (949) 492-5449 or at [www.soundadvance.com](http://www.soundadvance.com)
3. If you are returning the product directly to Sound Advance, call us to obtain a return authorization number before shipping.

**YOU MUST HAVE PRIOR AUTHORIZATION TO RETURN YOUR UNIT.**

4. The original packaging must be used. If the original packaging is unavailable, replacements can be obtained from Sound Advance for a small fee.
5. Ship the product via United Parcel Service, Federal Express, or other package delivery service. Please do not use the U.S. Postal Service.
6. Write the return authorization number on the outside of the box.
7. Ship to: **Attn: Quality Assurance Department  
Sound Advance  
212 Avenida Fabricante  
San Clemente, CA 92672-7531**

8. **FREIGHT COLLECT SHIPMENTS WILL BE REFUSED!**

## WARRANTY, REMEDY, EXCLUSIONS AND LIMITATIONS (USA ONLY)

### Limited Warranty:

Sound Advance warrants this product to the original purchaser to be free from defects in material and workmanship, under normal use and conditions, for a period of five (5) years from the date of original purchase as shown on the invoice.

The foregoing exclusive warranty gives you specific legal rights, and you may have other rights, which vary from state to state. This warranty applies exclusively to the original purchaser.

The exclusive warranty does not apply and is ineffective if:

1. The invoice fails to establish that the product was purchased from an authorized Sound Advance dealer or distributor;
2. The product was subjected to misuse, neglect, accident, or improper installation. [Damage to the product was caused by accident, abuse, or misuse];
3. The product was modified, altered, or repaired by unauthorized personnel; or
4. The unit was not used as described in the installation and operating instructions.

### Exclusive Remedy:

Sound Advance agrees, at its option during the five (5) year warranty period, to repair any defect in material or workmanship or to furnish an equal product in exchange without charge to the purchaser, subject to verification of the defect and proof of the date of purchase.

### Warranty Exclusions and Damage Limitations

The exclusive warranty set forth above is in lieu of all other warranties, express or implied, including without limitation the implied warranties of merchantability and fitness for a particular purpose, which are expressly disclaimed. In no event, and under no circumstances or legal or equitable theory, shall Sound Advance be liable or responsible for any direct or indirect damages, consequential damages, loss, or injury, including without limitation, personal injury, bodily injury, property damage, emotional distress, death, real property or personal property damage, business interruption, costs of delay or lost profits arising from the product, whether based upon warranty, contract, negligence, strict product liability or other theory.

