

The Optimum Installed Height For a KDM Central Speaker System

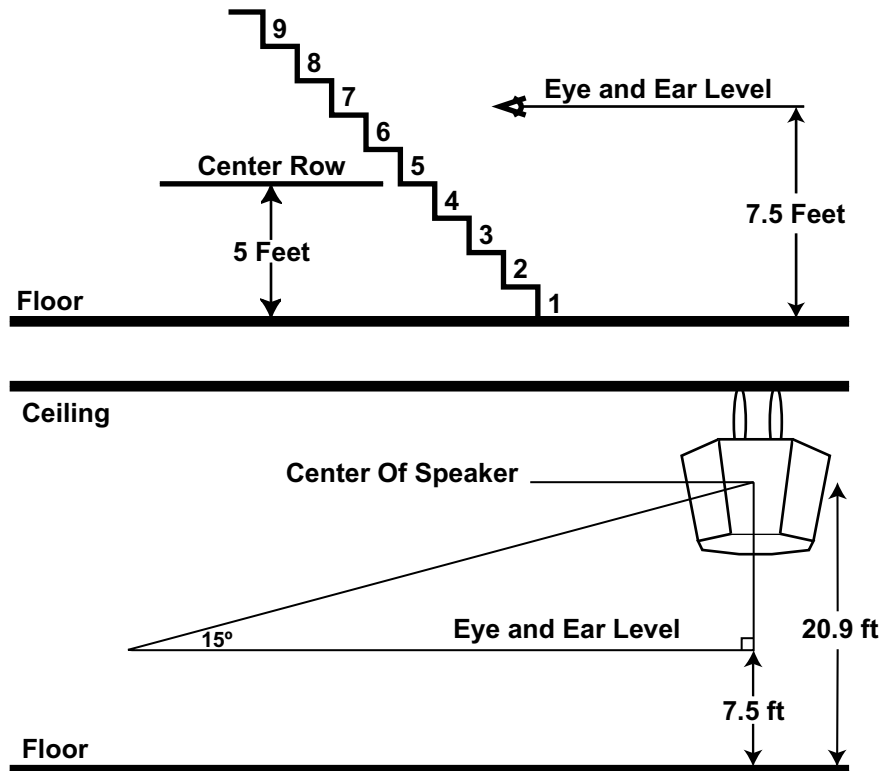
The objective is to install the KDM Central Speaker at a height that points the incident wave from the speaker directly at the audience sitting in the middle row seats.

The side panels of the KDM "Octasound" Central speakers are tilted at 15°. This angle was determined to be optimum from an ergonomics point of view. A person viewing an event will be most comfortable if he or she only has to tilt their head at a 15° angle towards the sound source when an announcement occurs.

From this information it is possible to calculate the optimum installed height for a KDM Central Speaker

Sample Calculation based upon the following information.

1. The Seating risers are incremented by 12"
2. The numbers of rows is 9 (center = 5th row)
3. The building is approx. 100 ft. by 200 ft.



Formula:

$$H \cong D \times \tan(f) + C$$

H = Height Of Speaker

D = Distance to Center Of Room

f = 15° (Constant)

C = Center row eye and ear level.

Sample Calculations

$$D = 50, f = 15^\circ, C = 7.5$$

$$H_1 \cong (50 \times \tan(15^\circ)) + 7.5$$

$$H_1 \cong (50 \times .268) + 7.5$$

$$H_1 \cong 20.9 \text{ ft.}$$

From a practical point of view, the speaker could be installed at a height of 19 to 23 feet.

If there was seating only at the far ends of the building, the optimum height for the speaker would be:

$$H_2 \cong (100 \times \tan(15^\circ)) + 7.5$$

$$H_2 \cong 34.3 \text{ ft.}$$

If the building has seating all around, take the midway point of H and H for the hanging height:

$$M_D = (H_1 + H_2) / 2$$

$$M_D = (34.3 + 20.9) / 2$$

$$M_D = 27.6 \text{ ft.}$$

These calculations are based on ergonomics (which is not an absolute science), the optimum height of the speaker can only be an approximation.

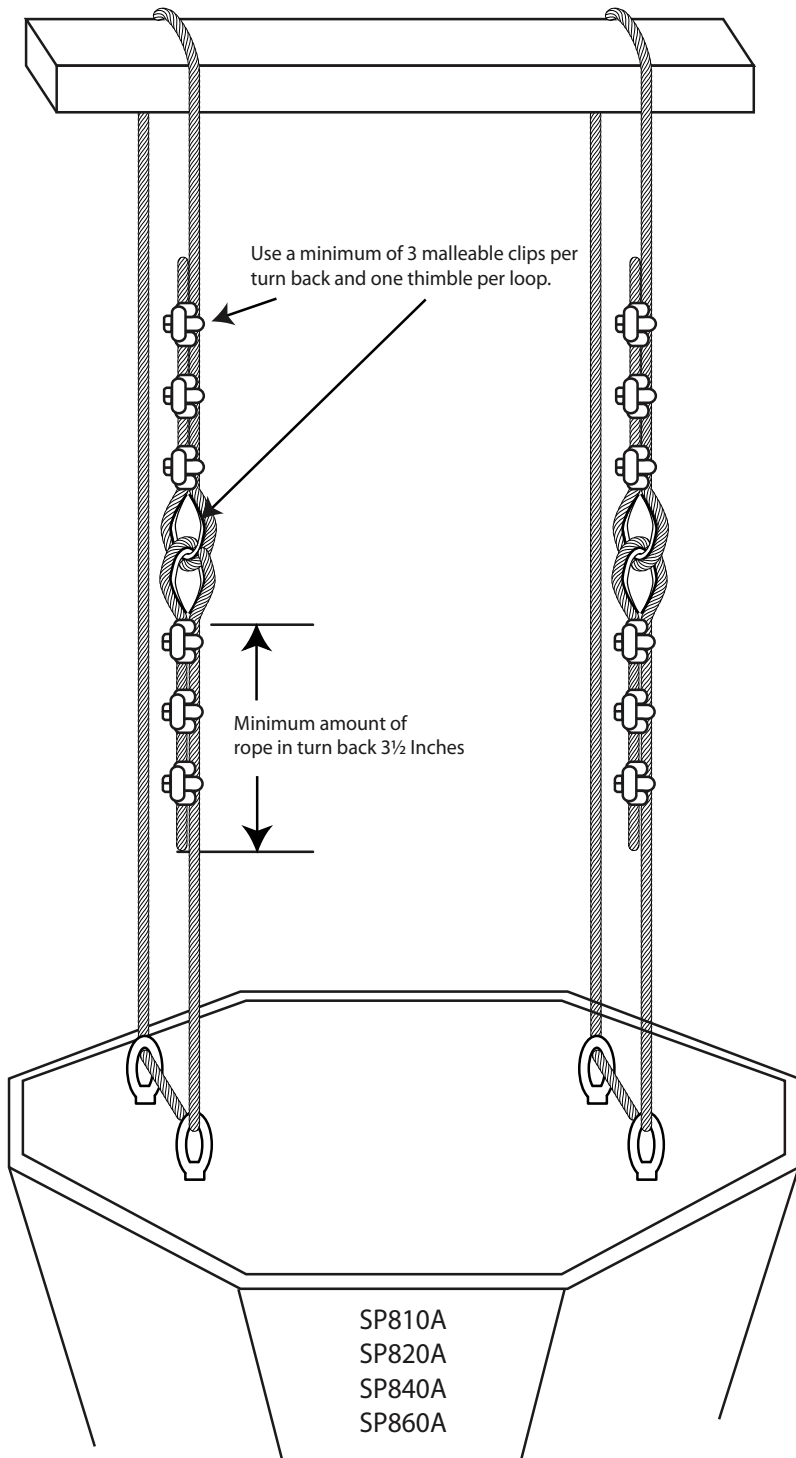


KDM Electronics Inc.
931 Progress Avenue, Unit #12
Toronto, Ontario
Canada, M1G 3V5

Tel: (416) 439-7158
Toll Free: 1-800-567-6282
Fax: (416) 439-7232
Web Site: www.octasound.com
E-Mail: kdm@octasound.com

Hanging Instructions - Wire Rope

Recommended for KDM Models - SP810A, SP820A, SP840A, SP860A, SW818A



1. Cut wire rope to required length. Leaving extra for loops.



Turn back the specified amount of rope from the thimble. Apply the first clip one base width from the dead end of the wire rope (U-bolt over dead end --- live end rests in clip saddle). Tighten nuts evenly to the recommended torque of 4.5 ft/lbs per nut.



Apply the next clip as near the loop as possible. Turn on nuts firm but do not tighten.



Apply the third clip equally spaced between the first two. Take up rope slack. Tighten all nuts evenly on all clips to 4.5 ft/lbs per nut.

NOTE:

Apply the initial load and retighten the nuts to 4.5 ft/lbs of torque (per nut). Rope will stretch and shrink in diameter when loads are applied. Inspect periodically and retighten. The tightening torque of 4.5 ft/lbs is based upon the threads being clean, dry and free of lubrication.

5. Feed other end of wire rope through the eyes then up and over supporting beam and through the loop created in the wire rope. Repeat steps 2 to 4 and create another loop with thimble.

6. Using a level adjust the upper loop to raise or lower the speaker to a level position. The installation should resemble diagram on left.

NOTE:

All cables - 1/8" Aircraft Cable, 7 x 19 Strand Extra Flexible. The minimum tensile strength/working load limit of the aircraft cable must be 10 times the weight of the speaker.

SP810A - 440 lbs
SP820A - 600 lbs
SP840A - 1050 lbs
SP860A - 1100 lbs

It is the installers responsibility to ensure the speakers systems have been installed correctly.

KDM Electronics Inc. strongly recommends that all suspended items be inspected at least once a year and any damaged parts be replaced immediately.



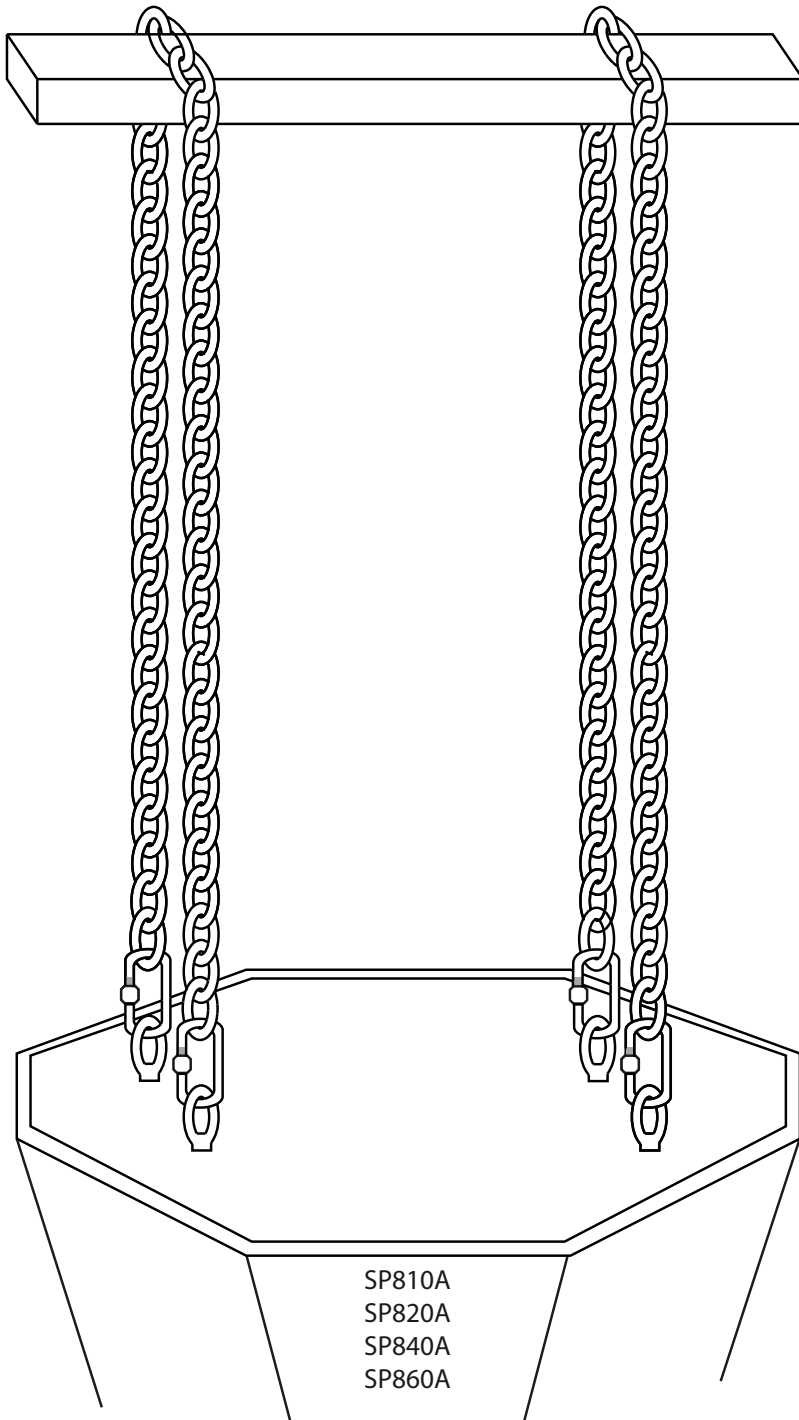
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S O U N D A B O V E A L L

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Hanging Instructions - Chain

Recommended for KDM Models - SP810A, SP820A ,SP840A ,SP860A , SW818A



1. Cut Chain to required Length
2. Feed chain over support beam.
3. Fasten chain to eyebolts using quicklinks.
4. Adjust the speaker to a level position.
5. The installation should resemble diagram on left.

NOTE:

All closed link chain and quicklinks must have a minimum working load limit 10 times the weight of the speaker.

SP810A - 440 lbs
SP820A - 600 lbs
SP840A - 1050 lbs
SP860A - 1100 lbs

The chain and quicklinks should be plated and / or stainless steel to prevent rusting if the speaker is suspended in a high humidity environment.

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SOUND ABOVE ALL

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