

# Loudspeaker System Specifications

## Specifications Peavey® Elements™ 108C

**Frequency Response, 1 meter on-axis, swept-sine in anechoic environment:**

64 Hz - 18 kHz ( $\pm 3$  dB)

**Usable Low Frequency limit (-10 dB point):**

52 Hz

**Power Handling:**

200 W continuous

400 W program

800 W peak

**Sound Pressure Level, 1 Watt, 1 meter in anechoic environment:**

91 dB SPL, (2.83 V input)

**Maximum Sound Pressure Level (1 meter):**

114 dB SPL continuous

120 dB SPL peak

**Nominal Radiation Angle:**

75 degrees horizontal by 75 degrees vertical

**Transducer Complement:**

Low Frequency Section:

1x 8in. Woofer, Vented

Heavy-duty aluminum cone with synthetic rubber surround

High Frequency Section:

1x 0.875 in. Exit/50.8mm Voice Coil Compression Driver on Quadratic Throat™ Waveguide.

RX22™ on a 75 deg. X 75 deg. Quadratic Throat™ Waveguide

**Box Tuning Frequency:**

60 Hz

**Electroacoustic Crossover Point:**

2.0 kHz at 12 dB/octave

**Impedance (Z):**

Nominal: 8.0  $\Omega$

Minimum: 6.3  $\Omega$

**Recommended High pass (Infrasonic) Filter:**

45 Hz, LR 24 dB/oct. type.

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*NOTE: To safely achieve maximum rated SPL output, audio signal must be filtered for extreme low frequency content. All high SPL vented cabinets should have this signal protection.*

## **Input Connections:**

2x Neutrik® Speakon® NL4MD & 1x 4-position barrier strip

## **Enclosure Materials & Finish:**

1 / 2" thick advanced technology composite fiber panels, finished in black Hammerhead™ poly-urea with a lightly textured finish

## **Mounting provisions:**

(10) 3/8"-16 Threaded Mounting Suspension Points (2 each top & 3 each bottom and 2 each sides & one bottom rear). Rubber washers are provided for use with 3/8" eyebolts, to assure a weather tight seal.

Three sets of 4) 1/4X20 SS inserts, the sets are located on the top, rear, and bottom for use with the Peavey® Versamount™ 35 and the Peavey® Elements™ Pole Mount bracket.

## **Dimensions (H x W x D):**

Front: 17.32 in. x 13.94 in. x 10.94 in.  
440 mm x 354 mm x 278 mm

Rear: 17.32 in. x 8.75 in. x 10.94 in.  
440 mm x 222 mm x 278 mm

*NOTE: Depth does not include gland nut depth from weather-cover plate, or cable thickness. Allow approx. 1.5" at centerline for gland nut and cable exit.*

## **Net Weight:**

26 Lbs. (11.8 kg)

## **Features**

- Compact Two-Way Outdoor Fully-Weatherized Speaker System
- Enclosure is made of advanced technology composite fiber panels
- Triple-layer perforated SS moisture-repellant grille
- Water-Resistant 8" Heavy Duty aluminum cone woofer
- 2" diaphragm, 1" exit, Ferrofluid equipped RX22™ compression driver
- Patented Quadratic Throat Waveguide™
- Controlled dispersion patterns of 75 degrees by 75 degrees
- Versatile suspension provisions: 3/8" eyebolts or VM70 bracket or Pole Mount
- Selectable Indoor/Outdoor EQ settings
- Excellent power handling capabilities
- All external hardware is Stainless Steel
- Cabinet coated in black Hammerhead™ poly-urea finish
- Weather-sealed input cup cover with gland nut
- 70 Volt transformer option available, easily upgraded in the field
- Overall system weatherization rating of: IP45

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## Applications –Outdoors OR Indoors

- Stadiums
- Arenas
- Multi-Purpose Facilities
- Cruise Ships
- Theme Parks
- Houses of Worship
- Live Music Venues
- Hotels Meeting Rooms
- Conference Facilities
- Theaters
- Auditoriums
- Civic Centers
- Judicial Facilities
- Gymnasiums
- Performing Arts Centers
- Racetracks

## Description

The new Elements™ 108C loudspeaker system from Peavey® Electronics provide unparalleled flexibility for permanent outdoor installations. The Elements™ 108C system is a two-way speaker system comprised of an 8" aluminum cone Water-Resistant woofer and an RX22™ 2" titanium diaphragm compression driver mounted on a constant directivity horn utilizing Quadratic Throat Waveguide™ technology.

The Elements™ 108C speaker system has a trapezoidal shaped enclosure, which reduces the build-up of standing waves inside the enclosure, which minimizes mid-bass and mid-range coloration's due to the cabinet. They are constructed of 12mm advanced technology composite fiber panels and are coated with a black Hammerhead™ poly-urea finish. A 18 gauge powder-coated perforated stainless-steel metal grille with an inner hydro-phobic cloth mesh, and a foam third layer protects the front of the system from external moisture and dust. A full set of ten 3/8"-16 threaded mounting suspension points, 2 each top and 3 each bottom, and 2 each sides & bottom rear is provided for flying and mounting, as well as three sets of 4) 1/4X20 SS inserts, the sets are located on the top, rear, and bottom for use with the Peavey® Versamount™ 35 and the Peavey® Elements™ Pole Mount bracket.

The Elements™ 108C has a water-resistant high power woofer incorporated, with an aluminium cone and dust cap, and synthetic rubber surround for superior environmental stability. Capable of over 150W of continuous power handling (AES Std 2-1984), the weather resistant woofer can handle a lot of power. The high frequencies are handled by a RX22™ 2" titanium diaphragm compression driver, utilizing ferrofluid cooling, coupled to a 75X75 degree constant directivity horn utilizing Quadratic Throat Waveguide™ technology. The Quadratic Throat horn is protected under US Patent 6,059,069, and due to this patented geometry, this horn has lower distortion than many

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popular CD horns. The RX22™ driver features the Radialinear Planar Phase Correction System, under US Patent 6,064,745, which provides smoother and extended high frequency response.

Input connection to the system is made via a pair of 4 pin Neutrik® NL-4 connectors in parallel with a corrosion-resistant 4-position screw terminal strip for input connection flexibility while maintaining superior signal integrity. A sealed cover plate with a gland nut protects the input cup connectors from the environment. The passive crossover includes the Peavey Sound Guard™ tweeter protection circuit in the high frequency driver signal path, to provide long term reliability. Peavey's proprietary high-frequency driver protection circuitry, Sound Guard™, provides long and medium term driver overload protection, without impairing musical transients or dynamics. The internal passive crossover is conformal coated for maximum reliability, and utilizes weather-resistant internal connectors to assure outdoor reliability and a long service life. An Indoor/Outdoor EQ option is externally accessible from the input cup, and provides the ability to tailor the sound to the needs of outdoor use versus indoor use.

A field installed transformer option is available, providing an easy upgrade to 70V transformer use. The transformer is pre-mounted on a plate, the cover plate is removed from the Elements™ 108C, and the plate mounted transformer installed in it's place, with the simple un-plugging and plugging of water-proof connectors. The transformer option available for the Elements™ 108C has a 100W and 50W tap.

With it's compact dimensions this system can put out some serious sound levels, and take large amounts of clean amplifier power, resulting in precise coverage with excellent clarity and high reliability.



## **Flying or Mounting the Elements Enclosure**

### **Using the 3/8" inserts and corresponding eyebolts**

Caution: Before attempting to suspend this speaker, consult a certified structural engineer. Speaker can fall from improper suspension, resulting in serious injury and property damage.

When using the 3/8" inserts and corresponding eyebolt rigging, other enclosures may be suspended below one Elements™ 108C cabinet. However, the combined weight of additional enclosures and all cables, clamps and other hardware must not exceed 274 pounds. The Elements™ 108C weighs 26 pounds and the maximum combined weight suspended from the uppermost mounting bracket assemblies must not exceed 300 pounds.

Maximum enclosure angle 45°. Use only the correct mating hardware, 3/8" X 16 threads per inch eyebolts or hex head bolts, with suitable ratings (Forged shoulder machinery eye bolt, MIL Spec MIL519737-3 OR compliant with ASTM A489.). Rubber washers are provided for use with the 3/8" eyebolts, to assure a weather tight seal, and they should be used. All associated rigging is the responsibility of others.

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Always use a suitable safety chain or wire rope, attached to an unused group of fly points, and firmly attached to a suitable structural member as indicated by a certified structural engineer.

Never transport the cabinet while mounted on an array bracket or other mounting bracket, this may unduly stress the mounting inserts.

The use of threadlocker (blue type/medium strength) on the mounting bolts is recommended, to insure that the mounting hardware will not vibrate loose over time.

## **Using the VM-70 Mounting Bracket**

Caution: Before attempting to suspend this speaker, consult a certified structural engineer. Speaker can fall from improper suspension, resulting in serious injury and property damage. One other Elements 108C enclosure may be suspended below one mounted to a VM70 mounting bracket, but no additional weight should be suspended from one of these units.

The bolts supplied with the VM70 mounting bracket are grade 5 steel bolts, these should be replaced with Stainless Steel bolts, 1/4X20, SS alloy 316 or 18-8 (304). The length should be from 7/8" long to 1 1 / 4" long. The wall or beam mounting point for the other end of the VM70 bracket should also use the proper corrosion resistant fasteners.

Always use a suitable safety chain or wire rope, attached to an unused group of fly points, and firmly attached to a suitable structural member as indicated by a certified structural engineer.

## **Architectural & Engineering Specifications**

### **Elements™ 108C**

The loudspeaker system shall have an operating bandwidth of 64 Hz - 18 kHz. The nominal system output level shall be 91 dB when measured at a distance of one meter with an input of one watt, when crossed over electronically. The nominal impedance of the Elements™ 108C shall be 8 ohms. The maximum continuous power handling of the system shall be 200 watts, maximum program power of 400 watts and a peak power input of at least 800 watts all with a minimum amplifier headroom of 3 dB. There shall be an externally accessible high frequency level adjust, selecting for an EQ position of Outdoor, or Indoor EQ, with the Indoor EQ at 2 dB less high frequency output than the Outdoor position.

The enclosure shall be constructed of weather-resistant advanced technology composite fiber panels, and finished in a textured hard-shell of black poly-urea coating. The outside dimensions shall be 17.25 inches high by 11.00 inches wide by 13.56 inches deep. The full-length grille shall have a triple-layer construction, consisting of perforated stainless steel outer layer, a hydrophobic cloth middle layer, and a reticulated foam inner layer, so as to provide excellent moisture protection to the drivers. The nominal radiation geometry shall be 75 degrees in the horizontal plane, and 75 degrees in the vertical plane. The input connections shall consist of a corrosion-resistant screw terminal barrier strip for raw wire termination, which is in

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parallel with two Neutrik NL-4 type input jacks. A watertight cover plate with a gland nut shall be provided, for use with the barrier strip connection. The weight shall be 26 pounds. The loudspeaker system shall be a Peavey Elements™ model 108C.

This product is manufactured under U.S. patents 6,059,069 and 6,064,745.

## **Care & Maintenance**

Designed to be installed outdoors, with direct exposure to the weather, there are still some things that can be done to help maintain the appearance and performance of your Elements™ speaker system.

If possible, install in a location that is out of direct sunlight exposure, this will help reduce any fading or bleaching of the finish and hardware over very long periods of time.

If the speaker is installed near salt water, then a once a week rinse off with clean fresh water will help maintain the appearance of the finish and hardware. A light, low-pressure rinse-off is all that is needed to be helpful.

## **Connecting the Elements™ C series loudspeakers for outdoor use with the barrier strip and cover plate**

For connection to the Elements™ C series speaker system outdoors, the use of the barrier strip is recommended.

### **Procedure**

1. Only remove a small length of the overall outer cable jacket, approximately 1.5 to 2" long.
2. The stripped and tinned ends of the individual wires only need to be long enough to go under the flat washer on the barrier strip, this length is approx. 5/16" to about 3/8". Use lead-free silver solder for the tinning, see below for more details.
3. Once the speaker cable has had the ends tinned, install the gland nut onto the cover plate. You will need to hold the outer gland nut base with a pliers or socket wrench to fully tighten the gland nut inner jam nut portion tight up against the plate. **DO NOT** overtighten the gland nut base during cover plate installation!  
Then loosely screw the gland nut compression nut to prepare for cable insertion and final tightening.
4. Now thread the cable through the gland nut, and leave about 7" of cable and jacket sticking out past the inside of the cover plate. Then tighten the gland nut down firmly till it seals against the cable jacket. You may need to hold the outer gland nut base with a pliers or socket wrench to fully tighten the gland nut compression nut down firmly against the cable jacket. This is enough length of cable inside the cover plate to allow the cover plate to pivot out of the way while the wires are being tightened down at the barrier strip.
5. Remove the 8 thumb screws from the periphery of the input cup recess, these will then hold on the cover plate once it is in position. These are the large head screws with

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a single slot in the head. DO NOT REMOVE THE INPUT CUP RETAINING SCREWS (small Phillips head screws) AROUND THE OUTER FLANGE OF THE INPUT CUP! Do not drop or lose the thumb screws.

6. Place the cover plate rubber gasket over and past the tinned wire ends of the cable, and then tighten the wires firmly under the barrier strip flat washers, but do not apply so much force as to distort or damage the barrier strip washer or screw.

7. Coat the exposed wires and terminals with an anti-oxidant compound or other protective coating for best long-term results. DO NOT USE RTV SILICONE RUBBER, AS THIS COULD CORRODE THE PARTS OR WIRES!

Petroleum jelly, WD-40™, and anti-oxidant compound as used on aluminum electrical house wiring are examples of such a protective coating.

8. Once the wires are tight under the barrier strip washer, the cover plate with it's rubber gasket can be fully installed. Use the thumb screws that were removed earlier, and carefully position the rubber gasket in between the cup and the plate around the edge, so it will seal properly. Position the 7" of cable to curve around inside the cavity formed between the input cup recess, and the cover plate, so the cable does not get caught under the rubber gasket or the edge of the cover plate. Then tighten the thumb screws firmly so as to seal the cup terminals under the cover plate and gasket.

## NOTES:

Solder alloy to use for tinning

Use lead-free silver alloy based solder (typically an alloy of 96% tin, 3.5 to 4% silver and traces of some other metal such as copper or indium, etc.) to help reduce any corrosion issues with the screw terminal barrier strip parts.

Length of cable inside cover

It is possible to pull the cable through the gland nut while it is still loose, and put the cover plate on, and then tighten down the gland nut, but this does not allow enough strain relief for the cable, and would make it difficult to remove the cover plate without first loosening the gland nut, and this is not something that you can expect a future Service person to know to do first.

It is strongly recommended that the full 7" of cable past the cover plate on the inside of the plate be allowed for and used.

Gland Nut Cable Diameter Range

The gland nut can seal an outer cable jacket diameter in a range from 0.170" to 0.450". Cables used to hookup the Elements speaker system should be of a sufficient gauge to handle the power they will be used with, have an outdoor rated jacket material and thickness, and the resultant cable jacket diameter should then be larger than 0.170".

## **Exposure to Salt Spray or other Corrosive Environments**

Contact Peavey Electronics for use of the Elements enclosures when the speaker and mounting hardware will be exposed to salt spray or other corrosive environments. In general, eyebolts and mounting bolts should be changed to a rigging grade Stainless Steel 316 alloy.

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**For instructions on installation with the Peavey® Elements™ Pole Mount bracket, see that products Owner's Manual.**