

EVID Design and Installation Reference Guide



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Mounting Questions

I need to position some of the speakers in my installation on a shelf. How do I do this?

The EVID 3.2 and 4.2 full range models have accessory stands available which allow them to mount vertically or horizontally on a shelf or other flat surface. In addition, EVID 6.2 can be vertically mounted when using the appropriate stand.

What mounting accessories are available for the EVID models to set up an array?

The entire EVID full range line is particularly suited to work in an array format. There is a line of accessory brackets, which allow the units to be easily mounted in this fashion.

The “AB” series array brackets allow you to mount and set up an array using the EVID 3.2, 4.2 & 6.2 full range units. They are available for the EVID 3.2, 4.2 and 6.2 models and are available to cover 180 degrees or a full 360 degree installation. An adapter is also included on the 6.2/4.2 bracket set to mount the array on a tripod support. See the accessory list for configurations and pricing

The array can be suspended from a threaded rod or support pipe and then be positioned to cover the listening area. In addition, the array brackets can be employed to offer bi-directional coverage by positioning the assembly in the middle of the listening area to cover the full length of a long confined space such as a hallway.

How can I easily mount the EVID 3.2 or 4.2 to the ceiling when there is a standard 2'x2' or 2'x4' suspended ceiling present?

We suggest using an easily available ceiling clip for mounting the SAM bracket on a suspended ceiling T-channel. The clip simply twists and locks around the ceiling grid “T” channel and provides a stud to attach the bracket mounting plate. We recommend using 2 per speaker. Make sure and position the clips near or directly beneath the grid support wires to guard against a sagging ceiling. EV does not stock these adapters, but they are available from a variety of lighting and hardware suppliers.

How do I install the 12.1?

The 12.1 offers a variety of mounting options right out of the box. The users guide details each of these methods. Of particular interest is the flush mount configuration in a suspended ceiling. The design of the 12.1 allows for flush mounting the unit in a 2x2 ceiling grid space. When doing this you cut two small ceiling panels from the 2x2 panel you just removed to fill in on each side of the unit and attach the two wall “L” channels to the sides of the 12.1. The panels you cut will fit into the spaces on both sides to provide a nice fit and finish. The unit is supported from above via two eye bolts attached to the back of the unit.

As always, IT IS THE RESPONSIBILITY OF THE INSTALLER TO ENSURE THE STRENGTH OF THE BRACKET/BUILDING CONNECTION AND OF THE STRENGTH OF THE BUILDING STRUCTURE!

System Design Questions

Can I paint the EVID speakers to match the environment?

Yes, the EVID 3.2, 4.2 & 6.2 are made of high impact ABS that accepts a wide variety of paints. For best results, follow the painting directions on page 10 of the Owner's Manual.

What finishes are the EVID models available in?

The EVID lineup is available in white or black on all models, even the 12.1 subwoofer! They are pre-coated to eliminate fading, improve appearance and provide an easy to paint surface.

Can I get replacement logo and brackets for the EVID speakers?

Yes, you can order spare logos, brackets and related items as service parts. Please reference the spare parts price list for further information.

The installation requires no logo is visible on the speaker. What can I do?

In this situation it is easy to "black or "white out" the logo so that is becomes nearly impossible to see. Since the design of the EVID line is attractive and subtle, these requests will generally be quite rare.

Can I use the EVID 12.1 outdoors?

Not in most cases. The EVID 12.1 subwoofer cannot generally be used outdoors. It is constructed of reinforced MDF material, which is coated with a polyurethane to protect in most situations not in rain or direct moisture.

Can I paint the EVID 12.1?

Yes, it's quite simple. A variety of paints can then be used and simply paint over the existing surface. It is a best to remove the acoustic foam prior to painting.

Can I use the 12.1 subwoofer with an external crossover and separate power amp channel?

Yes. The 12.1 has an internal passive crossover but you can also use an active crossover and power the subwoofers from a different amplifier channel than the satellite speakers. Using the 12.1 this way also allows for larger and more flexible installations.

When using an active crossover, the recommended crossover range is anywhere between 60 Hz and 160 Hz. Use higher frequencies for the 3.2, and lower ranges for the 4.2 and 6.2. Different rooms can sound better with different crossover points, even using the same speakers, so experiment with what sounds best for your speakers and room. Use as 12-24db crossover slope.

What general guidelines do I consider when deciding on the physical placement of the EVID 12.1 subwoofer?

It is often desirable to place the subwoofer in the middle of the room to get the most uniform coverage. Even though a subwoofer projects sound omni directionally and that the sound is generally not localizable, there is still a reduction in subwoofer sound level the farther away one gets from the subwoofers installed location. Placement in the middle of a room however lowers the sensitivity and ultimate maximum SPL of the subwoofer. You can also use additional subwoofers in order to attain more even coverage. To get good SPL levels, it might be necessary in some applications to install the 12.1 subwoofer along a wall or in a corner.

What typical subwoofer/satellite system configurations are possible?

The EVID Series contains a variety of models, allowing great flexibility to configure a system to fit the requirements of many different applications. Some typical examples are illustrated at the end of this guide

How large an area can an EVID system cover?

A system consisting of one 12.1 subwoofer and four 4.2 or 6.2 satellites can cover up to a 4000 square foot room with balanced, even coverage. The estimate of 4000 square feet is a typical coverage area. You can scale the coverage up or down to adjust for applications with different SPL requirements and different size rooms.

What are general wiring/electrical guidelines when assembling complete EVID systems with a subwoofer?

Because the 12.1's crossover network does a good job of separating the low-pass and high-pass frequency bands you can usually consider the impedance in each band as being nearly separate from each other. The crossover frequency is set for the ideal 160 Hz acoustic crossover point with a 4-ohm load on each satellite output. It is best to use a 4-ohm load on each satellite output when possible. Increasing the impedance of the satellites on a satellite outputs lowers the crossover frequency to the satellites, resulting in more overlap between the subwoofer and the satellite. Using an 8-ohm load on each satellite output results in operating the satellite down to 80 Hz. With the subwoofer operating up to 160 Hz, this could result in a frequency response bump between 80 Hz and 160 Hz, where both subs and satellites are operating. This is a situation to be aware of when placing the speakers in the room.

What is the best way to connect the EVID 12.1 for single channel operation?

To operate a 12.1 subwoofer in mono, parallel the two subwoofer inputs, resulting in a 4Ω load in the subwoofer range, below 160 Hz. When hooking an EVID 12.1 in mono IT IS VERY IMPORTANT TO MAKE SURE THAT BOTH INPUTS ARE CONNECTED IN PROPER POLARITY.

In mono systems (with the inputs of the subwoofer paralleled), the amp views the loads hooked up to the Left and Right satellite outputs as being in parallel with each other. Make sure the amplifier can run loads of less than 4 ohms in this situation.

What are some techniques to properly balance the levels between the subwoofer and satellites?

The required sensitivity balance between the subwoofer and satellites varies by the musical requirements of the application. A sports bar or health club for example might require much more bass content than does a low level background music system.

Sensitivity of the satellite section varies depending on the particular satellite model chosen, the number of speakers employed and the wiring configuration. Higher satellite sensitivities result in less relative subwoofer level.

It's generally best to position the subwoofer after the rest of the system is installed, changing its location to achieve the optimum bass level. The acoustic volume level of the subwoofer can be raised or lowered by moving its position within the room. Beginning at a corner junction in the room you can enhance bass output by moving the subwoofer closer to the ceiling or floor; you can reduce apparent bass output by moving it out onto the center of a wall. You can decrease bass output further by suspending it in the middle of the room.

Specification Questions

Are the EVID full range speakers protected against excessive input power?

Yes, protection circuitry is included inside all the 8-ohm models. This circuit gives full-range protection including the woofer and tweeter. The "t" versions are current-limited and fully protected by the transformer.

Can the EVID models be use outdoors?

Yes, the full range models are all "weather resistant". They pass MilSpec 810 and are IEC rated as "splash proof" (IEC529 rating of IP-x4). If possible, it is best to install the units under an overhang maximize long term performance.

Although not always needed, further moisture protection can be obtained by using the weatherized terminal covers when the EVID 4.2 and 6.2 units are used outdoors. These covers are simple-to-use and protect the input terminal panel. The cover installs over the existing input cup, providing a sealed gland-fitting entrance to further protect the input panel against the elements. The cover is available in black and white and can be painted.

How are the EVID full range models tested for weather resistance?

All EVID full range loudspeakers feature weather resistance design criteria which allow them to pass MilSpec810 and IEC529 specifications. These specifications provide tests to determine outdoor capability in severe climates. Five separate test sessions are

conducted; Humidity, Low Temperature Cycle, High Temperature Cycle, UV Exposure, and Salt Spray.

Salt Spray

48 hours continuous light spray consisting of 5% salt solution. This tests for resistance to the effects of an "aqueous salt atmosphere". It also gives a general indication of resistance to rusting.

Humidity

48 hours of cycling. Starts at 100% humidity @ 27 degrees C; goes to 95% @ 35degrees and goes back to 100% at 27 degrees. It is to indicate resistance to a warm humid atmosphere.

Solar Radiation

This test is run to determine the effects of being out in the sun, such as yellowing or chalking. 48 hours of very intense UV (1120W/sq m). These 48 hours are supposed to simulate about 1 year of being out in the sun.

Low Temperature

This cycles from -6 degrees C to -19 degrees C (21F to -2F) for 48 hours. According to the Milspec document, this simulates acceptability in a mild climate such as "coastal Europe and southeast Australia". High Temperature -- This cycles from 32 C to 49C (90F to 120F) for 48 hours. This simulates acceptability in a Hot climate such as "North Africa, the Middle East, Pakistan, and India, southwestern US and northern Mexico".

IEC Water Splashing

The products passed a rating of IP-X4 (which is also the CEE rating in Europe). IP-X4 allows us to officially call them "splashproof". Although people may have different conceptions of the term "splashproof", this is the IEC and CEE definition of a "splashproof" rating.

What are the characteristics of the matching transformers in the EVID models?

EVID speakers incorporate high performance transformers that are very stable at all frequencies in their range and exhibit very little low-frequency saturation. The matching transformers in all the EVID units are designed to provide full rated output down to the low frequency limit in its specification with virtually no saturation. In addition, the insertion loss of less than 0.5 db is extremely low. This results in less heat generation, higher power transfer and more speaker efficiency.

In what application would I use the "t" versions rather than the 8 Ohm models?

In large wide area applications or where a large number of satellites are needed to cover odd shaped or multiple room you would use the "t" models. Also, where the

infrastructure of the audio system is a constant voltage design you would employ the “t” versions.

Do the EVID “t” models work with both 70v and 100v systems?

Yes, the same “t” models work on both 100v and 70.7v lines. Regardless whether you use 100v or 70.7v distributed line systems; you use the same model speaker.

What are the power taps for the various EVID “t” models”?

- **3.2t:** A single (non-selectable) power tap rated at 5w@70v and 10w@100v.
- **4.2t:** The power taps are 30w, 15w and 7.5w at both 70.7v and 100v, with a 3.7w tap for 70.7v only.
- **6.2t:** The power taps are 60w, 30w and 15w at both 70.7v and 100v, with a 7.5w tap for 70.7v only.

A rotary switch on the back panel selects the taps for the 4.2t and 6.2t. A label is provided on the back of each speaker showing the switch positions to use for the settings at 70v and 100v.

Can I run a 12.1 subwoofer on a 70v or 100v distributed line?

To operate the 12.1 on a distributed-sound line, you need to add a matching transformer, which must be a high quality transformer such as the ElectroVoice 15000 series. Many other transformers saturate at low frequencies, dropping the impedance in the subwoofer range to a fraction of what it is at higher frequencies. This can draw too much current from the amplifier either causing the amp to fail or creating distortion such as premature amp clipping or “muddy sound” at low levels. This can adversely affect the sound that goes through the full-range speakers as well

The more power you put through the transformer the more it can saturate, so even a transformer that performs well on low-signal test equipment can saturate severely on higher voltage distributed lines. It requires a high performance transformer to drive a subwoofer successfully on a distributed line. All the EV 15000 series transformers are designed to perform to spec. up to their rated power.

In the long run, it is better to run a subwoofer from its own low impedance amplifier channel and run only the satellites from the constant voltage (70v/100v) line.

What equalization should I use for EVID systems?

The proper equalization settings depend on many factors, such as the quantity of speakers, the room characteristics, the typical operating level, the residual background noise in the venue, and the type of audience. The wide frequency response and high power handling of EVID systems lets you use a wide variety of equalization settings.

EVID System Design Examples

What are some typical systems designs incorporating EVID series speakers?

The EVID series of surface mount speaker systems are especially well suited to working with the MA/MR mixer amps or the CPS-1, CPS-2 and CPS2T power amplifiers. Listed below are a number of suggested installation examples for a variety of environments incorporating EV amplification products.

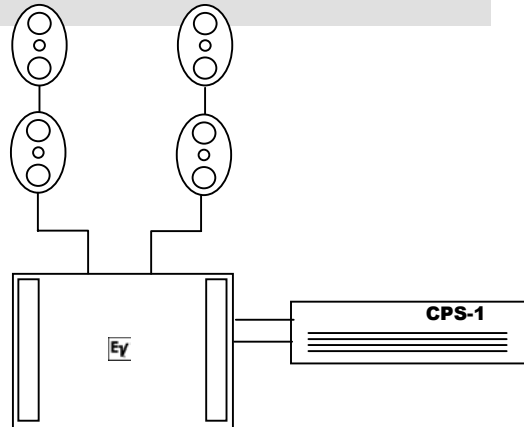
Please note: The equipment lists which follow do not list other required pieces commonly used in sound installations such as source playback equipment and paging hardware.

Small Bar or Restaurant

Room size: 2500 Sq Ft.
Source: Mid level music

Equipment List

<i>Item</i>	<i>Quantity</i>	<i>Model</i>
Speakers		
<i>Main – Full Range</i>	4	EVID 4.2
<i>Subwoofer</i>	1	EVID 12.1
Amplification		
<i>Power Amplifier</i>	1	CPS-1

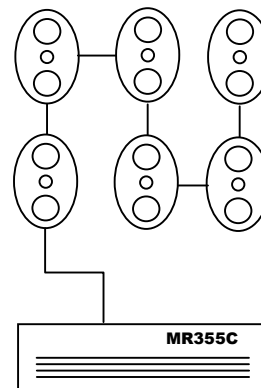


Doctors Office

Room size: 300 Sq Ft.
Source: Low level programmed music & voice paging

Equipment List

<i>Item</i>	<i>Quantity</i>	<i>Model</i>
Speakers		
<i>Main – Full Range</i>	6	EVID 3.2t
<i>Subwoofer</i>	N/A	
Amplification		
<i>Mixer/Amplifier</i>	1	MR355C

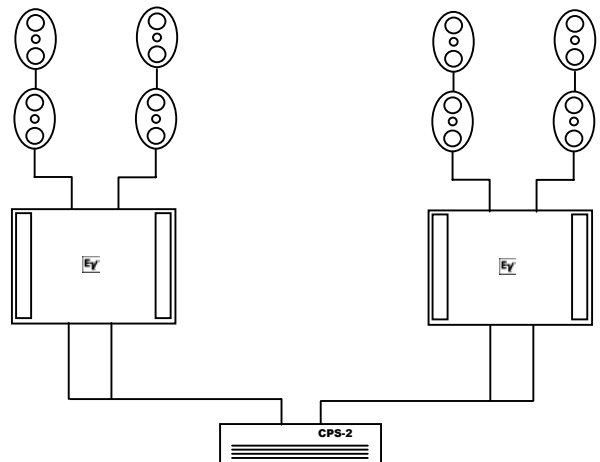


Large Retail Store

Room size: 6000 Sq Ft.
Source: Mid level music & voice paging

Equipment List

<i>Item</i>	<i>Quantity</i>	<i>Model</i>
Speakers		
<i>Main – Full Range</i>	8	EVID 4.2
<i>Subwoofer</i>	2	EVID 12.1
Amplification		
<i>Power Amplifier</i>	1	CPS-2



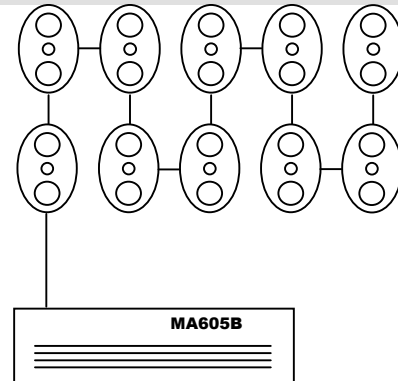
Theatre Lobby

Room size: 3000 Sq Ft.

Source: Low level music & voice paging

Equipment List

<i>Item</i>	<i>Quantity</i>	<i>Model</i>
Speakers		
<i>Main – Full Range</i>	10	EVID 3.2t
<i>Subwoofer</i>	N/A	
Amplification		
<i>Mixer/Amplifier</i>	1	MA605B



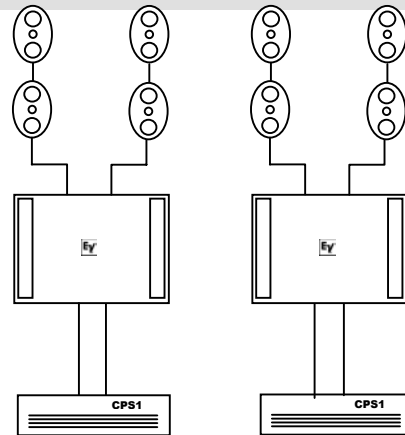
Sports Bar

Room size: 4000 Sq Ft.

Source: High level music

Equipment List

<i>Item</i>	<i>Quantity</i>	<i>Model</i>
Speakers		
<i>Main – Full Range</i>	8	EVID 6.2
<i>Subwoofer</i>	2	EVID 12.1
Amplification		
<i>Power Amplifier</i>	2	CPS-1



Shopping Mall

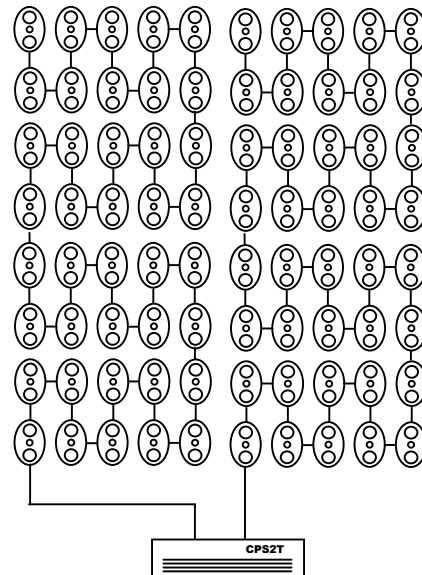
Total area: 100000 Sq Ft.

Source: Low level music & voice paging

4.2t's tapped at the 7.5 watt setting

Equipment List

<i>Item</i>	<i>Quantity</i>	<i>Model</i>
Speakers		
<i>Main – Full Range</i>	80	EVID 4.2t
<i>Subwoofer</i>	N/A	
Amplification		
<i>Power Amplifier</i>	1	CPS-2T



Stadium

Total area: 100000 Sq Ft.

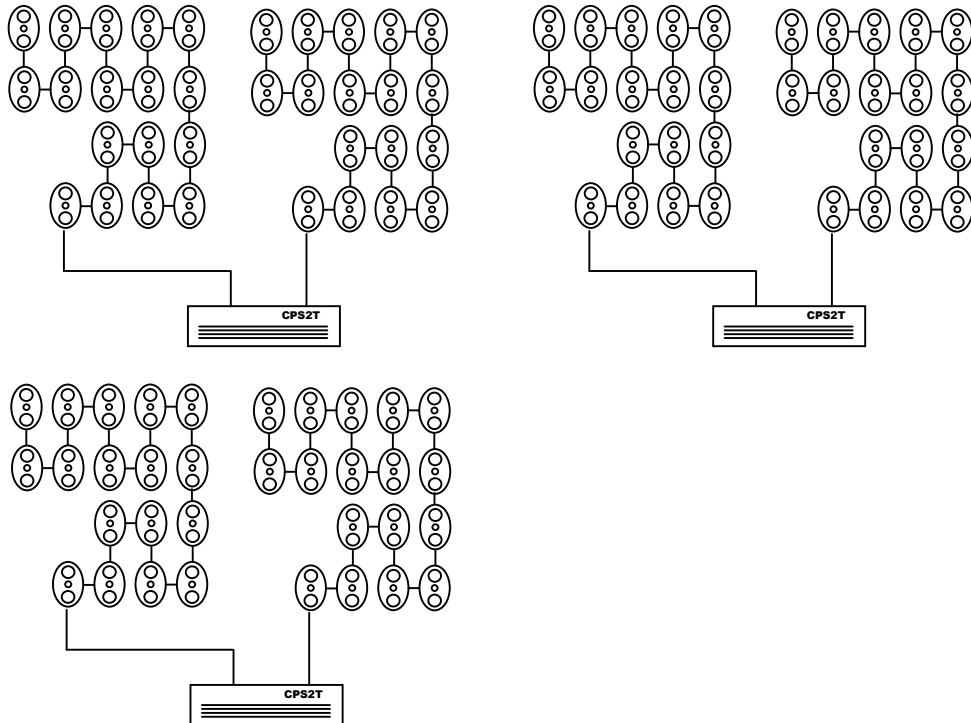
Source: Announcement fill and voice paging

Total amplifier power: 580 watts per channel

The 6.2t's are tapped at the 30w setting

Equipment List

<i>Item</i>	<i>Quantity</i>	<i>Model</i>
Speakers		
<i>Main – Full Range</i>	102	EVID 6.2t
<i>Subwoofer</i>	N/A	
Amplification		
<i>Power Amplifier</i>	3	CPS-2T
<i>Mixer/Amplifier</i>	N/A	



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