



**CH SERIES
HIGH PERFORMANCE
FULL-RANGE
CO-AXIAL HORN
SPEAKERS**

**CH65.4 / CH65.2 / CH69.4
CH69.2 CH8.4 / CH8.2**

Owners Manual

ABOUT CICADA



Congratulations, you have just purchased the finest Motorcycle Audio products on the market today. Cicada Audio products represent the latest advances in acoustic technology in sound reproduction for your Motorcycle applications. Cicada Audio products are designed, developed, and engineered using the latest innovative materials and components to provide the finest sound reproduction possible. Every Cicada Audio product has been Klippel verified and tested to ensure the best sounding and most reliable product on the market, if installed properly, Cicada Audio products will provide many years of the ultimate listening experience.

Please note that prolonged exposure to sound pressure levels in excess of 100dB can cause permanent hearing loss. Using Cicada Audio products can exceed that level so please exercise restraint in its operation in order to preserve your ability to enjoy its high fidelity sound for many years to come.

Cicada Audio recommends our products be professionally installed by an authorized Cicada Audio dealer to achieve the best possible system recommendation and installation. This will ensure a true Cicada Audio listening experience and sound you would expect from Cicada Audio products. In doing this you will extend your warranty from one year to two years.

MODEL	TYPE	POWER HANDLING
CH65.4	6.5" 2-Way Full Range 4 Ohm Coaxial	500W RMS / 1000W MAX (Pair)
CH65.2	6 5" 2-Way Full Range 2 Ohm Coaxial	500W RMS / 1000W MAX (Pair)
CH69.4	6 X 9" 2-Way Full Range 4 Ohm Coaxial	500W RMS / 1000W MAX (Pair)
CH69.2	6 X 9" 2-Way Full Range 2 Ohm Coaxial	500W RMS / 1000W MAX (Pair)
CH8.4	8" 2-Way Full Range 4 Ohm Coaxial	500W RMS / 1000W MAX (Pair)
CH8.2	8" 2-Way Full Range 4 Ohm Coaxial	500W RMS / 1000W MAX (Pair)

FEATURES

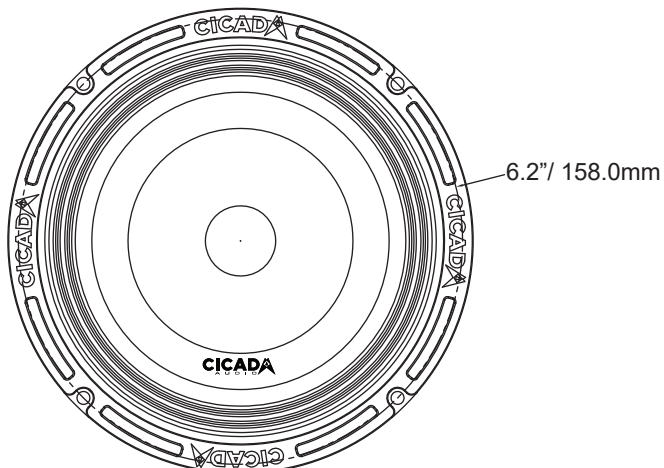
- 500W RMS / 1000W MAX Power Handling – PAIR
- Neodymium High-Energy / Light Weight N35H Magnet Structure
- Heavy Duty / High-Temp Cast Aluminum Basket
- 2.0" High-Temp (BlackCoat™) Voice Coil for Midbass - 4 or 2 Ohm
- 1.4" Aluminum Diaphragm High-Temp Voice Coil for Tweeter - 8 Ohm
- Water Repellant Pressed Paper cone with Treated Cloth Surround
- Frequency Response: 75Hz -20Khz +/- 5dB - CH65.4/CH65.2
- Frequency Response: 65Hz -20Khz +/- 5dB - CH8.4 / CH8.2 / CH69.4 / CH69.2
- High Sensitivity: 96.4dB /99dB Average (1W/1M - 2.83V) - CH65.4 / CH65.2
- High Sensitivity: 97.2dB /101dB Average (1W/1M - 2.83V) - CH8.4 / CH8.2 / CH69.4 / CH69.2
- 12dB Crossover with Custom Tooled / Vented Case



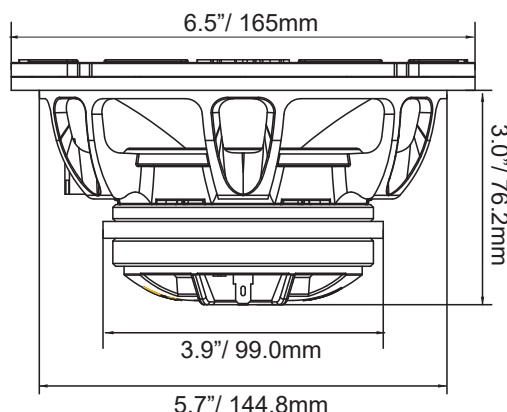
CICADA AUDIO PRO COAX HORN DRIVERS

The LATEST AND GREATEST series of CoAx Horn drivers features and specifications are on the next few pages. Makes sure to read this manual thoroughly and get to know your drivers and the many applications and possible set up scenarios available to you. For your reference - Theile/Small parameters and RTA curves are on page 11 and 12.

CH65.4 / CH65.2

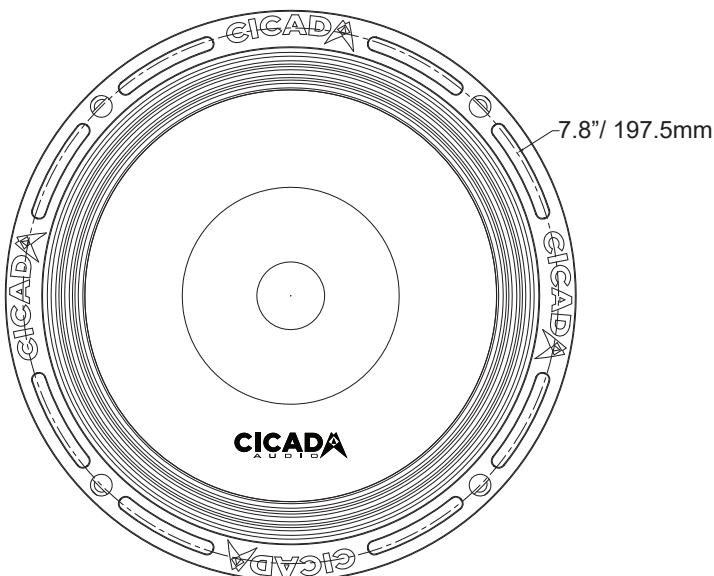
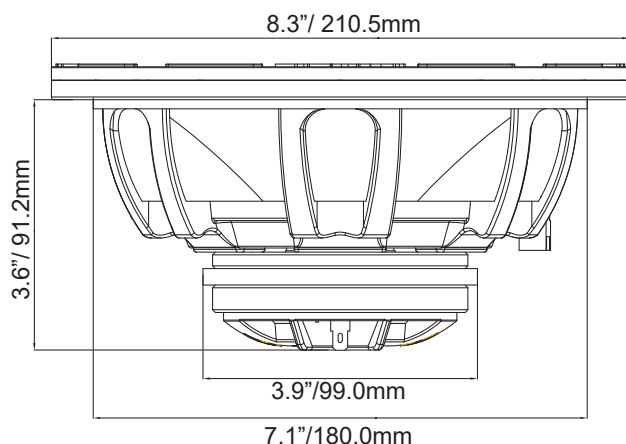


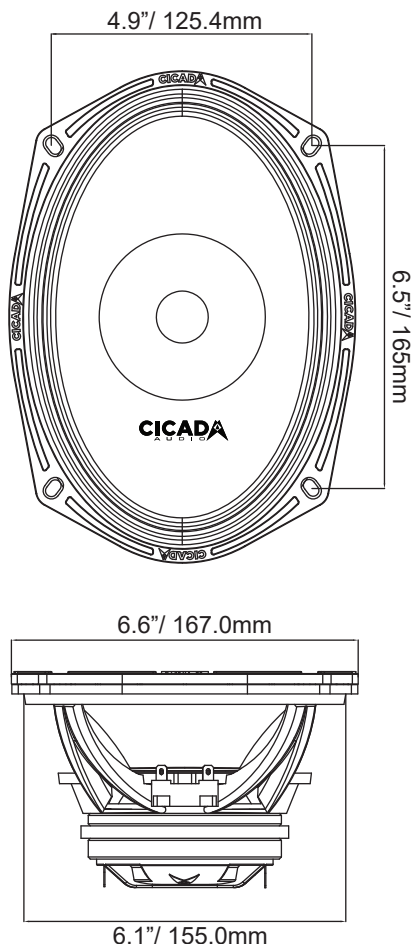
- 6.5" PRO Full-Range Co-Ax Horn Speaker
- 500W RMS / 1000W MAX Power Handling- Pair
- High Temp NEO N35H Magnet Structure
- Heavy Duty Cast Aluminum Basket
- 2" (50mm) Single Layer High-Temp Voice Coil for Woofer
- 1.4" (35mm) Single Layer High-Temp Voice Coil for Tweeter
- Frequency Response: 75Hz -20Khz +/- 5dB
- High Sensitivity: 96.4dB / 99dB Average (1W/1M - 2.83V)
- 12dB 2nd Crossover with Custom Tooled /Vented Case



CH8.4 / CH8.2

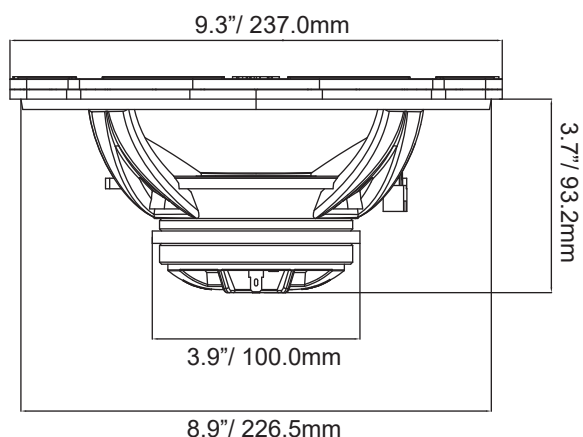
- 8.0" PRO Full-Range Co-Ax Horn Speaker
- 500W RMS / 1000W MAX Power Handling- Pair
- High Temp NEO N35H Magnet Structure
- Heavy Duty Cast Aluminum Basket
- 2" (50mm) Single Layer High-Temp Voice Coil for Woofer
- 1.4" (35mm) Single Layer High-Temp Voice Coil for Tweeter
- Frequency Response: 75Hz -20Khz +/- 5dB
- High Sensitivity: 97.2dB / 101dB Average (1W/1M - 2.83V)
- 12dB 2nd Crossover with Custom Tooled /Vented Case





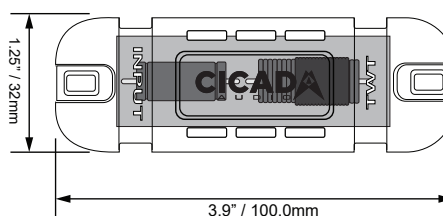
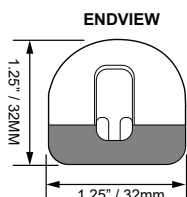
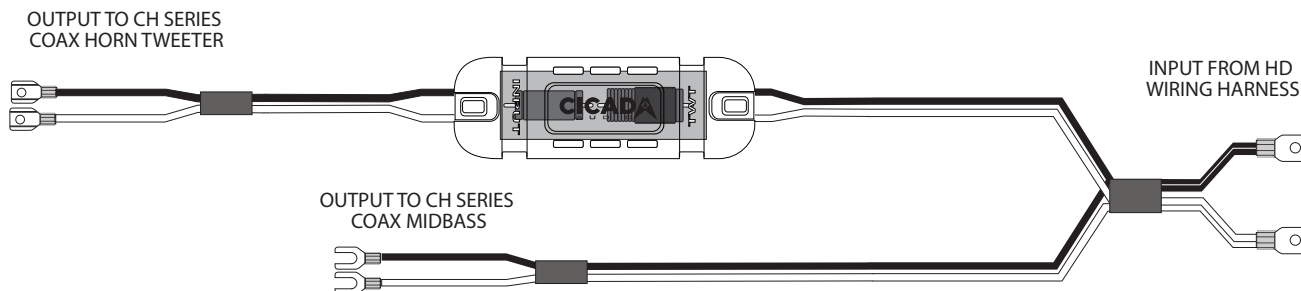
CH69.4 / CH69.2

- 6 X 9" PRO Full-Range Co-Ax Horn Speaker
- 500W RMS / 1000W MAX Power Handling- Pair
- High Temp NEO N35H Magnet Structure
- Heavy Duty Cast Aluminum Basket
- 2" (50mm) Single Layer High-Temp Voice Coil for Woofer
- 1.4" (35mm) Single Layer High-Temp Voice Coil for Tweeter
- Frequency Response: 75Hz -20Khz +/- 5dB
- High Sensitivity: 97.2dB / 101dB Average (1W/1M - 2.83V)
- 12dB 2nd Crossover with Custom Tooled /Vented Case



12 dB CUSTOM PASSIVE NETWORK

(NOTE: 2 of these are included with each pair of CoAx Horns)



INSTALLATION



Installing the Speakers

Your new Cicada Audio CH series speakers were designed with the flexibility to be installed in multiple Locations. However, to ensure the best performance possible, it is important to isolate the front sound waves of the speaker from its rear sound waves. This is done by securely mounting the speaker to a flat surface known as a baffle. Make sure to seal the speaker to ensure there are no air leaks around its frame. Screws are NOT included, as these are installed totally into custom installs....and we know how you guys (and gals) are!

Selecting a Location

These are “Pro Drivers” ...AND we know the likelihood of mounting in stock locations is typically pretty non-existent. But THESE particular drivers are light weight and relatively shallow so they can be used in a LOT of different applications. But follow good audio practices...

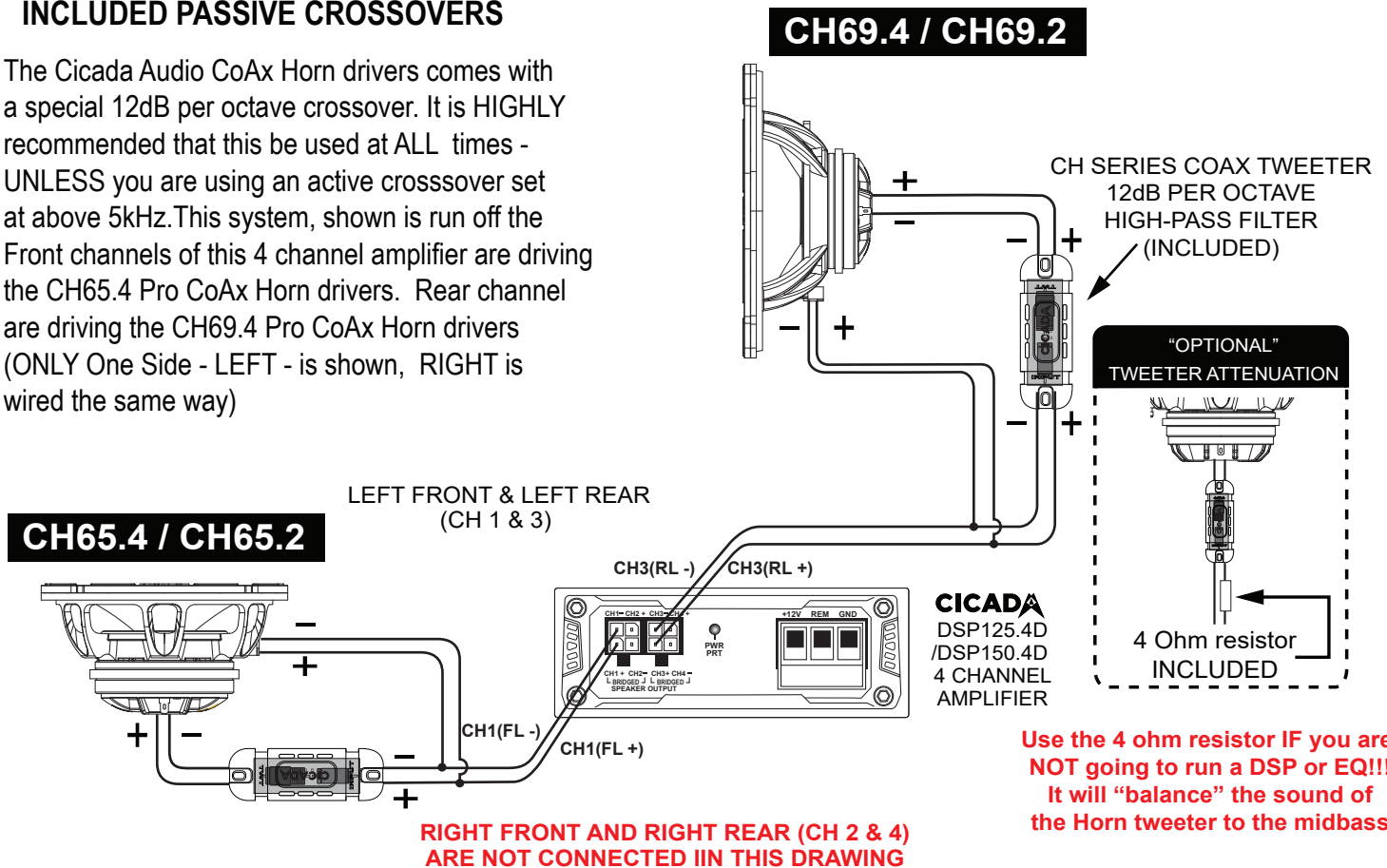
We HIGHLY recommend that for the BEST sound you put a sound deadening mat on the door “skin”, fairing or bag, The more “damped” your vehicle/bike is.... the better.... it will ultimately sound!!!

Remember that the Midrange driver is $4\ \Omega$ (or $2\ \Omega$) and the Tweeter is $8\ \Omega$. These drivers were especially designed for Motorcycles but can be used in cars, trucks, boats and UTVs as the cones are UV and water resistant. They are light weight and extremely efficient. Great for a lot of applications.

SYSTEM DESIGN - PASSIVE

TYPICAL SYSTEM USING INCLUDED PASSIVE CROSSOVERS

The Cicada Audio CoAx Horn drivers comes with a special 12dB per octave crossover. It is HIGHLY recommended that this be used at ALL times - UNLESS you are using an active crossover set at above 5kHz. This system, shown is run off the Front channels of this 4 channel amplifier are driving the CH65.4 Pro CoAx Horn drivers. Rear channel are driving the CH69.4 Pro CoAx Horn drivers (ONLY One Side - LEFT - is shown, RIGHT is wired the same way)



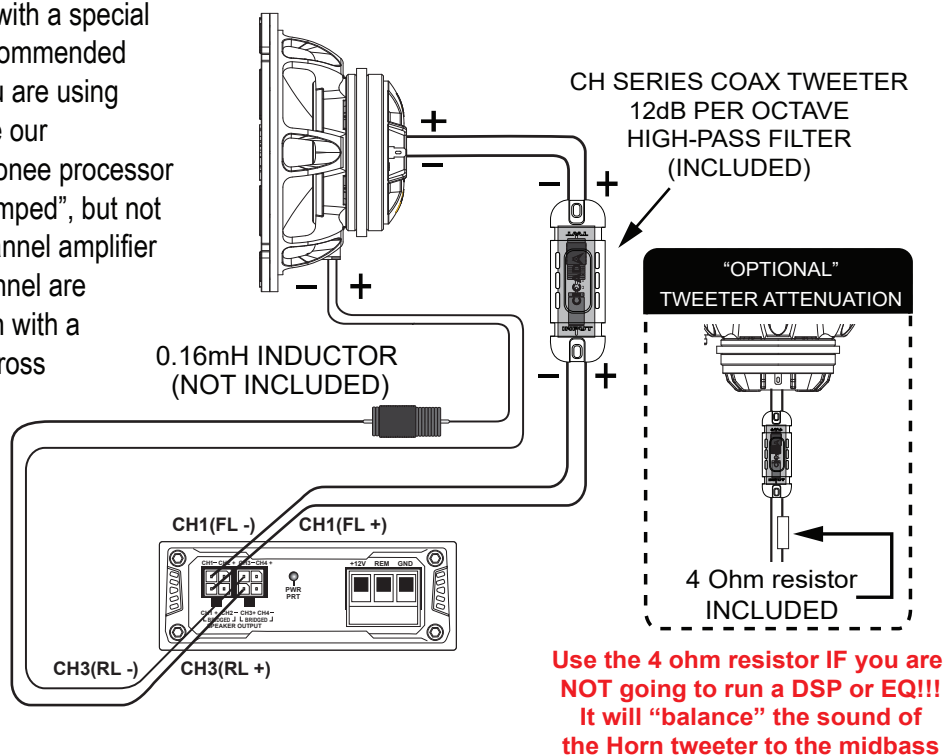


TYPICAL “BI-AMPED” SYSTEM USING PASSIVE CROSSOVERS

The Cicada Audio CH COAX HORN comes with a special 12dB per octave crossover. It is HIGHLY recommended that this be used at ALL times - UNLESS you are using an active crossover set at above 4kHz. Like our DSP125.4D amplifier or our DSP88 stand alone processor with amplifiers. This system, shown is “Bi-Amped”, but not “Fully” active. FRONT channels of this 4 channel amplifier are driving the mid bass drivers. REAR channel are driving the tweeters. The MIDBASS is shown with a 0.16mH inductor (not included) in series to cross over the midbass at 4Khz with a 6dB roll-off.

NOTE: This setup makes it easier to adjust level of the midbass versus the tweeter by simply adjusting the levels of each channel. Piece of cake!!!

IF you USE a DSP you dont need the additional low pass filter(inductor) as shown



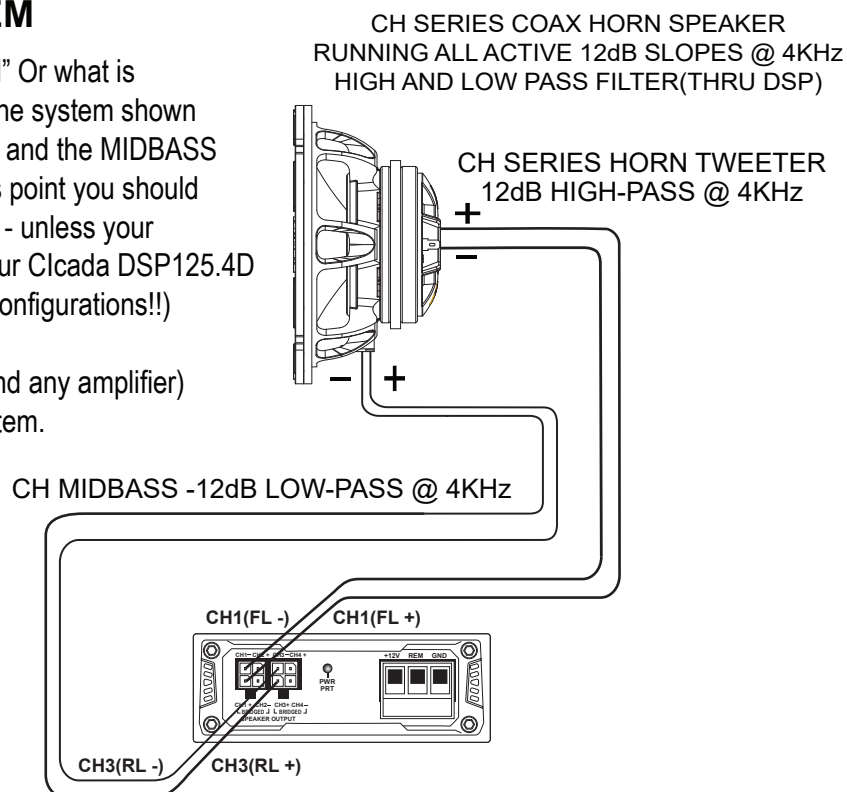
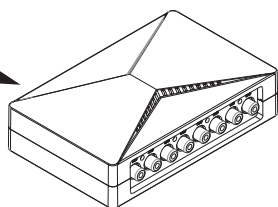
TYPICAL “FULLY ACTIVE” SYSTEM

CH series COAX HORN drivers can be “Bi-Amped” Or what is commonly called FULLY active system setup. In the system shown - the tweeter(s) are wired to the FRONT channels and the MIDBASS driver section is wired to the rear channels. At this point you should seriously think about purchasing a DSP processor - unless your amplifier has a HP filter that can go to 4Khz, like our Cicada DSP125.4D DSP Amplifier. (which has infinite filter and slope configurations!!)

Using a DSP amp/processor (or DSP processor and any amplifier) makes it much easier to control and tune your system.

We recommend using our amplifier with built in DSP (DSP125.4D) or a stand alone DSP like our DSP88 Small 8 in 8 out, simple to use....and controlled by your SmartPhone..or PC.

CICADA
DSP88

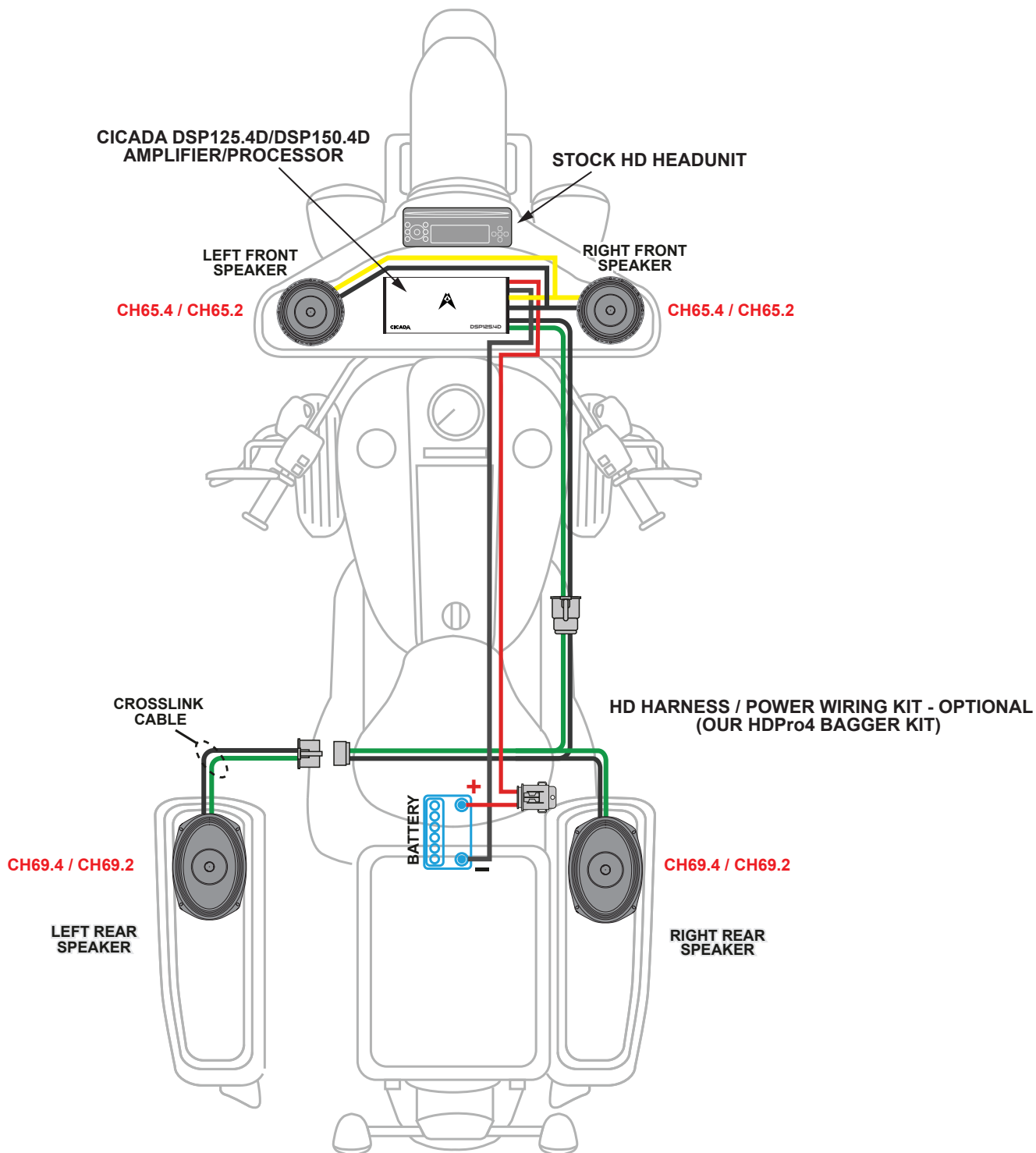




TYPICAL 4 CHANNEL SYSTEM

UTILIZING A PAIR OF CH65.4 / CH65.2 AND A PAIR OF CH69.4 / CH69.2

(IF you are using our DSP125.4 Amplifier "PRO" Kit ...then
ALL the input , output and power wiring is included with the amplifier)



DETAILED WIRING DIAGRAM



Here is a detailed wiring connection drawing for the CH series COAX HORN drivers. We've tried to make it as simple and straight forward as possible so that it is literally a "plug and play" situation.

1. Remove the grill and the unscrew the stock HD speaker from the fairing
2. Disconnect the stock HD speaker from the bike. Leave the wiring as you dont need to cut ANYTHING!
3. Connect the Cicada CoAx Horn Speaker wiring harness that comes with our speaker.
(See drawing to the right)
4. Make sure you follow polarity
(+) goes to (+) and (-) goes to (-)

NOTE: if you hook it incorrectly it will NOT hurt anything , you'll just have a LOT less bass.

.....Hey... if you dont care...we dont care!!!
(yeah, we do butwe arent there so we cant do anything about it!!!)

NOTE 2: If you hook up the tweeter backwards ...it won't hurt anything eitherIt just will sound really nasily and super bright.

RUNNING TECH TIP - POWER AND BLOWING UP SPEAKERS

Speakers do NOT blow themselves up! Somebody has to over drive them. Usually this "over driven" issue is too low of power and the amplifier being driven into clipping. This "clipping" causes the speaker voice coils to get hot. Causing the glues to "un-glu" themselves from the voice coil former.

Another contributing factor is running the driver below there Fs (resonance frequency)
ALWAYS HIGH PASS COAX HORN DRIVERS!! ALWAYS!!!!

STOCK HD SPEAKER
WIRING CONNECTIONS

SPEAKER WIRING
FROM BIKE

HORN TWEETER
CONNECTION

MIDBASS CONNECTION
(THIS IS A 0.187 CONNECTOR!)
THERE ARE 4 BARE 0.187 CONNECTOR
AS BACKUPS IF YOU DECIDE TO WIRE
THIS ACTIVELY WITH YOUR WIRING

CICADA COAX HORN
WIRING CONNECTIONS (0.187")
CONNECTS BOTH THE TWEETER
AND MIDBASS DRIVER
NOTE: BE CAREFUL OF "PHASE
AS HD HAS THE SMALL PUSH ON
AS POSITIVE(+)

- 0.250"

+0.187

TWEETER DIAPHRAGM REPLACEMENT - DISASSEMBLY



THIS IS JUST IN CASE YOU BLOW YOUR TWEETER UP!

SPECIAL NOTE: DOUBLE CHECK WITH A VOLTMETER TO MAKE SURE THE TWEETER IS DEAD, DEAD AND DEAD!! BEFORE REMOVING IT FROM THE MAGNET STRUCTURE

**MAKE SURE YOUR ORDERED
THE CHT14 - CH SERIES DIAPHRAGM KIT**

THEN...FIRST THINGS FIRST:

The Back cover needs to be removed. These are 5 mm HEX machine screws. Remove them AND the stainless steel washers and put them in a ZipLock bagger or plastic cup so you dont just loose them. We know you!!

Once the Back cover is unscrewed. Carefully AND slowly lift the back cover STRAIGHT up. You may want to use the included installation "dowels" to help you with this. Try to NOT rub the burned voice coil on the gap. Yes we know its burned! DUH! Why else would you be changing it out? HELLO!!!

S^%T happens. Thank goodness WE thought ahead and made this really simple. Because of our desire to make our products the BEST we designed and custom tooled the tweeter diaphragm INTO the back cover. No soldering!!!

(Hey ...weve seen your soldering jobs!!)

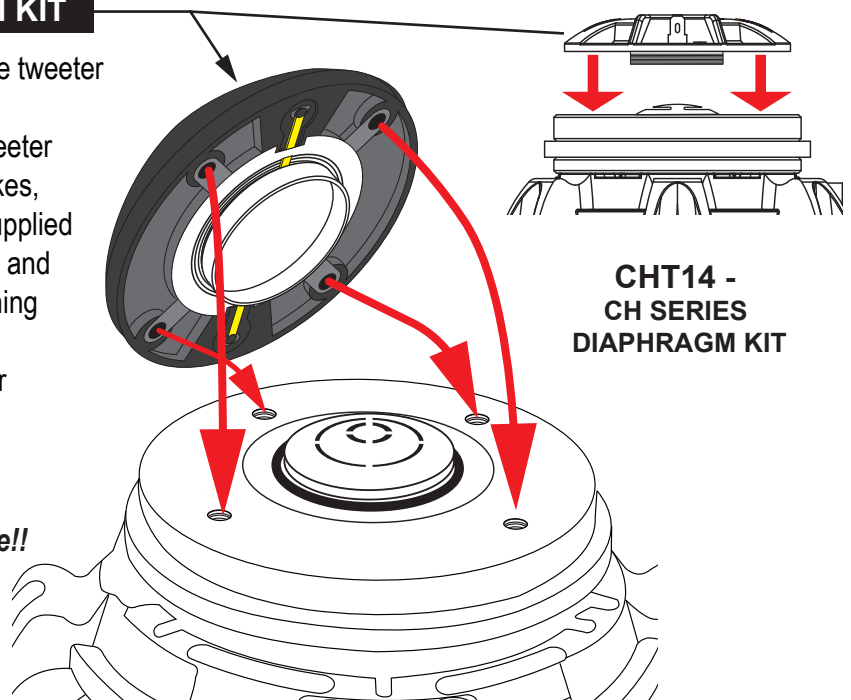
CHT14 - CH SERIES DIAPHRAGM KIT

Once your lifted the back magnet cover out of the tweeter voice coil gap , flip it up so you can look at it.

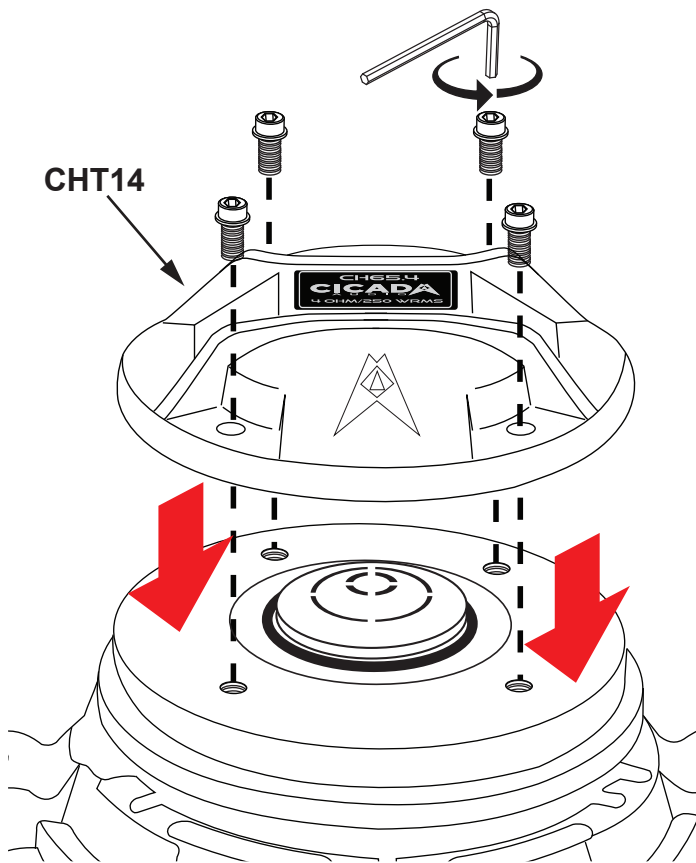
Yes... YOU DID THAT!! Ya Cooked the poor tweeter diaphragm! But it is OK. Learn from your mistakes, make sure either the passive crossover we've supplied OR the active crossover in your DSP is engaged and fully active (and set above 4KHz!) BEFORE turning on the system or before any tuning!!

A SUPER important concept as ALL horn tweeter diaphragms are fragile, no matter what they say the power rating

NOTE: Be super careful as the edges of the tweeter diaphragm voice coil are VERY fragile!! Make sure to put the whole back cover with diaphragm parallel to the magnet.



TWEETER DIAPHRAGM REPLACEMENT - REASSEMBLY



AGAIN....WITH FEELING!!!

(just double / triple checking !!!)

NOTE: Be super careful as the edges of the tweeter diaphragm voice coil are **VERY** fragile!!
Make sure to move downward the whole back cover with diaphragm parallel to the magnet.

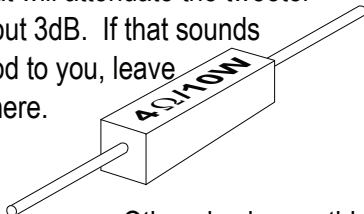
Make sure to lower the whole **NEW CHDK** tweeter diaphragm **KIT** down as straight as you can.
We recommend that you use dowels or wooden sticks (through the screw mount holes) **PROVIDED** to align the back cover / diaphragm assembly part.

This will **GREATLY** simplify the replacement process

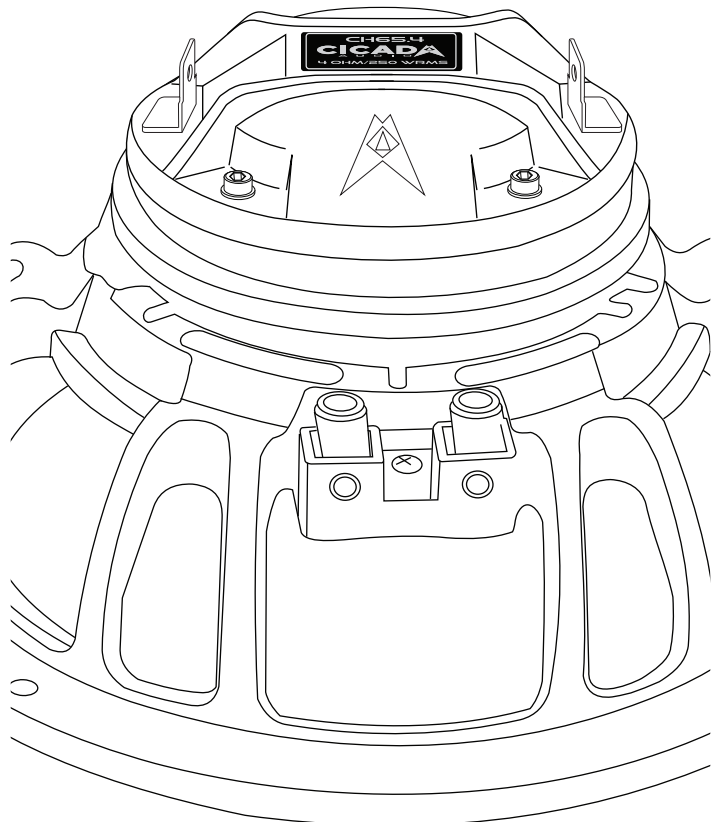
BACK TOGETHER
AGAIN...GOOD AS NEW!

SPECIAL NOTE:

Included with the speaker set are (2)- 4 W resistors. These are there just in case you think that the horns are **TOO** bright. Put on the "+" side of the tweeter input on the back of the speaker in-line with the crossover's positive wire for the tweeter. That will attenuate the tweeter about 3dB. If that sounds good to you, leave it there.



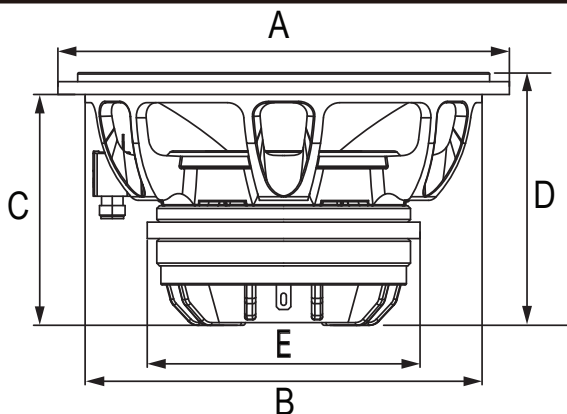
..Otherwise ignore this
Public Service Message!!



PHYSICAL DIMENSIONS



Dimension	Unit	CH65.4 / CH65.2	CH8.4 / CH8.2	CH69.4 / CH69.2
Total Diameter (A)	in. (mm)	6.5 (165)	8.30 (210.5)	9.3X6.6 (237X167)
Mounting Diameter (B)	in. (mm)	5.7 (145.5)	7.1 (180)	8.9X6.1 (226.5X155.0)
Mounting Depth (C)	in. (mm)	3.0 (76.2)	3.6 (91.2)	3.7 (93.2)
Total Depth (D)	in. (mm)	3.375 (85.7)	3.96 (107)	4.04 (102.7)
Magnet Diameter (E)	in. (mm)	3.9 (99)	3.9 (99)	3.9 (99)



THEILE/SMALL PARAMETERS

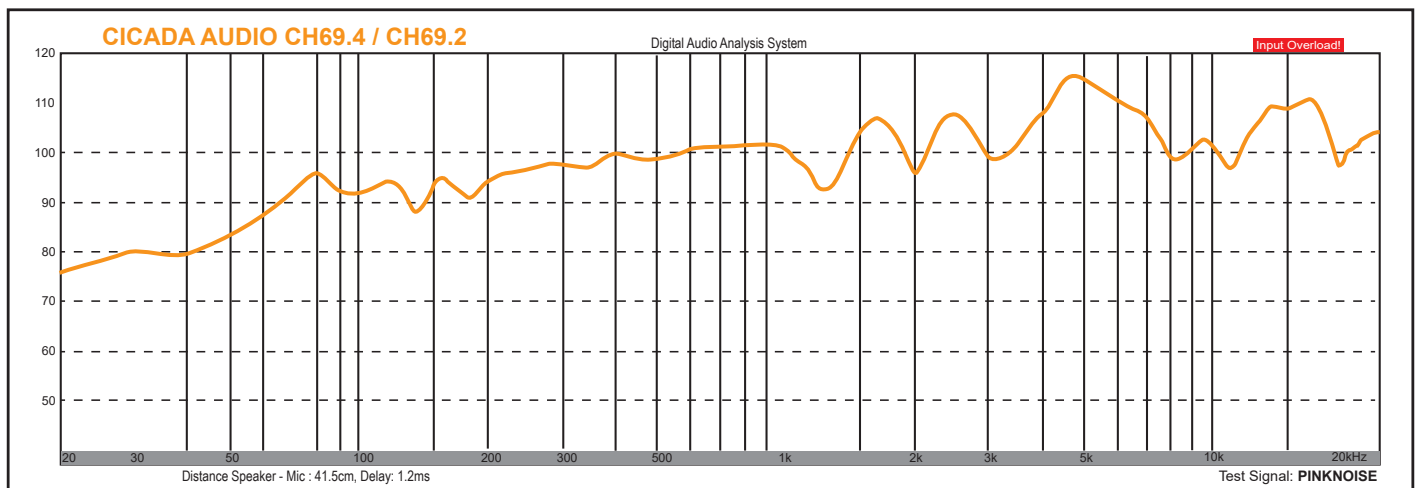
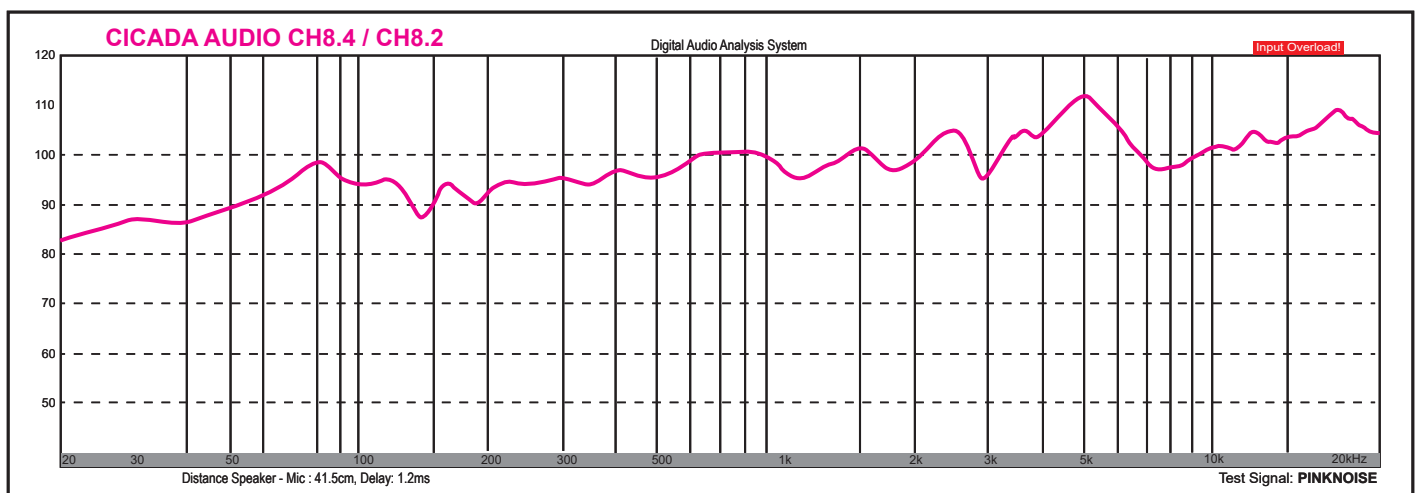
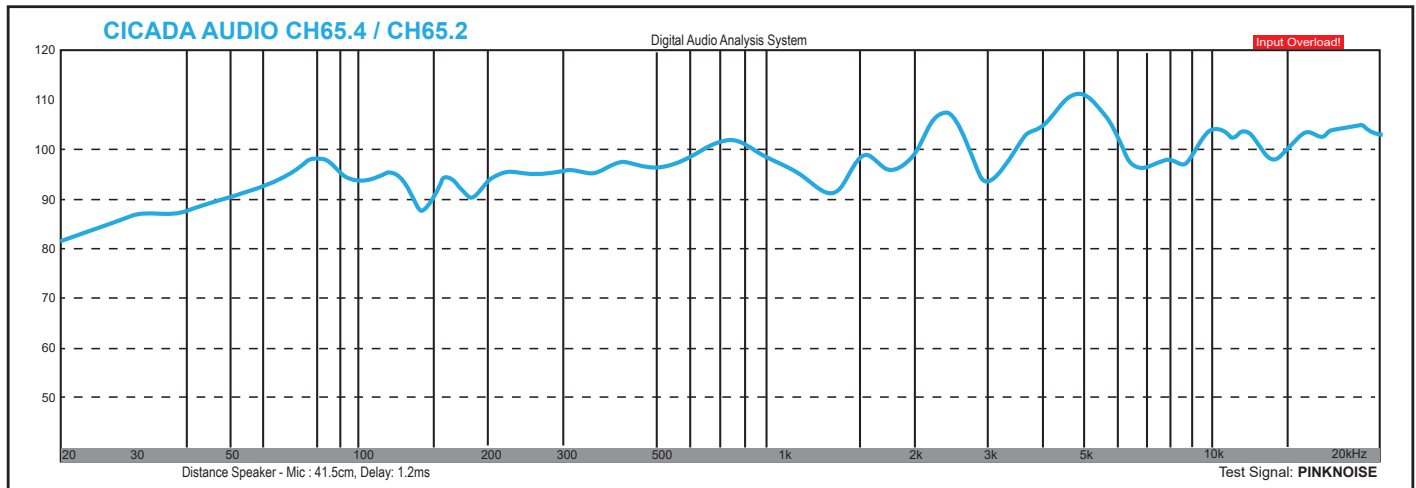
Parameter (unit)	CH65.4 / CH65.2	CH8.4 / CH8.2	CH69.4 / CH69.2
SPL (dB - MidBass)	96.4	97.2	97.2
SPL (dB - Tweeter)	107	107	107
Re (Ω) - MidBass	3.4/1.9	3.4/1.9	3.4/1.9
Re (Ω) - Tweeter	6.8/6.8	6.8/6.8	6.8/6.8
Qms	4.474	4.246	4.293
Qes	0.669	0.551	0.629
Qts	0.582	0.488	0.549
Fs (Hz)	93.3	81.79	80.6
Vas (L)	2.362	20.502	16.064
Cms (mm/N)	88.8	323.568	214.487
Mms (g) ²	13.484	11.7	14.631
Sd (cm)	13.685	21.124	22.96
BL (T*M)	7.92	6.09	6.679
Xmax (mm)	1.5	1.7	1.7
Pwr (W) NOM/MAX	500/**1000	500/**1000	500/**1000

****Power ratings are per PAIR with a Hi-pass filter (electronic for passive) @100Hz - 12 dB Octave**

RTA CURVES FOR THE THOSE WHO WANT TO KNOW!!!



These are REAL frequency response curves of our CICADA AUDIO CoAx Horn Pro drivers. Typically full range drivers sensitivity is measured full spectrum from 300Hz to 3kHz +/- 3dB (EIA standard) and “averaged”. As you can see on the RTA curves these speakers average in the high 90dB range with peaks over 110dB



LIMITED SPEAKER WARRANTY STATEMENT:



Cicada Audio warrants this product to be free of defects and quality workmanship for a period of one (1) year from the original date of purchase. A receipt from an authorized Cicada Audio dealer is required for warranty claim. Product warranty starts on the day of purchase or no longer than three years from the date of manufacture.

THIS WARRANTY IS NON-TRANSFERABLE AND APPLIES ONLY TO THE ORIGINAL PURCHASER OF THE PRODUCT IN THE ORIGINAL INSTALLATION.

Should a manufacturing defect occur during the warranty period, Cicada Audio will repair or replace defective product with a product of the same or equivalent value and performance. Damage or failure caused by improper use is not covered under this warranty. Negligence, improper use, product modification, unauthorized repair, accident, acts of god, dealer misrepresentation and improper or inadequate packaging during return shipment will not be covered. Warranty is void if serial numbers have been removed or defaced.

HOW TO OBTAIN WARRANTY SERVICE:

In the event a Cicada Audio product should require service, you should return to your authorized Cicada Audio retailer. All claims must follow the guidelines listed above and be returned with a copy of the original sales receipt.

Product returned for warranty service must be freight prepaid, properly packaged, and clearly marked with the Return Authorization (RA) number issued by Cicada Audio. Products that are returned and are improperly packaged, do not have an RA number clearly marked on the package, or have never been issued an RA number may be refused upon delivery. Cicada does not assume responsibility for lost or mis-labelled products.

Repair or replacement under this warranty is the exclusive remedy of the consumer. Cicada Audio shall not be liable for any incidental or consequential damages for breach of any expressed or implied warranty on this product. Certain states do not allow the exclusion of limitation of incidental or consequential damages, allow limitations on how long an implied warranty lasts, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights and you may also have other rights that may vary from state to state.

For factory service contact:

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Phoenix, AZ 85040
Phone: 480-887-8699

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