


 **ORION**<sup>™</sup>  
HIGH PERFORMANCE CAR AUDIO

**ORBITAL**

**CTW101**

**3.75"**  
**BULLET TWEETERS**

**proud to be LOUD!**



Thank you for purchasing this Orion product. Orion products are specifically engineered and designed for the mobile audio environment. This manual contains important information about installation, set-up procedures and integrating your new Orion product into your vehicle. With proper care and installation, your new product will provide you with many years of high performance listening enjoyment. We recommend having an Authorized Orion Dealer install your new product for optimal performance and to take advantage of our warranty program. Before installing your new product, please read through the manual to fully understand the application.

Before making any electrical connections, make sure that you disconnect the battery's ground cable to prevent the possibility of short circuits or damage to your electronic equipment. If your vehicle's stereo (head unit) comes with an Anti-theft code, DO NOT disconnect the battery. If you have the access code for the stereo (head unit), please refer to the vehicle's owner's manual.

# **ATTENTION**

## **FOR ANY QUESTIONS, ISSUES, RETURNS OR WARRANTY**

**DO NOT** contact the retailer, we recommend that you contact our service department for any and all assistance at [support@orioncaraudio.com](mailto:support@orioncaraudio.com).

We will do our best to resolve any problem in a professional and timely manner.



**WARNING:** This product can expose you to chemicals including DEHP which is known to the State of California to cause cancer, birth defects or other reproduction harm. For more information go to [www.P65warnings.ca.gov](http://www.P65warnings.ca.gov).

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## **WHAT'S IN THE BOX**

2 x Bullet Tweeters

6 x Mounting Screws

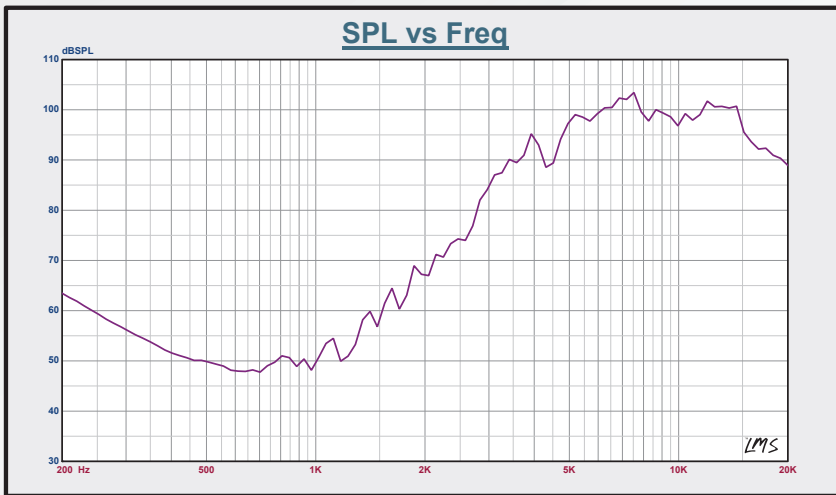
6 x Speed Clips

1 x Window Sticker

1 x Owners Manual

# SPECIFICATIONS

Specifications	
	CTW101
RMS Power Watts	50
MAX Music Power Watts	200
Nom Impedance (Ohm)	4
Voice Coil	1"
Magnet Structure	20 Oz
Frequency Response	2kHz - 20kHz
SPL(dB)	99
Overall Depth	43.8mm / 1.724"
Mounting Depth	38.4mm / 1.512"
Overall Diameter	95.7mm / 3.768"
Mounting Diameter	71.3mm / 2.807"
Recommended Capacitor	3.3 UF 100V

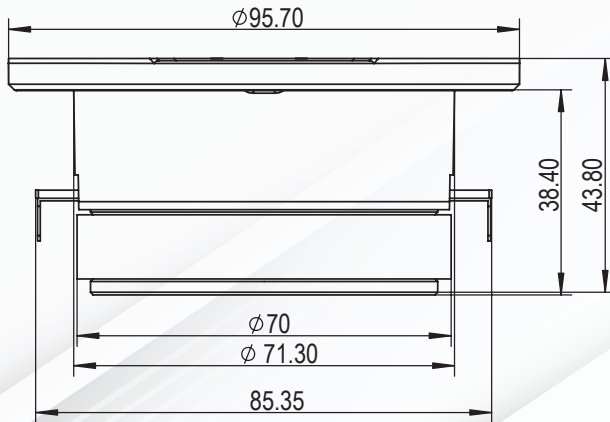
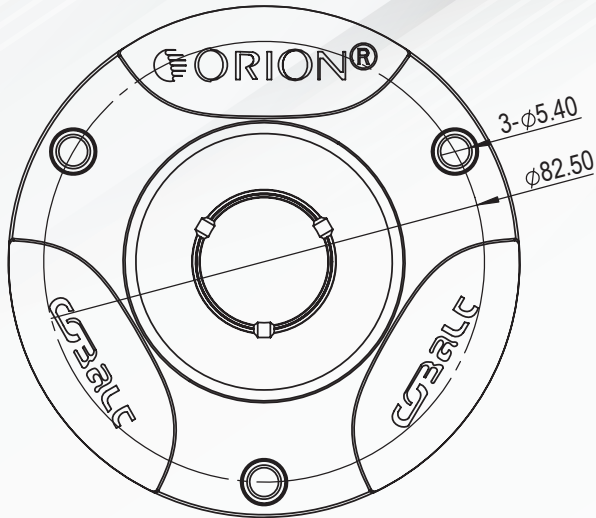


## WARNING

Continuous exposure to sound pressure levels over 100dB may cause permanent hearing loss. High powered sound systems may produce sound pressure levels well over 135dB.

Need we say more! Use common sense.

# SPEAKER DIAGRAM



# CHOOSING A LOCATION

It is always best to plan the complete installation prior to attempting to install any product. The routing of wires, power connections and mounting locations should be planned first. As with any car stereo installation, all work performed should be checked thoroughly and carefully prior to the operation of the system.

The placement of your Orion speakers within your vehicle will greatly affect the overall performance of your audio system. Installation in every vehicle may not be possible without modifications. Factory provided locations are generally preferable due to ease of installation. In all cases speakers should be placed in a location free of obstruction by body panels, window cranks, storage compartments or anything that may hinder the speaker's performance. Avoid areas that do not provide a flat, sturdy mounting surface.

Orion speakers are designed to fit in almost any factory location. Again, if at all possible, it is recommended that you use a factory location. This applies mostly to later model vehicles. For those earlier models that do not have factory locations or are limited to front locations, it is recommended that you choose an area with sufficient air space.

## **ATTENTION:**

**NOTE:** Orion strongly recommends that you operate your system at low volume prior to the completed installation of your Orion speakers. This will allow a test of the speaker before securing it to its permanent location.

**CAUTION:** Make sure that all speaker wiring is fully protected from cuts, tears and possible wear. Any short circuit developing as a result could severely damage the source unit or possibly the amplifier. Make sure all speaker wires easily reach the speaker terminal with no stress on the wires or connectors.

# INSTALLATION

Confirm the mounting location and depth requirements by inspecting the area where the speaker will be mounted. Most speakers will fit into stock locations on the vehicle, in this case only depth is important.

If the location you have picked does require cutting, use the hole cutout measurement from page 3 and mark the mounting location.

If there is a cosmetic panel where the speaker will be mounted, we recommend using a utility knife to carefully cut a hole in it. Confirm the cut by placing the speaker in the hole. You may modify the hole as necessary.

If it will be necessary to cut steel, reinstall the cosmetic panel in place and use the hole you have previously cut as a template. This will help to insure proper cutting and a good fit. Mark the location for the speaker mounting screws, remove the panel and drill the screw holes. When finished you may replace the panel.

After cutting and drilling all holes, inspect the mounting areas for any metal burrs or rough edges. File any area that may interfere with the mounting of the speaker.

Clean any metal shavings from the mounting area and check for areas in which water may enter the speaker cavity. Treat the area for water protection when necessary.

Make sure your source unit (CD, DVD, etc) is turned off while connecting the speaker terminals. Turn on the various components and slowly advance the volume. Remember to check and recheck all connections to insure proper use.

Orion recommends using at least 18-gauge wire with your new speaker system. Thinner gauge wire may easily be severed and can cause damage to your system should any bare wire come in contact with the vehicle's chassis.

We always recommend to use a capacitor for tweeters, you must connect a capacitor as follows. Connect either end of the capacitor to the positive terminal (+) of speaker. Connect the other end of the capacitor to the positive (+) speaker wire harness.

# INSTALLATION CONTINUED

Make sure that your audio system is off while installing and connecting your new Orion speakers. Failure to do so could result in damaging the speaker beyond repair.

Be sure to route the wires to the speakers with the insulated terminals ending at the speakers. This will insure a good contact with the speaker. If you need to shorten the speaker lead, do so at the opposite end of the insulated terminals or the bare end.

Be sure the polarity is correct at all times. The speaker leads are color coded for negative and positive. Be sure that the leads are connected to the correct terminal of the speaker.

To insure long-term reliability, all bare wires and wire-to-wire connections should be soldered and insulated with heat shrink or electrician's tape. Under no circumstances should you leave any bare wires uncovered, as this can and will lead to the damage of your speakers.

When mounting in a door, it is imperative to have the right amount of slack in the connecting wire so it does not get crimped or torn when the door is opened and closed. Avoid areas of the door jam that pinch, this will cause damage to the speaker over long-term use.

Once the speaker wiring is completed you can connect the opposite end to the source unit or amplifier. Again, be sure to observe the correct polarity. Solder and wrap all stripped connections.

Once you have tested your system and have confirmed that it is operating properly, turn off your system and prepare for the final mounting of the speakers.

Position the speaker into the mounting hole and reconfirm the correct mounting location and hole placement. Screw clips are provided to insure a snug fit. Place screw clips over the metal surface and line up the hole with the hole you have previously drilled. Place the speaker into the hole, align the mounting holes and proceed to insert the screws. Be sure to tighten the screws evenly as to not warp the speaker frame.

Turn your system back on and confirm the speaker's operation, first at low volume and then you may increase the volume as you desire.



In the event that your Orion speakers appear to require service, we ask that you first do a little troubleshooting to determine if the problem is actually the speaker or a problem located in a different part of the vehicle such as the amplifier, wiring, fusing or possibly the source unit.

If your Orion speakers have been installed professionally by an Authorized Orion Dealer, we recommend that you return to the Dealer and demonstrate the problem to a qualified installer or repair technician. If you installed the speakers yourself, use the following guidelines to help find the problem:

## **No Sound**

Check the source unit or amplifier for power and be sure they are operating properly.

Check all signal connections.

Check for any wiring that may be shorting together or touching the metal chassis.

Check all ground connections.

## **Distorted Sound At All Volumes**

Check for bad speaker connections.

Check wiring for correct polarity.

Distorted Sound At High Volumes Only

Check for loose mounting of the speaker.

Inspect the speaker for debris in the cone or other obstructions.

## **Poor High Frequency Response**

Check wiring for correct polarity.

Check Treble controls or EQ settings.

Check the Tweeter for possible damage.

# WARNING & DISCLAIMER

Investigate the layout of your vehicle thoroughly before drilling or cutting. Take care when you work near the gas tank, gas lines, hydraulic lines, electrical components and electrical wiring. Do not use the equipment unmounted. Attach this system securely to prevent damage, particularly in the event of an accident or aggressive driving. Do not mount the system so that wire connections are unprotected or are subjected to pinching or damage from nearby objects. Before connecting or disconnecting power connections at the system power terminals, disconnect the +12V DC wire at the battery end. Confirm that your source unit and other equipment are turned off while connecting the input terminals. If you need to replace the power fuse, replace it only with a fuse identical to the provided fuse. Using a fuse of different type or rating may result in damage to the system, which is not covered by the manufacturer's warranty. Do not install any product where it may be subjected to excessive heat, moisture and dust or where it may be repeatedly kicked, brushed or bumped. Make absolutely sure that the terminals for the products are connected to the proper inputs and outputs from the music source. Never run the wiring on the outside of the vehicle or under it where it can be damaged by road hazards or any moving parts of the vehicle. Use existing wire channels, sills, panels and molding strips inside the vehicle to hide the wiring for safety and a neat appearance.

## DISCLAIMER

**IMPORTANT:** Never cut any metal that is an integral part of the vehicle's safety or structural support system. If you are unsure, it is best to have the product professionally installed by an Authorized ORION Dealer. Never sacrifice your safety for sound.

# WARRANTY

Orion, warrants this product against all defects in material and workmanship for a period of one (1) year from the date of original purchase provided it was purchased from an Authorized Orion Dealer.

The conditions of this warranty and the extent of the responsibility of Orion, under this warranty are as follows:

1. DATED PROOF OF PURCHASE IS REQUIRED FOR WARRANTY SERVICE OF THIS PRODUCT. Information about Orion authorized warranty service may also be obtained at [www.orioncaraudio.com](http://www.orioncaraudio.com) or by emailing Orion at [support@orioncaraudio.com](mailto:support@orioncaraudio.com).
2. This warranty will become void if service is performed by any one other than an approved Orion Warranty Service Center.
3. This warranty does not apply to any product which has been subjected to misuse, neglect or accident, or which has had the warranty seal broken, serial number altered, defaced or removed, or which has been connected, installed adjusted or repaired other than in accordance with the instructions furnished by Orion.
4. This warranty does not cover car static, electrical interference, adjustments or labor costs for the removal or reinstallation of the unit for repair.
5. The sole responsibility of Orion under this warranty shall be limited to the repair or replacement thereof, at the sole discretion of Orion.
6. If it becomes necessary to send the product or any defective part to Orion or an authorized service station, the product must be shipped in its original or equivalent carton, fully insured, with shipping charges prepaid. Orion will not assume any responsibility for any loss or damage incurred in shipping.
7. This warranty is not transferable and protects the original purchaser provided they reside and made their purchase in the United States. International consumers may contact their local retailer or distributor for warranty information.
8. ALL IMPLIED WARRANTIES, EXCEPT TO THE EXTENT PROHIBITED BY APPLICABLE LAW, SHALL HAVE NO GREATER DURATION THAN THE WARRANTY PERIOD SET FORTH ABOVE. UNDER NO CIRCUMSTANCES SHALL ORION BE LIABLE FOR ANY LOSS OR DAMAGE, DIRECT OR CONSEQUENTIAL, ARISING OUT OF THE USE OR INABILITY TO USE THE PRODUCT. BECAUSE SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS OR EXCLUSIONS OR LIMITATIONS OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, THE ABOVE LIMITATIONS OR EXCLUSIONS MAY NOT APPLY TO YOU.
9. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS AND YOU MAY ALSO HAVE OTHER RIGHTS THAT VARY FROM STATE TO STATE.
10. Should you have any difficulties with the performance of this product during warranty or with any Orion authorized service center, you may contact Orion by emailing us at [support@orioncaraudio.com](mailto:support@orioncaraudio.com).

# ORION

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