

# TRIOLON EXCALIBUR



*A*CAPELLA  
AUDIO ARTS • HANDMADE IN GERMANY

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# The Idea

Music is an essential element of our emotional quality of life. Playing musical instruments, you can experience music authentically and immediately.

On the other hand, when you are reproducing music, it is often „administered“ by various electronic devices.

Administration does not suit to emotions, restriction not to experiences.

To have music at our disposal at any time and everywhere, we cannot do it without using some components. It is our business to build a bridge across the musical and the technical world.

In the ideal case, components become instruments, cover and contents are one thing, very close to the human beings, to the senses, to the being.

Best sound quality, highest longevity, combined with an unique function, create the bridge. ACAPELLA products are unique combinations of design, function and engineering.

All parts are carefully handcrafted by ACAPELLA. The serial numbers are marked by hand and registered in the production records. Every unit has its own serial number and production trail. On the basis of these recorded data's, all characteristics can be reproduced at any time.

High quality musical instruments need a play-in time to yield optimum sonic performance. This applies for all ACAPELLA products as well. The play-in time for new devices will be about 6 weeks. After a longer inactivity just a couple of hours.

## Unpacking

For transportation the TRIOLON EXCALIBUR has been wrapped in stretch foil which provides an excellent protection. Remove this foil by cutting it carefully with a blade or a pair of scissors on the rear side of the loudspeakers at the height of the ion tweeter. Undo the foil right to the bottom. Then you can strip off the whole foil. Please also remove the foil from the mid-range horn units.

## Information's about the Ion TW 1

The ACAPELLA ion tweeter „ION TW 1 S“ is a perfected and sophisticated loudspeaker chassis, whose exceptional performance and qualities can only be enjoyed completely if used properly.

It was designed to reproduce the harmonics of the music as detailed as possible. To reach this goal, a design with the smallest possible mass had to be developed. Relative to its function, the ACAPELLA ion tweeter has no mass! To carry out this project, a very unusual kind of design had to be created.

High voltage within the unit produces a constant arc (which can never be completely silent). This arc is modulated with the musical signal (flame oscillates with the time of the music). This is the reason why the number of electrons within the arc varies. A larger or smaller amount of electrons requires similar space. Due to this variable need of space, the surrounding air molecules have to dodge the more or less quickly. This evasive action or bumping of the air molecules generates over-, resp. underpressure and, therefore, sound. In this way, the ACAPELLA ion tweeter is able to reproduce sound without using a membrane and, finally, without its mass inertia.

Regarding transient capabilities and phase stiffness, the obtained sound quality cannot be realised by using conventional tweeters. Comparing the Ion tweeter with other tweeter systems, is unobtrusive sound image will attract you, assuming that correct adjustment of the play back level has been done. This kind of reproduction is attributed to the lack of harmonic and transient distortions.

## Power connection

Before connecting the loudspeaker for the first time, please check all components in your system for correct polarity of the AC mains. Correct phase is marked on the ACAPELLA ion tweeter. Please keep an eye on the red-marked side of the AC-connector. AC mains phase should be there.

To prevent failures due to condensation, please allow the device to acclimatise to room temperature before attempting to make connections to the AC mains outlet.

This eliminates the opportunity of high voltage surges within the oscillator.

If you have any questions to ask, please contact your dealer or directly us.

## Operation

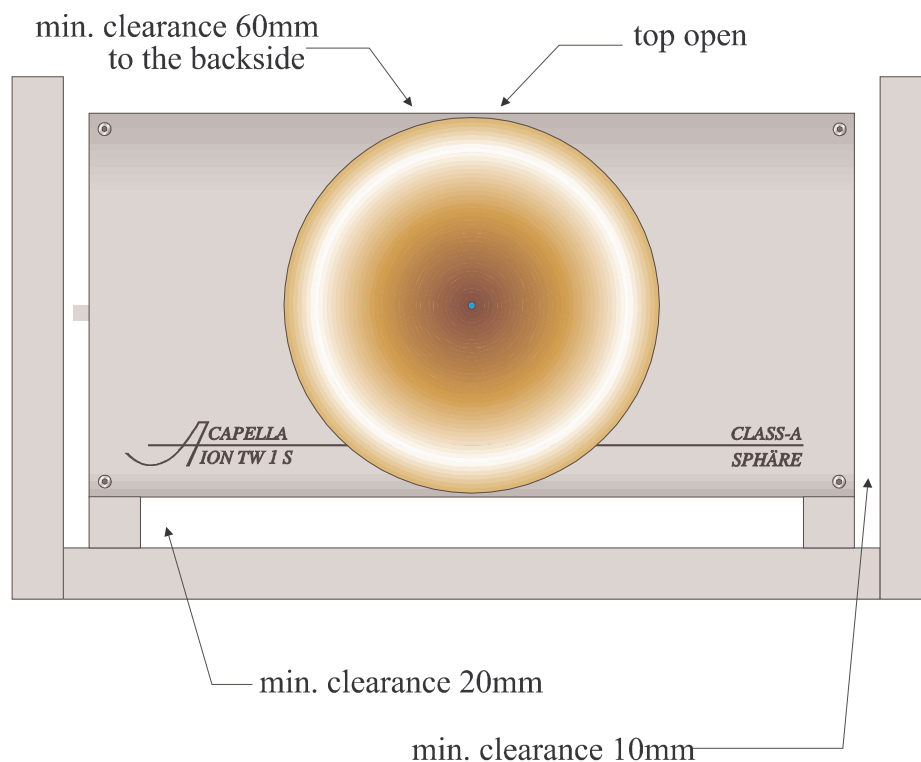
During normal operation the ion tweeter does not require special service. It starts automatically after the first incoming musical signals.

The device will start working as follows: The signal at the input exceeds the pre-set voltage value (30mV/1kHz). An internal generator begins to oscillate and a built-in frequency counter in the input stage is collecting the number of the waves. If this number exceeds the pre-set value, the ion tweeter will be activated. This procedure is essential to minimise sensitivity to interference pulses in the power supply mains caused by electrical appliances such as refrigerators etc. During the start-up procedure of the ion tweeter, power supply to the arc will be doubled for approx. 2 seconds to enable the combustion chamber to warm up quickly and to burn dust particles which were eventually penetrating. This process is bound to produce more attrition and should not unnecessarily be performed.

A shut-off delay of approx. 20 minutes provides continuous operation during short pauses (resp. when going below the minimum level). After longer pauses (more than 20 minutes) or at very low levels, you should bring the ion tweeter into the „manual“ mode by using the „automatic - manual“ switch.

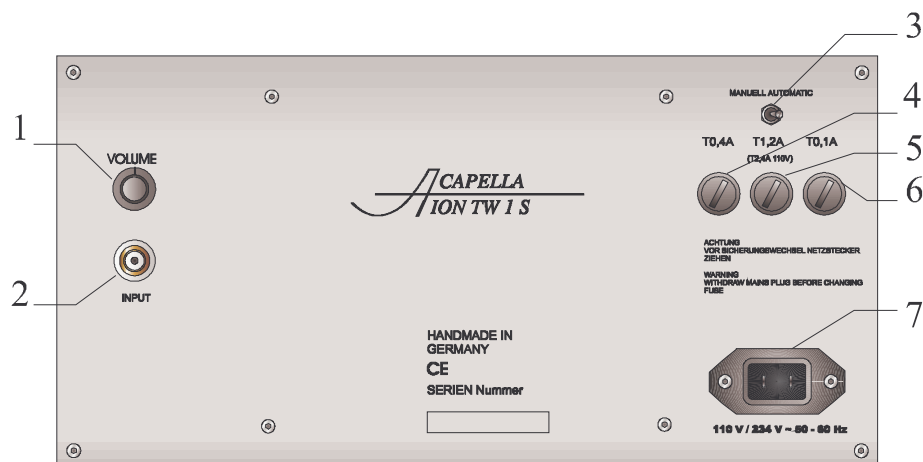
## Placement

Because of his built-in Class-A amplifier and is valve oscillator, the ion tweeter requires sufficient ventilation. When used together with the TRIOLON EXCALIBUR , minimum clearances have construction ally been taken into consideration. Should you have purchased the ion tweeter for use with other loudspeakers, be sure to allow the following minimum clearances. Damage to the unit due to overheating will void the warranty.



During installation in a cabinet, the above mentioned minimum clearances must be observed. Be sure to allow perfect heat dissipation through vertical air circulation. Besides, the rear side of the cabinet must have an air inlet corresponding to the width of the tweeter. No objects which could hinder free air circulation should be fitted above the ion tweeter. As a free-standing unit, a 10 mm clearance between the bottom panel of the unit and the base will be sufficient.

## Control panel



1. Level control
2. Input RCA jack
3. Mode switch (manual/automatic)
4. Fuse F1 0,4A slo-blo
5. Fuse F2 1,2A slo-blo
6. Fuse F3 0,1A slo-blo
7. AC connector with phase identification
8. Hand marked serial number

## Getting started

Bring the mode switch on the rear panel of the unit to the „automatic“ position. Connect the AC cord to the ion tweeter first and then to the electrical outlet. Now you can hear the soft switch-on sound of a relay. Move the mode switch quickly into the „manual“ mode and bring it immediately back to its original position. The „reset“ function has now been initialised. This gives time to the oscillator's valve for a warm-up. The „reset“ function can also be used for future switch off of the ion tweeter (only with no incoming signal).

After an approx. 60 seconds warm-up tip the switch over into the „manual“ position. 3 seconds later you can hear the switch-on sound of the relay and a short period later a second „click“, which indicates the beginning of the quick warm-up of the combustion chamber. After another 5 seconds period you hear a third „click“, announcing the end of the combustion chamber's warm up phase. The ion tweeter is now ready for operation.

# Placement of the TRIOLON EXCALIBUR

The loudspeakers should be placed to each other considering a space of 2,5 metres or more. Depending on the peculiarities of your listening room, we recommend a symmetrical placement. That means that the distances to the sidewalls and to the listening area should be the same. Align the loudspeakers with the center of your listening position. Space to the wall behind the loudspeakers is less critical. We found out that very small spaces mostly will be sufficient.

## Basic position

When making alignments of the loudspeakers we assume that their distance to the listening area is 15 % longer than the width of the base (for example: base of the loudspeakers 3 metres, distance to listening area 3,5 metres). From this position you can align the loudspeakers with the listening area so that the interior sidewalls of the cabinet appear apparently such as a 2 cm narrow strip. This position will be the basic position of the loudspeakers.

## Connection to the amplifier

The TRIOLON EXCALIBUR is equipped with large binding posts for termination to an amplifier. In principle, it comes with connectors for bi-wiring. For optimum performance connect the TRIOLON EXCALIBUR carefully to your amplifier, by using high quality speaker cables. The binding posts allow high contact pressure with correctly fitted lugs. As a result, you will obtain very little transition resistance. Signal to the ion tweeter will be supplied by a cable bridge, coming from the mid-range terminal. The RCA plug (Cinch) has been designed as a drill socket. After connection to the input you can tighten it.

## Level

The level of the ion tweeter has been factory-set. This setting is marked with a stroke of a pencil close to the volume control. Running the ion tweeter with this setting, you should listen to your loudspeakers a few hours to familiarize with the sound reproduction. If required, you may optimise reproduction in your listening room along with your components.

# Optimising imaging accuracy

## Control of monophonic reproduction

The meaning of this control is to optimise placement of the loudspeakers relative to your living room. Without proper adjustment you won't be able to localise voices or instruments precisely in the imaginary room which is reproduced by the loudspeaker. Only a correct mono calibration enables a perfect stereo reproduction. Please do not connect the ion tweeter while making this setting. Avoid eventual short circuits. Switch your amplifier to mono, or still better, use a monophonic CD. Go back to your listening area. When reproducing voices or instruments, attention has to be paid to the direction they are coming from. Supposing that reproduction is out of balance and tending to the left, you can either toe-in the right loudspeaker or toe-out the left one. Please consider that soundstage and imaging can shift to the front or to the back according to the change of the loudspeaker's position. Please try to make changes of the loudspeaker's position symmetrically. Always vary only a few millimetres, and if necessary, to the front or to the back. Optimisation is accomplished when the music can be heard right between the loudspeakers. Finally, you can control the loudspeakers with a spirit level and fit them with the base screws. To make these adjustments, loosen the lock nut of the setting screw first. Do not forget to tighten the lock nuts towards the bottom of the cabinet again.

## Fine adjustment of the ion tweeter

Switch off your amplifier and connect the ion tweeter. For the following settings use music with a good proportion of higher frequencies (hi-hats, still mono).

Do not alter the position of the loudspeaker anymore!

As described above, pay attention to the direction the music seems to come from. Adjust the level of the ion tweeter (the louder one determines the direction) so that even the softest hi-hats are always coming at you from the centre. Optimum setting has been obtained if you can localise the sound source in the size of a football right between the loudspeakers. Music seems to be reproduced by a Center loudspeaker. In case of a change of the level of the higher frequencies, adjust it synchronously left and right by considering the pencil mark. In this way, you can re-establish the balance between mid and high frequencies.

# Care of the loudspeakers

Note: Please clean the varnish or Acryl surface with a clean and humid chamois only. When cleaning the mid-range horn unit, be careful with the very sensitive membrane of the driver. You can polish the ion tweeter with an appropriate cloth until it becomes shiny again. Never attempt to clean the ion tweeter with pointed objects. You could destroy the combustion chamber!

Before cleaning the ion tweeter disconnect it from the AC mains.

## Attention !

Cabinets with Acrylic surface should not be exposed to direct sunlight or extreme heat. Acrylic shows has a high possibility to dimensional change in presence of extreme heat. (A rise of temperature of 10° Celsius results in an expansion of 0,7mm per meter – concerning length as well as breadth). Under severe conditions the adhesive action between the acrylic plates and the cabinet could change.

## Specifications

Frequency response	24 Hz - 40 kHz
Crossover frequencies	700 / 5000 Hz
Efficiency	93 dB / Wm
Impedance	4 Ohm min. 2,2 approx. 80 Hz max. 11 Ohms approx. 37 Hz flat above 200 Hz
Load capacity	200 W 1000 W / 10 ms with no distortions
Recommended power output of the amplifier	from 15 W
Dimensions (H x W x D)	total 2160 x 1087 x 950 mm Woofer 2160 x 350 x 703 mm Sword 2100 x 387 x 415 mm
Weight	approx. 400 kg

# Troubleshooting

Malfunction during operation cannot always be attributed to a damage within the device. The following table may help you to find out the reason of a malfunction and to remove it. If none of these suggestions solves the problem, contact your Acapella dealer or us.

Discovered malfunction	Possible reason	Check up, remedy
No function	No mains voltage available, Fuse F2 defective	Look from above through the cover at the oscillator tube. If power is supplied, you can see the filament slightly glowing on the top of the tube. If yes, there is a malfunction, if no, check the electrical outlet and the fuse.
No ignition of the arc or it will go out during operation	Fuse F1 or F3 defective	Disconnect the mains plug. Unscrew the fuses and check them with an ohmmeter. Optical control can be faulty. <b>If you need to replace the fuses, use only those with the same value!</b>
Manual switch-off (reset) impossible	<ol style="list-style-type: none"> <li>1. Input voltage is too high</li> <li>2. Disturbing voltage at the Input</li> </ol>	<ol style="list-style-type: none"> <li>1. Turn the volume control to off</li> <li>2. Disconnect the input jack. If „reset“ now operates perfectly, check your Hi-Fi system for interferences (hum, noise).</li> </ol>
With no incoming signal, it does not switch-off in „automatic“ operation	Disturbing voltage at the input or in the power supply mains	Disconnect the input jack. If the device switches off after approx. 20 minutes, check the signal-to-noise ratio in your system (hum etc.). If not, malfunction can be caused by interference pulses in the mains voltage. Try to switch-off with „reset“. If there is no positive result, the switch-on logic is defective. Disconnect the AC mains plug.
With no incoming signal, it switches on without a musical signal	See above	See above. Further possibility of a malfunction: If higher sound pressure levels from other sources are reproduced in your room or if the power supply mains have interference pulses, even though above mentioned checking showed perfect operation of the switch-on logic, you should let increase the threshold value by your Acapella dealer or by us.
Crackling	Dirt particles in the combustion chamber	Bring the unit into the „manual“ continuous operation mode and let it be running up to 48 hours. If there are only slight disturbances, repeated switch-on and -off can remedy these things. The entire starting cycle must be run, because the function „quick warm-up of the combustion chamber“ doubles the energy of the arc. Do not repeat this procedure more than 6 - 8 times with intervals (60 sec.). Usually, the dust particles, causing the disturbances, will be burned.
Chirping and whistling	Dirt particles in the combustion chamber or faulty interconnection	See above. Loose dirt particles can cause an instability in the oscillator frequency which can produce these disturbances. Another possibility are interferences between the oscillators of both the devices. This suggests an insufficient interconnection between the tweeters and the amplifier. Please inspect the cables (earth connection, contacts).
No constant burning or break of the arc after a complete start-up	Control voltage, electrode; oscillator tube	The design of the „Class A“ driver amplifier does also allow higher temperatures without the chance of damage within the devices. It reduces its supplied voltage when heating becomes stronger through which the intensity of the arc will decrease. These „optical“ effects do not harm the sonic quality. On the other hand, the arc of the unit which was running for a longer period (800 - 1000 hours of operation) can show a „loss of strength“, independent of the operational temperature. These is an indication that the oscillator and/or the combustion chamber should be renewed.


  
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