



ACTIVE SPEAKER "UNIBASS"

User Manual - February 2019



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If you have just purchased some of our speakers then thank you very much for doing so, and we do hope you enjoy using our unique and exclusive products.

Best regards, Jon and the RC Audio Systems team.

Application of the UNIBASS

The Universal Bass Unit (UNIBASS) is a high power "all in one solution" active bass speaker system.

It is intended to be used either as a single unit or in multiples with any sound system in order to achieve a powerful and dynamic bass response. The unit has a characteristic heavyweight sound, which you would normally only expect to achieve with much bigger systems, and is designed to maintain an outstanding audio performance regardless of how hard it is being driven.

People don't listen to music because they are interested in the specs of the speakers, they listen to enjoy the sound, and that is where the UNIBASS comes into its own. It just sounds amazing, and ultimately that is what really matters to most people.

The UNIBASS has a built in low pass filter so that it can be run from a full range signal. It features unique analogue signal processing that helps the unit to make the most of the music, producing a really heavyweight, dynamic and accurate sound that is a pleasure to listen to. It also features a unique dynamic processing system so that when the unit is overdriven, when many units would otherwise struggle, the UNIBASS comes into its own and manages its signal and headroom so that it can consistently perform at 100% all night long without breaking a sweat.

The UNIBASS can be used individually, although owing to their small physical size compared to the large wavelength of bass frequencies they are less efficient as singles, and perform much more efficiently if used in stacks of multiple units.

We recommend for applications requiring high sound pressures that as a minimum two UNIBASS are used in each stack, one on top of the other.

Other useful format's include three UNIBASS stacked vertically, which gives greater output again and also provides a very useful height platform to put mid/high speakers on.

For optimum bass performance we would suggest stacks of four UNIBASS - two high by two wide, which will couple to produce a really extreme output pressure. For larger shows still stacks of six UNIBASS - two wide by three high would be the next step.

The UNIBASS is well suited to be used with our "GENERAL" and "ESPIELLA" active speakers, but it can just as well be used with any other speakers or system requiring low frequency reinforcement.

Our "GENERAL" can be easily pole mounted above a UNIBASS. One UNIBASS will considerably improve the performance of a GENERAL, but again for applications requiring heavy bass we would recommend stacks of two UNIBASS under a GENERAL.

Our more powerful "ESPIELLA" is specifically designed to partner to the UNIBASS, and one ESPIELLA can be used with between two and four UNIBASS depending on application.

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Warnings

- The Unibass is a heavy unit and will require careful handling. Risk of injury exists to crew if they do not exercise good practice and techniques in lifting and moving the Unibass. It is important to ensure for the safety of personnel (and the speakers) that they are only handled by suitably trained and/or experienced crew.
- The Unibass can produce high sound pressure levels. As with any other powerful audio speaker it is important to ensure that they are operated at safe volume levels for the people exposed to them, taking into account the proximity of the people, otherwise there is a risk that they could damage people's hearing.
- The Unibass are not waterproof and great care should be exercised in operating them in close proximity to water/rain/liquids, etc. See rigging advice below.

Rigging

The Unibass are designed to be stacked on their base skids. There is a hole of approx 10mm diameter in the bottom and top of each bass port and bolts can be used through these holes to secure the Unibass to each other, or to the floor, or to secure any speakers above them, or as required.

Additionally there is a 35mm pole socket on the top of the Unibass to facilitate mounting other smaller speakers above them.

Additionally the Unibass have six handles on the sides which can also be used for straps/lashing if required.

The Unibass are not waterproof, so great care must be taken when operating them in situations where they could get wet. Our advice on this is as follows:-

- The Unibass are reasonably water resistant from the front.
- The back is not water resistant. It contains high voltage electrics and the cooling fans take air in to cool those electrics. If used outside and there is a risk of rain then the back of the Unibass must be well sheltered or covered, allowing of course for some airflow so that the cooling air can still circulate.

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Connections & Controls

Power



Power in is via a 20amp "Powercon" inlet connector.

Power can be linked out to other units via a "Powercon" outlet connector. Care must be exercised when linking units not to exceed the 20amp total average current rating of the Powercon connectors.

The standard Unibass are designed to operate on a 230V AC power supply with a +10%/-6% tolerance, so from 216 to 253V AC. Current consumption is directly affected by the music material and output levels, but as a rule they typically consume on average around 6 amps and as a short term maximum running hard up to 10 amps.

A power switch and neon red "power on" indicator is provided in between the connectors.

Audio Input and Controls



Audio input is via a balanced XLR connector, and this is directly linked to an XLR output connector so that the input signal can be linked to other units.

There is an Input Gain adjustment which adjusts the speaker's gain from zero (mute) to maximum.

There are two indicators, a green "signal" LED and a red "high level" LED.

Running In Period

When the Unibass is new it will produce an odour in use for a little while when being run hard as the resins of the driver "burn in". How strong the odour is and how long it lasts depends on the type of music and level at which it is being used.

With higher duty cycle bass music at loud levels this odour can become quite strong, but this is normal and should not give cause for concern. The production of this smell will eventually reduce as the driver becomes "run in".

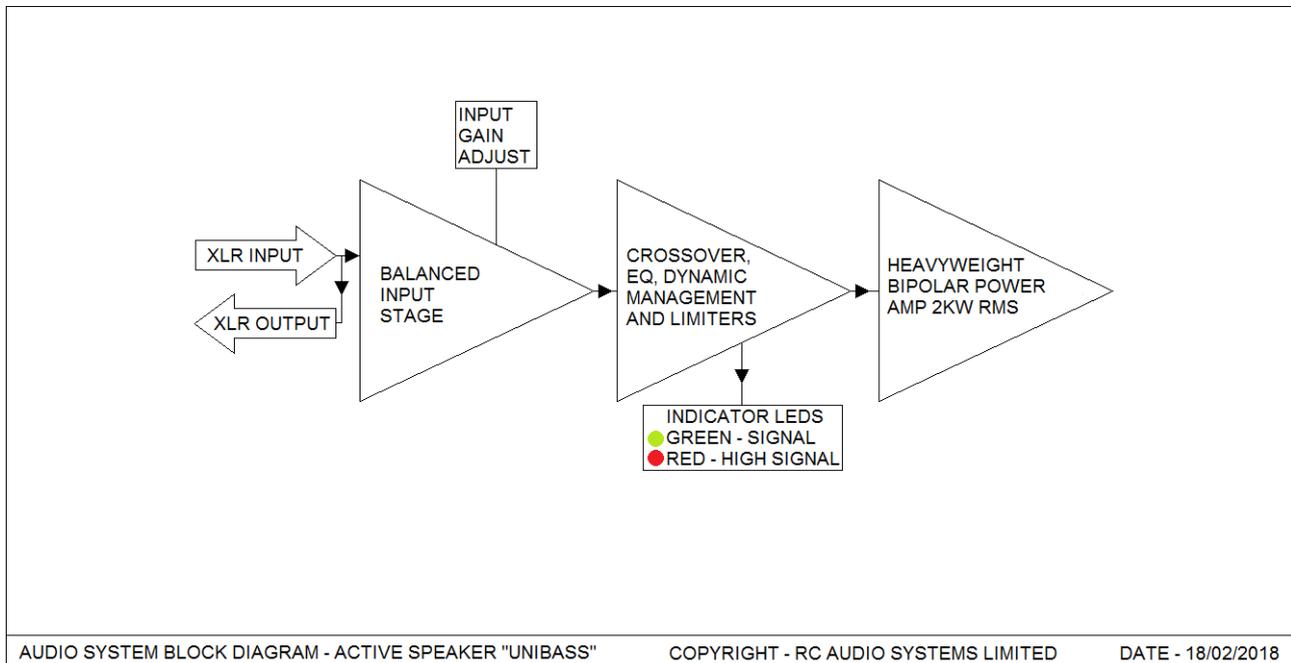
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Operation

This is the block diagram of the audio path in the Unibass:-



Indicator LEDs

Green - This signal indicator LED illuminates to show that there is a significant signal going through the Unibass.

Red - This is a "high signal level" LED. It illuminates to show that the level is high and the dynamic processing in the Unibass is working significantly to manage the signal, and as such it is an indication that the speaker is running at about its maximum output level.

The Red LED should not cause any concern, the Unibass can manage its signal and limiters transparently and safely, so there is no need to reduce the input level. However, it does indicate that the speaker is running at around its maximum output so there is no benefit to be had by increasing the input signal any further.

Input Gain

There is a gain adjustment between the XLR connectors which adjusts the gain from zero (mute) to maximum gain. If more than one Unibass is being used in a stack then they should all be fed from the same signal source and all the Input Gain adjustments should be turned to similar positions so that the speakers are all running together in phase at similar levels.

On powering up it takes about a minute or more for the Unibass to bias its processing until which time the output will be muted. Once it is ready it will slowly gain up. This is normal for the Unibass and should not be a cause for concern.

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Response and EQ

Different types of music benefit best from different types of response from a sound system. This is particularly the case when using powerful bass speakers or subs.

The Unibass has a fairly sophisticated analogue processing system that tries to EQ the sound to be as pleasing as possible to the listener, including a beautiful heavy and warm sub response delivered fast and accurately with high impact.

However, it is impossible to make a bass speaker system that has the perfect response to make the best of the music signal in all situations. Instead the best that can be hoped for is a carefully compromised response that sounds pretty good in most applications, as we have tried to achieve with the Unibass, then it is up to the skill of the engineer using EQs or other tools if they wish to further "EQ it" according to the requirements of the day.

The Unibass is designed for use between about 30hz and 200hz, and it has its own filters built in so it can run straight from a full range signal. In an application where a narrower response is needed the Unibass can simply be run from an active crossover output accordingly.

Cooling and Maintenance

Cooling System

The Unibass has three axial cooling fans, two of which suck air in through grills/guards on the back panel. This air cools the internal components and exhausts through a perforated plate and louvred plate near the top of the back panel.

The fans switch on when the heatsink temperature rises past about 50 degrees Celsius. Once the temperature falls below about 30 degrees the fans switch back off again.

It is important that there is a free flow of cool air available for circulation by the fans behind the Unibass.

In the unlikely event that the heatsink or power supply temperature exceeds about 80 degrees the Unibass will cut out temporarily until the temperature has reduced. During this "thermal shutdown" period the fans will of course continue to run.

Maintenance

A good clean cooling airflow is essential for the reliable operation of the Unibass. There is an internal foam dust filter fitted which prevents dust entering the main amplifier chamber, and this will need periodically cleaning so that it does not become clogged with dust. At the same time the main heatsink fins may also become dusty and should also be cleaned.

Both the heatsink fins and the foam filter can be accessed by opening the maintenance door on the back panel. The maintenance door, which also carries the two fans, is hinged and secured shut with two M6 machine screws. Simply remove these two screws from the top of the door, carefully open the door, and use a vacuum cleaner or other means to clean the heatsink. The foam filter at the bottom can easily be pulled out for cleaning, then carefully put back in again ensuring it is pushed all the way back in.



This is a photo of the area of the back panel where the cooling door is. The silver louvred and perforated exhaust plates are visible near the top and the two door securing machine screws are clearly visible just below the perforated exhaust plate.

Ensure the Powercon connectors are removed from the Unibass before opening this door so that the speaker is isolated from mains power because the fan power connections are exposed when the door is opened.

Otherwise the Unibass does not need any routine maintenance.

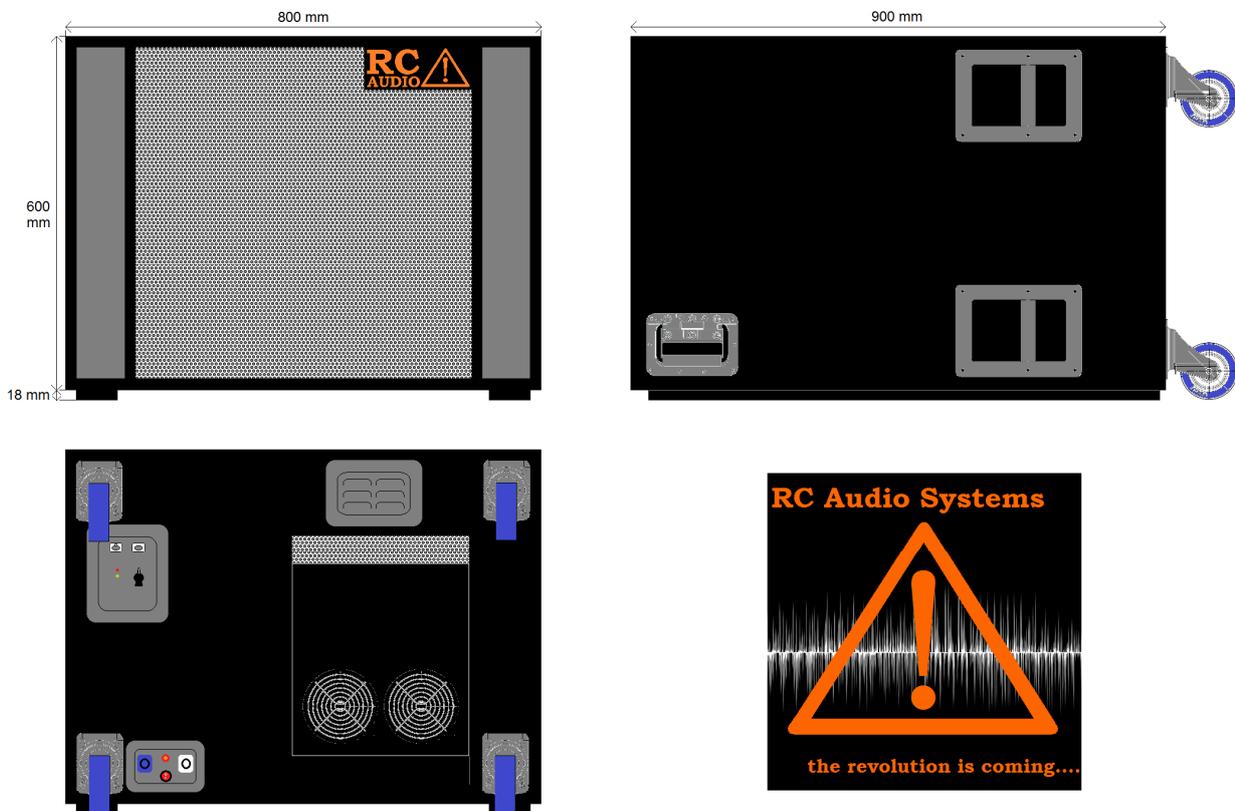
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Specification

Dimensions:	800w x 600h x 900d (plus skids and castors)
Weight:	107kg approx
Voltage requirement:	230V AC, +10%/-6%
Current requirement:	typically average up to 6amps, max approx 10amps.
Amplifier rating:	Heavyweight Bipolar, 2KW RMS
Speaker drivers:	Single driver with active cooling, approx 22 inches overall diameter.
Audio Connections:	Signal via XLR in & link out.
Power Connections:	Power via Powercon connectors in & link out.
Controls on rear:	Input gain adjustment.
Frequency response:	approx 30hz-200hz.
Display on rear:	Green signal present indicator / Red high level signal indicator / Red power on indicator.



Warranty

The UNIBASS comes with a one year full parts and labour warranty, during which time we will repair any faults if they should develop affecting the performance of the product. This warranty does not cover damage caused by misuse or abuse or tampering with the products.

After the warranty has expired we will continue to support the products into the future, including offering a repair facility, spare parts and technical support should any customers need any assistance.

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