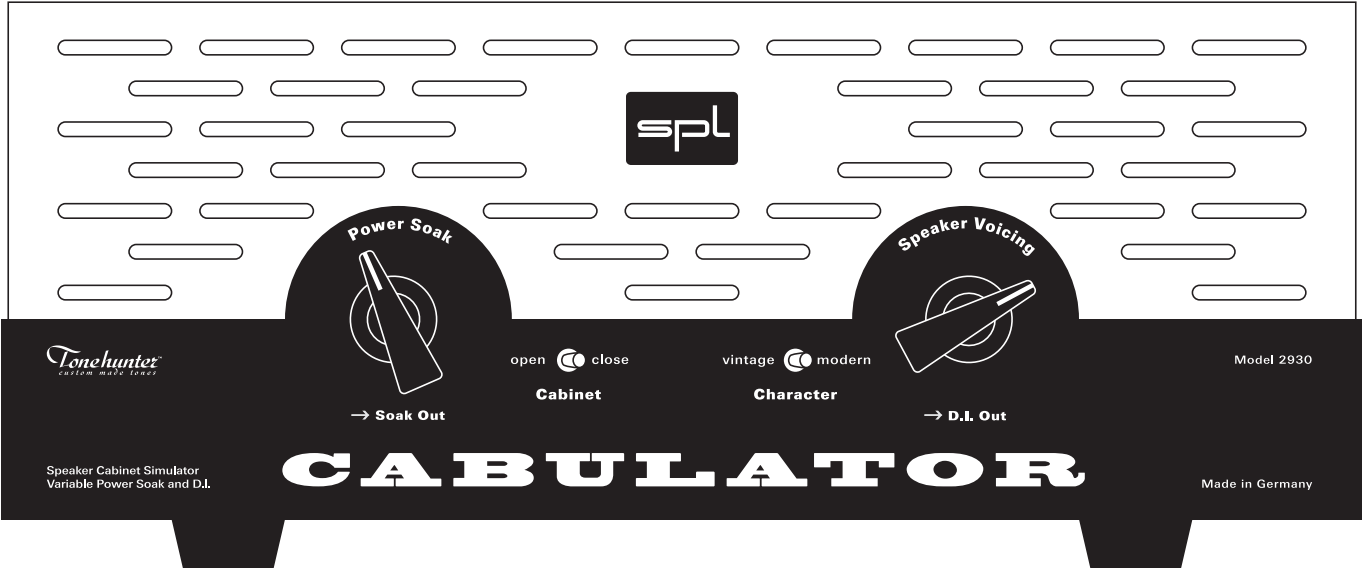




Manual



Cabulator

Model 2930

Manual Cabulator, Model 2930

Version 1.2 – 11/2009

Designer: Ralf Reichen, Jens Gronwald

This manual contains a description of the product. It in no way represents a guarantee of particular characteristics or results of use. The information in this document has been carefully compiled and verified and, unless otherwise stated or agreed upon, correctly describes the product at the time of packaging with this document.

Sound Performance Lab (SPL) continuously strives to improve its products and reserves the right to modify the product described in this manual at any time without prior notice. This document is the property of SPL and may not be copied or reproduced in any manner, in part or fully, without prior authorization by SPL.

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The construction of the Cabulator, Model 2930, is in compliance with the standards and regulations of the European Community.



Notes on Environmental Protection

At the end of its operating life, this product must not be disposed of with regular household waste but must be returned to a collection point for the recycling of electrical and electronic equipment. The wheelee bin symbol on the product, user's manual and packaging indicates that. The materials can be re-used in accordance with their markings. Through re-use, recycling of raw materials, or other forms of recycling of old products, you are making an important contribution to the protection of our environment. Your local administrative office can advise you of the responsible waste disposal point.



WEEE Registration: 97334988

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Symbols and Notes



IN THIS MANUAL A LIGHTNING SYMBOL WITHIN A TRIANGLE WARNS YOU ABOUT THE POTENTIAL FOR DANGEROUS ELECTRICAL SHOCKS – WHICH CAN ALSO OCCUR EVEN AFTER THE MACHINE HAS BEEN DISCONNECTED FROM A POWER SOURCE.



AN EXCLAMATION MARK (!) WITHIN A TRIANGLE IS INTENDED TO MAKE YOU AWARE OF IMPORTANT OPERATIONAL ADVICE AND/OR WARNINGS THAT MUST BE FOLLOWED. BE ESPECIALLY ATTENTIVE TO THESE AND ALWAYS FOLLOW THE ADVICE THEY GIVE.



The symbol of a lamp directs your attention to explanations of important functions or applications.

Attention: Do not attempt any alterations to this machine without the approval or supervision of SPL electronics GmbH. Doing so could nullify completely any and all of your warranty/guarantee rights and claims to user support.

Scope of Delivery & Packaging

The scope of delivery comprises the Cabulator, the external power supply, the guarantee card and this manual.

Please keep the original packaging. In case of a service procedure the original packaging ensures a safe transport. It also serves as a safe packaging for your own transports if you do not use special transportation cases.

Important Security Information

Please note and retain this manual. Carefully read and follow all of the safety and operating instructions before you use the machine. Be doubly careful to follow all warnings and special safety instructions noted in this manual and on the unit.

Connections: Only use the connections as described. Other connections can lead to health risks and equipment damage.



Water and humidity: Do not use this machine anywhere near water (for example near a wash basin or bath, in a damp cellar, near swimming pools, or the like). In such cases there is an extremely high risk of fatal electrical shocks!

Insertion of foreign objects or fluids: Never allow a foreign object through any of the machine's chassis openings. You can easily come into contact with dangerous voltage or cause a damaging short circuit. Never allow any fluids to be spilled or sprayed on the machine. Such actions can lead to dangerous electrical shocks or fire!

Opening the unit: Do not open the machine housing, as there is great risk you will damage the machine, or – even after being disconnected – you may receive a dangerous electrical shock!

Electrical power: Run this machine only from sources which can provide proper power at the prescribed rating. When in doubt about a source, contact your dealer or a professional electrician. To be sure you have isolated the machine, do so by disconnecting the power cord from your wall connection. Be sure that the power cord plug is always accessible. When not using the machine for a longer period, make sure to unplug it from your wall power socket.

Cord protection: Make sure that your power and signal cords are arranged to avoid being stepped on or any kind of crimping and damage related to such event. Do not allow any equipment or furniture to crimp the cords.

Power connection overloads: Avoid any kind of overload in connections to wall sockets, extension or splitter power cords, or to signal inputs. Always keep manufacturer warnings and instructions in mind. Overloads create fire hazards and risk of dangerous shocks! →

Important Security Information

Lightning: Before thunderstorms or other severe weather, disconnect the machine from wall power (but to avoid life threatening lightning strikes, not during a storm). Similarly, before any severe weather, disconnect all the power connections of other machines and antenna and phone/network cables which may be interconnected so that no lightning damage or overload results from such secondary connections.

Air circulation: Chassis openings offer ventilation and serve to protect the machine from over-heating. Never cover or otherwise close off these openings. Never place the machine on a soft surface (carpet, sofa, etc.). Make sure to provide for a mounting space of 4-5 cm/2 inches to the sides and top of the unit when mounting the unit in racks or on cabinets.

Controls and switches: Operate the controls and switches only as described in the manual. Incorrect adjustments outside safe parameters can lead to damage and unnecessary repair costs. Never use the switches or level controls to effect excessive or extreme changes.

Repairs: Unplug the unit from all power and signal connections and immediately contact a qualified technician when you think repairs are needed—or when moisture or foreign objects may accidentally have gotten in to the housing, or in cases when the machine may have fallen and shows any sign of having been damaged. This also applies to any situation in which the unit has not been subjected to any of these unusual circumstances but still is not functioning normally or its performance is substantially altered.

In cases of damage to the power supply and cord, first consider turning off the main circuit breaker before unplugging the power cord.

Replacement/substitute parts: Be sure that any service technician uses original replacement parts or those with identical specifications as the originals. Incorrectly substituted parts can lead to fire, electrical shock, or other dangers, including further equipment damage.

Safety inspection: Be sure always to ask a service technician to conduct a thorough safety check and ensure that the state of the repaired machine is in all respects up to factory standards.

Cleaning: In cleaning, do not use any solvents, as these can damage the chassis finish. Use a clean, dry cloth (if necessary, with an acid-free cleaning oil). Disconnect the machine from your power source before cleaning.

Hook Up

Placement

Place the unit on a level and stable surface. The unit's enclosure is EMC-safe and effectively shielded against HF interference. Nonetheless, you should carefully consider where you place the unit to avoid electrical disturbances. It should be positioned so that you can easily reach it, but there are other considerations. Try not to place it near heat sources or in direct sunlight, and avoid exposure to vibrations, dust, heat, cold or moisture. It should also be kept away from transformers and motors. Always ensure sufficient air circulation by keeping a distance of 4-5 cm/2 inches to the top and sides of the unit.

Placing the unit upon a guitar amplifier is obvious and intended: the height of the feet is sufficient to also place the Cabulator above a handle. The direction of the grip tray in the Cabulator's cover is chosen to especially support holding the unit when connections are made on the rear panel. Apart from that primary purpose the grip tray is always a perfect pick holder.



Before you begin

Make sure that the POWER SOAK control is turned fully left before you power up the unit. Now control volume. Note that too high levels can damage hearing!



Tonehunter and SPL

The Cabulator is a cooperative developmental effort between the guitar amp firm of Tonehunter and SPL. It brings together many years of experience from the professional music scene, combining specialized knowledge of electric guitarists and SPL's established international reputation in the research and development of analog studio electronics.

This mutual effort of these two firms has been the basis for new ideas such as the Cabulator cabinet and miking simulator, which formed the basis for the unique Cabulator concept. Both units have the potential to revolutionize the working life of the guitarist and the recording studio engineer.

Tonehunter

The firm Tonehunter has a long experience pursuing the goal of fulfilling the sonic wishes of professional guitarists. This includes tube amplifiers, effects units, support for live and studio sessions as well as custom set designs from instruments, cables and effects machines to pickups, amps and speaker cabinets. The Tonehunter team is comprised exclusively of musicians with extensive audio engineering backgrounds who, in contact with their customers, are always at the forefront of new, no-compromise developments that fulfill the highest user expectations.

SPL – Sound Performance Lab

SPL boasts decades of experience in the development and production of analog and digital audio processing equipment in the professional music, film, multimedia and broadcasting industries. Our products enjoy a first rank, worldwide reputation for innovation, user friendliness and consistently superior performance.

To SPL's technological milestones belong the patented Vitalizer® sound optimizing, the first level-independent analog dynamic envelope shaping tool (the Transient Designer®), the pioneering introduction of the first discrete 5.1 surround recording system (Atmos® 5.1) and the development of the SPL SUPRA op-amps with an unprecedented operating voltage of 120 volts. These SUPRA op-amps form the basis for SPL's mastering series for stereo and multi-channel applications and with their performance set new benchmarks in audio signal processing that are clearly a step beyond all existing analog or digital audio formats.

In 2008 SPL created the first Analog Code® plug-ins to also enrich the area of computer-based music production with SPL's processing innovations.

Cabulator

The SPL Cabulator combines three main features for e-guitar amplifiers: power soak, speaker simulation, and D.I. output.

The Cabulator's purely analog design excludes latencies. It thereby gives the guitarist a direct response with an authentic punch.

The analog simulation allows to reproduce even the most subtle guitar amp nuances. The Cabulator recreates the real harmonics structures and the dynamic response of a miked cabinet – and delivers signals in recording quality.

With the Cabulator, the engineer gets a first-class guitar signal in seconds – both for studio recordings or for a live mix.

Advantages

You can operate the Cabulator intuitively right from the start and need no further know-how. The sound tuning is well balanced so that there are no bad or wrong settings at all, but instead a broad range of great sounds.

- With the Cabulator a guitar amp can always be played loud without necessarily being loud.
- Fully analog construction for authentic sonic quality and direct, latency-free playability.
- Variable power soak without dynamic loss or damped highs.
- Passive power soak: the power soak functionality and regulation is passive and can also be used without power connection.
- The transformer-based design maintains the harmonic content of a tube amp.
- Sound processing is independent from absolute volume levels, which means that no recording room is necessary and ear-saving work is possible everywhere and at any time.
- Sonically much more flexible than a fixed cabinet/mike set in that different sound characteristics can be simulated.
- Multiple guitar tracks can be “stacked” – the doubled layers become “phatter”. In the process, there will not be any thinning effect from phase shifts as with digital simulation.
- 100 Watts power soak: the power amp’s distortion may, as with cabinets, be integrated into an authentically distorted sonic design.
- Resulting recorded sounds are independent from room characteristics.
- Signals for live mixes are at recording quality level and free from crosstalk from other sound sources.
- The guitarist can play in the control room to listen and react to the playback directly.
- Significantly less time spent and much more efficiency and convenience in equipment setup, preparation, and working with sound variations.
- Working procedures and connections follow customary standards of amp and cabinet sets.
- The D. I. OUTPUT is transformer-balanced and provides for galvanic insulation.
- Connections from the D. I. OUTPUT can be both balanced or unbalanced.

On Stage

The amplifier signal can directly be routed to a cabinet, so it can still be integrated without any loss in sound quality. The stage sound comes as usual from the back line but it can now be reduced independently from the amps volume, maintaining the desired power amp sound. At the same time the sound technician receives a top signal quality without miking – and without crosstalk from any other sound source. If on the other hand no back line shall be used on stage, the Cabulator supplants the cabinet (in-ear monitoring).



Sound Setups

After cabling is complete, the sound setup functions primarily as one might expect: First, guitar amp sound adjustments are made as if a cabinet is connected. However, instead of choosing a cabinet and experimenting with microphones and their positioning, adjustments need only be made with the Cabulator controls.

The Cabulator interfaces with the amp just as an actual cabinet, so operation is based upon standard procedures. →

Introduction

A Complete – Not Approximated – Simulation

An important aspect of processing guitar sounds is the reproduction of chords: The strings should exhibit a fine resolution and homogeneous, musically unified sound. From this emanates the deep, complex and unified sonic structure typical of the best cabinet assemblies. This aspect is also a prime consideration in the Cabulator's uniquely precise output: Through its new concept in signal processing you experience a completely authentic sonic feel.

The Cabulator circuitry also conveys the different runtimes of low and high speakers. With reduced guitar signal levels, the Cabulator nonetheless reproduces the full dynamic range of a guitar amp – independently of POWER SOAK adjustments.

Analog Construction – Analog Function

The Cabulator is a fully analog design to achieve authentic sound results. Furthermore, the simulation is processed in real time for a direct, latency-free playability. The guitar amp is loaded exactly in the same way like with a cabinet, so that the interaction of both components also produces the same acoustic results.

Rear Panel

Power Connection

The scope of delivery comprises an external power supply. It accepts voltages in the range from 100 to 250 Volt at 50 and 60 Hz. If this power supply does not fit your local (wall) power sockets, you can use any external power supply with the following specifications:



9 volts DC regulated power supply, 200 mA minimum. DC jack connector: 2.1 mm, outer plus/center minus (Boss standard).

On and Off



The Cabulator has no separate on/off switch. First connect the DC connector of the external power supply to the rear DC POWER socket of the Cabulator. Now plug the external power supply into a power socket. The Cabulator is now powered on, indicated by the blue LED on the front panel.

Always plug or unplug the external power supply in order to switch the unit on or off. First connect the DC jack connector before you plug in the power connector. Always keep the DC connector plugged when you power the unit on or off by plugging and unplugging the external power supply. With the external power supply plugged to a power socket, the DC connector carries current and wrong contacts may produce short circuits.



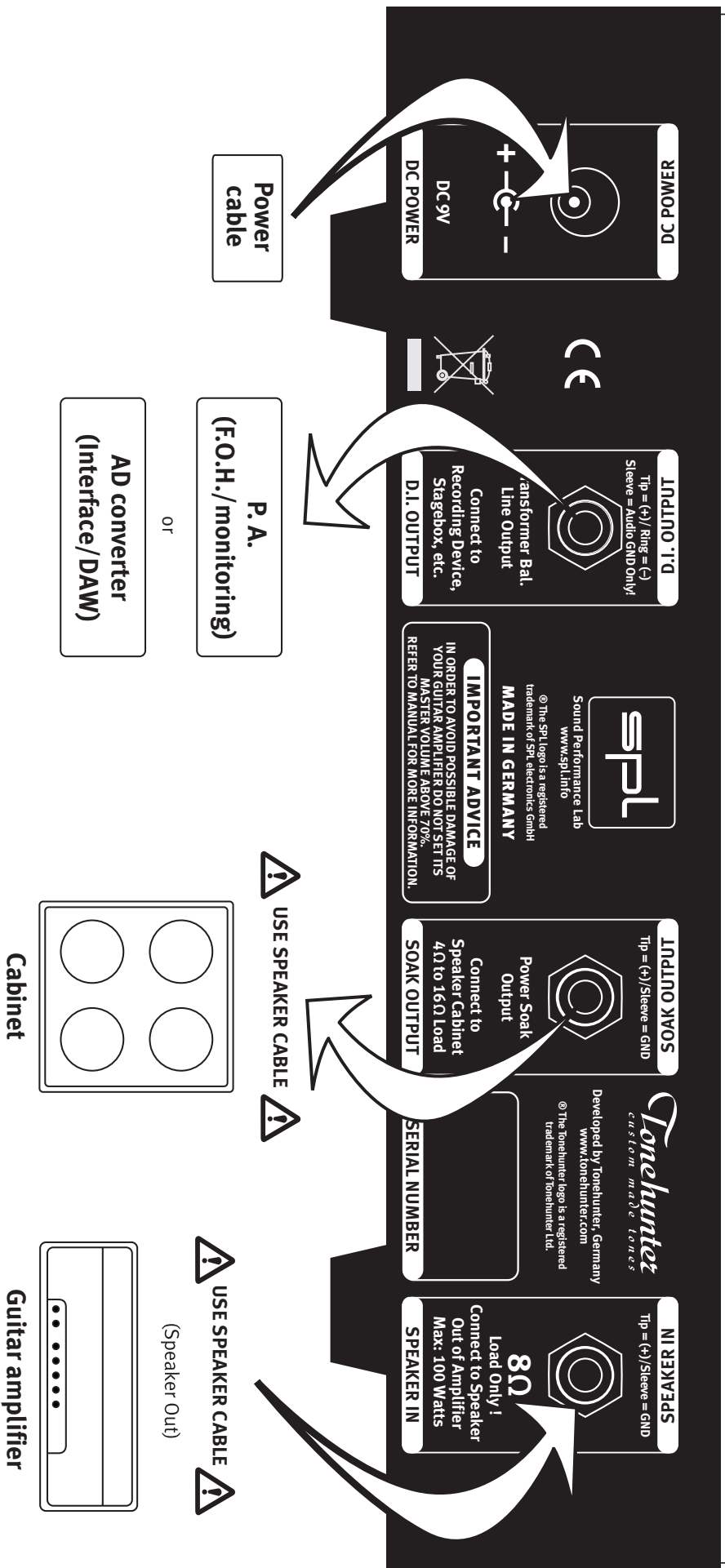
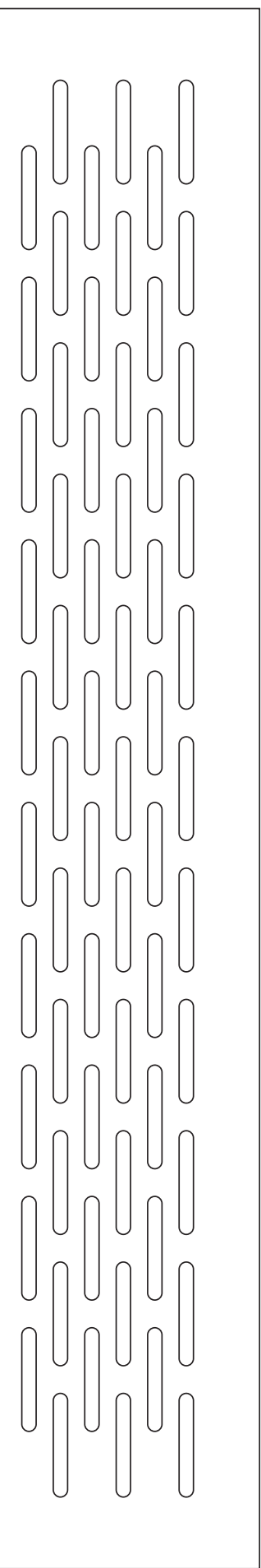
Signal Connections

Before connecting any other equipment – and in all other cases where you are connecting cables with or from other sources – you should be sure to shut the Cabulator and all machines to be connected off (unplug external power supply). Otherwise you risk to damage the unit, connected gear or your ears.

1/4 " Jack Sockets

The 1/4 " jack sockets SOAK OUTPUT and SPEAKER IN are unbalanced. The balanced D. I. OUTPUT TRS connector can be used both with balanced and unbalanced (=mono jack connection) wiring.

For further information on the jack connections (pin wiring) please refer to the descriptions of the respective inputs and outputs on the following pages.



You can use balanced or unbalanced TRS connections with the D. I. OUTPUT. Please pay attention to further advices on sockets and switches on the following pages as well as the security advices on pages 4 and 5.



Speaker In

Here you connect the guitar amp's loudspeaker output.

Connector variant and pin configurations follow industry standards: Unbalanced 1/4" jack connector with the signal at the tip and ground at the sleeve.



As with any typical amp and cabinet cabling, it is critical to observe loudspeaker cable of a minimum 1.5 mm² cross section. Instrument or line cables can lead to amplifier damage! We recommend to use cables with a maximum length of 3 meters/10 feet for lossless signal transmission.



IMPORTANT WARNING ON CONNECTING GUITAR AMPS



Many guitar amps are not designed for sustained maximum level operation, and if run this way, it can lead to overloads and power amp damage. At high levels, amps can produce high frequency oscillations which can destroy output transformers. Moreover, this can cause audible unwanted output transformer distortion. Such problems are not a result of Cabulator use, but reside within the guitar amp.

Even in situations where you might wish to push the guitar amp to its limits in conjunction with the Cabulator, you should always be sure to allow for ample power reserves to avoid endangering the amp itself!

In the same way a guitar amp and box should never be run knobs full to the right, so should you avoid running the Cabulator this way. Therefore we strongly recommend that the guitar amp should never be run at over 70% of its maximal signal level!

Look for the amp's "Sweet Spot" as you make adjustments to it. This is almost never in the upper level output range. Where the amp's bass starts to sound "spongy" and somewhat undifferentiated is the place where your master level control should be turned back.

The guitar amp output must be rated at 8 ohms! Only connect amplifiers rated at a 100 W maximum to maintain a further 100 W reserve for signal peaks. A guitar amp may be used ONLY within its normal operating parameters. The Cabulator may be loaded up to 200 W. But please note that a 100 W amp at higher volumes, eventually combined with further effects, produces peaks far above 100 W. Therefore we strongly recommend connecting amps rated at a maximum of 100 W.



Soak Output

This output provides the amp signal reduced by the power soak, but without sound simulation. It allows for the connection of an additional 4, 8 or 16-ohm cabinet. This setup makes it possible to have a traditional amp and cabinet combination on stage and at the same time, route the D. I. OUTPUT to P. A. or recording.

At SOAK OUTPUT the amp signal appears as reduced with the POWER SOAK control. The minimal reduction is -8dB with the POWER SOAK control turned fully right (refer to POWER SOAK control on page 12). With this "volume control" between amp and cab, the guitar amp can be driven into saturation also at moderate listening levels.

Connector variant and connections follow industry standards: Unbalanced 1/4" jack connector with the signal at the tip and ground at the sleeve.



As with any typical amp and cabinet cabling, it is critical to observe loudspeaker cable of a minimum 1.5mm² cross section. Instrument or line cables can lead to amplifier damage! We recommend to use cables with a maximum length of 3 meters/10 feet for lossless signal transmission.

IMPORTANT NOTE: Turn the POWER SOAK control fully left if no cabinet is connected to the SOAK OUTPUT. Otherwise the impedance at the SPEAKER IN increases. This is not critical but reduces the power of the input signal at the SPEAKER IN.

D. I. Output

The front panel controls SPEAKER VOICING as well as the switches CABINET and CHARACTER regulate the signal which appears at the D. I. OUTPUT connector.

Balanced 1/4" TRS connector.

Wiring TRS: tip =hot (+), ring = cold (-), sleeve = ground.

Use balanced TRS wiring or unbalanced (mono) jack wiring in order to connect to converters/ recording devices or stage boxes etc. Balanced connections are recommended to avoid interferences and ground loop humming.

DC Power

Connect the DC connector of the external power supply to the rear DC POWER socket of the Cabulator.

On and Off

The Cabulator has no separate on/off switch. First connect the DC connector of the external power supply to the rear DC POWER socket of the Cabulator. Now plug the external opwer supply into a power socket. The Cabulator is now powered on, indicated by the blue LED on the front panel.



Always plug or unplug the external power supply in order to switch the unit on or off. First connect the DC connector before you plug in the power connector. Always keep the DC connector plugged when you power the unit on or off by plugging and unplugging the external power supply. With the external power supply plugged to a power socket, the DC connector carries current and wrong contacts may produce short circuits.

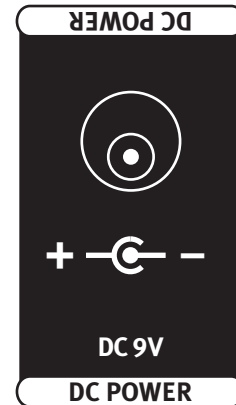
Power Connection

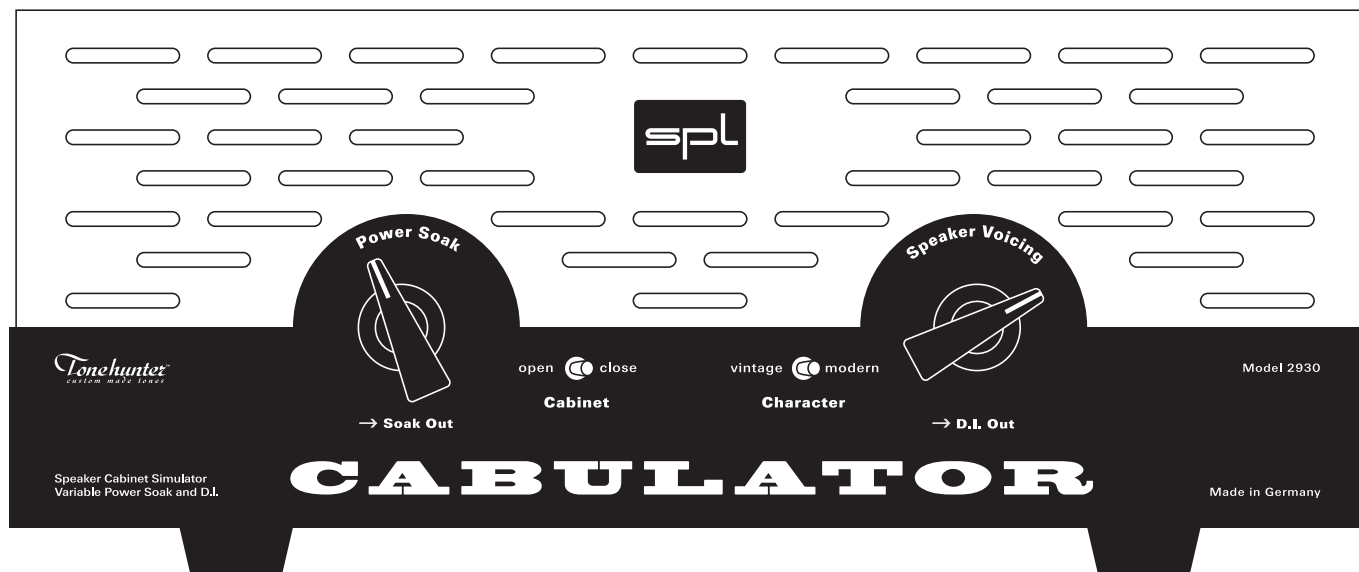
The scope of delivery comprises an external power supply. It accepts voltages in the range from 100 to 250 Volt at 50 and 60 Hz. If this power supply does not fit your local (wall) power sockets, you can use any external power supply with the following specifications:

9 volts DC regulated power supply, 200 mA minimum. DC jack connector: 2.1 mm, outer plus/ center minus (Boss standard).

Passive Power Soak

The power soak functionality and regulation can also be used without power connection.





Control Elements



Power Soak

The POWER SOAK control determines the level of power reduction for the guitar amp signal. Set fully left mutes the signal, turned fully right results in a power reduction of -8 dB. Therefore, the signal level at the SOAK OUTPUT is always reduced by at least 8 dB.

An 8dB reduction can be compared approximately to the volume that results from a „half power“ setting at guitar amps; usually this is still pretty loud in many situations. If you wish to have an unaltered signal present at the cabinet, you can always feed the cab with a second speaker out from the amp directly.

The Cabulator's power soak provides three main features:

1. No dynamic loss – the sound is independent from the power soak intensity.
2. The power soak is independent from the sound simulation unit. There is no mutual interaction which would complicate operation.
3. The power soak functionality and regulation is a passive design can also be used without power connection.

IMPORTANT NOTE: Turn the POWER SOAK control fully left if no cabinet is connected to the SOAK OUTPUT. Otherwise the impedance at the SPEAKER IN increases. This is not critical but reduces the power of the input signal at the SPEAKER IN.



Speaker Voicing

The SPEAKER VOICING control is the main element for sound creation. Like with a cabinet you can adjust the basic sound character and simulate the sound pressure level here: If you turn the control to the right, a mid focus is becoming more and more audible. At the same time signal level and compression effects increase – just like the sound changes with a loud cabinet.

Also refer to the chapter „Leveling the D. I. Output Signal“ on the following page.

Cabinet: Open/Close

This switch toggles between an open and closed guitar cabinet characteristic. OPEN sounds definitely more open, brilliant and direct.

The signal contains more transients and produces less punch. The CLOSED setting offers more punch and with its added compression more closely creates the impression of the compressed air in a closed box, though with less brilliance and detail.



Cabinet

Character: Vintage/Modern

The CHARACTER switch sets the basic characteristic of the simulated loudspeaker. VINTAGE provides strong, soft mids and a slender bass. MODERN results in wider sounds with a stronger bass and open highs.



Character

Leveling the D. I. Output Signal

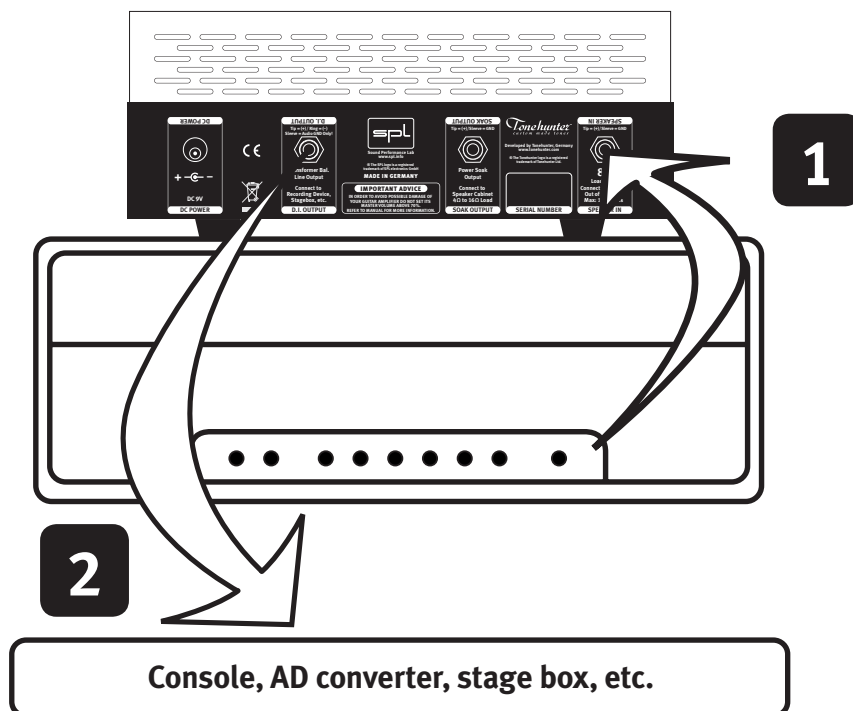
The signal level at the D. I. OUTPUT is independent from the POWER SOAK regulation. However, the SPEAKER VOICING control influences signal levels. The more it is turned to the right, the higher are the signal levels at the D. I. OUTPUT. Thus a first action to accommodate levels can be the regulation of SPEAKER VOICING.

But if you actually are satisfied with a certain SPEAKER VOICING setting and do not want to change this sound result, you have to adjust the signal levels at following units (AD converters, line inputs of a console, etc.).

Usually the ranges to set the sensitivity of converter or line inputs are sufficient. If not, you can use a microphone preamp to level the signal as needed.



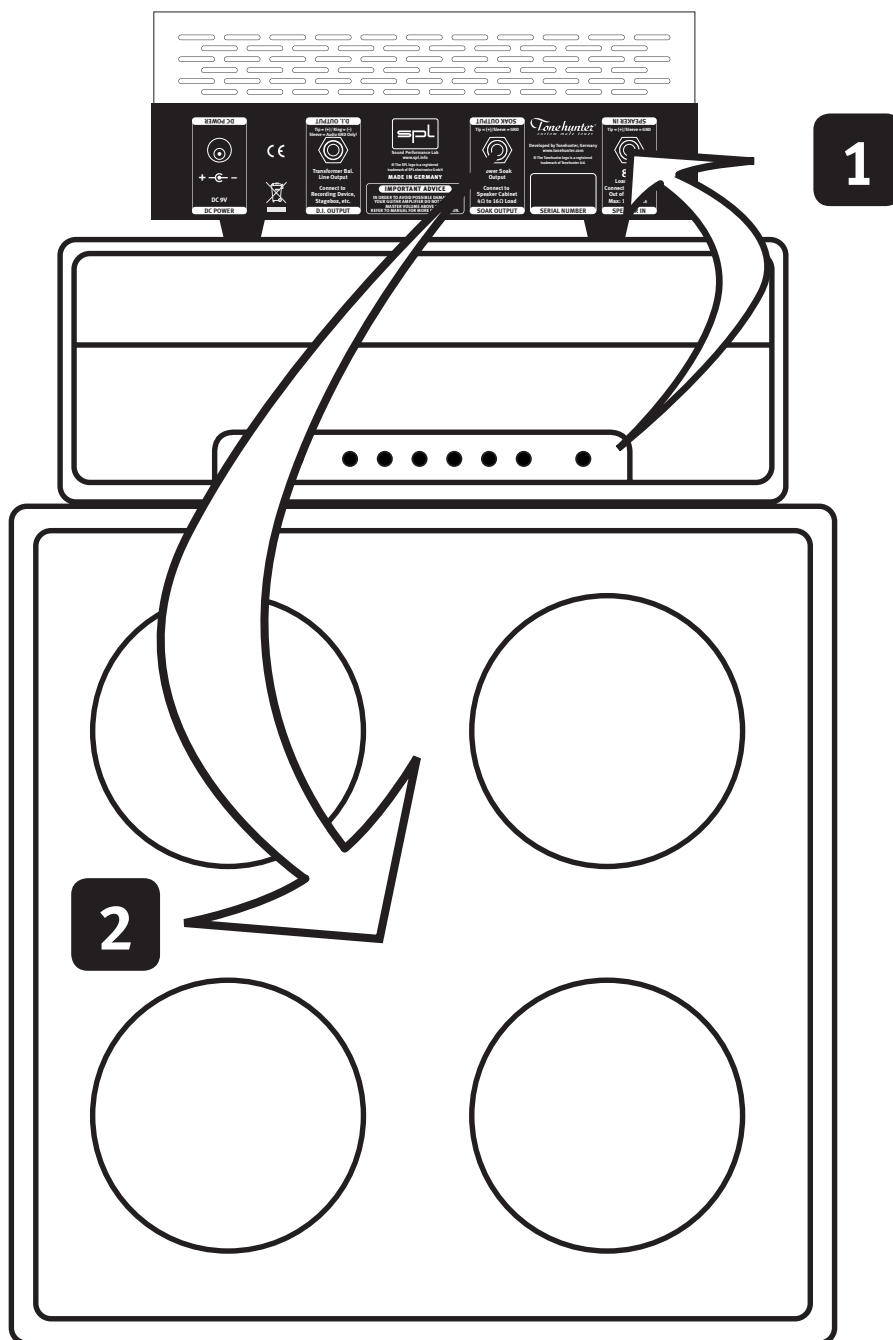
Setup 1: Speaker Simulation Only



1: Connect 8 ohms amplifier output via **speaker cable** to SPEAKER IN at the Cabulator.

2: Connect Cabulator D. I. OUTPUT via **line cable** to the LINE input of a following unit.

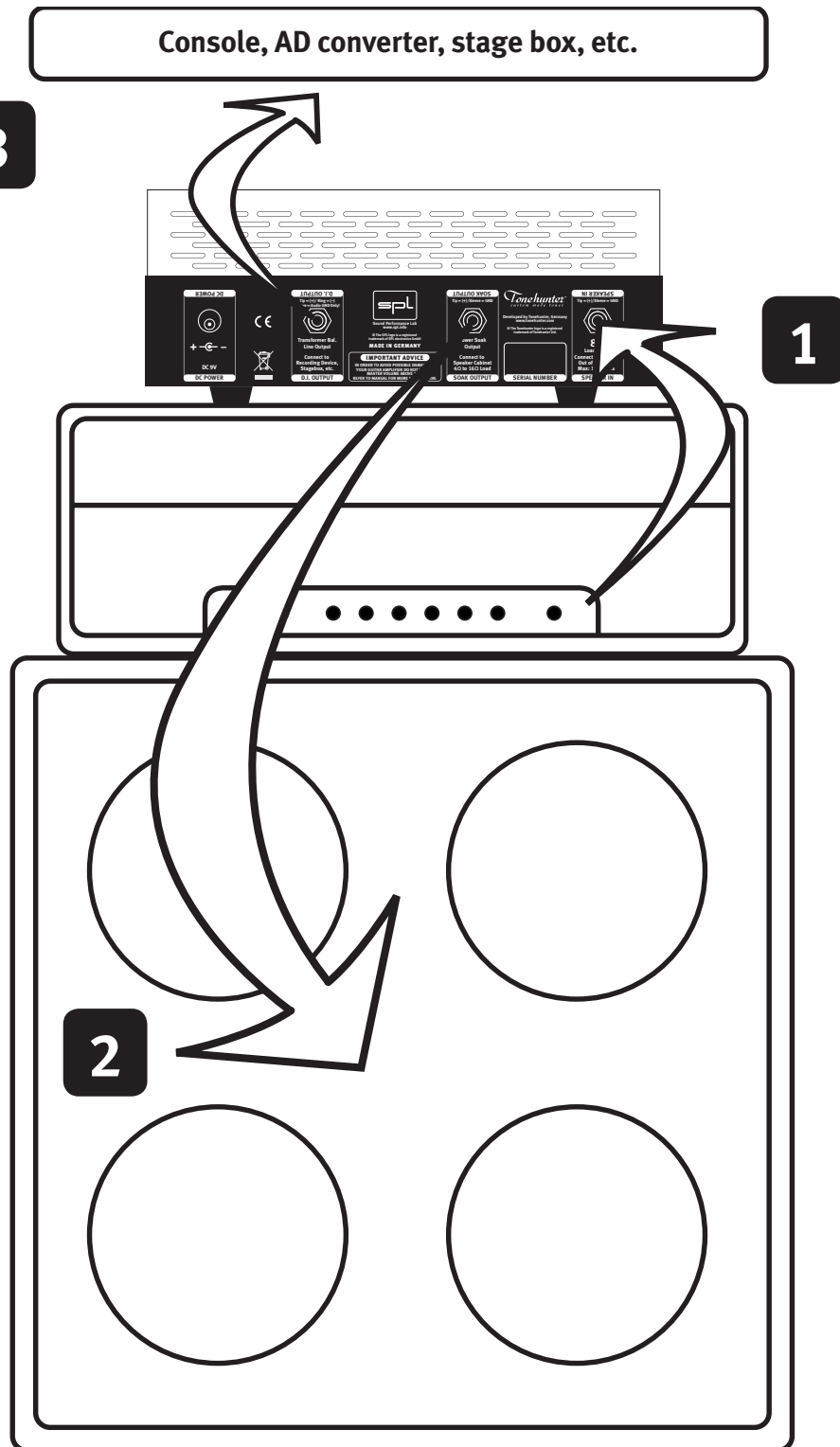
Setup 2: Power Soak Only



1: Connect 8 ohms amplifier output via **speaker cable** to SPEAKER IN at the Cabulator.

2: Connect Cabulator SOAK OUTPUT via **speaker cable** to 4-16 ohms cabinet.

Setup 3: Speaker Simulation and Power Soak



1: Connect 8 ohms amplifier output via **speaker cable** to SPEAKER IN at the Cabulator.

2: Connect Cabulator SOAK OUTPUT via **speaker cable** to 4-16 ohms cabinet.

3: Connect Cabulator D. I. OUTPUT via **line cable** to the line input of a following unit.

Specifications


Input

Speaker In	1/4" TRS jack
Impedance	8 Ohm
Max. input load	100 W RMS, 200 W peak

Outputs

Soak output	1/4" TRS jack
D.I. output	1/4" TRS jack, transformer balanced
Impedance	unbalanced ca. 220 Ohm balanced ca. 440 Ohm
Max. output level	+4 dBu
Signal to noise ratio	-85 dBu (unweighted)

Power Supply

Power connection	external power supply for voltages from 100-250 volts
	9 V DC, 200 mA, 2,1 mm DC plug
Power consumption	0,5 VA
Fuse (internal)	100 – 250 V AC: T 100 mA

Dimensions & Weight

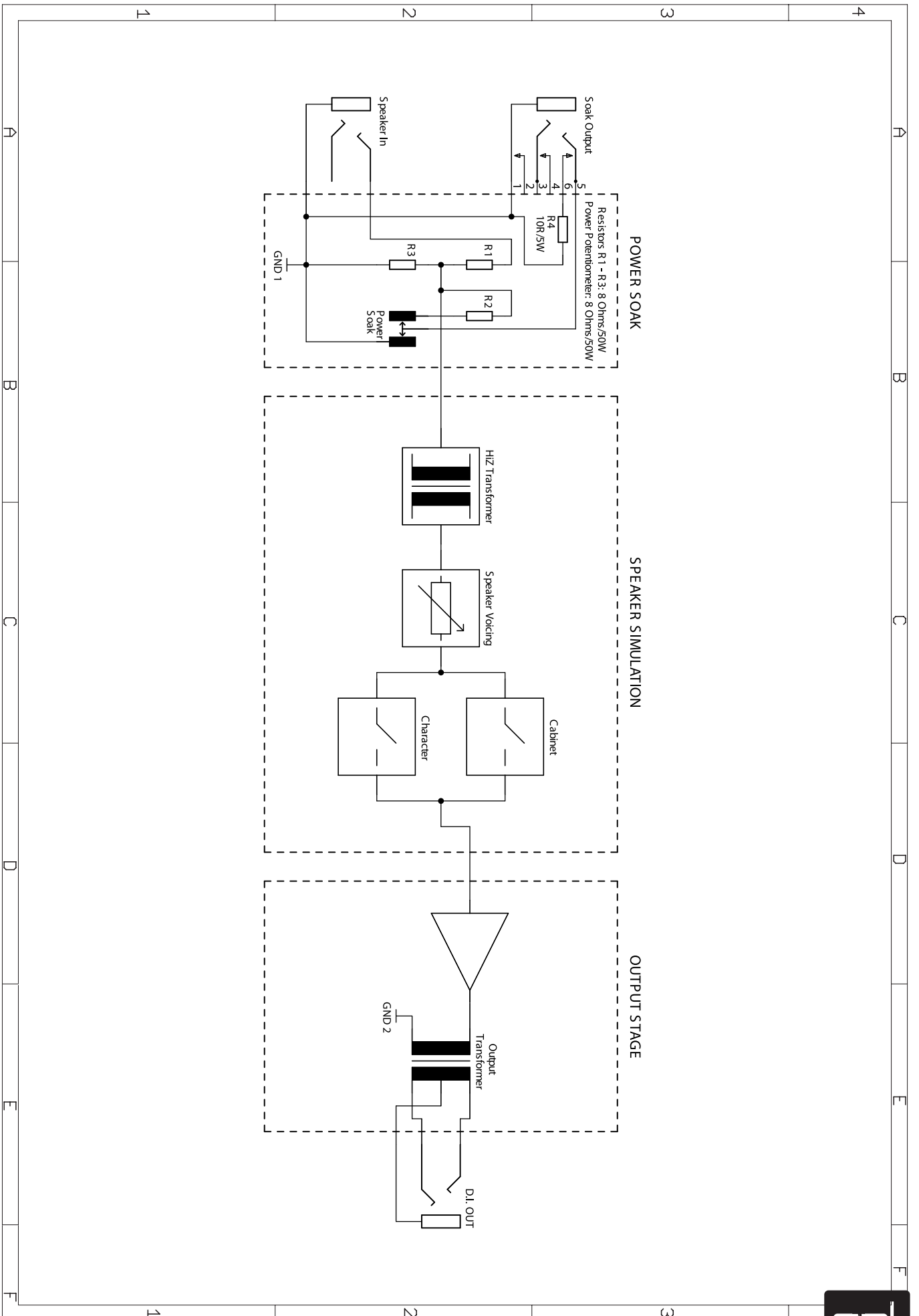
Height x width x depth	134 mm x 300 mm x 207 mm
Weight	3 kg/6,61 lbs

Guarantee & Product Registration

Please note the terms on the supplied guarantee card.

Direct SPL product support requires product registration. Please fill out the guarantee card in printed letters and send it directly to SPL. Or use the **online registration** form that may be reached at **www.spl.info**.

Block Diagram



Copy Master: Recall Settings



Guitarist:

Engineer:

Album/Gig:

Track(s)/Groups:

Title:

Date:

Power Soak

Speaker Voicing

open close

vintage modern

Cabinet

Character

→ Soak Out

→ D.I. Out

Model 2930

Made in Germany

CABULATOR

Tonehunter
custom made tones

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