



100K HV EVO
Owner's Manual

100K HV EVO

WARNING! RISK OF DEATH

Only qualified professionals with an NR-10 course can install this equipment. Never touch the amplifier's output terminals!



PACKAGE CONTENTS

1 100K HV EVO Amplifier	1 Allen Wrench 4mm
1 Owner's Manual	1 Link Cable
1 Allen Wrench 2.5mm	1 Promotional Sticker



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www.soundigitalusa.com



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/SoundigitalBrasil
/SoundigitalUSA



@soundigital
@soundigitalUSA

Dear Customer,

Congratulations on acquiring your SounDigital!
You've just purchased a product of high quality and technology. The SounDigital products are developed to assure maximum efficiency and reliability to your sound system.

HV Class D Amplifiers

The main characteristics of HV Class D amplifiers are: audio quality, efficiency, versatility and compact design. Here are the advantages of these characteristics:

Optimizing Batteries – Besides being cost effective, using the batteries in series assures better autonomy and allows a better administration of the power by using more or fewer batteries, according to the impedance used.

Audio Quality – Class D amplifiers used to have a limited response in the past and they used to have a worse performance regarding higher frequencies than Class AB amps, despite being more efficient. Introducing new technologies, SounDigital developed a Class D amplifier superior to the Class AB ones in efficiency and performance.

Efficiency – The SounDigital HV Class D amplifiers have a total efficiency (power source + output) higher than 80%, assuring a battery consumption and a heating lower than the expected.

Versatility – The 100K EVO is an extremely versatile product. Although it is well-known by its performance in “Pancadão” systems due to its great frequency response and high damping factor, it can also be used in multi-way systems such as “Trio Elétrico”, performing the low frequencies, low midrange and mids.

Compact Design – The high efficiency and technology allow our amplifiers to be really compact, making it easy to install them in vehicles where you have limited space.

IMPORTANT INFO

Read this manual and follow its instructions and information carefully. It contains extremely important information to have your amplifier working properly. If you feel the need to contact our Tech Support, you can reach our technicians through the e-mail info@sounddigitalusa.com.

We recommend the use of **SounDigital** original accessories for a better performance. The crossovers, power supplies and voltmeters offered by **SounDigital** follow the same quality standards as our amplifiers, assuring an excellent quality and high power sound system to our customers.

To know our complete line of amplifiers and accessories, visit www.sounddigitalusa.com.



Warning!

This “Warning” sign alerts the user of important info. Not following this instructions may cause injuries to the user or damage to the equipment.

ADDITIONAL INFORMATION

PACKAGE CONTENTS

- 1 100K HV XLR EVO Amplifier
- 1 Owner's Manual
- 1 Allen Wrench 2.5mm
- 1 Allen Wrench 4mm
- 1 Link Cable
- 1 Promotional Sticker

CONTACT CHANNEL

Customer Service

+1 786-600-1056
info@sounddigitalusa.com

Tech Support

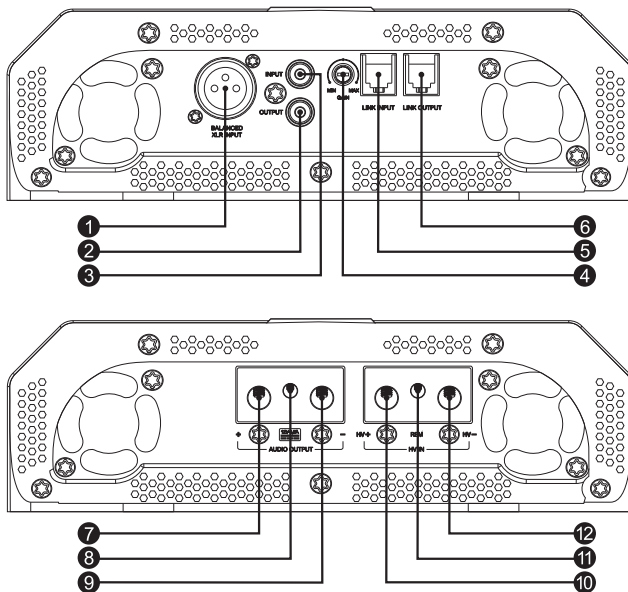
info@sounddigitalusa.com

Website

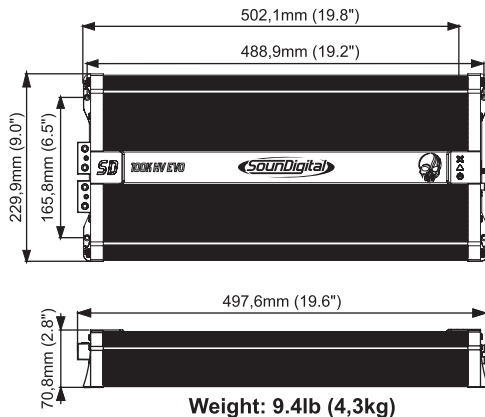
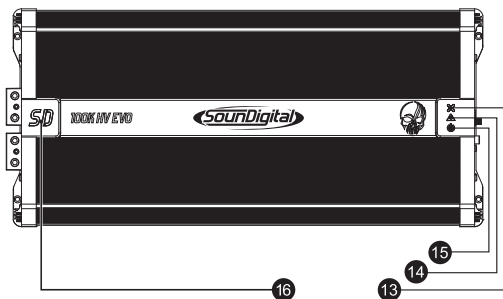
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Social Media

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- 1 Balanced XLR Input;
- 2 Unbalanced RCA output;
- 3 Unbalanced RCA input;
- 4 Variable signal gain control;
- 5 Link input connector;
- 6 Link output connector;
- 7 Positive speaker connector (+);
- 8 Positive +12 VDC power supply connector;
- 9 Negative speaker connector (-);
- 10 Positive power supply HV connector (+);
- 11 Remote power supply connector (REM);
- 12 Negative power supply HV connector (-);
- 13 "Protection" LED indicator;
- 14 "CLIP" LED indicator;
- 15 "Power On" LED indicator;
- 16 High Voltage LED indicator.

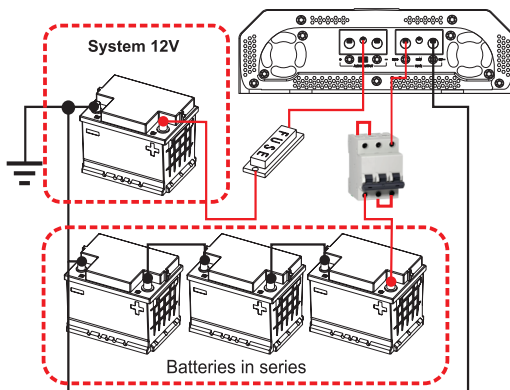


Safety Instructions

- ▶ To prevent injuries to the user or damage to the amplifier, read all the safety instructions written on this manual;
- ▶ If you're insecure about the installation of this equipment, get in touch with our tech support or with a professional specialized in car audio installation;
- ▶ Before proceeding with the installation of any electric equipment on your vehicle, unplug the negative (-) terminal of the battery to avoid fires, injuries or damages;
- ▶ Use your sound system safely. The continuous exposure to sound pressures over 85dB may cause irreversible hearing damage;
- ▶ This equipment is for use in automotive DC voltage batteries between 12.6 and 14.4 volts. Before installing the equipment, check the voltage of the batteries;
- ▶ Do not install the amplifier in places exposed to water, dirt or humidity;
- ▶ Choose a ventilated place to install the amplifier and avoid blocking the side ventilation windows;
- ▶ Fix the amplifier in a steady and proper way. Avoid fixing it in metallic parts of the vehicle, because it may cause ground looping (noise);
- ▶ When passing cables through metallic walls, use rubber O-rings to avoid cable cutting and short-circuits. Make sure the place chosen for the installation of the amplifier will not interfere with the proper working of the vehicle;
- ▶ Make sure the location chosen for the amplifier installation does not affect the operation of the vehicle;
- ▶ Clean the amplifier periodically with a brush or dry cloth to assure the thermal efficiency of the heatsink;
- ▶ This product may reach temperatures over 60°C/140°F. Make sure it is cold before touching it;
- ▶ Be careful when making holes in the vehicle. Make sure you're not making holes in the fuel tank, brake lines or electrical cables of the vehicle;
- ▶ Make sure the cables are properly fixed throughout the installation;
- ▶ Wear gloves, safety glasses and all necessary PPE during the installation of SounDigital amplifiers.

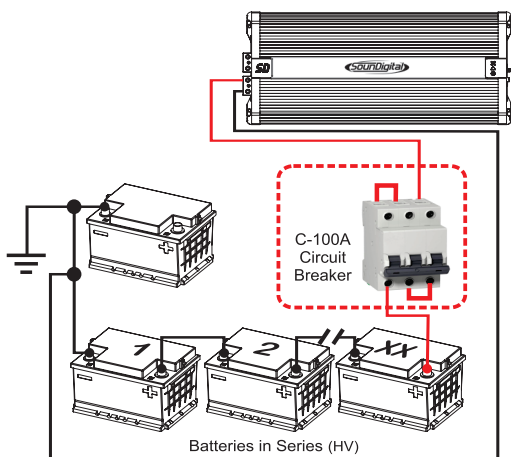
Electrical Dimensioning

It is important to do the correct dimensioning of the cables and electrical system for the proper working of your SounDigital. You must proceed with caution to assure the protection of the circuits and cables. The +12V terminal of the amplifier must be supplied by the 12V system through a 2.5mm² cable with a 3A fuse holder installed on the cable. The +HV terminal of the amplifier must be supplied by a cable connected to the batteries of the High-Voltage System through a 100A three pole curve "C" (C100A) circuit breaker, as it follows:



Protection System

For the proper electric protection of the power circuits of the 100K HV EVO XLR, a 100A three pole curve "C" (C100A) circuit breaker must be installed in the +HV input with its contacts in series. This way, the electrical isolation of the contacts will be added up, avoiding a voltaic arc in the inner contacts of the circuit breaker if it comes to shut off in an overcurrent or short-circuit situation. You must install one electromagnetic three pole circuit breaker per amplifier in the HV system.



Batteries

We always recommend the use of batteries of the same brand, model, and if possible the same manufacturing lot, in order to get the best performance out of the system. Besides that, the equalization process assures a longer lifespan and autonomy of the batteries. When designing a bigger system with multiple high voltage amplifiers for multiple speakers, it is necessary to associate one or more banks of battery in parallel in order to supply the current needed by the amplifiers. The ends of each bank of batteries must be connected to a single busbar, which will supply all of the amplifiers of the system (Image A). Before connecting each end of the banks to the busbar, make sure to place a protection circuit breaker, in order to isolate the banks for future checking and maintenance.

Protection of the series of batteries:

For the proper protection of an HV System, a circuit breaker must be installed every 4 batteries of the series. The circuit breaker must have an 100A contact per amplifier connected to the battery bank. In case you use more than one circuit breaker or circuit breakers with more than one pole, they must be connected in parallel (Image B).

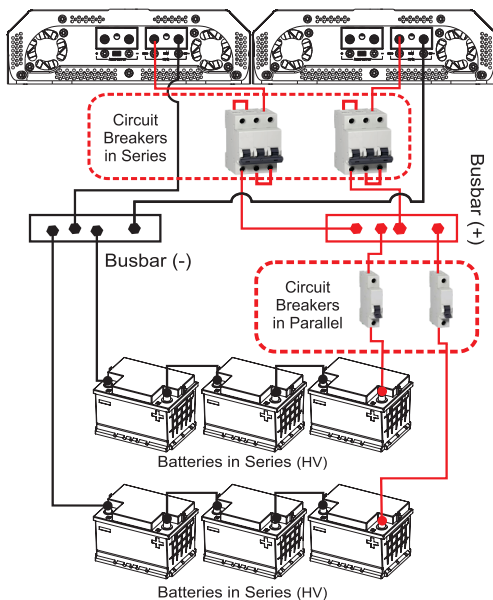


Image A

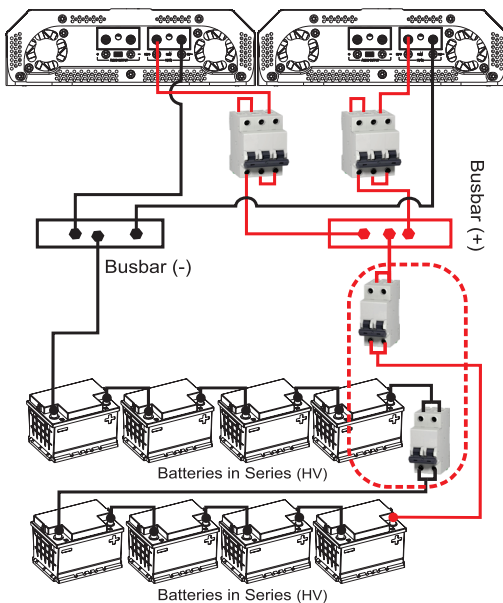


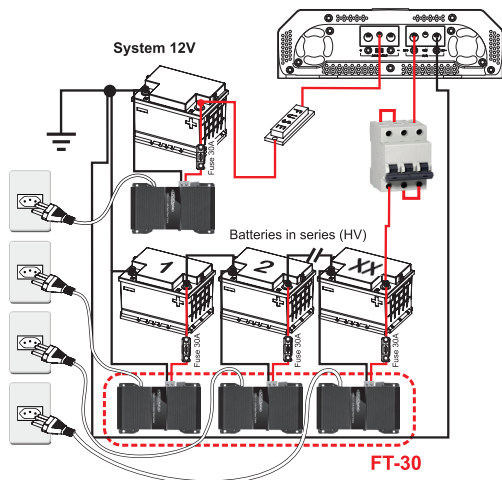
Image B

Battery Equalization

Before using the batteries in series in the sound system with the 100K HV EVO, we recommend you proceed with the equalization of the batteries. To do so, connect all of the batteries in parallel (all the positive terminals of the batteries connected to the positive of the recharger and all the negative terminals of the batteries connected to the negative of the recharger), using a 25mm² section cable, making a single 12V bank. Connect a 14.4V Power Supply or recharger with at least 10% of the total sum of current of the batteries to the batteries (ex.: 25 60Ah batteries = 1500 Ah. Use a 150A Power Supply or recharger). Recharge the batteries with a 14.4V Power Supply voltage for 48h. Then, undo the parallel connection. Wait for 4 hours and check the voltage in each battery. The max variation from the most charged to the least charged battery should not be more the 0.2 volt. If the variation is higher than 0.2, repeat the process or check for damaged batteries in the bank.

HV System Recharge with FT-30 / 14.4V Power Supply

The FT-30 EVO was designed in a way it can be used in high voltage systems with 12VDC batteries in series, where an FT-30 EVO can be used with efficiency and safety in each battery of the high voltage series. It happens because the negative output voltage terminal of the FT-30 EVO, is completely isolated from the heat sink and the "GND" terminal on the input plug of the Power Supply. So, even when inserted in the middle of the series, the FT-30 EVO won't be energized in relation to the general negative of the high voltage system, assuring safety to the installation and making it an ideal solution for systems which need energy sustenance and high performance.

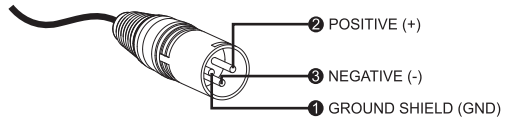


Warning

The max. distance for the installation of the fuse/circuit breaker is one foot away from the battery.

Audio Inputs

The 100K HV EVO XLR has two different audio inputs: one double RCA standard input (unbalanced) with one way in and one way out; and one XLR standard female input (balanced). The RCA input may be used with crossovers, processors and CD players with this kind of connection. The XLR input may be used with pieces of equipment, which have a balanced XLR output, such as mixing equipment, professional audio processors or any signal source with this kind of connection. The XLR output is featured with the following pins setting: Pin 1 – ground shield (GND), Pin 2 – Positive audio Signal (+), Pin 3 – Negative audio signal (-).

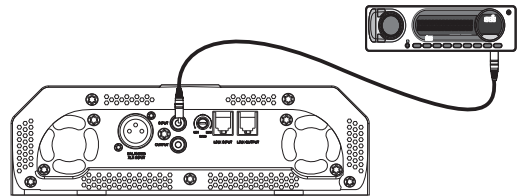


Warning!

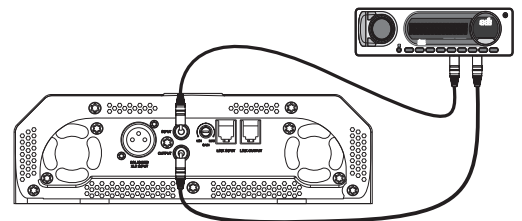
You should never connect or disconnect RCA or XLR cables with the amplifier on, because it may damage the headunit or the amplifier.

Input Connections

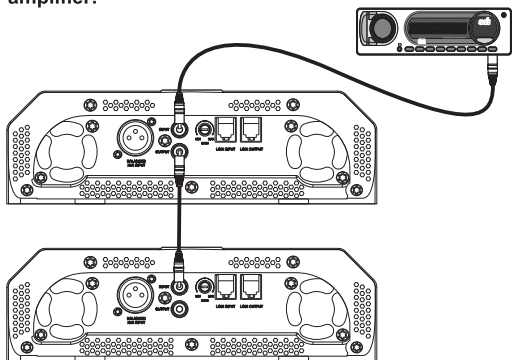
Example of connection using only one RCA cable:



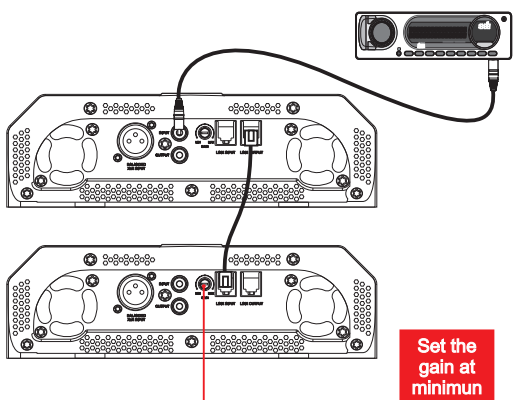
Example of connection with two RCA cables:



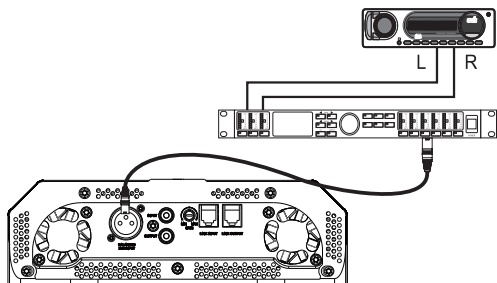
Example of connection using only one RCA cable, while using the RCA output to connect another amplifier:



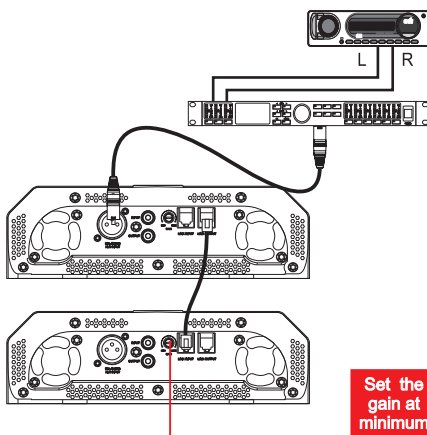
Example of connection using only one RCA cable, while using the "Link out" to connect another amplifier:



Example of connection with XLR cable:



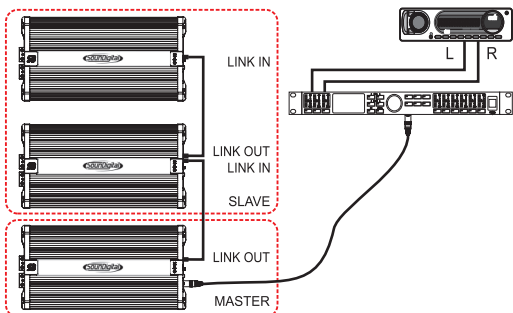
Example of connection using only one XLR cable, while using the "link out" to connect another amplifier:



Warning! Do not connect/use the RCA and the XLR inputs simultaneously. Only one input must be used.

Second generation Link System:
The SD100K HV EVO XLR has a new signal link system, which allows the connection of an unlimited number of amplifiers through the "link in" and "link out". With the use of the link system, all of the amps receive a modulated digital signal, what makes them all have an electric audio signal of same intensity, in other words, same power. It ensures that all of the speakers in the system will receive the exact same signal, thus working as a single speaker, resulting in a better performance of the entire sound system.

Warning! Set the gain at minimum in the **SLAVE** amplifiers.



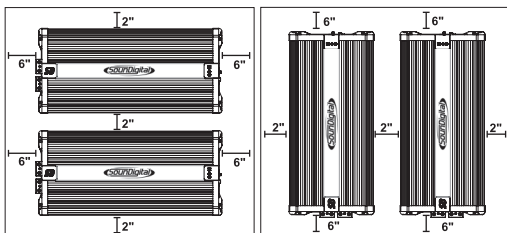
Suggested installation layouts:

- ▶ Choose a ventilated place to install the amplifier and avoid blocking the side ventilation windows. When fixing it, observe the minimum distances of the amplifier to a wall or nearer barrier, in this way, not harming the air flow;
- ▶ When installing more than one amplifier in the same rack or panel, their position is important so that the hot air flow from one amplifier does not go into the other, this can cause it to reach its thermal limit, triggering the temperature protection .

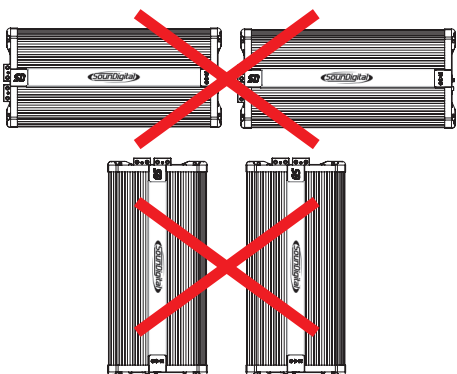


Warning!

Avoid fixing it in metallic parts of the vehicle, because it may cause damage to the amplifier or electric shock.



Incorrect installation Lay Out:



The recommended cable size for proper installation of the 100K HV can be found in the table below:

Power Input HV	Speakers Output
35mm ² or 2 AWG	35mm ² or 2 AWG
12V Power Source	
2.5mm ² or 13 AWG	

Installation Sequence

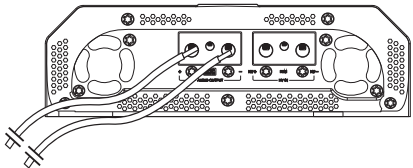
- ▶ Before proceeding with the installation, unplug the negative from all of the batteries;
- ▶ Affix the amplifier in such a way you have access to the connectors;
- ▶ Install the power cables on the vehicle in a proper way. From the battery to the busbar, fuse holder or circuit breaker. Use the appropriate section for the cable. Make all of the connections to the busbars, fuse holders or circuit breakers, with no fuses in the holder and with the circuit breakers in the "Off" position;
- ▶ Connect the power cables in to the amplifier, observing the polarity. Connect all the positive cables from the fuse holder or circuit breaker to the positive connector of the amplifier and all the negative power cables from the busbar or from the batteries, to the negative connector of the amplifier;
- ▶ Install the signal input cables in a proper way, distant from the power cables;
- ▶ Install the audio output cables with the appropriate section, distant from the power and audio input cables;
- ▶ Connect the audio output cables to the amplifiers and the acoustic boxes, observing the positive (+) and negative (-) polarities;
- ▶ Install the remote cable with the power cables, using a section of 15 AWG or thicker;
- ▶ Install the 12V power cable using a section of 13 AWG or thicker;
- ▶ Before powering the system, verify all the connections and make sure there are no mistakes or short-circuits on the power and ground cables;
- ▶ Reconnect the ground of the batteries;
- ▶ Check if the remote key is in the "Off" position and if the head unit is turned off, then place the fuses in the fuse holders or switch the circuit breakers on;

Procedures for Setting the Gain

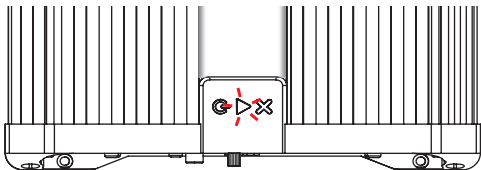
Setting the Gain Without the use of the "Link" Cable

To set the gain of your amplifier properly, follow the steps below;

- ▶ Disconnect the output cables from the amplifier outputs;
- ▶ With the gain set to minimum, turn on the head unit and the remote switch to power on the amplifier. Wait until only the power LED is on;



- ▶ Reproduce a 60Hz sine wave signal through the head unit;
- ▶ Set the volume of the head unit to about 70% of its capacity.
- ▶ Turn up the gain clockwise slowly until the "CLIP" LED starts blinking;



- ▶ Return the gain to the limit where the "CLIP" LED stops blinking and remains off.
- ▶ With the link cable unplugged, set the gain only on the MASTER amplifier. Set the gain of the other amplifiers (SLAVES) on min. Connect the link cables.



Warning!

Setting the gain over the proper position may damage the speakers, produce unwanted noise or activate the amplifier protection.

Some head units with higher tension RCA outputs, may reach max power even with the gain set close to minimum. In such cases, limit the volume of the head unit in such a way the "CLIP" LED will not blink.

Monitoring and Protection

SounDigital amplifiers are micro controlled and run an electronic monitoring of their functions, providing codified information through the LEDs installed on the front panel. See the codification below:

Blue LED

When it's on, it indicates the amplifier is working properly. When the audio goes off and the LED blinks 10 times, it indicates the 12V voltage is under 8,9V or over 16V.

Red LED

When the audio goes off and the LED blinks 10 times, it indicates the input voltage is working off of its range (< 50V ou >400V). When the audio goes off and the LED remains on, it indicates the temperature has reached its limit of 80°C (176°F). Keep the amplifier on until it reaches its working temperature and the audio comes back on.

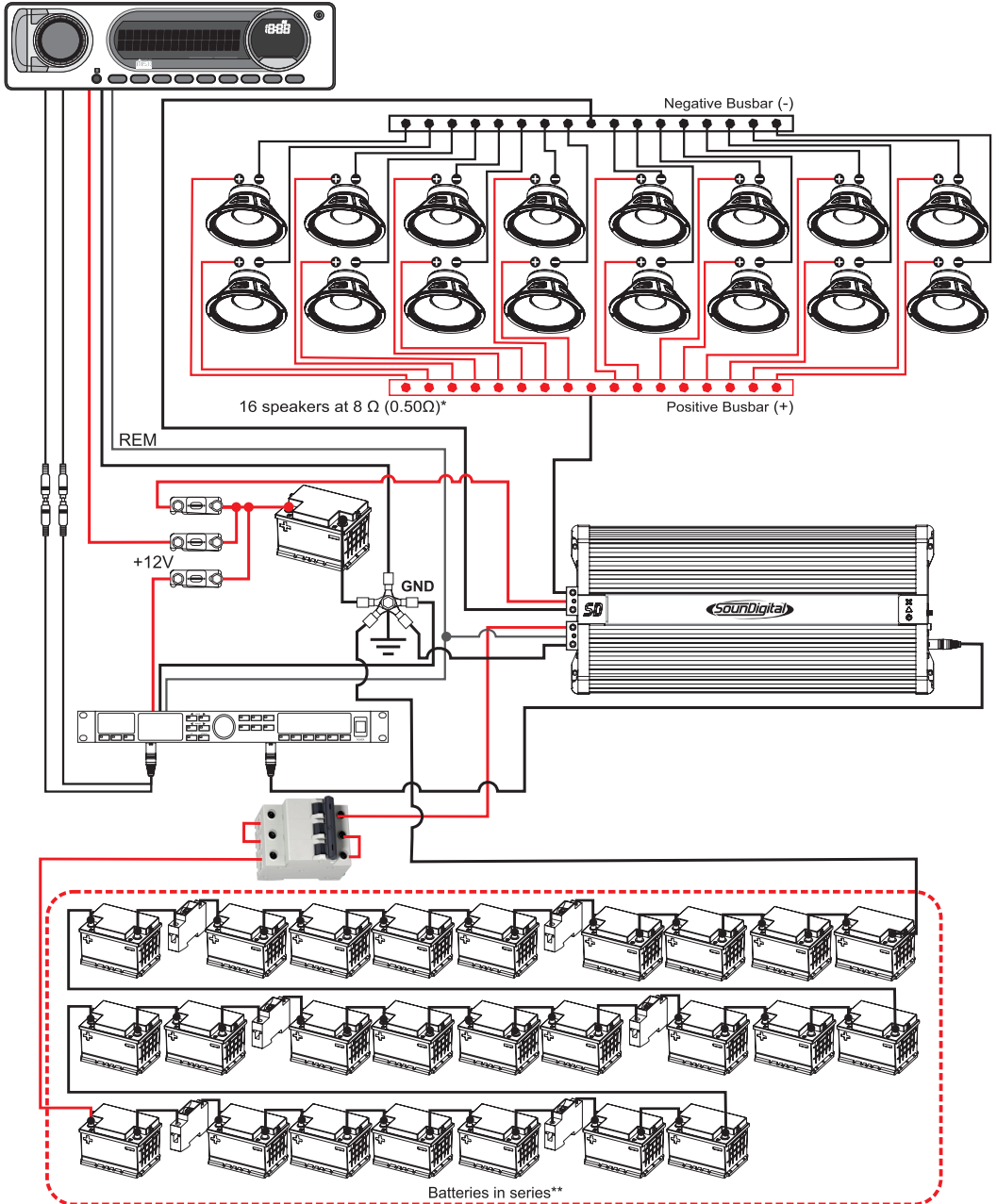
Yellow LED

It monitors the distortion levels during the audio reproduction. When it comes on or blinks, it means the speakers are receiving distorted signal. The gain of the amplifier or the volume of the head unit should be turned down. If the audio goes off and the LED blinks 10 times, it means there's a short circuit or the amplifier is running under its working impedance.

SounDigital Consulting Program

If you have any doubts, need assistance with designs, or wish to know more about our products, please contact us through our consulting channel at info@soundigitalusa.com.

Example of installation of sixteen 8Ω speakers (0.50Ω final load).



*Do not use more than twelve speakers in parallel for a final load of 0.25Ω. This limit is for final loads up to 0.50Ω. For loads higher than 0.50Ω, the speaker association limit is sixteen speakers.

**As a safety measure, install a three pole curve "C" (C100A) circuit breaker every four batteries in the series.

RMS Power

Operating Voltage	70VDC to 400VDC
Current Draw (Max)	470A @ 226VDC
Current Draw (Music)	235A
Total Efficiency (Source+Output)	94%

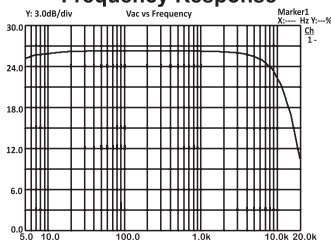
Input Signal

Input Sensitivity	0.5Vpp to 8Vpp
Input XLR	Balanced
Input RCA	Unbalanced

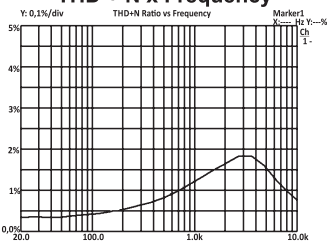
Audio Specs

Max RMS Power (0,25 Ohm/1% THD+N Max./18 Batteries)	100kW
SNR (LPF 15kHz /Nominal Power)	76dB
THD + N (0,25 Ohm/100Hz/LPF 15kHz/Nominal Power)	1% (Max)
THD + N (0,25 Ohm/100Hz/LPF 15kHz/50% of Nominal Power)	0.25%
THD + N (0,25 Ohm/100Hz/LPF 15kHz/10% of Nominal Power)	0.08%
Frequency Response (+/-3dB)	5Hz - 10kHz
Damping Factor (1Ohm @100Hz)	>30

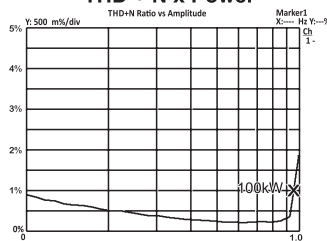
Frequency Response



THD + N x Frequency



THD + N x Power



Recommended Batteries - Impedance x Current:

Impedance Load	Minimum capacity of the battery*	Impedance Load	Minimum capacity of the battery*
0.25Ω	100Ah	0.50Ω	60Ah
0.33Ω	90Ah	0.80Ω	50Ah
0.40Ω	70Ah	-	-

*Minimum current per 100K HV EVO amplifier used in the system.

Recommended Batteries - Impedance x Power

Quant. Bat. Ω	0.25Ω	0.33Ω	0.40Ω	0.50Ω	0.80Ω	Quant. Bat. Ω	0.25Ω	0.33Ω	0.40Ω	0.50Ω	0.80Ω
7	15.876W	12.027W	9.230W	7.938W	4.961W	19	N/A	88.609W	73.103W	58.482W	36.551W
8	20.736W	15.709W	12.960W	10.368W	6.480W	20	N/A	98.182W	81.000W	64.800W	40.500W
9	26.244W	19.882W	16.403W	13.122W	8.201W	21	N/A	N/A	89.303W	71.442W	44.651W
10	32.400W	24.545W	20.250W	16.200W	10.125W	22	N/A	N/A	98.010W	78.408W	49.005W
11	39.204W	29.700W	24.503W	19.602W	12.251W	23	N/A	N/A	N/A	85.698W	53.561W
12	46.656W	35.345W	29.160W	23.328W	14.580W	24	N/A	N/A	N/A	93.120W	58.320W
13	54.756W	41.482W	34.223W	27.378W	17.111W	25	N/A	N/A	N/A	101.250W	63.281W
14	63.504W	48.109W	39.690W	31.752W	19.845W	26	N/A	N/A	N/A	N/A	68.445W
15	72.900W	55.227W	45.563W	36.450W	22.781W	27	N/A	N/A	N/A	N/A	73.811W
16	82.944W	62.836W	51.840W	41.472W	25.920W	28	N/A	N/A	N/A	N/A	79.380W
17	93.636W	70.936W	58.523W	46.818W	29.261W	29	N/A	N/A	N/A	N/A	85.151W
18	104.976W	79.527W	65.610W	52.488W	32.805W	30	N/A	N/A	N/A	N/A	91.125W

TERMO DE GARANTIA // LIMITED WARRANTY

Os produtos **SounDigital** possuem 12 (doze) meses de garantia contra defeitos de fabricação a contar da data de venda constante na nota ou cupom fiscal. Esta garantia somente será concedida se observadas as normas descritas abaixo:

Agarantia perderá sua validade nos seguintes casos:

- Defeito ou avaria proveniente de mau uso;
- Instalação errônea ou fora dos padrões estabelecidos no manual do produto;
- Manutenção por pessoal não autorizado pela **SounDigital**;
- Alteração ou rasura no lacre ou no número de série;
- Exposição à condições adversas (intempérie, umidade e etc.);
- Dano decorrente por queda ou impacto, desgaste natural ou de acidentes de transporte e/ou manuseio, riscos, quebras e amassamentos;
- Produtos com a data da venda superior a 12 (doze) meses.

Cobertura da Garantia:

- Peças ou materiais que venham a apresentar defeitos de fabricação;
- Serviços realizados em garantia dentro da rede de assistências técnicas autorizadas.

Observações:

- Na ocorrência de alguma anormalidade com seu equipamento, encaminhe o produto, acompanhado da nota fiscal de venda, à uma de nossas assistências autorizadas. A relação das nossas assistências autorizadas, está disponível no nosso site www.soundigital.com ou pelo telefone **(51) 3042-9001**;
- No caso de defeito do produto por falha de fabricação ou matéria prima, a indenização máxima cabível será a reposição do mesmo, não cabendo à SounDigital o pagamento de qualquer indenização;
- Eventuais modificações no produto não obrigam a fábrica a atualizar os produtos anteriormente fabricados;
- A garantia é de uso exclusivo do primeiro comprador;
- Antes do envio do produto à nossa rede assistencial, verifique criteriosamente a instalação a fim de certificar-se que o problema é realmente no equipamento. Em caso de dúvida, consulte nosso departamento através do e-mail sac@soundigital.com ou contato no WhatsApp **(51) 99479-1053**;
- No caso de envio do produto até a assistência, o mesmo deverá ser devidamente embalado, assegurando o máximo de proteção e integridade física para não haver risco de danos durante o transporte.

SounDigital warrants the original purchaser that this product shall be free of defects in materials and workmanship for a period of twelve (12) months from the original date of purchase. Some countries have extended warranty in case the product is installed by an authorized dealer.

This warranty is not transferrable and applies only to the original customer purchasing a current model product from an authorized **SounDigital** dealer.

In case of manufacturing defect or bad quality of raw material, the max compensation will be the replacement of the product, not allowing any kind of compensation payment.

Warranty is void when:

- Defect or problem caused by misuse of the product;
- Incorrect installation or non-conformity with the Manual;
- Maintenance made by unauthorized personnel;
- Alteration or removal of the seal/serial number;
- Exposure to adverse conditions (weather, humidity, liquids, etc);
- Damage caused by fall, impact or natural depreciation, caused by transport and/or handling, risks, or smashings;
- Products purchased more than 12 months ago.

Steps to Obtain Warranty Service:

If you need service on your SounDigital product, send it to SounDigital's Amplifier Repair Center through an authorized SounDigital dealer (must be accompanied by proof of purchase);

Any extra information you can get by contacting us at the e-mail address: info@soundigitalusa.com.



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