

USER MANUAL MANUALE D'USO

HD 6045EN

- HORN SPEAKER IN COMPLIANCE WITH EN 54-24 STANDARD
- DIFFUSORE ACUSTICO A TROMBA CONFORME ALLA NORMA EN 54-24



**IMPORTANT NOTES**

Before connecting and using this product, please read this instruction manual carefully and keep it on hand for future reference. This manual is to be considered an integral part of this product and must accompany it when it changes ownership as a reference for correct installation and use as well as for the safety precautions.

RCF S.p.A. will not assume any responsibility for the incorrect installation and / or use of this product.

SAFETY AND OPERATING PRECAUTIONS

1. All the precautions, in particular the safety ones, must be read with special attention, as they provide important information.

2. Speaker lines (amplifier outputs) can have a sufficiently high voltage (i.e. 100-70 V) to involve a risk of electrocution: never install or connect this speaker when the line is alive.

3. Make sure all connections have been made correctly and the speaker input voltage is suitable for the amplifier output.

4. Protect speaker lines from damage. Make sure they are positioned in a way that they cannot be stepped on or crushed by objects.

5. Make sure that no objects or liquids can get into this product, as this may cause a short circuit.

6. Never attempt to carry out any operations, modifications or repairs that are not expressly described in this manual.

Contact your authorized service centre or qualified personnel should any of the following occur:

- The speaker does not function (or works in an anomalous way).
- Its cable has been damaged.
- Objects or liquids have got into the unit.
- The speaker has been damaged due to heavy impacts or fire.

7. Should the speaker emit any strange odours or smoke, remove it from the line after having immediately switched the amplifier off.

8. Do not connect this product to any equipment or accessories not foreseen.

For suspended installation, only use the dedicated anchoring points and do not try to hang this speaker by using elements that are unsuitable or not specific for this purpose. Also check the suitability of the support surface to which the product is anchored (wall, ceiling, structure, etc.) and the components used for attachment (screw anchors, screws, brackets not supplied by RCF etc.), which must guarantee the security of the system / installation over time, also considering, for example, the mechanical vibrations normally generated by transducers.

9. **RCF S.p.A.** strongly recommends this product is only installed by professional qualified installers (or specialised firms) who can ensure a correct installation and certify it according to the regulations in force.

The entire audio system must comply with the current standards and regulations regarding electrical systems.

10. Mechanical and electrical factors need to be considered when installing a professional audio system (in addition to those which are strictly acoustic, such as sound pressure, angles of coverage, frequency response, etc.).

IMPORTANT NOTES

11. Hearing loss

Exposure to high sound levels can cause permanent hearing loss. The acoustic pressure level that leads to hearing loss is different from person to person and depends on the duration of exposure.

To prevent potentially dangerous exposure to high levels of acoustic pressure, anyone who is exposed to these levels should use adequate protection devices.

When a transducer capable of producing high sound levels is being used, it is necessary to wear ear plugs or protective earphones.

See the technical specifications in the user manual to know the maximum sound pressure the speaker is capable of producing.

12. To ensure a correct sound reproduction, speaker phase is to be respected (speakers shall be connected respecting the amplifier polarity). This is important when speakers are installed adjacent one another, for instance, in the same room.

13. To prevent inductive effects from causing hum, noise and a bad system working, speaker lines should not be laid together with other electric cables (mains), microphone or line level signal cables connected to amplifier inputs.

14. The speaker cable shall have wires with a suitable section (twisted, if possible, to reduce inductive effects due to surrounding electro-magnetic fields) and a sufficient electrical insulation. Refer to local regulations since there may be additional requirements about cable characteristics.

15. Install this speaker far from any heat source.

16. Do not use solvents, alcohol, benzene or other volatile substances for cleaning the external parts of this product. Use a dry cloth.

RCF S.P.A. THANKS YOU FOR PURCHASING THIS PRODUCT, WHICH HAS BEEN DESIGNED TO GUARANTEE RELIABILITY AND HIGH PERFORMANCE.

DESCRIPTION



HD 6045EN is a horn speaker in compliance with EN 54-24 standard.

Main features:

- Fiberglass enclosure.
- Four 50 W drivers (overall power: 200 W).
- It can be connected to a 100 V / 70 V line through a ceramic terminal strip.
- Thermal fuse that prevents damage to the audio line due to heat on the speaker.
- Steel bracket.

HD 6045EN horn loudspeakers can be easily aimed and used in sounds systems having large spaces, for instance car parks, football stadiums, undergrounds, factories, warehouses, etc. and also in all environments that need high efficiency loudspeakers.



WARNING: MAKE SURE THAT THE SPEAKER IS INSTALLED IN A STABLE AND SECURE WAY IN ORDER TO AVOID ANY CONDITIONS THAT MAY BE DANGEROUS FOR PERSONS OR STRUCTURES.

ENSURE THE SUPPORT SURFACE HAS THE NECESSARY MECHANICAL CHARACTERISTICS TO SUPPORT THE SPEAKER WEIGHT. BEFORE INSTALLING THE SPEAKER, CAREFULLY CHECK ALL COMPONENTS TO BE USED AND MAKE SURE THERE IS NO DAMAGE, DEFORMATION, CORROSION AND/OR MISSING OR DAMAGED PARTS THAT COULD REDUCE THE SAFETY OF THE INSTALLATION.

THIS LOUDSPEAKER CAN BE INSTALLED BOTH INDOORS AND OUTDOORS.

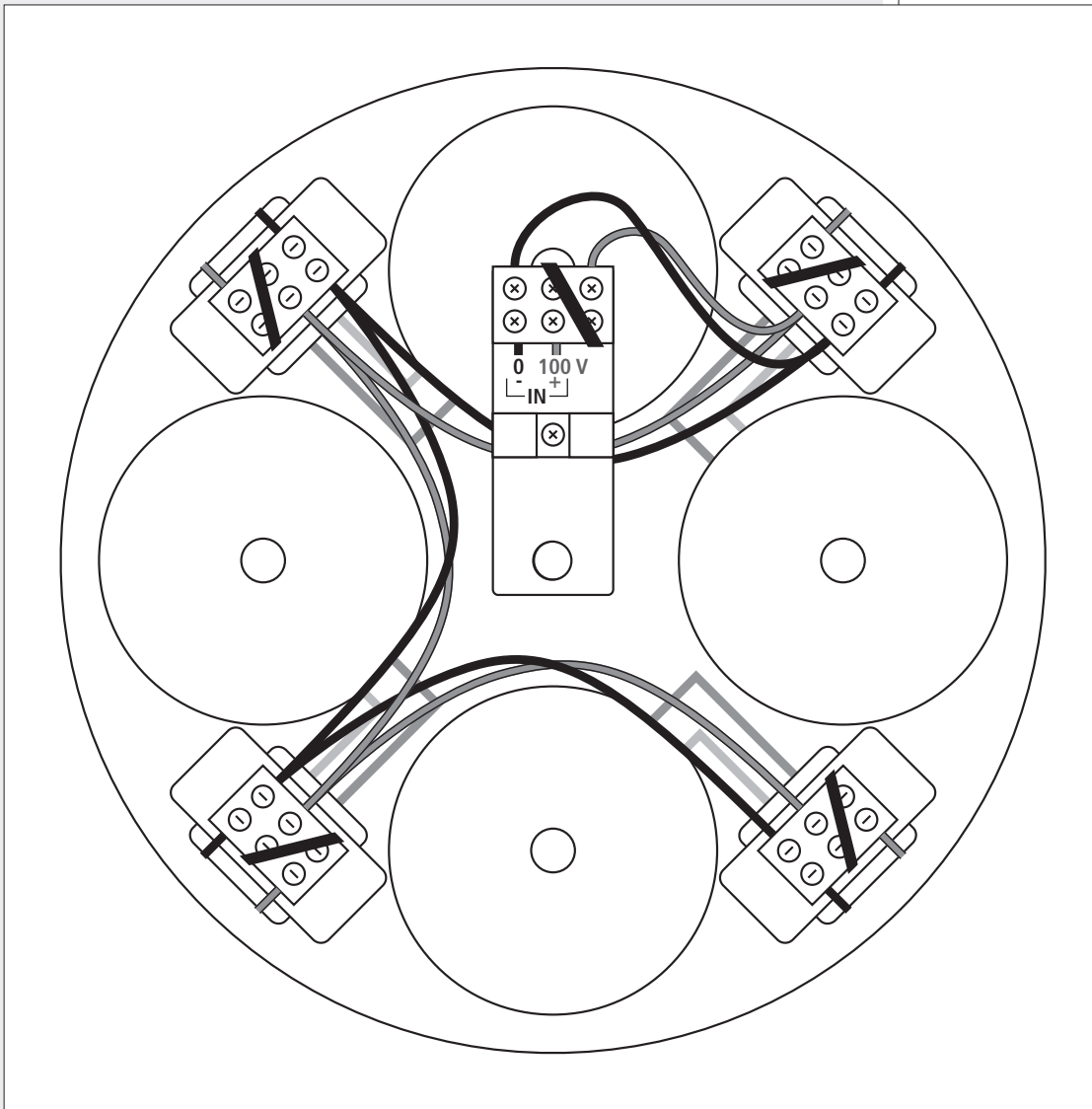
Speaker connections should be only made by qualified and experienced personnel having the technical know-how or sufficient specific instructions to ensure that are made correctly and prevent any electrical danger.

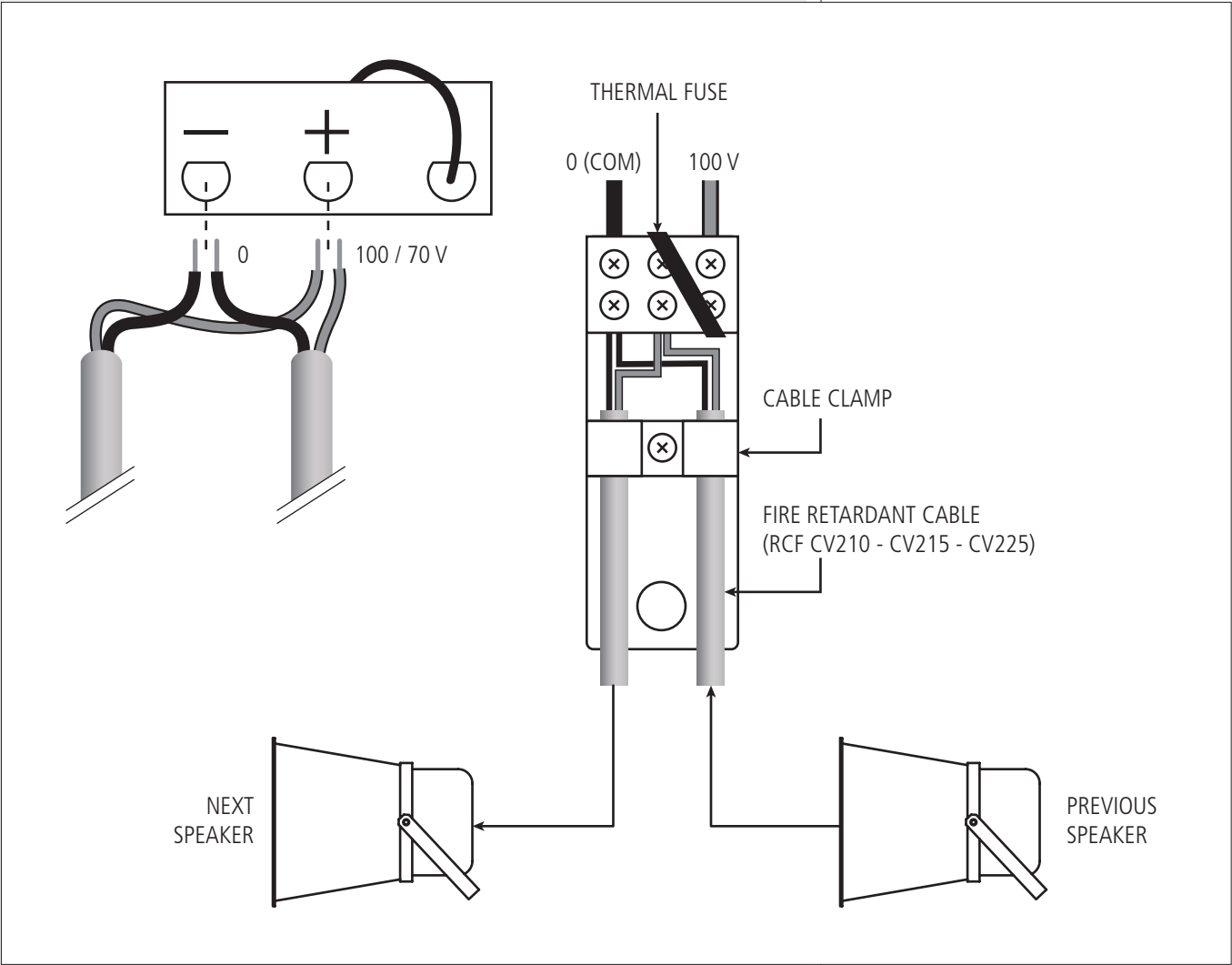
To prevent any risk of electric shock, do not connect speakers when the amplifier is switched on. Before turning the system on, check all connections and make sure there are no accidental short circuits.

The entire sound system shall be designed and installed in compliance with the current local laws and regulations regarding electrical systems.

Remove its back case (by unscrewing all its screws). Connect the 100 V / 70 V line to the ceramic terminal strip as shown in the following figures.

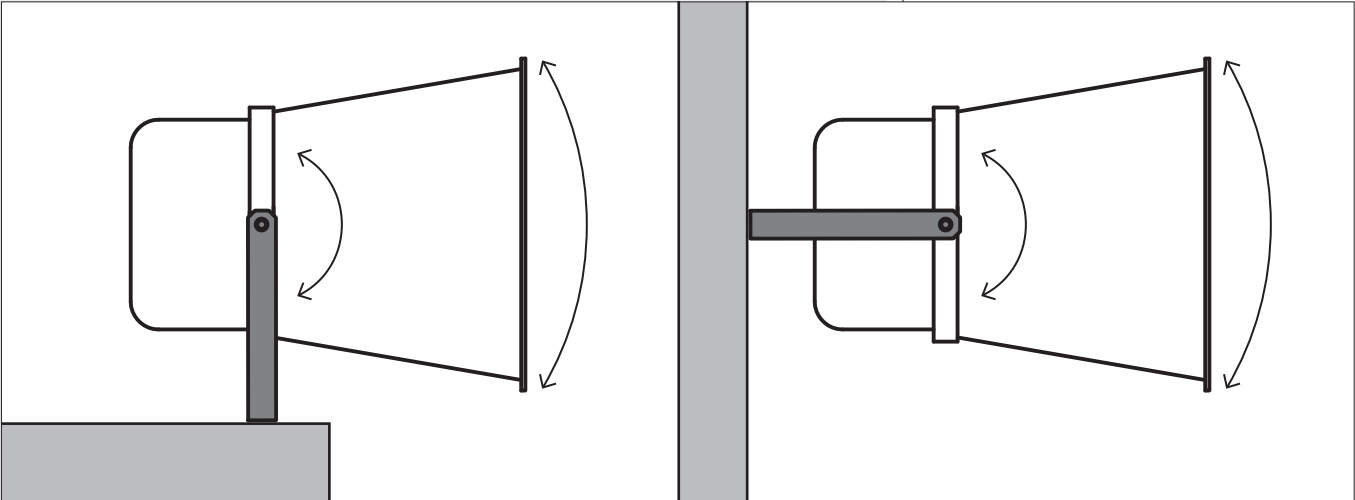
The ceramic terminal strip can also be used (if necessary) as parallel output to link the next speaker.





Refit the back case, taking care not to cut the wires.
Match holes and fastening screws properly, then insert and tighten the screws.

Fix the speaker with suitable wall plugs having screws / bolts passing through the (ø 12.5 mm) holes on its mounting bracket.

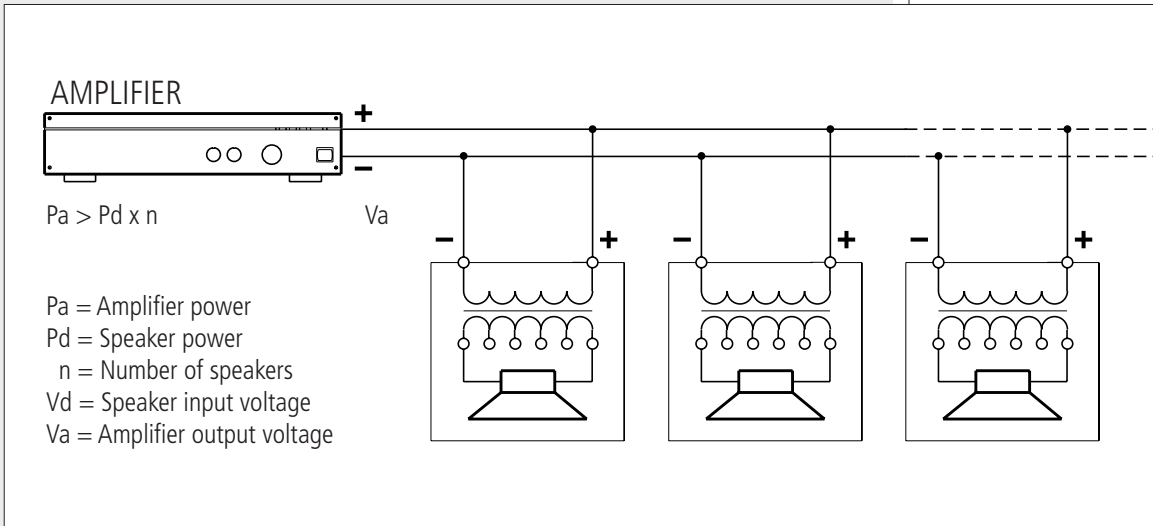


Aim the horn speaker to the listening area and fix its position by tightening the two bolts of its mounting bracket.

GENERIC NOTES ABOUT CONSTANT VOLTAGE SYSTEMS



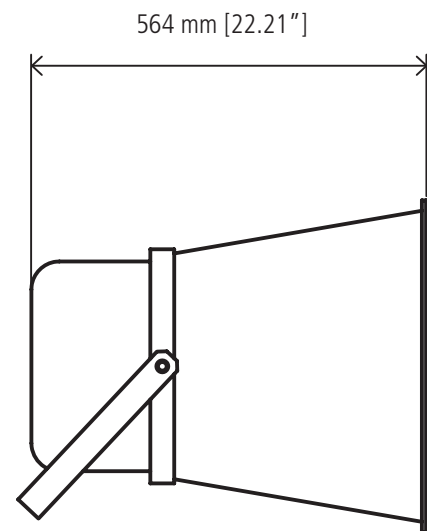
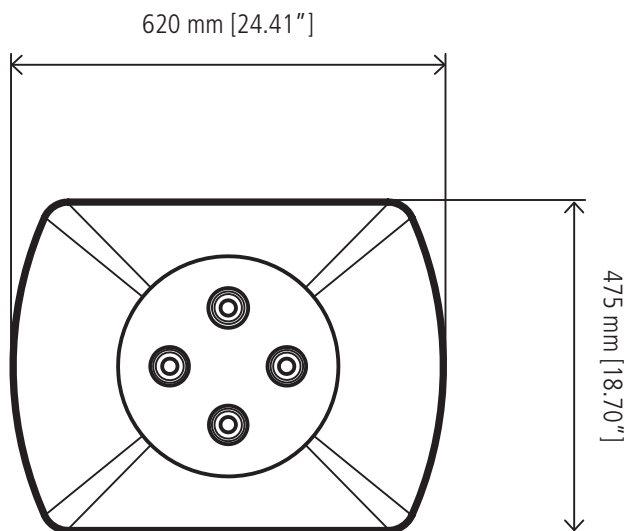
- The speaker input voltage (V_d) shall correspond to the amplifier output voltage (V_a).
- The sum of nominal power values ($P_d \times n$) of all speakers connected to the line shall not exceed the amplifier power (P_a).
- Make sure all speakers are connected in phase to ensure a correct sound reproduction.



- Always use cables having wires with an adequate cross-section, considering the cable length and the total speaker power. In sound systems for emergency purposes ('Voice Alarm' systems), only use fire retardant cables (i.e. RCF CV210, CV215 or CV225).
- Speaker lines must be kept separated from mains cable, microphone cables or others, in order to avoid inductive phenomena may cause hum or noises.
- Use speaker cables having twisted wires to reduce hum caused by inductive effects due to coupling with electromagnetic fields.



Type:	horn speaker in compliance with EN 54-24 standard
Transducers:	4 x 50 mm (2") horn loaded compression driver units
Input voltage:	100 V (/ 70 V)
Input connector:	ceramic terminal strip
Power (100 V line):	200 W (100 W if connected to a 70 V line)
Input impedance:	50 Ω (100 V, 200 W)
Frequency response:	200 Hz \div 10 kHz (-10 dB)
Sensitivity ⁽¹⁾:	110 dB SPL
Max SPL ⁽²⁾:	133 dB continuous average (139 dB peak)
EN 54-24 Sensitivity ⁽³⁾:	91 dB SPL
EN 54-24 Max SPL ⁽⁴⁾:	114 dB continuous average (120 dB peak)
Opening angle:	60° (h), 50° (v)
Enclosure material:	fiberglass
Colour:	white
Dimensions (without bracket):	620 mm (w), 475 mm (h), 564 mm (d) [24.41" (w), 18.70" (h), 22.21" (d)]
Net weight:	21.4 kg [46.4 lbs]
Shipping weight:	23.6 kg [51.1 lbs]



⁽¹⁾ Sensitivity is measured in full space (free field) with pink noise signal (band limited: 100 Hz \div 10 kHz) without any equalization, 1 W power (7.1 V on 50 Ω) at 1 m distance.

⁽²⁾ Max. SPL average is measured as ⁽¹⁾, but with 200 W power (100 V on 50 Ω), maximum peak SPL is given by considering double input voltage.

⁽³⁾ Sensitivity is measured in full space (free field) with pink noise signal (band limited: 100 Hz \div 10 kHz) per EN 54-24 spectrum and the suggested equalization ⁽⁵⁾, 1 W power (7.1 V on 50 Ω) at 4 m distance.

⁽⁴⁾ Max SPL average is measured with the suggested equalization ⁽⁵⁾, 200 W power (100V on 50 Ω), maximum peak SPL is given by considering double input voltage.



EN 54-24 correction through a 1/3-octave graphic equalizer

Freq [Hz]	Level (dB)
100	-30
125	-11
160	-3
200	0
250	-1
315	0
400	-1
500	-2
630	-4
800	-6
1000	-9
1250	-10
1600	-9
2000	-8
2500	-6
3150	-2
4000	3
5000	6
6300	7
8000	2
10000	-11

EN 54-24 correction through a parametric equalizer

Freq (Hz)	Level [dB]	BW (Q)
1200	-10	1BW (1.414)
6100	10	1BW (1.414)
2500	-6	1BW (1.414)

⁽⁶⁾ To be compliant with EN 54-24:2008, one of the above equalization corrections shall be applied.

Except possible errors and omissions.
RCF S.p.A. reserves the right to make modifications without prior notice.

Salvo eventuali errori ed omissioni.
RCF S.p.A. si riserva il diritto di apportare modifiche senza preavviso.

HEADQUARTERS:

RCF S.p.A. Italy
tel. +39 0522 274 411
e-mail: info@rcf.it

RCF UK
tel. 0844 745 1234
Int. +44 870 626 3142
e-mail: info@rcfaudio.co.uk

RCF France
tel. +33 1 49 01 02 31
e-mail: france@rcf.it

RCF Germany
tel. +49 2203 925370
e-mail: germany@rcf.it

RCF Spain
tel. +34 91 817 42 66
e-mail: info@rcfaudio.es

RCF Belgium
tel. +32 (0) 3 - 3268104
e-mail: belgium@rcf.it

RCF USA Inc.
tel. +1 (603) 926-4604
e-mail: info@rcf-usa.com



www.rcfaudio.com