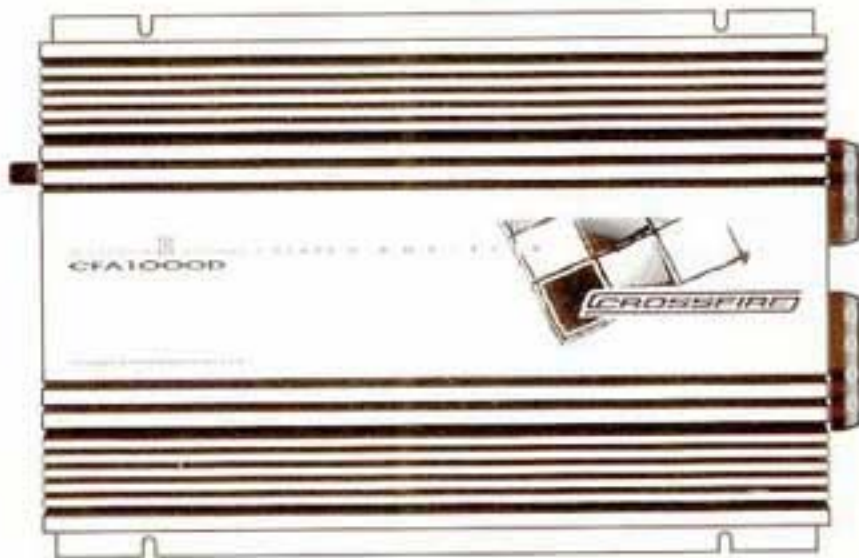


INSTALLATION MANUAL

CLASS "D"

Amplifier

MODEL : CFA1000D



Thank you and congratulations for choosing **CROSSFIRE** mobile audio for your amplification needs. **CROSSFIRE** amplifiers have been significantly improved throughout the years to assure quality and reliability. Our goal is to incorporate the latest in technology into every **CROSSFIRE** product providing you with incredible power and unparalleled sound quality. Simple, yet highly developed circuitry contributes to low distortion and the ultimate in efficiency. This is why we are confident that your new **CROSSFIRE** amplifier will provide you with a sound value you will enjoy for years to come.

FEATURES

- Class "D" Technology
- Fully 1 Ohm Stable Operation
- Military Spec Audiophile Grade Components
- High Efficiency PWM Power Supply
 - Multi-stranded power torroid
 - Oversized torroidial core
 - MOSFET transistors
- Oversized Capacitor Banks
- Discrete Mount Power and Speaker Terminals
- Variable Lowpass Electronic Crossover
- Variable Subsonic Filter
- RCA Preamp Output
- 5 Way Protection Circuitry
- Soft Remote On/Off Circuitry
- Digital Subwoofer Level Control
- Two Year Limited Warranty

MODEL	CFA1000D
RMS POWER / 4 ohms @.08% T.H.D.	250W x 1
2 ohms @ .4% T.H.D.	500W x 1
1 ohm @ 1% T.H.D.	1000W x 1
Efficiency / Typical @ 4 ohms	86%
Worst Case @ 1 ohm	72%
Bandwidth \pm 3dB	10Hz ~ 250Hz
Signal To Noise	>90dB
Damping Factor	200
Input Sensitivity	240 mV ~ 4V
Input Impedance	20K ohms
Circuit Breaker	120 Amp
Dimensions	9.6"W x 2"H x 13"L
CROSSOVER	
Low Pass	Variable 50 ~ 250Hz
X-Over Slope	12dB
Variable Subsonic Filter	Variable 20 ~ 50Hz @ 12dB

All Specifications are with 12.5 volts DC. Typical output with 14.4 volts DC is 15% higher.

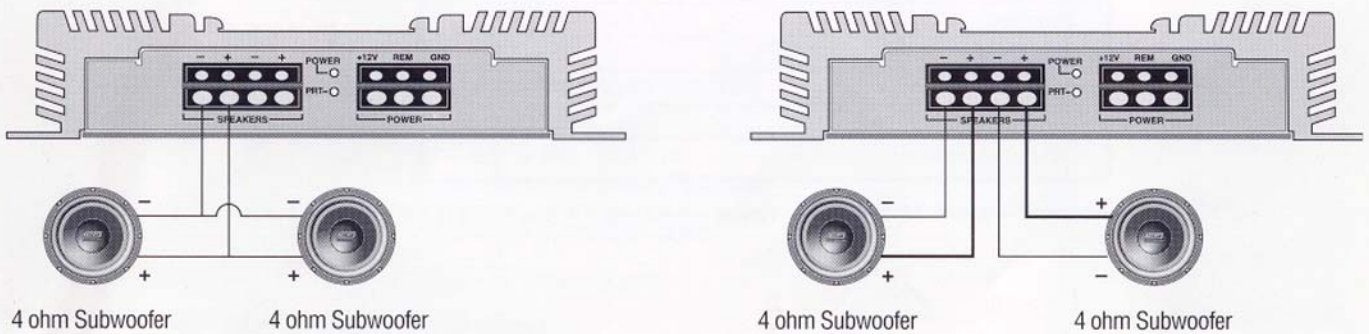
IMPORTANT

PLEASE READ ALL INSTRUCTIONS BEFORE INSTALLATION !

The quality of installation may affect the performance and reliability of your **CROSSFIRE** product. If you have any doubts or questions regarding installation, you may wish to contact your authorized **CROSSFIRE** dealer. Remember to heed all wire and fuse requirements suggested in this manual. Warranty may be void if proper installation technique is not used (refer to warranty section in the rear of this manual).

OPERATION

The **CROSSFIRE** CFA1000D is a **SINGLE CHANNEL** dedicated subwoofer amplifier. Unlike other **CROSSFIRE** amplifiers (except the CFA390M), the CFA1000D operates as a single channel and cannot be bridged. Don't be fooled by the outputs. Two outputs are used strictly for convenience and are paralleled internally on the amplifier. This means that if both outputs are used with one driver each, the amplifier sees the same load as if the two same drivers are connected to only one output terminal. See diagram below.

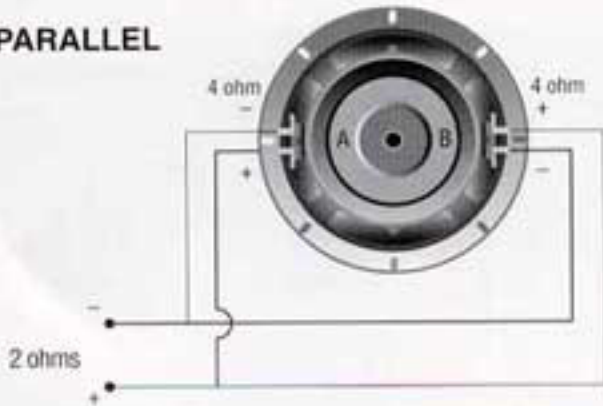


In both diagrams, the amplifier sees a 2 ohm load.

The CFA1000D will reach its maximum potential output into a 1 ohm load. A 1 ohm load can be achieved in a variety of combinations. Some of the more common are listed below.

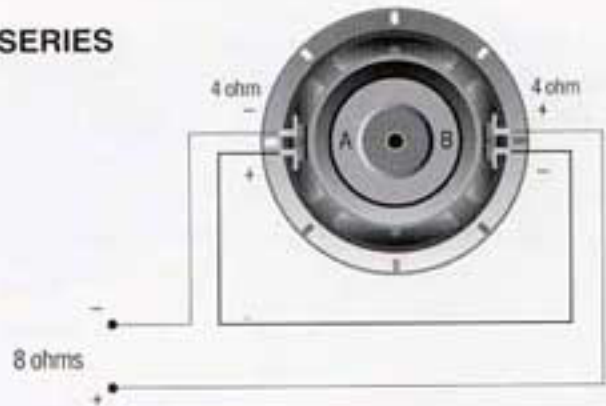
- (2) 4 ohm DVC subwoofers in parallel = 1 ohm
- (4) 4 ohm subwoofers in parallel = 1 ohm
- (8) 8 ohm subwoofers in parallel = 1 ohm

PARALLEL



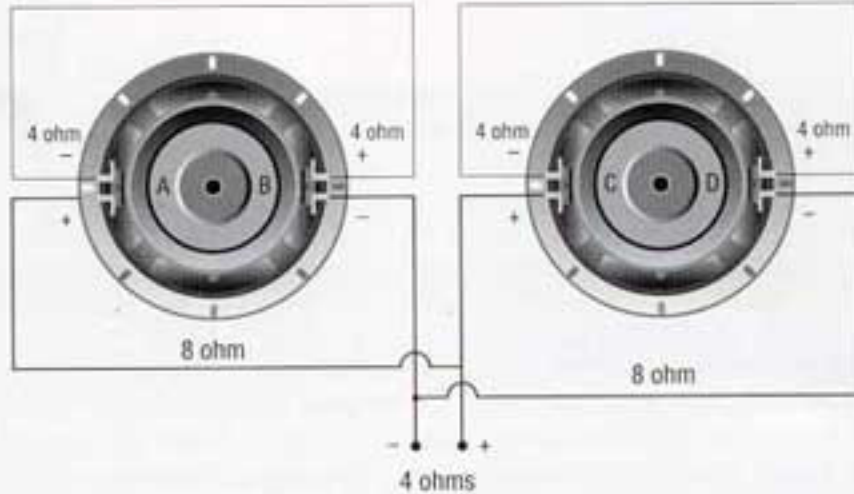
$$\text{Equation} = \frac{A \times B}{A + B} = \frac{4 \times 4}{4 + 4} = \frac{16}{8} = 2 \text{ ohms}$$

SERIES



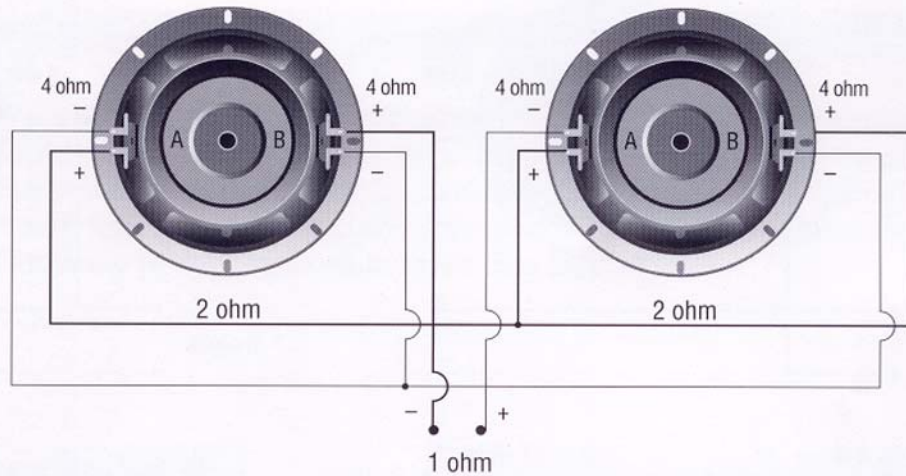
$$\text{Equation} = A + B = 4 + 4 = 8 \text{ ohms}$$

**SERIES/
PARALLEL WIRING**



$$\text{Equation} = \frac{(A + B) \times (C + D)}{A + B + C + D} = \frac{(4 + 4) \times (4 + 4)}{4 + 4 + 4 + 4} = \frac{8 \times 8}{16} = \frac{64}{16} = 4 \text{ ohms}$$

**PARALLEL/
PARALLEL WIRING**



$$\text{Equation} = \frac{\sqrt{(A \times B) (C \times D)}}{(A + B) + (C + D)} = \frac{\sqrt{(4 \times 4) (4 \times 4)}}{(4 + 4) + (4 + 4)} = \frac{\sqrt{(16) (16)}}{8 + 8} = \frac{\sqrt{256}}{16} = \frac{16}{16} = 1 \text{ ohm}$$

Remember, the CFA1000D is quite capable of supplying over 1000 watts of power so please consult your local **CROSSFIRE** dealer for subwoofer applications.

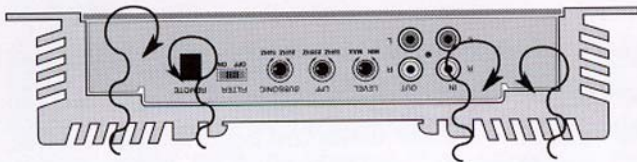
MOUNTING

Appropriate mounting is very important for prolonged life expectancy of any amplifier. Select a location of applicable space that allows sufficient airflow and provides protection from moisture. Keep in mind that an amplifier should never be mounted upside down. Upside down mounting will compromise heat dissipation through the heatsinks and will engage the thermal protection circuit much sooner. Excessive heat will shorten your amplifier's life. To maximize heat dissipation, be sure to leave at least 2.5 inches of clearance around the amplifier. Fans should be used in correspondence with an escape duct for the heat when mounting the amplifier in an enclosed or restricted area.

Avoid slipping and scratching your new **CROSSFIRE** amplifier by predrilling the mounting holes with either a #29 or 9/64" diameter drillbit when using the screws supplied in the accessory kit. Be sure to investigate your mounting area thoroughly for electrical wires, vacuum lines, and brake or fuel lines to prevent any expensive mistakes.

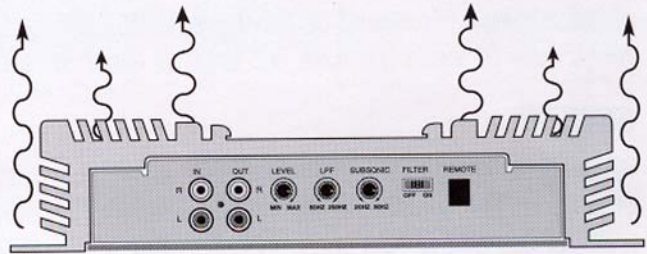
✗ IN CORRECT MOUNTING

Heat is trapped in side of the amplifier, shortening the life of the electronic components



○ CORRECT MOUNTING

Heat is lifted from the amplifier.



POWER SUPPLY CONNECTIONS

The **CROSSFIRE** CFA1000D is designed to work within 10 to 16 volts DC. Before any wires are connected, the vehicle's electrical system should be checked for correct voltage supply with the help of a voltmeter. First check the voltage at the battery terminals with the ignition in the off position. The voltmeter should read no less than 12 volts. Next, check the battery with the engine running between 1500 and 2000 rpm. The voltmeter should now read between 13.5 and 14.5 volts. If your vehicle's electrical is not up to these specifications, we recommend having it checked by an automotive mechanic before you further the installation.

RECOMMENDED POWER WIRE

The proper wire size is very important for an amplifier of this power level. Because the CFA1000D is capable of drawing in excess of 120 amperes, **CROSSFIRE** recommends 4 gauge wire for lengths up to twenty feet. If a longer length is needed, a larger gauge wire may be necessary.

POWER

All **CROSSFIRE** amplifiers power wire should be wired directly to the battery using the wire requirements listed above. Start at the amplifier and run the power wire through the vehicle to the battery. **CROSSFIRE** recommends the use of grommets when passing the power wire through any metal wall. Avoid sharp corners or sharp body parts that may easily cut through the insulation on the wire. Avoid running the power wire over engine components and near heater cores. Use an inline fuse to eliminate the risk of a fire caused by a short in your power wire. Connect the fuse holder as close to the battery positive as possible. For most applications, an 80 ampere Maxi fuse or comparable ANL wafer fuse can be used. Now connect the wire to the battery, but remember to leave the fuse out until all other wire connections are made.

GROUND

When grounding your **CROSSFIRE** amplifier, locate a metal area close to the amplifier that is a good source of ground (preferable the floor). Once again, investigate the area you wish to use for electrical wires, vacuum lines, and brake or fuel lines. Using either a wire brush or sandpaper, eliminate unwanted paint to supply a better contact for your ground. Use the same gauge wire for ground as you did for the power. Terminate the ground wire using the correct size ring terminal and attach it to the bare metal using a nut and bolt. It is important for this connection to be solid. To complete the job, spread silicon over the screw and bare metal to prevent rust and possible water leaks.

Now it's time to connect the power and ground wires to the amplifier. Use a 3mm Allen key to loosen the +12v and the gnd set screws on the amplifier. Cut both wires to length. Strip approximately 1/2 inch of insulation from both wires and insert them in the correct terminals. Tighten the set screws down securely. Check your connection by giving the wires a slight tug.

REMOTE TURN-ON

In between the power and ground is a remote turn-on terminal. This terminal must be connected to a switched +12 volt source. Typically, remote turn-on leads are provided at the source unit that will turn on and off the amplifier in correspondence with the source. If a radio does not have a remote turn-on, then a power antenna wire may be used. Yet, if neither of these leads are available at the source, a switched +12 volt supply must be supplied.

Run a minimum of 18-gauge wire from the amplifier location to the source of the switched +12 volt lead. If possible, route this wire on the same side of the vehicle as your power wire. Connect the source remote output to the wire. Back at the amplifier, loosen the setscrew for the terminal marked **REM** on the amplifier using a 3mm Allen key. Cut the remote wire to length. Strip approximately 1/2 inch of insulation from the end of the wire and insert into the terminal. Tighten the screw securely.

SPEAKER OUTPUT

WIRING

Due to the power output and low frequency bandwidth of the CFA1000D, **CROSSFIRE** recommends the use of 12 gauge wire. Route these wires using the same precautions as you did when you ran the power wires. Terminate the wires at the speaker end using insulated speaker terminals (not supplied) or by soldering the connection. Make sure the speaker connections are positive to positive and negative to negative. At the amplifier end, cut the wires to the appropriate length. Use a 3mm Allen key to loosen the setscrew for the speaker output connections. Strip off approximately 1/2 inch of insulation from the end of the wire and insert into the correct terminal. Tighten the setscrew securely. Check to make sure you've maintained proper polarity.

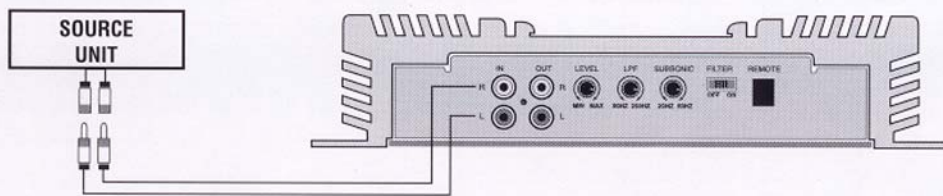
SIGNAL INPUTS & OUTPUTS

Located on the left side of the amplifier are two sets of RCA line level receptacles. Marked **IN**, these receptacles accept signal from the outputs of the source unit via RCA patch cables. The remaining receptacles, marked **OUT**, are full-range preamp outputs allowing for easy daisy chaining of amplifiers with minimal signal loss.

LINE LEVEL CONNECTIONS

Choose the correct length and style of RCA patch cables for your needs. Better RCA's usually have multiple layers of shielding and/or twisted pair wiring for better noise rejection (consult your dealer).

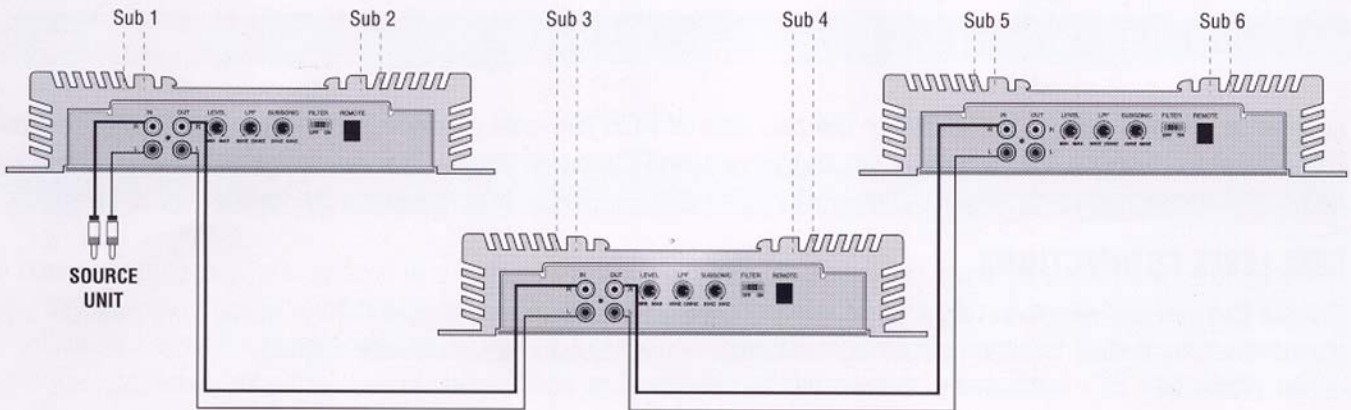
Be extra careful when running your RCA patch cables. Car environments are notorious for poorly insulated wires. This means that hiss, engine noise, and fan noise can easily be picked up through RCA cables if ran incorrectly. To avoid picking up noise, run the RCA's away from large wire looms and electric fans if possible. Be sure to position your patch cables on the opposite side of the vehicle as you did the power wire. Keep in check the balance (red is right and black or white is left) on both the source unit and the amplifier is correct.



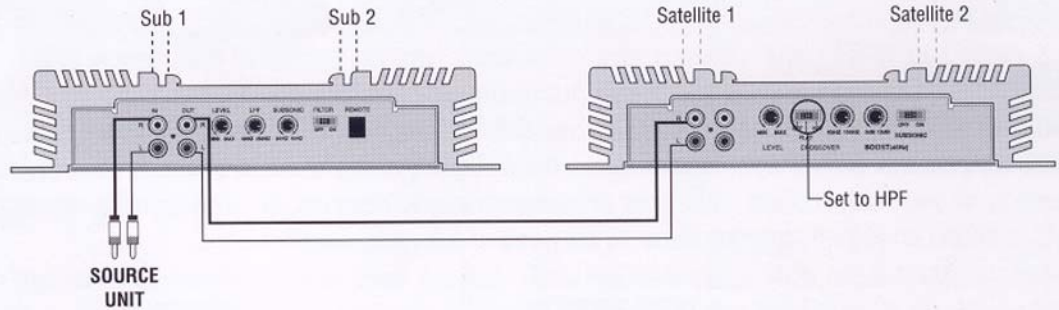
PREAMP OUTPUTS

As mentioned above, the preamp outputs simply allow for easy daisy chaining of amplifiers with minimal signal loss. This feature can be used in a couple different variations as shown below. Please note that the signal passing through these outputs is **not affected** by the gain control of the amplifier.

EXAMPLE 1



EXAMPLE 2



GAIN CONTROL

Next to the preamp outputs on the left panel of the amplifier, is the gain control (marked *level*). This control allows you to match the input level of the amplifier to the output level of your source unit or signal processor. Matching the input can be accomplished in three simple steps:

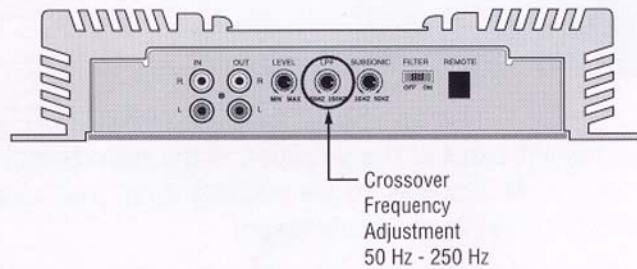
1. Turn gain control all the way down.
2. Turn on the source unit and adjust to 2/3 of max volume.
3. Adjust the gain control until desired volume is achieved without audible distortion

Remember, the gain control is not a volume knob. Ignoring the three steps above may leave you with damaged speakers and possibly a damaged amplifier.

FEATURES

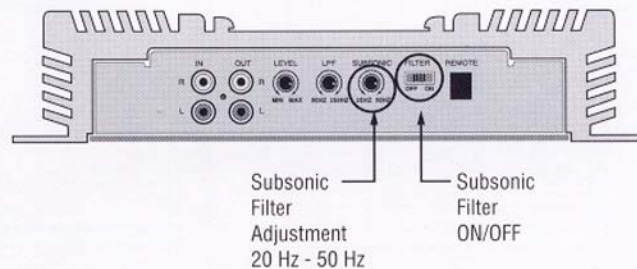
CROSSOVER

On the left side of your CFA-1000D is a variable dial marked LPF (low-pass filter). This is your relative lowpass crossover point. Set the crossover accordingly by adjusting the dial to meet the recommended crossover frequency of your subwoofers. No, this crossover cannot be shut off. The circuitry of this amplifier does not create a broad enough frequency band to be used in full-range applications.



SUBSONIC FILTER

The subsonic filter substantially decreases oscillation that may occur below the audible range. This oscillation or noise induced by poor RCA patch cables, ground problems, power supplies, and/or mismatched components and may cause the amplifier to draw unnecessary current. By switching the subsonic filter to the ON position, you have activated a variable 12dB high-pass crossover (subsonic filter) between 20Hz and 50Hz greatly reducing oscillation. Normal audio systems need not vary the subsonic filter above 20Hz. On the other hand, large SPL systems may choose a frequency between 30Hz and 50Hz, dependant on the system resonance frequency, to greatly reduce energy wasting music or noise for competitions.



REMOTE LEVEL CONTROL

Included with the CFA1000D is the CFR-D digital, remote subwoofer level control. The CFR-D can easily be mounted under the dash, in a glove box or other accessible place for maximum control over your subwoofer volume. Simply place one end of the 18ft. cable into the amplifier and run the other end to the placement of the CFR-D. Use the CFR-D as a template and drill four 1/8" holes for mounting. Use the screws supplied to mount the unit. Place the six-prong plug into the back of the unit.

Set the level control on the amplifier slightly higher than needed. This will give you a little extra bass on those days where you just need it. Now the CFR-D is adjustable from the set point of the level control on the amplifier and below. The level control is digital, so pressing the up or down buttons will adjust the amplifier outputs in small increments.

Enjoy the music!

CROSSFIRE

CROSSFIRE

CROSSFIRE LIMITED WARRANTY

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. This Warranty is only valid on **CROSSFIRE** products purchased in the U.S.A. from an authorized **CROSSFIRE** dealer. All **CROSSFIRE** products are warranted to be free from defects in materials and workmanship under normal use and serviced for a period of (2) years when the unit is installed by an authorized **CROSSFIRE** dealer. Non-authorized dealer installed products carry a (1) year parts and labor limited warranty. The extent and conditions of **CROSSFIRE**'s limited warranty are as follow:

I. **CROSSFIRE** will either repair or replace (at its option) any unit which **CROSSFIRE** has examined and found to be defective and under warranty, to the original purchaser, provided the defect occurs within (2) years of the date of purchase when the unit is installed by an authorized **CROSSFIRE** dealer. This warranty includes both parts and labor and applies to the original purchaser only.

II. **CROSSFIRE** will either repair or replace (at its option) any unit which **CROSSFIRE** has examined and found to be defective and under warranty, to the original purchaser, provided the defect occurs within (1) years of the date of purchase when the unit is installed by a non-authorized **CROSSFIRE** dealer. This warranty includes both parts and labor and applies to the original purchaser only.

III. This warranty will be void to any unit found with the original factory serial number removed, altered or defaced. All units received by **CROSSFIRE** for warranty with their original serial numbers removed will not be repaired and returned to sender freight collect.

IV. The provisions of this warranty shall not apply to products used for any industrial, professional or commercial purposes or any other uses for which it was not designed.

V. This warranty does not cover costs for removal of product for repair or reinstallation of the product after repair, nor does it cover the cost of returning the product to **CROSSFIRE**'s service center for repair.

VI. This warranty does not apply to repairs or replacements necessitated by any cause beyond the control of **CROSSFIRE** including, but not limited to, any malfunction, defect or failure caused by or resulting from unauthorized service or parts, improper maintenance, operation contrary to furnished instructions, shipping or transit accidents, incorrect power line voltages, fire, flood or any other acts of nature, or normal wear and tear.

VII. The foregoing is in lieu of all other expressed warranties and **CROSSFIRE** does not assume or authorize any party to assume for it any other obligation or liability. The duration of any warranties which may be implied by law (including the warranties of merchantability and fitness) is limited to the term of this warranty. In no event shall **CROSSFIRE** be liable for special, incidental or consequential damages arising from obligations under this warranty due to cause beyond its control. Some states do not allow limitations on how long an implied warranty lasts and/or do not allow the exclusions or limitation of consequential damages, so the above limitations and exclusions may not apply to you.

VIII. Return Policy

Your unit will be serviced free of charges on an in-warranty basis only. If improper operation occurs, contact your authorized **CROSSFIRE** dealer for assistance with the return and factory repair of your **CROSSFIRE** product. If an authorized **CROSSFIRE** dealer is not available, the following procedure must be followed: phone (562-483-8111) or fax (562-483-8106) in your name, address, telephone number and the model number of the item to be returned to receive a return authorization number. Your return authorization number must be clearly written on the outside of the packing box returned to **CROSSFIRE**. All returned products must be accompanied by a dated purchase invoice or the product may be subject to costs of parts and labor. Return the unit, prepaid postage, in the original protective carton or a carton with ample protection. Please include a brief description of the problem and send your repair to:

CROSSFIRE
12737 Moore Street,
Cerritos, CA 90703

CROSSFIRE

**12737 Moore Street,
Cerritos, CA 90703**