

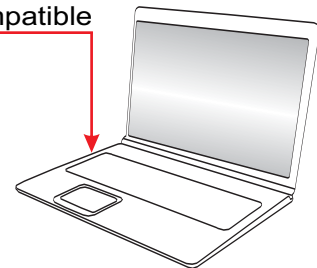


XJ-1000FR USER MANUAL

2 CHANNELS / 1000 WATTS /
HIGH EFFICIENCY / CLASS "J" /
FULL RANGE AMPLIFIER



PC & MAC Compatible



A Thank You Note.

Thank you for purchasing this XJ-1000FR amplifier. Designed to exceed all your expectations for audio amplification, the XJ-1000FR is a ruggedly constructed high quality professional amplifier equally suited for home or professional use. It is ideal for high fidelity full range stereo reproduction, heavy duty sub-woofer application, powerhouse for multiple tactile transducers, and a variety of other home and studio applications.

Keywords describing the XJ-1000FR are: flexibility, power, control, and adaptability. It is the perfect amplifier for the advanced enthusiast who wants full control and ability to adjust all parameters of operation. Similarly, it can easily be used by the novice user who wants large amounts of power from a compact and efficient amplifier. The XJ-1000FR is passively cooled for silent operation. The brute force of the XJ-1000FR springs from the class "J" circuitry. Earthquake patented Class "J" technology manifests as a "quantum leap" in amplifier technology.

The revolutionary Class "J" is able to combine high efficiency (99%) with an extraordinary bass control. Class "J" is an evolution of PWM technology, it combines advanced multi-level digital feedback with an intelligent controller (DCDC). It modulates the power supply voltage and output switching frequency in real time based on the frequency and amplitude of the input signal.

This added level of intelligence results in several obvious advantages: increased thermal headroom through the amplifier's optimum energy use, dramatically improved bass response and dynamic power capabilities. This results in a harder more solid audible impact that adds a drive to the sound normally experienced only at live concerts. We invite you to experience the immense power and superior sound quality of the XJ-1000FR

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Amplifier Package Includes:

- One (1) XJ-1000FR Amplifier
- One (1) Remote Control
- One (1) Power Cable
- One (1) Set Rack Mounting Ears With Screws.
- One (1) CD: User Manual / Software application

THE CHART (ON THE SIDE) SHOWS THE U.S. GOVERNMENTS OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) REGULATIONS WHICH WERE IN EFFECT AT THE TIME OF THIS PUBLICATION FOR PERMISSIBLE NOISE EXPOSURE, PER 29CFR1910.95, TABLE G-16.

Customer Support	Earthquake Sound Corporation
tech@earthquakesound.com	2727 McCone Avenue
Tel: 800-576-7944	Hayward, CA 94545
Fax: 510-732-1095	Tel: 510-732-1000
	Fax: 510-732-1095

<u>SOUND LEVEL</u> <u>DBA</u>	<u>DURATION</u> <u>IN HOURS</u>
90	8
92	6
95	4
97	3
100	2
102	1 - 1 1/2
105	1
110	1/2
115	1/4 or less

CAUTION: The XJ-1000FR is capable of generating high sound pressure levels. You should exercise caution when operating this amplifier system. Long term exposures to high levels of sound pressure will cause permanent damage to your hearing. Sound pressure levels exceeding 85dB can be dangerous with constant exposure. Set your audio system to a comfortable loudness level. Earthquake Sound Corporation does not assume liability for damages resulting from the direct use of the XJ-1000FR, and urges users to play the XJ-1000FR at moderate listening levels.

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This document should not be construed as a commitment on the part of Earthquake Sound Corporation. The information is subject to change without notice. Earthquake Sound Corporation assumes no responsibility for errors that may appear within this document.



Five (5) years limited warranty:

Earthquake warrants the original purchaser that all Factory Sealed New Audio Products to be free from defects in material and workmanship under normal and proper use for a period of five (5) years from the date of purchase (as shown on the original sales receipt with serial number affixed/written on it). The five (5) year warranty period is valid only if an authorized Earthquake dealer properly installs the product and the warranty registration card is properly filled out and sent to Earthquake Sound Corporation. If a non-authorized party installs the product, a ninety (90) day warranty period will be applied.

(A) Five (5) years limited warranty plan coverage guidelines:

- ! First year: Earthquake pays for labor, parts, and ground freight (only in US mainland, not including Alaska and Hawaii) (shipping to us is not covered).
- ! Second, third, fourth & fifth year: Earthquake pays labor only. Customer must pay for parts and freight both ways.

(B) Caution:

Your Earthquake amplifier is an integral part of a complete system with multiple components. There is a chance that the problem you are experiencing is originating from another component. We urge to contact us (1-800-576-7944) before sending the unit for service; our technicians might be able to resolve the problem over the phone; thus, eliminating the need to ship the product.

Products (sent for repair) that are tested by Earthquake technicians and deemed to have no problem(s) will not be covered by the five (5) year limited warranty. Customer will be charged a minimum of one (1) hour of labor (at the ongoing rates) plus shipping charges back to customer - regardless of the product date of purchase.

Each product sent for repair must be packaged in its original packaging. Otherwise, there will be repackaging charge in addition to labor, parts and shipping charges.

(C) Earthquake will repair or replace - at our option - all defective products/parts subject to the following provisions:

- ! Defective products/parts have not been altered or repaired by other than an Earthquake factory-approved technician.
- ! Products/parts are not subjected to negligence, misuse, improper use or accident, damaged by improper line voltage, used with incompatible products or have its serial number or any part of it altered, defaced or removed, or have been used in any way that is contrary to Earthquake's written instructions.

Warranty does not cover products that have been modified or abused, including but not limited to the following:

- ! Damages to cabinet/casing finish due to misuse, abuse or improper use of cleaning materials/methods.
- ! Fading and or deterioration of speaker components & finish due to improper exposure to elements.
- ! Bent amplifier casing, damaged finish on the casing due to abuse, misuse or improper use of cleaning material.
- ! Burnt tracers on PCB.
- ! Product/part damaged due to poor packaging or abusive shipping conditions.
- ! Subsequent damage to other products.

A warranty claim will not be valid if the warranty registration card is not properly filled & returned to Earthquake with a copy of the sales invoice. Warranty card is located on the last page of this manual.

(E) Service Request:

To receive product service, contact Earthquake service department at (510) 732-1000 and request an RMA number (Return Material Authorization). Items shipped without a valid RMA number will be refused. Make sure you provide us with your complete/correct shipping address, a valid phone number, and a brief description of the problem you are experiencing with the product. In most cases, our technicians might be able to resolve the problem over the phone; thus, eliminating the need to ship the product.

(F) Shipping Instructions:

Product(s) must be packaged in its original protective box(es) to minimize transport damage. Shipper claims regarding items damaged in transit must be presented to carrier. Earthquake Sound Corporation reserves the right to refuse improperly packed product. Original sales receipt must accompany product returned for service. We encourage you to include with the package a written description of the problem. Ship product to: Earthquake Sound Corp. 2727 Mc Cone Avenue, Hayward, CA 94545. Ph (510) 732-1000. You are responsible for the cost of shipping the product to Earthquake Sound Corporation.

(G) Disputes Resolution:

All disputes - between clients and Earthquake Sound Corporation - resulting from the five (5) years limited warranty policy must be resolved according to the laws & regulations of the county of Alameda-California.

Product Registration

(D) Warranty Limitations: Amp can be registered by returning the Product Registration card attached to this manual. Please also retain the sales receipt which represents proof of purchase and helps expedite warranty issues.



First of all, thank you for purchasing this XJ-1000FR power amplifier. The multi-patented series of XJ power amplifiers employs some of the most advanced GREEN technologies ever made.

The XJ amplifiers deliver more sound using less power - in line with today's energy conservation trend. Right of the get go, you can see that the XJ amplifiers are light, small and have no noisy fans. It converts with record efficiency power from the "wall outlet" to "music in your ears".

For years, there have been many attempts to make high efficiency amplifiers using Pulse Width Modulated (PWM) output; PWM amplifiers are also known as class "D" amplifiers - referred to as digital amplifiers. For the most part, these technologies suffered from several issues:

1- Could not handle full range signals, so these amplifiers worked only for subwoofer applications.

2- some class "D" were designed to operate in full range, this is common in the pro-sound market where the high power applications masked the high level of distortion produced by the amplifier. For home audio, the high speed switching PWM radiated out of the amplifier and effected other equipments surrounding it.

So how did we do it?

Earthquake Sound Corporation, an engineering driven company, lead for over 26 years the field of audio innovations. A plethora of audio patents is proof that we constantly stay at the cutting edge of technology.

Leading the way means that we can not take the "easy route" of using off the shelf hybrid chips: generic "me too" solutions or other compromises. We blazed the trail with

real innovations and real technology invented right here in the USA, by hardworking and dedicated engineers.

The XJ-1000FR is constructed upon a novel PWM power supply that delivers DC power at an incredible 99.5% efficiency. The DC power is used to feed the output amplifier with the necessary energy to reproduce clear, powerful output.

The power supply uses more than 6 layers of copper-clad PCB to control and fully ground high frequency radiations. The output circuitry employs its own PWM stage to deliver clean accurate sound. A sound quality so good that it rivals the best of class AB designs

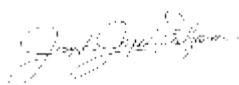
The input audio stage employs a digital signal processor (DSP) to shape and control the signal without compromising signal / noise ratio or separation. The DSP also controls the sophisticated DCDC (dynamic control drive circuitry) that regulates the DC power so it is just "a notch" above the need of the amplifier - based on the audio signal while maintaining low THD and noise.

The XJ FR line is designed with an advanced multi-path digital feedback system that connects and optimize the audio analog input, the audio PWM output, and the PWM power supply in an "on time" balanced relationship.

I hope that you will enjoy this amplifier, we worked hard to perfect it. We will value any feedback you might have on its performance and design.

Thank you for choosing Earthquake.


From our hands to your ears... Thank you.



*Your Brother In Sound
President & Chief Engineer
Joseph J. Sahyoun;*



Important Safety Instructions

- 1) Read these instructions in their entirety.
- 2) Store this manual and packaging in a safe place.
- 3) Heed all warnings.
- 4) Follow instructions (do not take short cuts).
- 5) Do not use this apparatus near water.
- 6) Clean only with a dry cloth.
- 7) Do not block any ventilation openings. Install in accordance with the manufacturers instructions.
- 8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatuses that produce heat.
- 9) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- 10) Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- 11) Only use attachments & accessories specified by the manufacturer.
- 12) Use only with a cart, stand or table that can support the product weight. Use caution when moving or positioning your rack or cart so that it will not tip over, which may cause serious injury to you or your products. 
- 13) Unplug this apparatus during a lightning storm or when unused for long period of time.
- 14) Refer all servicing to qualified service personal. Servicing is required when the apparatus has been damaged in any way such as: power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
- 15) To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.

The following symbols are used in this document:



Appears on the component to indicate the presence of uninsulated, dangerous voltage inside the enclosure – voltage that may be sufficient to constitute a risk of shock.

CAUTION

Calls attention to a procedure, practice, condition or the like that, if not correctly performed or adhered to, could result in injury or death.

WARNING

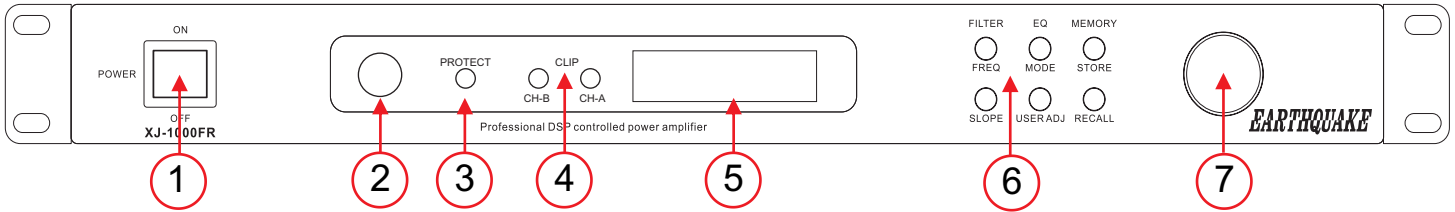
Calls attention to a procedure, practice, condition or the like that, if not correctly performed or adhered to, could result in damage to or destruction of part or all of the product.

Note:

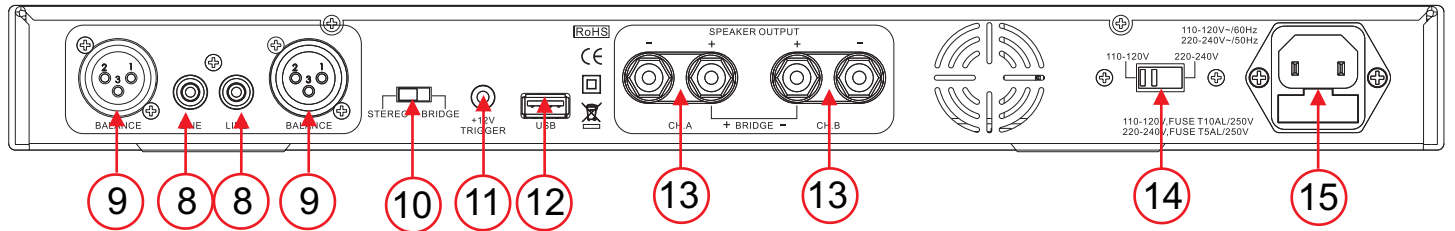
Calls attention to information that is essential to highlight.



Front Panel



Rear Panel



1- Power Switch: turns amplifier ON / OFF. Amplifier must be ON for the 12V trigger and the music auto sensing modes / functions to operate.

2- Remote Eye: receives remote control signal.

3- Protect LED: “RED” color indicates that amplifier is in protection mode (short speaker wire or other reasons. Turn OFF the amplifier immediately).

4- Clip LED’s (CH-A & CH-B): “RED” color indicates that the input signal on the channel/s (A or B) is clipped (reduce volume on the clipped channel).

5- LCD Display Module: shows the amplifier status, menus and settings.

6- Button Switches: represent the functions keys.

7- Encoder Switch: controls the operation of the functions.

8- Left / Right RCA Inputs: feed line-level stereo (left / right) signals into the amplifier. NOTE: either left or right RCA jacks can be used to feed a mono input.

9- Left / Right XLR Balanced Inputs: feed balanced line-level stereo (left/right) signals into the amplifier. NOTE: either left or right XLR jacks can be used to feed a mono input.

10- Stereo / Bridged Switch: use this control / function when running the amplifier in bridge or in stereo mode only.

11- External Trigger Input: powers up / triggers ON the amplifier from other devices such as processors, receivers or any device with 12 Volts trigger output.

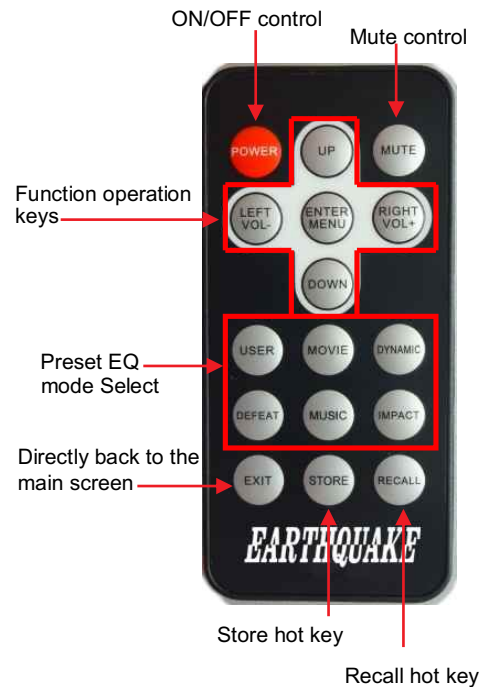
12- USB Port: for operating the amplifier and / or uploading new firmware.

13- Left / Right Speaker Output: for speaker connection (stereo mode or bridged mode).

14- 110V / 220V AC Voltage Selector: allows the amplifier to operate on 110V-120V 60Hz and on 220V-240V 50Hz AC.

15- Power Cable Connector: connects amplifier to power source (rated 15 amperes).

Remote Control



IR CONTROL: NEC PROTOCOL
CUSTOMER CODE: 00FFH



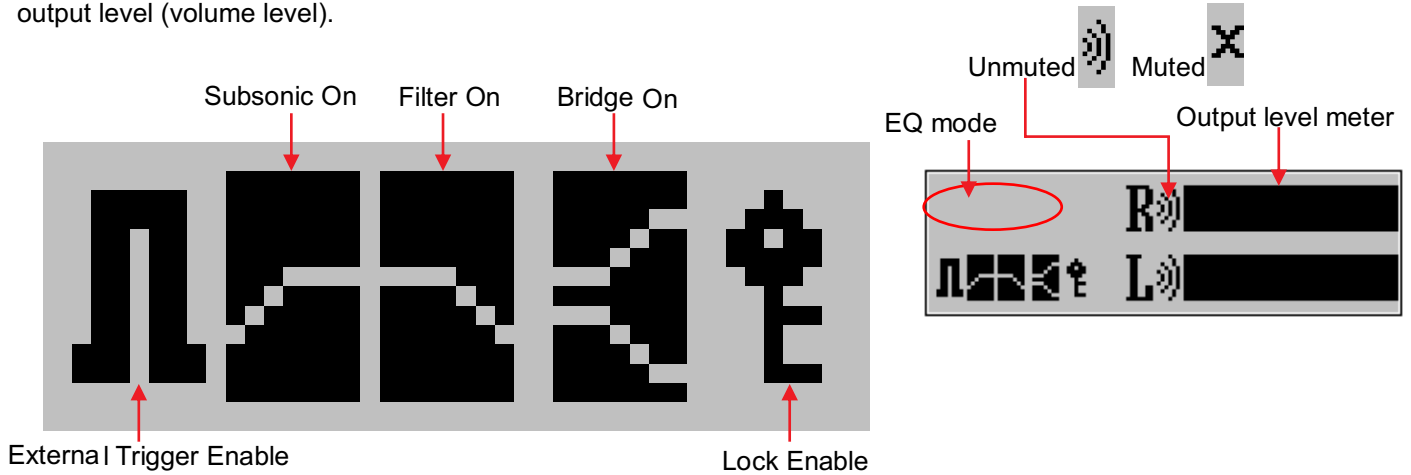
XJ-1000FR Boot screen

This procedure takes approximately 3 seconds during which the model number and company name are displayed. Transition to main screen is carried automatically.



XJ-1000FR Main screen

The LCD display shows the status of DSP settings and the output level (volume level).



Volume Control

“VOLUME” control is available from main screen. Press remote control “LEFT / RIGHT” keys or press encoder “LEFT / RIGHT” to change the volume level (from -80dB to 0 dB). Equal volume level should be set (recommended) between both main speakers.



Explanation of symbols on screen

Press remote control “UP / DOWN” keys to change functions. Press encoder “ENTER” to change functions.



Press remote control “LEFT / RIGHT” keys or press encoder “LEFT / RIGHT” to change the settings. Press “ENTER” to save.



Subsonic Filter Control



Subsonic = OFF



Subsonic = ON



“OFF / ON” settings enable or disable the subsonic filter. The subsonic filter frequency can be set from 16Hz to 30Hz (in 1 Hz increments). This filter allows user to limit / control the low frequency range of the subwoofer; it is generally used to protect subwoofers from over excursion and damage when operating below tuning frequency.

LPF (low pass) & HPF (high pass) Filters Control



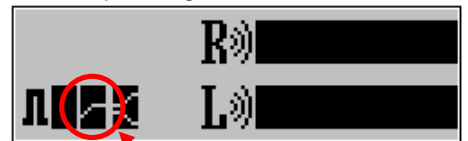
When the selection is complete/set, the option in the main screen will display the corresponding icon.



Filter = OFF

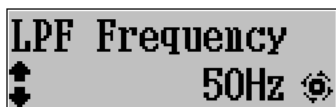


Filter = Low Pass (LPF)

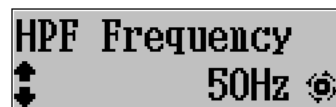


Filter = High Pass (HPF)

Low pass & High Pass filters can be set from 50Hz to 4000Hz.



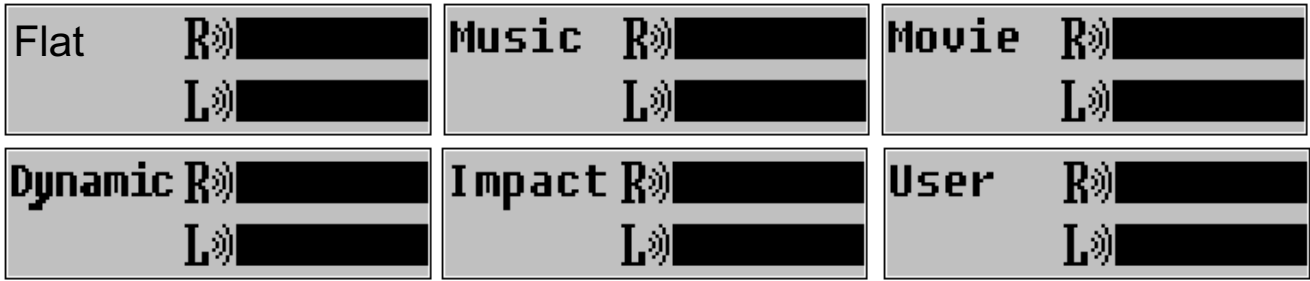
(50Hz~4000Hz)



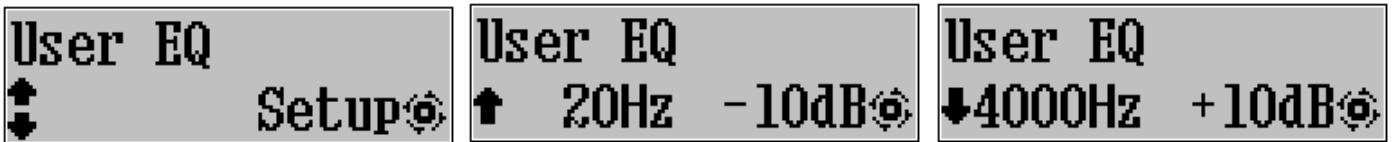
(50Hz~4000Hz)



Equalizer modes Six equalizer modes to choose from: No-equalization (flat) / Music / Movie / Dynamic / Impact / user mode (set by user).



User EQ ONLY AVAILABLE WHEN IN USER MODE



Press the right key on remote or turn the encoder knob to the right to enter function. A +/- 10dB gain level adjustment is available for each frequency point.

When using the rotary encoder: turn "LEFT / RIGHT" to increase or decrease gain / press "ENTER" to change frequency point or "EXIT".

When using remote control: press "UP / DOWN" to change frequency point / press "LEFT / RIGHT" to increase or decrease gain / press "ENTER" to leave function.

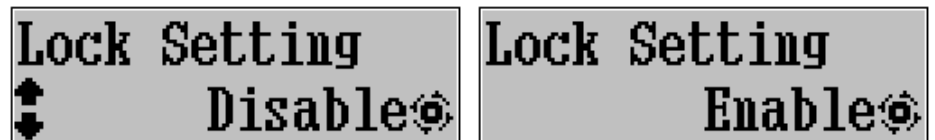
External Trigger

The " external trigger" setting is used to allow an external 12 V trigger source to turn the amplifier ON and OFF with a 12 V trigger from another device.



Lock Setting

Lock setting locks the DSP setting in memory and prevents adjustment via the DSP push button controls. To lock, set to "Enable". To turn off the lock, set to "Disable".



Memory Storing Press right key or encode turn right to enter function.

There are 3 independent memories that can be used to save all the DSP settings as a single configuration. Once you have finished programing all the features, select a memory location (1,2, or 3) and press ENTER key to save.



Memory Recall Press right key or encode turn right to enter function.

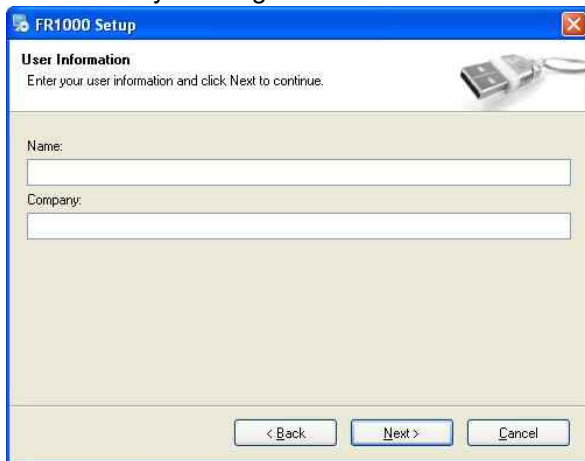
There are 4 memory locations that store 4 independent DSP settings. Memories 1,2,and 3 are programing by the user using "Memory Store" function.



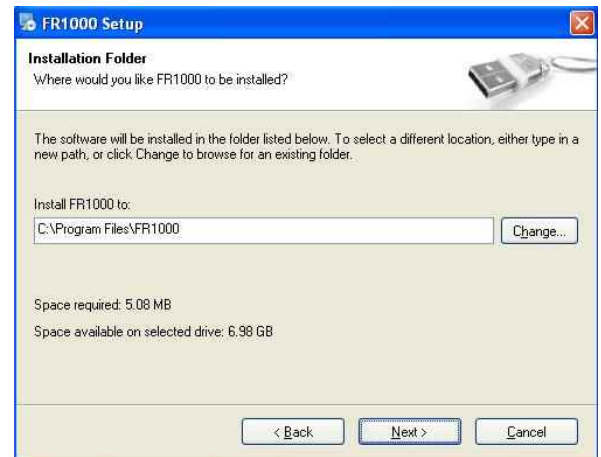
(Follow Similar Procedure For MAC Based Software Installation)

***** Please install Microsoft Visual Basic PowerPacks 1.2 BEFORE INSTALLATION.**

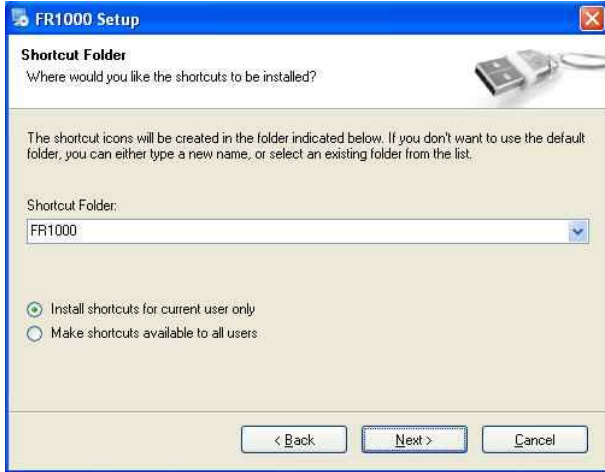
1- Start installation by entering user information.



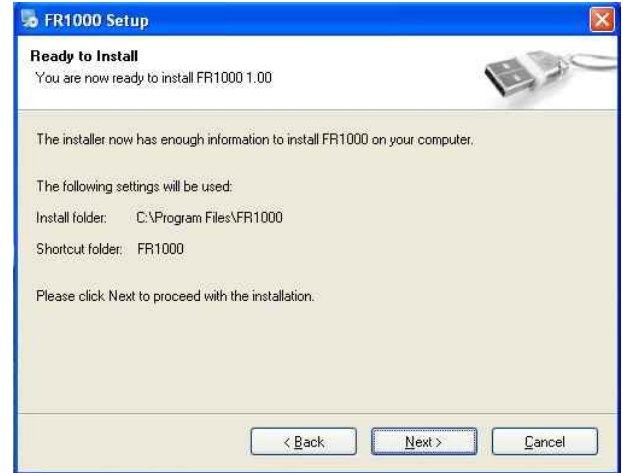
2- Select the directory where the software will be installed. If you do not want to change it, it will be installed in the default directory. Click the mouse on the browse button, another window appears in which you can pick where you want to install the software.



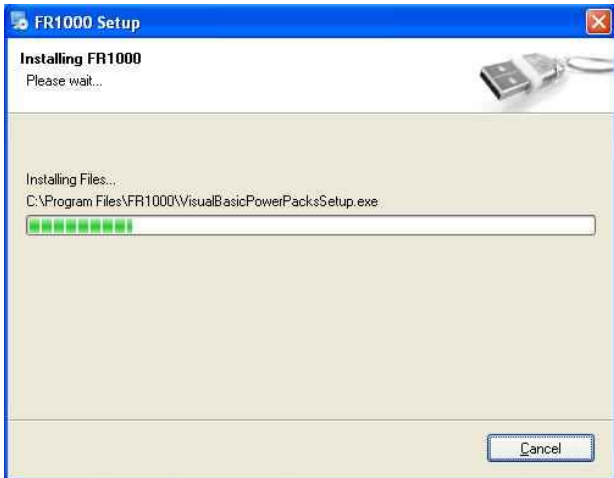
3- Now you must decide the folder name from where you can access the program start.



4- Once this is done an information screen with the defined installation options will appear and once confirmed the installation will automatically start.



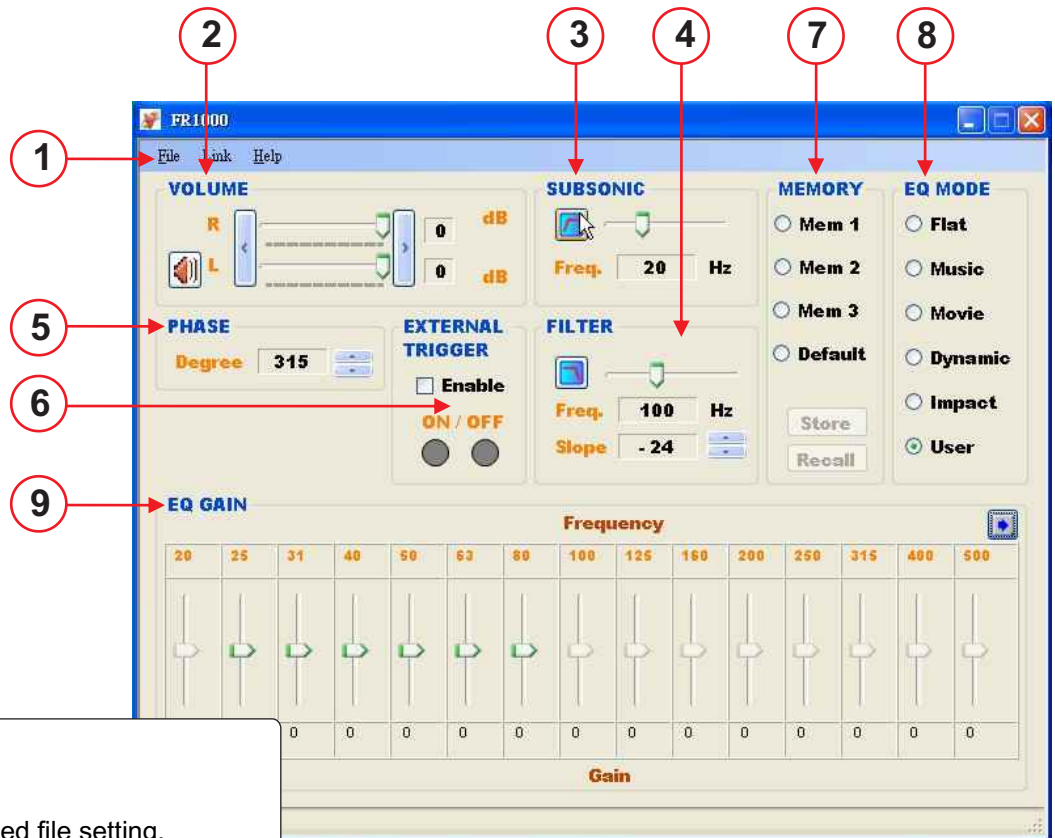
5- Now the drivers' installation screen will appear. Once the drivers have been installed on your PC, the program will inform you of the status of the installation.



6- Complete the entire installation process of the software

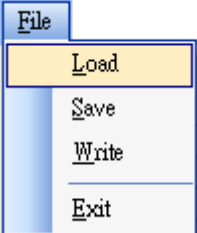


Software Control Panel



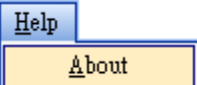
1- File Menu

Load



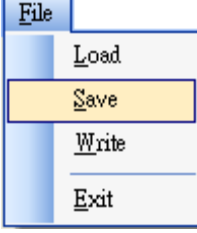
1. Load specified file setting.
2. Click File/Load.
3. Select a configuration file(.dat) for loading.
4. Load configuration to control panel for preview.

About



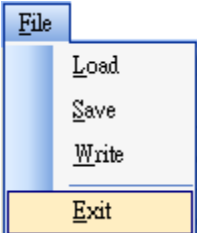
Check Software version.

Save



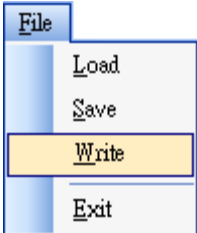
1. The parameters save to the specified file
2. The amplifier should be connected to PC then apply Command Link in advance.
3. Click File/Save to save settings on screen.
4. Select path and edit file name to save.

Exit



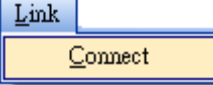
Exit this program.

Write



1. Write specified file setting to amplifier.
2. Configuration data has to be loaded with File/Load in advance.
3. Click File/Write to amp to transfer setting amplifier.
4. Finish.

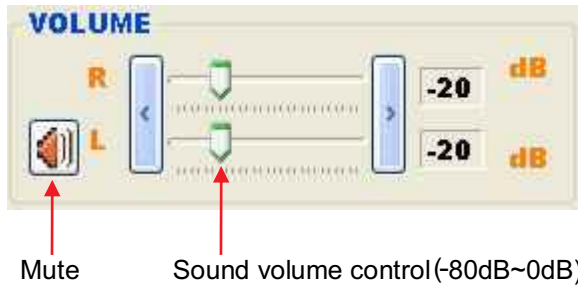
Connect



Link amplifier. Amplifier settings will update the status of control program simultaneously.



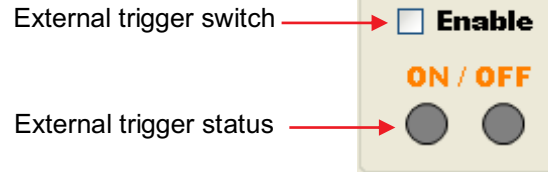
2- Volume Control



Mute Sound volume control (-80dB~0dB)

6- External Trigger Control

Green = ON
RED = OFF



3- Subsonic Control



Subsonic ON/OFF

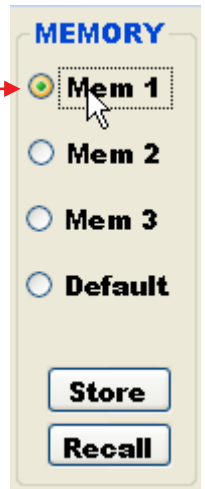
Frequency setting (16-30 Hz)

7- Memory Store/Recall Control

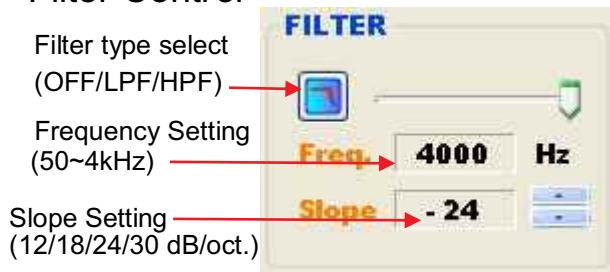
Three (3) independent memory storage modes; they can be used to save all the DSP settings as a single configuration.

There are four (4) memory storage modes that can store (4) independent DSP settings. User can program Mem 1 / 2 / 3 using the memory store function.

A 4th setting (default) resets all the setting back to original factory settings.



4- Filter Control



Filter type select (OFF/LPF/HPF)

Frequency Setting (50~4kHz)

Slope Setting (12/18/24/30 dB/oct.)

5- Phase Control

This function allows the user to change the phase at 45 degree increment.

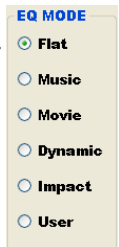
(0 ° 45 ° 90 ° 135 ° 180 ° 225 ° 270 ° 315 °)

(Each increment = 2 ms/milli-second)



8- EQ Mode Control

Click to select green= SELECT

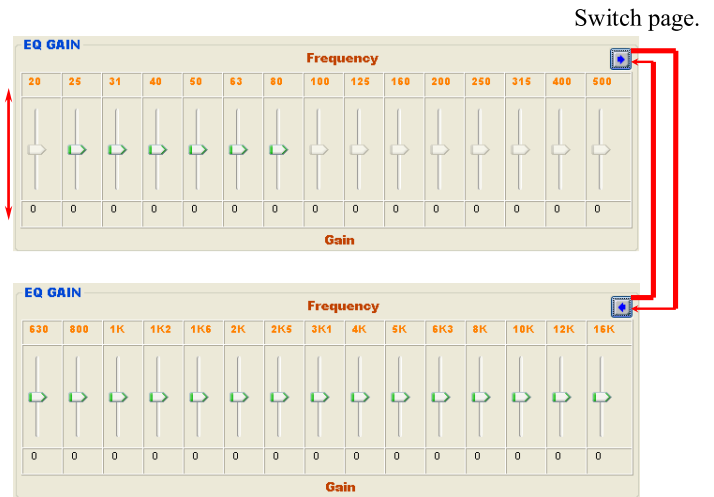


8- User Equalizer Gain Control

When in SELECT USER MODE, users can customize their own equalizer curve.

The XJ-1000FR has a built in Digital 1/3 octave equalizer that allows for 10dB boost as well as 10dB cut with increment of 1dB per click.

The Boosts/Cuts are applicable to 30 points of the frequency range (from 20 Hz to 16 kHz)



POWER OUTPUT	1 x 1000 watts RMS @ 4-Ohms bridged 1 x 600 watts RMS @ 8-Ohms bridged 2 x 500 watts RMS @ 2-Ohms stereo 2 x 300 watts RMS @ 4-Ohms stereo 2 x 150 watts RMS @ 8-Ohms stereo
FREQUENCY RESPONSE	10Hz - 24kHz
TOTAL HARMONIC DISTORTION	<0.02%, (1W/4ohm)
SLEW RATE	50 volts / microsecond
SIGNAL TO NOISE RATIO	> 112dB (balanced) 108dB (unbalanced) @ rated power
LOAD IMPEDANCE	2 ohms or greater
DAMPING FACTOR	> 500
INPUT CONNECTIONS	XLR / RCA
OUTPUT CONNECTIONS	Binding posts
POWER REQUIREMENTS	110-120VAC~/60Hz 220V-240V~/50Hz
SIZE AND WEIGHT	H=1-3/4" x W=19"(including ears) x D=14-1/2(including connectors) 44mm x 483mm x 367mm
	13.52 lbs / 6.15 Kg
RACK MOUNT SPACE	1U



Peak LEDs "ON" Constantly

It is normal when running the amplifier to full power that the LEDs flicker. If the LEDs are on constantly without flickering (solid red) it means that the amplifier output is clipping. Reduce volume level to prevent damage to speakers or amplifier.

Humming noise from speakers

Often humming noise is emanating from equipment that have their ground prong broken. To isolate this problem:

- a) With the amplifier OFF, unplug all RCAs connected to the amp.
- b) Turn on amp and listen to speakers. If buzz has changed or reduced in level, then the problem is coming to the amp from another source. The rest of the hum you hear is normal and related to the fact that the RCAs are open ended.
- c) The above step should isolate your problem: star-ground all components, except amplifier, by daisy-chaining a thin wire from the processors chassis to all sources connected to it.

Maintenance

The following maintenance should be performed routinely:

- Clean the exterior surfaces of the unit with a soft, dry, lint-free cloth.
- Do not use alcohol, benzene, acetone-based cleaners, or strong commercial cleaners.
- Do not use a cloth made with steel wool or metal polish.

If the unit is exposed to a dusty environment, a low-pressure blower may be used to remove dust from its interior & exterior.

If Problems Persist:

Contact Earthquake Sound Technical Service
Phone: 1-800-576-7944 or 510-732-1000
Email: tech@earthquakesound.com

Amplifier "ON" No Sound

- a) Completely shut your system down, including your amplifier via the circuit breaker.
- b) Now turn on the amplifier only. Check to see if the front Main Power Switch is on.
- c) Check the Input Selector switch and make sure that it is in the correct position. Either RCA or XLR which ever you are using. Also slide the Input Selector switch back and forth to ensure good contact.
- d) Set the crossover switch so that it is centered. Slide it up and down and finally back to the middle position.
- e) Confirm that the output wires are connected to the speaker.
- f) Rock the crossover switch back & forth at the amplifier, you should hear a thump through the speaker during this process.

WHEN A THUMP IS HEARD:

Check your input source signal. Make sure they are connected properly to output from processor/source, not input of processor.

Try to change source to make sure that at least one of the sources works.

WHEN NO THUMP IS HEARD:

Check amplifier speaker connections and make sure the speaker wires are securely connected to the amplifier speaker output and to the speaker.

NOTE: It is possible that if you have proper connections and you don't hear sound, the speaker is burnt.

Turn amplifier ON and circuit breaker shuts down

This can either be a short in amp, a poor circuit breaker in the house or the power cord is not fully connected. Plug amplifier into another outlet on a different circuit breaker with nothing connected. If the amp turns on then the problem is with your home circuit breaker. If the amplifier still does not power up, please call Earthquake to consult with a technician.



Earthquake Sound reserves the right to amend details of the specifications without notice.

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