



# XJ-700R USER MANUAL

LFE MONO BLOCK /  
HIGH EFFICIENCY /  
700 WATTS / CLASS "J" /  
SUBWOOFER AMPLIFIER



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### Amplifier Package Includes:

- One (1) XJ-700R Amplifier
- One (1) Remote Control
- One (1) Power Cable
- One (1) Set Rack Mounting Ears With Screws.
- One (1) User Manual

## Product Registration

This XJ-700R Power 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.

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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.

<u>SOUND LEVEL L</u> <u>DBA</u>	<u>DURATION</u> <u>IN HOURS</u>	<b>CAUTION:</b> The XJ-700R 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-700R, and urges users to play the XJ-700R at moderate listening levels.
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	

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Thank you for purchasing this XJ-700R LFE Mono Block Class J Amplifier. Designed to exceed all of your expectations for audio amplification, the XJ-700R is a ruggedly constructed high quality professional amplifier equally suited for home or professional use. It is ideal for heavy duty sub-woofer application, powerhouse for multiple tactile transducers, and a variety of other home and studio applications.

The XJ-700R is a high power mono block subwoofer amplifier ideal for powering large subwoofers or tactile transducers. Featuring advanced Class J output technology, VE-TAT acceleration and MARS protection - all in a cool running fan free 1U package. Sporting 700/400 WRMS into 4/8 ohm, the XJ700R is ready to power your low frequency needs. The XJ-700R has optimized presets for movie/ music listening, a digital volume readout with rotary dial and remote control. Features include : variable low pass filter, phase inversion and precalculated boundary EQ.

# CLASS J

The patented **Class J** output stage ensures stellar audio quality and takes the concept of the "intelligent circuit" a step further by actually adapting the electrical operation of the output stage to the signal it is playing. This can rightly be considered a quantum leap in amplifier technology.

The revolutionary aspect of Class J is its ability to combine ultra high efficiency of 99% with extraordinary bass control. Class J is an evolution on PWM (Class D) technology that combines advanced multi-level digital feedback with an intelligent controller. It modulates the supply voltage and output switching frequency in real time based on the frequency and amplitude content of the input signal. This added level of intelligence offers several advantages such as increased thermal headroom, dramatically improved bass response and dynamic power capabilities.

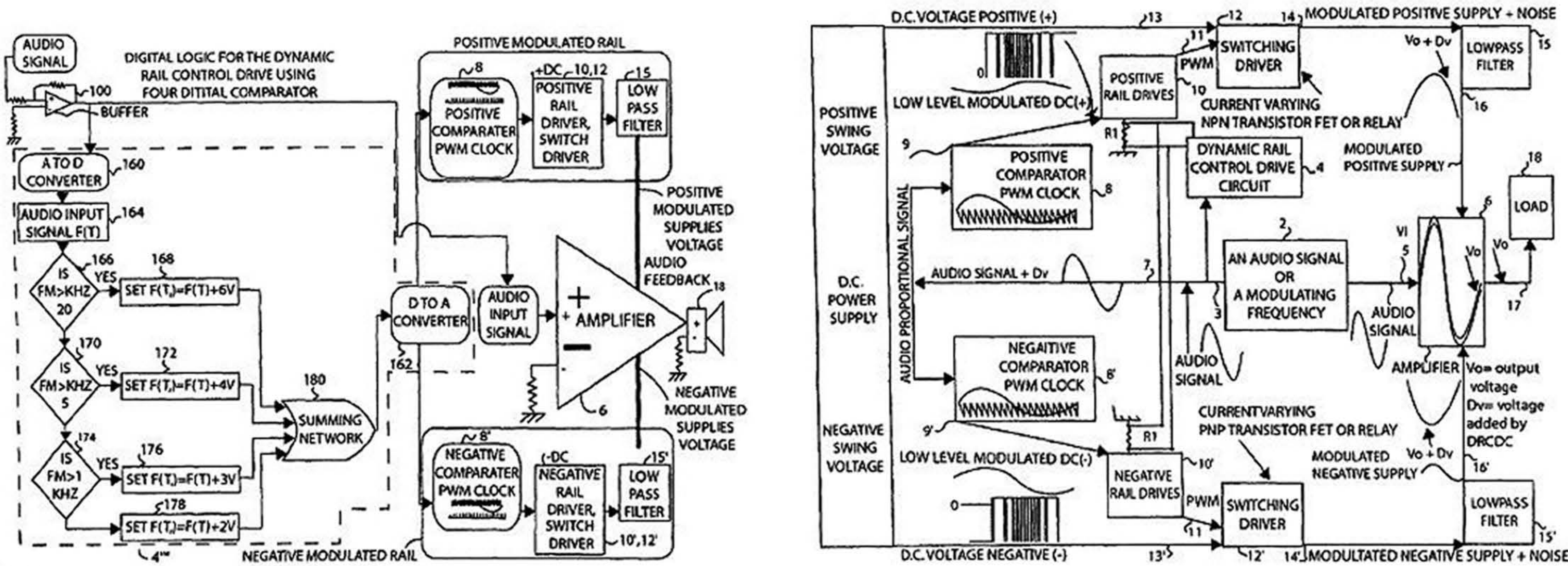


Fig.1 Diagram of the Class J Principle



**VE-TAT** (Velocity Enhancing Transistor Augmentative Technology ) is an enhanced transistor dead-time controller. Where Class J is an intelligence infused output topology, VE-TAT works at the component level. A critical area for efficiency in a PWM (switching output) amplifier is the speed and precision by which the transistors can be opened and closed. VE-TAT dramatically increases transistor velocity thus eliminating dead-time losses and increasing efficiency.





**MARS** (Magnetically Actuated Reanimation System) is a new type of protection system that enables the use of all amplifier power resources without compromising the survivability of the amplifier under catastrophic conditions.

Typical protection systems rely on fuses or relays that complicate the signal path thus degrading audio quality. MARS is different as it is not in the signal path, but works by sensing the electromagnetic field of the conducting wires. The internal communication of MARS transmits in the optical plane with a speed more than 1500 times that of the fastest signal passed through the amplifier.

MARS does not use any relays or other damping-factor reducing mechanical switches that can wear out or fail over time. Instead, a specially designed circuit instantly shuts off the output drive.

In the event a short-circuit activates the MARS protection system, it continuously re-scans the output every 10 seconds. Normal operation automatically resumes as soon as the short-circuit condition is removed.

### Overbuild power supply

The patented technologies combined with a dramatically oversized power supply make the XJ700R amplifier capable of delivering raw quantities of continuous power. The power supply is based on a rigid silicon-steel, hard-wound Pancake low regulation 1200VA toroidal transformer. The large and heavy transformer ensures a stable supply without voltage drop even at severe and continuous operation.



## A Word From The President

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First of all, thank you for purchasing this XJ-700R subwoofer power amplifier.

Earthquake's XJ-700R is a high power mono block subwoofer amplifier suited for both professional and home use, ideally for powering large subwoofers or tactile transducers.

The amazing force of the XJ-700R comes from its advanced Class J output technology, VE-TAT acceleration and MARS protection - all in a cool running fan free 1U package. Sporting 700/400 WRMS into 4/8 ohm, the XJ-700R is ready to power your low frequency needs.

The XJ-700R has optimized presets for movie/ music listening, a digital volume readout with rotary dial and remote control. Other features include: variable low pass filter, phase inversion and precalculated boundary EQ.

The multi-patented "XJ" power amplifier series employs some of the most advanced GREEN technologies ever made, managing to deliver more sound while using less power. Right off the get go, you can also 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".

It is simply put the perfect amplifier, whether you are an advanced user or a novice in need of a compact but efficient and powerful amplifier.

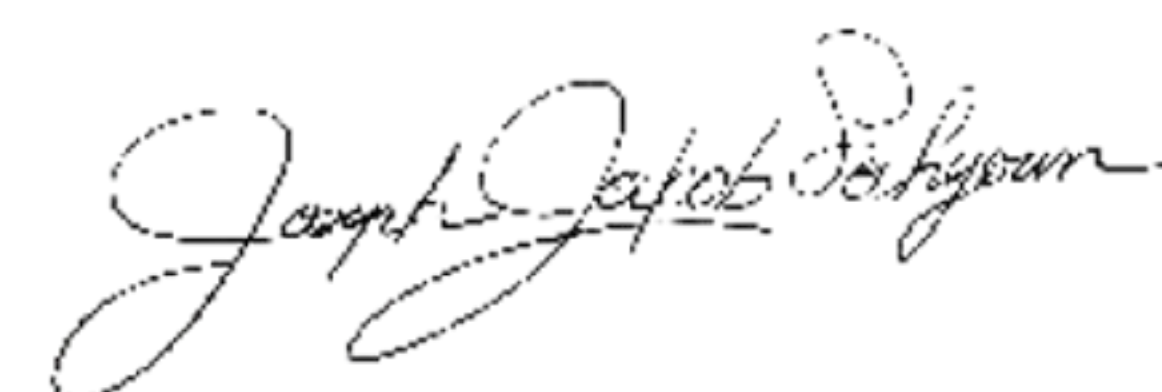
Earthquake Sound Corporation , an engineering driven company, lead for over 26 years the field of audio innovations. A plethora of audio patents is proof that we constantly stay at the cutting edge of technology.

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.

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.



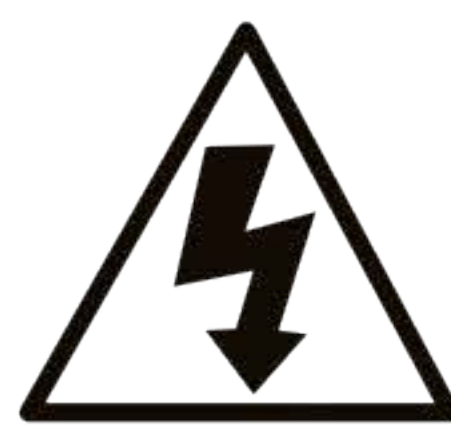
*Your Brother In Sound  
President & Chief Engineer  
Joseph J. Sahyoun;*



## **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.

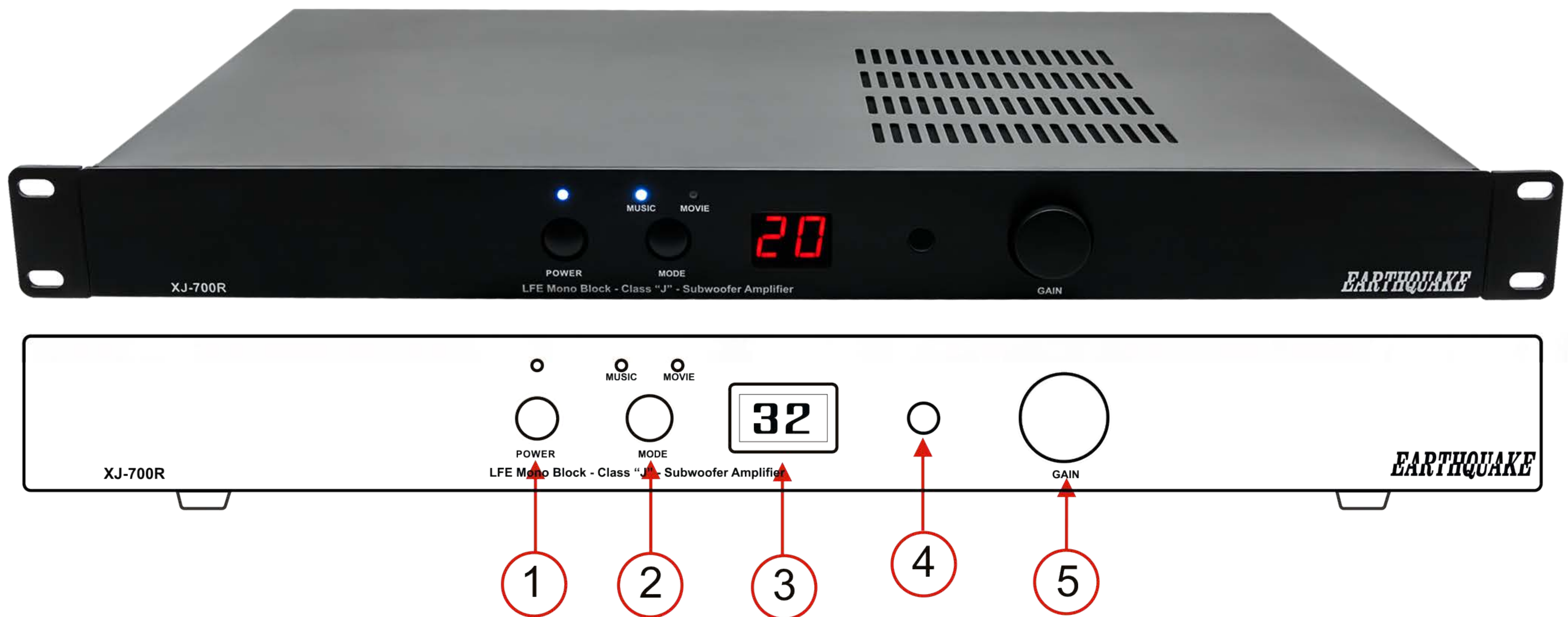
**WARNING**

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.





The XJ-700R can be controlled manually from the front panel or via the supplied hand-held remote. A remote IR input can also be used for systems hidden behind closed cabinet doors or in an equipment rack located in other areas of the home. On the front panel, you will find the following features:

1. **POWER:** Toggles the amplifier between ON to STANDBY modes. When the amplifier is ON, the LED turns BLUE. When the amplifier is on standby, the LED is RED
2. **Music or Movie quick EQ adjustments:** The Music or Movie toggle button changes the EQ to an appropriate curve for the source material. You can use the hand-held remote to change the curve between Music and Movie modes. The Music or Movie mode IR codes can be inserted into IR learning macros to change the EQ per source. LEDs placed above the Music or Movie text on the front panel indicate the EQ mode (LED color BLUE indicates the mode is ON). Music mode is flat; Movie is bumped 8dB between 30Hz and 80Hz for added impact.
- 3- **Volume Display.**
- 4- **IR:** The Front Panel of the Amplifier has an IR Receiver. There is a second hard-wired IR jack on the back of the unit.
5. **Master Volume Control –** The master volume knob is a continuous rotary control. To adjust volume, use the gain adjustment on the AV receiver or pre-amplifier to make minor adjustments. Use a dB meter to measure the subwoofer output to the level suited for the room and the listener.



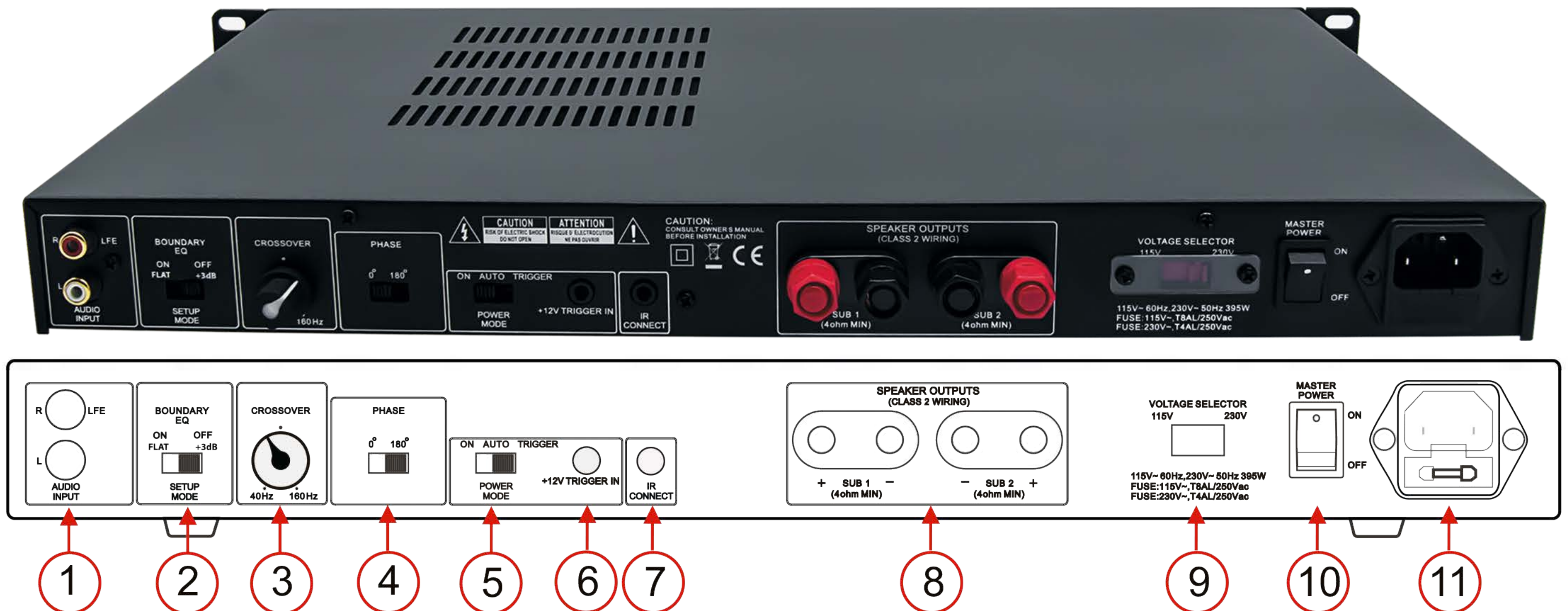
#### REMOTE CONTROL

1. **POWER:** Toggles between Standby Mode and ON.
2. **VOL+/-:** Adjusts the volume.
3. **MUTE:** Mutes the subwoofer. Press again to un-mute.
4. **MUSIC/MOVIE:** Selects the corresponding EQ mode.

EQ settings, Volume, and Power can be controlled using the supplied hand-held IR remote. The included remote can be downloaded into a learning/programmable remote.

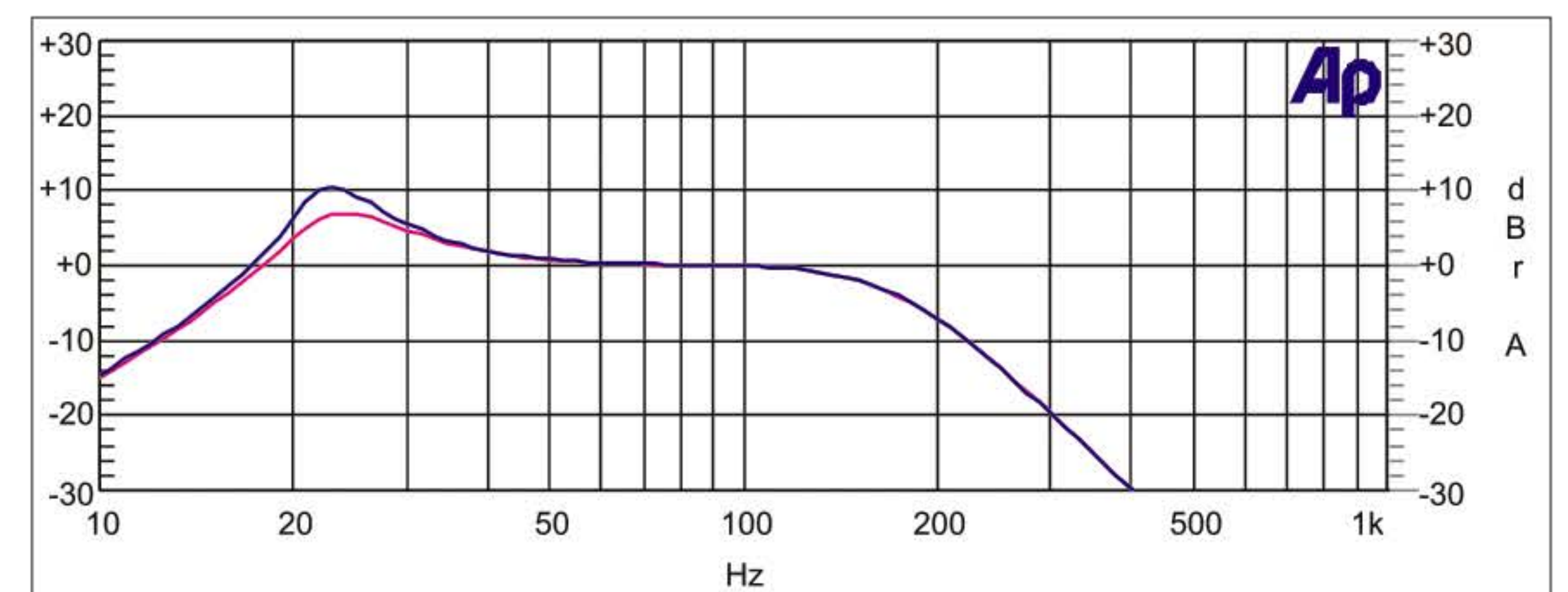
IR Control: 00HFFH  
Customer Code: 85229080





**1. AUDIO INPUTS:** Connect to Unbalanced Female RCA Inputs. Connect the Right Female RCA input from a LFE output connection on a receiver or pre-amp processor. If not using an LFE connection, both inputs have been calibrated to the same sensitivity level and should be connected (use a Y-Adapter when connecting).

**2. BOUNDARY EQ:** In OFF mode, the response remains flat. In ON mode a +3dB. Boundary EQ removes exaggerated boomy sounds created by corner loading, large wall surfaces, or installations inside custom cabinetry. For a natural, tighter performance in less than ideal installation circumstances where boundaries are influencing the sound desired, select the ON position to compensate. For all other installations, or for when the exaggerated boomy sound is desired, leave the boundary switch in the OFF position.



**3. CROSSOVER:** Crossover frequency setting of the Low Pass Filter. Factory-set at 80Hz; the XJ-700R has the capability to be adjusted from 40 to 160Hz.

**4. PHASE:** Factory-set at 0°, adjustable to 180°. The phase of the subwoofer can be adjusted to fine tune the signal coincidence of the subwoofer and the lower frequencies of your speakers. Adjust the phase, listening for an increase in mid bass in the crossover region.

#### 5. POWER MODES:

- ON: Amplifier always On
- AUTO: On, triggered via signal sense; when signal is off, amp will stay on for approximately 15 to 20 minutes.
- TRIGGERED: On, triggered by 12 VDC, 100mA minimum.

**6. TRIGGERED:** On, triggered by 12 VDC, 100mA minimum. Use the 1/8" mono mini-jack to connect a 12 volt trigger wire from other devices. Connector polarity is tip positive.

**7. IR CONTROL:** Use this 1/8" Mono mini-jack to connect to most IR emitter output connections. The signal will be transferred and flashed to the IR receiver internally behind the front panel. This will eliminate the need to add "stick-on" emitters in most systems. NOTE: Due to variations in IR system types, not all are compatible with this control jack. In some cases, an emitter will be needed to place over the front panel IR window.

**8. SPEAKER OUTPUTS:** Connect the speaker wires to the Binding Posts. NOTE: Red is Positive and Black is Negative. Bridged output, do not ground. b. Use either Bare Speaker Wire or Banana Plugs to terminate the speaker wire.

**9. AC POWER:** Master Power ON/OFF power switch for the amplifier.

**10. Input voltage:** setting selects the appropriate 115V or 230V setting.

**11. IEC Power Cord**





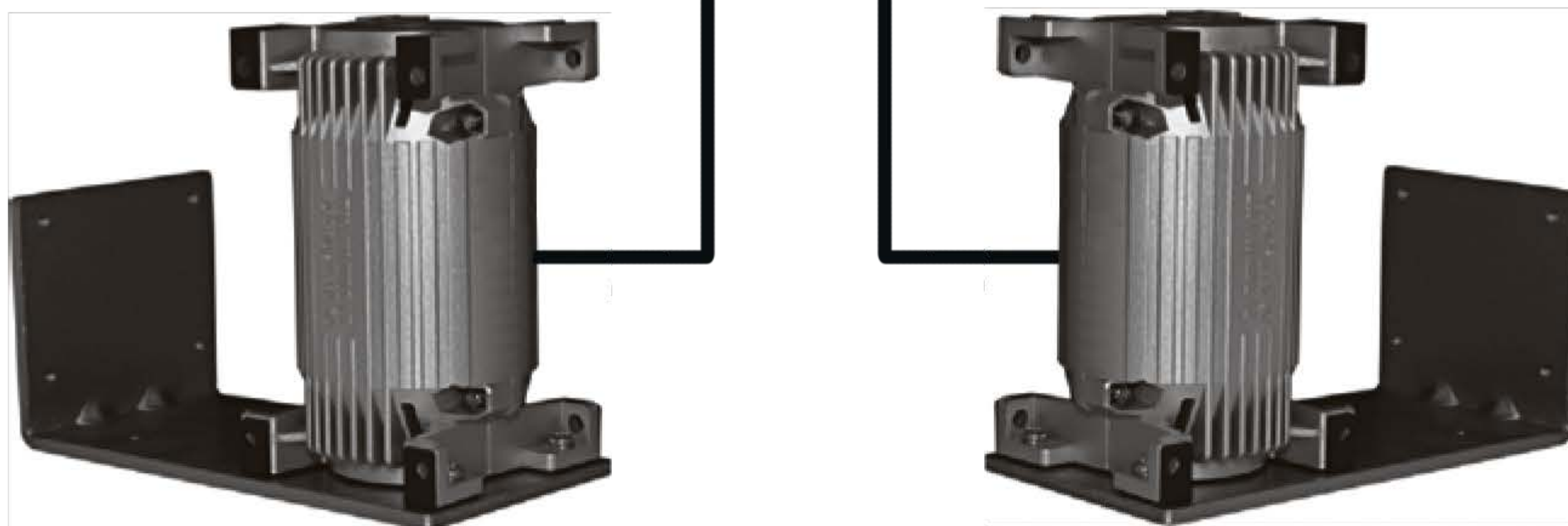
**Components used:**

- One (1) XJ-700R power amplifier
- One (1) Thor in-wall subwoofer



**Components used:**

- One (1) XJ-700R power amplifier
- Two (2) Q10B Transducers



<b>POWER OUTPUT</b>	1 x 1000 Watt IHF (4-Ohms Mono) 1 x 600 Watt IHF (8-Ohms Mono)  1 x 700 WRMS (4-Ohms Mono) 1 x 400 WRMS (8-Ohms Mono)
<b>FREQUENCY RESPONSE</b>	18Hz - 160Hz
<b>TOTAL HARMONIC DISTORTION</b>	<0.02%
<b>SLEW RATE</b>	50 volts / microsecond
<b>SIGNAL TO NOISE RATIO</b>	>112dB (balanced) 108dB (unbalanced) @ rated power
<b>LOAD IMPEDANCE</b>	4 Ohms or greater
<b>DAMPING FACTOR</b>	>1500
<b>INPUT CONNECTIONS</b>	RCA
<b>OUTPUT CONNECTIONS</b>	Binding posts
<b>POWER REQUIREMENTS</b>	110 - 120 VAC ~/60Hz 220V-240v ~/50Hz
<b>SIZE AND WEIGHT</b>	H=1-3/4" / 44.45mm (2" / 50mm including feet) x W= 17" / 432mm (19" / 483mm including ears) x D= 10-1/2" / 267mm (11-1/4" / 286mm including speaker connection)
<b>RACK MOUNT SPACE</b>	1U

### Features:

- RCA Inputs
- Remote Control
- Boundary Equalizer
- Variable 24db low pass crossover 40-160HZ
- Auto-ON by signal sense function
- Black Finish
- Auxiliary IR control via 1/8" Mono mini-jack.  
(Allows the amplifier to be remote controlled even if it is placed in a different location.)
- Music or Movie preset mode



**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.

**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) Confirm that the output wires are connected to the speaker.

**If Problems Persist:**

Contact Earthquake Sound Europe:

Phone: +45 2043 8007

Email: support@earthquakesound.dk

**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 Europe reserves the right to amend details of the specifications without notice.

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