Parallel Amplifier System Set-up Instructions

For AE Techron 7224, 7548 and 7796 Amplifiers

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Introduction
These instructions outline the steps needed to set up a pair of AE Techron 7000 Series amplifiers connected in parallel configuration. The wiring connections required between the two amplifiers are covered in the Tech Note: Configuring Multiple Amplifier Systems.

This document assumes that all factory set-up, burn-in and life testing have been performed, and the amplifiers are in good working order. The paralleled amplifiers must be of the same model. DO NOT try to parallel two different amplifier models together as this will result in damage to one or both amplifiers.

This document also assumes significant competence on the part of the reader in terms of amplifier systems, electronic components, and good electronic safety and working practices.

 WARNING

Except as recommended in this document, attempts to reconfigure or otherwise change the circuitry of the amplifier could invalidate the AE Techron product warranty. In addition to possible damage to equipment, users face a safety hazard in the event such procedures are improperly performed. Users should be extremely cautious in making any component or circuitry changes from factory settings.

Special High-Frequency Applications
The set-up instructions provided here are valid for use with frequencies up to 20 kHz. For uses greater than 20 kHz, please contact AE Techron Technical Support for additional set-up instructions.

Parallel Operation
An AE Techron 7224, 7548 or 7796 amplifier may be paralleled with a matching 7224, 7548 or 7796 amplifier to increase the available output current to the load. To connect two 7000-Series amplifiers in parallel, one amplifier must be configured as the “Master” and the other amplifier must be configured as the “Slave.” In Slave amplifiers, the input signal, selection of CV or CC operation, and (if applicable) CC compensation are controlled by the Master amplifier. Amplifiers are factory-set as Masters. The Master setting is also correct for single amplifier operation.

NOTE: Before using these amplifiers (either alone or in a parallel system), ensure that the 2.7 ohm circulating ground current bleed resistor is installed between the Sampled Common and Chassis Ground on the output connector (see Figure 2.1). The purpose of this resistor is to reduce noise caused by small circulation ground currents.

Figure 2.1 – Circulating Ground Current Bleed Resistor
To configure two amplifiers for Master/Slave operation, complete these steps:

1. **Access the Main Board**

   **IMPORTANT:** Before accessing the Main Board, make sure the amplifier is turned off for at least 3-5 minutes and the AC mains are disconnected.

   **For 7224 Amplifiers:**
   1. The 7224 amplifier contains an Access Panel built into the top cover (see Figure 2.2). Locate the Access Panel and make sure that all 8 screws are accessible. Remove the unit from its rack, if necessary.
   2. For your convenience, a #2 Phillips screwdriver is provided in your Toolkit for use in this procedure. Using the screwdriver, remove the 8 screws located on the top and side of the amplifier.
   3. Remove the Access Panel and set it aside.

   **For Other 7000-Series Amplifiers:**
   1. With power to the amplifier turned off, loosen the four Allen head screws on the front cover of each amplifier and remove the front covers.

2. **Master/Slave Settings**

   1. For each amplifier, locate the jumpers P1 and P2 on the main circuit board (see Figure 2.3).
   2. Move both jumpers to the MASTER position for Master operation for one amplifier, and to the SLAVE position for Slave operation for the other amplifier.

3. **Verify CV Setting**

   1. For each amplifier, locate the jumper J4 on the main circuit board (see Figure 2.4).
   2. Ensure that both the Master and Slave amplifiers are set to CV (Controlled Voltage) mode via the jumper J4 setting.

4. **Remove Output Cables**

   ![Figure 2.2 – 7224 Access Panel Screw Locations](image)
   ![Figure 2.3 – Master / Slave Setting](image)
   ![Figure 2.4 – CC / CV Setting](image)
Temporarily remove the output cable from the OUTPUT terminal of each amplifier. Leave the SAMPLED COMMON cable connected to both amplifiers.

5. Enable Amplifiers
Enable both amplifiers. Inject a DC voltage into the input of the Master amplifier that results in an output of approximately 80 volts DC.

6. Measure Voltage
Using a digital multimeter, measure the voltage between the OUTPUT terminals of the Master and Slave amplifiers. The measured voltage should be near zero volts; this would indicate that both amplifiers are producing the same output. To adjust this voltage, or null it out, adjust the Slave Gain Trim on the Slave amplifier (see Figure 2.5). Adjust the Slave Gain Trim until the voltage is as close to zero as possible; however, a difference voltage of 50 mV or less is acceptable.

7. Power Down
Remove the input signal from the Master amplifier and disable both amplifiers.

8. Reconnect
Reconnect the load OUTPUT cables to both amplifiers.

9. Measure Current
Enable both amplifiers and inject an AC or DC signal into the input of the Master amplifier that results in an output of approximately 10 amps of current from each amplifier. The output current can be measured using a current clamp meter or using the IMON (TL4) current monitor of each amplifier (see Figure 2.6). If using a current clamp meter, attach the clamp meter between the amplifier OUTPUT terminal and the ballast resistor. The current from each amplifier should be equal; if not, readjust the Slave Gain Trim on the main board of the Slave amplifier until the two currents are equal.

Figure 2.5 – Slave Gain Trim
Figure 2.6 – IMON Current Monitor