



How to do Bi-Amping with the TDAI-2170 and SDA-2400 amplifiers

With the introduction of the Lyngdorf SDA-2400 power amplifier, we have received many questions about the best way to achieve optimal performance by combining it with our integrated amplifier, the TDAI-2170.

Warning:

- These setups can only be completed with speakers constructed with separate inputs for mid-high and low frequencies.
- The inputs must be completely separated both outside and inside the speakers.
- Never connect the speaker outputs of two amplifiers in any way, as this will cause both amplifiers to defect beyond repair.
- Keep the amplifiers off the mains power when working with speaker cables!

Class-D Amplifiers & Bi-Amping

Using Class D amplifiers in a Bi-Amping setup without enabling any filters is generally not recommended. In a Class D amplifier an output filter turns the digital output from the amplifier into an analog signal which powers the speaker. With Bi-Amping, the amplifier powering the bass has no speaker-load in the high-frequencies, the energy from these frequencies will turn into heat in the output filter. If the components of the output filter break, the speaker drivers will be damaged.

Lyngdorf amplifiers employ a sophisticated design, and we have not yet experienced a broken output filter, but in order to protect the amplifier and speakers from potential damage, you should activate the built-in digital crossover of the TDAI-2170 and remove the high-frequency energy (above 5,000 Hz) from the SDA-2400 driving the bass. This adjustment will have no audible effect.

Use of the Digital Crossover and Delays

Having a digital crossover in the TDAI-2170 leads many to want to use this function in their Bi-Amping setup. However, you should not apply the digital crossover to substitute for the passive crossover network in the loudspeakers, because the crossovers inside the loudspeakers are still active in a Bi-Amping setup.

Applying another set of crossover filters on top the speaker's own filters is also not recommended. With a digital connection from the TDAI-2170 to the SDA-2400, the digital signal will be processed in the SDA-2400, and the resulting signal delay of 0.6 mSec must be compensated for in the TDAI-2170 by delaying the signal to the mid-high section.

Finally, you need to do a RoomPerfect™ calibration, and you will then enjoy the greatest performance possible from your speakers!

Step-By-Step Instructions

1. Remove mains power from the system.
2. Connect TDAI-2170 and SDA-2400 via digital coax signal connection.
3. Connect the TDAI-2170's "Trigger Out" to the SDA-2400's "Trigger In" using the cable that came with the SDA-2400).
4. Prepare the speakers by removing the bridges between the two sets of inputs.
5. Run speaker cable between the TDAI-2170 and the "Mid-High" speaker connectors.
6. Run speaker cable between the SDA-2400 and the "Low" speaker connectors.
7. Set the input selector of the SDA-2400 to the chosen signal input.
8. Connect the TDAI-2170 and SDA-2400 to mains power.
9. Run the "Advanced Settings" -> "Guided Setup" of the TDAI-2170 and select "Speakers with no Subs."
 - a. Exit the menu before doing the RoomPerfect™ calibration (push and hold menu button).
10. Set the menus of the TDAI-2170:
 - a. "Advanced Settings" -> "Outputs" -> "Digital Output" (or "Analog," depending on your connection to the SDA-2400). Set to "Low Pass" and set "Output Level" to -3.0 dB. This will adjust the output levels of the two amplifiers.
 - b. "Advanced Settings" -> "Outputs" -> "Delays" – Under "Digital Output" set the "Amp. Delay" to 0,6mSec.
 - c. "Advanced Settings" -> "Outputs" -> "Low Pass Filter" – Set to "LR, 2nd Order" and enter 5,000 Hz.
11. Perform a RoomPerfect™ calibration ("Setup" -> "RoomPerfect Setup" -> "Guided Setup") and follow the instructions.

